Draft Environmental Impact Assessment

M/s. Ultra Mines Private Limited
Rough and Gravel Quarry over extent of 4.40.0 Ha

At

S. F. No's: 133/1(Part), 133/2, 133/4, 134/1 & 134/2.

Venkatesapuram Village, Shoolagiri Taluk, Krishnagiri District.

Sector No. 1(a) (Sector No. 1 as per NABET)

Category of the Project: B1 (Cluster Mining)

Project Proponent:

M/s. Ultra Mines Private Limited,
No. 168/A1, Seetharama Nagar,
Anandha Electricals, Hosur Taluk,
Krishnagiri District - 635109.

Prepared By:

M/s Ecotech Labs Pvt. Ltd.
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M/s.Ultra Mines Private Limited,

No. 168/A1, Seetharama Nagar,

Anandha Electricals, Hosur Taluk,

Krishnagiri District - 635109.

UNDERTAKING

I, M/s. Ultra Mines Private Limited, undertaking that the Draft Environmental Impact Assessment (EIA) Report for Rough Stone Quarry over an extent of 4.40.0 Ha at S.F.No. 133/1(Part), 133/2, 133/4, 134/1 & 134/2 of Venkatesapuram Village of Shoolagiri Taluk, Krishnagiri District and Tamil Nadu State under project category B1 and Schedule S.No.1(a)

ToR issued by the State Expert Appraisal Committee, TN vide TOR Identification No. TO24B3812TN5701180N Dated: 26.07.2024

I, hereby assure that all the information and data provided in the EIA report is accurate, true and correct and owns responsibility for the same.

Place: Krishnagiri

Date:

Yours faithfully

M/s. Ultra Mines Private Limited

Plot No.48A, 2nd Main Road,
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CIN : U74900TN2014PTC094895

UNDERTAKING

I, Dr. A. Dhamodharan, Managing Director confirms that this Draft EIA Report of Rough Stone and Gravel Quarry over an extent of 4.40.0 Ha at S.F.No. 133/1(Part), 133/2, 133/4, 134/1 & 134/2 of Venkatesapuram Village, Shoolagiri Taluk, Krishnagiri District, Tamilnadu State has been prepared at M/s. Ecotech Labs Pvt. Ltd., Chennai.

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

Signature: 

Name: Dr. A. Dhamodharan

Designation: Managing Director

Name of the EIA Consultant Organization: M/s. Ecotech Labs Pvt Ltd., Chennai.

NABET Certificate No: NABET/EIA/22 25/SA 0222

Date: Place: Chennai

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ABBREVIATION

LU –Land use

AP – Air Pollution monitoring, prevention and control

AQ- Meteorology, Air quality modeling and prediction

WP – Water pollution monitoring, prevention and control

EB- Ecology and Biodiversity

NV- Noise & Vibration

SE- Socio-economics

HG- Hydrology, ground water and water conservation

GEO –Geology

RH – Risk assessment and hazards management

SHW –Solid and Hazardous waste management

SC- Soil conservation

EXECUTIVE SUMMARY

1. Project Background:

The Proposed project is in Patta Land having total extent area of 4.40.0 Ha, located at S.F.No. 133/1(Part), 133/2, 133/4, 134/1 & 134/2 of Venkatesapuram Village of Shoolagiri Taluk, Krishnagiri District and Tamil Nadu. The category of project is B1, it is an existing rough stone and gravel quarry in Venkatesapuram village. The area is situated on hilly terrain sloping towards the Southeast covered with Rough Stone which does not sustain any type of vegetation.

The quarry operation is proposed to carry out with conventional open cast mechanized mining with a 5.0-meter vertical bench with a bench width of 5.0 meter. The Quarry operation involves shallow jack hammer drilling, slurry blasting, loading and transportation.

The quarry operation is proposed up to depth for 45 m Surface Ground Level Above Height is 10m and Surface Ground Level Below Depth 35m. The Total Geological reserve is about 1949296m^3 of Rough Stone and 89832m^3 of Gravel. The Mineable Reserves is about 601641m^3 of Rough Stone and 63116m^3 of Gravel. The year wise production/recoverable resources of rough stone for 5 years is about 588141 m^3 and Gravel is about 63116m^3.

The Mining Plan was approved by the Deputy Director, Geology & Mining, Krishnagiri vide letter Rc.No.86/2024/Mines Dated: 21.05.2024. The project area does not fall in Hill Area Conservation Authority region. There is no interstate boundary, CRZ zone, Western Ghats, notified Bird sanctuaries, wildlife sanctuaries as per Wildlife protection Act 1972, within a radius of 15 km.

2. Nature & Size of the Project

The Rough Stone and Gravel Quarry over an extent of 4.40.0 Hectares land is located Venkatesapuram Village of Shoolagiri Taluk, Krishnagiri District.

Mineral intends to quarry : Rough stone and Gravel

District : Krishnagiri

Taluk : Shoolagiri

Village : Venkatesapuram

S. F. Nos. : 133/1(Part), 133/2, 133/4, 134/1 & 134/2

Extent : 4.40.0 Hectares

Table 1: Brief Description of the Project

S. No	Particulars	Details
1	Latitude	12°45'14.72"N to 12°45'26.27"N
2	Longitude	77°57'14.30"E to 77°57'23.15"E
3	Site Elevation above MSL	The highest elevation in east side 878m AMSL and Lowest is 868m AMSL.
4	Topography	Elevated terrain
5	Land use of the site	Patta land
6	Extent of lease area	4.40.0 Ha
7	Nearest highway	MDR 422 – Berigai to Shoolagiri Road – 2.13Km – E NH 44 : Dharmapuri – Bengaluru Road – 8.02 km, SW
8	Nearest railway station	Hosur Railway Station – 14.26 km - SWW
9	Nearest airport	Kempagowda International Airport – 55.08 km - N
10	Nearest town / city	Town - Shoolagiri – 10.44 km – SE City - Hosur – 13.50 km - SW District - Krishnagiri – 34.36 km - SE
11	Rivers / Canal	Ponnaniyar River – 6.11 Km - SW
12	Lake	Muthali lake – 5.20 Km – W Peddakullu lake – 6.19 Km – W Bukkasagaram lake – 3.75 Km – S Doraipalli lake – 5.16 Km – S Bathlpalli lake – 11.12 Km – W Koladasapuram Lake – 5.40 Km – SWW Thummanapalli Lake – 6.05 Km – S Berikai Lake – 5.98 Km – N

		Gangapuram Lake – 6.88 Km – SW A.Kothur Lake – 7.27 Km – SSW Kamandoddi Lake – 7.48 Km – S Kamandoddi Old Lake – 8.42 Km – S Kumudepalli Lake – 9.42 Km – SW Subbagiri Lake – 7.37 Km - S
13	Hills / valleys	Nil in 15 km radius
14	Archaeologically places	Nil in 15 km radius
15	National parks / Wildlife Sanctuaries	Nil in 15 Km radius
16	Reserved / Protected Forests	Berikai Extension RF – 2.41 Km – NE Sanamavu RF – 5.47 Km – SW Miditepalli RF – 2.47Km – N Marandapalli RF – 6.53 Km - SE Settipalli RF – 6.79 Km – SE Nallur RF – 10.98 Km - SE
17	Seismicity	Proposed Lease area come under Seismic zone-II (low risk area)
18	Defense Installations	Nil in 15 Km radius

3. Need for the Project

- The mining activities as proposed are the backbone of all construction and infrastructure projects as the raw material for construction is available only from such mining. The Rough stone extracted will be transported to be Stone crusher of district Krishnagiri.
- The raw rough stone as well as the crushed material of stone is in high demand in real estate, construction projects as well as in building construction projects.
- Rough stone is quarried for producing crusher aggregates to the nearby building contractors, road contractors and nearby villagers.

- After quarrying the entire reserves mined out, the area will be used as water reservoir to have an artificial recharge to the nearby wells.
- No damage to the land is caused, no reclamation or back filling is required.

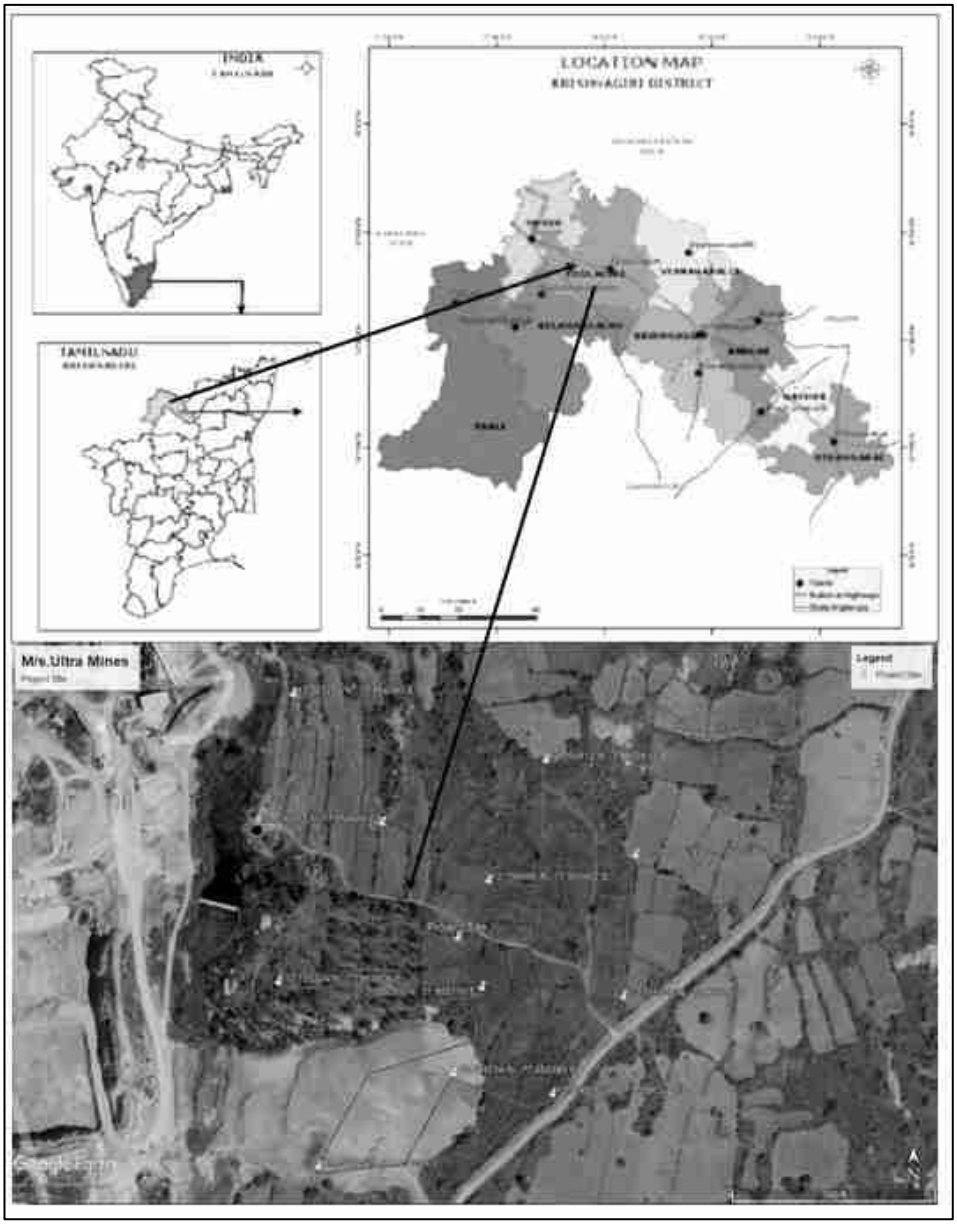


Figure 1: Location Map of the Project Site

Figure 2: Google Image of the Project Site

4. Charnockite

Charnockite and granitic gneisses are extensively quarried as rough stone which is used as aggregates for construction of building, laying of roads and for preparation of value-added products like hollow blocks, pillar stones, M-sand etc. Charnockite occurs as massive bodies, greyish colour, medium to coarse grained, composed quartz, feldspar and orthopyroxene. At places, metamorphic gneissic banding (alternate dark and black colour) in charnockite is noticed. Top portion, it gives gneissic appearance but 1-5m depth below it is typical charnockite of grey colour.

5. Geological resources

The geological resources have been calculated based on the cross-section method.

Table 2. Geological resources

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In m^3	Rough Stone in m^3	Gravel in m^3
XY-AB	I	110	49	2	10780		10780
	I	110	49	3	16170	16170	
	II	110	49	5	26950	26950	
	III	110	49	5	26950	26950	
	IV	110	49	5	26950	26950	
	VI	110	49	5	26950	26950	
	VII	110	49	5	26950	26950	
	VIII	110	49	5	26950	26950	
TOTAL				**40**	**215600**	**204820**	**10780**
X1Y1-CD	I	140	94	2	26320		26320
	I	90	64	3	17280	17280	
	II	140	94	5	65800	65800	
	III	140	94	5	65800	65800	
	IV	140	94	5	65800	65800	
	V	140	94	5	65800	65800	
	VI	140	94	5	65800	65800	
	VII	140	94	5	65800	65800	
	VIII	140	94	5	65800	65800	
	IX	140	94	5	65800	65800	
TOTAL				**45**	**570000**	**543680**	**26320**
X1Y1-EF	I	90	195	2	35100	…..	35100
	I	81	146	3	35478	35478	
	II	90	195	5	87750	87750	
	III	90	195	5	87750	87750	
	IV	90	195	5	87750	87750	
	V	90	195	5	87750	87750	
	VI	90	195	5	87750	87750	

	VII	90	195	5	87750	87750	
	VIII	90	195	5	87750	87750	
	IX	90	195	5	87750	87750	
	X	90	195	5	87750	87750	
TOTAL				**50**	**860328**	**825228**	**35100**
X2Y2-GH	I	78	52	2	8112		8112
	I	78	52	3	12168	12168	
	II	78	52	5	20280	20280	
	III	78	52	5	20280	20280	
	IV	78	52	5	20280	20280	
	V	78	52	5	20280	20280	
	VI	78	52	5	20280	20280	
	VII	78	52	5	20280	20280	
	VIII	78	52	5	20280	20280	
	IX	78	52	5	20280	20280	
	X	78	52	5	20280	20280	
TOTAL				**50**	**202800**	**194688**	**8112**
X3Y3-IJ	I	85	56	2	9520		9520
	I	85	56	3	14280	14280	
	II	85	56	5	23800	23800	
	III	85	56	5	23800	23800	
	IV	85	56	5	23800	23800	
	V	85	56	5	23800	23800	
	VI	85	56	5	23800	23800	
	VII	85	56	5	23800	23800	
	VIII	85	56	5	23800	23800	
TOTAL				**40**	**190400**	**180880**	**9520**
GRAND TOTAL					**2039128**	**1949296**	**89832**

Table 3. Mineable Reserves

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In m^3	Rough Stone in m^3	Gravel in m^3
XY-AB	I	100	32	2	6400		6400
	I	100	32	3	9600	9600	
	II	95	22	5	10450	10450	
	III	90	12	5	5400	5400	
TOTAL				**15**	**31850**	**25450**	**6400**
X1Y1-CD	I	133	74	2	19684		19684
	I	90	54	3	14580	14580	
	II	133	69	5	45885	45885	
	III	128	59	5	37760	37760	
	IV	123	49	5	30135	30135	
	V	118	39	5	23010	23010	
	VI	113	29	5	16385	16385	
	VII	108	19	5	10260	10260	
TOTAL				**35**	**197699**	**178015**	**19684**
X1Y1-EF	I	80	175	2	28000		28000
	I	71	136	3	28968	28968	
	II	75	170	5	63750	63750	
	III	70	160	5	56000	56000	
	IV	65	150	5	48750	48750	
	V	60	140	5	42000	42000	
	VI	55	130	5	35750	35750	
	VII	50	120	5	30000	30000	
	VIII	45	110	5	24750	24750	
	IX	40	100	5	20000	20000	
	X	30	90	5	13500	13500	
TOTAL				**50**	**391468**	**363468**	**28000**
X2Y2-EF	I	68	32	2	4352		4352

	I	68	32	3	6528	6528	
	II	63	22	5	6930	6930	
	III	58	12	5	3480	3480	
TOTAL				**15**	**21290**	**16938**	**4352**
X3Y3-IJ	I	65	36	2	4680		4680
	I	65	36	3	7020	7020	
	II	55	26	5	7150	7150	
	III	55	16	5	3600	3600	
TOTAL				**15**	**22450**	**17770**	**4680**
GRAND TOTAL					**664757**	**601641**	**63116**

Table 4. Year wise Production Plan

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In m^3	Rough Stone in m^3	Gravel in m^3
I Year	XY-AB	I	100	32	2	6400		6400
		I	100	32	3	9600	9600	
		II	95	22	5	10450	10450	
		III	90	12	5	5400	5400	
	X1Y1-CD	I	133	74	2	19684		19684
		I	90	54	3	14580	14580	
		II	133	69	5	45885	45885	
		III	128	59	5	37760	37760	
TOTAL						**149759**	**123675**	**26084**
II Year	X2Y2-GH	I	68	32	2	4352		4352
		I	68	32	3	6528	6528	
		II	63	22	5	6930	6930	
		III	58	12	5	3480	3480	
	X1Y1-EF	I	80	175	2	28000		28000
		I	71	136	3	28968	28968	
		II	75	170	5	63750	63750	

TOTAL						**142008**	**109656**	**32352**
III Year	X1Y1-EF	III	70	160	5	56000	56000	
	X3Y3-IJ	I	65	36	2	4680		4680
		I	65	36	3	7020	7020	
		II	55	26	5	7150	7150	
		III	45	16	5	3600	3600	
	X1Y1-EF	IV	65	150	5	48750	48750	
TOTAL						**127200**	**122520**	**4680**
IV Year	X1Y1-CD	IV	123	49	5	30135	30135	
		V	118	39	5	23010	23010	
	XIY1-EF	V	60	140	5	42000	42000	
		VI	55	130	5	35750	35750	
TOTAL						**130895**	**130895**	
V-YEAR	X1Y1-CD	VI	113	29	5	16385	16385	
		VII	108	19	5	10260	10260	
	XIYI-EF	VII	50	120	5	30000	30000	
		VIII	45	110	5	24750	24750	
		IX	40	100	5	20000	20000	
TOTAL						**101395**	**101395**	
GRAND TOTAL						**651257**	**588141**	**63116**

6. Mining

Opencast mining

The quarry operation is proposed to be carried out with conventional open cast mechanized mining with 5.0-meter vertical bench with a bench width of 5.0 meter. The Quarry operation involves shallow jack hammer drilling, blasting, loading and transportation.

Process Description

- The reserves and resources are arrived based upon the Geological investigation.
- Removal of Topsoil by Excavators and directly Loaded into Tippers.
- Removal of Rough Stone by Excavators by Drilling and Blasting.
- Shallow Drilling With Jackhammer of 32mm Dia.

- Minimum Blasting With Class 3 Explosives.
- Loading of Rough Stone By Excavators Into Tippers.

7. Water Requirement

Total water requirement for the mining project is 4.0 KLD. Domestic water will be sourced from nearby Mensandoddi Village and other water will be source from nearby road tankers supply.

Table 5. Water Balance

Purpose	Quantity	Source
Drinking Water	1.0 KLD	Packaged Drinking water vendors available in Mensandoddi which is about 0.89 - E km from project area
Green belt	1.5 KLD	Other domestic activities through road tankers supply
Dust suppression	1.5 KLD	From road tankers supply
Total	**4.0 KLD**	

8. Manpower

Total manpower required for the project is approximately 18 persons. Workers will be from nearby villages.

Table 6. Man Power

1.	Highly Skilled	II nd Class Mines Manager	1No.
		Mine Geologist	1No.
		Blaster	1No.
2.	Semi-skilled	Driver	9 No's
		Hitachi Operator	1No.
3.	Unskilled	Musdoor / Labours	11 No's
	Total		**24 No's**

9. Solid Waste Management

Table 7 Solid Waste Management

S. No	Type	Quantity	Disposal Method
1	Organic	4.32 kg/day	Municipal bin including food waste

2	Inorganic	6.48 kg/day	TNPCB authorized recyclers

As per CPCB guidelines: MSW per capita/day =0.45 kg/day

Table 8 500m Radius Cluster Mine

1) Details of Existing quarries:

S. No.	Name of the lessee	Village	S.F. No	Extent	GO No. & Date	Lease period
1.	M/s. Sumukha Blue Metals & M. Sand	Shoolagiri/ Venkatesapuram	294	3.75.0	Rc. No. 216/2018/Mines, Dated:09.03.2018	30.04.2021 – 29.04.2031
2.	Thiru. V. Nagaraja, S/o Venkatappa Reddy	Shoolagiri/ Venkatesapuram	287/1	2.16.0	Rc. No. 478/2018/Mines, Dated:25.08.2018	19.02.2021 – 18.02.2031
3.	Tvl. Mars blue Metals	Shoolagiri/ Venkatesapuram	135 (Part)	3.00.0	Rc. No. 71/2016/Mines, Dated:19.06.2019	19.06.2019 – 18.02.2031

2) Details of abandoned/Old Quarries:

S. No.	Name of the lessee	Village	S.F. No	Extent	GO No. & Date	Lease period
--- Nil---						

3) Details of Proposed Quarries

S. No.	Name of the lessee	Village & Taluk	S.F. No	Extent	Rc.No & Date	Extent
1.	M/s. Ultra Mines Private Limited	Shoolagiri/ Venkatesapuram	133/1 (p), 133/2, 133/4, 134/1, 134/2	4.40.0	-	- Instant

The Total extent of the Existing / Lease expired / Proposed quarries is 13.31.0 Ha

10. Land Requirement

The total extent area of the project is 4.40.0 Ha, Patta land in Venkatesapuram Village of Shoolagiri Taluk, Krishnagiri District.

Table 9 Land Use Breakup

S. No.	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)
1.	Quarrying Pit	Nil	2.95.0
2.	Infrastructure	Nil	0.02.0
3.	Roads	Nil	0.10.0
4.	Green Belt	Nil	1.17.0
5.	Drainage & Settling Tank	Nil	0.16.0
6.	Unutilized Area	4.40.0	Nil
	Total	**4.40.0**	**4.40.0**

11. Human Settlement

There are no habitations within 300m radius. There are villages located in this area within 5km radius of the quarry.

Table 10 Habitation

S.No	Village	Direction	Distance in Kms	Population
1	Midithepalli	North	0.9 km	1287
2	Athimugam	East	1.3 km	4540
3	Punnagaram	Southeast	1.5 Km	766
4	Venkateshapuram	West	0.74 km	2873

12. Power Requirement

The Rough Stone Quarry project does not require huge water and electricity for the project.

16 Litre diesel per hour for excavator for mining and loading for rough stone needed.

13. Scope of the Baseline Study

This chapter contains information on existing environmental scenario on the following parameters.

1. Micro – Meteorology
2. Water Environment
3. Air Environment
4. Noise Environment
5. Soil / Land Environment
6. Biological Environment
7. Socio-economic Environment

13.1 Micro – Meteorology

Meteorology plays a vital role in affecting the dispersion of pollutants, once discharged into the atmosphere. Since meteorological factors show wide fluctuations with time, meaningful interpretation can be drawn only from long-term reliable data.

i) Average Minimum Temperature : 17 ^{0}C

ii) Average Maximum Temperature. : 3 9 ^{0}C

iii) Average Annual Rainfall of the area: 968 mm

13.2 Air Environment

Ambient air monitoring was carried out on a monthly basis in the surrounding areas of the Mine Lease area to assess the ambient air quality at the source. To know the ambient air quality at a larger distance i.e., in the study area of 5 km. radius, air quality survey has been conducted at 5 locations. Major air pollutants like Particulate Matter (PM10), Sulphur Dioxide (SO2), Nitrogen Dioxide (NO2) were monitored and the results are summarized below.

The baseline levels of PM_{10} (57-39 µg/m³), $PM_{2.5}$ (27-15 µg/m³), SO_2 (13-4 µg/m³), NO_2 (29-10 µg/m³), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from December 2022 to February 2023.

13.3 Noise Environment

The maximum Day noise and Night noise were found to be 59 dB(A) and 45 dB(A) respectively in in Sivaraman green Garden. The minimum Day Noise and Night noise were 40 dB(A) and 35 dB(A) respectively which was observed in project site. The observed values are all well within the Standards prescribed by CPCB.

13.4 Water Environment

- The average pH ranges from 7.2 – 7.76.
- TDS value varied from 538 mg/l to 880 mg/l
- Hardness varied from 345 to 523 mg/l
- Chloride varied from 76 to 176 mg/l

13.5 Land Environment

The analysis results shows that the majority of soil in the project and surrounding area is slightly alkaline in nature and pH value ranges from 6.8 to 8.8 with organic matter 0.19 to 0.32 %. The concentration of Nitrogen, Phosphorus & Potassium has been found to be in good amount in the soil samples.

13.6 Biological Environment

The proposed Mining lease area is mostly dry barren ground with small shrubs and bushes. No specific endangered flora & fauna exist within the mining lease area.

14. Rehabilitation/ Resettlement

- The overall land of the mine is Patta land. There is no displacement of the population within the project area and adjacent nearby area. Social development of nearby villages will be considered in this project.
- The mine area does not cover any habitation. Hence the mining activity does not involve any displacement of human settlement.

15. Greenbelt Development

1. The development of greenbelt in the peripheral buffer zone of the mine area.
2. The Green belt has been recommended as one of the major components of Environmental Management Plan, which will improve ecology, environment and quality of the surrounding area.
3. Local trees like Neem, Pungam, Naval etc., will be planted along the lease boundary and avenues as well as over non-active dumps at a rate of 440 trees per annum with interval 5m.
4. The rate of survival expected to be 80% in this area

Table.11 Plantation/ Afforestation Program

Name of species proposed	Survival	No of species
Neem, Pungam, Poovarasu, Naval, Mantharai, Arasa Maram, Magizham, Vilvam, vaagai, Marudha maram, Thandri, Poovarasu, Manjadi, Usil, Aathi, Panai, Uzha, Illuppai, Eachai, Vanni Maram	80%	2200
Total		**2200**

16. Anticipated Environmental Impacts

16.1 Air Environment and Mitigation Measures

1. Water sprinkling will be done on the roads & unpaved roads.
2. Proper mitigation measures like water sprinkling will be adopted to control dust emissions.
3. Plantation will be carried out on approach roads, solid waste site & nearby mine premises.
4. To control the emissions regular preventive maintenance of equipments will be carried out.

16.2 Noise Environment and Mitigation Measures

1. Periodical monitoring of ambient noise will be done as per CPCB guidelines.
2. No other equipment except the transportation vehicles and excavator for loading will be allowed.
3. Noise generated by these equipments shall be intermittent and does not cause much adverse impact

17. Responsibilities for Environmental Management Cell (EMC)

The responsibilities of the EMC include the following:

i) Environmental Monitoring of the surrounding area
ii) Developing the green belt/Plantation
iii) Ensuring minimal use of water
iv) Proper implementation of pollution control measures

18. Environmental Monitoring Program

A monitoring schedule with respect to Ambient Air Quality, Water & Wastewater Quality, Noise Quality as per Tamil Nadu State Pollution Control Board (TNPCB), shall be maintained.

19. Project Cost

The total project cost is **Rs 3,06,37,820/-** for deployment of machinery and creation of infrastructural facilities like approach road, mine office / Workers Shed, First Aid Room etc., including electrifications and water supply.

Table 12 Project Cost details

S. No.	Description	Cost
1	Fixed Asset Cost (Land cost, Labour Shed, Sanitary Facility, Fencing, Other Expenses)	Rs.1,90,37,820/-
2	Machinery Cost	Rs. 30,00,000/-
3	EMP Cost	Rs. 86,00,000/-
Total		**Rs. 3,06,37,820/-**

20. Corporate Environmental Responsibility

The Corporate Environment Responsibility (CER) fund will be provided to the below activity.

Table 13 CER Cost

S.No.	CER Activity	CER value (Rs)
1.	Government High School, Venkatesapuram – Provision of ➢ Smart board, ➢ Library, ➢ Environmental books for library (in Tamil language), ➢ Greenbelt facilities 50 Trees within school boundaries and ➢ Basic amenities such as safe drinking water, Hygienic Toilets facilities, furniture.	5,00,000/-
Total		**5,00,000/-**

21. Benefits of the Project

- There is positive impact on socioeconomics of people living in the villages. Mining operations in the subject area has positive impact by providing direct and indirect jobs opportunities.
- The project is environmentally compatible, financially viable and would be in the interest of construction industry thereby indirectly benefiting the masses.
- Quarrying in this area is not going to have any negative impact on the social or cultural life of the villagers in the near vicinity.

1 Introduction

1.1 PREAMBLE

Environment Impact Assessment (EIA) is a process used to identify the environmental, social & economic impacts of a project prior to decision making. It aims to predict environmental impacts at an early stage of project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the prediction options to the proponent. By using EIA, both environmental & economic benefits can be achieved. By considering environmental effects - prediction & mitigation, early benefits in project planning, protection of the environment, optimum utilization of resources, thus saving overall time & cost of the project.

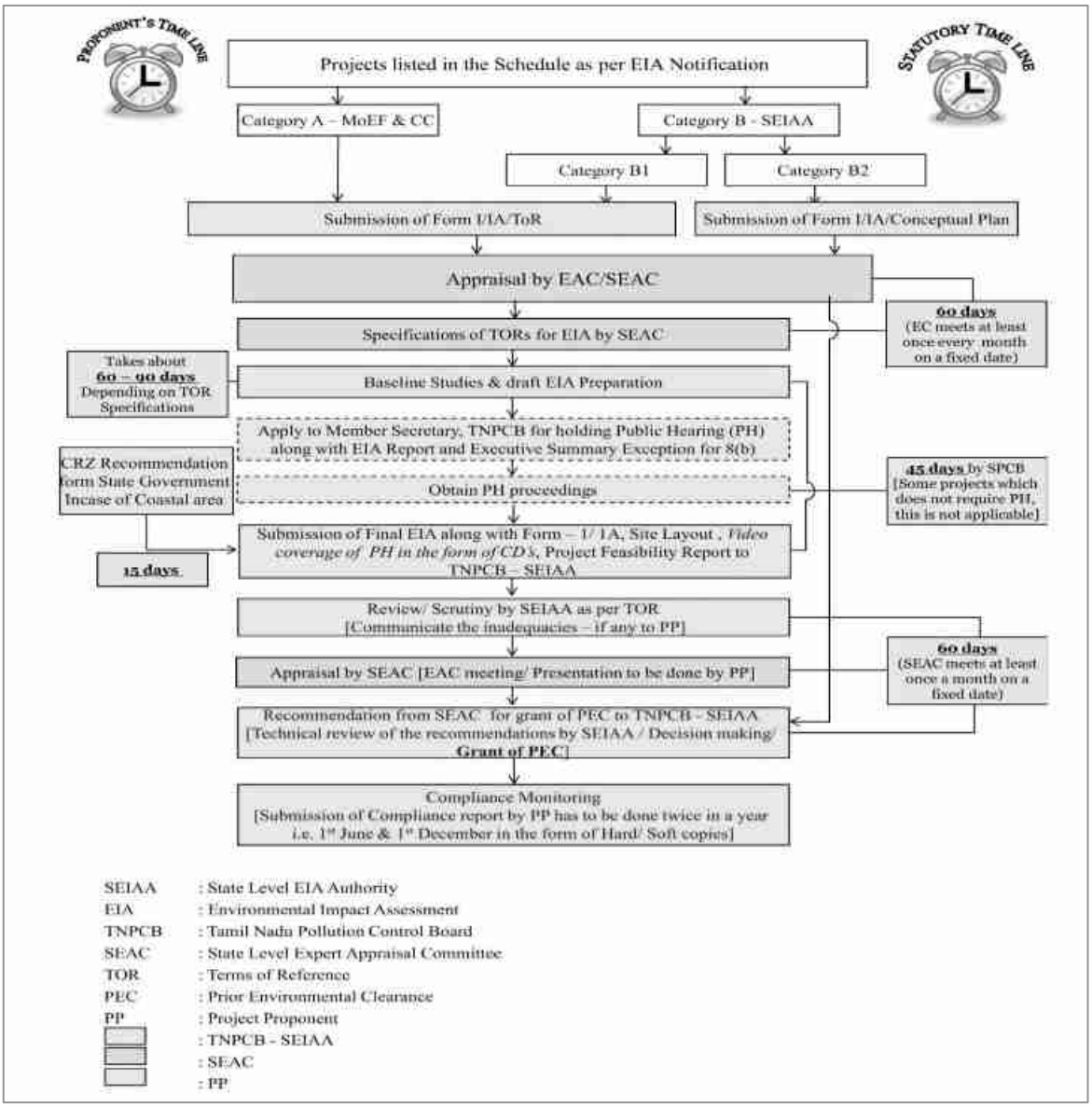
1.2 GENERAL INFORMATION ON MINING OF MINERALS

The Entire district is underlain by the rocks belonging to hard crystalline rock masses of Archaean age. The Archaean rocks in this area are represented by rocks of eastern Ghat complex comprising charnockites, Migmatite complex of composite gneiss. The district is covered by metamorphic crystalline rocks of charnockite, composite gneiss of Archaean age. These rocks are highly metamorphosed and have been subjected to sever folding, crushing and faulting. Charnockites group is occupied by North and Southern part of the basin. The other rock type is encountered by composite granitic gneiss of Epidote hornblende biotite gneiss and hornblende biotite gneiss are occupy in the middle portion of the basin. Charnockite group occupies the high ground as well as plain and it is poorly weathered and jointed. They are generally black, grey to dark grey in colour medium to coarse grained texture, and generally massive and un-foliated. A gneissic rock occurs as linear bands in the middle portion of the area and is highly migmatite. Mostly, micaceous with bands of granites, pegmatites, quartz veins the rock is well foliated. The Hornblende biotite gneiss forms the country rock of the area and epidote hornblende gneiss (Proterozoic age) occurs as small, isolated outcrops. The crystalline formations are charnockite, granitic gneiss of Archean age have been intruded by dolerite dykes and pegmatite veins. These rocks are highly metamorphosed and have been subjected to very severe folding, crushing and faulting. The crystalline rocks are subjected to tectonic activities under various orogenic cycles resulting in the development of secondary structures such as joints. fissures and cleavages. The intensity of weathering varies from place to place.

1.3 ENVIRONMENTAL CLEARANCE

As per EIA Notification, 2006 and its subsequent amendments (O.M vide No.F.No.L-11011/175/2018-IA-II(M) Govt of India MOEF&CC on December 12th 2018) project comes under category B1 cluster & schedule 1(a) under item 1

The proposed project is categorized under Category "B1" 1(a) (Cluster) - {Mining of Minerals} as the 500m radius area is more than 5 Ha including the mine lease area. Hence, the project will be considered at SEAC, Tamil Nadu.



1.4 TERMS OF REFERENCE (TOR)

The terms of Reference have been issued by SEAC TN vide TOR Identification No. TO24B0108TN5897955N Dated: 12.07.2024. 54 additional ToR points were recommended by SEAC TN in addition to the Standard ToR Points. The replies for the same were addressed in this report.

1.5 POST ENVIRONMENTAL CLEARANCE MONITORING

1.5.1 *Methodology adopted*

Post project monitoring will be carried out as per conditions stipulated in environmental clearance letter issued by SEIAA, consent issued by SPCB as well as according to CPCB guidelines. The lease area is considered as core zone and the area lying within 10 km radius from the lease boundary is considered as buffer zone, where some impacts may be observed on physical and biological environment. In the buffer zone slight impact may be observed and that too is occasional.

Table 1-1: Post Environmental Clearance Monitoring

S. No.	Description	Frequency of Monitoring
1.	Ambient Air Quality Monitoring	Quarterly/ Half Yearly
2.	Water level & Quality Monitoring	Quarterly/ Half Yearly
3.	Noise Level Monitoring	Quarterly/ Half Yearly
4.	Soil Quality Monitoring	Yearly
5.	Medical Check-up	Yearly

1.6 GENERIC STRUCTURE OF THE EIA DOCUMENT

Chapter 1: Introduction. This chapter contains the general information on the mining of minerals, major sources of environmental impacts in respect of mining projects and details of environmental clearance process.

Chapter 2: Project Description. In this chapter the proponent should also furnish detailed description of the proposed project, such as the type of the project, need for the project, project location, layout, project activities during construction and operational phases, capacity of the project, project operation i.e., land availability, utilities (power and water supply) and infrastructure facilities such as roads, railways, housing and other requirements. If the project site is near a sensitive area it is to be mentioned clearly

why an alternative site could not be considered. The project implementation schedule, estimated cost of development as well as operation etc. should be also included.

Chapter 3: Analysis of Alternatives (Technology and Site). This chapter gives details of various alternatives both in respect of location of site and technologies to be deployed, in case the initial scoping exercise considers such a need.

Chapter 4: Description of Environment. This chapter should cover baseline data in the project area and study area.

Chapter 5: Impact Analysis and mitigation measures. This chapter describes the anticipated impacts on the environment and mitigation measures. The method of assessment of impacts including studies carried out, modelling techniques adopted to assess the impacts where pertinent should be elaborated in this chapter. It should give the details of the impacts on the baseline parameters, both during the construction and operational phases and suggests the mitigation measures to be implemented by the proponent.

Chapter 6: Environmental Monitoring Program. This chapter should cover the planned environmental monitoring program. It should also include the technical aspects of monitoring the effectiveness of mitigation measures.

Chapter 7: Additional Studies. This chapter should cover the details of the additional studies required in addition to those specified in the ToR and which are necessary to cater to more specific issues applicable to the particular project.

Chapter 8: Project Benefits. This chapter should cover the benefits accruing to the locality, neighborhood, region and nation as a whole. It should bring out details of benefits by way of improvements in the physical infrastructure, social infrastructure, employment potential and other tangible benefits.

Chapter 9: Environmental Cost Benefit Analysis. This chapter should cover on Environmental Cost Benefit Analysis of the project.

Chapter 10: Environmental Management Plan. This chapter should comprehensively present the Environmental Management Plan (EMP), which includes the administrative and technical setup, summary matrix of EMP, the cost involved to implement the EMP, both during the construction and operational phase and provisions made towards the same in the cost estimates of project construction

and operation. This chapter should also describe the proposed post-monitoring scheme as well as inter-organizational arrangements for effective implementation of the mitigation measures.

Chapter 11: Summary and Conclusions. This chapter gives the summary of the full EIA report condensed to ten A-4 size pages at the maximum. It should provide the overall justification for implementation of the project and should explain how the adverse effects have been mitigated.

Chapter 12: Disclosure of Consultants. This chapter should include the names of the consultants engaged with their brief resume and nature of consultancy rendered.

1.7 DETAILS OF PROJECT PROPONENT.

Project Proponent	: M/s. Ultra Mines Private Limited
Status of the Proponent	: Private Limited & Patta
Proponent's Name & Address	: M/s. Ultra Mines Private Limited, No. 168/A1, Seetharama Nagar, Anandha Electricals, Hosur Taluk, Krishnagiri District – 635109.

1.8 BRIEF DESCRIPTION OF THE PROJECT

1.8.1 *Project Nature, Size & Location*

As per EIA Notification, 2006 and its subsequent amendments (O.M vide No.F.No.L-11011/175/2018-IA-II(M) Govt of India MOEF&CC on December 12th 2018) project comes under category B1 cluster & schedule 1(a) under item 1.

Proposed proposal pertains to Rough stone mining project by mechanized open cast method on allotted mine lease area at Venkatesapuram Village, Shoolagiri Taluk of Krishnagiri District, Tamil Nadu. It is an elevated terrain. The total allotted mine lease for the proposed project is 4.40.0 Ha with their maximum production capacity i.e., 5,88,141 m^3 of Rough Stone and 63,116 m^3 of Gravel.

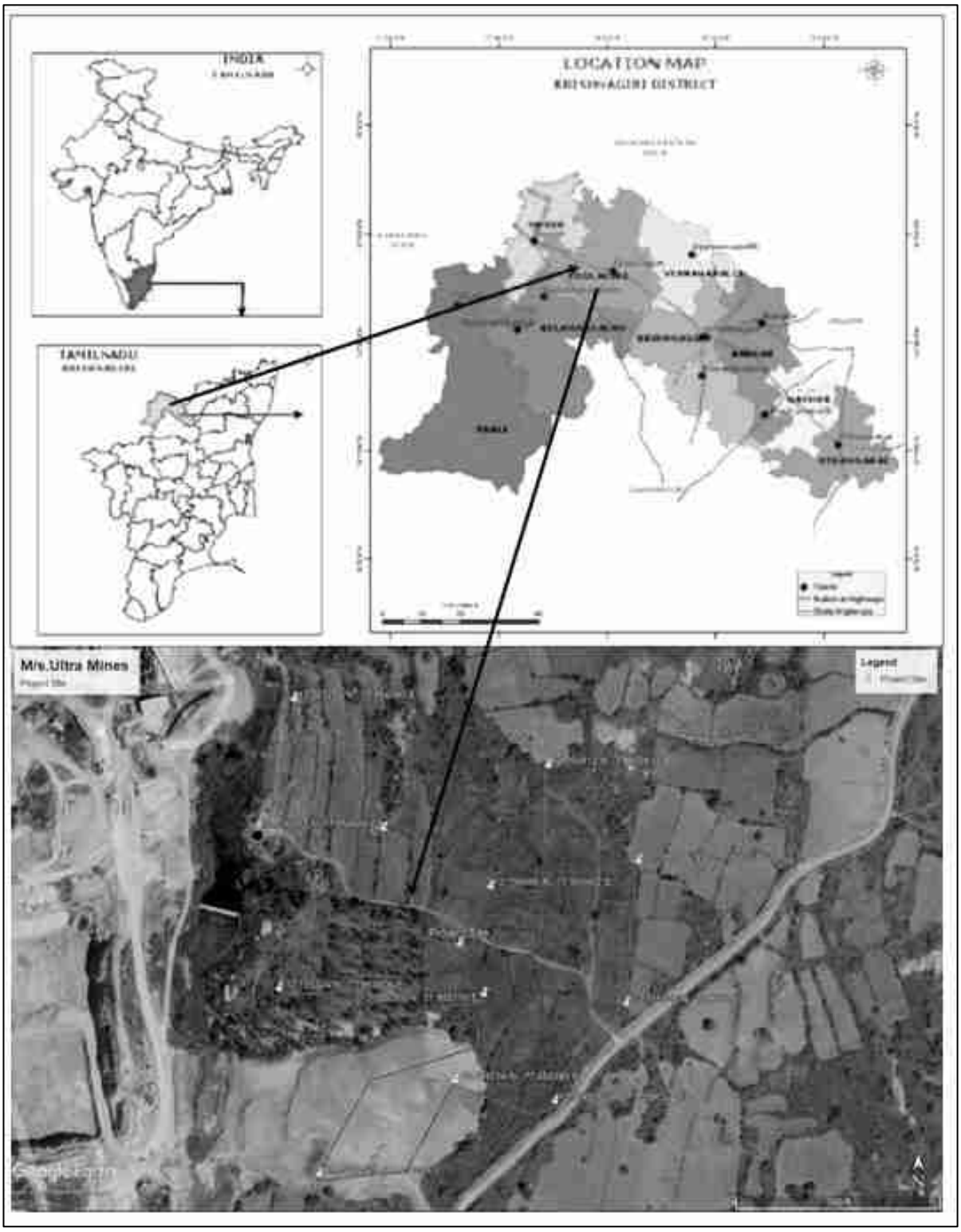


Figure 1.1: Location Map of the Project site

2 Project Description

This chapter furnishes detailed description of the proposed project, such as the type of the project, need for the project, project location, layout, project activities during mining, capacity of the project, project operation i.e., land availability, utilities (power and water supply) and infrastructure facilities such as roads, railways, housing and other requirements. The project implementation schedule estimated cost for carrying out entire mining activity is included.

2.1 GENERAL

Proposed proposal pertains to Rough stone mining project by open cast mechanized method on allotted mine lease area at Venkatesapuram Village, Shoolagiri Taluk of Krishnagiri District, Tamil Nadu. It is a hilly terrain. We have obtained a fresh mining plan from Department of Geology and Mining, Krishnagiri District for 4.40.0 Ha land area in the S.F.Nos. 133/1(Part), 133/2, 133/4, 134/1 & 134/2 for a proposed mining depth of 45m (Gravel 2m + Rough stone 43 m). (Surface Ground Level Above Height is 10m and Surface Ground Level Below Depth is 35m). and five years production of 5,88,141m^3 of Rough Stone and 63,116 m^3 of Gravel.

Type of the project:

As per EIA Notification, 2006 and its subsequent amendments (O.M vide No.F.No. L-11011/175/2018-IA-II(M) Govt of India MOEF&CC on December 12th 2018) project comes under category B1 cluster & schedule 1(a) under item 1. The project required to be appraised at state level by State Environment Impact Assessment Authority, Tamil Nadu. Environment Clearance study will involve preparation of draft EIA report on the basis of baseline & impact assessment study is carried out. Also, before appraisal, under 7(III) of EIA notification 2006, the project involves the Public Consultation and the same will be conducted under SPCB (TN) in Krishnagiri District. The proceedings of the same will be incorporated in the Final EIA Report.

The mines within 500m radius from the project site are listed below.

Table 2-1: Quarry within 500m Radius

1) Details of Existing quarries:

S. No.	Name of the lessee	Village	S.F. No	Extent	GO No. & Date	Lease period
1.	M/s. Sumukha Blue Metals & M. Sand	Shoolagiri/ Venkatesapuram	294	3.75.0	Rc. No. 216/2018/Mines, Dated:09.03.2018	30.04.2021 – 29.04.2031
2.	Thiru. V. Nagaraja, S/o Venkatappa Reddy	Shoolagiri/ Venkatesapuram	287/1	2.16.0	Rc. No. 478/2018/Mines, Dated:25.08.2018	19.02.2021 – 18.02.2031
3.	Tvl. Mars blue Metals	Shoolagiri/ Venkatesapuram	135 (Part)	3.00.0	Rc. No. 71/2016/Mines, Dated:19.06.2019	19.06.2019 – 18.02.2031

2) Details of abandoned/Old Quarries:

S. No.	Name of the lessee	Village	S.F. No	Extent	GO No. & Date	Lease period
--- Nil---						

3) Details of Proposed Quarries

S. No.	Name of the lessee	Village & Taluk	S.F. No	Extent	Rc.No & Date	Extent
1.	M/s. Ultra Mines Private Limited	Shoolagiri/ Venkatesapuram	133/1 (p), 133/2, 133/4, 134/1, 134/2	4.40.0	-	Instant

The Total extent of the Existing / Lease expired / Proposed quarries are 13.31.0 Ha

2.1.1 *Need for the project:*

The Entire district is underlain by the rocks belonging to hard crystalline rock masses of Archaean age. The Archaean rocks in this area are represented by rocks of eastern Ghat complex comprising

charnockites, Migmatite complex of composite gneiss. The district is covered by metamorphic crystalline rocks of charnockite, composite gneiss of Archaean age. These rocks are highly metamorphosed and have been subjected to sever folding, crushing and faulting. Charnockites group is occupied by North and Southern part of the basin. The other rock type is encountered by composite granitic gneiss of Epidote hornblende biotite gneiss and hornblende biotite gneiss are occupy in the middle portion of the basin. Charnockite group occupies the high ground as well as plain and it is poorly weathered and jointed. They are generally black grey to dark grey in colour medium to coarse grained texture, and generally massive and un-foliated. A gneissic rock occurs as linear bands in the middle portion of the area and is highly migmatite. Mostly, micaceous with bands of granites, pegmatites, guartz veins the rock is well foliated. The Hornblende biotite gneiss forms the country rock of the area and epidote hornblende gneiss (Proterozoic age) occurs as small isolated outcrops. The crystalline formations are charnockite, granitic gneiss of Archean age have been intruded by dolerite dykes and pegmatite veins. These rocks are highly metamorphosed and have been subjected to very severe folding, crushing and faulting. The crystalline rocks are subjected to tectonic activities under various orogenic cycles resulting in the development of secondary structures such as joints. fissures and cleavages. The intensity of weathering varies from place to place.

2.2 BRIEF DESCRIPTION OF THE PROJECT

Table 2-2 Salient Features of the Project

S. No.	Description	Details
1	Project Name	Rough Stone and Gravel Quarry - 4.40.0 Ha
2	Proponent	M/s. Ultra Mines Private Limited
3	Mining Lease Area Extent	4.40.0Ha
4	Location	S.F.Nos. 133/1(Part), 133/2, 133/4, 134/1 & 134/2 Venkatesapuram Village, Shoolagiri Taluk, Krishnagiri District.
5	Latitude	12°45'14.72"N to 12°45'26.27"N
6	Longitude	77°57'14.30"E to 77°57'23.15"E
7	Topography	Elevated Terrain
8	Site Elevation above MSL	The altitude of the area is Maximum 878m and Minimum 868 m above MSL.

9	Topo sheet No.	57- H/13
10	Minerals of Mine	Rough Stone and Gravel Quarry
11	Proposed production of Mine	5,88,141 m^3 of Rough Stone and 63,116 m^3 of Gravel.
12	Ultimate depth of Mining	45 m (2m Topsoil + 40 Rough stone) (10m AGL + 35m BGL)
13	Method of Mining	Open cast, mechanized mining
14	Water demand	4.0 KLD
15	Source of water	Water will be supplied through tankers supply
16	Manpower	24 Nos.
17	Mining Lease	Precise Area Communication Letter is obtained from Department of Geology and Mining, Collector Office, Krishnagiri vide letter Rc.No.86/2024 Mines dated 10.05.2024.
18	Mining Plan Approval	Mining Plan was approved by the Deputy Director, Geology & Mining, Krishnagiri vide letter Rc.No.86/2024 Mines dated 21.05.2024
19	Production details	Geological resources: Rough stone is 19,49,296 m^3 and Gravel is 89,832 m^3. Proposed year wise recoverable reserves: 5,88,141 m^3 of Rough Stone and 63,116 m^3 of Gravel
20	Boundary Fencing	7.5m & 10 m barrier all along the boundary Fencing will be provided.
21	Disposal of overburden	The entire lease area is covered 2.0 m of Topsoil (Gravel) and estimated quantity of Topsoil (Gravel) is 63,116 m^3. Top soil (Gravel) formation will be removed and transported to the needy users, only after obtaining permission and paying necessary seigniorage fees to the Government.
22	Ground water	The ground Water Level is noticed at the depth of 65m in summer and 60m in rainy season below Ground Level by monitoring nearby bore hole, Mining depth taken as 45m (Surface Ground Level Above Height 10m &

		Surface Ground Level Below Depth 35m). Now, the proposed quarry depth is above the water table. Hence, quarrying may not affect the ground water.
23	Habitations within 300m radius of the Project Site	There is no Habitation within 300m radius of the project site.
24	Drinking water	Water will be supplied through tankers from Mensandoddi village which is 0.89 Km, E of the project area

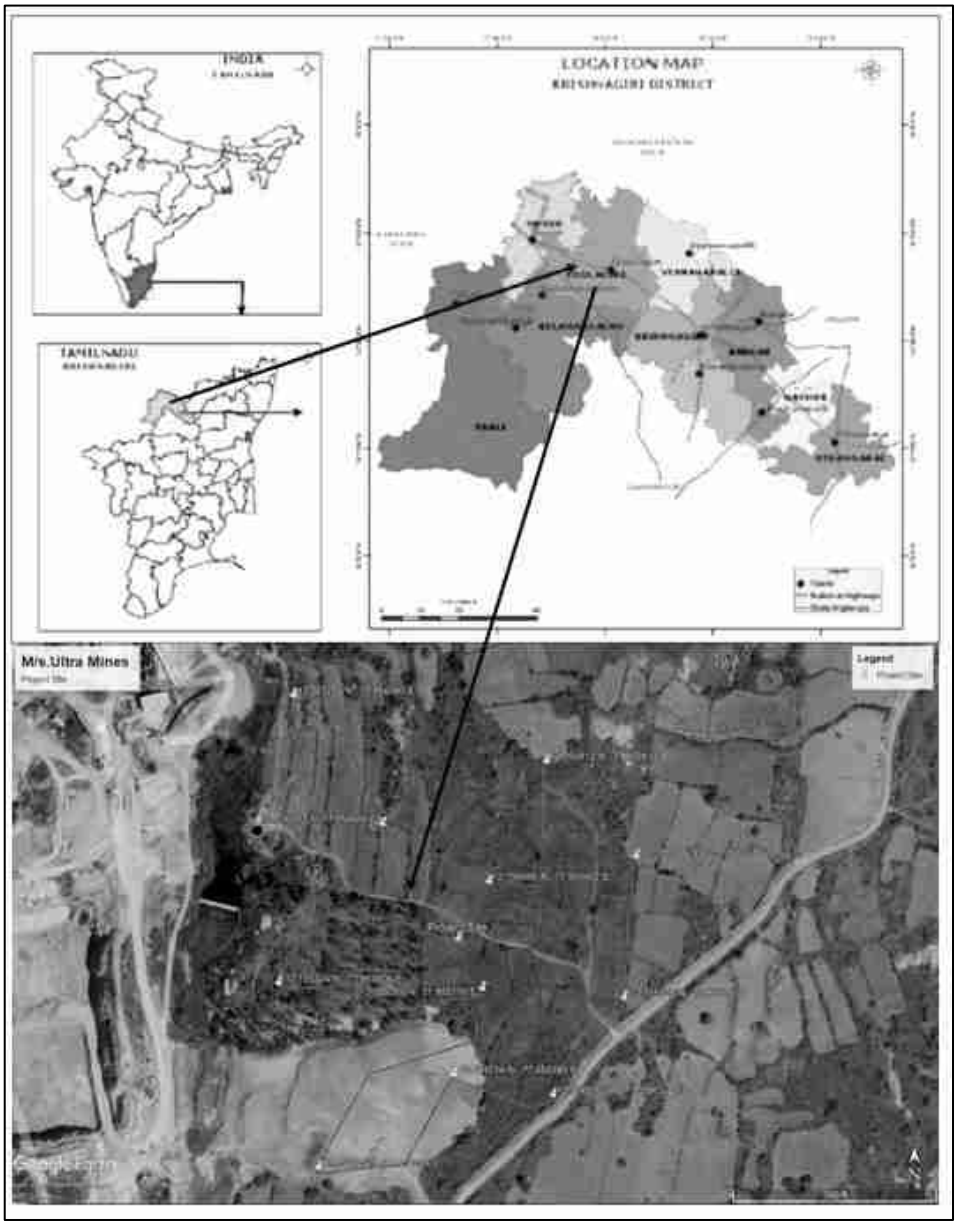


Figure 2.1: Location Map of the Project Site

Figure 2.2: Google Earth Image and Coordinates of the Project Site

2.2.1 *Site Connectivity:*

The site is connected to MDR 422 – Berigai to Shoolagiri Road – 2.13 Km - E.

NH 44 – Dharmapuri to Bangalore Road – 8.02 Km - SW

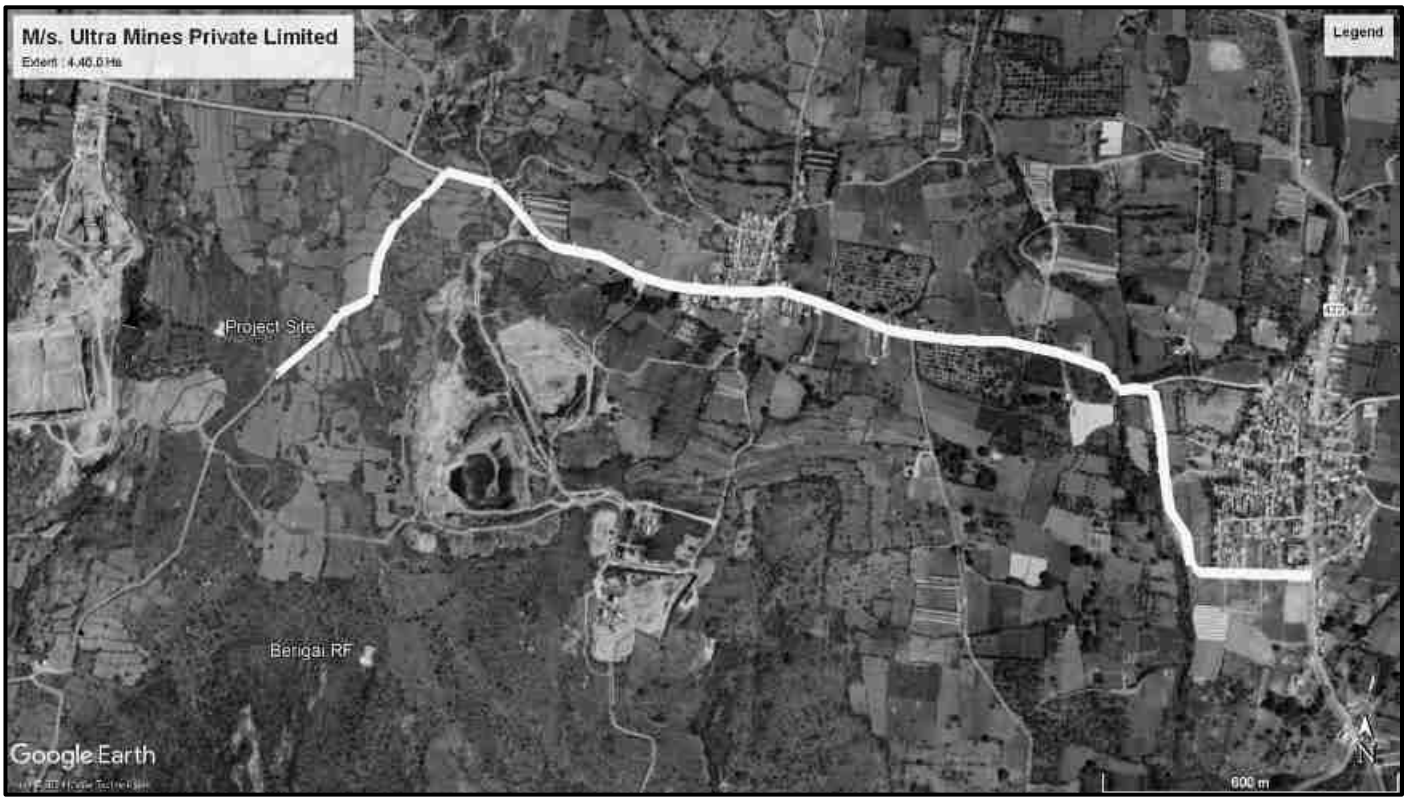


Figure 2.3: Site Connectivity

2.3 LOCATION DETAILS:

Table 2-3: Location Details

S. No	Particulars	Details
1.	Latitude	12°45'14.72"N to 12°45'26.27"N
2.	Longitude	77°57'14.30"E to 77°57'23.15"E
3.	Site Elevation above MSL	The altitude of the area is Maximum 878m and Minimum 868m above MSL.
4.	Topography	Elevated terrain
5.	Land use of the site	Patta land
6.	Extent of lease area	4.40.0 Ha

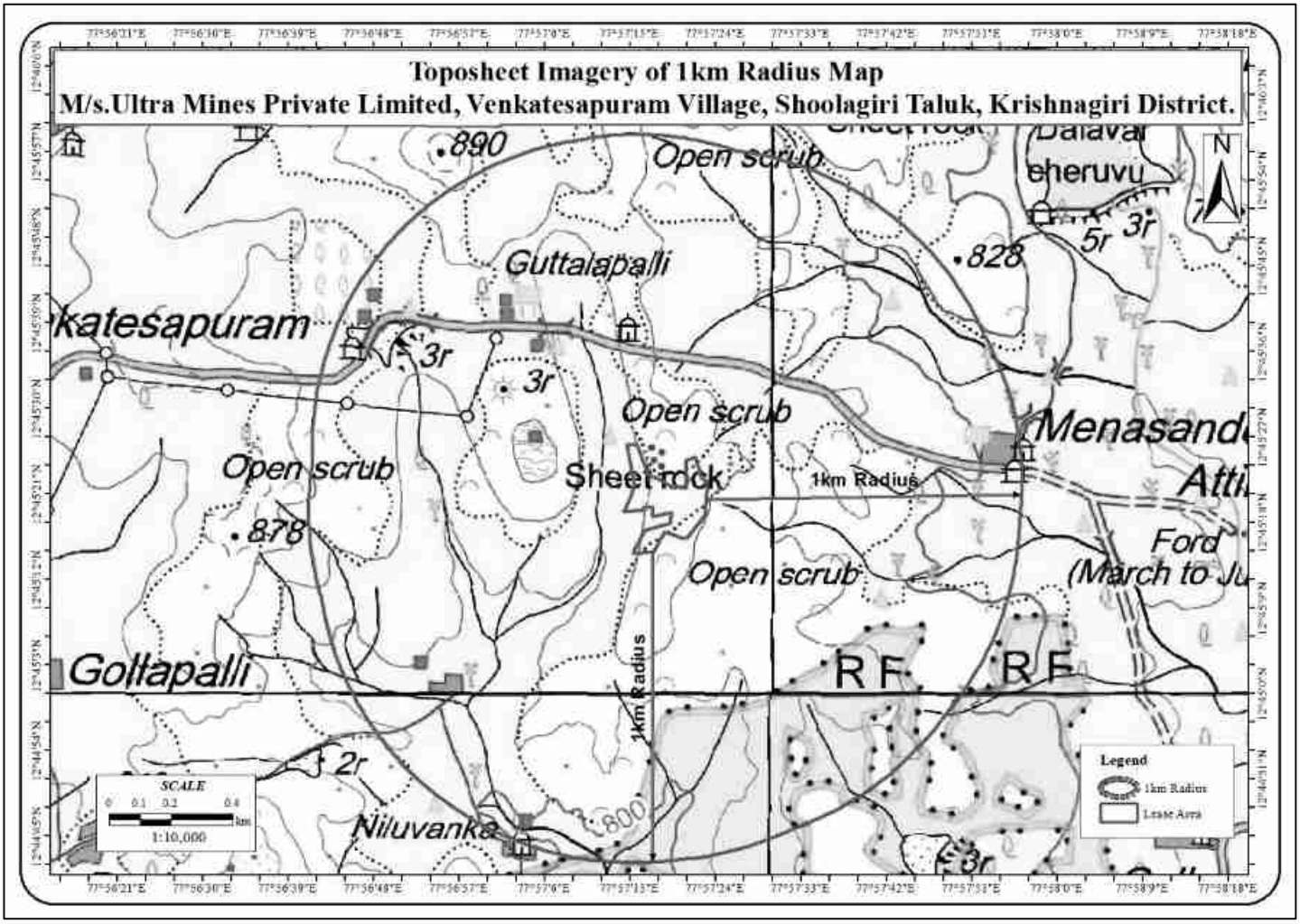


Figure 2.4: Topo Map of Project Site

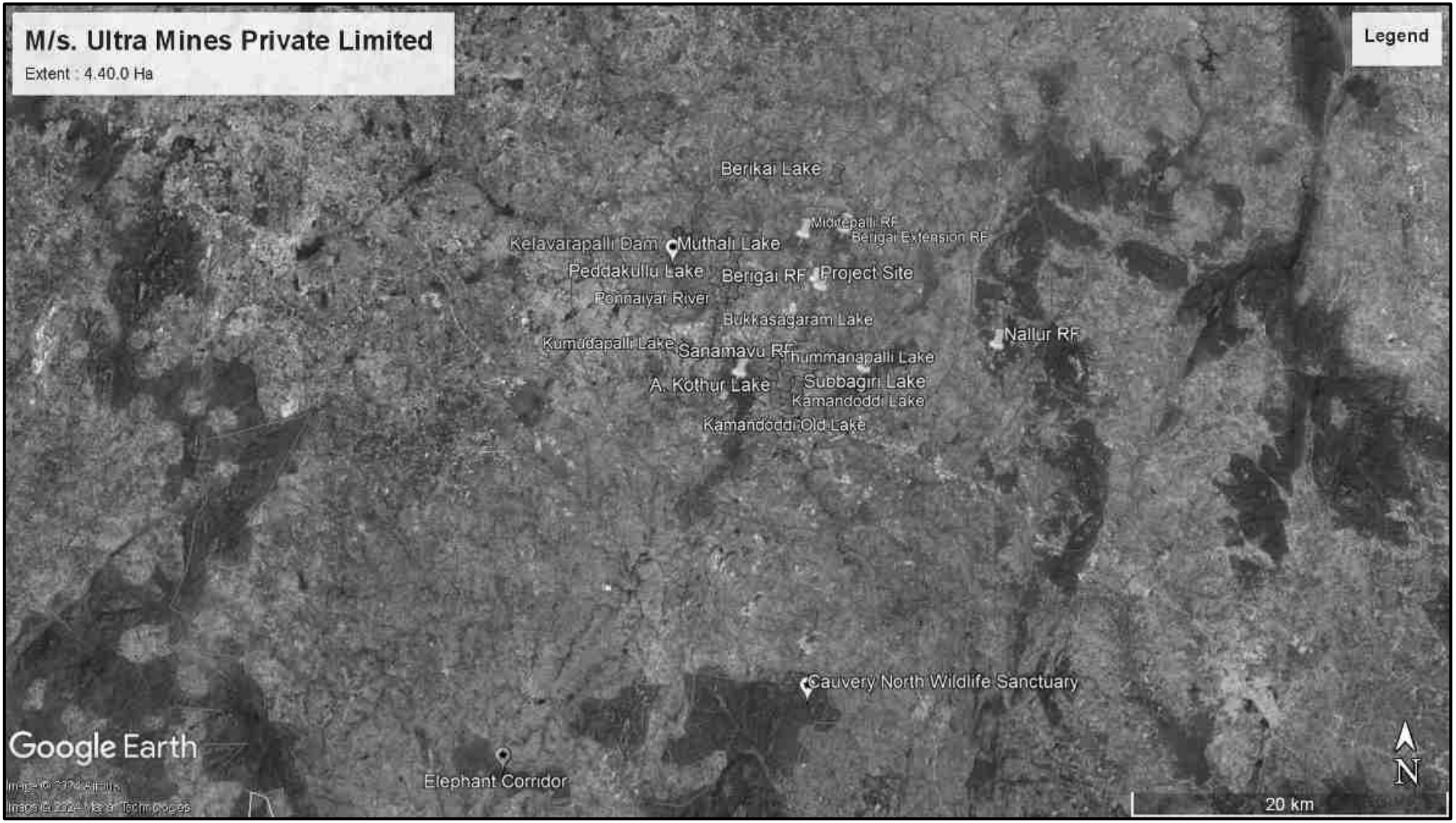


Figure 2.5: Environmental Sensitivity within 15km radius

2.3.1 *Site Photographs*

The site photographs of the project site are as follows

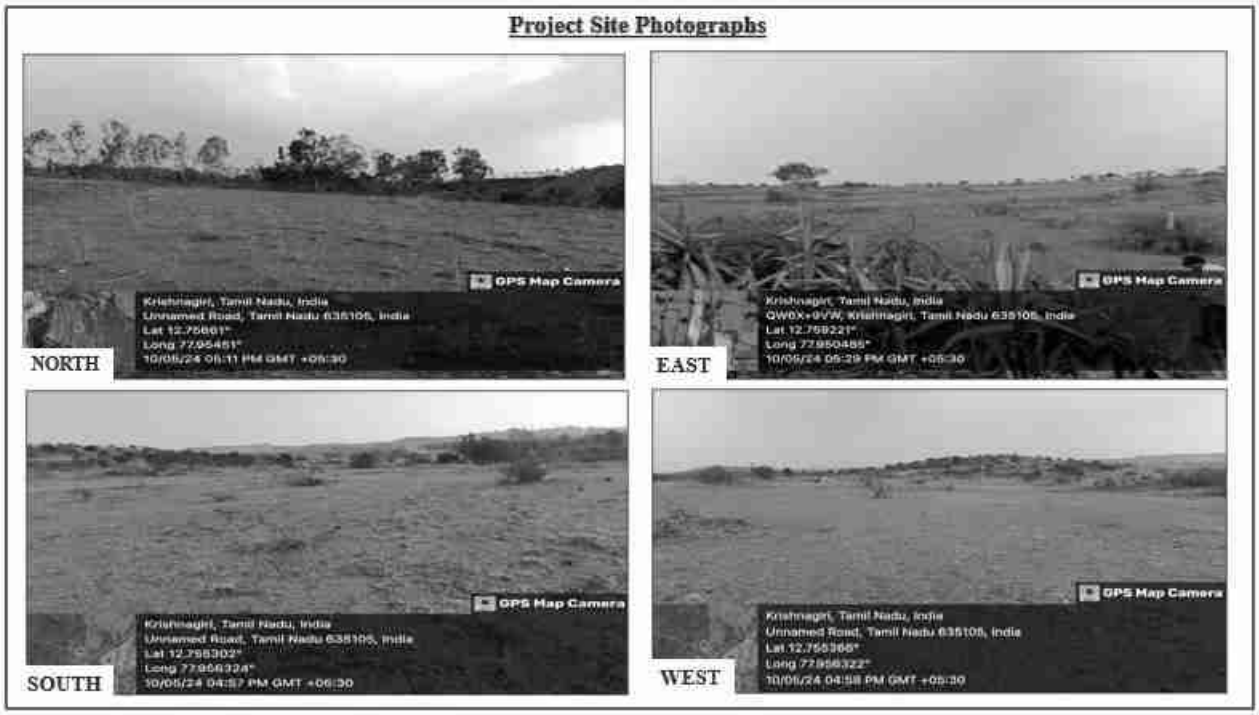


Figure 2.6: Site Photographs

2.3.2 *Land Use Breakup of the Mine Lease Area*

The Mine Lease area is Elevated terrain. The land use pattern of the mine lease area is as follows.

Table 2-4: Land use pattern

S.No	Land Use	Present Area (Ha)	Area in use during the quarrying period (Ha)
1	Quarrying Pit	Nil	2.95.0
2	Infrastructure	Nil	0.02.0
3	Roads	Nil	0.10.0
4	Green Belt	Nil	1.17.0
6	Drainage & Settling Tank	Nil	0.16.0
5	Unutilized Area	4.40.0	Nil
	Total	**4.40.0 Ha**	**4.40.0 Ha**

2.3.3 *Human Settlement*

There are no habitations within the radius of 300m. The nearby habitations are as follows

Table 2-5: Habitation

S.No	Village	Direction	Distance in Kms	Population
1	Midithepalli	North	0.9 km	1287
2	Athimugam	East	1.3 km	4540
3	Punnagaram	Southeast	1.5 Km	766
4	Venkateshapuram	West	0.74 km	2873

2.4 LEASEHOLD AREA

The Rough Stone Quarry mine of 4.40.0 Ha is a Patta land. The lease area falls in S.F No: 133/1(Part), 133/2, 133/4, 134/1 & 134/2 of Venkatesapuram Village, Shoolagiri Taluk, Krishnagiri District. There is no reserve forest or protected forest land within the lease area. There is neither human settlement within 300m radius from the lease area.

2.5 GEOLOGY

Krishnagiri District is underlain by crystalline metamorphic complex in the western parts of district and sedimentary tract in eastern side. An area of 4551 Sq.km is covered by crystalline rocks (63%) and 2671 Sq.km is covered by sediments (37%).

The general geological sequence of formation is given below:

- Quaternary - Laterites, Sands and Clays
- Tertiary - Sandstone, Gravels and Clays
- Cretaceous - Limestone,
- Calcareous Sandstone and Clay unconformity.
- Archaean - Charnockites, Gneisses, Granites, Dolerites and Pegmatite

The major part of the area is covered by metamorphic crystalline rocks of charnockite, granitic gneiss of Archaean age intruded by dolerite dykes and pegmatite veins. These rocks are highly metamorphosed and have been subjected to very severe folding, crushing and faulting. Ground Water occurs under

phreatic conditions and wherever there are deep seated fractures, it occurs under semi-confined to confined conditions.

Occurrence of Ground Water in hard rock depends upon the intensity and depth of weathering, fractures and fissures present in the rocks. Granites and gneisses yield moderately compared to the yield in Charnockites. The depth of well in hard rock generally ranges between 8 and 15m below ground level. Generally, yield in open wells ranges from 30 to 250m^3 /day and in bore well between 260 and 430 m3 /day. The weathered thickness varies from 2.5 m to 42m in general. There are 3 to 5 fracture zones within 100 m and 1 to 4 fracture zones between 100 and 200 m.

The Cretaceous formation is represented by Arenaceous Limestone, Calcareous sand - stone and marl. The Tertiary formation is an argillaceous comprising of Silty clay stones, argillaceous Limestone. The Quaternary deposits represented by the river deposits of Ponnaiyar and Varahanadhi spread over as patches in Villupuram District. The alluvium consists of unconsolidated sands, gravelly sands, clays and clayey sands. The thickness of the sands ranges between 15 and 25 m in the alluvial formation which also form potential aquifers. In some areas, sandstone of tertiary formation are potential groundwater reservoirs.

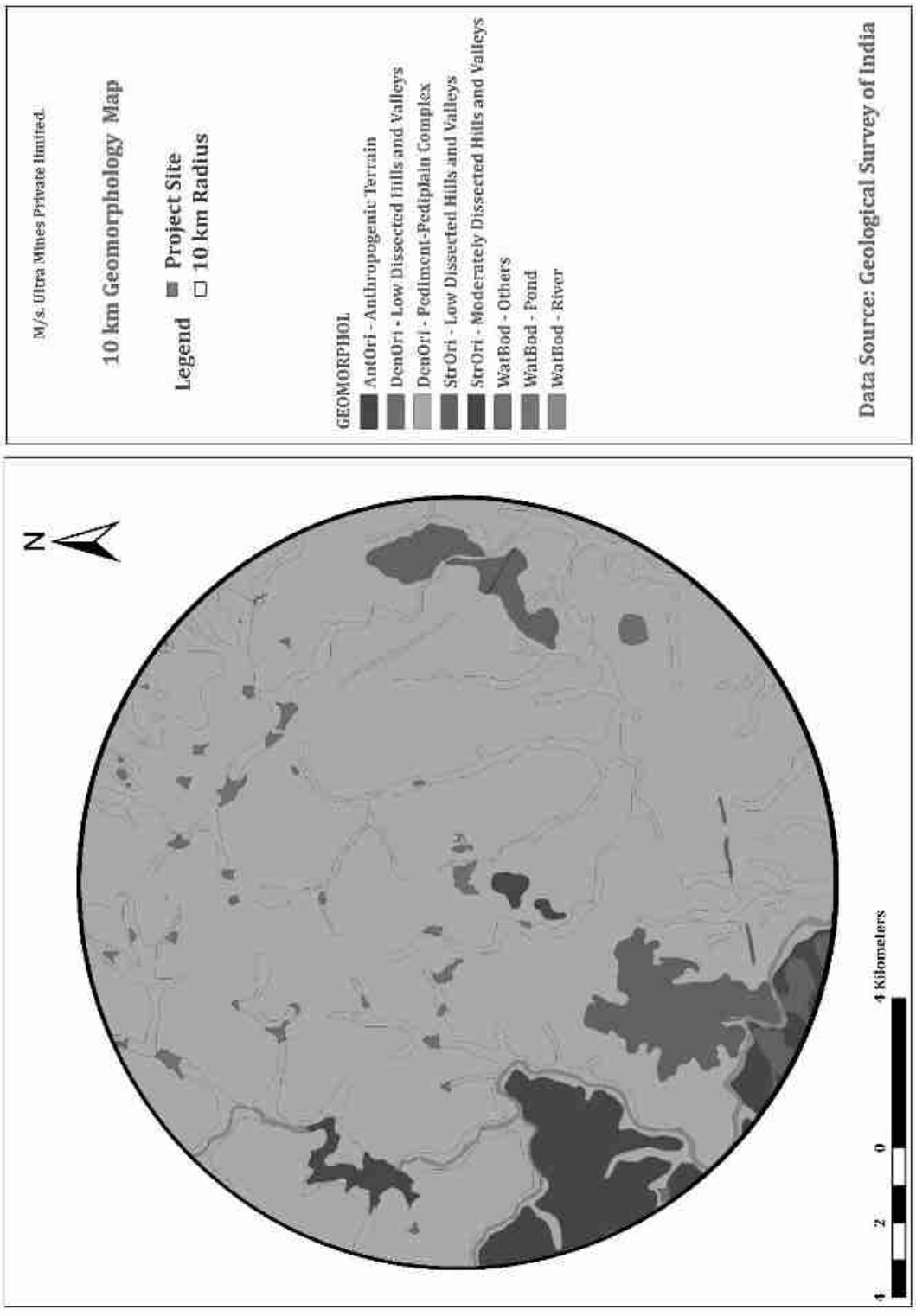


Figure 2.7: Geomorphology

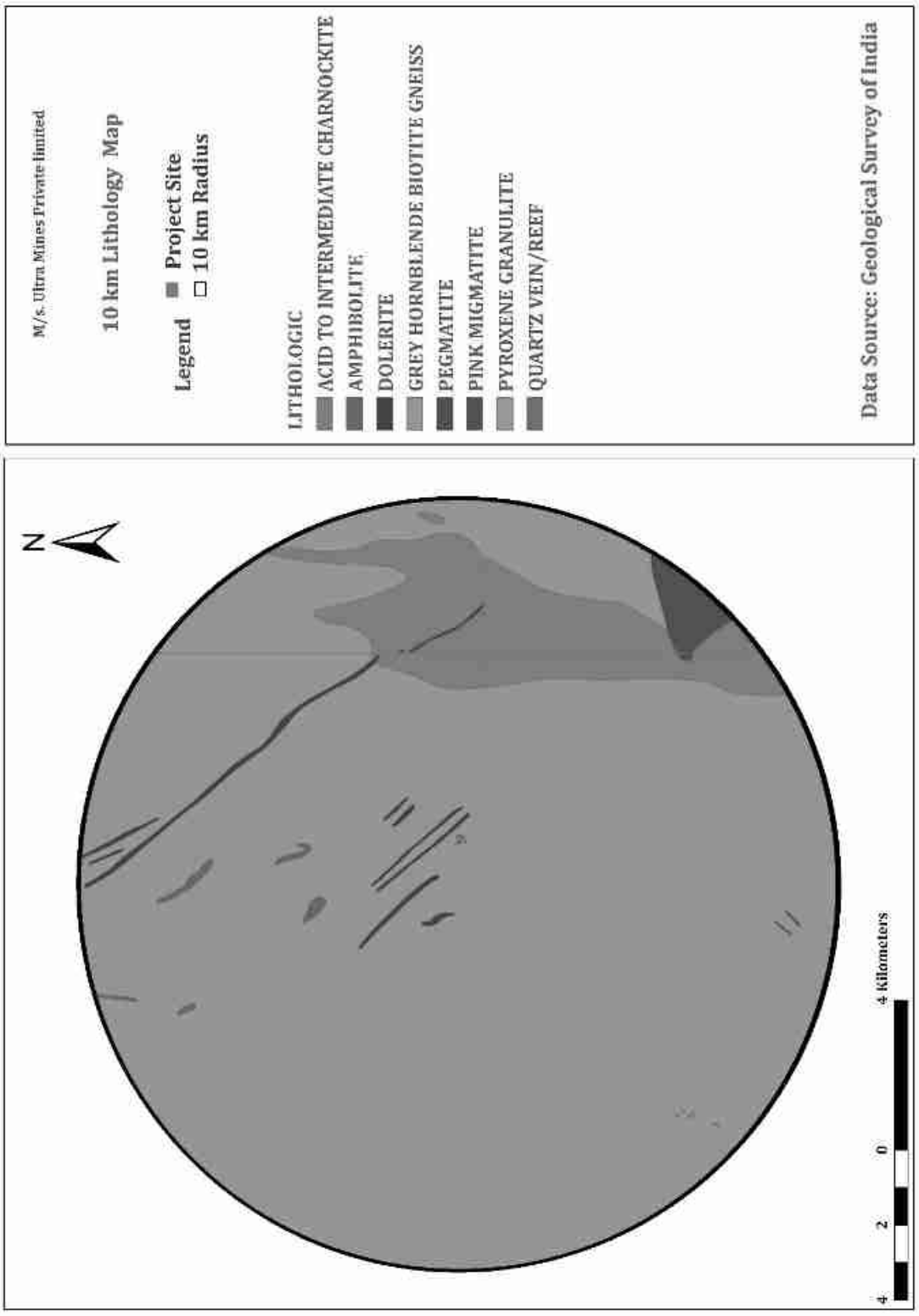


Figure 2.8 Lithology

2.6 QUALITY OF RESERVES:

The mining lease area is 4.40.0 Ha, with production capacity of 5,88,141 m^3 of Rough Stone and 63,116 m^3 of Gravel. Due to its significant role in the domestic as well as infrastructural market, making the mining of Stone along with associated minor minerals is economically viable.

Table 2-6: Details of Mining

S. No	Particulars	Details
1	Method of Mining	Open Cast mechanized
2	Geological resources	19,42,296 m^3 of Rough Stone and 89,832 m^3 of Gravel
3	Recoverable Reserves	6,01,641 m^3 of Rough Stone and 63,116 m^3 of Gravel
4	Proposed Production	5,88,141 m^3 of Rough Stone and 63,116 m^3 of Gravel
5	Elevation Range of the Mine Site	The altitude of the area is Maximum 878m and Minimum 868m above MSL

2.6.1 *Estimation of Reserves*

The practical method of the systematic geological mapping and delineation of rough stone (Charnockite) within the field was done and careful evaluation of body luster, physical properties, engineering properties, commercial aspects, etc. The Topographical, Geological plan and sections demarcated the commercial marketable rough stone (Charnockite) deposit has been prepared in 1:1000 scale and the estimated balance Geological resources as 7,46,195m^3 of Rough Stone.

2.6.2 *Geological resources*

Rough Stone:

Geological resources is estimated at 19,49,296 m^3 of Rough Stone up to a depth of 45.0m. 2m Gravel + 43 m Rough stone (10m AGL + 35m BGL).

Table 2-7: Geological resources

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In m^3	Rough Stone in m^3	Gravel in m^3

XY-AB	I	110	49	2	10780		10780
	I	110	49	3	16170	16170	
	II	110	49	5	26950	26950	
	III	110	49	5	26950	26950	
	IV	110	49	5	26950	26950	
	VI	110	49	5	26950	26950	
	VII	110	49	5	26950	26950	
	VIII	110	49	5	26950	26950	
TOTAL				**40**	**215600**	**204820**	**10780**
X1Y1-CD	I	140	94	2	26320		26320
	I	90	64	3	17280	17280	
	II	140	94	5	65800	65800	
	III	140	94	5	65800	65800	
	IV	140	94	5	65800	65800	
	V	140	94	5	65800	65800	
	VI	140	94	5	65800	65800	
	VII	140	94	5	65800	65800	
	VIII	140	94	5	65800	65800	
	IX	140	94	5	65800	65800	
TOTAL				**45**	**570000**	**543680**	**26320**
X1Y1-EF	I	90	195	2	35100		35100
	I	81	146	3	35478	35478	
	II	90	195	5	87750	87750	
	III	90	195	5	87750	87750	
	IV	90	195	5	87750	87750	
	V	90	195	5	87750	87750	
	VI	90	195	5	87750	87750	
	VII	90	195	5	87750	87750	
	VIII	90	195	5	87750	87750	
	IX	90	195	5	87750	87750	

	X	90	195	5	87750	87750	
TOTAL				**50**	**860328**	**825228**	**35100**
X2Y2-GH	I	78	52	2	8112		8112
	I	78	52	3	12168	12168	
	II	78	52	5	20280	20280	
	III	78	52	5	20280	20280	
	IV	78	52	5	20280	20280	
	V	78	52	5	20280	20280	
	VI	78	52	5	20280	20280	
	VII	78	52	5	20280	20280	
	VIII	78	52	5	20280	20280	
	IX	78	52	5	20280	20280	
	X	78	52	5	20280	20280	
TOTAL				**50**	**202800**	**194688**	**8112**
X3Y3-IJ	I	85	56	2	9520		9520
	I	85	56	3	14280	14280	
	II	85	56	5	23800	23800	
	III	85	56	5	23800	23800	
	IV	85	56	5	23800	23800	
	V	85	56	5	23800	23800	
	VI	85	56	5	23800	23800	
	VII	85	56	5	23800	23800	
	VIII	85	56	5	23800	23800	
TOTAL				**40**	**190400**	**180880**	**9520**
GRAND TOTAL					**2039128**	**1949296**	**89832**

2.6.3 *Mineable Reserves*

The available mineable reserves are calculated by deducting 7.5m & 10m Safety distance and bench loss. In this regard, since the adjacent also to be under the new lease area necessary action will be taken to get permission from DGMS in future comply regulation under 111(3) of MMR.1961.

Table 2-8: Mineable Reserves

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In m^3	Rough Stone in m^3	Gravel in m^3
XY-AB	I	100	32	2	6400		6400
	I	100	32	3	9600	9600	
	II	95	22	5	10450	10450	
	III	90	12	5	5400	5400	
TOTAL				**15**	**31850**	**25450**	**6400**
X1Y1-CD	I	133	74	2	19684		19684
	I	90	54	3	14580	14580	
	II	133	69	5	45885	45885	
	III	128	59	5	37760	37760	
	IV	123	49	5	30135	30135	
	V	118	39	5	23010	23010	
	VI	113	29	5	16385	16385	
	VII	108	19	5	10260	10260	
TOTAL				**35**	**197699**	**178015**	**19684**
X1Y1-EF	I	80	175	2	28000		28000
	I	71	136	3	28968	28968	
	II	75	170	5	63750	63750	
	III	70	160	5	56000	56000	
	IV	65	150	5	48750	48750	
	V	60	140	5	42000	42000	
	VI	55	130	5	35750	35750	
	VII	50	120	5	30000	30000	
	VIII	45	110	5	24750	24750	
	IX	40	100	5	20000	20000	
	X	30	90	5	13500	13500	
TOTAL				**50**	**391468**	**363468**	**28000**
X2Y2-EF	I	68	32	2	4352		4352

	I	68	32	3	6528	6528	
	II	63	22	5	6930	6930	
	III	58	12	5	3480	3480	
TOTAL				**15**	**21290**	**16938**	**4352**
X3Y3-IJ	I	65	36	2	4680		4680
	I	65	36	3	7020	7020	
	II	55	26	5	7150	7150	
	III	55	16	5	3600	3600	
TOTAL				**15**	**22450**	**17770**	**4680**
GRAND TOTAL					**664757**	**601641**	**63116**

2.6.4 *Year wise Production Plan*

The year wise production to be carry out 5,88,141 m^3 of Rough Stone and 63,116 m^3 of Gravel for the period of five years.

Table 2-9: Year wise Production Plan

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In m^3	Rough Stone in m^3	Gravel in m^3
I	XY-AB	I	100	32	2	6400		6400
		I	100	32	3	9600	9600	
		II	95	22	5	10450	10450	
		III	90	12	5	5400	5400	
	X1Y1-CD	I	133	74	2	19684		19684
		I	90	54	3	14580	14580	
		II	133	69	5	45885	45885	
		III	128	59	5	37760	37760	
TOTAL						**149759**	**123675**	**26084**
II	X2Y2-GH	I	68	32	2	4352		4352
		I	68	32	3	6528	6528	
		II	63	22	5	6930	6930	

		III	58	12	5	3480	3480	
	X1Y1-EF	I	80	175	2	28000		28000
		I	71	136	3	28968	28968	
		II	75	170	5	63750	63750	
TOTAL						**142008**	**109656**	**32352**
III	X1Y1-EF	III	70	160	5	56000	56000	
	X3Y3-IJ	I	65	36	2	4680		4680
		I	65	36	3	7020	7020	
		II	55	26	5	7150	7150	
		III	45	16	5	3600	3600	
	X1Y1-EF	IV	65	150	5	48750	48750	
TOTAL						**127200**	**122520**	**4680**
IV	X1Y1-CD	IV	123	49	5	30135	30135	
		V	118	39	5	23010	23010	
	XIY1-EF	V	60	140	5	42000	42000	
		VI	55	130	5	35750	35750	
TOTAL						**130895**	**130895**	
V-YEAR	X1Y1-CD	VI	113	29	5	16385	16385	
		VII	108	19	5	10260	10260	
	XIYI-EF	VII	50	120	5	30000	30000	
		VIII	45	110	5	24750	24750	
		IX	40	100	5	20000	20000	
TOTAL						**101395**	**101395**	
GRAND TOTAL						**651257**	**588141**	**63116**

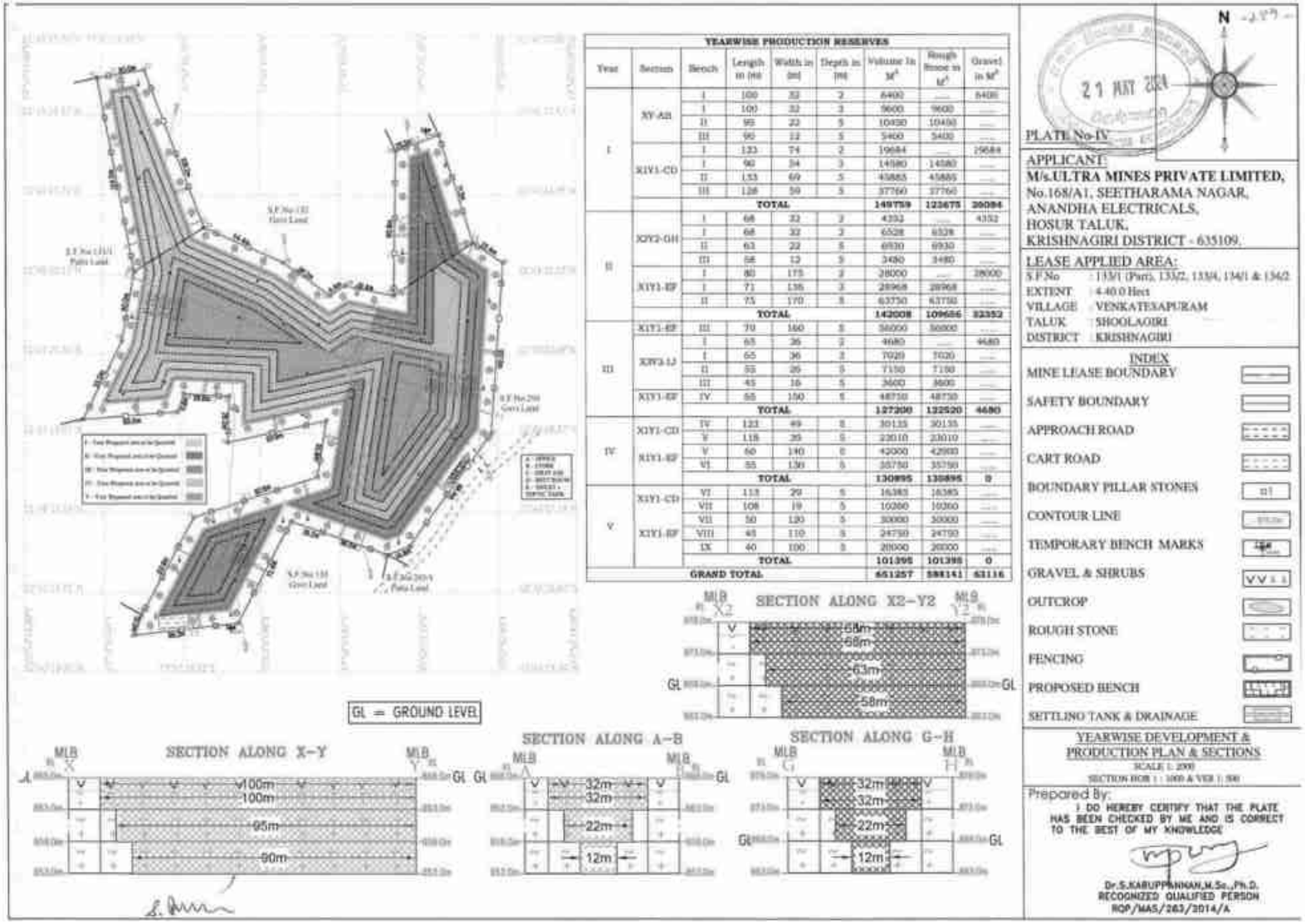


Figure 2.9 Year wise Production Plan

2.7 TYPE OF MINING

The proposed project is an open cast mechanized mining with one 2.0 m bench for Gravel followed by a 5.0m vertical 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 regulations 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 Mines Act- 1952.

2.7.1 *Method of Working:*

The Rough stone are proposed to quarry at 5m bench height & 5m bench width with conventional Open cast mechanized method. The quarry operation involves Shallow jack hammer drilling, Blasting, Loading & transportation of Rough Stone to the nearby crusher units/road formation works. 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 rocks by jackhammer drilling and blasting by manually braking and loading the Rough Stone from pit head to the needy crushing units/civil works for the needy sectors.

2.7.2 *Overburden*

The entire lease area covers 2.0m of Topsoil (Gravel) and estimated quantity of Topsoil (Gravel) is 63,116 m^3. Gravel formation will be removed and transported to the needy users, only after obtaining permission and paying necessary seigniorage fees to the Government.

2.7.3 *Machineries to be used*

Type of machineries proposed for quarrying operation for the entire project is listed below.

Table 2-10: List of Machineries used

For Mining operation Loading Equipment	Excavator of 3.0 Cu.m bucket capacity Jack Hammer (32 mm dia) Tractor mounted compressor

Transportation	Tipper 9 Nos. of 15 M.T capacity

2.7.4 *Blasting:*

2.7.4.1 Blasting Pattern:

The quarrying operation will be carried out by Mechanized Opencast method in conjunction with conventional method of mining using jack hammer drilling and blasting for shattering effect and loosen the rough stone.

2.7.4.2 Drilling & Blasting:

Drilling and Blasting Parameters are as follows.

Table 2-11: Drilling and Blasting Parameters

1	Diameter of the hole	32-36 mm
2	Spacing	60 Cms
3	Depth	1 to 1.5 m
4	Charge / Hole	D.Cord with water or 70gms of gun powder or Gelatine.
5	Pattern of hole	Zig Zag
6	Inclination of hole	70^0 from the horizontal.
7	Quantity of rock broken	0.45 MT x 2.6 = 1.17 MT
8	Quantity of rock broken per day	243.6m^3
9	Control Blasting efficiency @90%	1.17 x 90% = 1.05MT / hole
10	Charge per hole	140 gms of 25mm dia catridge

2.7.4.3 Types of Explosives to be used:

A small diameter of 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.

2.7.4.4 Measures to minimize ground vibration due to blasting:

The quarry is situated more than 1 km from the nearby villages. Controlled blasting measures will be adopted for minimizing the ground vibration and fly of rocks. Shallow depths jackhammer drilling & blasting is proposed to be carried out with minimum use of explosive mainly to give shattering effect in rough stone for easy excavation and to control fly of rock.

Table 2-12: Blasting Details

Parameters	Details
Diameter of holes	32-36mm
Spacing	60 cms
Powder factor	6 to 7 tons/kg of explosives
Pattern of hole	Zig Zag
Charge/hole	D.Cord with water or 70gms of gun powd or Gelatine.
Blasted at daytime	5 to 6 pm

2.7.4.5 Storage & Safety measures taken during blasting:

The project proponent "Thiru. A. Brian Balachander" will engage an authorized explosive agency to carry out the small amount of blasting and it will be supervised by Permit Mines Manager. The copy of the explosive certificate is attached as ***Annexure.***

2.8 MAN POWER REQUIREMENTS

The manpower requirement 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 is as follows.

Table 2-13: Man Power Requirements

1.	Highly Skilled	II nd Class Mines Manager	1No.
		Mine Geologist	1No.
		Blaster	1No.
2.	Semi-skilled	Driver	9 No's

		Hitachi Operator	1No.
3.	Unskilled	Musdoor / Labours	11 No's
	Total		**24 No's**

No child less than 18 years will be entertained during quarrying operations.

2.8.1 *Water Requirement*

Total water requirement for the mining project is 4.0 KLD. Domestic water will be sourced from nearby Venkatesapuram village and other water will be sourced from nearby road tankers supply.

Table 2-14: Water Requirment

Purpose	Quantity	Sources
Drinking Water	1.0 KLD	Packaged Drinking water vendors available in Mensandoddi village.
Green belt	1.5 KLD	Other domestic activities through road tankers supply
Dust suppression	1.5 KLD	From road tankers supply
Total	**4.0 KLD**	

2.9 PROJECT IMPLEMENTATION SCHEDULE

The implementation schedule of the proposed Mine Lease of M/s. Ultra Mines Private Limited (4.40.0 ha) is as follows.

Table 2-15: Mining Schedule

MINING SCHEDULE					
Activity	Dec-24	Dec-25	Dec-26	Dec-27	Dec-28
Site Clearance					
Excavation - Gravel					
I Year Production – 123675 Cum - Rough Stone & 26084 Cum Gravel					

II Year Production – 109656 Cum - Rough Stone & 32352 Cum Gravel					
III Year Production – 122520 Cum - Rough Stone & 4680 Cum Gravel					
IV Year Production - 130895 Cum - Rough Stone					
V Year Production 101395 Cum - Rough Stone					

2.10 SOLID WASTE MANAGEMENT

Table 2-15: Solid Waste Management

S. No	Type	Quantity	Disposal Method
1	Organic	4.32 kg/day	Municipal bin including food waste
2	Inorganic	6.48 kg/day	TNPCB authorized recyclers

As per CPCB guidelines: MSW per capita/day =0.45 kg/day

2.11 MINE DRAINAGE

The quarry operation is proposed up to a depth of 45 m – 2m Gravel + 43 m Rough Stone (10m AGL + 35m BGL). The water table is below 60-65 m from the ground level which is observed from the nearby bore wells and bore wells of this area. Hence the ground water will not be affected in any manner due to the quarrying operation during the entire lease period.

2.12 POWER REQUIREMENT

This rough stone quarry project does not require huge water and electricity for the project. **16 Litre** diesel per hour for excavator for mining and loading for Rough Stone needed.

2.13 PROJECT COST

A	**Fixed Asset Cost**: 1. Land Cost	:	Rs. 1,78,37,820/-
	2. Labour Shed	:	Rs. 1,00,000/-
	3. Sanitary Facility	:	Rs.1,00,000/-
	4. Fencing	:	Rs. 6,00,000/-

	5. Other expenses (Security guard, dust bin, etc)	:	Rs. 4,00,000/-
	Total	:	**Rs. 1,90,37,820/-**
B	**B. Machinery cost**	:	**Rs. 30,00,000/-** (Hire Basis)
C	Total Expenditure of EMP cost (for five years)	:	**Rs. 86,00,000/-** (for 5 Years)
D	**Total Project Cost (A+B+C)**	:	**Rs. 3,06,37,820/-**

2.14 GREENBELT

1. The development of greenbelt in the peripheral buffer zone of the mine area.
2. Green belt has been recommended as one of the major components of Environmental Management plan, which will improve ecology, environment and quality of the surrounding area.
3. Local trees like, Neem, Pungam, Naval etc will be planted along the lease boundary and avenues as well as over non-active dumps at a rate of 440 trees per annum with interval 5m.
4. The rate of survival expected to be 80% in this area

Table. 2-17 Plantation/ Afforestation Program

Name of species proposed	Survival	No of species
Neem, Pungam, Poovarasu, Naval, Mantharai, Arasa Maram, Magizham, Vilvam, vaagai, Marudha maram, Thandri, Poovarasu, Manjadi, Usil, Aathi, Panai, Uzha, Illuppai, Eachai, Vanni Maram	80%	2200
Total		**2200**

3 Description of the Environment

3.1 GENERAL:

The method of mining for extracting rough stone quarry is required to be selected in such a manner to ensure sustainable development. Mining activities invariably affect the existing environmental status of the site. It has both adverse and beneficial effects. 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 and sustainable resource extraction.

To understand the existing environmental scenario, Baseline data helps in identification, prediction and evaluation of impacts in Environmental Impact assessment. Through field study, baseline data are collected considering various factors of the project. This includes-

- Physical- the area, the soil properties, the geological characteristics, the topography, etc
- Chemical- water, air, noise and soil pollution levels, etc.
- Biological- the biodiversity of the area, types of flora and fauna, species richness, species distribution, types of ecosystems, presence or absence of endangered species and/or sensitive ecosystems etc.
- Socioeconomic- demography, social structure, economic conditions, developmental capabilities, displacement of locals, etc.

3.1.1 *Study Area:*

The study area for the mining projects is as follows:

- Mine lease area as the "core zone"
- A study area of 10 km radius from the project boundary is designated as buffer Zone and for the study of Socio-economic status, 10 km radius from the boundary limits of the mine lease area has been selected.

We have obtained Terms of Reference from SEIAA vide Letter No. SEIAA-TN vide ToR Identification No. TO24B0108TN5897955N Dated: 12.07.2024. The baseline monitoring is carried out in December 2022 to February 2023 and the analysis is briefed in the EIA report. The proponent has engaged M/s. Ecotech labs Pvt. Ltd for carrying out the existing baseline study.

3.1.2 *Instruments Used*

The following instruments were used at the site for baseline data collection.

1. Respirable Dust Sampler with attachment for gaseous Pollutants, Envirotech APM 460, APM411.
2. Fine Particulate Matter (FPM) Sampler, APM 550
4. Sound Level Meter Model SL– 4010
5. 2000 series watchdog automatic weathering monitoring station

3.1.3 *Baseline Data Collection Period:*

The baseline data is collected in accordance with the CPCB Guidelines. The Baseline study is carried out from December 2022 to February 2023.

3.1.4 *Frequency of Monitoring*

Table 3-1: Frequency of Sampling and Analysis

Attributes	Sampling	Frequency
Air environment – Meteorological (wind speed, wind direction, rainfall, humidity, temperature)	Project site	1 hourly continuous
Air environment – Pollutants PM 10 PM 2.5 SO_2 NO_X	5 locations	24 hourly twice a week 4 hourly. Twice a week, One non-monsoon season 8 hourly, twice a week 24 hourly, twice a week
Noise	5 locations	24 hourly Once in 5 locations
Water (Ground water) pH, Temperature, Turbidity, Magnesium Hardness, Total Alkalinity, Chloride, Sulphate, Fluoride, Nitrate, Sodium,	5 locations	Once in 5 locations

Potassium, Salinity, Total nitrogen, Total Coliforms, Fecal Coliforms		
Water (surface water) pH, Temperature, Turbidity, Magnesium Hardness, Total Alkalinity, Chloride, Sulphate, Fluoride, Nitrate, Sodium, Potassium, Salinity, Total nitrogen, Total Coliforms, Fecal Coliforms	Sample from nearby lakes/river	One-time Sampling
Soil (Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	5 locations	Once in 5 locations
Ecology and biodiversity Study	Study area covering 10 km radius	One-time Sampling
Socio- Economic study (Population, Literacy Level, employment, Infrastructure like school, hospitals & commercial establishments)	Villages around 10 km radius	One-time Sampling

3.1.5 *Secondary data Collection*

Apart from the primary data, Secondary data is also used for the collection; collation; synthesis and interpretation.

- Flora & Faunal Study
- Land use study

- Demography and socio-economic analysis
- Meteorological data, from Indian Meteorological Department (IMD)

3.1.6 *Study area details*

Table 3-2 Study area details

S. No	Description	Details	Source
1.	Project Location	S.F.Nos. 133/1(Part), 133/2, 133/4, 134/1 & 134/2 Venkatesapuram Village, Shoolagiri Taluk, Krishnagiri District.	Field Study
2.	Latitude & Longitude	Latitude: 12°45'14.72"N to 12°45'26.27"N Longitude: 77°57'14.30"E to 77°57'23.15"E	Topo Sheet
3.	Topo Sheet No.	57- H/13	Survey of India Toposheet
4.	Mine Lease Area	4.40.0 Ha	--
Demography in the study area (as per Census 2011)			
5.	Total Population	2,873	Census Survey of India
6.	Total Number of Households	650	
7.	Maximum Temperature (°C)	34	IMD
8.	Minimum Temperature (°C)	24	
9.	Ecological Sensitive Areas - Wetlands, watercourses or other waterbodies, coastal zone, biospheres, mountains, forests	• Ponnaiyar River – 6.11 Km – SW • Muthali lake – 5.20 Km – W • Peddakullu lake – 6.19 Km – W • Bukkasagaram lake – 3.75 Km – S • Doraipalli lake – 5.16 Km – S • Bathlpalli lake – 11.12 Km – W • Koladasapuram Lake – 5.40 Km – SWW • Thummanapalli Lake – 6.05 Km – S	Google Earth/Field Study

<table>
<tr><td></td><td></td><td>• Berikai Lake – 5.98 Km – N
• Gangapuram Lake – 6.88 Km – SW
• A.Kothur Lake – 7.27 Km – SSW
• Kamandoddi Lake – 7.48 Km – S
• Kamandoddi Old Lake – 8.42 Km – S
• Kumudepalli Lake – 9.42 Km – SW
• Subbagiri Lake – 7.37 Km - S</td><td></td></tr>
<tr><td>10.</td><td>Densely Populated area</td><td>Shoolagiri – 10.44 Km -SE</td><td></td></tr>
<tr><td>11.</td><td>Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)</td><td>
<table>
<tr><th>S. No.</th><th>Places</th><th>Dist. From Project Site</th></tr>
<tr><td colspan="3">Schools & Colleges</td></tr>
<tr><td>1</td><td>Adhiyaman college of Agriculture & Research, Athimugam.</td><td>4.10 Km - E</td></tr>
<tr><td>2</td><td>Government Higher Secondary School, Bukkasagaram.</td><td>3.04 Km - S</td></tr>
<tr><td>3</td><td>Government High school, Venkatesapuram.</td><td>1.27 Km - W</td></tr>
<tr><td colspan="3">Hospitals</td></tr>
<tr><td>1</td><td>Government Hospital, Athimugam</td><td>4.08Km - E</td></tr>
<tr><td>2</td><td>Government Hospital, Kamandoddi</td><td>7.62Km - S</td></tr>
</table>
</td><td>Google Earth/ Field Study</td></tr>
</table>

3.1.7 *Site Connectivity:*

MDR 422 – Berigai to Shoolagiri Road – 2.13 Km – E &

NH 44 – Dharmapuri to Bangalore Road – 8.02 Km - SW

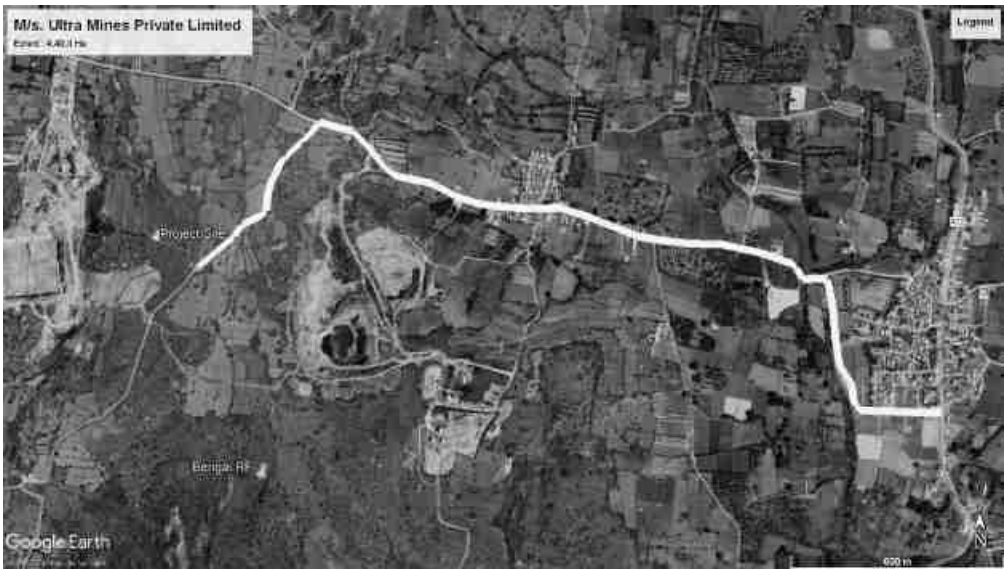


Figure 3.1: Site Connectivity

3.2 LAND USE ANALYSIS

3.2.1 *Land Use Classification*

Land Use / Land Cover - Land Use refers to man's activity and the various uses, which are carried on land. Land Cover refers to natural vegetation, water bodies, rock/soil, artificial cover and others, resulting due to land transformation. The present Land Use/Land Classification map is developed with following objectives. The main objective of the study is to classify the different land use within 10 km from the project boundary.

3.2.2 *Methodology*

Information of land use and land cover is important for many planning and management activities concerning the surface of the earth (Agarwal and Garg, 2000). Land use refers to man's activities on land, which are directly related to land (Anderson et al., 1976). The land use and the land cover determine the infiltration capacity. Barren surfaces are poor retainers of water as compared to grasslands and forests, which not only hold water for longer periods on the surface, but at the same time allow it to percolate down.

The terms 'land use' and 'land cover' (LULC) are often used to describe maps that provide information about the types of features found on the earth's surface (land cover) and the human activity

that is associated with them (land use). Satellite remote sensing is being used for determining different types of land use classes as it provides a means of assessing a large area with limited time and resources. However, satellite images do not record land cover details directly and they are measured based on the solar energy reflected from each area on the land. The amount of multi spectral energy in multi wavelengths depends on the type of material at the earth's surface and the objective is to associate particular land cover with each of these reflected energies, which is achieved using either visual or digital interpretation. In the present study the task is to study in detail the land use and land cover in and around the project site. The study envisages different LULC around the proposed project area and the procedure adopted is as below.

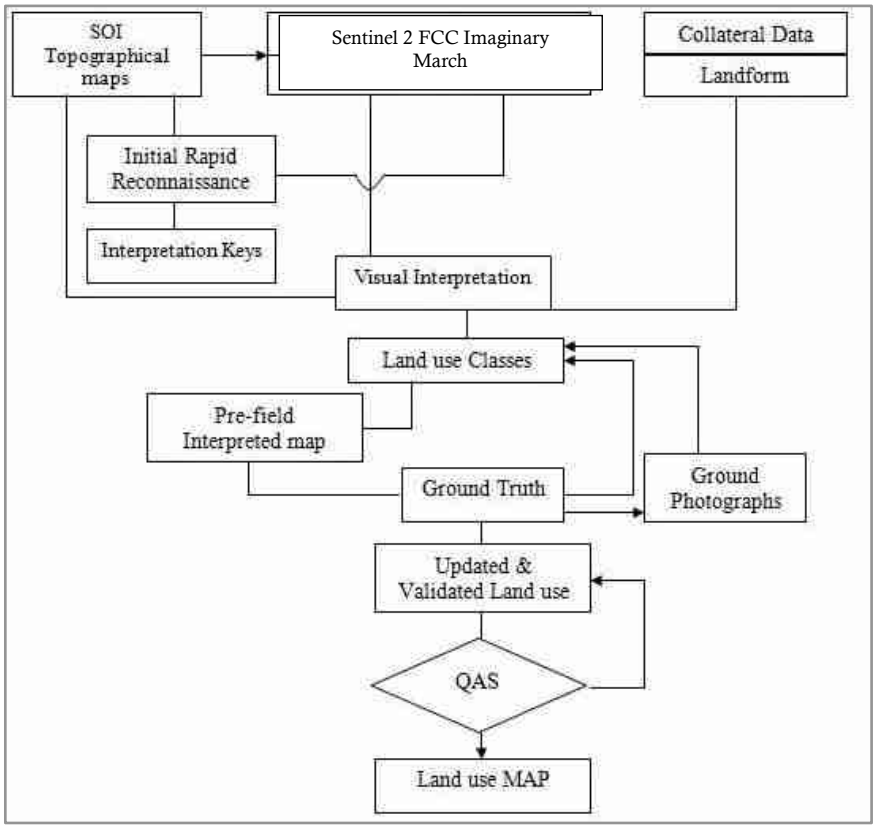


Figure 3.2 Flow Chart showing Methodology of Land use mapping

3.2.3 *Satellite Data*

Sentinal 2 multispectral satellite data of 2020 was utilized for the present study. Details of satellite data is given below. The rectification of imagery was carried out to bring the digital data on the earth coordinate system by means of ground control point (GCP) assignments/SOI topo sheets.

3.2.4 *Scale of mapping*

Considering the user defined scale of mapping, 1:50000 Sentinal 2 data was used for Land use / Land cover mapping of 10 km radius for proposed site. The description of the land use categories for 10 km radius and the statistics are given for 10 km radius.

3.2.5 *Interpretation Technique*

Standard on screen visual interpretation procedure was followed. The various Land use / Land cover classes interpreted along with the SOI topographical maps during the initial rapid reconnaissance of the study area. The physiognomic expressions conceived by image elements of color, tone, texture, size, shape, pattern, shadow, location and associated features are used to interpret the FCC imagery. Image interpretation keys were developed for each of the LU/LC classes in terms of image elements.

June 2016 FCC imagery (Digital data) of the study area was interpreted for the relevant land use classes. On screen visual interpretation coupled with supervised image classification techniques are used to prepare the land use classification.

1. Digitization of the study area (10 km radius from the proposed site) from the topo maps
2. In the present study the Sentinal satellite image and SOI topo sheets of 57-H/14 have been procured and interpreted using the ERDAS imaging and ARC-GIS software adopting the necessary interpretation techniques.
3. Satellite data interpretation and vectorization of the resulting units
4. Adopting the available guidelines from manual of LULC mapping using Satellite imagery (NRSA, 1989)
5. Field checking and ground truth validation
6. Composition of final LULC map

The LULC Classification has been done at three levels where level -1 being the broad classification about the land covers that is Built-up land, agriculture land, waste land, wetlands, and water bodies. These are followed by level –II where built-up land is divided into towns/cities as well as villages. The Agriculture land is divided into different classes such as cropland, Fallow, Plantation, while wastelands are broadly divided into, Land with scrub and without Scrub and Mining and Industrial wasteland. The wetlands are classified into inland wetlands, coastal wetlands and islands. The water bodies are classified further into River/stream, Canal, Tanks and bay. In the present study level II classification

has been undertaken. The SOI Topo map is presented in Annexure and Satellite imagery of 10 km radius from the project site is presented Annexure.

3.2.6 *Field Verification*

Field verification involved collection, verification and record of the different surface features that create specific spectral signatures / image expressions on FCC. In the study area, doubtful areas identified in course of interpretation of imagery is systematically listed and transferred on to the corresponding SOI topographical maps for ground verification. In addition to these, traverse routes were planned with reference to SOI topographical maps to verify interpreted LU/LC classes in such a manner that all the different classes are covered by at least 5 sampling areas, evenly distributed in the area. Ground truth details involving LU/LC classes and other ancillary information about crop growth stage, exposed soils, landform, nature and type of land degradation are recorded and the different land use classes are taken the Land use map is presented in Annexure.

3.2.7 *Description of the Land Use / land cover classes*

3.2.7.1 Water

Areas where water was predominantly present throughout the year; may not cover areas with sporadic or ephemeral water; contains little to no sparse vegetation, no rock outcrop nor built up features like docks; examples: rivers, ponds, lakes, oceans, flooded salt plains.

3.2.7.2 Trees

Any significant clustering of tall (~15-m or higher) dense vegetation, typically with a closed or dense canopy; examples: wooded vegetation, clusters of dense tall vegetation within savannas, plantations, swamp or mangroves (dense/tall vegetation with ephemeral water or canopy too thick to detect water underneath).

3.2.7.3 Grass

Open areas covered in homogenous grasses with little to no taller vegetation; wild cereals and grasses with no obvious human plotting (i.e., not a plotted field); examples: natural meadows and fields with sparse to no tree cover, open savanna with few to no trees, parks/golf courses/lawns, pastures.

3.2.7.4 Flooded vegetation

Mix of small clusters of plants or single plants dispersed on a landscape that shows exposed soil or rock; scrub-filled clearings within dense forests that are clearly not taller than trees; examples: moderate to sparse cover of bushes, shrubs and tufts of grass, savannas with very sparse grasses, trees or other plants.

3.2.7.5 Crops

Humans planted/plotted cereals, grasses, and crops not at tree height; examples: corn, wheat, soy, fallow plots of structured land.

3.2.7.6 Scrub/Shrub

Mix of small clusters of plants or single plants dispersed on a landscape that shows exposed soil or rock; scrub-filled clearings within dense forests that are clearly not taller than trees; examples: moderate to sparse cover of bushes, shrubs and tufts of grass, savannas with very sparse grasses, trees or other plants.

3.2.7.7 Built Area

Human made structures; major road and rail networks; large homogenous impervious surfaces including parking structures, office buildings and residential housing; examples: houses, dense villages / towns / cities, paved roads, asphalt.

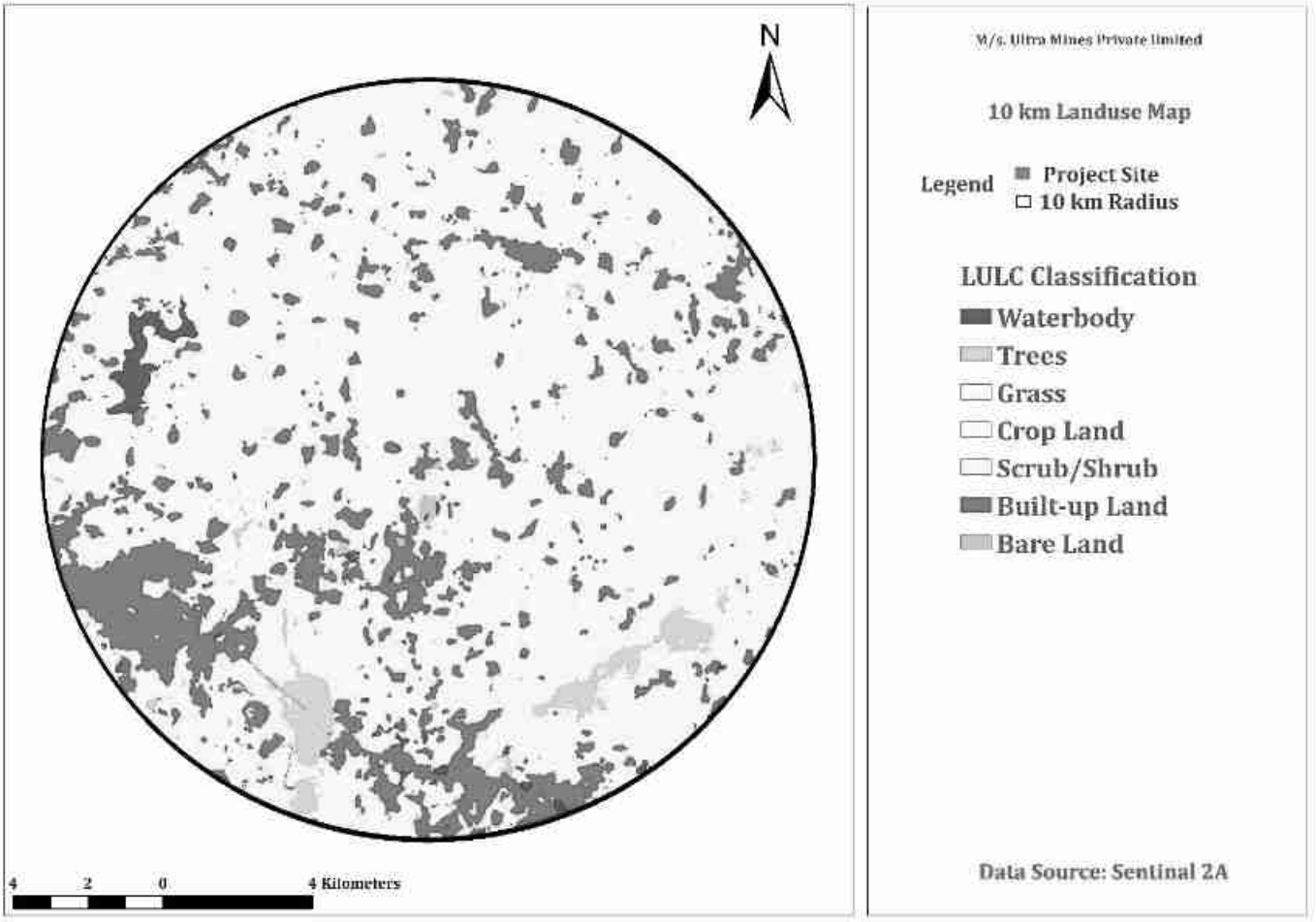


Figure 3.3 Land use classes around 10 km radius from the project site

3.2.7.8 Different Land use classes around 10 km radius from the project site

Table 3-3 Land use pattern

Sl.No	Categories	Area in Sq.m	Percentage
1	Water Body	3.17	0.98
2	Trees	6.84	2.13
3	Grass	0.09	0.02
4	Crops	178.83	55.80
5	Scrub/Shrub	80.13	25.0
6	Built-up Area	50.87	15.87
7	Barren Land	0.53	0.17

3.3 WATER ENVIRONMENT

3.3.1 *Contour & Drainage*

The altitude of the area is Maximum 878m and Minimum 868m above MSL.

3.3.2 *Geomorphology*

The prominent geomorphic units identified in the district through interpretation of satellite imagery are structural hills in the southwestern part of the district, denudational landforms like buried pediments in the plains and inselbergs and plateaus represented by conical hills aligned with major lineaments. Krishnagiri district forms part of the upland plateau region with many hill ranges and undulating plains. The western part of the district has hill ranges of Mysore plateau with a chain of undulating hills and deep valleys extending in NNE-SSW direction. The plains of the district have an average elevation of 488 m amsl. The plateau region along the western boundary and the northwestern part of the district has an average elevation of 914 m amsl. The Guthrayan Durg with an elevation of 1395 m amsl is the highest peak in the district.

Soils

Soils have been classified into Black soil, mixed soil, red loamy soil, gravelly and sandy soils. Red loamy and sandy soils are predominant in Hosur taluk. Vast stretches of loam soils and black soils occur in Krishnagiri district.

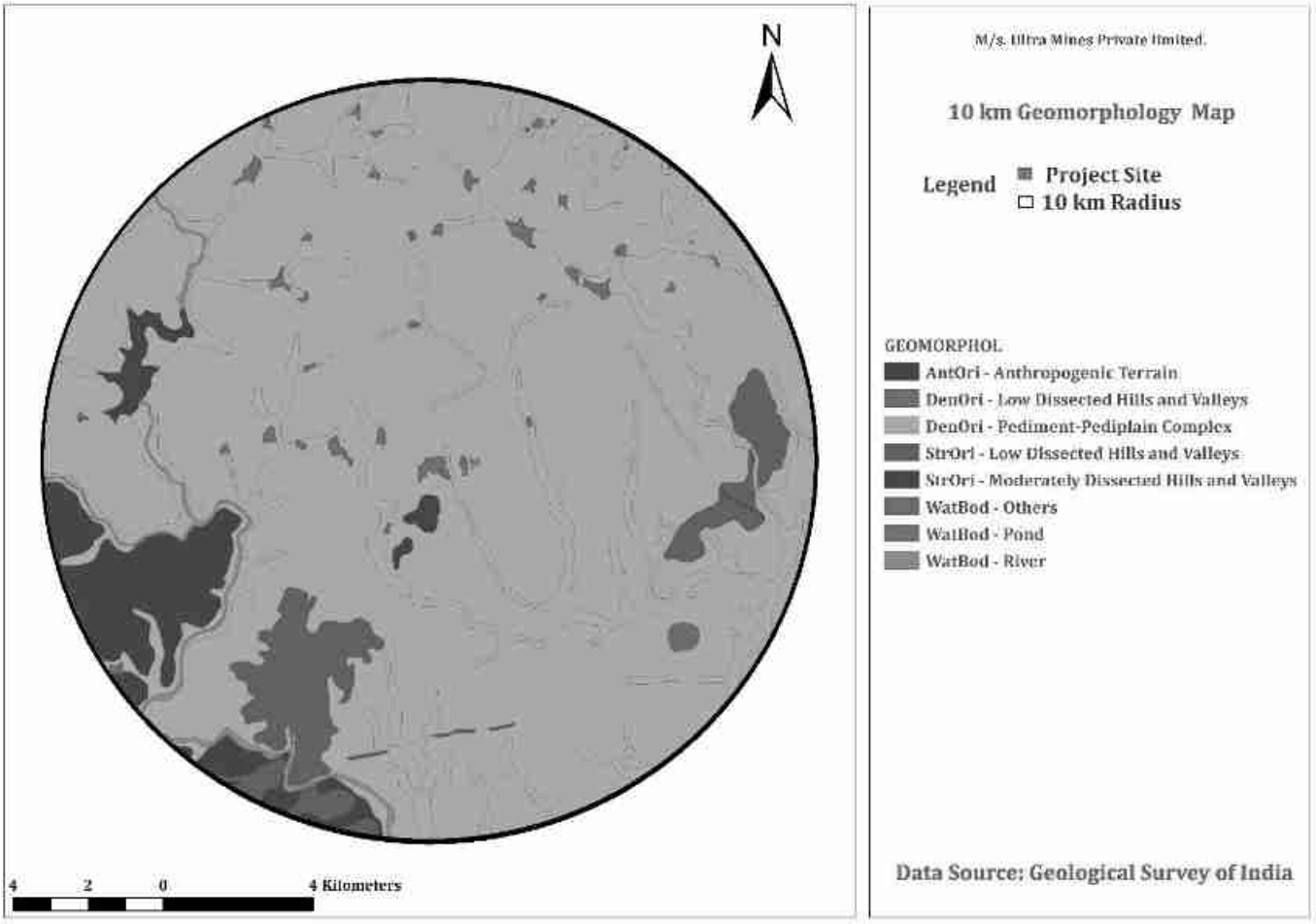


Figure 3.4 Geomorphology within 10km from the project site

3.3.3 *Geology:*

The geological formations of the district belong mainly to Archaean age along with rock of Proterozoic age. The former is represented by Khondalite Group of rocks, Charnockite Group of rocks, Migmatites Complex, Santhyamangalam Group of rocks, while the latter is represented by Alkaline rocks. The Khondalite Group includes garnet sillimanite gneiss and quartzite which occur as small patches. The migmatite complex includes garnet ferrous quartz of felspathic gneiss and horn blends biotite gneiss, the former exposed on the western part of the district. The Santhyamangalam Group includes fuchsite quartzite, sillimanite mica schist and amphibolites. The Bhavani Group in this area includes fissile hornblende-biotite gneiss, granitoid gneiss and pink migmatite. Amphibolites with barbed ferruginous quartzite and associated quartzo-feldspathic rocks (Champion Gneiss) represent the Kolar group and

are found west and southwest of Veppanapalli. Following this there are basic intrusions occurring as dykes.

The Charnockite Group occupies a major part of the south-west portion of this district with small bands of garnetiferous quartzo-feldspathicgneiss, Granite gneiss and dolerite dykes. The North-East and Northern part of the District mainly consist of granite gneiss with small patches of Pink Migmatite, hornblende-biotite gneiss and dolerite dykes. The Eastern part of the district consists of Epidote-Hornblende Gneiss, Ultra Mafics, Syenite and Carbonatite.

The Alkaline Complex is represented by epidote-horn blende gneiss, ultramafics, syenite and carbonatite and these are distributed in the eastern part of the district. Innumerable basic dykes and felsites, quartz, barites and pegmatite veins form part of the Alkali Complex.

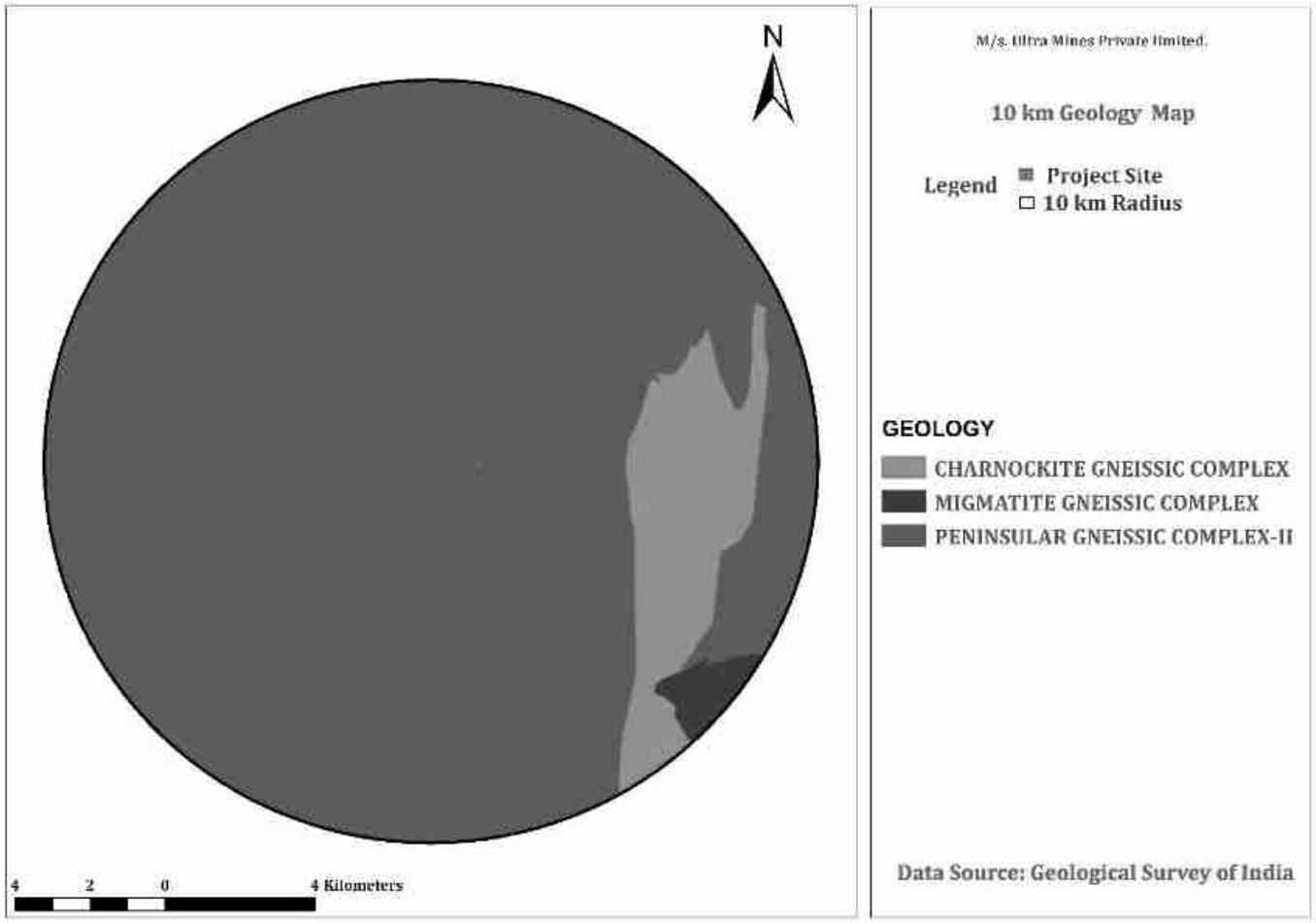


Figure 3.5 Geology within 10km from the project site

3.3.4 *Hydrogeology*

Krishnagiri district is underlined by Archaean crystalline formations with Recent alluvial deposits of limited areal extent and thickness along the courses of major rivers (Plate-II). The occurrence and movement of ground water are controlled by various factors such as physiography, climate, geology and structural features. Weathered, and fractured crystalline rocks constitute the important aquifer systems in the district.

Ground water generally occurs under phreatic conditions in the weathered mantle and under semi-confined conditions in the fractured zones at deeper levels. The thickness of weathered zones in the district ranges from less than a meter to more than 15 m. The yield of large diameter dug wells in the district, tapping the weathered mantle of crystalline rocks ranges from 100 to 500 lpm. These wells normally sustain in pumping for 2 to 6 hours per day, depending upon the local topography and characteristics of the weathered mantle.

The depth to water level (DTW) during pre-monsoon (May 2006) ranged between 0.5 and 9.9 m bgl (Plate-III) in the district. In major part of the district the DTW is more than 5mbgl. Whereas it ranged between 2 and 9.9 m bgl (Plate-IV) during post monsoon, in the district and the DTW is in the range of 5 – 10 m bgl in the entire district except a few isolated pockets.

The yield of successful exploratory wells drilled in the district ranged from 0.78 lps to 26 lps. As per the studies the wells drilled in granitic gneiss have higher yields than the wells drilled in charnockites. The specific capacity of the wells ranged from 1.2 to 118.0 lpm/m/dd. The piezometric head of fracture zones varied between 0.50 and 18.45 m bgl.

Aquifer Parameters:

The transmissivity values of fracture zones ranged from 1 to 188 m^2 /day with low to very low permeability values.

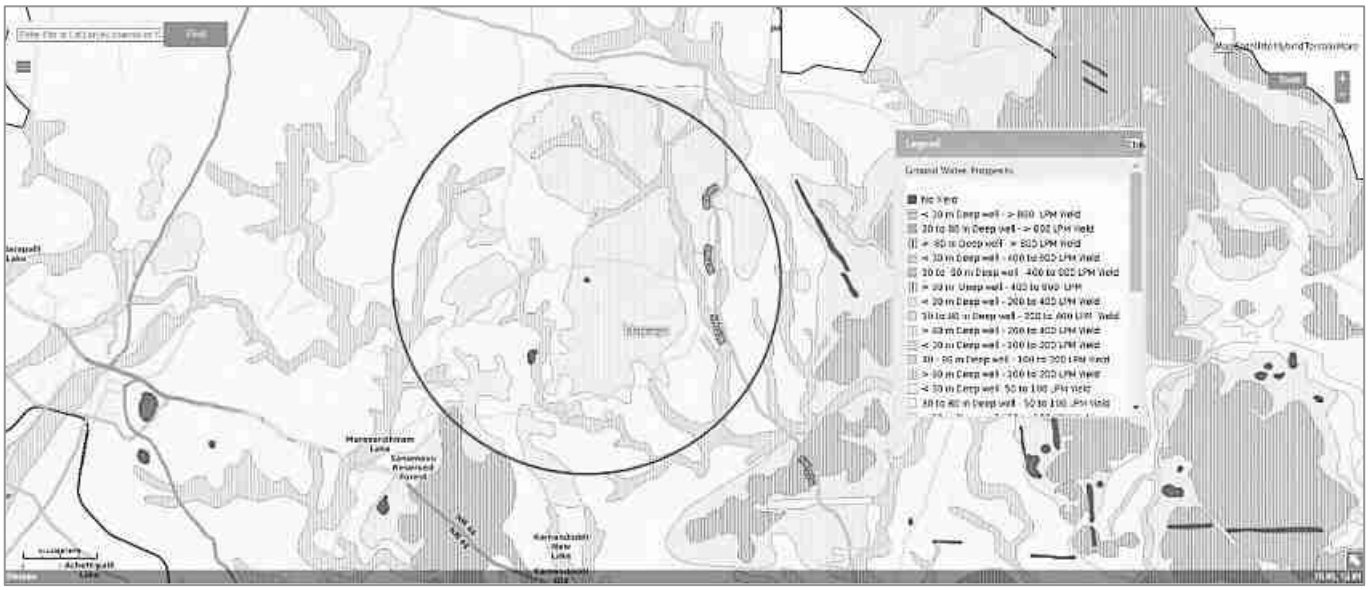


Figure 3.6 Ground water prospects within 5 km radius of the project site

3.3.5 *Ground water quality monitoring*

Ground water quality monitoring is done in the following locations and analysis will be done for physical, chemical & Biological parameters.

Table 3-4 Ground water Quality Analysis

Environmental Parameters: Ground water Quality Analysis	
Monitoring Period	December 2022 to February 2023
Design Criteria	Based on the Environmental settings in the study area
Monitoring Locations	Project Site – GW 1 Athimugam Masjid Al Sunnatul Jamath– GW 2 Sri Pattalamma Devi Temple, Payarkuttalai- GW 3 Govt. Hr Sec School, Bukkasagaram - GW 4 Sivaraman Green Garden– GW5
Methodology	Water Samples were collected in 5 Litre fresh cans as per IS 3025 Part I and transported to the laboratory in Iceboxes
Frequency of Monitoring	Once in a season

3.3.5.1 Sampling Procedure

Quality of ground water was compared with IS: 10500: 1991 (Reaffirmed 1993 With Amendment NO-3 July 2010) for drinking purposes. Water samples were collected as Grab sample from five sampling locations in a 5-liter plastic jerry can and 250 ml sterilized clean glass/pet bottle for complete physico-chemical and bacteriological tests respectively. The samples were analyzed as per standard procedure / method given in IS: 3025 (Revised Part) and standard method for examination of water and wastewater Ed. 21st, published jointly by APHA.

Table 3-5: Standard Procedure

S. No	Parameters	Test Method
1	pH (at 25°C)	IS:3025(P -11)1983 RA: 2012
2	Electrical Conductivity	IS:3025(P -14) 2013
3	Colour	IS:3025 (P -4)1983 RA: 2012
4	Turbidity	IS:3025(P -10)1984 RA: 2012
5	Total Dissolved Solids	APHA 22nd Edn.2012-2540-C
6	Total Suspended Solids	IS:3025(P-17)-1984 RA:2012
7	Total Hardness as $CaCO_3$	APHA 22nd Edn.2012-2340-C
8	Calcium as Ca	APHA 22nd Edn2012.3500 Ca-B
9	Magnesium as Mg	APHA 22nd Edn.2012-3500 Mg-B
10	Chloride as Cl	IS:3025(P -32)-1988 RA: 2014
11	Sulphate as SO_4	APHA 22nd Edn.2012-4500 SO_4^--E
12	Total Alkalinity as $CaCO_3$	APHA 22nd Edn.2012-2320-B
13	Iron as Fe	IS:3025(P -53):2003 RA: 2014
14	Silica as SiO_2	IS:3025(P -35)1988 RA: 2014
15	Fluoride as F	APHA 22nd Edn.2012-4500-F-D
16	Nitrate as NO_3	IS:3025(P -34):1988 RA: 2014
17	Sodium as Na	IS:3025(P -45):1993 RA: 2014
18	Potassium as K	IS:3025(P -45):1993 RA: 2014
19	Coliform	IS:1622:1981:RA:2014
20	E.coli	IS:1622:1981:RA:2014

Table 3-6 Ground water sampling results

S. No	Parameters	Units	GW1	GW2	GW3	GW4	GW5
1	pH (at 25°C)	-	7.76	7.69	7.40	7.65	7.20
2	Electrical Conductivity	µS/cm	1547	998	1309	1276	1071
3	Colour	Hazen Unit	4.0	2.0	1.0	2.0	3
4	Turbidity	NTU	BQL(LOQ:1)	BQL(LOQ:1)	BQL(LOQ:1)	BQL(LOQ:1)	BQL(LOQ:1)
5	Total Dissolved Solids	mg/L	880	538	862	739	606
6	Total Suspended Solids	mg/L	BQL(LOQ:2)	BQL(LOQ:2)	BQL(LOQ:2)	BQL(LOQ:2)	BQL(LOQ:2)
7	Total Hardness as $CaCO_3$	mg/L	523	345	444	495	380
8	Calcium Hardness as $CaCO_3$	mg/L	360	192	285	333	214
9	Magnesium Hardness as $CaCO_3$	mg/L	162	152	158	162	166
10	Calcium as Ca	mg/L	144	77.2	114	133	86
11	Magnesium as Mg	Mg/L	39.6	37.1	38.5	39.4	40.4
12	Chloride as Cl	mg/L	161	89.5	170	176	76
13	Sulphate as SO_4	mg/L	131	45.3	122	82.2	74.8
14	Total Alkalinity as $CaCO_3$	mg/L	331	281	313	123	293
15	Iron as Fe	mg/L	BQL (LOQ:0.1)	BQL (LOQ:0.1)	BQL (LOQ:0.1)	BQL (LOQ:0.1)	BQL (LOQ:0.1)
16	Silica as SiO_2	mg/L	32.7	20.2	25.8	21.3	30.2
17	Fluoride as F	Mg/L	0.62	0.57	0.41	0.69	0.42

18	Nitrate as NO_3	Mg/L	14.7	17.7	41.5	46.3	53.5
19	Potassium as K	mg/L	9.81	4.12	11.5	22.1	5.2
20	Sodium as Na	mg/L	145	78.9	154	149	64.5

3.3.6 *Interpretation of results:*

3.3.6.1 Physical parameters of water:

The basic physical parameters of water include

Colour:

Value observed in Project Site (True/Apparent Color): 1 Hazen unit.

Acceptable and permissible limits: 5 Hazen units and 15 Hazen units respectively. The value in the project site is as same as the acceptable limits prescribed by IS 10500: 2012 (referred as "*Standards*" from herein).

Odour & Taste:

The water is oduorless. The taste of the water is slightly salty which is due to the presence of hardness in water, which is attributed to the presence of calcium and magnesium in the water. As per the standards, the odour and taste should be agreeable.

pH:

Value observed in the Project Site: 7.76

Acceptable and permissible limits: 6.5-8.5. The pH value is the measure of acid – base equilibrium. The value of pH in the project site clearly indicates that water is slightly neutral in nature.

Turbidity:

Value observed in the Project Site: less than 1.

Acceptable and permissible limits: 1 NTU & 5 NTU respectively. The value of turbidity generally indicates the presence of phytoplankton and other sediments.

Total Dissolved Solids:

Value observed in the Project Site: 880 mg/L.

Acceptable and permissible limits: 500 mg/L and 2000 mg/L respectively.

TDS is the presence of inorganic salts and small amounts of organic matter present in the water. This is mainly due to the result of surface runoff as the cations and anions in the topsoil is carried away by the water.

3.3.6.2 Chemical parameters of water:

The chemical parameters of the drinking water include,

Calcium:

Value observed in the Project Site: 144 mg/L.

Acceptable and permissible limits: 75mg/L and 200 mg/L respectively.

Calcium is an essential macronutrient. The value of the calcium is within the prescribed permissible standards. The higher level of calcium may cause hardening in domestic equipment and will also reduce the detergent efficiency. Higher levels of calcium will lead to constipation, gas, and bloating. Apart from that, extra calcium may also increase the risk of kidney stones. If the calcium deposit in blood is high, it may lead to hypercalcemia.

Magnesium:

Value observed in the Project Site: 39.6 mg/L.

Acceptable and permissible limits: 30 mg/L and 100 mg/L respectively.

The value of Magnesium in the project site is higher than the acceptable limit and less than the permissible limit. The increase in the level of magnesium will cause diarrhea and vomiting in children.

Chloride

Value observed in the project site: 161 mg/L.

Acceptable and permissible limits: 250 mg/L and 1000 mg/L respectively.

The chloride level in the project site is within the acceptable and permissible limit. If the level of chloride is more, it may cause galvanic and pitting corrosion, increases level of metals. It imparts bitter taste to the water.

Total Alkalinity as $CaCO_3$:

Value observed in the project site: 331 mg/L.

Acceptable and permissible limits: 200 mg/L and 600 mg/L respectively.

Total Alkalinity is the measure of the concentration of all alkaline substances dissolved in the water which includes carbonates, bicarbonates and hydroxides. The value of the total alkalinity is slightly greater in the project site, which will impart soda taste to the water.

Hardness:

Value observed in the Project Site: 523 mg/L.

Acceptable and permissible limits:200 mg/L and 600 mg/L respectively.

The value of Hardness in the project site is higher than acceptable limit but within the permissible limit. The increase in the level of hardness may cause corrosion and scaling problems, increased soap consumption and it also contributes to the salty taste of water.

3.3.7 *Surface Water Analysis*

Surface water samples were taken from **Bukkasagaram and Muthali** lake. The results are summarized below.

Table 3-7 Surface Water Sample Results

S. No	Parameters	Units	Bukkasagaram lake	Muthali lake
1	pH (at 25°C)	-	7.82	7.66
2	Electrical Conductivity	µS/cm	411	155
3	Colour	Hazen Unit	28	35
4	Turbidity	NTU	4.1	8.2
5	Total Dissolved Solids	mg/L	226	105
6	Total Suspended Solids	mg/L	6.5	12.5
7	Total Hardness as $CaCO_3$	mg/L	121	56.4
8	Calcium Hardness as $CaCO_3$	mg/L	89.1	34.7
9	Magnesium Hardness as $CaCO_3$	mg/L	32	21.7
10	Calcium as Ca	mg/L	36	13.9

11	Magnesium as Mg	mg/L	7.53	5.26
12	Chloride as Cl	mg/L	31	7.83
13	Sulphate as SO_4	mg/L	41.80	20.8
14	Total Alkalinity as $CaCO_3$	mg/L	99	50.1
15	Iron as Fe	mg/L	3	4.2
16	Silica as SiO_2	mg/L	7.52	2.78
17	Fluoride as F	mg/l	0.51	0.58
18	Nitrate as NO_2	mg/l	16.0	16.9
19	Potassium as K	mg/L	2.31	1.42
20	Sodium as Na	mg/L	28.1	5.85
21	Total Kjeldahl Nitrogen as N	mg/L	11.8	8.85
22	Biochemical oxygen Demand @ 27c		9.81	9.22
23	Chemical Oxygen Demand		34.1	28.5
24	Dissolved Oxygen		5.2	5.4

Inference: The surface water quality is compared with the CPCB Water Quality Criteria against A, B, C, D & E class of water. From the test result, it is found that both the water does not fit Class A (Drinking Water Source without conventional treatment but after disinfection). But they can be used for outdoor bathing as it meets the requirements shown for class B water.

3.3.8 *Climatology & Meteorology:*

Climate and meteorology of a place can play an important role in the implementation of any developmental project. Meteorology is also the key to understand local air quality as there is an essential relationship between meteorology and atmospheric dispersion involving wind in the broadest sense of the term.

The year may broadly be divided into four seasons:

Winter season : December to February

Pre-monsoon season : March to May

Monsoon season : July to September

Post-monsoon season : October to November

i) **Climate**

Eastern part of the district experiences hot climate and Western part has a contrasting pleasant cold climate. The district is hot and dry in summer i.e., from March to June. From July to November is the rainy season and between December to February winter prevails with very cold and misty.

ii) **Temperature**

The maximum temperature is around 36^0C and minimum temperature is 28^0C.

iii) **Rainfall:**

Krishnagiri receives rainfall from both the northeast and the southwest monsoons. Monsoon season is from the months of July to November. During this time, temperature is mild and pleasant. Heavy rainfall is expected in short intervals during this period. December to February are winter months**.** This district gets maximum rainfall in November (274.7mm).

KRISHNAGIRI DISTRICT -NORMAL AND ACTUAL RAINFALL

Unit in mm.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F
2019	5.7	0	48.7	37.9	198.6	19.1	24.6	189.7	291.7	219	54.5	56.2
2020	0	1.3	34.9	14.4	114.5	41.1	10.5	18.5	152.1	85.2	33.2	4.8
2021	13.2	1.2	4.5	47.2	96.5	33.6	34.6	94.7	138.6	177.7	48.7	39.5
2022	0.3	0	6.9	61.7	57.9	59	147.2	66.8	142.1	142	77	42.6
2023	40.1	5.8	0	46.6	75.7	32.4	137.7	70.2	134.9	140.4	282.6	19.1

Source: IMD

Metrological Data

The meteorological data – Temperature, rainfall, Wind Speed, Wind direction are recorded through AWS by setting it up in the site.

vi) Wind Rose Diagram

The wind rose denotes a class of diagrams designed to display the distribution of wind direction at a given location over a period of time. Wind roses are also useful as they project a large quantity of data in a simple graphical plot.

The wind speed & wind direction data are taken and wind rose is plotted for December 2022 to February 2023.

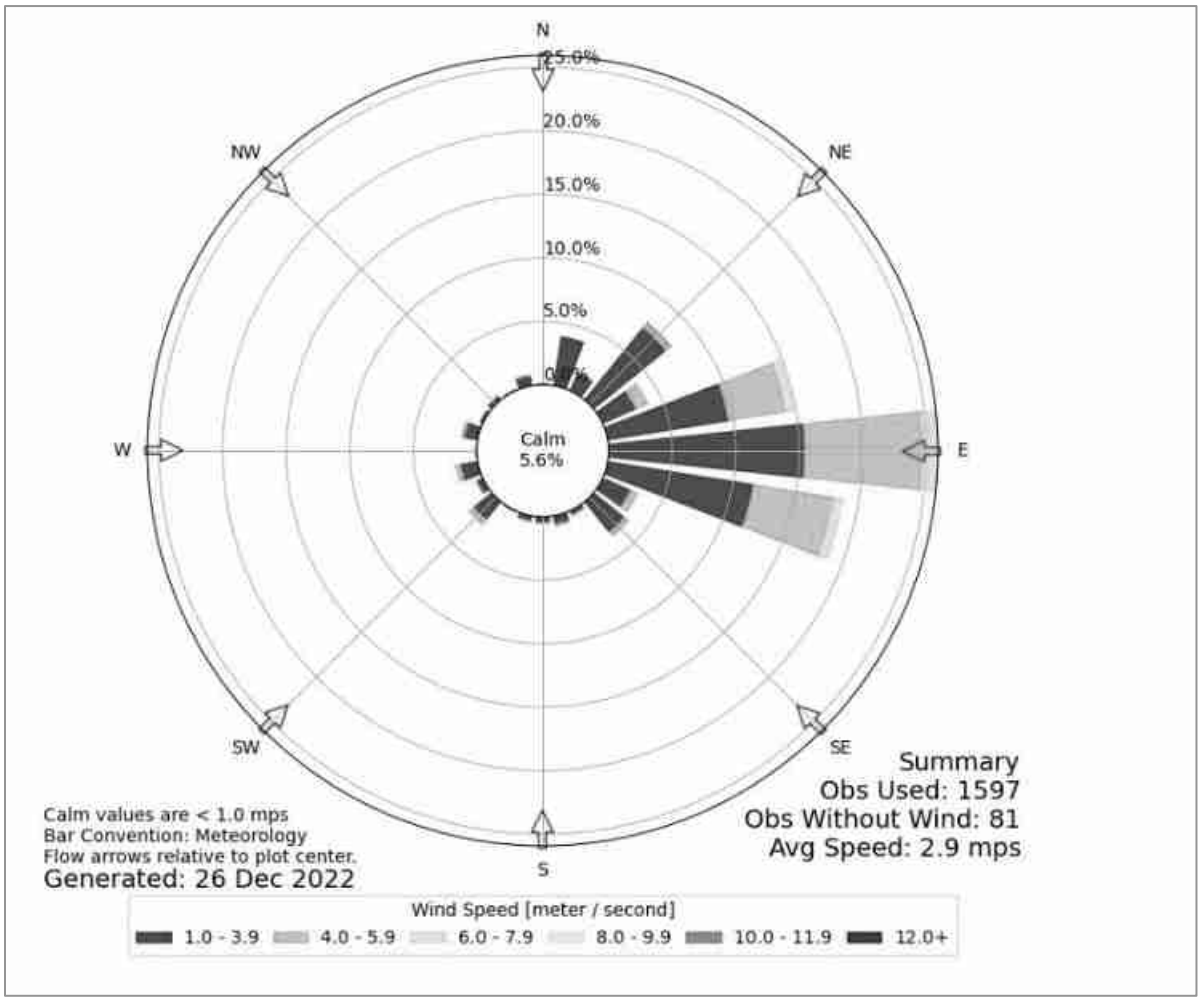


Figure 3.7 Wind rose.

3.3.9 *Selection of Sampling Locations:*

Four Monitoring locations along with the project site is selected based on Wind Direction & Wind Speed. All the monitoring locations are chosen in the downwind direction.

3.4 AMBIENT AIR QUALITY

Table 3-8: Selection of Sampling Location

Environmental Parameters*: Ambient Air*	
Monitoring Period	December 2022 to February 2023
Design Criteria	The monitoring stations are selected based on factors like topography/terrain, prevailing meteorological conditions like predominant wind direction (December 2022 to February 2023), etc., play a vital role in the selection of air sampling stations. Based on these criteria, 5 air sampling station were selected in the area as shown below.
Monitoring Locations	**Location & Code** / **Distance (km)** / **Direction** Project Site / - / - Athimugam Masjid Al Sunnatul Jamath / 3.04 km / E Sri Pattalamma Devi, Temple, Payarkuttalai / 4.90 km / W Govt. Hr Sec School, Bukkasagaram / 2.91 km / S Sivaraman Green Garden / 4.11 km / N
Methodology	Respirable Particulate Matter (PM10) - Gravimetric (IS 5182: Part 23:2006) Particulate Matter PM2.5 - Gravimetric (Fine particulate matter) Sulphur Dioxide - Calorimetric (West & Gaeke Method) (IS 5182: Part 02: 2001) Nitrogen Dioxide - Calorimetric (Modified Jacob & Hocheiser Method) (IS 5182: Part 06:2006)
Frequency of Monitoring	2 days in a week, 4 weeks in a month for 3 months in a season.

3.4.1 *Ambient Air Quality: Results & Discussion*

The test results of the ambient air quality monitored in project site and other four locations is summarized below.

Table 3-9 Ambient Air Quality

Code	Location	PM 10 (µg/m³)				PM 2.5 (µg/m³)				SO_2 (µg/m³)				NOx (µg/m³)			
		Min	Max	Avg	98 percentiles	Min	Max	Avg	98 percentiles	Min	Max	Avg	98 percentiles	Min	Max	Avg	98 percentiles
AAQ 1	Project Site	34	48	40.3	46.9	15	21	18.1	21.2	5	9	6.7	8.35	10	19	14.2	18.78
AAQ 2	Sri Pattalamma Devi, Temple, Payarkuttalai	39	50	44.9	49.7	17	23	20.4	23.1	4	11	7.0	10.22	10	24	15.3	22.43
AAQ 3	Sivamurugan Green Garden	46	57	51.3	56.6	18	29	23.3	27.9	6	13	8.2	12.04	12	27	17.5	26.31
AAQ 4	Athimugam Masjid Al Sunnatul Jamath	41	53	48.1	52.6	18	25	21.8	24.7	4	10	6.7	9.17	10	21	14.8	20.43
AAQ 5	Govt. Hr Sec School, Bukkasagaram	47	57	52.1	56.4	21	27	23.6	26.8	7	13	9.2	13.13	14	29	20.7	28.44
NAAQ Standards - Residential Area		100 (µg/m³)				60(µg/m³)				80 (µg/m³)				80 (µg/m³)			

3.4.2 *Interpretation of ambient air quality:*

To assess the impact, AAQ were monitored in project site and four locations.

Observation:

The Maximum value of PM10 (57(µg/m^3), PM 2.5(27(µg/m^3), SOx (11(µg/m^3), NOx (24 (µg/m^3) is observed in different places.

Inference:

The monitoring results for PM10, PM2.5, Sox, NOx was found to be high in Sri Pattalamma Devi, Temple, Payarkuttalai and Athimugam Masjid Al Sunnatul Jamath which is due to high movement of vehicles. The observed values are all well within the Standards prescribed by NAAQ.

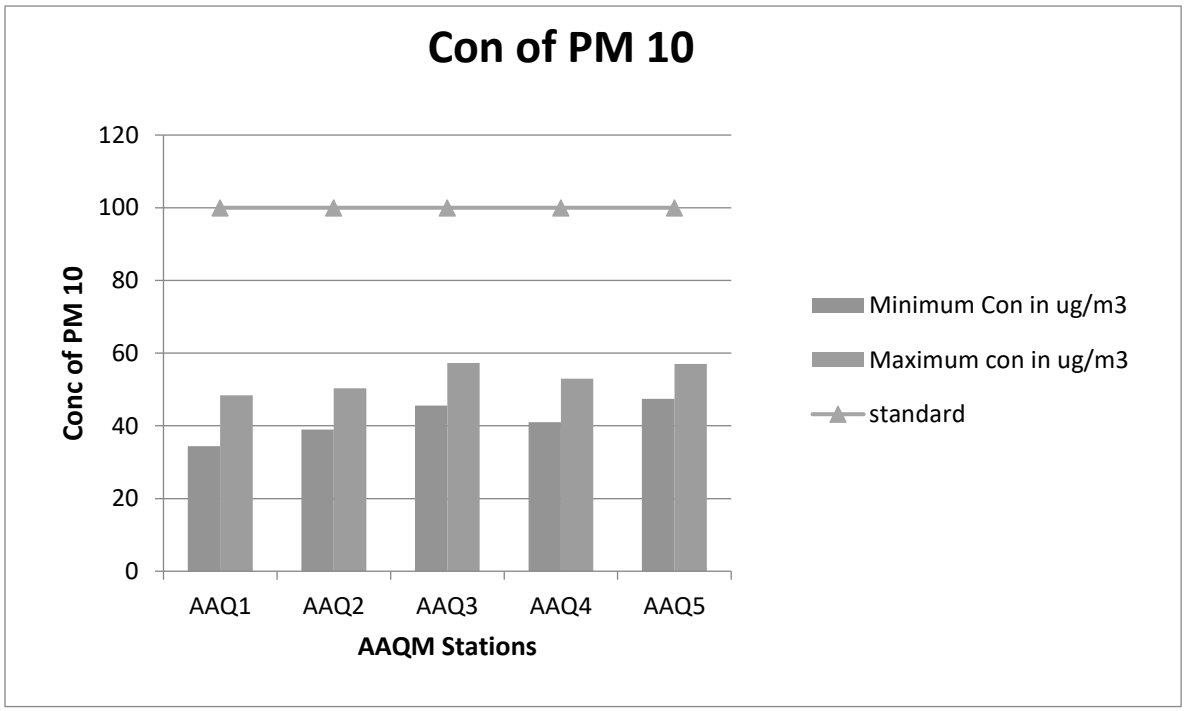


Figure 3.8 Concentration of PM10 (µg/m^3) in Study Area

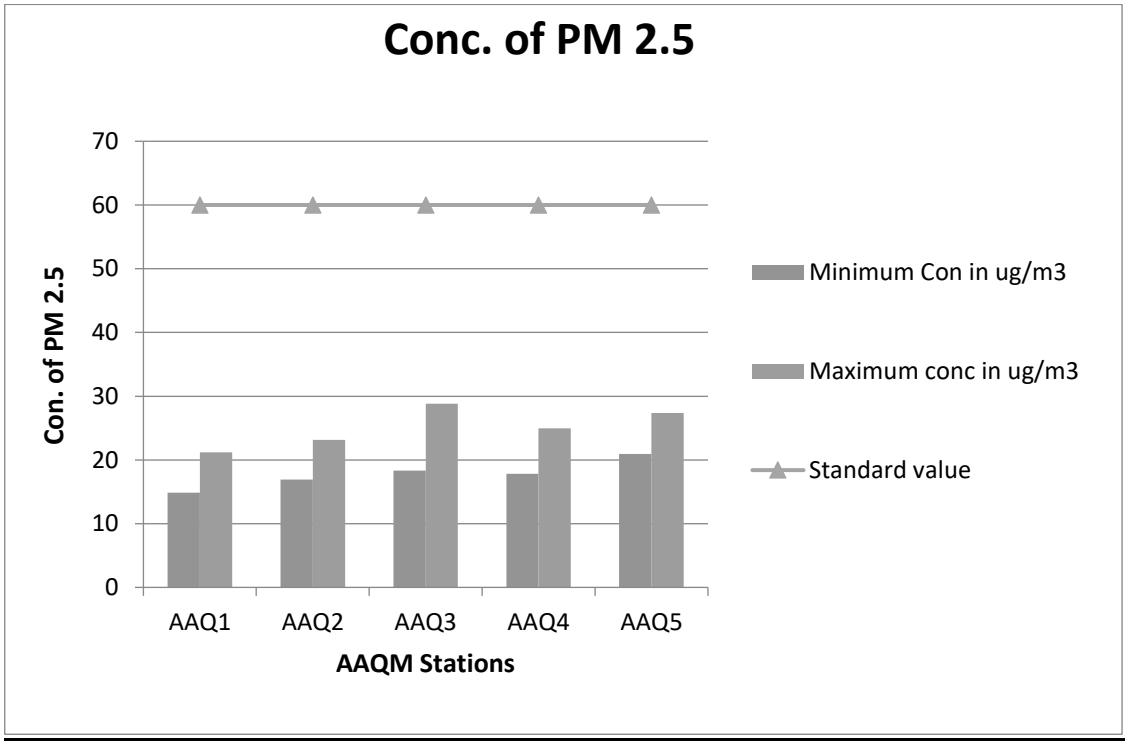


Figure 3.9 Concentration of PM2.5 (µg/m^3) in Study Area

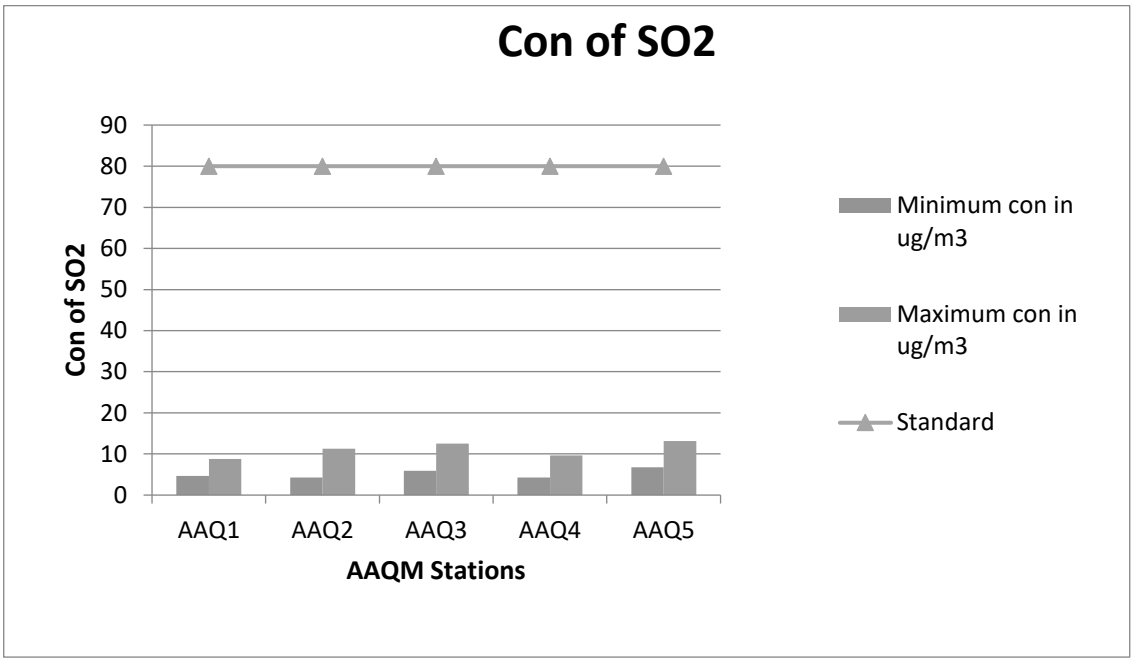


Figure 3.10 Concentration of SOx (µg/m^3) in Study Area

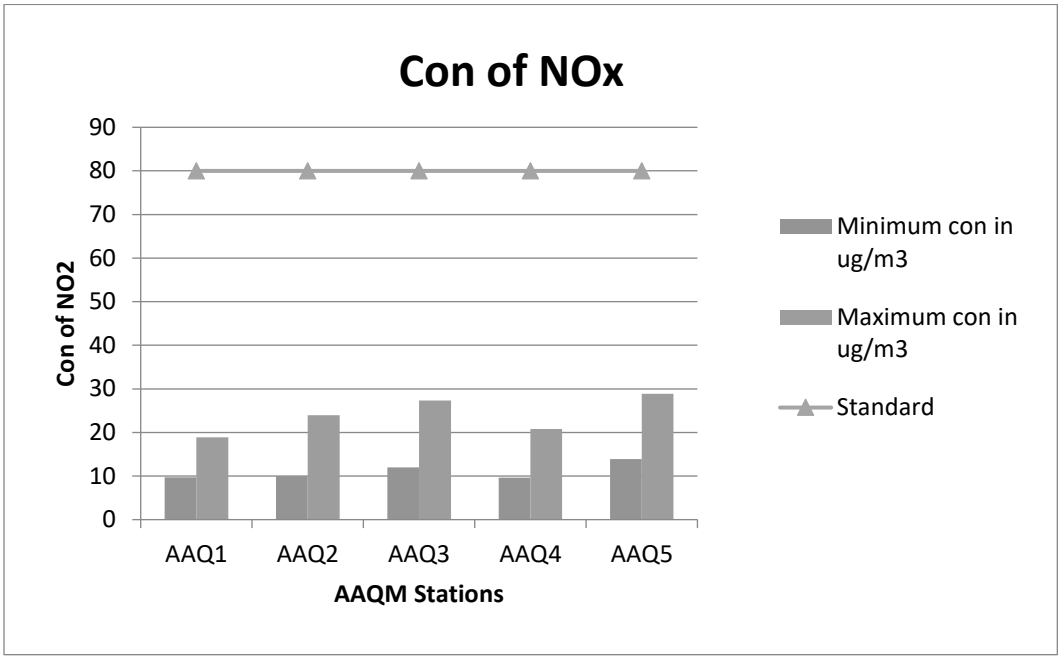


Figure 3.11 Concentration of NOx (µg/m^3) in Study Area

3.5 NOISE ENVIRONMENT:

Table 3-10 Noise Analysis

Environmental Parameters*: Noise Analysis*	
Monitoring Period	December 2022 to February 2023
Design Criteria	Based on the Sensitivity of the area
Monitoring Locations	Project Site – N 1 Sri Pattalamma Devi, Temple, Payarkuttalai – N 2 Govt.Hr Sec School, Bukkasagaram - N 3 Athimugam Masjid Al Sunnatul Jamath - N 4 Sivaraman green Garden – N 5
Methodology	Noise level measurements were taken at the selected locations using noise level meter both during day and night time. Noise level measurements were taken continuously for 24 hours at hourly intervals
Frequency of Monitoring	Noise samples were collected from 5 locations - Once in a season

Ambient Noise Levels are monitored in the chosen 5 Locations including the project Site and the monitoring results are summarized below

3.5.1 *Day Noise Level (Leq day)*

Table 3-11 Day Noise Level (Leq day)

Location	Leq day in dB(A)		
	Max	Min	Average
Project Site	53	41	47
Athimugam Masjid Al Sunnatul Jamath	54	45	50
Sri Pattalamma Devi, Temple, Payarkuttalai	56	44	51
Govt. Hr Sec School, Bukkasagaram	57	45	53
Sivaraman green Garden	59	45	54

3.5.2 *Night Noise Level (Leq Night)*

Table 3-12 Night Noise Level (Leq Night)

Location	Leq Night in dB(A)		
	Max	Min	Average
Project Site	40	35	36
Athimugam Masjid Al Sunnatul Jamath	44	39	41
Sri Pattalamma Devi, Temple, Payarkuttalai	44	37	41
Govt. Hr Sec School, Bukkasagaram	45	40	40
Sivaraman green Garden	45	40	41

Observation:

The maximum Day noise and Night noise were found to be 59 dB(A) and 45 dB(A) respectively in Sivaraman green Garden. The minimum Day Noise and Night noise were 40 dB(A) and 35 dB(A) respectively which was observed in project site. The observed values are all well within the Standards prescribed by CPCB.

3.6 SOIL ENVIRONMENT

Soil environment is studied for 10 km radius from the project site. The 5 km radius image shows that the soil is not affected by any kind of erosion.

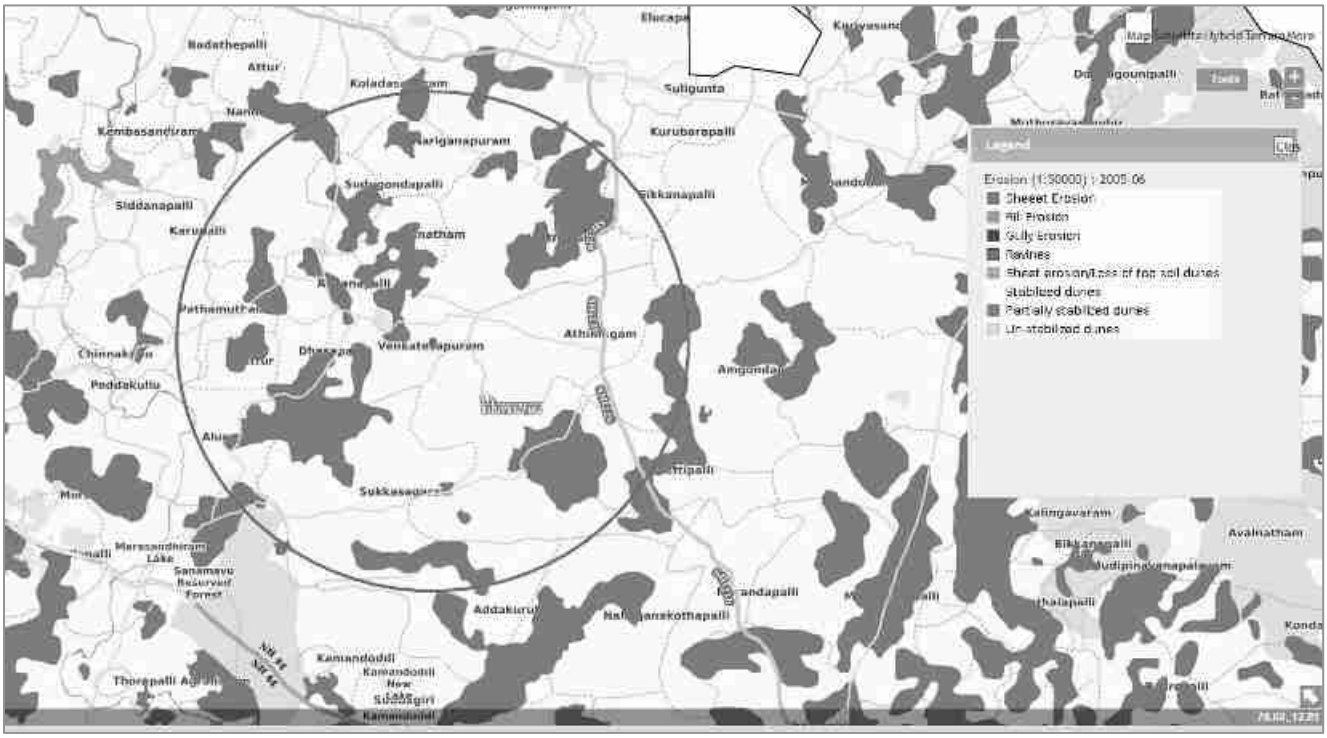


Figure 3.12 Soil Erosion pattern within 5 km radius of the project site

3.6.1 *Baseline Data:*

The present study of the soil quality establishes the baseline characteristics which will help in future in identifying the incremental concentrations if any, due to the operation Phase of the proposed project. The sampling locations have been identified with the following objectives:

- To determine the impact of proposed project on soil characteristics and
- To determine the impact on soils more importantly from agricultural productivity point of view.

Table 3-13 Soil Quality Analysis

Environmental Parameters*: Soil Quality Analysis*	
Monitoring Period	December 2022 to February 2023
Design Criteria	Based on the environmental settings of the study area
Monitoring Locations	Project Site – SQ 1 Athimugam Masjid Al Sunnatul Jamath-SQ 2 Sri PattalammaDevi Temple, Payarkuttalai-SQ 3 Govt.Hr.sec school, Bukkasagaram-SQ4

	Sivaraman green Garden -SQ 5
Methodology	Composite soil samples using sampling augers and field capacity apparatus
Frequency of Monitoring	Soil samples were collected from 5 locations Once in a season

To assess the soil quality of the study area, 5 monitoring stations were selected and the results are summarized below.

Table 3-14 Soil Quality Analysis

Parameters	Unit	SQ 1	SQ 2	SQ 3	SQ 4	SQ 5
pH	-	8.20	8.80	7.02	7.60	6.80
Electrical Conductivity	ms/cm	0.12	0.45	0.18	0.12	0.16
Water holding Capacity	ml/L	8.77	9.56	7.50	8.60	9.97
Chloride	mg/Kg	99.8	271	95.5	102	57.1
Calcium	mg/Kg	40.5	67.8	39.7	36.5	19.0
Sodium	mg/Kg	265	275	173	120	114
Potassium	mg/Kg	320	335	219	206	242
Organic matter	%	0.28	0.32	0.26	0.19	0.32
Magnesium	mg/Kg	36.8	72.4	51.2	47.8	28.6
Sulphate	mg/Kg	76.9	244	29.6	36.4	29.3
CEC	meq/100g	12.5	14.8	11.4	12.8	13.5
Carbonate	mg/Kg	NIL	NIL	NIL	NIL	NIL
Bi-Carbonate	mg/Kg	315	346	304	210	136
TKN	%	0.25	0.24	0.22	0.31	0.35
Bulk density	g/cm^3	1.31	1.20	1.25	1.22	1.23
Phosphorous	mg/Kg	159	167	152	145	178
Sand	%	65.7	46.5	57	42.7	22.7
Clay	%	14	10.0	2	5.05	25
Silt	%	20	44.5	41.0	52.2	52.3

SAR	meq/Kg	1.80	1.80	2.10	0.17	1.90
silicon	%	0.71	0.82	0.91	0.74	0.85

3.6.1.1 Physical Properties:

Regular cultivation practices increase the bulk density of soils thus inducing compaction. This results in reduction in water percolation rate and penetration of roots through soils. The soils with low bulk density have favorable physical conditions whereas those with high bulk density exhibit poor physical conditions for agriculture crops. The bulk density of the soil in the study area ranged between 1.20 to 1.31 meq/100g which indicates favorable physical condition for plant growth. The water holding capacity was found in the range of 7.50 ml/l to 9.97ml/l.

3.6.1.2 Chemical Properties:

Chemical characteristics of soils include pH, exchangeable cations and fertility status in the form of NPK values and organic matter. The value of the pH ranges from 6.80 to 8.80, which it indicates majority of pH of the soil is slightly alkaline. The soil in the project site is sodic in nature, which challenges because they tend to have very poor structure which limits or prevents water infiltration and drainage. The organic matter varies from 0.19 to 0.32 %, which indicates the soil is slightly unfertile.

3.7 ECOLOGY AND BIODIVERSITY

Ecology and Biodiversity is studied for 10 km radius around the project site. Project site and 2km around the project site is considered as core zone and from 2 km to 10 km radius, it is considered as buffer zone.

- Primary field survey is carried out for the assessment of flora and fauna in the core zone.
- Secondary data from Journals/Literature were studied and compiled to understand the species present in the buffer zone.

3.7.1 *Methods available for floral analysis:*

3.7.1.1 Plot Sampling Methods

- Quadrat – 2D shape (e.g. square or rectangle, or other shape) used as a sampling unit

- Transect
    - Line transects feature only a length dimension, usually defined by a tape stretched across the area to be sampled.
    - Belt transects have a width as well as length.
    - Pace-transects are established when the observer strides along an imaginary line across the sample site and uses their foot placement to determine specific sampling points.

3.7.1.2 Plot less Sampling Methods

- Closest individual method - Distance is measured from each random point to the nearest individual.
- Nearest neighbour method - Distance is measured from an individual to its nearest neighbour.
- Random pairs method - Distance is measured from one individual to another on the opposite side of the sample point.
- Point-centered quarter (PCQ) method - Distance is measured from the sampling point to the nearest individual in each quadrat.

3.7.2 *Field study& Methodology adopted:*

To assess the suitability of the methodology, random field survey was done. Field survey was conducted around 2 km radius from the project site and five locations were chosen based on the species density. Quadrat method is chosen for the proposed study as compared to other sampling methods, because they are relatively simple to use. Quadrat plots are uniform in size and shape and distributed randomly throughout the sample area, which makes the study design straightforward. They are also one of the most affordable techniques because they require very few materials.

3.7.3 *Study outcome:*

Phyto-sociological parameters, such as ***Density, Frequency, Basal Area, Abundance and Importance Value Index*** of individual species (Trees) were determined in randomly placed quadrate of different sizes in the study area. Relative frequency, relative basal area and relative density were

calculated and the sum of these three represented Importance Value Index (IVI) for various species. For shrubs, herbs and grasses, ***Density, Frequency, Relative Density & Relative Frequency were found***.

Sample plots were selected in such a way to get maximum representation of different types of vegetation and plots were laid out in different part of the study area of 2 km radius. Analysis of the vegetation will help in determining the relative importance of each species in the study area and to reveal if any economically valuable species is threatened in the process.

Table 3-15 Calculation of Density, Frequency (%), Dominance, Relative Density, Relative Frequency, Relative Dominance & Important Value Index

Parameters	Formula
Density	Total No. of individuals of species/ Total No. of Quadrats used in sampling
Frequency (%)	(Total No. of Quadrats in which species occur/ Total No. of Quadrats studied) * 100
Dominance	Total Basal Area /Total area sampled
Abundance	Total No. of individuals of species/ No. of Quadrats in which they occur
Relative Density	(Total No. of individuals of species/Sum of all individuals of all species) * 100
Relative Frequency	(Total No. of Quadrats in which species occur/ Total No. of Quadrats occupied by all species) * 100
Relative Dominance	Dominance of a given species/Total Dominance of all species
Important Value Index	Relative Density + Relative Frequency + Relative Dominance

Table 3-16 Tree Species in the core Zone

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Dominance	Relative Density	Relative Frequency	Relative Dominance	IVI	IUCN Conservation Status
1	Ficus Carica	Athi Maram	2	2	6	0.33	33.33	1	0.28	1.68	2.17	4.45	8.31	Least Concern
2	Cocos nucifera	Thennai	10	6	6	1.67	100.0	1.67	0.15	8.40	6.52	2.39	17.32	Not assessed
3	Azadirachta indica	Veppam	17	6	6	2.83	100.0	2.83	0.13	14.29	6.52	1.98	22.79	Not assessed
4	Tamarindus indica	Puli	10	6	6	1.67	100.0	1.66	0.20	8.40	6.52	3.09	18.02	Not assessed
5	Mangifera indica	Mamaram	7	6	6	1.17	100.0	1.16	0.07	5.88	6.52	1.11	13.52	Data insufficient
6	Morinda pubescens	Nuna	6	6	6	1.00	100.0	1	0.24	5.04	6.52	3.74	15.31	Not assessed
7	Couroupita guianensis	Nagalingam	5	3	6	0.83	50.00	1.67	0.14	4.20	3.26	2.18	9.64	Not assessed
8	Bombax ceiba	Sittan	4	4	6	0.67	66.67	1	0.08	3.36	4.35	1.27	8.98	Not assessed
9	Acacia nilotica	Karuvelai	4	4	6	0.67	66.67	1	0.28	3.36	4.35	4.45	12.16	Least Concern
10	Bambusa vulgaris	Moongil	4	4	6	0.67	66.67	1	0.50	3.36	4.35	7.92	15.63	Not assessed
11	Syzygium cumini	naval	5	1	6	0.83	16.67	5	0.11	4.20	1.09	1.79	5.07	Not assessed
12	Carica papaya	Papaya	3	3	6	0.50	50.00	1	0.09	2.52	3.26	1.43	7.21	Not assessed
13	Psidium guajava	Guava	3	3	6	0.50	50.00	1	0.23	2.52	3.26	3.61	9.39	Not assessed
14	Cassia siamea	ManjalKonrai	3	2	6	0.50	33.33	1.5	0.07	2.52	2.17	1.11	5.81	Least Concern
15	Ficus religiosa	Arasa maram	3	3	6	0.50	50.00	1	0.09	2.52	3.26	1.35	7.13	Not assessed

16	Musa paradise	Vaazhai	3	3	6	0.50	50.00	1	0.08	2.52	3.26	1.19	6.97	Not assessed
17	Prosopis juliflora	Vaelikaruvai	3	3	6	0.50	50.00	1	0.21	2.52	3.26	3.34	9.13	Not assessed
18	Tectona grandis	Thekku	3	3	6	0.50	50.00	1	0.12	2.52	3.26	1.88	7.66	Not assessed
19	Thespesia populnea	Poovarasam	3	3	6	0.50	50.00	1	0.15	2.52	3.26	2.39	8.18	Not assessed
20	Causuarina equisetifolia	Savukku	2	2	6	0.33	33.33	1	0.21	1.68	2.17	3.34	7.20	Not assessed
21	Alstonia scholaris	Elilaipalai	2	2	6	0.33	33.33	1	0.27	1.68	2.17	4.31	8.16	Least Concern
22	Anacardium occidentale	Cashew	1	1	6	0.17	16.67	1	0.44	0.84	1.09	6.96	8.88	Not assessed
23	Artocarpus heterophyllus	Palaa	2	2	6	0.33	33.33	1	0.18	1.68	2.17	2.85	6.70	Not assessed
24	Aegle marmelos	Vilvam	1	1	6	0.17	16.67	1	0.16	0.84	1.09	2.50	4.43	Not assessed
25	Delonix elata	Perungondrai	1	1	6	0.17	16.67	1	0.17	0.84	1.09	2.62	4.54	Least Concern
26	Pithecellobium dulce	Kodukapuli	1	1	6	0.17	16.67	1	0.14	0.84	1.09	2.18	4.11	Not assessed
27	Citrus medica	Elumichai	2	2	6	0.33	33.33	1	0.23	1.68	2.17	3.61	7.46	Not assessed
		Total	110	83					5.02					

Table 3-17 Shrubs in the Core Zone

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IUCN Conservation Status
1	Jatropagossypifolia	Kaatamanaku	32	17	24	1.17	0.71	1.65	14.43	17.17	Not Assessed
2	Calotropis gigantea	Erukam	16	12	24	0.58	0.50	1.17	7.22	12.12	Not Assessed

3	Tabernaemontanadivaricata	Crepe Jasmine	4	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
4	Catharanthus roseus	Nithyakalyani	4	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
5	Datura metal	Ummattangani	7	4	24	0.21	0.17	1.25	2.58	4.04	Not Assessed
6	Robiniapseudoacacia	Black locust	15	5	24	0.71	0.21	3.4	8.76	5.05	Least Concern
7	Acalypha indica	Kuppaimeni	18	8	24	0.83	0.33	2.5	10.31	8.08	Not Assessed
8	Stachytarpheaurticifolia	Rat tail	13	9	24	0.63	0.38	1.67	7.73	9.09	Not Assessed
9	Woodfordiafruiticosa	Velakkai	4	3	24	0.13	0.13	1	1.55	3.03	Least Concern
10	Hibiscus rosa sinensis	Sembaruthi	3	2	24	0.13	0.08	1.5	1.55	2.02	Not Assessed
11	Lantana camara	Unnichedi	8	6	24	0.38	0.25	1.5	4.64	6.06	Not Assessed
12	Parthenium hysterophorous	Vishapoondu	45	13	24	2.08	0.54	3.85	25.77	13.13	Not Assessed
13	Euphorbia geniculata	Amman Pacharisi	5	3	24	0.13	0.13	1	1.55	3.03	Not Assessed

Table 3-18 Herbs & Grasses in the core zone

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IUCN Conservation status
1	Helicteresisora	Valampuri	4	2	30	0.07	0.07	1	0.79	2.15	Not assessed
2	Tridax procumbens	Vettukaayathalai	7	4	30	0.17	0.13	1.25	1.98	4.30	Not assessed
3	Heraculem spondylium	Hog Weed	19	10	30	0.67	0.33	2	7.94	10.75	Not assessed
4	Tridax procumbens	Cuminipachai	18	4	30	0.50	0.13	3.75	5.95	4.30	Not assessed
5	Senna occidentalis	Nattamsakarai	30	4	30	0.83	0.13	6.25	9.92	4.30	Not assessed
6	Plumbago zeylanica	Chittiramoolam	12	3	30	0.10	0.10	1	1.19	3.23	Not assessed
7	Scrophularia nodosa	Sarakkothini	18	7	30	0.50	0.23	2.14	5.95	7.53	Not assessed

8	Viburnum dentatum	Viburnum	7	5	30	0.17	0.17	1	1.98	5.38	Least concern
9	Cynodondactylon	Arugu	15	6	30	0.40	0.20	2	4.76	6.45	Not assessed
10	Euphorbia hirta	Amman Pacharisi	7	4	30	0.17	0.13	1.25	1.98	4.30	Not assessed
11	Sida cordifolia	Maanikham	50	4	30	1.50	0.13	11.25	17.86	4.30	Not assessed
12	Sida acuta	Malaidangi	12	3	30	0.33	0.10	3.33	3.97	3.23	Not assessed
13	Laportea canadensis	Peruganchori	28	20	30	1.00	0.67	1.5	11.90	21.51	Not assessed
14	Sporobolus fertilis	Giant Parramatta Grass	10	4	30	0.30	0.13	2.25	3.57	4.30	Not assessed
15	Tephrosia purpurea	Kavali	23	4	30	0.67	0.13	5	7.94	4.30	Not assessed

3.7.4 *Calculation of species diversity by Shannon – wiener Index, Evenness and richness by Margalef:*

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

Table 3-19 Calculation of species diversity

Description	Formula
Species diversity – Shannon – Wiener Index	$H=\Sigma[(p_i)*\ln(p_i)]$ Where p_i : Proportion of total sample represented by species i:number of individuals of species i/ total number of samples
Evenness	H/H_{max} $H_{max} = \ln(s)$= maximum diversity possible S=No. of species
Species Richness by Margalef	RI = S-1/ln N Where S = Total Number of species in the community N = Total Number of individuals of all species in the community

3.7.5 *Calculation of species diversity by Shannon – wiener Index, Evenness and richness by Margalef for trees*

i. Species Diversity

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Ficus Carica	Athi Maram	2	0.018182	-4.00733	-0.07286
Cocos nucifera	Thennai	10	0.090909	-2.3979	-0.21799
Azadirachta indica	Veppam	17	0.154545	-1.86727	-0.28858
Tamarindus indica	Puli	10	0.090909	-2.3979	-0.21799
Mangifera indica	Mamaram	7	0.063636	-2.75457	-0.17529
Morinda pubescens	Nuna	6	0.054545	-2.90872	-0.15866
Couroupita guianensis	Nagalingam	5	0.045455	-3.09104	-0.1405
Bombax ceiba	Sittan	4	0.036364	-3.31419	-0.12052
Acacia nilotica	Karuvelai	4	0.036364	-3.31419	-0.12052

Bambusa vulgaris	Moongil	4	0.036364	-3.31419	-0.12052
Syzygium cumini	naval	5	0.045455	-3.09104	-0.1405
Carica papaya	Papaya	3	0.027273	-3.60187	-0.09823
Psidium guajava	Guava	3	0.027273	-3.60187	-0.09823
Cassia siamea	ManjalKonrai	3	0.027273	-3.60187	-0.09823
Ficus religiosa	Arasa maram	3	0.027273	-3.60187	-0.09823
Musa paradise	Vaazhai	3	0.027273	-3.60187	-0.09823
Prosopis juliflora	Vaelikaruvai	3	0.027273	-3.60187	-0.09823
Tectona grandis	Thekku	3	0.027273	-3.60187	-0.09823
Thespesia populnea	Poovarasam	3	0.027273	-3.60187	-0.09823
Causuarina equisetifolia	Savukku	2	0.018182	-4.00733	-0.07286
Alstonia scholaris	Elilaipalai	2	0.018182	-4.00733	-0.07286
Anacardium occidentale	Cashew	1	0.009091	-4.70048	-0.04273
Artocarpus heterophyllus	Palaa	2	0.018182	-4.00733	-0.07286
Aegle marmelos	Vilvam	1	0.009091	-4.70048	-0.04273
Delonix elata	Perungondrai	1	0.009091	-4.70048	-0.04273
Pithecellobium dulce	Kodukapuli	1	0.009091	-4.70048	-0.04273
Citrus medica	Elumichai	2	0.018182	-4.00733	-0.07286
Total		110			-3.02215005

H (Shannon Diversity Index) =3.02

Shrubs

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Jatropagossypifolia	Kaatamanaku	32	0.183908	-1.69332	-0.31142
Calotropis gigantea	Erukam	16	0.091954	-2.38647	-0.21945
Tabernaemontanadivaricata	Crepe Jasmine	4	0.022989	-3.77276	-0.08673
Catharanthus roseus	Nithyakalyani	4	0.022989	-3.77276	-0.08673
Datura metal	Ummattangani	7	0.04023	-3.21315	-0.12926
Robiniapseudoacacia	Black locust	15	0.086207	-2.45101	-0.21129
Acalypha indica	Kuppaimeni	18	0.103448	-2.26868	-0.23469
Stachytarpheaurticifolia	Rat tail	13	0.074713	-2.59411	-0.19381
Woodfordiafruiticosa	Velakkai	4	0.022989	-3.77276	-0.08673
Hibiscus rosa sinensis	Sembaruthi	3	0.017241	-4.06044	-0.07001
Lantana camara	Unnichedi	8	0.045977	-3.07961	-0.14159
Parthenium hysterophorous	Vishapoondu	45	0.258621	-1.35239	-0.34976
Euphorbia geniculata	Amman Pacharisi	5	0.028736	-3.54962	-0.102
Total		174			-2.2234

H (Shannon Diversity Index) =2.22

Herbs

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Helicteresisora	Valampuri	4	0.015385	-4.17439	-0.06422
Tridax procumbens	Vettukaayathalai	7	0.026923	-3.61477	-0.09732
Heraculem spondylium	Hog Weed	19	0.073077	-2.61624	-0.19119
Tridax procumbens	Cuminipachai	18	0.069231	-2.67031	-0.18487
Senna occidentalis	Nattamsakarai	30	0.115385	-2.15948	-0.24917
Plumbago zeylanica	Chittiramoolam	12	0.046154	-3.07577	-0.14196
Scrophularia nodosa	Sarakkothini	18	0.069231	-2.67031	-0.18487
Viburnum dentatum	Viburnum	7	0.026923	-3.61477	-0.09732
Cynodondactylon	Arugu	15	0.057692	-2.85263	-0.16457
Euphorbia hirta	Amman Pacharisi	7	0.026923	-3.61477	-0.09732
Sida cordifolia	Maanikham	50	0.192308	-1.64866	-0.31705
Sida acuta	Malaidangi	12	0.046154	-3.07577	-0.14196
Laportea canadensis	Peruganchori	28	0.107692	-2.22848	-0.23999
Sporobolus fertilis	Giant Parramatta Grass	10	0.038462	-3.2581	-0.12531
Tephrosia purpurea	Kavali	23	0.088462	-2.42519	-0.21454
Total		260			-2.51

H (Shannon Diversity Index) =2.51

i. Species diversity calculation

Details	H	Hmax	Evenness	Species Richness (Margalef)
Trees	3.02	3.36	0.89	5.95
Shrubs	2.22	2.56	0.86	2.32
Herbs	2.51	2.70	0.92	2.51

From the above, it can be interpreted that herb community has higher diversity. While the tree community shows less diversity. It is also observed that most of the quadrates have controlled generation of plant species with older strands. Higher herb species diversity can be interpreted as a greater number of successful species and a more stable ecosystem where more ecological niches are available, environmental change is less likely to be damaging to the ecosystem. Species richness is high for herb community when compared with tree and shrubs.

3.7.6 *Floral study in the Buffer Zone:*

Economically important Flora of the study area

Agricultural crops: Paddy, Maize, Ragi, Banana, Sugarcane, Cotton, Tamarind, Coconut, Mango, Groundnut, Vegetables and Flowers by the local people.

Medicinal species: The nearby area is also endowed with the several medicinal species which are commonly available in the shrub forest and waste lands. The common medicinal species of the region are Asparagus racemosus (satamulli), Aegle marmelos (golden apple), Azadirachta indica (Neem) etc.

Rare and endangered floral species: There are no rare or endangered or threatened (RET) species of in the study area. During the vegetation survey, there are no any species which are endangered or threatened under IUCN (International Union for Conservation of Nature and Natural resources) guidelines.

3.7.7 *Faunal Communities*

Both direct and indirect observation methods were used to survey the fauna.

- Point Survey Method: Observations were made in each site for 15 minutes duration.

Roadside Counts: The observer traveled by motor vehicles from site to site, all sightings were recorded (this was done both in the day and night time). An index of abundance of each species was also established.

Pellet and Track Counts: All possible animal tracks and pellets were identified and recorded (South Wood, 1978).

Additionally, survey of relevant literature was also done to consolidate the list of fauna distributed in the buffer zone.

Based on the Wildlife Protection Act, 1972 (WPA 1972, Anonymous. 1991, Upadhyay 1995, Chaturvedi and Chaturvedi 1996) species were short-listed as Schedule II or I and considered herein as endangered species. Species listed in Ghosh (1994) are considered as Indian Red List species.

Methodology Adopted:

Point Survey method was adopted for this development project where observations were made in each site for 15 minutes duration (10 times).

Study in the core zone:

Point Survey method was adopted for the study within 2 km radius and the following species were observed.

Mammals: No wild mammalian species was directly sighted during the field survey. Discussion with local villagers located around the study area also could not confirm presence of any wild animal in that area. Three stripped Palm Squirrel, Common Indian Hare, Common mongoose, Common Mouse etc were observed during primary survey.

Avifauna: Since birds are considered to be the indicators for monitoring and understanding human impacts on ecological systems (Lawton, 1996) attempt was made to gather quantitative data on the avifauna by walk through survey within the entire study area and surrounding areas. From the primary survey, a total of 26 species of avifauna were identified and recorded in the study area. The diversity of avifauna from this region was found to be quite high and encouraging.

The list of fauna species found in the study area is mentioned in Table below.

Table 3-20 List of fauna species

Scientific Name	Common Name	Schedule of wild life protection act	IUCN conservation status
Mammals			
Funambulus pennanti	Palm Squirrel	IV	Least Concern
Mus rattus	Indian rat	IV	Not listed
Bandicota bengalensis	Indian mole rat	IV	Least Concern
Funambulus palmarum	Three stripped palm squirrel	IV	Least Concern
Herestes edwardsii	Common Mangoose	IV	Not listed
Mus musculus	Common Mouse	IV	Least Concern
Bandicota indica	Rat	IV	Least Concern
Lepus nigricollis	Indian Hare	IV	Least Concern
Felis catus	Cat	Not listed	Not listed
Canis lupus familiaris	Indian dog	Not listed	Not listed
Bos Indicus	Indian Cow	Not listed	Not listed
Bubalus bubalis	Buffalo	I	Not listed

Sus scrofa domesticus	Domestic pig	Not listed	Not listed
Birds			
Milvus migrans	Black kite	IV	Least concern
Saxicoloides fulicatus	Indian Robin	IV	Least concern
Pycnonotus cafer	Red vented Bulbul	IV	Least concern
Phragamaticola aedon	Thick billed warbler	IV	Least concern
Pericrocotus cinnamomeus	Small Minivet	IV	Least concern
Eudynamys scolopaceus	Koel	IV	Least concern
Psittacula krameni	Rose ringed parakeet	IV	Least concern
Dicrurus marcocercus	Black drongo	IV	Least concern
Columba livia	Rock pigeon	IV	Least concern
Corvus splendens	House crow	IV	Least concern
Alcedo atthis	Small blue kingfisher	IV	Least concern
Cuculus canorus	Common Cukoo	IV	Least concern
Reptiles & Amphibians			
Chameleon zeylanicum	Chameleon	IV	Not listed
Calotes versicolor	Common garden lizard	II	Not listed
Bungarus caeruleus	Common krait	IV	Not listed
Ophisops leschenaultia	Snake eyed lizard	--	Not listed
Bufo melanostictus	Toad	IV	Least concern
Ptyas mucosa	Rat snakes	IV	Least concern
Hemidactylus sp.	House lizard	--	Not listed
Butterflies			
Danaus chrysippus	Plain Tiger	--	Not listed
Papilio demoleus	Common lime	--	Not listed
Euploea core	Common crow	--	Least concern
Danaus genutia	Common tiger	--	Not listed
Eurema brigitta	Small grass yellow	--	Least concern

3.8 DEMOGRAPHY AND SOCIO ECONOMICS

The demography survey study is done within 10km radius from the project site.

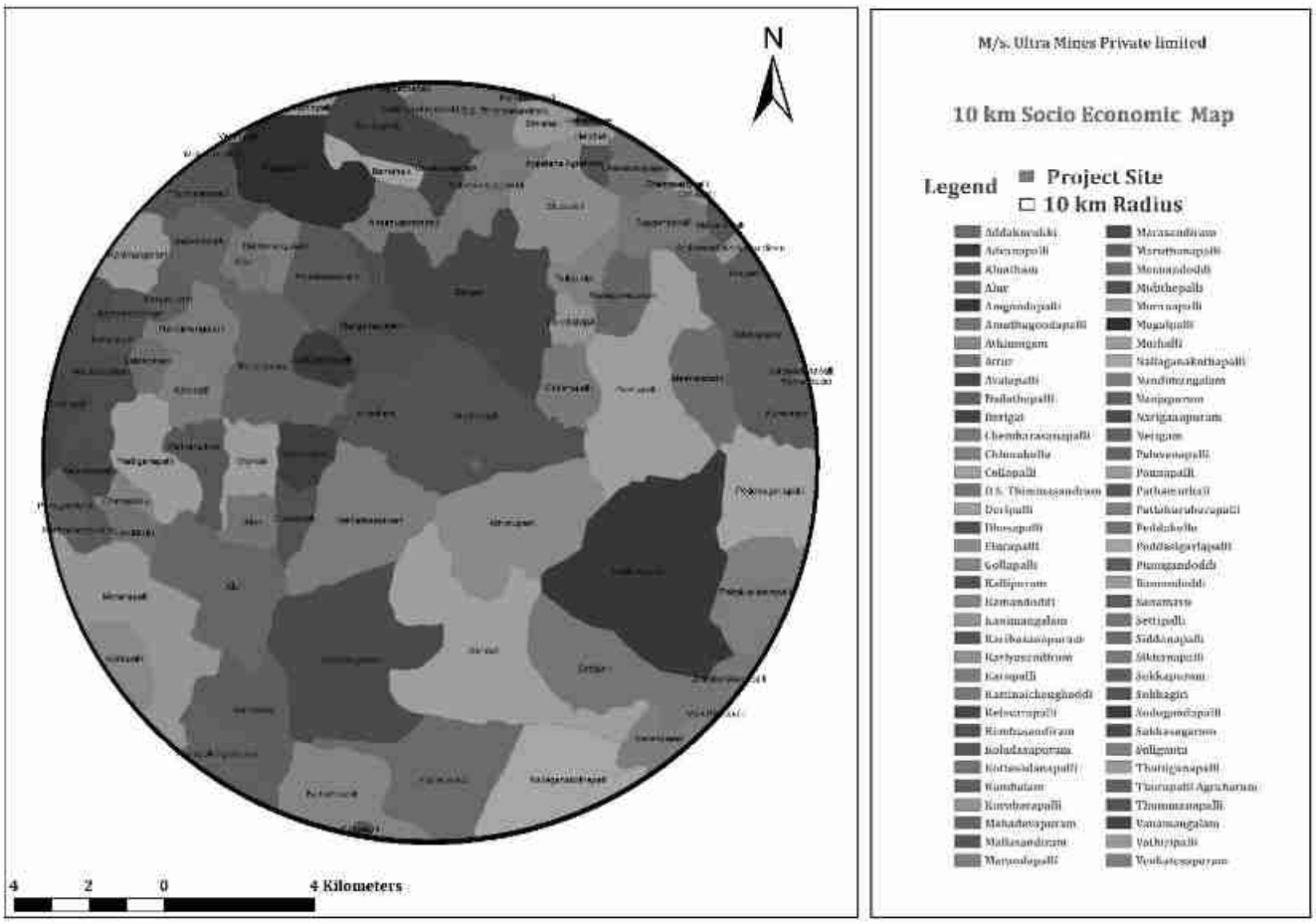


Figure 3.13 Socio Economic map surrounding the project site.

The population, Household, Sex ratio, Literacy rate, SC, ST details for all the villages in the study area is listed below:

Table 3-21: Demography Survey Study

Source: Census of India, 2011

S.No	Villages	Household	Population	Sex Ratio		Literacy Rate		SC	ST
				Male	Female	Male	Female		
1	Kariyasandiram	95	346	184	162	23	24	0	0
2	Amuthugondapalli	120	543	274	269	131	97	228	0
3	Koladasapuram	221	857	429	428	276	216	390	0
4	Midithepalli	287	1287	667	620	369	261	278	31

5	Kumbalam	164	761	394	367	254	159	0	95
6	Athimugam	937	4540	2339	2201	1317	980	334	17
7	Venkatesapuram	650	2873	1484	1389	960	695	583	0
8	Advanapalli	58	239	123	116	75	50	1	0
9	Sudugondapalli	87	447	229	218	128	89	95	0
10	Palavanapalli	258	1096	540	556	349	288	370	0
11	Nandimangalam	591	2602	1314	1288	797	609	713	0
12	Pathamuthali	205	967	499	468	275	198	392	0
13	Muthalli	108	444	223	221	132	90	130	0
14	Dhasapalli	152	894	443	451	202	161	1	0
15	Alur	678	3018	1569	1449	1058	736	178	5
16	Bukkasagaram	460	2126	1109	1017	742	471	319	0
17	Doripalli	852	3681	1898	1783	1165	848	596	0
18	A.Settipalli	605	2764	1428	1336	960	635	509	11
19	Moranapalli	2174	9160	4855	4305	3403	2439	1503	13
20	Maruthanapalli	1093	4816	2532	2284	1547	1054	422	0
21	Shoolagiri	2101	9530	4788	4742	3480	2923	1487	0
22	Onalvadi	1607	6656	3411	3245	2475	1968	1360	0
23	Sanamavu	925	4248	2182	2066	1487	1062	659	183
24	Halekotta	707	2990	1535	1455	1071	760	209	83
25	Samanapalli	721	3198	1635	1563	922	730	304	0

3.9 TRAFFIC IMPACT ASSESSMENT

Traffic data collected 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 each of the two directions for counting the traffic. At the end of each hour, fresh counting and recording was undertaken. Total numbers of vehicles per hour under the three categories were determined.

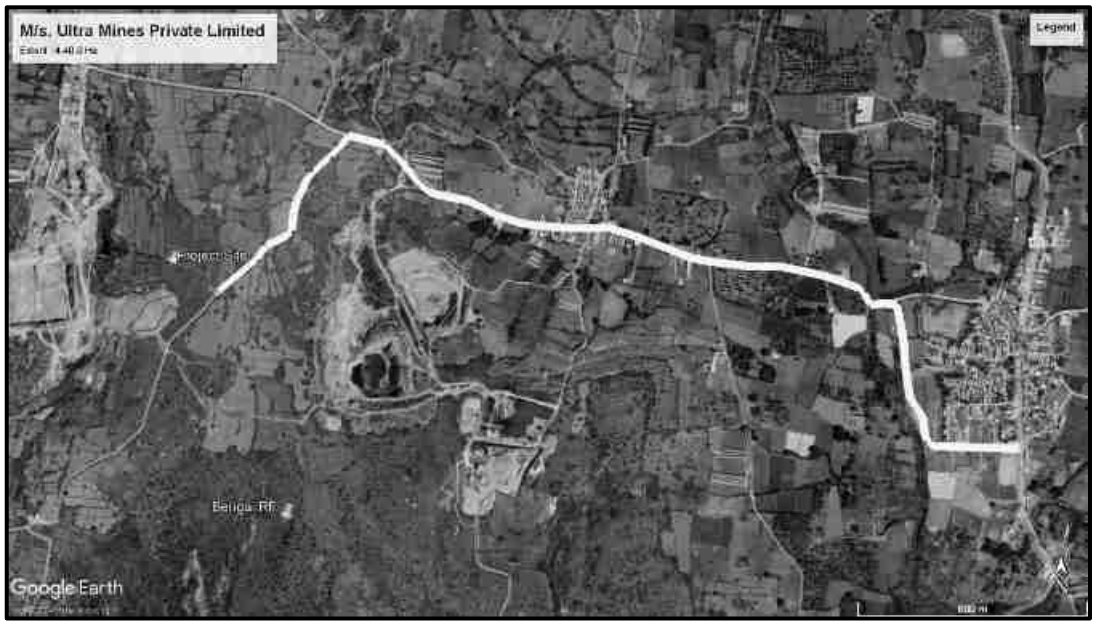


Figure 3.14: Site Connectivity

Table 3-22: No. of Vehicles per Day

S. No	Vehicles Distribution	Number of Vehicles Distribution/Day	Passenger Car Unit (PCU)	Total Number of Vehicle in PCU
		MDR-422	**-**	**MDR-422**
1	Cars	813	1	813
2	Buses	294	3	882
3	Trucks	325	3	975
4	Two wheelers	967	0.5	483.5
5	Three wheelers	409	1.5	613.5
Total		**2808**	**-**	**3767**

Table 3-23: Existing Traffic Scenario and LOS

Road	V (Volume in PCU/hr)	C (Capacity in PCU/hr)	Existing V/C Ratio	LOS
MDR-422	3767/24=157	413	0.38	**B**

Note: The existing level may be "Very Good" for MDR=422.

V/C	LOS	Performance
0.0-0.2	A	Excellent
0.2-0.4	B	Very Good
0.4-0.6	C	Good/ Average/ Fair
0.6-0.8	D	Poor
0.8-1.0	E	Very Poor

4 Anticipated Environmental Impacts & Mitigation Measures

This chapter describes the anticipated impacts on the environment and mitigation measures. The method of assessment of impacts including studies carried out, modeling techniques adopted to assess the impacts where pertinent should be elaborated in this chapter. It should give the details of the impacts on the baseline parameters, both during the construction and operational phases and suggests the mitigation measures to be implemented by the proponent.

4.1 INTRODUCTION

An environmental impact is defined as any change to the environment, whether adverse or beneficial, resulting from a facility's activities, products, or services. The anticipation of the possible & potential Environmental impact due to the proposed project is a key step in EIA. Based on the impacts assessed, appropriate mitigation measures should be adopted to maintain the environment with less or no damage.

Environmental Impacts can be group into Primary impacts & Secondary Impacts

Primary Impacts: These impacts are directly attributed by the project

Secondary Impacts: These are those which are induced by primary impacts and include the associated investments and changed patterns of the social and economic activities by the action.

Assessment of impacts is done for the following Environmental Parameters:

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

4.2 LAND ENVIRONMENT:

<table>
<tr><th>Aspect</th><th>Impact</th><th>Mitigation Measures</th></tr>
<tr>
<td>Mining of rough stone</td>
<td>The proposed 4.40.0 Ha mine located in Venkatesapuram Village having 5,88,141 m^3 of Rough Stone & 63116 m^3 of Gravel respectively. The quarry operation is proposed to carry out with conventional open cast mechanized mining with 5.0 meter vertical bench and bench width of 5.0 meter. At the end of 5 years, mining lease area will be converted into ultimate pit.

<table>
<tr><th colspan="5">ULTIMATE PIT DIMENSION</th></tr>
<tr><th>Section</th><th>Bench</th><th>L (m)</th><th>W (m)</th><th>D (m)</th></tr>
<tr><td>PIT</td><td>I</td><td>80.0</td><td>175.0</td><td>35.0</td></tr>
</table>

The main impact of open cast mining on land-use is land degradation. The land is bound to be excavated for mining of Rough Stone Quarry.

Impact on soil of the study area will be minimal as there are no wastewater generated, heavy metal infusion, stack emissions.</td>
<td>The proposed project site is not prone to any kind of soil erosion (Source: Bhuvan).

In addition, garland drainage of 1m x 1m will be provided to avoid storm water run- off.

It is proposed to plant 2200 Nos of native species (Neem, Magizham, Tamarind, Elandhai and Vilvam) along the roads, outer periphery of the mining area which enhances the binding property of the soil.

It is proposed to improve the affected land wherever possible for better land use, so as to support vegetation and creation of water reservoir in the ultimate pit after quarrying.

The entire lease area is covered 2.0m of Topsoil (Gravel) and estimated quantity of Topsoil (Gravel) is 63116 m^3. Topsoil (Gravel) formation will be removed and transported to the needy users, only after obtaining</td>
</tr>
</table>

	Impact due to transformation of terrain characteristics over the large area results in soil degradation. Solid waste will be generated from the mining activity as there will be refuse also generation of domestic waste. If it is not properly managed, may cause odor and health problem to the workers.	permission and paying necessary seigniorage fees to the Government. The source of dust generation is majorly due to drilling, blasting, loading & unloading of the mined-out mineral, the impact will be mitigated by water sprinkling regularly once in 3hrs. The proposed mining activity is carried out in hilly terrain where The altitude of the area is Maximum 878m and Minimum 868m above MSL. After removal of minerals, undulating portion will be created. Excavated area or ultimate pit at the end of the mine period will be converted into water reservoir. Two tier tree belts will be planted along the safety distance. The 100% recovery is achieved by extracting the entire mineable reserve. Hence there will be no refuse generation due to the mining activity. Apart from that, a very meagre quantity of domestic waste will be generated in the project, which will be handed over to the local body on daily basis.

4.3 WATER ENVIRONMENT:

Aspect	Impact	Mitigation Measures
Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.	The mining in the area may cause ground water contamination due to intersection of the water table and mine runoff.	The water table will not be intersected during mining, as the ultimate depth is limited upto 45.0m (10m AGL + 35 BGL), whereas the ground water table is at 60 - 65m below the ground level. The municipal wastewater will be disposed into septic tanks of 5 cum and soak pit. No chemicals consisting of toxic elements will be used for carrying out mining activity.
	The ground water depletion may occur due to mining activity	The ground water table is at a depth of 60m BGL, the mining operation will not affect the aquifer. The ultimate pit at the end of the mining operation will be used for rainwater storage, the stored water will be used for green belt development and further the stored water will be used for domestic purposes (other than drinking) after proper treatment.
	Chemicals consisting of nitrate used for blasting may pollute the surface run off.	Further, the run-off water will be stored in sumps and after proper treatment; water will be

	Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labours.	used in the mining operation for dust suppression. Provision of urinals/Latrines along with septic tank followed by soak pit arrangement will be provided in the Mine Lease area for the proper management of wastewater

4.4 AIR ENVIRONMENT:

Aspect	Impact	Mitigation Measures
Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.	***Impacts during Operation Phase*** During mining operation, fugitive dust and other air pollutants like particulate matter (PM10 & PM 2.5) will be generated. The main source of pollutants arises due to drilling and blasting. 2 No of Tipper will be used for loading and unloading, 1 No of Excavator (1.20 m^3 bucket capacity (with rock breaker attachment) will be used for excavation of the mineral which contributes to the	***Mitigation Measures during Operation Phase*** It is proposed to plant 2200 Nos of native species (40% inside lease area & 60% outside lease area) along the haul roads, outer periphery within the lease area to prevent the impact of dust in consultation with Forest department for the plantation of trees (Neem, Magizham, Tamarind, Elandhai and Vilvam) in two tier to combat air pollution and with herbs (Nerium) in between the tree species.

	generation of fugitive dust. In addition, blasting will be done using explosives leading to the generation of dust. *Effect on Human* • Adverse effect on human health of working labourers and neighbouring villagers like effect on breathing and respiratory system, damage to lung tissue, influenza or asthma. • Dust generation due to loading and unloading of mineral and due to transportation can also affect the workers as well as nearby villagers. *Effect on Plants* • Stomatal index may be minimized due to dust	Planning transportation routes of the mined out mineral, so as to reach the nearest paved roads (an approach road) by shortest route connecting to MDR 422. Alternatively, gravelled road may be constructed between mine lease area and nearest paved road connectivity. The speed of trucks plying on the haul road will be limited to 20km/hr to avoid generation of dust. The trucks will be covered by tarpaulin. Overloading will be avoided. Personal Protective Equipments (PPEs) like eye goggles, dust mask, leather gloves, safety shoes & boots will be provided to the workers engaged at dust generation points like excavation and loading points.

	deposit on leaf.	1.5 KLD of water will be proposed for sprinkling on unpaved roads to avoid dust generation during transportation.

Air Quality Modeling:

The AERMOD is actually a modeling system with three separate components:

- AERMOD (AERMIC Dispersion Model),
- AERMAP (AERMOD Terrain Preprocessor)
- AERMET (AERMOD Meteorological Preprocessor)

4.4.1 *Source Characterization*

A detailed listing of all emission sources and their corresponding modelling input release parameters and emission rates is listed this report. A general description of how each source type was treated is presented below.

The emission Sources from the proposed operation are

Point Sources:

Point sources for mining operations are typically include dust collectors, hot water heaters, and emergency generator(s). Since at the present project the following sources are anticipated.

1. Hydraulic excavator –0.9 Cum Bucket Capacity (with Rock Breaker Attachment)
2. Jack Hammer 32 mm Dia
3. Tipper
4. Tractor Mounted - Compressor
5. Drilling and excavation with Accessories

Road Sources:

A road network was developed to depict the anticipated haul truck routes and truck discharge locations during the mine operations. The anticipated emissions from the road sources and corresponding anticipated impact during the monitoring period of December 2022 to February 2023 emissions were estimated. Emissions due to haul road and general plant traffic on the unpaved road network were modelled as volume sources. The model volume source parameter for the haul roads initially utilized USEPA developed emission factors for hauling trucking. The haul road sources utilized source to source spacing of 6 meters along the simulated haul roads. The initial lateral dimension of the sources were set to 3 m were used as an input to replicated a 2 truck travel adjacent for a typical mining scenario. The parameters considered for the hauling operation include the following,

- size of haul trucks commonly used
- degree of dust control/compaction of permanent haul roads

Other fugitive particulate emission sources:

Other fugitive particulate emission sources that were modelled as volume sources include the following:

- Fugitive emissions from trucks unloading at the primary crusher were represented by a single volume source. The release height was set to 0 meters (dump pocket is at grade level).
- Fugitive emissions due to wind erosion is not considered as the mining area is predominately rocky surface with minimal wind erosion. If an wind erosion is anticipated to occur, it would be localized.
- Fugitive emissions from transfer points were represented by single volume sources. The release heights for these sources were set to the actual height of the truck transfer process.

Post Project Scenario

Emissions from operations will result from process equipment and mining operations. Process equipment was modeled at maximum capacity. Emissions from mining were based upon the mining rate and haul truck travel necessary to transport the stones and waste from the pit to the storage area.

Predicted maximum ground level concentrations considering micro meteorological data of December 2022 to February 2023 are superimposed on the maximum baseline concentrations obtained during the study period to estimate the post project scenario, which would prevail at the post operational phase. The overall scenario with predicted concentrations over the maximum baseline concentrations is shown in the following table along with isopleths.

Table 4-1 Emission Factors for uncontrolled mining

Activity	Emission Factor		References	
Topsoil handling	Scraper	0.029 Kg TSPM/ average time between spray application	**USEPA (2008)**	Jose I. Huertas & Dumar A. Camacho & Maria E. Huertas, Standardized emissions inventory methodology for open-pit mining areas, Environmental Science Pollution Research, 2012.
	Bulldozing	15.048 kg PM10/ Hr excavation	**USEPA (2008)**	
	Loading	2.3237E-04 kg PM10/ average time between spray application	**USEPA (2006a)**	

	Haulage	0.69718 kg PM10/VKT	**USEPA (2006a) Cowherd (1988)**	
Rough stone mining	Wet drilling	8.00E-5 lbs PM10/ Ton produce	**EPA. August, 2004. Section 11.19.2, Crushed Stone Processing and Pulverized Mineral Processing. In: Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition, AP-42. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina.**	
	Loading	1.00E-4 lbs PM10/ Ton produce		

4.5 NOISE ENVIRONMENT:

Aspect	Impact	Mitigation Measures
Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.	Usage of Equipments (Excavator, Tipper, Jack Hammer), Machinery and trucks used for transportation will generate noise. Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure.	• The machinery will be maintained in good running condition so that noise will be reduced to minimum possible level. • Awareness will be imparted to the workers once in six months about the permissible noise level and effect of maximum exposure to those levels. Adequate silencers will be provided in all the diesel engines of vehicles.

	Number of vehicles will be increased due to the proposed mining activity hence vehicle may collate which may result in unwanted sound and can also cause impact on human health like breathing and respiratory system, damage to lung tissue, influenza or asthma.	• It will be ensured that all transportation vehicles carry a valid PUC Certificates. • Speed of trucks entering or leaving the mine will be limited to moderate speed (20km/hr) to prevent undue noise from empty vehicles. The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipments. • It is proposed to plant 2200 Nos. of native species (Neem, Mandharai, Athi, Tamarind, Ashoka, Casuarinas and Villam) to reduce the impact of noise in the study area. The development of green belts around the periphery of the mine will be implemented to attenuate noise. • The trucks will be diverted on two roads viz. MDR 422 and a District Road to avoid traffic congestion. • Health check-up camps will be organized once in six months.

		• Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas. • Provision of quiet areas, where employees can get relief from workplace noise.

4.6 BIOLOGICAL ENVIRONMNENT:

Aspect	Impacts	Mitigation Measures
Site Clearance	Loss of habitat due to site clearance which may lead to ecological disturbance.	The proposed mining lease is already a dry land hence no site clearance is required. Only few shrubs and herbs like parthenium sp., prosopis juliflora were present.
Planting of trees	Development of afforestation in the mine lease area will have a positive impact as the land was initially a barren.	10 m safety distance will be provided all along the boundary of the mine lease area and safety. Around 1.17.0 Ha of land is utilized for greenbelt development (2200 Nos – 5 years). This will attract avifauna thus enhancing the existing ecological environment.

4.7 SOCIO ECONOMIC ENVIRONMNENT:

Aspect	Impact	Mitigation Measures

Proposed implementation of Mining activity	Land acquisition for the implementation of the project may result in loss of assets, which in return will make the PAP to shift, losing their normal routine and livelihood	The proposed project is a Patta land and the land is vacant where there are no human settlement within 300m radius. Hence the project does not involve Rehabilitation and resettlement
Drilling, Blasting, Loading and Transportation of the minedout mineral	The mining activities may cause dust emission, noise pollution thereby causing disturbance to the local habitat	No human activity is envisaged near the project site. The nearest human settlement is observed in Venkatesapuram village which is 0.87 km from site
Grazing and Rearing activities in the nearby villages	The Grazing and rearing of local animals like Sheep, Goat and cows is observed in the nearby villages, which may be affected due to the project as the movement of the vehicles may affect/injure the animals	It is proposed to use gravelled road and nearest paved road and preferred not to use unpaved roads. In addition to that, the speed of trucks will be limited to 20km/hr to avoid any accidents.
Employment opportunity	The project will improve the livelihood of the local people	After the development of the proposed mine, it will improve the livelihood of local people and also provide the direct and indirect employment opportunities. The rough stone for the infrastructural development in the area will be made available from the local markets at reasonably lower price.

Corporate Environmental Responsibility	The proposed project will help in natural resource augmentation & Community resource development.	As a part of CER i.e., 5.0 Lakhs will be allocated. Government High School, Venkatesapuram Provision of Smart board, Library, Environmental books for library (in Tamil language), Greenbelt facilities and Basic amenities such as safe drinking water, Hygienic Toilets facilities, furniture.

4.8 OTHER IMPACTS:

S. No	Aspect	Impact	Mitigation measure
1.	Risk due to the proposed mining	Accidents may occur in the mine area	Proper PPE kit (Safety jacket, Helmet, Safety Shoes, Gloves) etc will be provided to each and every employee in the mine lease concerning the safety of each labour.
2.	Blasting	Injury to the labours due to the blasting activity	Alarm system in the form of Siren will be engaged in the project site to caution the blasting activity. In addition to that, the blasting activity will be scheduled at particular time – 5 P.M to 6 P.M (or whenever required) so that the employees will be aware of the activity. Smoking will be banned in the site and sign boards will be displayed in various places at site.
3.	Screening of Labors	Labors will be checked for health condition before employing them in mining activity	All the labours will be checked and screened for health before employing them. After employing them, periodical medical checkups will be held once in every six months.

5 Analysis Of Alternatives

5.1 GENERAL

Analysis of alternative is a significant aspect in planning and designing any project. Cost benefit analysis should be worked out along with other parameters while choosing an alternative in such a way that the production is maximum and the mining operation is environment friendly and cost effective. The mine plan and mine closure plan has been approved by the Deputy Director, Department of Mining and Geology, Krishnagiri District prior to submission of the Form-1 and PFR. ToR issued by the SEIAA-TN vide ToR Identification No. TO24B0108TN5897955N Dated: 12.07.2024 The study for alternative analysis involves in-depth examination of site and technology.

5.1.1 *Analysis for Alternative Sites and Mining Technology*

5.1.1.1 Alternative Site

The proposed project is the mining of Rough Stone Quarry and is proposed after prospecting the area. In other words, these can be implemented in the mineral available zone. Since the mining block has been allotted in principal by the State Government, there is no case for studying and exploring any other site as an alternative.

5.1.1.2 Alternative Technology

The open cast mining could be manual/ mechanized depending upon the geological and topographical setup of the mineral (ROM) to be won and the daily/annual targeted production.

Table 5-1: Alternative for Technology and other Parameters

S. No.	Particular	Alternative Option 1	Alternative Option 2	Remarks
1.	Technology	Opencast semi mechanized mining	Opencast mechanized mining	Opencast mechanized Involving drilling and blasting are preferred. **Benefits:** Material is hard so to make it

2.	Employment	Local employment.	Outsource employment	Local employment is preferred. **Benefits:** Provides employment to local people along with financial benefits No residential building/ housing is required.
3.	Labour transportation	Public transport	Private transport	Local labours will be deployed from Venkatesapuram village so they will either reach mine site by bicycle or by foot. **Benefits:** Cost of transportation of labors will be negligible
4.	Material transportation	Public transport	Private transport	Material will be transported through trucks/trolleys on the contract basis **Benefits:** It will give indirect employment.
5.	Water	Tanker supplier	Ground water/	Tanker supply will be preferred. Water will be sourced from Mensondoddi village which is 0.89 km from site.

6 Environmental Monitoring Program

6.1 GENERAL:

This chapter covers the planned environmental monitoring program. It also includes the technical aspects of monitoring the effectiveness of mitigation measures.

Monitoring is important to measure the efficiency of control measures. Post project monitoring of environmental parameters is of key importance to assess the status of environment. The monitoring program will serve as an indicator for identifying environmental degradation due to operation of the project and help in selection of appropriate mitigation measures to safeguard the environment.

Regular monitoring is as important as control of pollution since the efficacy of control measures can only be determined by monitoring. The project proponent has awarded **M/s. Ecotech Labs Pvt Ltd** for carrying out the post project environmental monitoring (PPM) and timely compliance report submission to various regulatory authorities.

Therefore, a regular monitoring programme of the environmental parameters is essential to take into account the changes in the environmental quality. The objectives of monitoring are to:-

- Verify effectiveness of planning decisions;
- Measure effectiveness of operational procedures;
- Confirm statutory and corporate compliance; and
- Identify unexpected changes.

Table 6-1: Environmental Monitoring Programme

Parameters	Sampling	Frequency	Location
Air environment – Pollutants PM 10 PM 2.5 SO_2	5 locations	24 hourly twice a week 4 hourly. Twice a week, One non monsoon season 8 hourly, twice a week 24 hourly, twice a week	1. Project site 2. Athimugam Masjid Al Sunnatul Jamath 3. Sri Pattalamma Devi, Temple, Payarkuttalai

NO_x			4. Govt. Hr Sec School, Bukkasagaram 5. Sivaraman green garden
Noise	5 locations	24 hourly Once in 5 locations	1. Project site 2. Athimugam Masjid Al Sunnatul Jamath 3. Sri Pattalamma Devi, Temple, Payarkuttalai 4. Govt. Hr Sec School, Bukkasagaram 5. Sivaraman green garden
Water (Ground water) • pH • Temperature • Turbidity • Magnesium Hardness • Total Alkalinity • Chloride • Sulphate • Fluoride • Nitrate • Sodium • Potassium • Salinity • Total nitrogen • Total Coliforms	5 locations	Once in 5 locations	1. Project site 2. Athimugam Masjid Al Sunnatul Jamath 3. Sri Pattalamma Devi, Temple, Payarkuttalai 4. Govt. Hr Sec School, Bukkasagaram 5. Sivaraman green garden

• Fecal Coliforms			
Water (surface water) • pH • Temperature • Turbidity • Magnesium Hardness • Total Alkalinity • Chloride • Sulphate • Fluoride • Nitrate • Sodium • Potassium • Salinity • Total nitrogen • Total Coliforms • Fecal Coliforms	Sample from nearby lakes/river	One time Sampling	1. Bukkasagaram Lake – 3.54 km, S 2. Muthali Lake – 4.57 km, NW
Soil (Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	5 locations	Once in 5 locations	1. Project site 2. Athimugam Masjid Al Sunnatul Jamath 3. Sri PattalammaDevi,Temple, Payarkuttalai 4. Govt.Hr Sec School, Bukkasagaram 5. Sivaraman green garden
Ecology and biodiversity Study	Study area covering 5 km radius	One time Sampling	

Socio- Economic study (Population, Literacy Level, employment, Infrastructure like school, hospitals & commercial establishments)	Villages around 5 km radius	One time Sampling	

Table 6-2: Monitoring Schedule during Mining

S. No.	Attributes	Parameters	Frequency	Location
1.	Ambient Air Quality at Mine Site & Fugitive Dust Sampling	PM 10 PM 2.5 SO_2 NO_x	Once in a Month	Project Site
2.	Ground water Quality	Drinking Water Parameters, As per IS - 10500: 2012	Half yearly	Project Site
3.	Surface Water Quality	Class will be assessed as per the CPCB Guidelines	Half yearly	Project Site
4.	Soil Quality	(Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	Half yearly	Project Site
5.	Noise Level Monitoring	Noise level in dB(A) Quarterly/half yearly	Half yearly	Project Site

7 Additional Studies

7.1 GENERAL

This chapter covers the details of the additional studies viz. Risk assessment, Disaster Management, Public Hearing, Rehabilitation and Resettlement.

7.1.1 *Public Hearing:*

As the proposed mining project falls under 1(a), Category B1 – Cluster Mining (includes **Existing Quarries** –

1. M/s. Sumukha Blue Metals & M. Sand – 3.75.0 Ha
2. Thiru. V. Nagaraja – 2.16.0 Ha
3. Tvl. Mars Blue Metals – 3.00.0 Ha

Abandoned / Old quarries: ---Nil---

Proposed Quarries:–

1. M/s. Ultra Mines Private Limited – 4.40.0 Ha

The Total extent of the Existing / Proposed quarries are 13.31.0 Ha.

Hence under 7(III) of EIA notification 2006 and its subsequent amendments, the project involves the Public Consultation and the same will be conducted under SPCB (TN) in Krishnagiri District. The proceedings of the same will be incorporated in the Final EIA Report.

7.1.2 *Risk assessment:*

For mining projects to be successful, it should meet not only the production requirements, but also maintain the highest safety standards for all the workers. The industry has to identify the hazards, assess the associated risks and bring the risks to tolerable level regularly. Mining has considerable safety risk to miners. Unsafe conditions and practices in mines lead to a number of accidents and causes loss and injury to human lives, damage property, interrupt production etc. Risk assessment is a systematic method of identifying and analyzing the hazards associated with an activity and establishing a level of risk. The hazards cannot be completely eliminated, and thus there is a need to define and estimate an accident risk level possible to be presented either in quantitative or qualitative way.

7.1.3 *Identification of Hazard*

7.1.3.1 Blasting Pattern:

The quarrying operation will be carried out by Opencast Semi Mechanized method in conjunction with conventional method of mining using Jack Hammer drilling and blasting for shattering effect and loosen the Rough Stone.

7.1.3.2 Drilling and Blasting:

Drilling and Blasting parameters are as follows:

Diameter of Hole	32-36mm
Spacing between holes	60 cms
Depth	1 to 1.5 m
Pattern of hole	Zigzag
Inclination of holes	70° from horizontal
Use of delay detonators	25 milli-second delays
Detonating fuse	"Detonating" Cord

a. Types of explosives to be used:

Small dia of 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.

b. Measures proposed to minimize ground vibration due to Blasting:

The quarry is situated more than 0.89 km from the nearby villages. Controlled blasting measures will be adopted for minimizing ground vibration and fly of rock. Shallow depths jackhammer drilling & blasting is proposed to be carried out with minimum use of explosive mainly to give the shattering effect in rough stone for easy excavation and to control fly of rocks.

Diameter of Holes = 32-36mm

Powder factor = 6 to 7 Tons/Kg of explosives

Depth = 1 to 1.5 m

Charge/Hole = D.Cord with water or 70gms of gun powder or Gelatine.

Blasted at day time = 5 to 6 PM

Storage and safety measures to be taken while blasting: The proponent will engage an authorized explosive agency to carry out the small amount of blasting and it will be supervised by competent and statutory Foreman/Permit Mines Manager.

Heavy Machineries: The following heavy machineries will be used in the proposed area:

- For Mining – Excavator of 3.0 Cum Bucket capacity (with Rock Breaker attachment), Jack Hammers (32 mm Dia) of 3 Nos.
- Loading Equipment – Excavator of 3.0 Cum Bucket Capacity (with Bucket attachment)
- Transportation (includes within the mine and mine to destination) – Tipper 9 Nos. of 15 M.T capacity (from quarry to needy peoples and local crushers)

a. Risk:

Most of the accidents during transport of mined out mineral using other heavy vehicles are often attributed to mechanical failures and human errors.

b. Mitigation measures to minimize the risk

- At the time of loading no person will be allowed within the swing radius of the excavation.
- The dumpers/ trucks will stand near the loading equipment and fully braked when the muck is filled in it.
- The truck would be brought to a lower level so that the loading operation suits to the ergonomic condition of the workers.
- The workers will be provided with helmets, gloves and safety boots; loading and unloading operations will be carried out only during daylight.
- All the mining machineries will be regularly maintained and checked such as brakes, lights and horns to keep in the efficient working order.

7.1.4 *General Precautionary measures for the Risk involved in the proposed mine:*

- In order to take care of above hazard/disaster, the following control measures will be adopted:

- 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;
- Entry of unauthorized persons will be prohibited;
- Firefighting and first-aid provisions in the ECC and mining area;
- Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the workers (24 Nos.) and regular inspection for their use;
- In case of eventuality, first aid will be given by the senior safety office in the mine area initially to the injured person. The safety officer will give notice of accident as per Rule-23 of Mines Act-1952;
- The safety officer (common for 4 mines within 500m radius) will be responsible for coordination between management district authorities/DGMS etc. Regarding general safety as per Rule-181 of MMR 1961, "No person shall negligently or will fully do anything likely to endanger life or limb in the mine, or negligible or will fully omit to do anything necessary for the safety of the mine or of the persons employed there in". The workers will be provided with protective foot wear and safety helmets;
- Cleaning of mine faces will be regularly done;
- Handling of explosives, charging and blasting will be carried out by highly skilled labors only;
- Regular maintenance and testing of all mining equipment as per manufacturer's guidelines;
- Suppression of dust by sprinkling water on the haulage roads;

7.1.5 *Safety Team:*

The effective implementation of compliance of Safety Rules/ Statutory Provisions will be ensured. The safety officer will be engaged, meeting the requirement of Mines Act and their duties and responsibilities. The safety officer will be responsible for identification of the hazardous conditions and unsafe acts of workers and advice on corrective actions, conduct safety audit, organize training programs and provide professional expert advice on various issues related to occupational safety and health. Organizing safety training will be conducted to employees and contractor labors periodically.

7.1.6 *Emergency Control Centre*

The emergency control center will be provided to handle the emergency. The site main controller, key personnel and the senior officers of the fire and police services will attend it. The center will be equipped to receive and transmit information and directions from and to the incident controller and other areas of the works, as well as outside. The emergency control center will be sited in an area of minimum risk. This common Emergency control center will be used for the mines around the 500m radius

7.2 DISASTER MANAGEMENT

The possible risks in the case of stone along with associated minor minerals mining projects are fly rock, vibration failure of pit, slope and waste dump, accidents due to transportation. Mining and allied activities are associated with several potential hazards to both the employees and the public at large. Safety of the mine and the employees is taken care of by the mining rules & regulations, which are well defined with laid down procedure for safety, which when scrupulously followed, safety is ensured not only to manpower but also to machines & working environment.

7.2.1 Emergency Management Plan For Proposed Mines On Site- Offsite Emergency Preparedness Plan:

The emergency plan delineates the procedures for dealing with accidents or unexpected events and natural calamities arising from mining activity. An experience of any accidents that have occurred in other manufacturing/mining projects is considered to prepare this plan. This Emergency plan should be periodically reviewed and modified. It should also be changed based on the observations of emergency mock drills and experience of handling actual emergencies.

Major objectives of this onsite – offsite emergency plan are:

- To take necessary proactive and preventive actions to avoid the emergency.

The main aim of any emergency plan should be to prevent emergency situations.

To train the manpower to handle the emergencies of the following nature:

• Onsite (Within ML boundary)

• Offsite (Outside ML boundary)

7.2.1 *Onsite off-site emergency Plan:*

1- Emergency on account of:

- Fire
- Explosion
- Major accidents involving man-made collapse of the mining edges.
- Snake bites, attack by honey bees or attack by wild animals.

2- Disaster due to natural calamities like:

- Flood/ heavy rains which can involve natural landslides.
- Earth quake
- Cyclone
- Lightening

7.2.2 *Emergency Plan:*

- The mining operations should be immediately stopped in case of any emergency. A siren will be sounded during emergency time.
- An emergency assembly point will be created and all the workers will guide visitors or contractors to approach assembly point.
- Emergency vehicle (Ambulance) will be available in the nearby place, in proximity to the three mines and will rush to the emergency control centre at the blowing of emergency siren. The driver of emergency vehicle will follow the instructions of Incident Controller/Site Main Controller.
- Workers will be trained for the precautions to be taken during natural disasters like heavy rain, floods, earthquake and cyclone.
- All escape routes from mines to the assembly point or any other safe location will be made and the escape plan will be displayed in many places in the mine area

7.2.3 *Emergency Control:*

- Shut down of mining operations: Raising the alarm or siren followed by immediate safe shut down of the power supply, and isolation of affected areas.

- Treatment of injured: First aid and hospitalization of injured persons
- Protection of environment and property: During mitigation, efforts will be made to prevent impacts on environment and property to the extent possible.
- Preserving all evidences and records: This will be done to enable a thorough investigation of the true causes of the emergency.
- Ensuring safety of personnel prior to restarting of operations: Efforts required will be made to ensure that work environment is safe prior to restarting the work.

7.3 NATURAL RESOURCE CONSERVATION

There are no natural resources within the premises. The conservation strategies for energy will be followed in the proposed mine lease area. The pollutants of the mine will be minimized by adopting appropriate mitigation measures as mentioned Chapter 5 to prevent the effects on nearest water bodies. No surface runoff from the project site will be let into the nearest water bodies.

7.4 RESETTLEMENT AND REHABILITATION:

The proposed Mine lease area is Patta land. There is no displacement of the population within the project area and adjacent nearby area and hence Rehabilitation & Resettlement is not applicable.

8 Project Benefits

8.1 GENERAL

This chapter covers the benefits accruing to the locality, neighborhood, region and nation as a whole. It brings out the details of benefits by way of improvements in the physical infrastructure, social infrastructure, employment potential and other tangible benefits.

8.1.1 *Physical Benefits*

The opening of the proposed project will enhance the following physical infrastructure facilities in the adjoining areas:

Market: Generating useful economical resource for construction. Due to demand supply chain, excavated mineral (Rough stone) will sold in the market in the affordable price.

Infrastructure: The excavated rough stone will be used for ***Laying Roads, Building & Construction Projects, Bridges*.**

Enhancement of Green Cover & Green Belt Development: As a part of reclamation plan, native tree species will be planted along the safety boundary of the mine lease area. A suitable combination of trees that can grow fast and also have good leaf cover will be adopted to develop the green belt. It is proposed to plant 500 numbers of native species along with some fruit bearing and medicinal trees during the mining plan period.

8.2 SOCIAL BENEFITS

The mining in the area will create rural employment. During site visit, it has been observed that the economic conditions of the villages in the study area is quite normal. After the development of the proposed mine, it will improve the livelihood of local people and also provide the indirect employment opportunities. The rough stone for the infrastructural development in the area will be made available from the local markets at reasonably lower price.

As a part of CER, i.e., 5 Lakhs will be allocated. The detailed agenda, which is to be executed has been framed. The salient features of the programmes are as follows:

Developing Sports facilities and providing Smart board, Library, Environmental books for library (in Tamil language), Greenbelt facilities Basic amenities such as safe drinking water, Hygienic Toilet facilities & Furniture to Government High School, Venkatesapuram.

8.3 PROJECT COST / INVESTMENT DETAILS

1	**A. Fixed Asset Cost**: • Land Cost • Labour Shed • Sanitary Facility • Fencing cost • Other Expenses Total	: : : : : =	Rs. 1,78,37,820/- (Leased tender amount for Patta Land) Rs. 1,00,000/- Rs. 1,00,000/- Rs.6,00,000/- Rs.4,00,000/- **Rs.1,90,37,820/-**
2	**B. Operational Cost:** **Machinery cost**	: :	 **Rs.30,00,000/-**
3	**C. EMP Cost:** Display board in site; Monitoring- Air, Water, Noise; Dust Supression - Water sprinkling by own water tankers; Vehicle Tyres Wash; Green Belt Development; Road Development & Management; Occupational Health and Safety; Solid Waste Management; Strom Water; Renewable Energy, CCTV Installation, Salary for mines manager and blaster	:	**Rs. 86,00,000/-**
	Total Project Cost(A+B+C)	:	**Rs. 3,06,37,820/-**

9 Environmental Management Plan

9.1 INTRODUCTION

This chapter comprehensively presents the Environmental Management Plan (EMP), which includes the administrative and technical setup, summary matrix of EMP, the cost involved to implement the EMP, during various Mining activities and provisions made towards the same in the cost estimates of project. This chapter describes the proposed monitoring scheme as well as inter-organizational arrangements for effective implementation of the mitigation measures.

9.2 SUBSIDENCE

Mining will be carried out by opencast mechanized mining method with drilling & blasting as per mining plan approved by Department of Mining and Geology, Krishnagiri. Subsidence/slope failures are not envisaged because there are no loose strata overlying the deposit (mineral to be excavated). The bench height will be average 5m. The individual bench slope has been proposed to be kept at 60^0 from horizontal. Moreover, all safety standards/ safeguards will be implemented as per guidelines prescribed by Director General of Mines Safety.

9.3 MINE DRAINAGE

9.3.1 *Storm water Management*

The following measures will be taken with respect to the prevailing site conditions.

- Storm water drains with silt traps of size 1m x 1m will be suitably constructed all along the periphery of the pit area to collect the run-off from the mine area and divert into the pit.
- All measures will be taken not to disturb the existing drainage pattern adjacent to the mine lease area.
- The storm water collected from the mine area will be utilized for dust suppression on haul roads, plantation within the premises, etc.,

9.3.2 *Drainage*

Local workers will be deployed for the project. But, urinals and Latrines will be provided and the same will be connected to septic tank followed by soak pit arrangement. No domestic waste will be deposited into the nearby area. Regular checking will be carried out to find any blockage due to silting or accumulation of loose materials. The drains will also be checked for any damage in lining / stone pitching, etc.

9.3.3 *Administrative and Technical Setup*

The Environment Management Plan (EMP) will consist of all mitigation measures for each component of the environment due to the activities increased during mining operation to minimize adverse environmental impacts resulting from the activities of the project.

To carry out the above activities, M/s. Ultra Mines Private Limited will work in association with M/s. Ecotech Labs Pvt Ltd.

Table 9-1: Impacts and mitigation measures

S. No	Impacts on Environment	Activity / Aspect	Anticipated impacts	Mitigation measures
1.	Air	Fugitive Emission	During mining operation, fugitive dust and other air pollutants like particulate matter (PM10 & PM 2.5) will be generated.	Planting of trees along the safety distance of the Mine Lease Area Water will be sprinkled in the site as dust suppression measure.
2.	Water	Wastewater Generation	Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labors	Provision of urinals/Latrines along with septic tank followed by soak pit arrangement will be provided in the Mine Lease area for the proper management of wastewater.
3.	Noise	Mining activities like drilling, blasting, loading and transportation	Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure. Apart from Mining activities like drilling, blasting may generate noise	Use of personal protective devices i.e., earmuffs and earplugs by workers who are working in high noise generating areas.
4.	Land	Improper management of Storm water Runoff	Storm water Runoff may result in Soil Erosion	Garland drainage of 1m x 1m will be provided to avoid storm water run- off.
5.	Social Responsibility	Mining workers	Unhygienic site sanitation facilities may cause health damage to workers.	The objective is to ensure health and safety of the workers with effective provisions for the basic facilities of sanitation, drinking water, safety of equipments or machinery etc. The following will be done in the site • By complying with the safety procedures, norms and guidelines (as applicable) as outlined in the National Building Code of India, Bureau of Indian Standards.

				• Provide adequate number of decentralized latrines and urinals • Providing Septic tank along with Soak pit arrangement • Providing First Aid room, conducting frequent health checkups to labor and conducting free medical camps • Providing safety helmet, Gloves, Jacket & Boots • Providing measures to prevent fires. Firefighting extinguishers and buckets of sand will be provided in the construction site
6.	Building materials resource conservation	Building Material consumption	Use of farfetched construction materials than the locally available construction materials may lead to over exploitation of natural resources & increase in carbon footprint.	• Use of locally available construction materials.

Table 9-2: Budgetary Allocation for EMP during Mining

Year	Description	Cost (Rs)
5 Years	Display board in site; Monitoring-Air, Water, Noise; Dust Supression - Water sprinkling by own water tankers; Vehicle Tyres Wash; Green Belt Development; Road Development & Management; Occupational Health And Safety; Solid Waste Management; Strom Water; Renewable Energy, CCTV Installation, Salary for mines manager and blaster	86,00,000/-

10 Summary & Conclusion

This chapter summarizes the overall justification for implementation of the project and explains how the potential impacts are mitigated.

10.1 INTRODUCTION

M/s. Ultra Mines Private Limited site is a cluster of six mining projects. The individual mine lease area is 4.40.0 Ha of Rough Stone Quarry located at S.F.Nos. 133/1(Part), 133/2, 133/4, 134/1 & 134/2 of Venkatesapuram Village, Shoolagiri Taluk in Krishnagiri District.

10.2 PROJECT OVERVIEW

Table 10-1: Project Overview

S. No.	Description	Details
1	Project Name	Rough Stone Quarry-4.40.0 ha
2	Proponent	M/s. Ultra Mines Private Limited
3	Mining Lease Area Extent	4.40.0Ha
4	Location	S.F.Nos. 133/1(Part), 133/2, 133/4, 134/1 & 134/2 Venkatesapuram Village, Shoolagiri Taluk, Krishnagiri District.
5	Latitude	12°45'14.72"N to 12°45'26.27"N
6	Longitude	77°57'14.30"E to 77°57'23.15"E
7	Topography	Elevated terrain
8	Site Elevation above MSL	The altitude of the area is Maximum 878m and Minimum 868m above MSL.
9	Topo sheet No.	57- H/13
10	Minerals of Mine	Rough Stone and Gravel Quarry
11	Proposed production of Mine	5,88,141 m^3 of Rough Stone and 63,116 m^3 of Gravel
12	Ultimate depth of Mining	45 m (10m AGL + 35m BGL)
13	Method of Mining	Open cast, mechanized mining
14	Water demand	4.0 KLD

15	Source of water	Water will be supplied through tankers supply
16	Manpower	24 Nos.
17	Mining Lease	Precise Area Communication Letter received from Department of Geology and Mining, Collector Office, Krishnagiri vide letter Na.Ka.EN.86/2024 kanimam dated 10.05.2024
18	Mining Plan Approval	Mining Plan was obtained from the Deputy Director, Department of Geology and Mining, Krishnagiri vide letter Rc.No.86/2024 Mines dated 21.05.2024
19	Production details	Geological resources: Rough stone of quantity 1949296m^3 and gravel of Quantity 89,832 m^3. Proposed year wise recoverable reserves: 5,88,141 m^3 of Rough Stone and 63,116 m^3 of Gravel.
20	Boundary Fencing	7.5m & 10 m barrier all along the boundary and Fencing will be provided.
21	Disposal of overburden	The entire lease area covers 2.0m of Gravel and estimated quantity of Gravel is 63,116 m^3. Gravel formation will be removed and transported to the needy users, only after obtaining permission and paying necessary seigniorage fees to the Government.
22	Ground water	The quarry operation is proposed up to a depth of 45m (10m AGL + 35m BGL). The water table is below 60-65m from ground level which is observed from the nearby open wells and bore wells. Hence the ground water will not be affected in any manner due to the quarrying operation during the entire lease period.
23	Habitations within 300m radius of the Project Site	There is no Habitation within 300m radius of the project site.

24	Drinking water	Water will be supplied through tankers from Mensandoddi village which is 0.89 Km, E of the project area

10.3 JUSTIFICATION OF THE PROPOSED PROJECT

The said project plays a significant role in the domestic as well as infrastructural market. To achieve a huge infrastructure being envisaged by Government of India, particularly in road and housing sector, there is a need for basic building materials. The rough stone form the primary building material.

Rough stone is one of the most valuable natural building materials. Aggregates are mostly used for building roads and footpaths Aggregates – stone used for its strong physical properties – crushed and sorted into various sizes for use in concrete, coated with bitumen to make asphalt or used 'dry' as bulk fill in construction. Mostly used in roads, concrete and building products. Aggregates represent about 98% of quarry output, most of which is used in road construction, maintenance and repair. Much of this goes to the production of asphalt; the remainder is used 'dry' without the addition of other materials to provide a sturdy base for roads.

Since Krishnagiri, a city known for its small-scale industries and also the soil in the area near project site is not very fertile making it unsuitable for carrying out agricultural activities. The topography near the lease area is barren dry lands showing only less chance for crop growth and development of vegetation. In addition to that, geological resources of rough stone is abundant in the lease area which is evident from the mine activities carried out in the nearby sites.

Table 10-2: Anticipate Impacts & Appropriate Mitigation Measures

S. No.	Potential Impact	Mitigation Measure
1	The main impact in the air environment is dust emission during various mining activities such drilling, blasting, excavation, loading and transportation. The dust	Proper mitigation measures like water sprinkling on haul roads will be adopted to control dust emissions.

	emission may affect the quality of ambient air in the and around the mine area. The increased emission may cause respiratory & Cardiovascular problems in human health	To control the emissions regular preventive maintenance of equipments will be carried out on contractual basis. Plantation will be carried out along approach roads & mine premises.
2	Waste water will be generated due to mining activity and from other domestic activities. These may contaminate the ground water leading to ground water. The mining activity may affect the ground water table	No waste water will be generated from the mining activity of minor minerals as the project only involves lifting of over burden from mine site. The wastewater generated from the domestic activity will be disposed off safely through the proposed septic tank. Mining will not intersect ground water table. Hence the water table will not be impacted due to the proposed project
3	Noise will be generated in the mine area during various mining activities such as blasting, drilling, excavation. During transportation of the mined out mineral, there may be noise generation due to the movement of vehicles. This may impact the health condition of the workers by creating headache	Periodical monitoring of noise will be done. No other equipments except the transportation vehicles and Excavator (as & when required) for loading will be allowed at site. Noise generated by these equipments shall be intermittent and does not cause much adverse impact. Plantation will be carried out along approach roads. The plantation minimizes propagation of noise and also arrest dust.

4	Solid waste will be generated from the mining activity as there will be refuse after 95% recovery and also generation of domestic waste	The 100% recovery is achieved by extracting the entire mineable reserve. Hence there will be no refuse generation due to the mining activity. Apart from that, a very meagre quantity of domestic waste will be generated in the project, which will be handed over to the local body on daily basis.
5	During mining activities, there are chances of workers getting health issues or may be prone to accidents	Dust masks will be provided as additional personal protection equipment to the workers working in the dust prone area. Periodical trainings will be conducted to create awareness about the occupational health hazards due to activities like blasting, drilling, excavation Workers health related problem if any, will be properly addressed.

11 Disclosure of Consultant

11.1 INTRODUCTION

This chapter presents the details of the environmental consultants engaged, their background and the brief description of the key personnel involved in the project. Specific studies on the mining project have been carried out by engaging engineers/experts of Ecotech Labs Pvt. Ltd, Chennai. Ecotech Labs Pvt. Ltd (ETL), Chennai is NABET accredited consultancy organization. ETL is equipped with in-house, spacious laboratory, accredited by NABL (National Accreditation Board for Testing & Calibration Laboratories), Department of Science & Technology, Government of India and MoEF & CC.

11.2 ECO TECH LABS PVT. LTD – ENVIRONMENT CONSULTANT

Eco Tech Labs Pvt. Ltd is a multi-disciplinary testing and research laboratory in India. Eco Tech labs provides high quality services in environmental consultancy, engineering solution, chemical and microbiological laboratory analysis of food, water and environment (Air, Water, Soil) with highest accuracy.

The Quality policy

•We at Eco Tech Labs Pvt. Ltd. engaged in providing Environmental consulting services and we are committed to strengthen our capabilities in all areas of our operations in line with customer requirements &expectations, applicable legal requirements & stakeholders expectations.

•We are committed to establish and maintain Quality Management System (QMS) for continual improvement in processes and Services

•We are committed to provide customized solutions in realistic, time bound and cost effective to achieve highest degree of customer satisfaction and Environmental improvement.

•We shall establish, maintain & periodically review our documented management systems, objectives and performance in consultation with our employees and prevailing best practices.

- Effective communication of organization's policy and objectives to employees and seeking feedbacks from all our employees and concerned stakeholders for continual improvement.

Declaration by Experts contributing to the EIA of Rough Stone Quarry- 4.40.0 Ha by M/s. Ultra Mines Private Limited at S.F.No. 133/1(Part), 133/2, 133/4, 134/1 & 134/2, Venkatesapuram Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu State

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

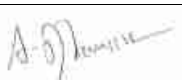
EIA Coordinator: Dr. A. Dhamodharan

Signature:

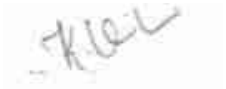
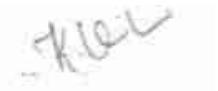
Period of involvement: 01.12.2021 to Till now

Contact information: M/s. Ecotech Labs Pvt Ltd.,
No. 48, 2nd Main road, Ram Nagar South Extension,
Pallikaranai

S. No.	Functional areas	Name of the experts	Involvement (period and task)	Signature and date

1	AP	Mrs. K. Vijayalakshmi	1. Selection of Baseline Monitoring stations based on the wind direction 2. Interpretation of Baseline data by comparing it with standards prescribed by CPCB against the type of area 3. Identification of sources of air pollution and suggesting mitigation measures to minimize impact ***Period: December 2021 – Till now***	
2	WP	Dr. A. Dhamodharan	1. Selection of baseline Monitoring Locations for Ground water analysis and also identifying nearest surface water to be studied. 2. Interpretation of baseline data collected 3. Identification of impacts based on the baseline study conducted and also to the ground water and nearby surface water due to the proposed project 4. Preparation of suitable and appropriate mitigation plan. ***Period: December 2021 – Till now***	
3	SHW	Dr. A. Dhamodharan	1. Identification of nature of solid waste generated 2. Categorization of the generated waste and estimating the quantity of waste to be generated based on the per capita basis. Identification of impacts of SHW on Environment 3. Suggesting suitable mitigation measures by recommending appropriate disposal method for each category of waste generated 4. Top soil and refuse management ***Period: December 2021 – Till now***	
4	SE	Mr. S. Pandian	1. Primary data collection through the census questionnaire 2. Obtaining Secondary data from authenticated sources and incorporating the same in EIA report. 3. Impact assessment & proposing suitable mitigation plan	

			4. CSR budget allocation by discussing with the local body and allotting the same for need based activity. ***Period: December 2021 – Till now*** ****Involves Public Hearing***	
5	EB	Dr. A. Dhamodharan	1. Primary data collection through field survey and sheet observation for ecology and biodiversity 2. Secondary Collection through various authenticated sources 3. Prediction of anticipated impacts and suggesting appropriate mitigation measures. ***Period: December 2021 – Till now***	
6	HG	Dr. T. P. Natesan	1. Study of existing surface drainage arrangements in the core and buffer zone, impact due to mining on these drainage courses and suggestion of mitigative measures 2. Determination of groundwater use pattern, development of rainwater harvesting program. Storm water management through garland drainage system. ***Period: December 2021 – Till now***	
7	GEO	Dr. T. P. Natesan	1. Field survey for assessing regional and local geology, aquifer distribution, Determination of groundwater use pattern, development of rainwater harvesting program. ***Period: December 2021 – Till now***	
8	SC	Dr. A. Dhamodharan	1. Interpretation of baseline report 2. Identification of possible impacts on soil, prediction of soil conservation and suggesting suitable mitigation measures. ***Period: December 2021 – Till now***	

9	AQ	Mrs. K. Vijayalakshmi	1. Collection of Meteorological data for the baseline study period 2. Plotting wind rose plot and thereby selecting the monitoring locations based on the wind pattern 3. Estimation of sources of air emissions and air quality modeling is done 4. Interpretation of the results obtained 5. Identification of the impacts and suggesting suitable mitigation measures. ***Period: December 2021 – Till now***	
10	NV	Mrs. K. Vijayalakshmi	1. Selection of monitoring locations 2. Interpretation of baseline data 3. Prediction of impacts due to noise pollution and suggestion of appropriate mitigation measures ***Period: May 2022 – Till now***	
11	LU	Dr. T. P. Natesan	1. Collection of Remote sensing satellite data to study the land use pattern. 2. Primary field survey and limited field verification for land categorization in the study area 3. Preparation of Land use map using Satellite data for 10km radius around the project site. ***Period: December 2021 – Till now***	
12	RH	Mrs. K. Vijayalakshmi	1. Identification of the risk 2. Interpreting consequence contours 3. Suggesting risk mitigation measures ***Period: December 2021 – Till now***	

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

I, Dr. A. Dhamodharan, hereby, confirm that the above-mentioned experts prepared the EIA report of mining project at Survey Numbers. 133/1(Part), 133/2, 133/4, 134/1 & 134/2 Venkatesapuram Village, Shoolagiri Taluk, Krishnagiri District. I also confirm that the consultant organization shall be fully accountable for any misleading information mentioned in this statement.

Signature: 

Name: Dr. A. Dhamodharan

Designation: Managing Director

Name of the EIA consultant organization: M/s. Eco Tech Labs Private Limited

NABET Certificate No. & Issue Date: NABET/EIA/22-25/SA 0222

File No: 10958
Government of India
Ministry of Environment, Forest and Climate Change
(Issued by the State Environment Impact Assessment Authority(SEIAA), TAMIL NADU)
***

Dated **12/07/2024**

To,

M/s. ULTRA MINES PRIVATE LIMITED
M/s. ULTRA MINES PRIVATE LIMITED
M/s. Ultra Mines Private Limited No.168/A1, Seetharama Nagar, Anandha Electricals, Hosur Taluk, Krishnagiri District-635109., Hosur, KRISHNAGIRI, TAMIL NADU, 635109
ultramines305@gmail.com

Subject: Grant of Terms of Reference with Public Hearing under the provision of the EIA Notification 2006 as amended-regarding.

Sir/Madam,

This is in reference to your application for Grant of Terms of Reference with Public Hearing under the provision of the EIA Notification 2006-regarding in respect of project Proposed Rough Stone and Gravel quarry lease over an extent 4.40.0 ha in S.F.Nos.133/1 (Part), 133/2, 133/4, 134/1 & 134/2, of Venkatesapuram Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu by **M/s. Ultra Mines Private Limited** submitted to SEIAA vide proposal number SIA/TN/MIN/477104/2024 dated 30/05/2024.

Ref:

1. Online proposal No. SIA/TN/MIN/477104/2024, dt: 30/05/2024.
2. Your application submitted for Terms of Reference dated: 07.06.2024.

2. The particulars of the proposal are as below :

(i) TOR Identification No.	TO24B0108TN5897955N
(ii) File No.	10958
(iii) Clearance Type	TOR
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals,1(a) Mining of minerals
(vii) Name of Project	Venkatesapuram Village Rough Stone and Gravel Mining Lease
(viii) Name of Company/Organization	ULTRA MINES PRIVATE LIMITED
(ix) Location of Project (District, State)	KRISHNAGIRI, TAMIL NADU
(x) Issuing Authority	SEIAA
(xii) Applicability of General Conditions	no

(xiii) Applicability of Specific Conditions no

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

2.0The above-mentioned proposal has been considered by (SEIAA) Appraisal Committee of SEIAA in the meeting held on 09/07/2024. The minutes of the meeting and all the Application and documents submitted [(viz. Form-1 Part A, Part B,] are available on PARIVESH portal which can be accessed by scanning the QR Code above.

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

4.The SEIAA has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the SEAC hereby decided to grant Terms of Reference for instant proposal of M/S.ULTRA MINES PRIVATE LIMITED under the provisions of EIA Notification, 2006 and as amended thereof.

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

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

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

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

Copy To

1. The Principal 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 Chair Person, Tamil Nadu Pollution Control Board,
76, Mount Salai, Guindy, Chennai - 600 032.
4. The APCCF (C), Regional Office, MoEF & CC (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai - 34.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC,
Paryavaran Bhavan, CGO Complex, New Delhi - 110 003.
6. The District Collector, Krishnagiri District.
7. Stock File.

Annexure 1

Specific Terms of Reference for (Mining Of Minerals)

1. Seiaa Specific Conditions

S. No	Terms of Reference
1.1	After detailed discussions, the Authority accepted the recommendation of SEAC and decided to grant **Terms of Reference (ToR) with Public Hearing** based on studies, assessments and records to be produced as sought by the SEAC and SEIAA, for undertaking the Environment Impact

S. No	Terms of Reference
	Assessment Study and preparation of Environment Management Plan for the quantity of **588141m^3 of Rough stone & 63116m^3 of Gravel to the proposed depth of 50m (10m AGL+40mBGL) and annual peak RoM production of 130895m^3 of Rough stone** as per the approved mining plan. subject to the conditions as recommended by SEAC and with the specific & standard conditions.

2. Seac Conditions - Site Specific

S. No	Terms of Reference
2.1	1. **A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster through systematic & scientific approach with appointment of statutory personnel, appropriate environmental monitoring, good maintenance of haul roads and village/panchayat roads, authorized blasting operation etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal:** **(i) Copy of the agreement forming CMC.** **(ii) The Organisation chart of the Committee with defining the role of the members** **(iii) The 'Standard Operating Procedures' (SoP) executing the planned activities**. 2. The project proponent shall submit a Certified Compliance Report obtained from the office of the concerned DEE/TNPCB (or) IRO, MoEF & CC, Chennai as per the MoEF&CC O.M dated.08.06.2022 for the previous EC and appropriate mitigating measures for the non-compliance items, if any. 3. For the existing quarry, the PP shall obtain a letter from the concerned AD (Mines) which shall stipulate the following information: i. Original pit dimension of the existing quarry ii. Quantity achieved Vs EC Approved Quantity iii. Balance Quantity as per Mineable Reserve calculated. iv. Mined out Depth as on date Vs EC Permitted depth v. Details of illegal/illicit mining carried out, if any vi. Quantity of material mined out outside the mine lease area (or) in the adjacent quarry/land. vii. Existing condition of Safety zone/benches viii. Details of any penalties levied on the PP for any violation in the quarry operation 4. PP shall furnish a letter from AD/DD mines stating that the project will not fall under violation category. 5. The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m & upto 1km shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc. 6. The Proponent shall develop thick greenbelt in two to three rows and garland drain around the boundary of the proposed quarry and the photographs indicating the same shall be shown during the EIA appraisal. 7. The study on impact of the proposed quarrying operations on the surrounding environment which includes reserve forest, water bodies, etc. 8. The Project Proponent shall furnish the revised EMP based on the study carried out on impact of the dust & other environmental impacts due to proposed quarrying operations on the nearby agricultural lands for life of the mine in the format prescribed by the SEAC considering the cluster situation. 9. The proponent shall furnish the details of the Check dam located at 60 m distance away from the boundary of proposed mine lease indicating the ownership of the check dam, constructional and hydrogeological features of the check dam, age of the check dam, connectivity of check dam with neighbouring river/lake, if any and anticipated blast-induced ground vibration levels with respect to the effect of the drilling and blasting operations on the check dam individually and also the

S. No	Terms of Reference
	cumulative effects due to cluster of mines for the existing village with comprehensive EIA study. 10. The PP shall furnish a detailed hydrogeological study report on impact and implications of proposed mining activity on the nearby water bodies situated within 500m radius from the project site conducted by reputed institutions **such as** IIT Madras, NIT Trichy and NEERI, Chennai and the anicut area of the stream flowing near the western boundary of the proposed mine lease area.

3. Seac Standard Conditions

S. No	Terms of Reference
3.1	1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (viii) Condition of Safety zone/benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m. 2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site. 3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc. 4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry. 5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report. 6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site. 7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC. 8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level. 9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.

S. No	Terms of Reference
	10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site. 11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences. 12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines, 13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? 14. Quantity of minerals mined out. Highest production achieved in any one year Detail of approved depth of mining. Actual depth of the mining achieved earlier. Name of the person already mined in that leases area. If EC and CTO already obtained, the copy of the same shall be submitted. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches. 15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone). 16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc., 17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan. 18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same. 19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment. 20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. 21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study. 22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind. 23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted. 24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife

S. No	Terms of Reference
	sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given. 25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided. 26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered. 27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided. 28. Impact on local transport infrastructure due to the Project should be indicated. 29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity. 30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific. 31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible. 32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner. 33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner 34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period. 35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period. 36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed. 37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations. 38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation. 39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given. 40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the

S. No	Terms of Reference
	Project shall clearly indicate environmental, social, economic, employment potential, etc. 41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB. 42. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine. 43. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

4. Seiaa Standard Conditions:

S. No	Terms of Reference
4.1	**<u>Cluster Management Committee</u>** 1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry. 2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc., 3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines. 4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network. 5. The committee shall deliberate on risk & emergency management plan, fire safety & evacuation plan and sustainable development goals pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan. 6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail in the EIA Report. 7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner. 8. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity. **<u>Agriculture & Agro-Biodiversity</u>** 9. Impact on surrounding agricultural fields around the proposed mining Area. 10. Impact on soil flora & vegetation around the project site. 11. Details of type of vegetation including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetation all along the boundary of the proposed mining area shall committed mentioned in EMP. 12. The Environmental Impact Assessment should study the agro-biodiversity, agro-forestry, horti-cultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem. 13. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services. 14. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock. **<u>Forests</u>**

S. No	Terms of Reference
	15. The project proponent shall detailed study on impact of mining on Reserve forests and free ranging wildlife. 16. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna. 17. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection. 18. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site. **Water Environment** 19. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period. 20. Erosion Control measures. 21. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas. 22. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir. 23. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities. 24. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts. 25. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components. 26. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites. 27. The EIA shall include the impact of mining activity on the following: a) Hydrothermal/Geothermal effect due to destruction in the Environment. b) Bio-geochemical processes and its foot prints including environmental stress. c) Sediment geochemistry in the surface streams. **Energy** **Climate Change** 29. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities. 30. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock, soil health and physical, chemical & biological soil features. 31. Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood. **Mine Closure Plan** **EMP** 33. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued and the scope for achieving SDGs. 34. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan. **Risk Assessment** **Disaster Management Plan**

S. No	Terms of Reference
	Others 37. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc. 38. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan. 39. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

Standard Terms of Reference for (Mining of minerals)

1.

S. No	Terms of Reference
1.1	An EIA-EMP Report shall be prepared for peak capacity (…..MTPA)operation in an ML/project area of.....ha based on the generic structure specified in Appendix III of the EIA Notification, 2006.
1.2	An EIA-EMP Report would be prepared for peak capacity operation to cover the impacts and environment management plan for the project specific activities on the environment of the region, and the environmental quality encompassing air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modeling for..... MTPA of mineral production based on approved project/Mining Plan for.....MTPA. Baseline data collection can be for any season (three months) except monsoon.
1.3	Propoer KML file with pin drop and coordinate of mine at 500-1000 m interval be provided
1.4	A Study area map of the core zone (project area) and 10 km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage pattern including rivers/streams/nullahs/canals, locations of human habitations, major constructions including railways, roads, pipelines, major industries, mines and other polluting sources. In case of ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, forests (Reserved/Protected), migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the 15 km study area should be given. The above details to be furnished in tabular form also
1.5	Map showing the core zone delineating the agricultural land (irrigated and un-irrigated, uncultivable land as defined in the revenue records, forest areas (as per records), along with other physical features such as water bodies, etc should be furnished.
1.6	A contour map showing the area drainage of the core zone and 25 km of the study area (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated in the separate map.
1.7	Catchment area with its drainage map of 25 km area within and outside the mine shall be provided with names, details of rivers/ riverlet system and its respective order. The map should clearly indicate drainage pattern of the catchment area with basin of major rivers. Diversion of drains/ river

S. No	Terms of Reference
	need eloboration in form of lengthe, quantity and quality of water to be diverted
1.8	(Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working scheme until the end of mine life should be provided on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps and sections should be included. The Progressive mine development and Conceptual Final Mine Closure Plan should also be shown in figures. Details of mine plan and mine closure plan approval of Competent Authority should be furnished for green field and expansion projects.
1.9	Details of mining methods, technology, equipment to be used, etc., rationale for selection of specified technology and equipment proposed to be used vis-à-vis the potential impacts should be provided.
1.10	Impact of mining on hydrology, modification of natural drainage, diversion and channeling of the existing rivers/water courses flowing though the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.
1.11	A detailed Site plan of the mine showing the proposed break-up of the land for mining operations such as the quarry area, OB dumps, green belt, safety zone, buildings, infrastructure, Stockyard, township/colony (within and adjacent to the ML), undisturbed area -if any, and landscape features such as existing roads, drains/natural water bodies to be left undisturbed along with any natural drainage adjoining the lease /project areas, and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-channelling of the water courses, etc., approach roads, major haul roads, etc should be indicated.
1.12	Original land use (agricultural land/forestland/grazing land/wasteland/water bodies) of the area should be provided as per the tables given below. Impacts of project, if any on the land use, in particular, agricultural land/forestland/grazing land/water bodies falling within the lease/project and acquired for mining operations should be analyzed. Extent of area under surface rights and under mining rights should be specified. Area under Surface Rights S.N ML/Project Land use Area under Surface Rights(ha) Area Under Mining Rights(ha) (ha) Area under Both (ha) 1 Agricultural land 2 Forest Land 3 Grazing Land 4 Settlements 5 Others (specify) S.N. Details Area (ha) 1 Buildings 2 Infrastructure 3 Roads 4 Others (specify) Total
1.13	Study on the existing flora and fauna in the study area (10km) should be carried out by an institution

S. No	Terms of Reference
	of relevant discipline. The list of flora and fauna duly authenticated separately for the core and study area and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna should be given. If the study area has endangered flora and fauna, or if the area is occasionally visited or used as a habitat by Schedule-I species, or if the project falls within 15 km of an ecologically sensitive area, or used as a migratory corridor then a Comprehensive Conservation Plan along with the appropriate budgetary provision should be prepared and submitted with EIA-EMP Report; and comments/observation from the CWLW of the State Govt. should also be obtained and furnished.
1.14	One-season (other than monsoon) primary baseline data on environmental quality - air (PM10, PM2.5, SOx, NOx and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil - along with one-season met data coinciding with the same season for AAQ collection period should be provided. The detail of NABL/ MoEF&CC certification of the respective laborartory and NABET accreditation of the consultant to be provided.
1.15	Map (1: 50, 000 scale) of the study area (core and buffer zone) showing the location of various sampling stations superimposed with location of habitats, other industries/mines, polluting sources, should be provided. The number and location of the sampling stations in both core and buffer zones should be selected on the basis of size of lease/project area, the proposed impacts in the downwind (air)/downstream (surface water)/groundwater regime (based on flow). One station should be in the upwind/upstream/non-impact/non-polluting area as a control station. The monitoring should be as per CPCB guidelines and parameters for water testing for both ground water and surface water as per ISI standards and CPCB classification wherever applicable. Observed values should be provided along with the specified standards.
1.16	For proper baseline air quality assessment, Wind rose pattern in the area should be reviewed and accordingly location of AAMSQ shall be planned by the collection of air quality data by adequate monitoring stations in the downwind areas. Monitoring location for collecting baseline data should cover overall the 10 km buffer zone i.e. dispersed in 10 km buffer area. In case of expansion, the displayed data of CAAQMS and its comparison with the monitoring data to be provided
1.17	A detailed traffic study along with presence of habitation in 100 mts distance from both side of road, the impact on the air quality with its proper measures and plan of action with timeline for widening of road. The project will increase the no. of vehicle along the road which will indirectly contribute to carbon emission so what will be the compensatory action plan should be clearly spell out in EIA/ EMP report.
1.18	The socio-economic study to conducted with actual survey report and a comparative assessment to be provided from the census data should be provided in EIA/ EMP report also occupational status & economic status of the study area and what economically project will contribute should be clearly mention. The study should also include the status of infrastructural facilities and amenities present in the study area and a comparative assessment with census data to be provided and to link it with the initialization and quantification of need based survey for CSR activities to be followed.
1.19	The Ecology and biodiversity study should also indicate the likely impact of change in forest area for surface infrastructural development or mining activity in relation to the climate change of that area and what will be the compensatory measure to be adopted by PP to minimize the impact of forest diversion.
1.20	Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine should be submitted.

S. No	Terms of Reference
1.21	Impact of proposed project/activity on hydrological regime of the area shall be assessed and report be submitted. Hydrological studies as per GEC 2015 guidelines to be prepared and submitted
1.22	Impact of mining and water abstraction from the mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term monitoring measures should be provided. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.
1.23	Study on land subsidence including modeling for prediction, mitigation/prevention of subsidence, continuous monitoring measures, and safety issues should be carried out.
1.24	Detailed water balance should be provided. The break up of water requirement as per different activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the Competent Authority in the State Govt. and impacts vis-à-vis the competing users should be provided.
1.25	PP shall submit design details of all Air Pollution control equipment (APCEs) to be implemented as part of Environment Management Plan vis-à-vis reduction in concentration of emission for each APCEs
1.26	PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of mineral. The measures adopted to conserve energy or use of renewable sources shall be explored
1.27	PP to evaluate the green house emission gases from the mine operation and corresponding carbon absorption plan.
1.28	Site specific Impact assessment with its mitigation measures, Risk Assessment and Disaster Preparedness and Management Plan should be provided.
1.29	Impact of choice of mining method, technology, selected use of machinery and impact on air quality, mineral transportation, handling & storage/stockyard, etc, Impact of blasting, noise and vibrations should be provided.
1.30	Impacts of mineral transportation within the mining area and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions should be provided. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop etc, management plan for maintenance of HEMM and other machinery/equipment should be given. Details of various facilities such as rest areas and canteen for workers and effluents/pollution load emanating from these activities should also be provided.
1.31	Details of various facilities to be provided to the workers in terms of parking, rest areas and canteen, and effluents/pollution load resulting from these activities should also be given.
1.32	The number and efficiency of mobile/static water jet, Fog cannon sprinkling system along the main mineral transportation road inside the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality should be provided.
1.33	Conceptual Final Mine Closure Plan and post mining land use and restoration of land/habitat to the

S. No	Terms of Reference
	pre- mining status should be provided. A Plan for the ecological restoration of the mined out area and post mining land use should be prepared with detailed cost provisions. Impact and management of wastes and issues of re-handling (wherever applicable) and backfilling and progressive mine closure and reclamation should be furnished.
1.34	Adequate greenbelt nearby areas, mineral stock yard and transportation area of mineral shall be provided with details of species selected and survival rate Greenbelt development should be undertaken particularly around the transport route.
1.35	Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.
1.36	Details of R&R. Detailed project specific R&R Plan with data on the existing socio- economic status of the population (including tribals, SC/ST, BPL families) found in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc and costs along with the schedule of the implementation of the R&R Plan should be given.
1.37	CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project should be given.
1.38	Corporate Environment Responsibility:
1.39	a) The Company must have a well laid down Environment Policy approved by the Board of Directors.
1.40	b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
1.41	c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.
1.42	d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.
1.43	e) Environment Managament Cell and its responsibilities to be clearly spleel out in EIA/ EMP report
1.44	f) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated.
1.45	Status of any litigations/ court cases filed/pending on the project should be provided.
1.46	PP shall submit clarification from PCCF that mine does not falls under corridors of any National Park and Wildlife Sanctuary with certified map showing distance of nearest sanctuary.
1.47	Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan

S. No	Terms of Reference
	approval. NOC from Flood and Irrigation Dept. (if req.), etc. wherever applicable.
1.48	Details on the Forest Clearance should be given as per the format given: Total Project Area (ha) / Total Forest land (ha) If more than one provide details of each FC / Date of FC / Extent of Forest Land / Balance area for which FC is yet to be obtained / Status of appl For diversion of forest land
1.49	In case of expansion of the proposal, the status of the work done as per mining plan and approved mine closure plan shall be detailed in EIA/ EMP report
1.50	Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of Public Hearing, the points raised by the general public and commitments made by the proponent and the time bound action proposed with budgets in suitable time frame. These details should be presented in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.
1.51	PP shall carry out survey through drone highlighting the ground reality for atleast 10 minutes
1.52	Detailed Chronology of the project starting from the first lease deed alloted/Block allotment/ Land acquired to its No. of renewals, CTO /CTE with details of no. renewals, previous EC(s) granted details and its compliance details, NOC details from various Govt bodies like Forest NOC(s), CGWA permissions, Power permissions, etc as per the requisites respectively to be furnished in tabular form.
1.53	The first page of the EIA/ EMP report must mention the peak capacity production, area, detail of PP, Consultant (NABET acrreditation) and Laboratory (NABL / MoEF & CC certification)
1.54	The compliances of ToR must be properly cited with respective chapter section and page no in tabular form and also mention sequence of the respective ToR complied within the EIA-EMP report in all the chapter,s section.

Signature Not Verified

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

Date: 15/07/2024

From

Dr.P.Jayapal,M.Sc.,Ph.D.,
Deputy Director,
Dept of Geology and Mining,
Collectorate,
Krishnagiri.

To

M/s. Ultra Mines Private Limited,
No. 168/A1, Seetharama Nagar,
Ananda Electricals,
Hosur Taluk,
Krishnagiri District - 635109.

Roc.No. 86/2024/Mines Dated: 21 .05.2024

Sir,

Sub: Mines and Minerals – Minor Mineral - Rough Stone - Krishnagiri District – Shoolagiri Taluk – Venkatesapuram Village- Patta land in S.F.No. 133/1(P) (1.82.0 ha), 133/2 (0.28.00 ha), 133/4 (0.64.00 ha), 134/1 (1.03.00 ha), & 134/2 (0.63.00 ha) over an extent of 4.40.00 ha - Application preferred by M/s. Ultra Mines Private Limited - Draft Mining Plan submitted - Approved – Other quarry situated in 500 mtrs radial distance – Details furnished - reg.

Ref:
1. Application preferred by M/s. Ultra Mines Private Limited, dated 30.01.2024.
2. This Office Letter No. 86/2024/Mines dated 10.05.2024.
3. Mining Plan approved by the Deputy Director of Geology and Mining, Krishnagiri in Rc.no. 86/2024/Mines dated: 21 .05.2024.
4. M/s. Ultra Mines Private Limited, letter dated: 15.05.2024.

****

Kind attention is invited to the references cited above.

2. M/s. Ultra Mines Private Limited had preferred an application for quarrying Rough stone over an extent of 4.40.00 ha of patta land in S.F.No. 133/1(P) (1.82.0 ha), 133/2 (0.28.00 ha), 133/4 (0.64.00 ha), 134/1 (1.03.00 ha), & 134/2 (0.63.00 ha) in Venkatesapuram Village, Shoolagiri Taluk, Krishangiri District for a period of 10 years under the provisions of Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959. In this regard, the precise area communication was issued to the lessee vide the reference 2nd cited with a direction to submit approved mining plan and Environment Clearance.

3. In this connection, as stipulated in the TNMMCR Rules, 1959 the applicant has submitted the Mining Plan on 15.04.2024. Accordingly, the

Mining plan submitted by the applicant has been approved by the Deputy Director (Mines) vide letter dated 21 .05.2024. In addition to that the details of other quarries situated within 500 mts radial distance from the subject quarry is furnished as follows.

I. Details of Existing quarries.

Sl No	Name of the lessee	Village & Taluk	S.F No.	Extent in Het	Rc.No. & Date	Lease period.
1.	M/s.Sumukha Blue Metals & M Sand	Shoolagiri/ Venkatesa puram	294 (P-2)	3.75.0	Rc.No.216/2018/ Mines, dated 09.03.2018	30.04.2021 to 29.04.2031
2.	Thiru.V.Nagaraja S/o. Venkatappa Reddy	Shoolagiri/ Venkatesa puram	287/1	2.16.0	Rc.No.478/2018/ Mines-2, dated 28.05.2018	19.02.2021 to 18.02.2031
3.	Tvl.Mars Blue Metals	Shoolagiri/ Venkatesa puram	135 (P-2)	3.00.0	Rc.No.71/2016/ Mines, dated 19.06.2019	19.06.2019 to 18.02.2031

II. Details of Expired/Old quarries.

Sl No	Name of the lessee	Village & Taluk	S.F No.	Extent in Het	Rc.No. & Date	Lease period.
	---------- Nil ----------					

III. Details of Proposed quarries

Sl No	Name of the lessee	Village & Taluk	S.F No.	Extent in Het	Rc.No. & Date	Lease period.
1.	M/s. Ultra Mines Private Limited,	Shoolagiri, Venkatesapuram	133/1(P) 133/2 133/4 134/1 134/2	4.40.00	-	Instant Proposal

21/05/24

Deputy Director,
Dept of Geology and Mining,
Krishnagiri.

Copy to :-

MS
21.05.24

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

MINING PLAN

FOR

VENKATESAPURAM VILLAGE ROUGH STONE AND GRAVEL MINING LEASE

WITH PROGRESSIVE QUARRY CLOSURE PLAN

Patta- Ryotwari land/Non-forest/Captive Use –"B" Category

Lease period 10 Years from the date of lease execution

(Mine plan prepared for first five years)

(Prepared under rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959)

LOCATION OF THE LEASE AREA

STATE	:	TAMILNADU
DISTRICT	:	KRISHNAGIRI
TALUK	:	SHOOLAGIRI
VILLAGE	:	VENKATESAPURAM
S.F.No	:	133/1 (Part), 133/2, 133/4, 134/1 & 134/2
EXTENT	:	4.40.0 Hectares

ADDRESS OF THE APPLICANT

M/s.Ultra Mines Private Limited,

No.168/A1, Seetharama Nagar,

Anandha Electricals, Hosur Taluk,

Krishnagiri District – 635109

PREPARED BY

Dr.S.KARUPPANNAN.M.Sc., Ph.D.,
RQP/MAS/263/2014/A

GEO TECHNICAL MINING SOLUTIONS
(A NABET Accredited & ISO Certified Company)
No: 1/213 -B, Ground Floor, Natesan Complex,
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Website: www.gtmsind.com

CONTENTS

ANNEXURES

Sl. No.	Description	Annexure No.
1.	Copy of precise area communication letter	I
2.	Copy of **FMB** (Field Measurement book)	II
3.	Copy of "A" Register	III
4.	Copy of Patta & Adangal	IV
5.	Copy of Company Registration certificate	V
6.	Photo copy of the applied lease area	VI
7.	Copy of ID Proof of the authorized signatory	VII
8.	Copy of Recognized Qualified Person Certificate	VIII

LIST OF PLATES

Sl. No.	Description	Plate No.	Scale
1	Key Map	I	Not to scale
2	Location Plan	I-A	Not to scale
3	Toposheet Map	I-B	1:1,00,000
4	Satellite Imagery Map	I-C	1: 5,000
5	Environmental Plan	I-D	1: 5,000
6	Mine Lease Plan	II	1:2000
7	Surface, Geological Plan & Sections	III	Plan: 1:2000 Sections Hor 1:1000 Ver 1:500
8	Geological Sections	IIIA	Sections Hor 1:1000 Ver 1:500
9	Year wise Development, Production Plan & Sections	IV	Plan: 1:2000 Sections Hor 1:1000 Ver 1:500
10	Production Sections	IVA	Sections Hor 1:1000 Ver 1:500
11	Mine Layout Plan and Land use Pattern	V	1:2000
12	Progressive Mine Closure Plan	VI	Plan: 1:2000 Sections Hor 1:2000 Ver 1:500
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14	Conceptual Plan	VII	Plan: 1:2000 Sections Hor 1:2000 Ver 1:500
15	Conceptual Sections	VIIA	Sections Hor 1:1000 Ver 1:500

M/s.Ultra Mines Private Limited,
No.168/A1, Seetharama Nagar,
Ananda Electricals, Hosur Taluk,
Krishnagiri District - 635109

CONSENT LETTER FROM THE APPLICANT

The Mining Plan in respect of rough stone and gravel quarry lease in S.F.No's: 133/1 (Part), 133/2, 133/4, 134/1 & 134/2 over an extent of 4.40.0 hectares of Venkatesapuram Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu State has been prepared by

Dr. S. KARUPPANNAN., M.Sc., Ph.D. Regn. No. RQP/MAS/263/2014/A

I request **"The Deputy Director",** Department of Geology and Mining, Krishnagiri District to make further correspondence regarding modifications of the Mining Plan with the said Recognized Qualified Person on this following address,

Dr. S.KARUPPANNAN.M.Sc., Ph.D.,
Regn. No. RQP/MAS/263/2014/A
GEO TECHNICAL MINING SOLUTIONS
(A NABET Accredited & ISO certified Company)
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Oddapatti, Collectorate Post office, Dharmapuri-636705
Ph: +91 9443937841,7010076633.
E-mail: info.gtmsdpi@gmail.com,
Website: www.gtmsind.com

I hereby undertake that all modifications so made in the Mining Plan by the Recognized Qualified Person may be deemed to have been made with my knowledge and consent and shall be acceptable to me and binding on me in all respects.

Place: Dharmapuri, TN.
Date:

Signature of the applicant
(M/s.Ultra Mines Private Limited)

M/s.Ultra Mines Private Limited,
No.168/A1, Seetharama Nagar,
Ananda Electricals, Hosur Taluk,
Krishnagiri District - 635109

DECLARATION

The Mining Plan in respect of rough stone and gravel quarry lease in S.F.No's: 133/1 (Part), 133/2, 133/4, 134/1 & 134/2 over an extent of 4.40.0 hectares of Venkatesapuram Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu State have been prepared with my consultation and I have understood the contents and agree to implement the same in accordance with the Mining Laws.

Place: Dharmapuri, TN.
Date:

Signature of the applicant
(M/s.Ultra Mines Private Limited)

Dr. S.KARUPPANNAN.M.Sc., Ph.D.,
Regn. No. RQP/MAS/263/2014/A
GEO TECHNICAL MINING SOLUTIONS
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Ph: +91 9443937841,7010076633
E-mail: info.gtmsdpi@gmail.com,
Website: www.gtmsind.com

CERTIFICATE

This is to certify that, the provisions of 19(1) Tamil Nadu Minor Minerals Concession Rules, 1959 have been observed in the Mining Plan for the grant of rough stone and gravel quarry lease in S.F.No's: 133/1 (Part), 133/2, 133/4, 134/1 & 134/2 over an extent of 4.40.0hectares of Venkatesapuram Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu State applied to **M/s.Ultra Mines Private Limited,** Krishnagiri, Tamil Nādu State.

Wherever specific permission / exemptions / relaxations or approvals are required, the applicant will approach the concerned authorities of State and Central governments for granting such permissions etc.

Place: Dharmapuri, TN
Date:

Signature of the Recognized Qualified Person

Dr.S.KARUPPANNAN,M.Sc,Ph.D.,
RQP/MAS/263/2014/A
GEO TECHNICAL MINING SOLUTIONS
A NABET Accredited and ISO Certified Company
1/213-B, Ground Floor, Natesan Complex,
Collectorate Post Office, Oddapatti,
Dharmapuri-636705, TamilNadu, India

Dr. S.KARUPPANNAN.M.Sc., Ph.D.,
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Ph: +91 9443937841,7010076633
E-mail: info.gtmsdpi@gmail.com,
Website: www.gtmsind.com

21 MAY 2024

CERTIFICATE

I certify that, in preparation of Mining Plan for rough stone and gravel quarry lease in S.F.No's: 133/1 (Part), 133/2, 133/4, 134/1 & 134/2 over an extent of 4.40.0hectares of Venkatesapuram Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu State prepared to **M/s.Ultra Mines Private Limited,** Krishnagiri, Tamil Nadu State covers all the provisions of Mines Act, Rules, and Regulations etc made there under and whenever specific permission are required, the applicant will approach the Director General of Mines Safety, Bangalore. The standards prescribed by DGMS in respect of Mines Health will be strictly implemented.

Place: Dharmapuri, TN

Date:

Signature of the Recognized Qualified Person

Dr.S.KARUPPANNAN,M.Sc,Ph.D.,
RQP/MAS/263/2014/A
GEO TECHNICAL MINING SOLUTIONS
A NABET Accredited and ISO Certified Company
1/213-B, Ground Floor, Natesan Complex,
Collectorate Post Office, Oddapatti,
Dharmapuri-636705, TamilNadu, India

MINING PLAN

FOR VENKATESAPURAM VILLAGE ROUGH STONE AND GRAVEL MINING LEASE

WITH PROGRESSIVE QUARRY CLOSURE PLAN

Patta- Ryotwari land/Non-forest/Captive Use –"B' Category

Lease period 10 Years from the date of lease execution

(Mine plan prepared for first five years)

(Prepared under rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959)

INTRODUCTORY NOTES:

a) **Introduction:** The applicant M/s.Ultra Mines Private Limited, office at No.168/A1, Seetharama Nagar, Ananda Electricals, Hosur Taluk, Krishnagiri District, Tamil Nadu State and filed with application for new proposals has submitted to the Deputy Director, Department of Geology and Mining (DDG & M), Krishnagiri dated 30.01.2024 had requested to grant the quarry lease for rough stone and gravel in S.F.No's: 133/1 (Part), 133/2, 133/4, 134/1 & 134/2 over an extent of 4.40.0 hectares of Venkatesapuram Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu State.

b) **The Precise area communication letter:** The Deputy Director, Department of Geology and Mining, Krishnagiri has directed to the applicant M/s.Ultra Mines Private Limited, through his precise area communication letter Rc.No.86/2024/Mines Dated: 10.05.2024 before execution of lease deed. The Applicant should submit the mining plan for approval and obtain environmental clearance from the competent authority of State Level Environment Impact Assessment Authority-TamilNadu (SEIAA) per EIA notification S.O.1533(E) dated 14th September 2006 and its subsequent amendments S.O.3977(E), dated 14th August 2018, MoEF & CC office memorandum letter F.No.22-1/2019 -IA.III [E116917] dated 15th December, 2021 for quarrying lease of rough stone and gravel at Tamil Nadu State, Krishnagiri District, Shoolagiri Taluk, Venkatesapuram Village in S.F.No's: 133/1 (Part), 133/2, 133/4, 134/1 & 134/2- Patta over an extent of 4.40.0hectares has recommended as following conditions for a period of ten (10) years under Rule 19(1) of Tamil Nadu Minor Mineral Concession Rules, 1959.

a. Excavation should be carried out leaving a safety distance of 7.5m to adjacent patta lands and 10.0m to Government Poramboke lands without any encroachment on the adjacent areas. Failure to do so will result in criminal and penalty action and the

permit issued will be cancelled without any prior notice. Also, quarrying should be done without any damage to the check dam located at a distance of more than 50 meters on the western side of the area where the quarrying license is to be issued.

b. A wire fence should be erected around the area where the quarry license is to be issued.

c. Minerals should not be excavated outside the area where the mining license is issued.

d. According to Rule 41 of the Tamil Nadu Minor Mineral Concession rules, 1959, the approved mining plan must be submitted within 90 days.

e. As per Schedule II of the Tamil Nadu Minor Mineral Concession Rules, 1959, the amount of seniority for mined minerals shall be paid from time to time and the mineral transported.

f. Explosives Should be carried out by experienced person using low power explosives without any disturbance to the neighboring lease holders/ without any encroachment on adjacent patta and government lands.

g. Quarry license will be issued only after getting and submitting clearance certificate from Environmental Impact Assessment Authority as per rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 for the area where the mining license is to be granted.

c) **Preparation and Submission of Mining Plan:** The Mining Plan with progressive quarry closure plan has been prepared under rule 41 and 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 for mining lease as per conditions mentioned in the precise area communication letter **Rc.No.86/2024/Mines Dated: 10.05.2024.**

d) **Geological resources and Mineable reserves:** Geological resource of estimated as **2039128m^3** including the resources of safety zone, and gravel, etc. Of which, rough stone resources of about **1949296m^3** and gravel is **89832m^3**. The total mineable reserve is estimated to be **664757m^3** by deducting the reserve safety zone, block in benches from the total Geological resources. Of which, rough stone is about **601641m^3** and gravel is **63116m^3** up to a depth of 50m (10m AGL + 40m BGL) (R.L.878m-828m) (Refer Plate No. IIIA & VIIA).

e) **Proposed Production Schedule** Total proposed production of **651257m^3**. Of which, rough stone is about **588141m^3** and gravel is about **63116m^3** up to a depth of 45m (10m AGL + 35m BGL) (R.L.878m-833m) for first five years plan period.

Average production is **117628m³** of rough stone and gravel is **21038m³** per year. (Refer Plate No. IVA).

f) Environmental Sensitivity of the proposed lease area: -

i. **Interstate boundary:** There is a Karnataka Interstate boundary situated about 6.6km radius away on north side of the lease area

ii. **Wildlife Sanctuaries any:** There are no notified wildlife sanctuaries within the radius of 10Km from the project site under the Wildlife (Protection) Act, 1972.

iii. **Forest (conservation) Act, 1980:** No forest land granted for quarrying and within 60m radius there is no reserve forest. The Nearest forest is Perandapalli Forest – 5.2km – Southwest Side.

iv. **CRZ Notification, 2019:** There is no Sea coastal zone found within radius of 10km and this project site doesn't attract CRZ Notification, 2019.

g) Environmental measures to be adopted during the ongoing activity period,

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

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

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

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

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

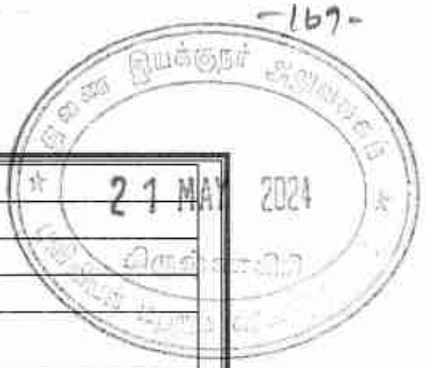
f. Transportation of material will be carried out during day time and material will be covered with tarpaulin.

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

h. And any other conditions as stipulated by the concerned authorities should be followed to protect the environment.

1.0 GENERAL:

a.	Name of the Applicant	:	**M/s.Ultra Mines Private Limited**
	Applicant address	:	No.168/A1, Seetharama Nagar, Ananda Electricals, Hosur Taluk,
	District	:	Krishnagiri
	State	:	Tamil Nadu



	Pin code	:	635109
	Phone	:	
	Fax	:	Nil
	Gram	:	Nil
	Telex	:	Nil
	E-mail	:	.....
b.	Status of the Applicant		
	Private individual	:	Private individual
	Cooperative Association	:	---
	Private company	:	---
	Public Company	:	---
	Public Sector Undertaking	:	---
	Joint Sector Undertaking	:	---
	Other (pl. specify)	:	---
c.	Mineral(s) Which are occurring in the area and which the applicant intends to mine	:	Rough stone and gravel quarry lease
d.	Period for which the mining lease granted /renewed/ proposed to be applied	:	The precise area has been communicated to the applicant for quarrying period of Ten years.
e.	Name of the Qualified Person	:	**Dr. S.KARUPPANNAN.M.Sc.,Ph.D.,**
	Address	:	**GEO TECHNICAL MINING SOLUTIONS** (A NABET Accredited & ISO certified Company) No: 1/213-B, Ground Floor, Natesan Complex, Oddapatti, Collectorate Post office, Dharmapuri-636705 Web site: www.gtmsind.com
	Phone	:	+91 9443937841, 7010076633
	Fax	:	Nil
	e-mail	:	info.gtmsdpi@gmail.com
	Telex	:	Nil
	Registration Number	:	RQP/MAS/263/2014/A
	Date of grant/renewal	:	16.12.2014
	Valid upto	:	15.12.2024
f.	Reference No. and date of consent letter from the state government	:	The Precise area Communication Letter Issued by the Deputy Director, Department Geology and Mining, Krishnagiri vide **Rc.No.86/2024/Mines Dated: 10.05.2024**

2.0 LOCATION AND ACCESSIBILITY.

a.	Details of the Area:	:	Refer plate no: IA & IB
	District & State	:	Krishnagiri, Tamil Nadu
	Taluk	:	Shoolagiri
	Village	:	Venkatesapuram

Khasra No./ Plot No./ Block Range/ Felling Series etc.:

Survey No.	Sub division	Total Extent in Hect	Patta No.	Name of the Land Owner	Mine lease Applied S.F. No.	Mine lease Applied Area out of total area in hect.
133	1	2.51.0	1589	M/s.Ultra Mines Private Limited	133/1 (Part)	1.82.0
133	2	0.28.0	1588		133/2	0.28.0
133	4	0.64.0			133/4	0.64.0
134	1	1.03.0			134/1	1.03.0
134	2	0.63.0			134/2	0.63.0
Total Extent		**5.09.0**		**Applied lease area extent**		**4.40.0**

Lease area (hectares)	:	4.40.0 Hectares
Whether the area is recorded to be in forest (please specify whether protected, reserved, etc)	:	It is a patta land
Ownership / Occupancy	:	This is a patta land S.F.No's. 133/1 (Part), 133/2, 133/4, 134/1 & 134/2 is registered on the name of M/s.Ultra Mines Private Limited as vide patta no. 1588 & 1589. (Ref. Annex. No: IV).
Existence of Public Road / Railway line if any nearby and approximate distance	:	✓ Excavated materials will be transported through the approach road on the southeast side of the lease applied area. ✓ There is MDR-422 is situated about 2.1km radius away from the east side of the lease area. ✓ There is no SH and NH road situated around 5km radius from the site. ✓ There is no railway line situated around 5.0km radius of periphery proposed lease area
Toposheet No. with latitude and longitude	:	Toposheet No. **57-H/13** Latitude: From 12°45'14.72"N to 12°45'26.27"N

			longitude: From 77°57'14.30"E to 77°57'23.15"E

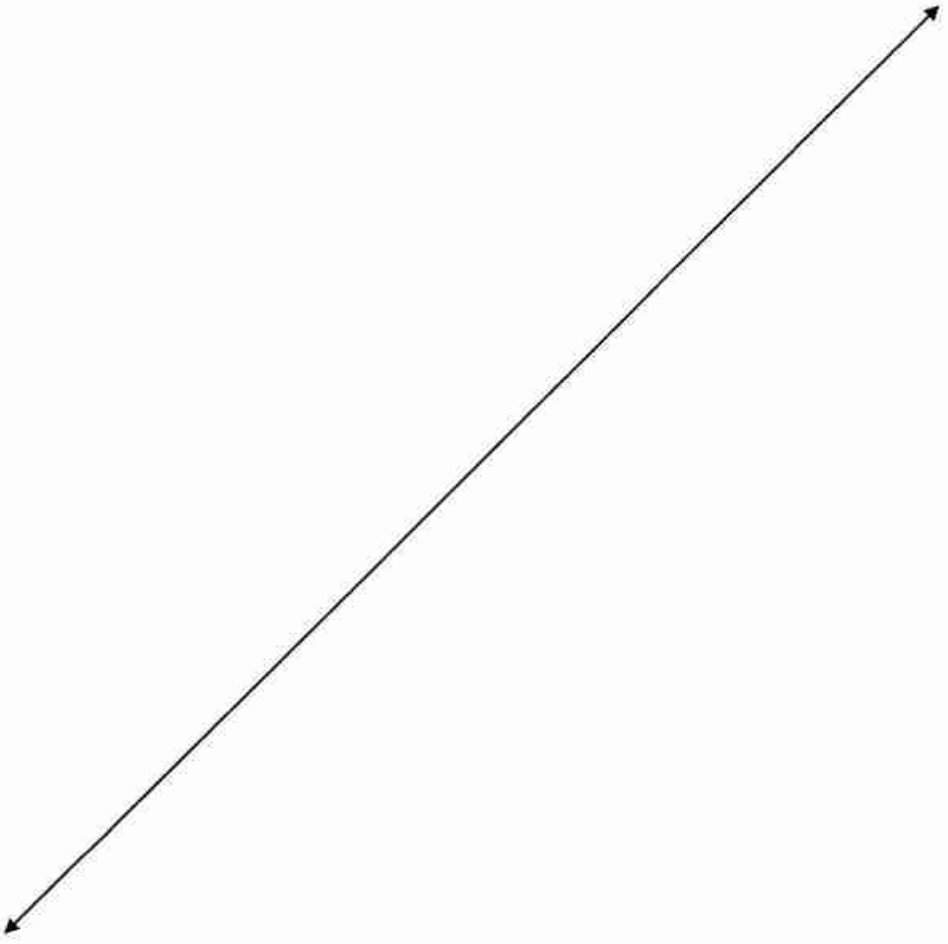
Geo-Coordinates of the lease boundary:

Pillar ID	Latitude	Longitude	Pillar ID	Latitude	Longitude
1	12°45'24.87"N	77°57'21.84"E	15	12°45'19.58"N	77°57'17.37"E
2	12°45'22.65"N	77°57'22.53"E	16	12°45'19.63"N	77°57'16.42"E
3	12°45'22.25"N	77°57'23.15"E	17	12°45'19.28"N	77°57'16.28"E
4	12°45'18.73"N	77°57'22.87"E	18	12°45'19.15"N	77°57'14.30"E
5	12°45'16.46"N	77°57'21.10"E	19	12°45'20.74"N	77°57'15.13"E
6	12°45'16.30"N	77°57'20.64"E	20	12°45'22.14"N	77°57'15.41"E
7	12°45'17.01"N	77°57'18.64"E	21	12°45'26.11"N	77°57'14.69"E
8	12°45'14.94"N	77°57'17.49"E	22	12°45'26.27"N	77°57'15.67"E
9	12°45'14.72"N	77°57'15.31"E	23	12°45'23.03"N	77°57'16.90"E
10	12°45'15.12"N	77°57'15.45"E	24	12°45'22.30"N	77°57'18.54"E
11	12°45'17.11"N	77°57'16.59"E	25	12°45'21.62"N	77°57'19.51"E
12	12°45'17.91"N	77°57'19.20"E	26	12°45'21.81"N	77°57'19.83"E
13	12°45'19.06"N	77°57'19.40"E	27	12°45'21.59"N	77°57'20.85"E
14	12°45'18.63"N	77°57'17.33"E	28	12°45'24.54"N	77°57'20.93"E

	Land use pattern (Forest, Agricultural, Grazing, Barren etc.)	:	It is an barren and virgin ground
b).	***Attach a general location and vicinity map showing area boundaries and existing and proposed access routs. It is preferred that the area to be marked on a survey of India topographical map or a cadastral map or forest map as the case may be. However if none of these are available, the area should be shown on an accurate sketch map on scale of 1 : 5000.***	:	Refer plate no-IA & IB

i) INFRASTRUCTURE AND COMMUNICATION:

S.No	Description	Place	Distance	Direction
a.	Nearest post office	Venkateshapuram	2.1Km	West
b.	Nearest police station	Athimugam	2.1km	East
c.	Nearest fire station	Hosur	16.6km	West
d.	Nearest medical facility	Kamandoddi	7.6Km	South
e.	Nearest school	Venkateshapuram	2.3Km	West
f.	Nearest railway station	Hosur	14.7km	Southwest
g.	Nearest port facility	Chennai	256.8km	Northeast
h.	Nearest airport	Bangalore	37.7km	Northwest
i.	Nearest DSP office	Hosur	14.3m	Southwest
j.	Nearest villages	Midithepalli	0.9km	North
		Athimugam	1.3km	East
		Punnagaram	1.5km	Southeast
		Venkateshapuram	0.74km	West



PART – A

3.0 GEOLOGY AND MINERAL RESERVES:

(a) Briefly describe the topography and general geology and local/mine geology of the mineral deposit including drainage pattern:

(i)	Topography	:	The lease area exhibits an elevated topography which is elevation difference of 10m. The highest elevation observed in east side of the lease area is 878m AMSL, whereas the lowest elevation in west side is 868m AMSL. The slope is towards west side and falls in Toposheet no. 57-H/13
(ii)	General Geology of the district: Geology: The prominent geomorphic units identified in the district through interpretation of satellite imagery are structural hills in the southwestern part of the district, denudational land forms like buried pediments in the plains and inselbergs and plateaus represented by conical hills aligned with major lineaments. Krishnagiri district forms part of the upland plateau region with many hill ranges and undulating plains. The western part of the district has hill ranges of Mysore plateau with a chain of undulating hills and deep valleys extending in NNE-SSW direction. The plains of the district have an average elevation of 375 m AMSL. The plateau region along the western boundary and the northwestern part of the district has an average elevation of 914 m AMSL. The Guthrayan Durg with an elevation of 1395 m AMSL is the highest peak in the district. **Soils:** Soils have been classified into Black soil, mixed soil, red loamy soil, gravelly and sandy soils. Red loamy and sandy soils are predominant in Hosur taluk. Vast stretches of loam soils and black soils occur in Krishnagiri district. **Lineaments:** A lineament may be a fault, fracture, master joint, a long and linear geological formation, vegetation served may be the result of faulting and fracturing and hence it is inferred that they are the areas and zones of increased porosity and		

permeability in hard rock areas. The data have been checked by field studies and Survey of India topographical maps at the 1: 1,00,000 scale.

Age	Group	Rock Formation
Recent to Sub recent	----	Red soil
Archaean	Charnockite Group	Quartzite, Charnockite.

(iii) Local / Mine Geology of The Mineral Deposit:

Topography of the proposed lease area:

The lease area exhibits an elevated topography which is elevation difference of 10m. The highest elevation observed in east side of the lease area is 878m AMSL, whereas the lowest elevation in west side is 868m AMSL. The slope is towards west side.

Mode of origin:

The Charnockite series originally was assumed to have developed by the fractional crystallization of silicate magma. The constituents of the rock suggest of its origin in particularly dry and high temperature conditions which is deduced to have an important bearing in explicating prehistoric crustal development of the earth.

Physiography of the rocks:

General characteristics of the rocks of this series has recorded that the rocks are in general bluish gray or darkish in colour and extremely fresh in appearance with an even grained granular structure.

Chemical composition of rocks:

The compositional characteristics of co-existing orthopyroxene, garnet and biotite have established several petrographic varieties within the Charnockites– Enderbites such as the granulites and gneisses. The mineral composition shows an unvarying presence of pleochroic rhombic pyroxene. Plagioclase feldspars, alkali feldspars and quartz are the salic minerals present in this series of rocks. Order of superposition of the proposed lease area, **Order of superposition of the proposed lease area,**

Age	Group	Rock Formation
Recent to Sub recent	----	Gravel
Archaean	Charnockite Group	Charnockite

(iv)	Drainage Pattern	:	No major river located within 50m radius. The drainage in the area is dendritic in nature.

(b)	***The topographic plan of the lease area prepared on a scale of 1 :1000 or 1 : 2000 with contour interval of 3 to 10m depending upon the topography of the area should be taken as the base plan for preparation of geological plan. The details of exploration already carried out including evidences of mineral existence should be shown on the geological plan:***		
	a. Present status:	:	The RQP examined the surface features during survey. It is a fresh quarry lease covered with gravel in this lease area. No exploration carried out.
	b. Surface Plan	:	Surface plan showing elevation contour and accessibility road was prepared at the scale of 1: 2000, as shown in Plate No. III.
(c)	Geological sections should be prepared at suitable intervals on a scale of 1: 1000 / 1: 2000:	:	Longitudinal and transverse geological cross sections were prepared at the horizontal scale of 1: 1000 and at the vertical scale of 1:500, as shown in Plate No. III & IIIA

(d) ***Broadly indicate the Yearwise future programme of exploration, taking into consideration the future production programme planned in next five years as in table below :-***

Year	No.of boreholes	Total meterage	No.of Pits and Dimensions	No.of Trenches and Dimensions
I	N.A	---	---	N.A
II	N.A	---	---	N.A
III	N.A	---	---	N.A
IV	N.A	---	---	N.A
V	N.A	---	---	N.A

No future programmed proposed in this area. Its massive homogeneous parent rock. Hence exploration proposal is not required to this mining project.

(e) Indicate geological and recoverable reserves and grade, duly supported by standard method of estimation and calculations along with required sections (giving split up of various categories i.e. proved, probable, possible). Indicate cut-off grade. Availability of resources should also be indicated for the entire leasehold.

The geological resources were computed by cross section method with respect to the boundaries of the lease area. In this method, the lease area was divided into four longitudinal and five transverse sections to calculate the volume of material up to the depth of 50m (10m AGL + 40m BGL) below ground level. The longitudinal and transverse cross sections were assigned XY-AB, X1Y1-CD, X1Y1-EF, X2Y2-GH, X3Y3-IJ as respectively. Using the cross-sectional method, total reserve is estimated to be **2039128m³** including the resources of safety zone, and gravel, etc. Of which, rough stone resources of about **1949296m³** and gravel is **89832m³**.

The gravel is obtained about 2.0m and a rough stone starts from 2 to 50m. (Refer plate no's.IIIA).

GEOLOGICAL RESOURCES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M³	Rough Stone in M³	Gravel in M³
XY-AB	I	110	49	2	10780	.....	10780
	I	110	49	3	16170	16170	.....
	II	110	49	5	26950	26950	.....
	III	110	49	5	26950	26950	.....
	IV	110	49	5	26950	26950	.....
	V	110	49	5	26950	26950	.....
	VI	110	49	5	26950	26950	.....
	VII	110	49	5	26950	26950	.....
	VIII	110	49	5	26950	26950	.....
TOTAL				**40**	**215600**	**204820**	**10780**
X1Y1-CD	I	140	94	2	26320	.....	26320
	I	90	64	3	17280	17280	.....
	II	140	94	5	65800	65800	.....
	III	140	94	5	65800	65800	.....
	IV	140	94	5	65800	65800	.....
	V	140	94	5	65800	65800	.....
	VI	140	94	5	65800	65800	.....
	VII	140	94	5	65800	65800	.....
	VIII	140	94	5	65800	65800	.....
	IX	140	94	5	65800	65800	.....
TOTAL				**45**	**570000**	**543680**	**26320**
X1Y1-EF	I	90	195	2	35100	.....	35100
	I	81	146	3	35478	35478	.....
	II	90	195	5	87750	87750	.....
	III	90	195	5	87750	87750	.....
	IV	90	195	5	87750	87750	.....
	V	90	195	5	87750	87750	.....
	VI	90	195	5	87750	87750	.....
	VII	90	195	5	87750	87750	
	VIII	90	195	5	87750	87750	
	IX	90	195	5	87750	87750	.....
	X	90	195	5	87750	87750	.....
TOTAL				**50**	**860328**	**825228**	**35100**
X2Y2-	I	78	52	2	8112	.....	8112

GH	I	78	52	3	12168	12168	.....
	II	78	52	5	20280	20280	.....
	III	78	52	5	20280	20280	.....
	IV	78	52	5	20280	20280	.....
	V	78	52	5	20280	20280	.....
	VI	78	52	5	20280	20280	
	VII	78	52	5	20280	20280	
	VIII	78	52	5	20280	20280	
	IX	78	52	5	20280	20280	.....
	X	78	52	5	20280	20280	.....
TOTAL				**50**	**202800**	**194688**	**8112**
X3Y3-IJ	I	85	56	2	9520	.....	9520
	I	85	56	3	14280	14280	.....
	II	85	56	5	23800	23800	.....
	III	85	56	5	23800	23800	.....
	IV	85	56	5	23800	23800	.....
	V	85	56	5	23800	23800	.....
	VI	85	56	5	23800	23800	.....
	VII	85	56	5	23800	23800	
	VIII	85	56	5	23800	23800	
TOTAL				**40**	**190400**	**180880**	**9520**
GRAND TOTAL					**2039128**	**1949296**	**89832**

(f) Indicate mineable reserves by slice plan / level plan method, as applicable, as per the proposed mining parameters: -

The total mineable reserve is estimated to be **664757m³** by deducting the reserve safety zone, block in benches from the total Geological resources up to a depth of 50m (10m AGL + 40m BGL) (R.L.878-828m). Of which, rough stone is about **601641m³** and gravel is **63116m³**. The commercially viable rough stone has been prepared on 1: 2000 scale and sections are prepared in a scale of 1:1000 in horizontal axis and 1:500 as vertical axis (Refer plate no. VIIA).

MINEABLE RESERVES

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M³	Rough Stone in M³	Gravel in M³
XY-AB	I	100	32	2	6400	.....	6400
	I	100	32	3	9600	9600	.....
	II	95	22	5	10450	10450	.....
	III	90	12	5	5400	5400	.....
TOTAL				**15**	**31850**	**25450**	**6400**
X1Y1-CD	I	133	74	2	19684	.....	19684
	I	90	54	3	14580	14580	.....
	II	133	69	5	45885	45885	.....
	III	128	59	5	37760	37760	.....
	IV	123	49	5	30135	30135	.....
	V	118	39	5	23010	23010	.....
	VI	113	29	5	16385	16385	.....
	VII	108	19	5	10260	10260	.....
TOTAL				**35**	**197699**	**178015**	**19684**

X1Y1-EF	I	80	175	2	28000	.....	28000
	I	71	136	3	28968	28968	.....
	II	75	170	5	63750	63750	.....
	III	70	160	5	56000	56000	.....
	IV	65	150	5	48750	48750	.....
	V	60	140	5	42000	42000	.....
	VI	55	130	5	35750	35750	.....
	VII	50	120	5	30000	30000	
	VIII	45	110	5	24750	24750	
	IX	40	100	5	20000	20000	.....
	X	30	90	5	13500	13500	.....
TOTAL				**50**	**391468**	**363468**	**28000**
X2Y2-GH	I	68	32	2	4352	.....	4352
	I	68	32	3	6528	6528	.....
	II	63	22	5	6930	6930	.....
	III	58	12	5	3480	3480	.....
TOTAL				**15**	**21290**	**16938**	**4352**
X3Y3-IJ	I	65	36	2	4680	.....	4680
	I	65	36	3	7020	7020	.....
	II	55	26	5	7150	7150	.....
	III	45	16	5	3600	3600	.....
TOTAL				**15**	**22450**	**17770**	**4680**
GRAND TOTAL					**664757**	**601641**	**63116**

4.0 MINING:

a.	Briefly describe the existing / proposed method for developing / working the deposit with all design parameters. (Note: In case of pocket deposits, sequence of development/working may be indicated on the same plan)	:	The mining operation is opencast, semi-mechanized method are adopted and on single shift basis only. Under the regulation 106 of the Metalliferous Mines Regulations, 1961 in all opencast workings in hard rock, the benches and sides should be properly benched and sloped. The bench height should not exceed 5m and the bench width should not less than the bench height. The slope of the benches should not exceed 45° from horizontal.
b.	***Indicate quantum of development and tonnage and grade of production expected pit wise as in table below.*** Total proposed production of **651257m³**. Of which, rough stone is about **588141m³** and gravel is **63116m³** up to a depth of 45m (10m AGL + 35m BGL) (R.L.878-833m) for first five years plan period. (Refer Plate No's. IVA).		

	Year	Pit No.(s)	Topsoil/ Overburden (m^3)	ROM (m^3)	Saleable rough stone (m^3) @ 100%	Rough stone rejects(m^3)	Sub grade/ Weathered rock (m^3)	Saleable Gravel (m^3)	Rough stone to waste ratio
	First	I	...	149759	123675	...	...	26084	...
	Second	I	...	142008	109656	...	...	32352	...
	Third	I	...	127200	122520	...	...	4680	...
	Fourth	I	...	130895	130895	...	...	....	...
	Fifth	I	...	101395	101395	...	...	....	...
	Total	**---**	**...**	**651257**	**588141**	**...**	**...**	**63116**	**...**

c.	***Composite plans and Year wise sections (In case of 'A' class mines):***	:	Not applicable. It is a "B" class quarry lease

YEARWISE PRODUCTION RESERVES

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M^3	Rough Stone in M^3	Gravel in M^3
I	XY-AB	I	100	32	2	6400	.....	6400
		I	100	32	3	9600	9600	.....
		II	95	22	5	10450	10450	.....
		III	90	12	5	5400	5400	.....
	X1Y1-CD	I	133	74	2	19684	.....	19684
		I	90	54	3	14580	14580	.....
		II	133	69	5	45885	45885	.....
		III	128	59	5	37760	37760	.....
		TOTAL				**149759**	**123675**	**26084**
II	X2Y2-GH	I	68	32	2	4352	.....	4352
		I	68	32	3	6528	6528	.....
		II	63	22	5	6930	6930	.....
		III	58	12	5	3480	3480	.....
	X1Y1-EF	I	80	175	2	28000	.....	28000
		I	71	136	3	28968	28968	.....
		II	75	170	5	63750	63750	.....
		TOTAL				**142008**	**109656**	**32352**
III	X1Y1-EF	III	70	160	5	56000	56000	.....
	X3Y3-IJ	I	65	36	2	4680	.....	4680
		I	65	36	3	7020	7020	.....
		II	55	26	5	7150	7150	.....
		III	45	16	5	3600	3600	.....
	X1Y1-EF	IV	65	150	5	48750	48750	.....
		TOTAL				**127200**	**122520**	**4680**
IV	X1Y1-CD	IV	123	49	5	30135	30135	.....
		V	118	39	5	23010	23010	.....

	X1Y1-EF	V	60	140	5	42000	42000	.....
		VI	55	130	5	35750	35750	.....
		TOTAL				**130895**	**130895**	**0**
V	X1Y1-CD	VI	113	29	5	16385	16385	.....
		VII	108	19	5	10260	10260	.....
	X1Y1-EF	VII	50	120	5	30000	30000	.....
		VIII	45	110	5	24750	24750	.....
		IX	40	100	5	20000	20000	.....
		TOTAL				**101395**	**101395**	**0**
GRAND TOTAL						**651257**	**588141**	**63116**

d.	Attach supporting composite plan and section showing pit layouts, dumps, stacks of sub-grade mineral, if any, etc.	:	Composite plan not prepared in this proposed lease area. It is "B" category of mine.

e. ***Indicate proposed rate of production when the mine is fully developed and the expected life of the mine and the year from which effected:***

At this rate of production, the expected life of quarry is calculated as given below:

Rough stone:

Mineable reserves of rough stone 10 Years	=	**601641m³**
First Five years Production Reserves	=	**588141m³**
Yearly production of rough stone	=	**117628m³**
Monthly production of rough stone	=	**9802m³**
Remaining Reserves	=	**13500m³**

Gravel

Production reserves of gravel	=	**63116m³**
Yearly production of gravel	=	**21039m³**

The regular working of the quarry and its production depends upon the demand from the market. The market is always fluctuating and flexible one. Accordingly, there is a possibility to increase or decrease the production. The year wise production, anticipated life of quarry etc., are only a tentative figure.

Attach a note furnishing a conceptual mining plan for the entire lease period (for "B" category mines) and upto the life of the mine (for "A" category mines) based on the geological, mining and environments considerations:

i)	Time frame of completion of mineral exploration program in leasehold area: Give broad description identified potential	:	Considering the indefinite depth persistence of the rough stone deposit is proved beyond the workable limits about up to a depth of 50m (10m AGL + 40m BGL) (R.L.878m-

	areas to be covered in the given time frame:	828m) from the petrogenetic character of the charnockite rock as well as from the actual mining practice in the area and with the current trend of rough stone production.

ii) Whether ultimate pit limit has been determined and demarcated on surface and geological plan:-

The ultimate pit limit has been determined and demarcated in the conceptual plan.

ULTIMATE PIT LIMIT-(XY-AB)

Bench	Bench R.L	Period	Overburden/ Mineral	L (m)	W (m)	D (m)
I	R.L.868-866m	First Five years	Gravel	100	32	2
	R.L.866-863m		Rough stone	100	32	3
II	R.L.863-858m		Rough stone	95	22	5
III	R.L.858-853m		Rough stone	90	12	5
					Total	**15**

ULTIMATE PIT LIMIT-(X1Y1-CD)

Bench	Bench R.L	Period	Overburden/ Mineral	L (m)	W (m)	D (m)
I	R.L.873-871m	First Five years	Gravel	133	74	2
	R.L.871-868m		Rough stone	90	54	3
II	R.L.868-863m		Rough stone	133	69	5
III	R.L.863-858m		Rough stone	128	59	5
IV	R.L.858-853m		Rough stone	123	49	5
V	R.L.853-848m		Rough stone	118	39	5
VI	R.L.848-843m		Rough stone	113	29	5
VII	R.L.843-838m		Rough stone	108	19	5
					Total	**35**

ULTIMATE PIT LIMIT-(X1Y1-EF)

Bench	Bench R.L	Period	Overburden/ Mineral	L (m)	W (m)	D (m)
I	R.L.878-876m	First Five years	Gravel	80	175	2
	R.L.876-873m		Rough stone	71	136	3
II	R.L.873-868m		Rough stone	75	170	5
III	R.L.868-863m		Rough stone	70	160	5
IV	R.L.863-858m		Rough stone	65	150	5
V	R.L.858-853m		Rough stone	60	140	5
VI	R.L.853-848m		Rough stone	55	130	5
VII	R.L.848-843m		Rough stone	50	120	5
VIII	R.L.843-838m		Rough stone	45	110	5
IX	R.L.838-833m		Rough stone	40	100	5
X	R.L.833-828m	Next Five Years	Rough stone	30	90	5
					Total	**50**

ULTIMATE PIT LIMIT-(X2Y2-GH)

Bench	Bench R.L	Period	Overburden/ Mineral	L (m)	W (m)	D (m)
I	R.L.878-876m	First Five years	Gravel	68	32	2
	R.L.876-873m		Rough stone	68	32	3

	II	R.L.873-868m		Rough stone	63	22	5
	III	R.L.868-863m		Rough stone	58	12	5
						Total	15

ULTIMATE PIT LIMIT-(X3Y3-IJ)

Bench	Bench R.L	Period	Overburden/ Mineral	L (m)	W (m)	D (m)
I	R.L.868-866m	First Five years	Gravel	65	36	2
	R.L.866-863m		Rough stone	65	36	3
II	R.L.863-858m		Rough stone	55	26	5
III	R.L.858-853m		Rough stone	45	16	5
					Total	15

iii)	Whether the site for disposal of waste rock or an un-saleable material have/ has been examined for adequacy of land and suitability of long term use in the event of continuation of mining activity: -	:	The recovery of rough stone in this quarry is 100%. There is no waste rock will be proposed in this lease area.
iv)	Whether back filling of pits after recovery of mineral up to techno -economically feasible depth envisaged. If so, describe the broad features of the proposal: -	:	As the depth of persistence of the deposit may likely to continue for further depth, it is proposed not to backfilled the quarry pit.
v)	Whether post mining land use envisaged: -	:	At the end of mining activities over the quarry pit may be utilized fish culture or storage of rain water reservoir used for irrigation purposes.
g.	***Open cast Mines:***		
	i). Describe briefly giving salient features of the mode of working (Mechanized, Semi-Mechanized, manual)	:	The mining operation is opencast, semi-mechanized methods are adopted and on single shift basis only. Under the regulation 106 of the Metalliferous Mines Regulations, 1961 in all opencast workings in hard rock, the benches and sides should be properly benched and sloped. The bench height should not exceed 5m and the bench width should not less than the bench height. The slope of

		:	the benches should not exceed 45° from horizontal.
	ii) Describe briefly the layout of mine workings, the layout of faces and sites for disposal of overburden/waste. A reference to the plans enclosed under 4(b) and 4(d) will suffice	:	The rough stone is proposed to quarry at 5m bench height & width conventional opencast semi mechanized quarrying operation using shot hole drilling with the help of tractor mounted compressor attached with jack hammers, smooth blasting and waste and are removal using Hydraulic excavator and loaded directly to the tippers. Bench height = 5mts. Bench width = 5mts.
	a. Details of Topsoil/ Overburden	:	There is no topsoil will be removed.
	b. Rough Stone waste and side burden waste:-	:	There is no waste or side burden shall be proposed.
h.	***Underground Mines:***	:	Not applicable

i. ***Extent of mechanization:***

Describe briefly including the calculation for adequacy and type of machinery and equipment proposed to be used in different mining operations.

(1) Drilling Machines:

Drilling of shot holes will be carried out using tractor mounted compressor and jack hammer. Details of drilling equipment's are given below.

Type	Nos	Dia of hole (mm)	Size / Capacity	Make	Motive power	H.P.
Jack Hammer	3	32 mm	Hand held	--	Diesel	--
Compressor	2	---	Air	--	Diesel	--

(2) Loading Equipment:

Type	Nos	Size / Capacity	Make	Motive power	H.P.
Hydraulic Excavator	1	3.0m^3	--	Diesel	--

(3) Haulage and Transport Equipment

(a) Haulage within the mining leasehold:

Type	Nos	Size / Capacity	Make	Motive power	H.P.
Tipper	9	15T	--	Diesel	--

Whether the dumpers are fitted with exhaust conditioner should be indicated:

The dumpers not used in this quarry area, hence it's a small "B" category mine.

1.	Transport from mine head to the destination	:	Tipper will be used for transport rough stone from the mine head to needy customer.
c.	Describe briefly the transport system (please specify)	:	Hydraulic excavator and tippers utilized for internal transport sizeable rough stone lumps and deliver to the customer's area.
d.	Ore transported by: own trucks / hired trucks	:	Hired trucks for initially production purposes
e.	Main destination to which ore is transported (giving to and from distance)	:	The excavated stone materials road metal will be supplied to the consumers like road laying, earth filling, building construction, etc

f. Details of hauling / transport equipment:

Type	Nos	Size / Capacity	Make	Motive power	H.P.
--	--	--	--	--	--

(4).Miscellaneous:

Describe briefly any allied operations and machineries related to the mining of the deposit not covered earlier.

(A) Operations	:	The mining operation is opencast, semi-mechanized methods are adopted and on single shift basis only.
(B) Machineries deployed	:	Machineries like Tractor mounted compressor attached with Jack hammers is proposed to drilling and blasting. Hydraulic Excavators and tipper combination are adapted. (Refer Part-A- 4 (i))

5. BLASTING:

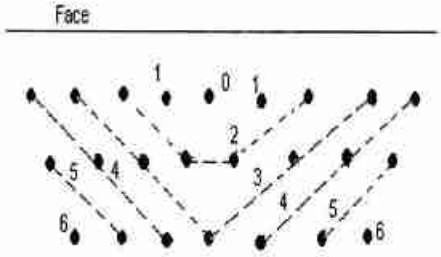
a) Broad blasting parameters like charge per hole, blasting pattern, charge per delay, maximum number of holes blasted in a round, manner and sequence of firing, etc.

Blasting pattern:

The quarrying operation is proposed to carried by opencast mining in conjunction with conventional method using jack hammer drilling and blasting for shattering effect and loosen the rough stone.

Rough stone Production for 5 Years = **588141m^3**

BLAST DESIGN	
Blasthole Diameter (D) in mm	32
Burden (B) in m	1.2
Spacing (S) in m	1.38
Subdrill in m	0.5
Charge length (C) in m	0.80
Stemming	1.2
Hole Length (L) in m	2.0
Bench Height (BH) in m	2.5
Mass of explosive/hole in g	500
Stemming material size in mm	3.2
Burden stiffness ratio	2.08
Blast volume/hole in m^3	4.14
Production of rough stone/day in m^3	420
Number of blast holes/day	101
Number of blast round/day	2
Blasthole pattern	Staggered
Mass of explosive /day in kg	**50.74**
Powder factor in kg/m^3	0.12
Loading density	0.63
Type of explosives	Slurry
Diameter of packaging in mm	25
Initiation system	NONEL



Stagged method of mining

b) Type of explosives used / to be used:

Following explosives are recommended for efficient blasting with safe practice.

Small dia. 25mm slurry explosives are proposed to be used for shattering and heaving effect for removal and winning of rough stone. No deep hole drilling or primary blasting is proposed.

c) Measures proposed to minimize ground vibration due to blasting:

The control blasting measures is being adopted for minimizing ground vibration and fly rock.

Shallow depths jackhammer drilling and blasting is proposed to be carried out with minimum use of explosive mainly to give hearing effect in rough stone for easy excavation and to control fly rock.

Delay detonators:

Delay blasting permits to divide the shot to smaller charges, which are detonated in a predetermined millisecond sequence at specific time intervals. The major advantages of delay blasting are:

- ❖ Reduction of ground vibration
- ❖ Reduction in air blast
- ❖ Reduction in over break
- ❖ Improved fragmentation
- ❖ Better control of fly rock

Blasting program for the production per day

No of holes	:	101holes
Yield	:	420m^3
Total explosive required	:	50.74kg-Slurry explosives
Charge per hole	:	0.5kg
Blasting at day time only	:	12.0p.m-1.0p.m

	c) Powder factor in ore and overburden / waste / development heading / stope	:	Powder factor is proposed as 0.12kg per hole of explosives
	d) Whether secondary blasting is needed, if so describe it briefly	:	There is no secondary blasting will be removed.

	e) Storage of explosives (like capacity and type of explosive magazine)	:	1. The applicant is advised to engage an authorized explosive agency to carry out blasting. 2. First Aid Box will be keeping ready at all the time. 3. Necessary precautionary announcement will be carried out before the blasting operation
6.	***MINE DRAINAGE:***		
	Likely depth of water table based on observations from nearby wells and water bodies	:	The ground water table is reported as of 65m in summer and 60m in rainy season from the general ground level observed in the adjacent bore well.
	Workings expected to be _____m. above / reach below water table by the year _____.	:	Proposed mining depth is 45m (10m AGL + 35m BGL). Now, the present Mining lease shall be proposed above the water table and hence, quarrying may not affect the ground water.
	Quantity and quality of water likely to be encountered, the pumping arrangements and places where the mine water is finally proposed to be discharged	:	The ground water may not rise immediately in this type of mining. However, the rain water percolation and collection of water from the seepage shall be less than 300 Lpm and it shall be pumped out periodically by a stand by diesel powered Centrifugal pump motivated with 7.5 H.P. Motor. The quality of water is potable and it is not contaminated with any hazardous things.
7.	***STACKING OF MINERAL REJECTS AND DISPOSAL OF WASTE:***		
a	Indicate briefly the nature and quantity of top soil, overburden / waste and mineral rejects likely to be generated during the next five years: No separate of topsoil will be removed. There is no rough stone waste or side burden will be removed in this proposed lease area.		
b	Land chosen for disposal of waste with proposed justification	:	There is no waste are proposed.

c	Attach a note indicating the manner of disposal and configuration, sequence of buildup of dumps along with the proposals for the stacking of sub-grade ore, to be indicated Year wise.	:	There is no waste or any other mineral dumps are proposed. If rough stone may be unsold will be keep within the lease boundary.
8.	***USE OF MINERAL:***		
a	Describe briefly the end-use of the mineral (sale to intermediary parties, captive consumption, export, industrial use)	:	The excavated stone materials will be supplied to the consumers like stone pillar, sized stone, etc. For instance, aggregates are mostly used for building, roads and footpaths., etc
b	Indicate physical and chemical specifications stipulated by buyers	:	Basically, the materials produced at this quarry are rough stone and the same are used for building stone, sized stone materials only, so there are no chemical specifications are specified. Only physical specifications are involved.
c	Give details in case blending of different grades of ores is being practiced or is to be practiced at the mine to meet specifications stipulated by buyers.	:	Not blending process is involved, after blasting the rough stone will be directly loaded to the needy customer.
9.	***OTHERS***		
(a)	**Describe briefly the following** Site services	:	Infrastructure required for such mines like office, stores, canteen, first aid station, shelter latrine and bath rooms have been provided as per the Metalliferous Mines Regulations, 1961 as a welfare amenity for our quarry laborers.

(b) Employment potential:

As per Mines safety under the provisions of Metalliferous Mines Regulations, 1961 and under the Mines Act, 1952, whenever the workers are employed more than 10, it is preferred to have a qualified mining mate to keep all the production workers directly under his control and supervision.

The following man power is proposed for quarrying rough stone during the five years period the same manpower will be utilize for this plan period to achieve the proposed production and to comply the provisions of the DGMS norms.

1.	Highly Skilled	II[nd] class Mines Manager	1No.
		Mine Geologist	1No.
		Blaster	1No.
2.	Semi-skilled	Driver	9No's
		Hitachi Operator	1No.
3.	Unskilled	Musdoor / Labours	11 No's
		Total =	**24 No's**

10. MINERAL PROCESSING/BENEFICIATIONS:

(a)	If processing / beneficiations of the ore or minerals mined is planned to be conducted on site or adjacent to the extraction area, briefly describe the nature of the processing /beneficiation. This should indicate size and grade of feed material and concentrate (finished marketable product), recovery rate.	:	Excavated rough stone minerals directly will be used by the applicant in his own crusher for required size ½, ¾ and 1½ inches Jelly which are mainly used in road and building construction purpose. The recovery of rough stone in this quarry is 100%.
(b)	Explain the disposal method for tailings or waste from the processing plant (quantity and quality of tailings proposed to be discharged, size and capacity of tailing pond, toxic effect of such tailings, if any, with process adopted to neutralize any such	:	No water shall be used for quarrying or any other processing except drinking water to be drawn from public sources. Some stagnation of rain water in the pit shall be used for drilling and spraying haul roads. Therefore, need for tailing dam doesn't arise. But tailing control of rain water flow during rainy season has to be

	effect before their disposal and dealing of excess water from the tailing dam).		done by decanting the SPM in a pit before passing the water in to natural system.
(c)	A flow sheet or schematic diagram of the processing procedure should be attached.	:	Not applicable.
(d)	Specify quantity and type of chemicals to be used in the processing plant.	:	Not applicable
(e)	Specify quantity and type of chemicals to be stored on site / plant.	:	Not applicable
(f)	Indicate quantity (cu.m. per day) of water required for mining and processing and sources of supply of water. Disposal of water and extent of recycling.	:	Drinking is 0.3KLD, utilized water is 0.7KLD, Dust suppression is 1.5KLD and Green Belt is 1.5KLD. Minimum quantity of water 4.0KLD per day has to be maintained as per the Mines Rules, 1952. It is proposed to make an authorized water vendors for drinking water, dust suppression. The workers utilized water will be used for green belt development. The sewage water to a tune of 0.7KLD generated from the mine office toilet and mine labour toilet will be diverted to the septic tank followed by soak pit.

PART – B

11.0 ENVIRONMENTAL MANAGEMENT PLAN:

a) **Attach a note on the status of Baseline information with regard to the following :**

11.1 Existing land use pattern indicating the area already degraded due to quarrying /pitting, dumping, roads, processing plant, workshop, township etc in a tabular form. The present land use pattern is given as below.

Sl. No.	Land Use	Present area (Hect.)
1.	Area under mining	Nil
2	Infrastructure	Nil
3	Road	Nil
4	Green belt	Nil
5	Drainage & Settling Tank	Nil
6	Un-utilized area	4.40.0
	Grand total	**4.40.0**

11.2	Water Regime	:	Water table in this area is noticed at a depth of 65m in summer and 60m in rainy season from the general ground level and presently the quarrying of rough stone is Ultimate up to a depth of 50m (10m AGL + 40m BGL). Hence, it will not affect the ground water depletion of this area. It is proposed to make an authorized water vendors for drinking water, dust suppression. The workers utilized water will be used for green belt development.
11.3	Flora and Fauna	:	There is no major flora observed in this area and except bushes, shrubs, no other valuable trees are noticed in the lease area. Further, neither flora of botanical interest nor fauna of zoological interest is noticed in this area.
11.4	Quality of air, ambient noise level and water	:	Air or dust expected to be generated from drilling process, hauling roads, places of excavation etc.., will be suppressed by periodical wetting of land by water spraying. Quarrying of rough stone will be carried out by drilling and blasting by using low power

			explosives, and hence noise will be very minimum. However, periodical noise level monitoring will be carried out every six months around the quarry site.
11.5	Climatic conditions: The temperature ranges from a maximum of 37 °C to a minimum of 25°C. Like the rest of the state, April to June is the hottest months and December to January are the coldest. Rainfall of this area is southwest monsoon, with an onset in June and lasting up to September, brings rainfall of 517.1 mm, with September being the rainiest month.		
11.6	Human Settlement: The nearest villages are found in the buffer zone with population as per 2011 census.		

S.No	Village	Direction	Distance in Kms	Population
1	Midithepalli	North	0.9km	1287
2	Athimugam	East	1.3km	4540
3	Punnagaram	Southeast	1.5km	766
4	Venkateshapuram	West	0.74km	2873

11.7	Public buildings, places of worship and monuments	:	No infrastructure like residential building, places of special interest like archeological monuments, Sanctuaries, etc., are found around 10km radius.
11.8	Attach plans showing the locations of sampling stations	:	The proposed ambient air quality, water quality ambient noise level and vibration are periodically tested for every season (6 months once) around 5km radius as per the guidance of MoEF and EIA notification 2006 and also covering DGMS norms.
11.9	Does area (partly or fully) fall under notified area under Water (Prevention & Control of Pollution), Act, 1974	:	The proposed area not fall under notified area under Water (Prevention & Control of Pollution), Act, 1974

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b) Attach an Environmental Impact Assessment Statement describing the impact of Mining and beneficiation on environment on the following over the next five years (and upto conceptual plan period for 'A' category mines)

i) ***Land area indicating the area likely to be degraded due to quarrying / pitting, dumping, roads, workshop, processing plant, township etc:***

Due to quarrying and exploitation of the rough stone, there will impact in the form i.e. change in the ground profile, pits, and dumps. The details of the land use pattern, during the ensuing plan period and till lease period is shown in the tabular form:

Sl. No.	Land Use	Area in use during the quarrying period (Hect.)
1.	Area under Mining	2.95.0
2.	Infrastructure	0.02.0
3.	Roads	0.10.0
4.	Green belt	1.17.0
5.	Settling Tank & Drainage	0.16.0
6.	Un-utilized area	Nil
	Grand Total	**4.40.0**

ii).	Air Quality	Air or dust expected to be generated from drilling process, hauling roads, places of excavation etc.., will be suppressed by periodical wetting of land by water spraying.
iii).	Water quality	A water sample from the open/bore wells was tested to NABL approved lab to assess hardness, Salinity, colour, Specific gravity, etc.
iv).	Noise levels	Quarrying of rough stone will be carried out by drilling and blasting by using low power explosives, and hence, noise will be very minimum. However, periodical noise level monitoring will be carried out every six months around the quarry site.
v).	Vibration levels (due to blasting)	No deep hole blasting envisaged. Small dia shot holes are used for breaking boulders. The maximum peak particles velocity shall be recoded using mini seismograph devises as per the guidance of MoEF and EIA

			Notification 2006 and also covering DGMS norms.
vi).	Water regime		No major water bodies like rivers, pond, lake etc., located within a radius of 50m.
vii).	Socio-economics		1. To provide Employment opportunities of the nearby villagers. 2. For the cultural development of the nearby villagers.
viii).	Historical monuments etc.		There are no historical monuments, etc found around 10km radius.

c) Attach an Environmental Management Plan (supported by appropriate plans and sections) defining the time bound action proposed to be taken with sequence & timing in the following areas (or diagrams should be used):

i).	temporary storage and utilization of topsoil	:	No separate of topsoil will be removed
ii).	Yearwise proposal for reclamation of land affected by abandoned quarries and other mining activities during first five years (and upto conceptual plan period for 'A' category mines) clarifying the extent of back filling and re-contouring and / or alternative use of unfilled / partially filled excavations / road sides / slopes and mine. In case abandoned quarries/ pits are proposed to be used as reservoir, their size, water holding capacity and proposal for utilization of such water be given.	:	The present mining is proposed to an average depth of 45m (10m AGL + 35m BGL) (R.L878m-833m) has been envisaged as workable depth for safe & economic mining during the lease period. Low lying areas with water logging shall be used for fish culture. No immediate proposals for closure of pit as the rough stone persist still at deeper level.

iii). ***Programme of afforestation, Yearwise for the initial five years (and upto conceptual plan period for 'A' category mines) indicating the number of plants with name of species to be afforested under different areas in hectares.***

Green Belt Development:

Safety barrier, school and nearest panchayat roads has been identified to be utilized for Greenbelt appropriate native species of Neem, Pungan and other regional trees will be planted in a phased manner as described below

Year	Place	Area in Sq.m	No.of Plants	Rate of survival	Rate	Amount in Rs
First	Lease Boundary	11700	1300	80%	@100 Rs Per sapling	1,30,000/-
Second	Approach road and Nearby Village Road	--	300	80%		30,000/-
Third	Schools	--	200	80%		20,000/-
					Total	**1,80,000/-**

iv).	Stabilization and vegetation of dumps along with waste dump management Year wise for the first five years (and upto conceptual plan period for 'A' category mines).	:	No waste or rejects removed in this lease area.
v).	Measures to control erosion / sedimentation of water courses.	:	Not applicable. There is no major dumps are stabilize in this quarry area.
vi).	Treatment and disposal of water from mine.	:	It will not be harmful and it does not require any treatment before discharging into the natural courses.
vii).	Measures for minimizing adverse effects on water regime.	:	There is no water to be pumped out will be very pure and portable and therefore, it will not affect any water regime surrounding the quarry.
viii).	Protective measures for ground vibrations / air blast caused by blasting,	:	It is a small "B" category opencast, semi mechanized mining and no heavy machinery shall be used. The only smooth blasting is proposed, therefore no change for ground vibration or noise from the quarry.
ix).	Measures for protecting historical monuments and for	:	No historical monuments and for rehabilitation of human settlements

	rehabilitation of human settlements likely to be disturbed due to mining activity.		doesn't to be disturbed during mining activity.
x).	Socioeconomic benefits arising out of mining.	:	The nearest villages are will get employment benefits.

d). Monitoring schedules for different environmental components after the commencement of mining and other related activities. (for 'A' category mines only)

Not applicable. It is B2 category quarry

12.0 PROGRESSIVE QUARRY CLOSURE PLAN:

12.1	Steps proposed for phased restoration, reclamation of already mined out area.	:	The Ultimate mining is proposed to an average depth of 50m (10m AGL + 40m BGL) (R.L.878m-828m). The mined-out area will be fenced on top of working bench with S1 fencing to arrest the entry of cattle's and public in to the quarry site.
12.2	Measures to be under taken on mine closure as per Act & Rules	:	Measures will be taken as per the Acts and Rules. Green belt development at the rate of 1300 trees will be proposed in the quarry area. No immediate proposals for closure of pit as the rough stone persist still at deeper level.
12.3	Mitigation measures to be undertaken for safety and restoration/ reclamation of the already mined out area	:	The quarry lease is a fresh mining lease, no mitigation measures adopted.
12.4	Mine closure activity	:	The present mining plan is proposed to depth of 45m (10m AGL + 35m BGL) below ground level has been envisaged as workable depth for safe & economic mining during the lease period. The mined-out area will be fenced on top of opencast working with S1 fencing. No immediate proposals for closure of pit as the rough

			stone persist still at deeper level.
12.5	Safety and security	:	Safety measures implement to the prevent access to surface opening excavations will be taken as Metalliferous Mines Regulations, 1961, it is a small opencast mining method adopted. Safety provisions like helmet, goggles, safety shoes, Dust mask, Ear muffs, etc have to be provided as per the circulars and amendments made for Mine labours under the guidance of DGMS being a mechanized operation.
12.6	Disaster management and Risk Assessment	:	Opencast mining method is adopted in this quarry. If the benches are made with proposed height and with no risk will be there. Even then if any minor or major accident happens the quarry staffs having First aid facilities with first aid box with all necessary medicine and stretches etc., to give first aid treatment at the site and will arrange immediately the vehicle to reach nearest hospital, if any disaster happens the lessee is capable to meet such eventualities. At the time of any accident during mining activity, proposal of first aid facility at quarry and one vehicle always ready at quarry site.
12.7	Care and maintenance during temporary discontinuance	:	A board of discontinuance will be changed on the main entrance of the working place. One watch man will be kept on the quarry area for security purposes also look after the survival of the plants.
12.8	Economic repercussions of closure of quarry and man power entrenchments	:	During the five years mining period the employment potential will be generated, general financial status and socio-economic conditions of approx. 24 labors will be improved.

12.9 Proposed Financial Estimate / Budget for (EMP) Environment Management

A	**Fixed Asset Cost**:		
	1. Land Cost	:	Rs. 1,78,37,820/-
	2. Labour Shed		Rs. 1,00,000/-
	3. Sanitary Facility	:	Rs. 1,00,000/-
	4. Fencing	:	Rs. 6,00,000/-
	5. Other expenses (Security guard, dust bin, etc)	:	Rs. 4,00,000/-
	Total	:	**Rs. 1,90,37,820/-**
B	**B. Machinery cost**	:	**Rs. 30,00,000/-** (Hire Basis)
C	**Total Expenditure of EMP cost** (for five years)		
	1. Drinking Water Facility	:	Rs. 1,00,000/-
	2. Sanitary facility & Maintenance	:	Rs. 1,00,000/-
	3. Permanent water sprinkler	:	Rs. 4,00,000/-
	4. Afforestation and its maintenance	:	Rs. 1,80,000/-
	5. Safety Kits	:	Rs. 1,00,000/-
	6. Provision of tyre washing facility	:	Rs. 1,00,000/-
	7. Blasting materials with blast mat cost	:	Rs. 20,00,000/-
	8. Environment monitoring	:	Rs. 5, 00,000/-
	Total	:	**Rs. 34,80,000/-**
D	**Total Project Cost (A+B+C)**	:	**Rs. 2,55,17,820/-**

13.0 FINANCIAL ASSURANCE:

Not applicable, it is a small "B" rough stone and gravel quarry.

14.0 CERTIFICATES:

All required certificates are enclosed.

15.0 PLAN AND SECTIONS, ETC:

Plan and Sections are submitted along with mining plan.

16.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

(i) Care and precautionary measures will be taken for the safety of workers as per Rules and Acts.

(ii) The applicant will endeavor every attempt to quarry the rough stone and gravel economically without any wastage and to improve the environment and ecology.

(iii) The Mining Plan is prepared by incorporating the conditions stipulated in the precise area communication issued by the Deputy Director, Department of Geology and Mining, Krishnagiri vide letter **Rc.No.86/2024/Mines Dated: 10.05.2024**

(iv) Total proposed production **651257m^3**. Of which, rough stone is **588141m^3** and gravel is **63116m^3** up to a depth of 45m (10m AGL + 35m BGL) (R.L.878m-833m) for first five years plan period.

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17.0 CSR Expenditure:

CSR (Corporate Social responsibility) shall provide by the applicant @ 2.0% of average net profit of the company for the last three financial years to the nearby village as the Ministry has notified the amendments in section 135 of the Act as well in the CSR Rules on 22nd January 2021 as circular no. CSR-05/01/2021-CSR-MCA dated 25th August 2021.

Place: Dharmapuri, TN

Date:

Signature of the Recognized Qualified Person

Dr.S.KARUPPANNAN,M.Sc,Ph.D.,
RQP/MAS/263/2014/A
GEO TECHNICAL MINING SOLUTIONS
A NABET Accredited and ISO Certified Company
1/213-B, Ground Floor, Natesan Complex,
Collectorate Post Office, Oddapatti,
Dharmapuri-636705, TamilNadu, India

This Mining Plan is approved based on guidelines / instruction issued and in corporation of the particulars specified in the letter Roc. No. 8654 Dated 21.5.24 of the Duputy Director of Geology and Mining, Krishnagiri and subject to further fulfilment of the conditions laid down under Tamil Nadu Minor Mineral Concession Rules, 1959 and Minor Mineral Conservation and Development Rule 2010.

21/05/24

DEPUTY DIRECTOR
Geology and Mining,
Collectorate, Krishnagiri.

21.05.24

This Mining Plan is approved subject to the conditions / Stipulation Indicated in the Mining Plan Approval

Letter Roc. No. 86/24 Dated 21.5.24

ANNEXURE - 1

புவியியல் மற்றும் சுரங்கத்துறை
மாவட்ட ஆட்சியர் அலுவலகம்,
கிருஷ்ணகிரி.

21 MAY 2024

கிருஷ்ணகிரி

ந.க.எண்.86/2024/கனிமம் நாள்: 10.05.2024.

குறிப்பாணை

பொருள் : கனிமங்களும் சுரங்கங்களும் - சிறுகனிமம் - கிராவல் சாதாரண கற்கள் - கிருஷ்ணகிரி மாவட்டம் - சூளகிரி வட்டம் வெங்கடேசபுரம் கிராம பட்டா புல எண்கள்.133/1(பகுதி) (1.82.0ஹெக்), 133/2 (0.28.0ஹெக்) 133/4 (0.64.0 ஹெக்), 134/1 (1.03.0 ஹெக்) மற்றும் 134/2 (0.63.0 ஹெக்)-ல் 4.40.0 ஹெக்டேர் பரப்பளவில் கிராவல் & சாதாரண கற்குவாரி செய்ய தி/ள். அல்ட்ரா மைன்ஸ் பிரைவேட் லிமிடெட் என்கிற நிறுவனம் விண்ணப்பம் அளித்தது - வருவாய்துறை, புவியியல் மற்றும் சுரங்கத்துறை மற்றும் வனத்துறை அறிக்கை சமர்பிக்கப்பட்டது - தகுதியான நிலப்பரப்பாக கருதி ஏற்பளிக்கப்பட்ட சுரங்க திட்டம் மற்றும் சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணைய தடையின்மை சான்று பெற்று சமர்பிக்கக் கோருதல் - தொடர்பாக.

பார்வை :

1. தி/ள். அல்ட்ரா மைன்ஸ் பிரைவேட் லிமிடெட், எண்.168/ஏ1, சீதாராமா நகர், ஆனந்தா எலக்ட்டிகல்ஸ், ஒசூர் வட்டம், கிருஷ்ணகிரி மாவட்டம் என்ற நிறுவனத்தாரின் விண்ணப்பம் நாள்: இல்லை (அலுவலகத்தில் பெறப்பட்ட நாள்: 30.01.2024).
2. மாவட்ட ஆட்சியர், கிருஷ்ணகிரி அவர்களின் கடிதம் ந.க.எண். 86/2024/கனிமம், நாள்: 02.02.2024.
3. வன உயிரினக்காப்பாளர், ஒசூர் கடித ந.க.எண். 1931/2024/எல் நாள்: 19.03.2024.
4. சார் ஆட்சியர், ஒசூர் அவர்களின் கடிதம் ந.க. எண்.747/2024/பி2 நாள்: 02.05.2024.
5. உதவி புவியியலாளர் (கனிமம்) அவர்களது புலத்தணிக்கை அறிக்கை நாள்: 07.05.2024.
6. மற்றும் உரியஆவணங்கள்

பார்வையில் காணும் கடிதங்களின்பால் கனிவானகவனம் வேண்டப்படுகிறது.

2. கிருஷ்ணகிரி மாவட்டம், சூளகிரி வட்டம், வெங்கடேசபுரம் கிராமம், பட்டா புல எண்கள்.133/1(பகுதி) (2.12.0ஹெக்), 133/2 (0.28.0ஹெக்), 133/4 (0.64.0 ஹெக்), 134/1 (1.03.0 ஹெக்) மற்றும் 134/2 (0.63.0 ஹெக்)-ல் 4.70.0 ஹெக்டேர் பரப்பில் கிராவல் & சாதாரண கற்குவாரி செய்ய தி/ள். அல்ட்ரா மைன்ஸ் பிரைவேட் லிமிடெட் என்கிற நிறுவனத்தினர் விண்ணப்பத்தினை உரிய ஆவணங்களுடன் 30.01.2024 அன்று அலுவலகத்தில் சமர்ப்பித்தனர்.

3. மேற்கண்ட விண்ணப்பம் தொடர்பாக சார் ஆட்சியர், ஒசூர், வன உயிரினக்காப்பாளர், ஒசூர் மற்றும் உதவி புவியியலாளர் (கனிமம்) ஆகியோரின் பரிந்துரையில் கிருஷ்ணகிரி மாவட்டம், சூளகிரி வட்டம், வெங்கடேசபுரம் கிராம, பட்டா புல எண்கள். 133/1(பகுதி)(1.82.0), 133/2(0.28.0), 133/4(0.64.0), 134/1 (1.03.0) மற்றும் 134/2 (0.63.0)-ல் 4.40.0 ஹெக்டேர் பரப்பளவில் கிராவல் & சாதாரண கற்குவாரி செய்ய விண்ணப்பதாரர் தி/ள்.அல்ட்ரா மைன்ஸ் பிரைவேட் லிமிடெட் என்ற நிறுவனத்தினருக்கு நிபந்தனைகளுக்குட்பட்டு அனுமதி வழங்கலாம் என பரிந்துரை செய்துள்ளனர்.

நிபந்தனைகள்:

a. அருகிலுள்ள அரசு நிலங்களுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளி அளித்தும், பட்டா நிலங்களுக்கு 7.5 மீ பாதுகாப்பு இடைவெளி விட்டும், அவற்றிற்கு எவ்வித சேதாரமும் இன்றியும், குவாரியைச் சுற்றியுள்ள பகுதிகளில் ஆக்கிரமிப்பு ஏதுமின்றியும் குவாரிப்பணி மேற்கொள்ளப்பட வேண்டும். தவறும் பட்சத்தில், குற்றவியல் மற்றும் அபராத நடவடிக்கை தொடரப்படுவதுடன், வழங்கப்பட்ட அனுமதி எவ்வித முன்னறிவிப்பும் இன்றி உடன் இரத்து செய்யப்படும். மேலும், குவாரி உரிமம் வழங்க உள்ள பகுதிக்கு மேற்கு பகுதியில் சுமார் 50 மீட்டருக்கும் மேலான தொலைவில் அமைந்துள்ள தடுப்பணைக்கு எவ்வித பாதிப்பும் ஏற்படாமல் குவாரிப்பணி செய்ய வேண்டும்.

b. குவாரி உரிமம் வழங்க உள்ள பகுதியைச் சுற்றிலும் கம்பி வேலி அமைக்க வேண்டும்.

c. குவாரி உரிமம் வழங்க உள்ள பகுதிக்கு வெளியே கனிமங்களை வெட்டியெடுக்க கூடாது.

d. 1959 ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள், விதி எண் 41ன் படி ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டத்தினை 90 தினங்களுக்குள் சமர்பிக்க வேண்டும்.

e. 1959-ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள், அட்டவணை II-ல் கண்டுள்ளபடி குவாரி செய்யப்படும் கனிமங்களுக்குரிய சீனியரேஜ் தொகை அவ்வப்போது செலுத்தி கனிமம் கொண்டு செல்லப்படவேண்டும்.

f. அனுபவம் வாய்ந்த வெடி பொருள் பயன்படுத்துவோர் மூலம் குறைந்த அளவு சக்தி கொண்ட வெடி பொருட்களை பயன்படுத்தி அருகிலுள்ள பட்டாதாரர்களுக்கு எவ்வித இடையூறுமின்றி / அருகிலுள்ள பட்டா மற்றும் அரசுபுலங்களில் எவ்வித ஆக்கிரமிப்பும் இன்றி குவாரிப்பணி மேற்கொள்ளவேண்டும்.

g. குவாரி உரிமம் வழங்க உள்ள பகுதிக்கு 1959-ம் வருடத்திய தமிழ்நாடு சிறுகனிம சலுகை விதிகள், விதி42-ன்படி சுற்றுச்சூழல் தாக்கமதிப்பீட்டு ஆணையத்தின் தடையின்மை சான்று பெற்று சமர்பிக்கும் பட்சத்தில் மட்டுமே குவாரி உரிமம் வழங்கப்படும்.

4) எனவே, சார் ஆட்சியர், ஒசூர், வன உயிரினக்காப்பாளர், ஓசூர் மற்றும் உதவி புவியியலாளர் (கனிமம்) கிருஷ்ணகிரி ஆகியோரின் பரிந்துரை மற்றும் நிபந்தனைகளின் அடிப்படையில், கிருஷ்ணகிரி மாவட்டம், சூளகிரி வட்டம், வெங்கடேசபுரம் கிராம, பட்டா புல எண்கள். 133/1(பகுதி)(1.82.0), 133/2(0.28.0), 133/4(0.64.0), 134/1 (1.03.0) மற்றும் 134/2 (0.63.0)-ல் 4.40.0 ஹெக்டேர் பரப்பளவில் 1959-ம் வருட தமிழ்நாடு சிறுகனிம விதிகள், விதி எண்.19(1)- ன்படி மேற்கண்ட நிபந்தனைகளுக்குட்பட்டு தி/ள்.அல்ட்ரா மைன்ஸ் பிரைவேட் லிமிடெட் என்ற நிறுவனத்திற்கு குவாரி உரிமம் வழங்க ஏதுவாக 1959-ம் வருட தமிழ்நாடு சிறுகனிம விதிகள், விதி எண்.19-ன்படி மேற்கண்ட நிபந்தனைகளுக்குட்பட்டு 10 (பத்து வருட) காலத்திற்கு மட்டும் கிராவல் & சாதாரண கற்குவாரி உரிமம் வழங்குவதற்குரிய தகுதியான நிலப்பரப்பாக கருதப்படுகிறது.

5. மேலும், தமிழ்நாடு சிறுகனிம சலுகை விதிகள்-1959 விதி எண். 41-ன் படி குவாரிப்பணி மேற்கொள்வது தொடர்பாக வரைவு சுரங்க திட்டத்தினை 90 தினங்களுக்குள் சமர்ப்பிக்குமாறு மனுதாரரைக் கேட்டுக்கொள்ளப்படுகிறது. மேலும் ஏற்பளிக்கப்பட்ட சுரங்கத்திட்டத்தின் தொடர்ச்சியாக 1959ம் வருடத்திய தமிழ்நாடு

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சிறுகனிம சலுகை விதிகள், விதி எண்.42-ன் படி சுற்றுச்சூழல் தாக்க மதிப்பீட்டு ஆணையத்தின் இசைவினைப் பெற்று சமர்பிக்கும் பட்சத்தில் மட்டுமே குவாரி உரிமம் வழங்கப்படும் என இதன் மூலம் தெரிவிக்கப்படுகிறது.

துணை இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
கிருஷ்ணகிரி.

10.05.24

பெறுநர்:

திரு/ள். அல்ட்ரா மைன்ஸ் பிரைவேட் லிமிடெட்,
எண்.168/ஏ1, சீதாராமா நகர்,
ஆனந்தா எலக்ட்டிகல்ஸ், ஒசூர் வட்டம்,
கிருஷ்ணகிரி மாவட்டம்

நகல்:

1. இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, சென்னை.
2. மாவட்ட ஆட்சித் தலைவர், கிருஷ்ணகிரி - தகவலுக்காக.

ANNEXURE - II

21 MAY 2024

District : Krishnagiri

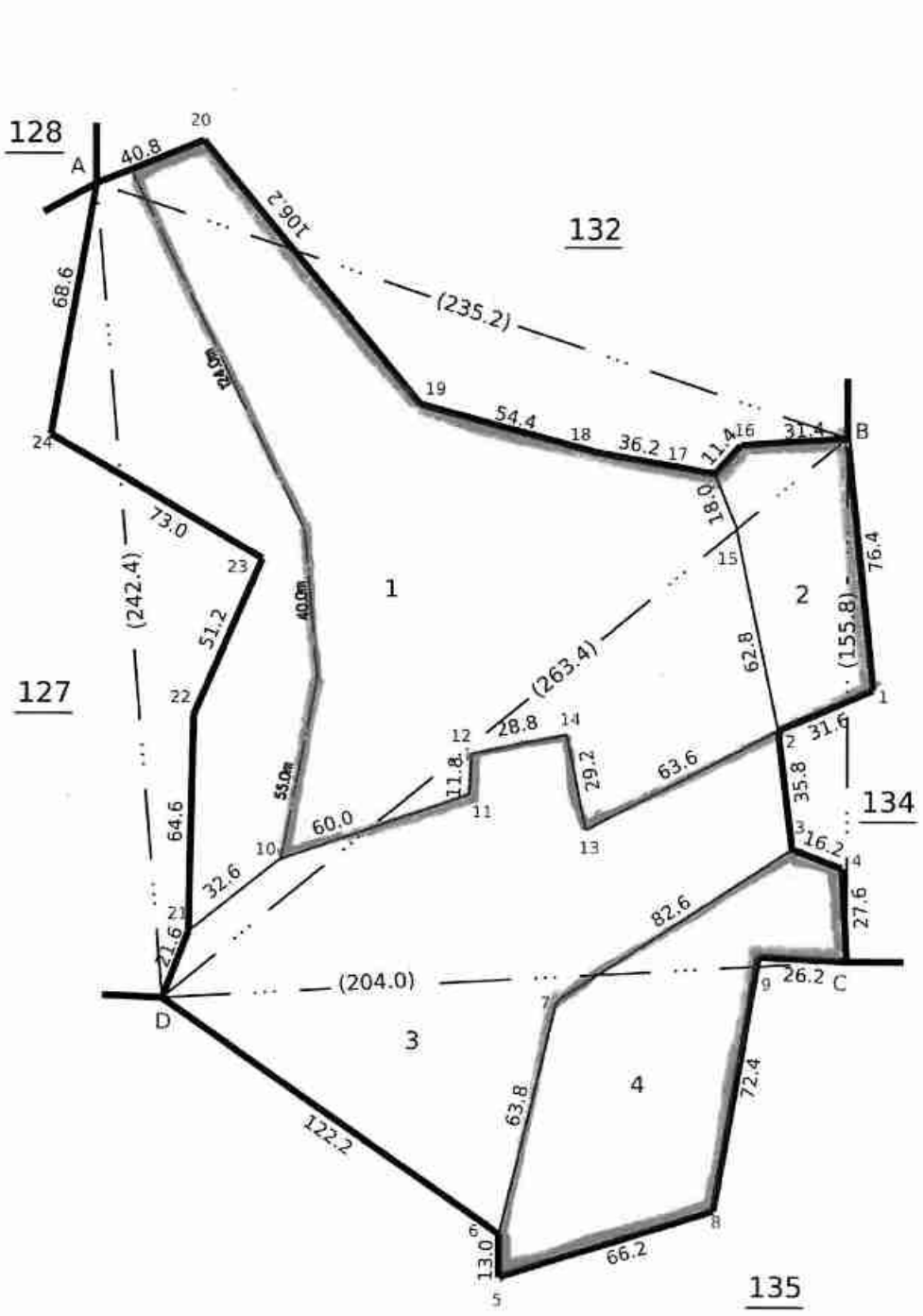
Taluk : Shoolagiri

Village : Venkatesapuram [123]

Survey No : 133

Area : Hect 04 Ares 66.50

Scale : 1 : 2000



LEASE APPLIED AREA

Signed By Tahsildar

Name of approver : peru

Date of Approval : 31-07-2017

Date of Issue: 10-05-2024 14:26:17

Survey and Settlement Department, Government of TamilNadu

240 fv.1

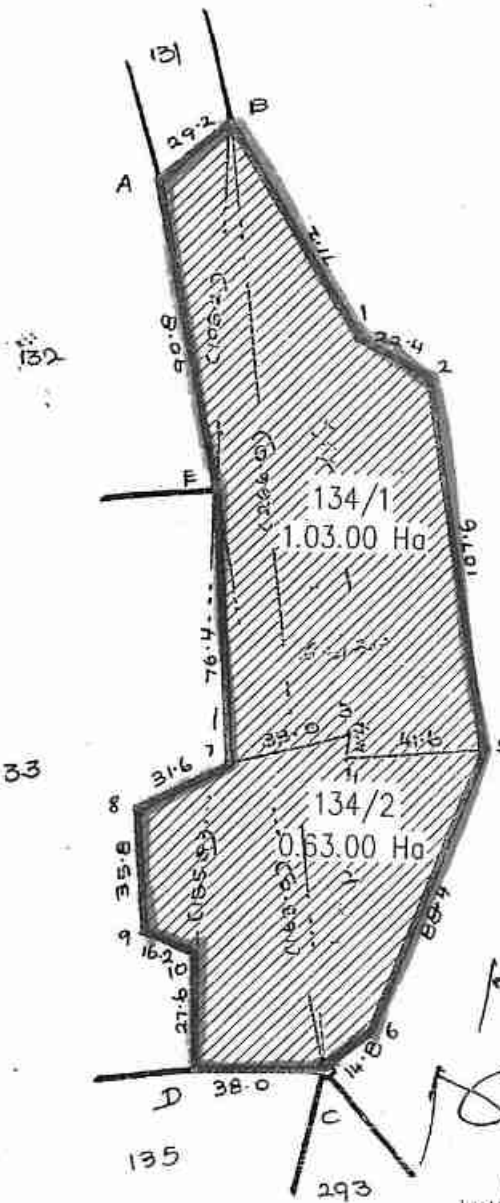
21 MAY 2024
கிருஷ்ணகிரி

வட்டம். ஏகூர்

கிராமம் { பெயர். வைங்கனூர் வட்டம்.

புல எண். 134

பரப்பு: ஹெக்டேர் 1 ஏர். 66.0



		D		
		155.8		
		128.2	1.8	10
		122.6	16.6	9
		87.0	20.8	8
7	8.4	75.4		
		E		
		163.0		
D	37.0	8.6		
		C		
		266.0		
6	13.0	258.4		
5	55.6	182.6		
4	14.0	181.0		
3	15.0	176.2		
		103.0	15.6	E
2	50.0	75.0		
1	50.0	64.0		
		B		
		105.2		
A	22.2	86.6		
		E		

Lease Applied Area:

134/1 =1.03.00 Ha
134/2 =0.63.00 Ha

True copy

12/6/2023
Village Administrative Officer
3, VENKATESAPURAM
Shoolagiri Tk, Krishnagiri Dt.

அளவு. 1செ.மீ : 2000செ.மீ

ANNEXURE - III

1	2	3	4	5	6	7	8	9	10	11	12
							ரூ. பை.	ஹெ. ஏர்ஸ்	ரூ. பை		
131	2	131-2	ர	பு	...	8-4	8	0 91	1 68.0	1 53	4 அத்திமுகம் ஸ்ரீ அழகேஸ்வர சுவாமிகோவில் ஸ்ரீ தீர்த்தகிரி ஸ்வரசுவாமி.
									2 62.0	2 39		
132	...	132	அ	தீ.எ.த.	...	...	...	...	3 90.0	...	......	பாதை.
133	1	133-1	ர	பு	...	8-4	8	0 91	2 51.0	2 28	461 மு. மாரியப்பா மற்றும்இரண்டு பேர்களும் *.	
	2	-2	ர	பு	...	8-4	8	0 91	0 28.0	0 25	34 வெ. கங்காதரா.	
	3	-3	அ	தீ.எ.த.	...	...	...	...	1 23.5	...	......	காடு.
	4	-4	ர	பு	...	8-4	8	0 91	0 64.0	0 58	380 சா. முனிகான்(எ) குள்ளன்மற்றும் ஒருவர் *.	
									4 66.5	3 11		
134	1	134-1	ர	பு	...	8-4	8	0 91	1 03.0	0 94	34 வெ. கங்காதரா.	
	2	2	ர	பு	...	8-4	8	0 91	0 63.0	0 57	34 வெ. கங்காதரா.	
									1 66.0	1 51		
135	...	135	அ	தீ.எ.த.	...	...	...	...	42 34.0	...	......	காடு.
136	...	136	அ	தீ.எ.த.	...	...	...	...	57 61.0	...	......	காடு.
137	1	137-1	ர	பு	...	8-3	6	1 38	0 76.0	1 05	411 க. குள்ளப்பன் மற்றும்ஒருவர் *.	
	2	-2	ர	பு	...	8-3	6	1 38	0 65.0	0 90	145 த. திம்மன்.	
	3	-3	ர	பு	...	8-3	6	1 38	0 94.0	1 30	325 ஈ. லட்சுமணன்.	
	4	-4	ர	பு	...	8-3	6	1 38	0 78.0	1 08	325 ஈ. லட்சுமணன்.	
	5	-5	ர	பு	...	8-3	6	1 38	0 39.0	0 54	65 பா. கோவிந்த சிங்.	
									3 52.0	4 87		
138	1	138-1	அ	புற	...	...	...	...	0 05.5	...	......	ஓடை.
	2	-2	ர	பு	...	8-3	6	1 38	0 31.0	0 43	146 சின்னசாமியப்பா மனைவி திம்மக்காள்.	
	3	-3	ர	பு	...	8-3	6	1 38	0 88.0	1 21	462 பே. எல்லப்பா மற்றும்இரண்டு பேர்களும் *.	

* விவசப் பட்டியைப் பார்க்கவும்

21 MAY 2024
கிருஷ்ணகிரி

தமிழ்நாடு அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : கிருஷ்ணகிரி வட்டம் : சூளகிரி

வருவாய் கிராமம் : வெங்டேசபுரம் பட்டா எண் : **1589**

உரிமையாளர்கள் பெயர்

1. ... ... ULTRA MINES PRIVATE LIMITED

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
133	1	2 - 51.00	2.28	--	--	--	--	2023/0103/31/306201- -- -- 29-12-2023
		2 - 51.00	2.28					

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **31/11/123/01589/100303** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 05-01-2024 அன்று 01:58:52 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

தமிழ்நாடு அரசு

வருவாய்த் துறை

நில உரிமை விபரங்கள் : இ. எண் 10(1) பிரிவு

மாவட்டம் : கிருஷ்ணகிரி வட்டம் : சூளகிரி

வருவாய் கிராமம் : வெங்டேசபுரம் பட்டா எண் : 1588

உரிமையாளர்கள் பெயர்

1. .... ULTRA MINES PRIVATE LIMITED

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	நீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
133	2	0 - 28.00	0.25	--	--	--	--	2023/0103/31/298914-- -- 23-11-2023
133	4	0 - 64.00	0.58	--	--	--	--	2023/0103/31/298914-- -- 23-11-2023
134	1	1 - 3.00	0.94	--	--	--	--	2023/0103/31/298914-- -- 23-11-2023
134	2	0 - 63.00	0.57	--	--	--	--	2023/0103/31/298914-- -- 23-11-2023
290	3	0 - 68.00	0.62	--	--	--	--	2023/0103/31/298914-- -- 23-11-2023
292	4	0 - 51.50	0.46	--	--	--	--	2023/0103/31/298914-- -- 23-11-2023
		3 - 77.50	3.42					

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **31/11/123/01588/100392** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 05-01-2024 அன்று 01:59:38 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

கிராமக் கணக்கு

1, 3 - ஆம் பசலியில் Krishnagiri மாவட்டம் Shoolagiri வட்டம் Venkateshpuram

நில வரித் திட்டத்தின்படி புலன்களின் விபரம்.						சாகுபடி யாளரின் பெயர்.	முதல் போகம்.				
நில அளவை எண்.	உட்பிரிவு எண்.	பரப்பு.	தீர்வை.	ஒரு போகம் அல்லது இரு போகம்.	கைப்பற்று தாரருடைய பெயரும் எண்ணும் அல்லது அனுபோக தாரருடைய பெயர்.	நிலத்தின் எந்த பகுதி யாவது சாகுபடியாளரால் பயிரிடப்பட்டுள்ளதா.	எந்த மாதத்தில் பயிர் செய்யப்பட்டது எந்த மாதத்தில் அறுவடை செய்யப்பட்டது.	பயிரின் பெயர்.	பயிரான / அறுவடையான பரப்பு.	உண்மையான பாய்ச்சல் ஆதாரம்	விளைச்சல் அளவு விழுக்காடு
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
133	1	2.51.0	2.28		1589 Ultramines private Limited						
134	1	1.03.0	0.94		1588 Ultramines private Limited						
133	2	0.28.0	0.25		- do -						
133	4	0.64.0	0.58		- do -						
134	2	0.63.0	0.57		- do -						

21 MAY 2024

True copy

Village Administrative Officer
13, VENKATESAPURAM
Shoolagiri Tk Krishnagiri

-251- ANNEXURE - V

GOVERNMENT OF INDIA
MINISTRY OF CORPORATE AFFAIRS

Central Registration Centre

Certificate of Incorporation

[Pursuant to sub-section (2) of section 7 and sub-section (1) of section 8 of the Companies Act, 2013 (18 of 2013) and rule 18 of the Companies (Incorporation) Rules, 2014]

I hereby certify that ULTRA MINES PRIVATE LIMITED is incorporated on this EIGHTEENTH day of AUGUST TWO THOUSAND TWENTY THREE under the Companies Act, 2013 (18 of 2013) and that the company is Company limited by shares

The Corporate Identity Number of the company is **U09900TZ2023PTC029197**

The Permanent Account Number (PAN) of the company is **AADCU3936F***

The Tax Deduction and Collection Account Number (TAN) of the company is **CHEU06326F***

Given under my hand at Manesar this EIGHTEENTH day of AUGUST TWO THOUSAND TWENTY THREE

Signature Not Verified
Digitally signed by
DS MINISTRY OF CORPORATE
AFFAIRS 10
Date: 2023.08.18 15:32:30 IST

SHEETAL KUMARI

Assistant Registrar of Companies/ Deputy Registrar of Companies/ Registrar of Companies

For and on behalf of the Jurisdictional Registrar of Companies

Registrar of Companies

Central Registration Centre

Disclaimer: This certificate only evidences incorporation of the company on the basis of documents and declarations of the applicant(s). This certificate is neither a license nor permission to conduct business or solicit deposits or funds from public. Permission of sector regulator is necessary wherever required. Registration status and other details of the company can be verified on mca.gov.in

Mailing Address as per record available in Registrar of Companies office:

ULTRA MINES PRIVATE LIMITED

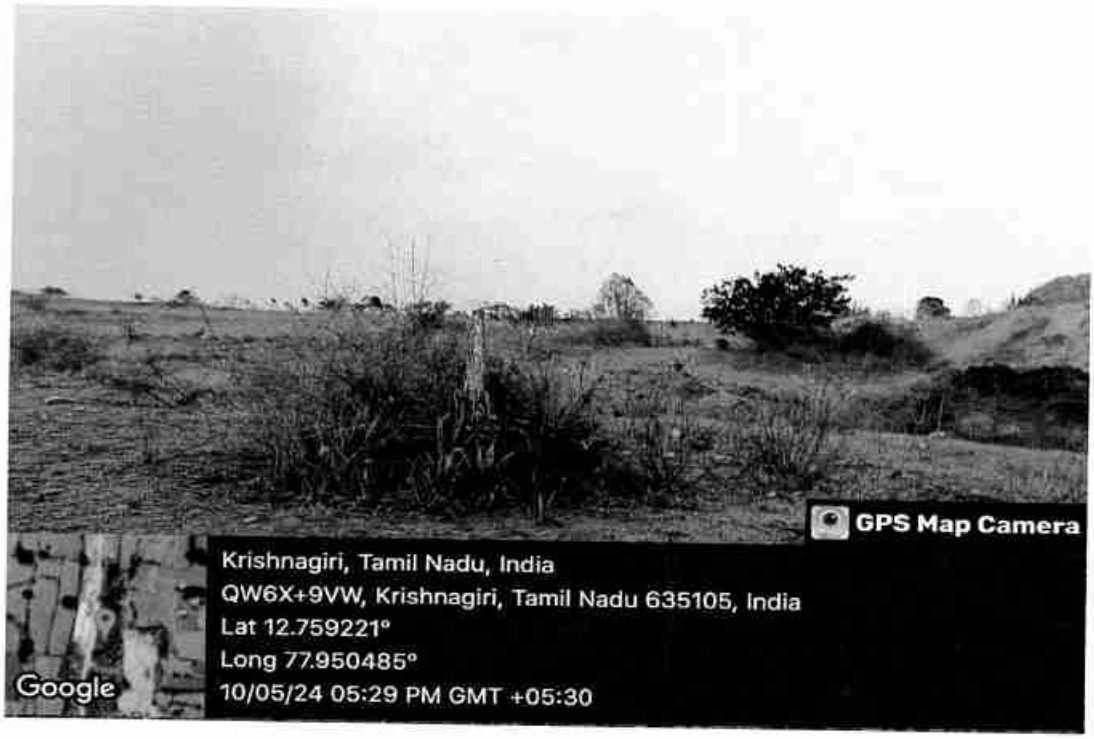
3/A1, Seetharam Nagar,Near Ananda Electricals,Hosur East,Hosur,Krishnagiri-635109,Tamil Nadu

*Issued by Income tax Department

ANNEXURE - VI

PHOTOCOPY OF THE APPLIED LEASE AREA

Field photos in respect of rough stone and gravel quarry lease, Patta land, over an extent of 4.40.0 hectares in S.F.No:133/1(Part), 133/2, 133/4, 134/1 & 134/2 of Venkatesapuram Village, Shoolagiri Taluk, Krishnagiri District, Tamil Nadu State belongs to **M/s.Ultra Mines Private Limited,**



ANNEXURE-VII

आयकर विभाग भारत सरकार
INCOME TAX DEPARTMENT GOVT. OF INDIA

21 MAY 2024

ई– स्थायी लेखा संख्या कार्ड
e - Permanent Account Number (e-PAN) Card
AADCU3936F

नाम / Name ULTRA MINES PRIVATE LIMITED

निगमन/गठन की तारीख
Date of Incorporation / Formation 18/08/2023

Signature Not Verified
Digitally signed by Income Tax Deptt.
Date: 2023.11.01 08:48:26 GMT+05:30

- Permanent Account Number (PAN) facilitate Income Tax Department linking of various documents, including payment of taxes, assessment, tax demand tax arrears, matching of information and easy maintenance & retrieval of electronic information etc. relating to a taxpayer.
स्थायी लेखा संख्या (पैन) एक करदाता से संबंधित विभिन्न दस्तावेजों को जोड़ने में आयकर विभाग को सहायक होता है, जिसमें करों के भुगतान, आकलन, कर मांग, टैक्स बकाया, सूचना के मिलान और इलेक्ट्रॉनिक जानकारी का आसान रखरखाव व बहाली आदि भी शामिल है।
- Quoting of PAN is now mandatory for several transactions specified under Income Tax Act, 1961 (Refer Rule 114B of Income Tax Rules, 1962)
आयकर अधिनियम, 1961 के तहत निर्दिष्ट कई लेनदेन के लिए स्थायी लेखा संख्या (पैन) का उल्लेख अब अनिवार्य है (आयकर नियम, 1962 के नियम 114B. का संदर्भ लें)
- Possessing or using more than one PAN is against the law & may attract penalty of upto Rs. 10,000.
एक से अधिक स्थायी लेखा संख्या (पैन) का रखना या उपयोग करना, कानून के विरुद्ध है और इसके लिए 10,000 रुपये तक का दंड लगाया जा सकता है।
- The PAN Card enclosed contains Enhanced QR Code which is readable by a specific Android Mobile App. Keyword to search this specific Mobile App on Google Play Store is "Enhanced QR Code Reader for PAN Card.
संलग्न पैन कार्ड में एनहान्स क्यूआर कोड शामिल है जो एक विशिष्ट एंड्रॉइड मोबाइल ऐप द्वारा पठनीय है। Google Play Store पर इस विशिष्ट मोबाइल ऐप को खोजने के लिए कीवर्ड "Enhanced QR Code Reader for PAN Card" है।

Cut

आयकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT. OF INDIA

स्थायी लेखा संख्या कार्ड
Permanent Account Number Card
AADCU3936F

नाम / Name
ULTRA MINES PRIVATE LIMITED

निगमन/गठन की तारीख
Date of Incorporation/Formation
18/08/2023

Fold

इस कार्ड के खोने/पाने पर कृपया सूचित करें/लौटाएं:
आयकर पैन सेवा इकाई, प्रोटीयन इगव टेक्नोलॉजीज लिमिटेड
(पूर्व में एनएसडीएल ई-गवर्नेंस इंफ्रास्ट्रक्चर लिमिटेड)
शीर्ष मंजिल, सफायर चैंबर,
बानेर रोड, बानेर,
पुणे - 411045

If this card is lost / someone's lost card is found, please inform / return to :
Income Tax PAN Services Unit, Protean eGov Technologies Limited
(formerly NSDL e-Governance Infrastructure Limited)
4th Floor, Sapphire Chambers,
Baner Road, Baner,
Pune - 411045
Tel: 91-20-2721 8080, e-mail: tininfo@proteantech.in

Electronically issued and Digitally signed ePAN is a valid mode of issue of Permanent Account Number (PAN) post amendments in clause (c) in the Explanation occurring after sub-section (8) of Section 139A of Income Tax Act, 1961 and sub-rule (6) of Rule 114 of the Income Tax Rules, 1962. For more details, click here

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21 MAY 2024

இந்திய அரசாங்கம்
Government of India

Radhakrishnan Subramaniam
Father : SUBRAMANIAM
Year of Birth: 1975
Male
6031 1703 9044

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

Unique Identification Authority of India

Address:
THAYIRPALAYAM,
PERIYAPULIYUR, Perundu,
Chittode, Erode, Tamil Nadu,
638102

6031 1703 9044

1947
1800 300 1947

-259-

21 MAY 2024

आयकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT. OF INDIA

S RADHAKRISHNAN

SUBRAMANIAM

09/06/1975

Permanent Account Number
APZPR7020R

Signature

07122008

இந்திய அரசாங்கம்
Unique Identification Authority of India
Government of India

பதிவு அடையாளம் / Enrollment No. : 1111/71121/05729

To
Karthi Mohankumar
கார்த்தி மோகன்குமார்
S/O Mohankumar
1/269
poolapalayam
periyapuliyur
Bhavani
Periapuliyur,Erode
Tamil Nadu - 638455
9965514794

23/11/2013

KL209719320FT

20971932

உங்கள் ஆதார் எண் / Your Aadhaar No. :

4954 9874 0772

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

இந்திய அரசாங்கம்
Government of India

கார்த்தி மோகன்குமார்
Karthi Mohankumar
தந்தை : மோகன்குமார்
Father : Mohankumar

பிறந்த வருடம்/Year of Birth: 1994
ஆண்/ Male

4954 9874 0772

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

தகவல்

- ஆதார் அடையாளத்திற்கான சான்று குடியுரிமைக்கு அல்ல.
- அடையாள சான்றை இணையதளம் மூலம் உறுதிப்படுத்திக் கொள்ளவும்.

INFORMATION

- Aadhaar is proof of identity, not of citizenship.
- To establish identity, authenticate online.

- ஆதார் நாடு முழுவதிலும் செல்லுபடியாகும்
- வருங்காலத்தில் அரசு மற்றும் அரசு சாரா சேவைகளை பயன்படுத்திக் கொள்ள ஆதார் உதவிகரமாக இருக்கும்.
- Aadhaar is valid throughout the country.
- Aadhaar will be helpful in availing Government and Non-Government services in future.

ஆதார்
Unique Identification Authority of India

முகவரி: S/O மோகன்குமார்
1/269, பூவம்பாளையம்
பெரியபுலியூர், பவானி, பெரியபுலியூர்
ஈரோடு, தமிழ்நாடு, 638455

Address: S/O Mohankumar,
1/269, poolapalayam,
periyapuliyur, Bhavani,
Periapuliyur, Erode, Tamil
Nadu, 638455

4954 9874 0772

1947
1800 300 1947

-263-

21 MAY 2024

आयकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT. OF INDIA

KARTHI M

MOHANKUMAR

21/11/1994
Permanent Account Number
BSKPK8921R

Signature

14072015

-265-

21 MAY 2024

आयकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT. OF INDIA

S SATHISH RAJA
SUBRAMANIAM
31/01/1986
Permanent Account Number
BGZPS2460N

Signature

In case this card is lost / found, kindly inform / return to :
Income Tax PAN Services Unit, UTIITSL
Plot No. 3, Sector 11, CBD Belapur,
Navi Mumbai - 400 614.

इस कार्ड के खोने/पाये जाने की सूचना सहित वापस/लौटाएं :
आयकर पैन सेवा यूनिट, UTIITSL
प्लाट नं. 3, सेक्टर 11, सीबीडी बेलापुर,
नवी मुंबई-४०० ६१४.

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भारतीय विशिष्ट पहचान प्राधिकरण
भारत सरकार
Unique Identification Authority of India
Government of India

21 MAY 2024

பதிவேட்டு எண்/Enrolment No.: 0000/00270/34643

Sathish Raja S (சதீஷ் ராஜா எஸ்)
S/O,Subramaniam, 131/91 Kovai Main Road, 3rd Cross Street, Perundurai, Perundurai, Perundurai, Erode,
Tamil Nadu - 638052

Date: 00/05/2016

உங்கள் ஆதார் எண்/ Your Aadhaar No.:

5972 4855 7672

எனது ஆதார், எனது அடையாளம்.

1947 | help@uidai.gov.in | www.uidai.gov.in

தகவல்

- ஆதார் அடையாளத்திற்கான சான்று, குடியுரிமைக்கு அல்ல.
- அடையாள சான்றை ஆன்லைன் ஆதன்டிகேஷன் மூலமாகப் பெறவும்.
- இது எலக்ட்ரானிக் செயல்முறை மூலம் தயாரிக்கப்பட்ட கடிதமாகும்.

INFORMATION

- Aadhaar is a proof of identity, not of citizenship.
- To establish identity, authenticate online.
- This is electronically generated letter.

Validity unknown

- ஆதார் நாடு முழுவதிலும் செல்லுபடியாகும்.
- ஆதார் பெறுவதற்கு ஒரே ஒரு முறை மட்டுமே நீங்கள் விண்ணப்பத்தை பூர்த்தி செய்து பதிவு செய்ய வேண்டிய அவசியம் ஏற்படும்.
- தயவுசெய்து உங்களின் சமீபத்தைய புதிய மொபைல் நம்பர் மற்றும் e-மெயில் முகவரியை பதிவு செய்யவும். இதனால் உங்களுக்கு பல்வேறு வசதிகளை பெற்றுக் கொள்ளும் சேவைகளும் கிடைக்கும்.

- Aadhaar is valid throughout the country.
- You need to enrol only once for Aadhaar.
- Please update your mobile number and e-mail address. This will help you to avail various services in future.

भारत सरकार
GOVERNMENT OF INDIA

சதீஷ் ராஜா எஸ்
Sathish Raja S
பிறந்த நாள்/ DOB: 31/01/1986
ஆண் / MALE

भारतीय विशिष्ट पहचान प्राधिकरण
UNIQUE IDENTIFICATION AUTHORITY OF INDIA

முகவரி:
சுப்ரமணியம், 131/91
கோவை மெயின் ரோடு,
3வது குறுக்குத்தெரு,
பெருந்துறை, பெருந்துறை,
பெருந்துறை, ஈரோடு,
தமிழ் நாடு - 638052

Address:
S/O,Subramaniam, 131/91 Kovai Main Road, 3rd Cross Street, Perundurai, Perundurai, Perundurai, Erode,
Tamil Nadu - 638052

5972 4855 7672 | 5972 4855 7672

भारत सरकार / GOVERNMENT OF INDIA
खान मंत्रालय / MINISTRY OF MINES
भारतीय खान ब्यूरो / INDIAN BUREAU OF MINES

21 MAY 2024

अर्हता प्राप्त व्यक्ति के रुप मेंमान्यता प्रमाण पत्र
(खनिज रियायत नियमावली, 1960 के नियम 22सी के तहत)

CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON
(Under Rule 22C of Mineral Concession Rules, 1960)

श्री एस. करुपण्णण, मॉग्गनीकाडू, मुत्तमंपटटी पोस्ट, बोम्मीडी वयॉ , ओमलूर तालुक, सेलम डीस्टीक्ट, तमिलनाडू – 635 301, जिनका फोटो और हस्ताक्षर ऊपर दिया हुआ है, तथा जिनहोंने अपनी अर्हता और अनुभव का संतोष जनक साक्ष्य दिया है, को खनन योजना तैयार करने हेतु खनिज रियायत नियमावली 1960 के नियम 22सी के तहत अर्हता प्राप्त व्यक्ति के रूप में मान्यता प्रदान की जाती है ।

Shri S. Karuppannan, Manganikadu, Muthampatty (Post), Bommidi (Via), Omalur Taluk, Salem District, Tamilnadu – 635 301, whose **Photograph and signature** is affixed herein above, having given satisfactory evidence of his qualifications & experience hereby **RECOGNISED** under Rule 22C of the Mineral Concession Rule, 1960 as a Qualified Person to prepare Mining Plans.

उनकीपंजीयन संख्या है
His registration number is RQP /MAS/263/2014/A

यह मान्यता 10 वर्षों की अवधि के लिए मान्यता है जो दिनांक 15.12.2024 को समाप्त होगी।
This recognition is valid for a period of 10 years ending on 15.12.2024.

उनके द्वारा प्रस्तुत खनन योजना में गलत जानकारी / दस्तावेज पाए जाने की स्थिती में यह प्रमाण पत्र वापस लिया जाएगा / निरस्त किया जाएगा।
This certificate will liable to be withdrawn / cancelled in the event of furnishing the wrong information / documents in the Mining Plan submitted by him.

स्थान/ Place : Chennai
दिनांक/ Date : 16.12.2014.

क्षेत्रीय खाननियंत्रक / Regional Controller of Mines
भारतीय खानब्यूरो/ Indian Bureau of Mines
चेन्नई क्षेत्र / Chennai Region

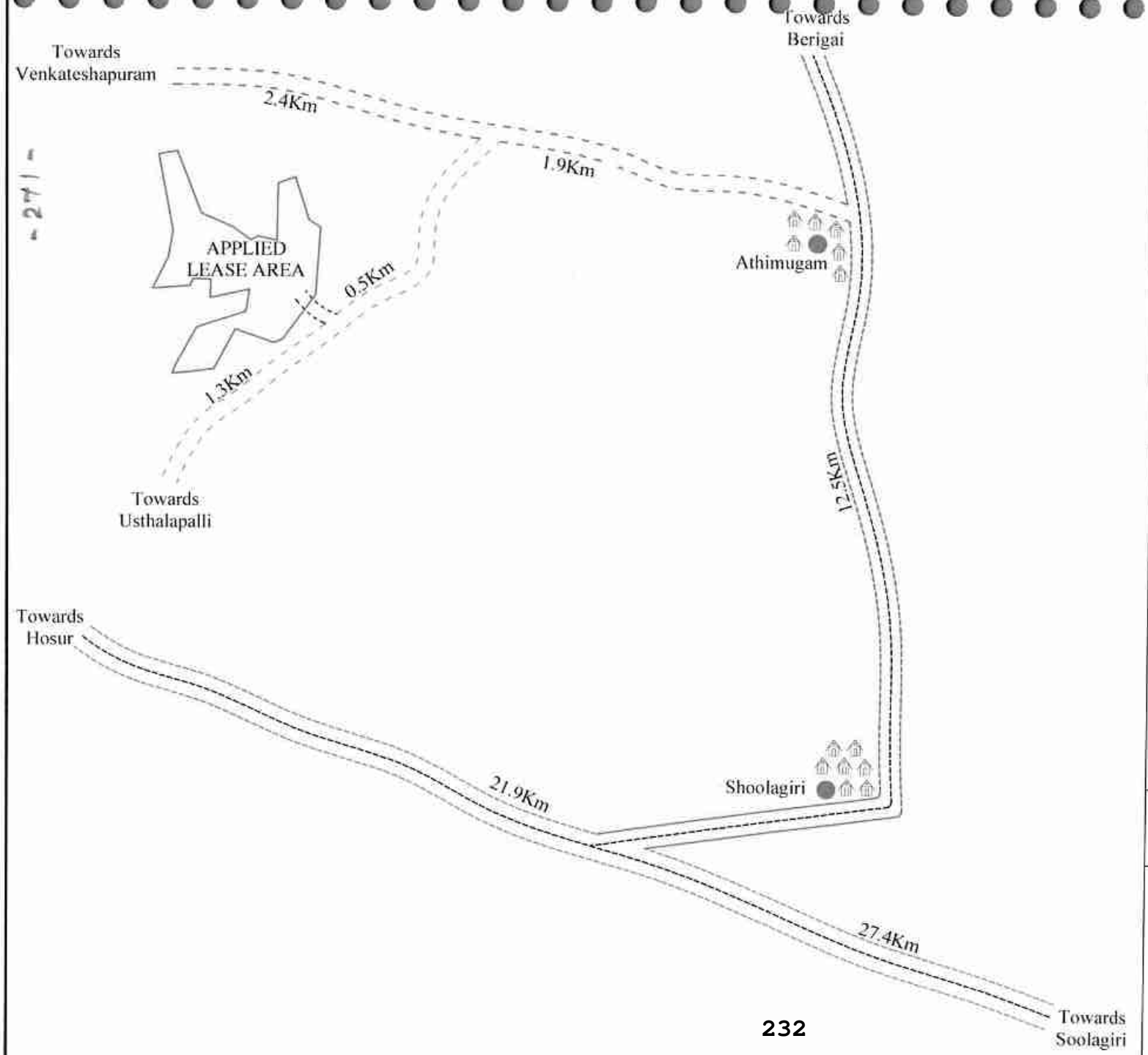


PLATE No-I

N

APPLICANT:

M/s. ULTRA MINES PRIVATE LIMITED
No.168/A1, SEETHARAMA NAGAR,
ANANDHA ELECTRICALS,
HOSUR TALUK,
KRISHNAGIRI DISTRICT-635 109.

LEASE APPLIED AREA:

S.F.No	: 133/1(Part), 133/2, 133/4, 134/1 & 134/2
EXTENT	: 4.40.0Hect
VILLAGE	: VENKATESAPURAM
TALUK	: SHOOLAGIRI
DISTRICT	: KRISHNAGIRI

INDEX

MINE LEASE AREA

APPROACH ROAD

CART ROAD

VILLAGE ROAD

MDR - 422

NH-44 ROAD

HABITATION

21 MAY 2024

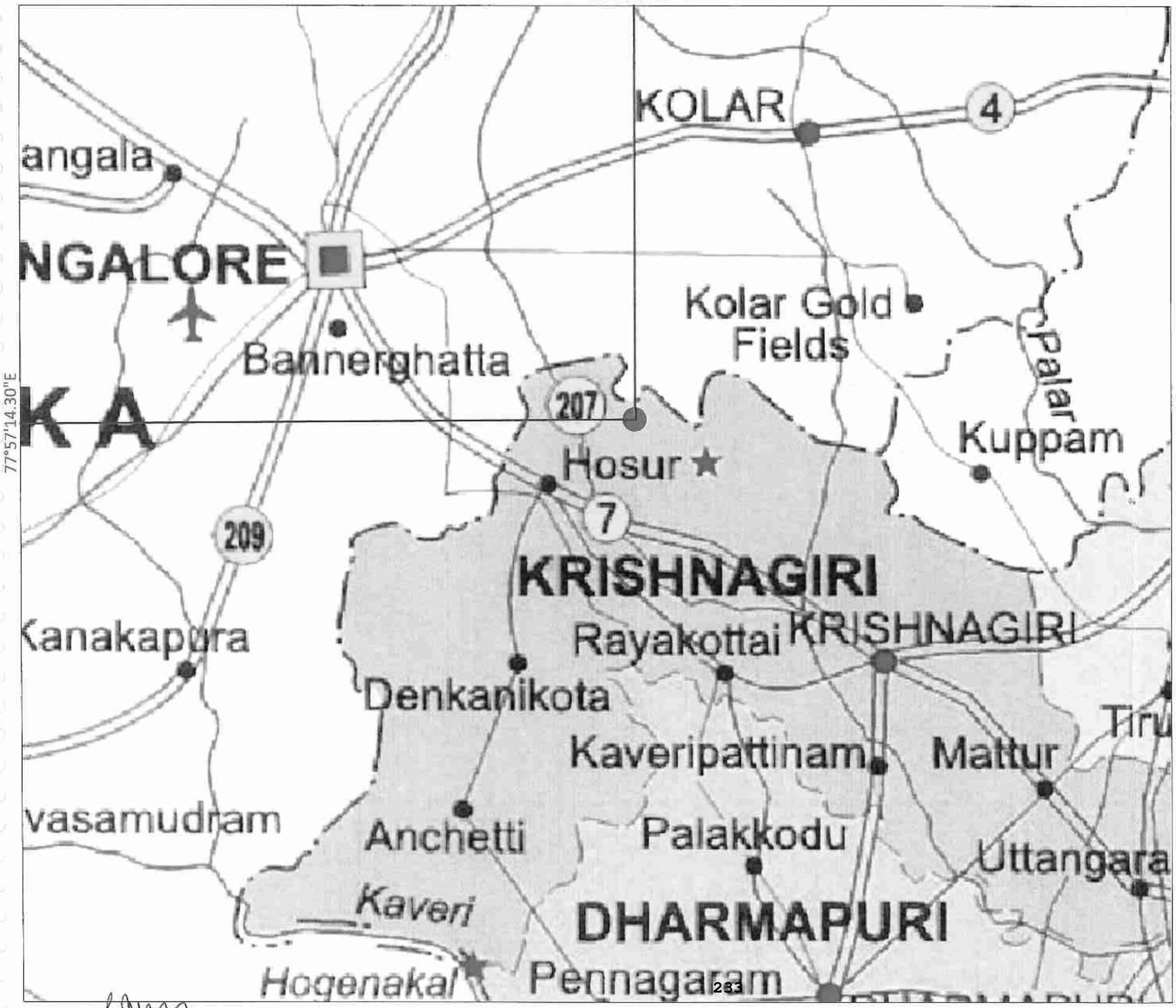
KEY MAP

Not to Scale

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
RECOGNIZED QUALIFIED PERSON
RQP/MAS/263/2014/A



N

PLATE No-IA

APPLICANT:
M/s. ULTRA MINES PRIVATE LIMITED
No.168/A1, SEETHARAMA NAGAR,
ANANDHA ELECTRICALS,
HOSUR TALUK,
KRISHNAGIRI DISTRICT-635 109.

LEASE APPLIED AREA:

S.F.No	: 133/1(Part), 133/2, 133/4, 134/1 & 134/2
EXTENT	: 4.40.0Hect
VILLAGE	: VENKATESAPURAM
TALUK	: SHOOLAGIRI
DISTRICT	: KRISHNAGIRI

INDEX

MINE LEASE AREA :

TOPO SHEET No : 57-H/13

LATITUDE: 12°45'14.72"N to 12°45'24.87"N

LONGITUDE: 77°57'14.30"E to 78°57'23.15"E

LOCATION PLAN
NOT TO SCALE

Prepared By:
I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
RECOGNIZED QUALIFIED PERSON
QP/MAS/263/2014/A

12°45'24.87"N

77°57'14.30"E

PLATE No-IB

N

APPLICANT:

M/s. ULTRA MINES PRIVATE LIMITED
No.168/A1, SEETHARAMA NAGAR,
ANANDHA ELECTRICALS,
HOSUR TALUK,
KRISHNAGIRI DISTRICT-635 109.

LEASE APPLIED AREA:

S.F.No	: 133/1(Part), 133/2, 133/4, 134/1 & 134/2
EXTENT	: 4.40.0Hect
VILLAGE	: VENKATESAPURAM
TALUK	: SHOOLAGIRI
DISTRICT	: KRISHNAGIRI

TOPO SHEET No : 57-H/13

LATITUDE: 12°45'14.72"N to 12°45'24.87"N

LONGITUDE: 77°57'14.30"E to 78°57'23.15"E

MINE LEASE AREA

10KM RADIUS

CONVENTIONAL SYMBOLS

TOPOSHEET MAP

SCALE- 1:1,00,000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
RECOGNIZED QUALIFIED PERSON
RQP/MAS/263/2014/A

12°45'24.87"N

To arc'
Midithepalli

Towards
Venkateshapuram

77°57'14.30"E

Towards
Athimugam

Towards
Bukkasagaram

N

PLATE No-IC

APPLICANT:
M/s. ULTRA MINES PRIVATE LIMITED,
No.168/A1, SEETHARAMA NAGAR,
ANANDHA ELECTRICALS,
HOSUR TALUK,
KRISHNAGIRI DISTRICT-635 109.

LEASE APPLIED AREA:

S.F.No	: 133/1(Part), 133/2, 133/4, 134/1 & 134/2
EXTENT	: 4.40.0Hect
VILLAGE	: VENKATESAPURAM
TALUK	: SHOOLAGIRI
DISTRICT	: KRISHNAGIRI

INDEX

MINE LEASE AREA	
APPROACH ROAD	
VILLAGE & CART ROAD	
100m RADIUS	
200m RADIUS	
300m RADIUS	
400m RADIUS	
500m RADIUS	
EXISTING QUARRY PIT	

TOPO SHEET No : 57-H/13

LATITUDE: 12°45'14.72"N to 12°45'24.87"N

LONGITUDE: 77°57'14.30"E to 78°57'23.15"E

SATELITE IMAGERY MAP

SCALE:- 1:5000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
RECOGNIZED QUALIFIED PERSON
RQP/MAS/263/2014/A

OCTOBER TO DECEMBER

21 MAY 2024

12°45'24.87"N

77°57'14.30"E

Towards
Venkateshapuram

Towards
Midithepalli

Towards
Athimugam

Towards
Bukkasagaram

JULY TO SEPTEMBER

PLATE No-ID

APPLICANT:
M/s. ULTRA MINES PRIVATE LIMITED,
No.168/A1, SEETHARAMA NAGAR,
ANANDHA ELECTRICALS,
HOSUR TALUK,
KRISHNAGIRI DISTRICT-635 109.

LEASE APPLIED AREA:

S.F.No	: 133/1(Part), 133/2, 133/4, 134/1 & 134/2
EXTENT	: 4.40.0Hect
VILLAGE	: VENKATESAPURAM
TALUK	: SHOOLAGIRI
DISTRICT	: KRISHNAGIRI

INDEX

MINE LEASE AREA		400m RADIUS	
APPROACH ROAD		500m RADIUS	
VILLAGE & CART ROAD		EXISTING QUARRY PIT	
100m RADIUS		WIND DIRECTION	
200m RADIUS		SHRUBS & TREES	
300m RADIUS		HABITATIONS	
		CHECK DAM & ODAI	

TOPO SHEET No : 57-H/13

LATITUDE: 12°45'14.72"N to 12°45'24.87"N

LONGITUDE: 77°57'14.30"E to 78°57'23.15"E

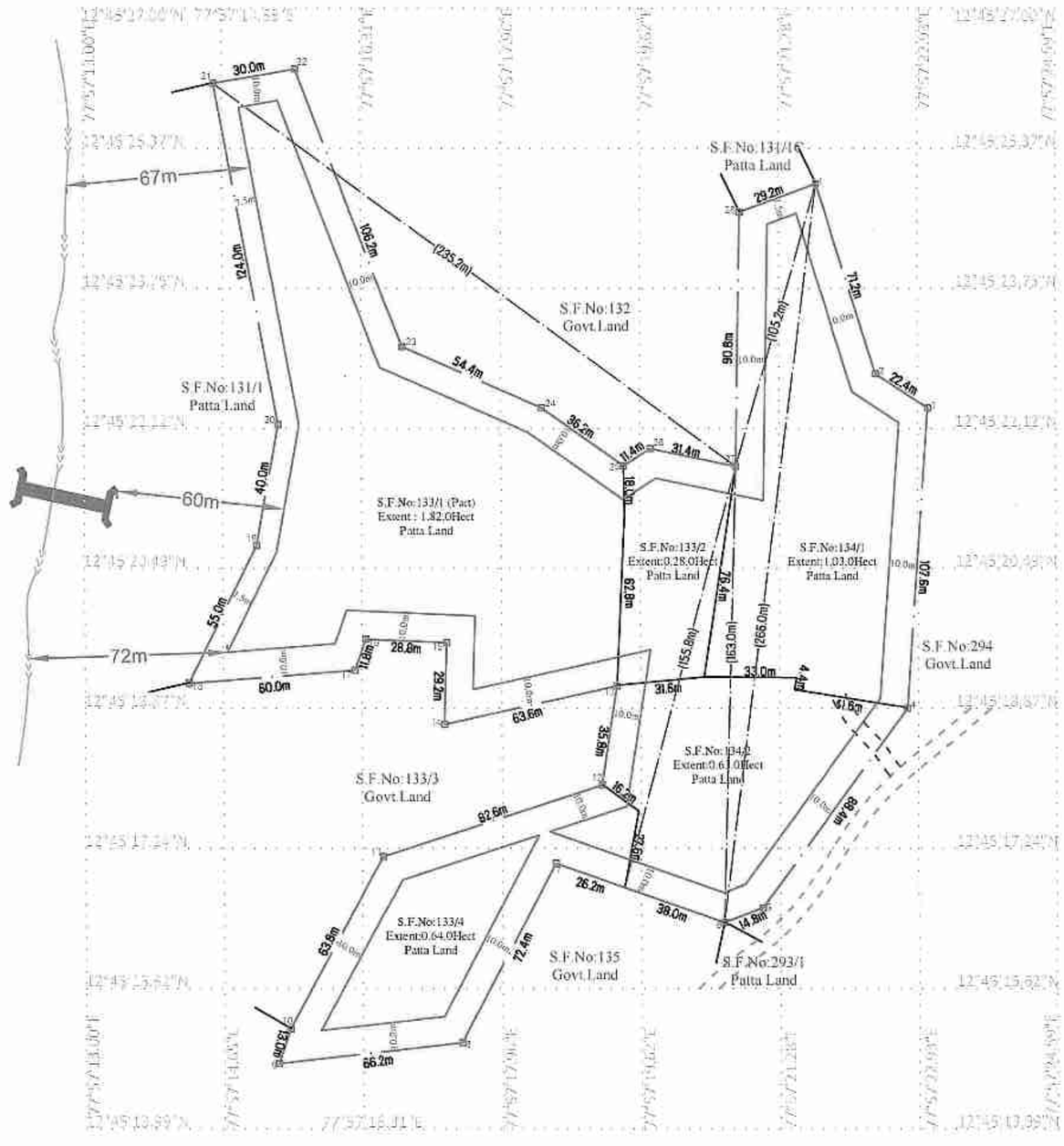
ENVIRONMENTAL PLAN

SCALE– 1:5000

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
RECOGNIZED QUALIFIED PERSON
RQP/MAS/263/2014/A



Pillar ID	Latitude	Longitude
1	12°45'24.87"N	77°57'21.84"E
2	12°45'22.65"N	77°57'22.53"E
3	12°45'22.25"N	77°57'23.15"E
4	12°45'18.73"N	77°57'22.87"E
5	12°45'16.46"N	77°57'21.10"E
6	12°45'16.30"N	77°57'20.64"E
7	12°45'17.01"N	77°57'18.64"E
8	12°45'14.94"N	77°57'17.49"E
9	12°45'14.72"N	77°57'15.31"E
10	12°45'15.12"N	77°57'15.45"E
11	12°45'17.11"N	77°57'16.59"E
12	12°45'17.91"N	77°57'19.20"E
13	12°45'19.06"N	77°57'19.40"E
14	12°45'18.63"N	77°57'17.33"E
15	12°45'19.58"N	77°57'17.37"E
16	12°45'19.63"N	77°57'16.42"E
17	12°45'19.28"N	77°57'16.28"E
18	12°45'19.15"N	77°57'14.30"E
19	12°45'20.74"N	77°57'15.13"E
20	12°45'22.14"N	77°57'15.41"E
21	12°45'26.11"N	77°57'14.69"E
22	12°45'26.27"N	77°57'15.67"E
23	12°45'23.03"N	77°57'16.90"E
24	12°45'22.30"N	77°57'18.54"E
25	12°45'21.62"N	77°57'19.51"E
26	12°45'21.81"N	77°57'19.83"E
27	12°45'21.59"N	77°57'20.85"E
28	12°45'24.54"N	77°57'20.93"E

N

PLATE No-II

APPLICANT:
M/s.ULTRA MINES PRIVATE LIMITED,
No.168/A1, SEETHARAMA NAGAR,
ANANDHA ELECTRICALS,
HOSUR TALUK,
KRISHNAGIRI DISTRICT - 635109.

LEASE APPLIED AREA:

S.F.No	: 133/1(Part), 133/2, 133/4, 134/1 & 134/2
EXTENT	: 4.40.0Hect
VILLAGE	: VENKATESAPURAM
TALUK	: SHOOLAGIRI
DISTRICT	: KRISHNAGIRI

INDEX

- MINE LEASE BOUNDARY
- SAFETY BOUNDARY
- APPROACH ROAD
- CART ROAD
- BOUNDARY PILLAR STONES □1
- ODAI
- CHECK DAM

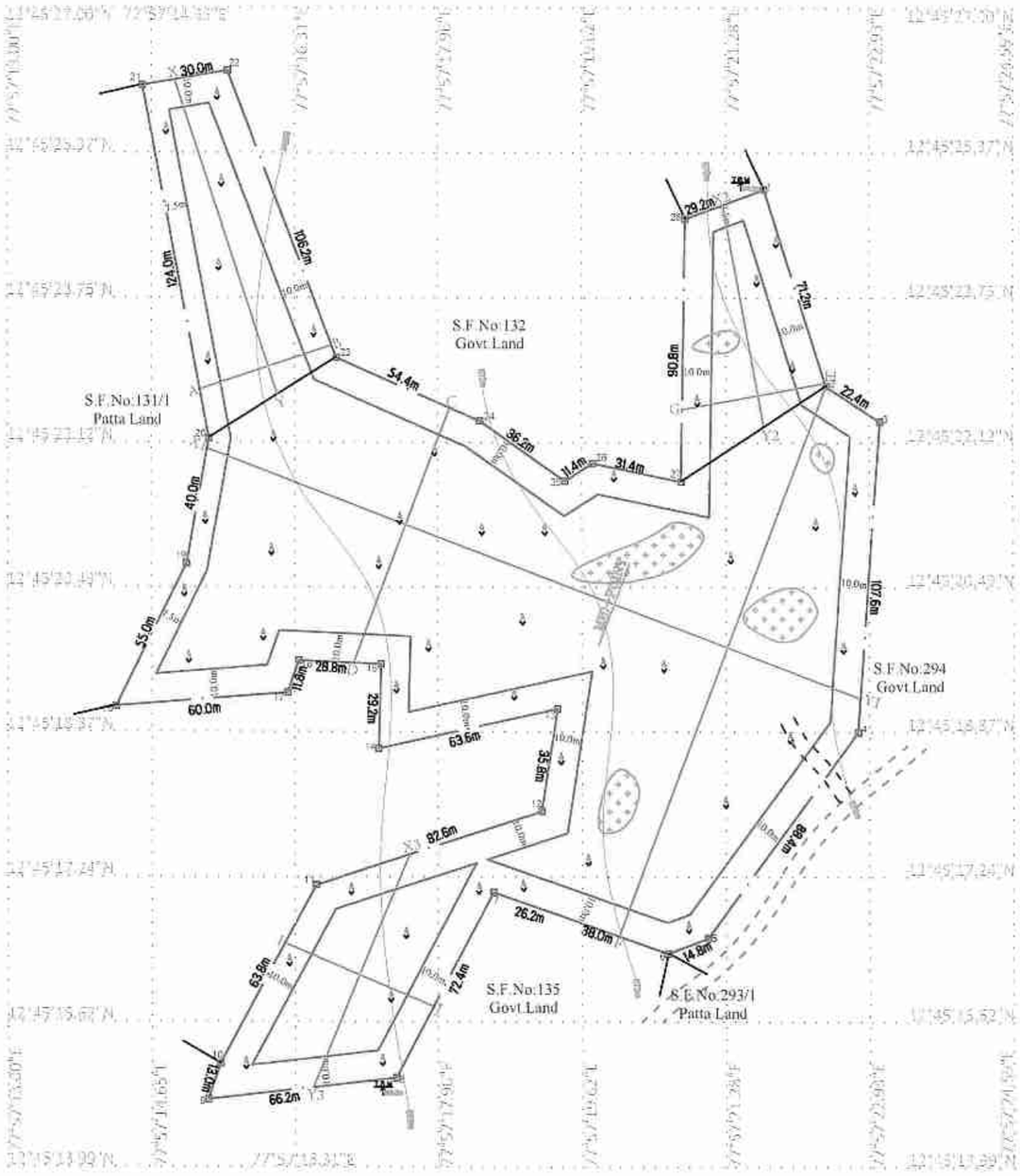
MINE LEASE PLAN

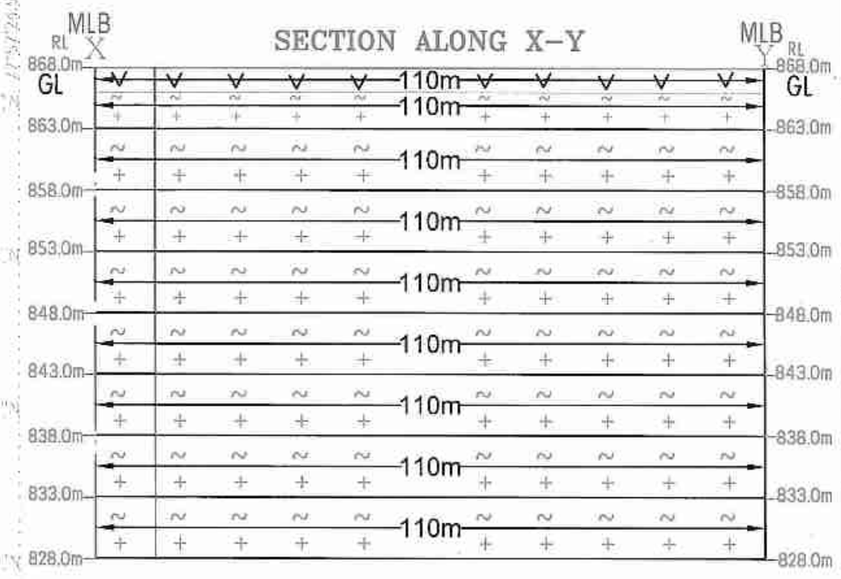
SCALE 1: 2000

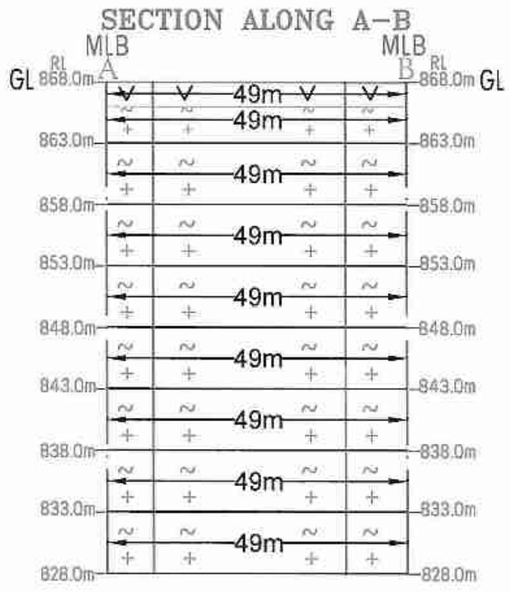
Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
RECOGNIZED QUALIFIED PERSON
RQP/MAS/263/2014/A







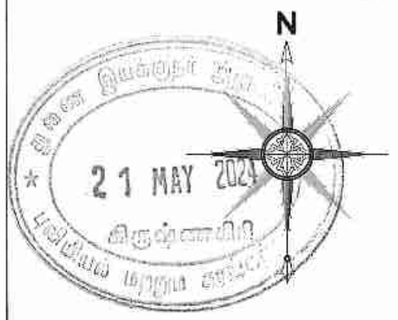


PLATE No-III

APPLICANT:
M/s.ULTRA MINES PRIVATE LIMITED,
No.168/A1, SEETHARAMA NAGAR,
ANANDHA ELECTRICALS,
HOSUR TALUK,
KRISHNAGIRI DISTRICT - 635109.

LEASE APPLIED AREA:

S.F.No	: 133/1 (Part), 133/2, 133/4, 134/1 & 134/2
EXTENT	: 4.40.0 Hect
VILLAGE	: VENKATESAPURAM
TALUK	: SHOOLAGIRI
DISTRICT	: KRISHNAGIRI

INDEX

MINE LEASE BOUNDARY	
SAFETY BOUNDARY	
APPROACH ROAD	
CART ROAD	
BOUNDARY PILLAR STONES	□1
CONTOUR LINE	878.0m
TEMPORARY BENCH MARKS	TBM
GRAVEL & SHRUBS	
OUTCROP	
ROUGH STONE	

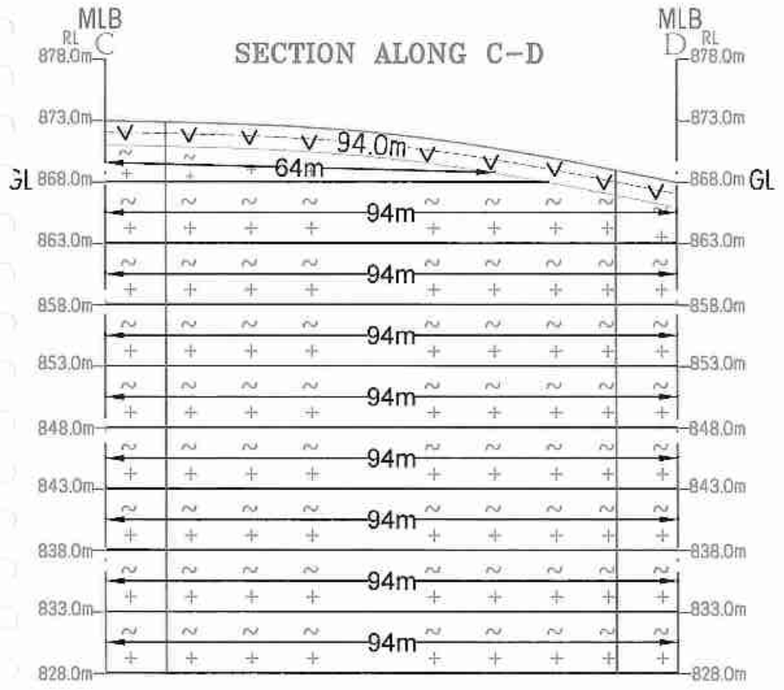
SURFACE & GEOLOGICAL PLAN & SECTIONS
SCALE 1: 2000
SECTION HOR 1 : 1000 & VER 1: 500

Prepared By:

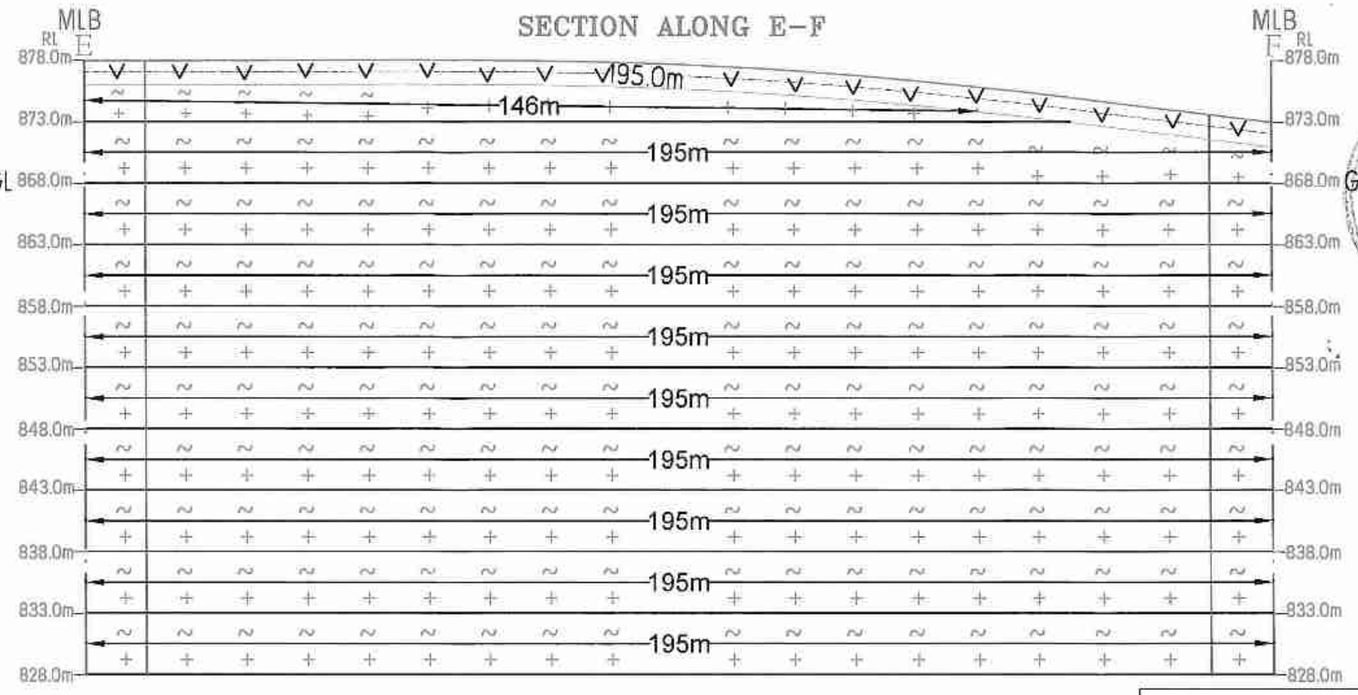
I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
RECOGNIZED QUALIFIED PERSON
RQP/MAS/263/2014/A

SECTION ALONG C–D



SECTION ALONG E–F



GL = GROUND LEVEL

SECTION ALONG X1–Y1

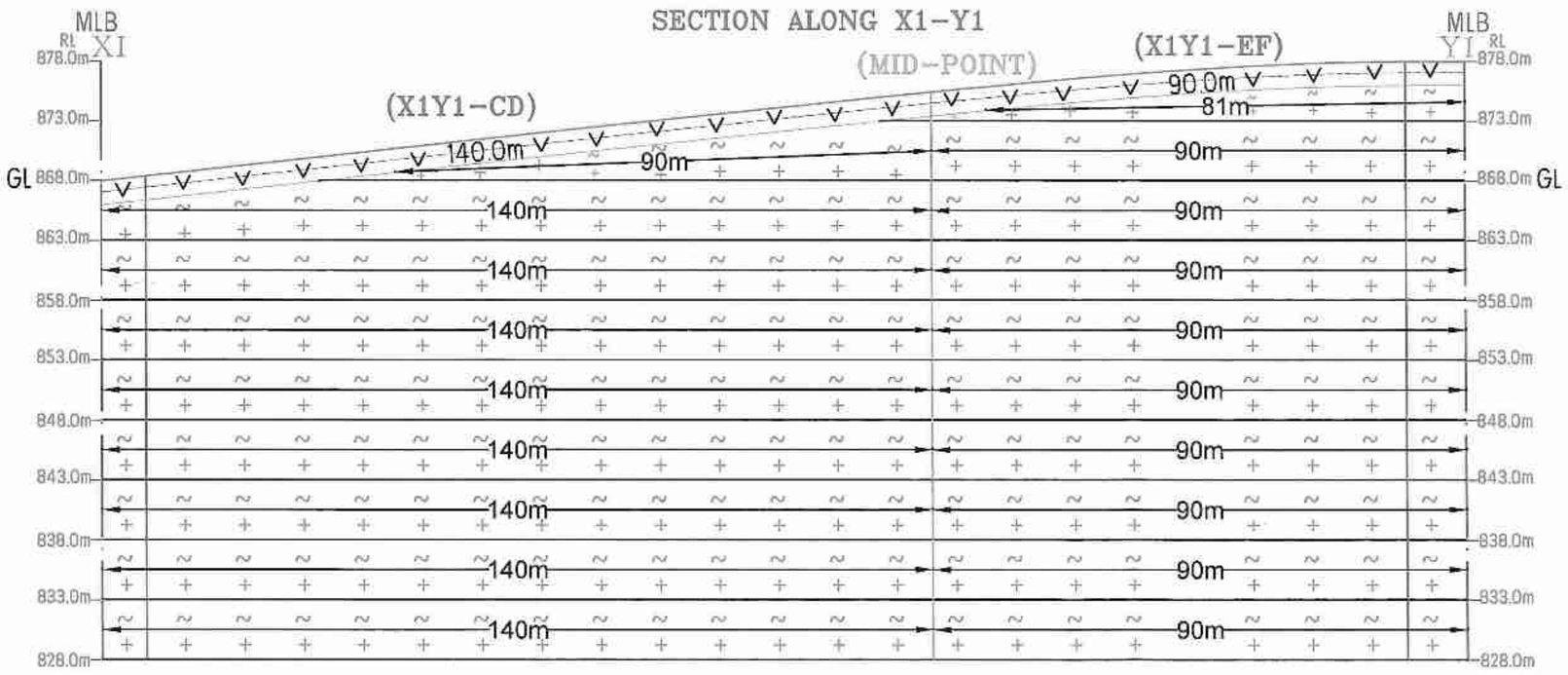


PLATE No-IIIA

APPLICANT:
M/s.ULTRA MINES PRIVATE LIMITED,
No.168/A1, SEETHARAMA NAGAR,
ANANDHA ELECTRICALS,
HOSUR TALUK,
KRISHNAGIRI DISTRICT - 635109.

LEASE APPLIED AREA:

S.F.No	: 133/1 (Part), 133/2, 133/4, 134/1 & 134/2
EXTENT	: 4.40.0 Hect
VILLAGE	: VENKATESAPURAM
TALUK	: SHOOLAGIRI
DISTRICT	: KRISHNAGIRI

INDEX

MINE LEASE BOUNDARY

SAFETY BOUNDARY

GRAVEL

ROUGH STONE

GEOLOGICAL SECTIONS
SECTION HOR 1 : 1000 & VER 1: 500

Prepared By:

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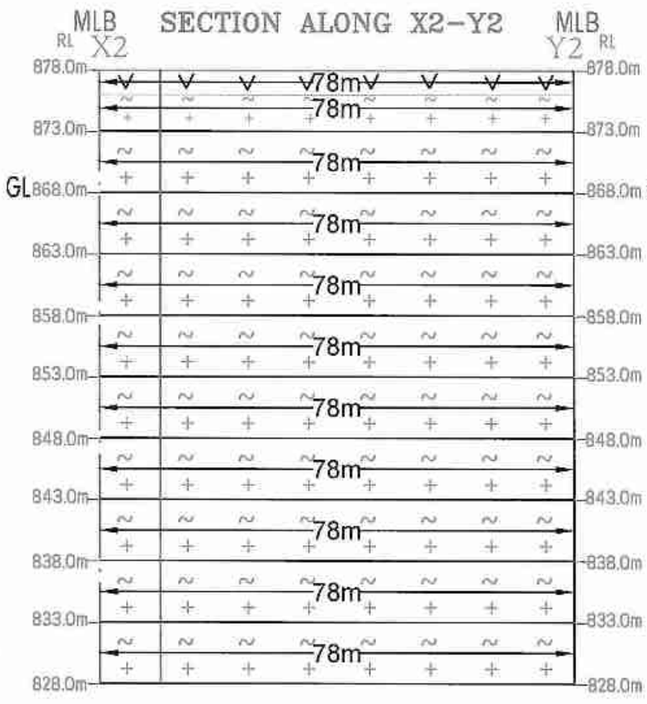
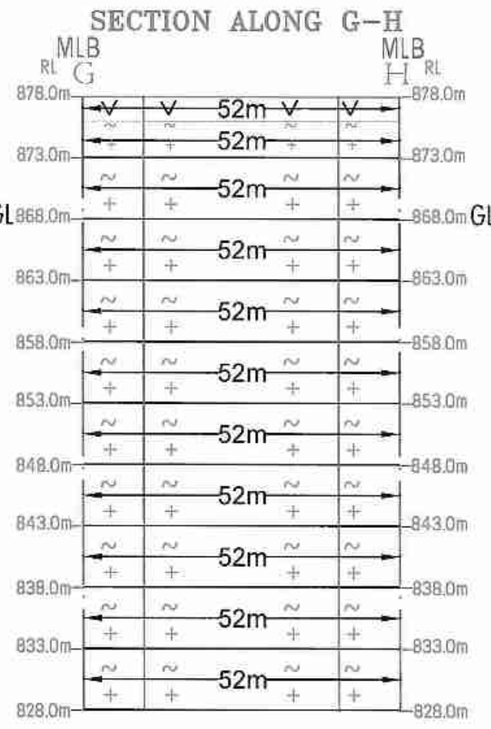
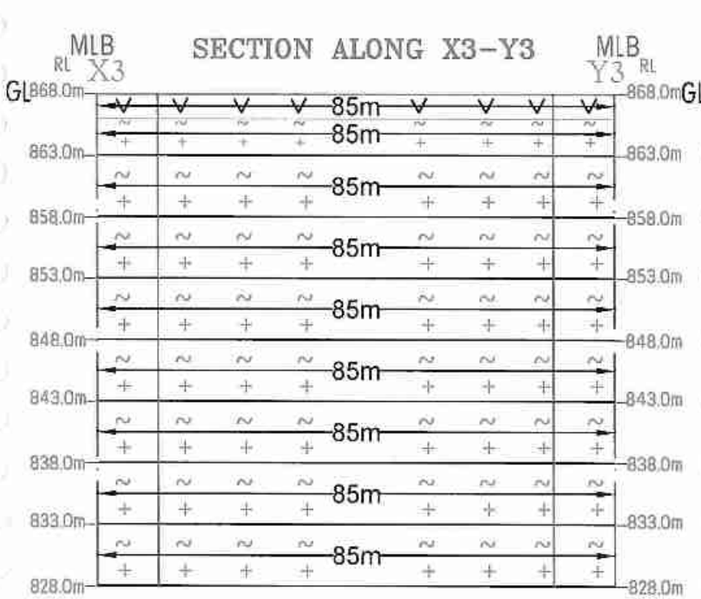
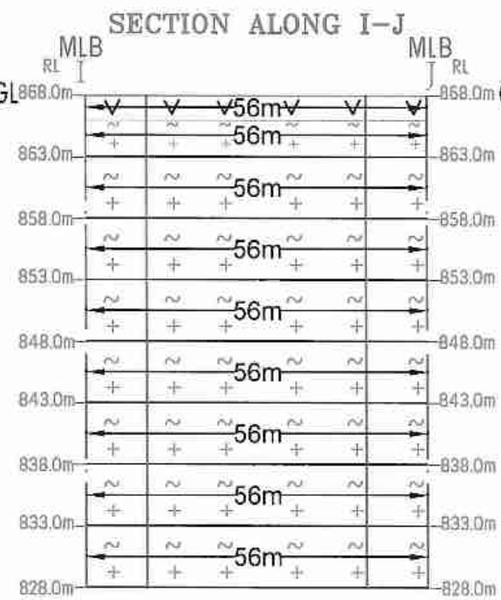
Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
RECOGNIZED QUALIFIED PERSON
RQP/MAS/263/2014/A





GL = GROUND LEVEL





GEOLOGICAL RESOURCES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M^3	Rough Stone in M^3	Gravel in M^3
XY-AB	I	110	49	2	10780	.....	10780
	I	110	49	3	16170	16170	.....
	II	110	49	5	26950	26950	.....
	III	110	49	5	26950	26950	.....
	IV	110	49	5	26950	26950	.....
	V	110	49	5	26950	26950	.....
	VI	110	49	5	26950	26950	.....
	VII	110	49	5	26950	26950	.....
	VIII	110	49	5	26950	26950	.....
TOTAL				**40**	**215600**	**204820**	**10780**
X1Y1-CD	I	140	94	2	26320	.....	26320
	I	90	64	3	17280	17280	.....
	II	140	94	5	65800	65800	.....
	III	140	94	5	65800	65800	.....
	IV	140	94	5	65800	65800	.....
	V	140	94	5	65800	65800	.....
	VI	140	94	5	65800	65800	.....
	VII	140	94	5	65800	65800	.....
	VIII	140	94	5	65800	65800	.....
	IX	140	94	5	65800	65800	.....
TOTAL				**45**	**570000**	**543680**	**26320**
X1Y1-EF	I	90	195	2	35100	.....	35100
	I	81	146	3	35478	35478	.....
	II	90	195	5	87750	87750	.....
	III	90	195	5	87750	87750	.....
	IV	90	195	5	87750	87750	.....
	V	90	195	5	87750	87750	.....
	VI	90	195	5	87750	87750	.....
	VII	90	195	5	87750	87750	
	VIII	90	195	5	87750	87750	
	IX	90	195	5	87750	87750	.....
	X	90	195	5	87750	87750	.....
TOTAL				**50**	**860328**	**825228**	**35100**
X2Y2-GH	I	78	52	2	8112	.....	8112
	I	78	52	3	12168	12168	.....
	II	78	52	5	20280	20280	.....
	III	78	52	5	20280	20280	.....
	IV	78	52	5	20280	20280	.....
	V	78	52	5	20280	20280	.....
	VI	78	52	5	20280	20280	.....
	VII	78	52	5	20280	20280	
	VIII	78	52	5	20280	20280	
	IX	78	52	5	20280	20280	.....
	X	78	52	5	20280	20280	.....
TOTAL				**50**	**202800**	**194688**	**8112**
X3Y3-IJ	I	85	56	2	9520	.....	9520
	I	85	56	3	14280	14280	.....
	II	85	56	5	23800	23800	.....
	III	85	56	5	23800	23800	.....
	IV	85	56	5	23800	23800	.....
	V	85	56	5	23800	23800	.....
	VI	85	56	5	23800	23800	.....
	VII	85	56	5	23800	23800	
	VIII	85	56	5	23800	23800	
TOTAL				**40**	**190400**	**180880**	**9520**
GRAND TOTAL					**2039128**	**1949296**	**89832**

21 MAY 2024

PLATE No-IIIB

APPLICANT:
M/s.ULTRA MINES PRIVATE LIMITED,
No.168/A1, SEETHARAMA NAGAR,
ANANDHA ELECTRICALS,
HOSUR TALUK,
KRISHNAGIRI DISTRICT - 635109.

LEASE APPLIED AREA:

S.F.No	: 133/1 (Part), 133/2, 133/4, 134/1 & 134/2
EXTENT	: 4.40.0 Hect
VILLAGE	: VENKATESAPURAM
TALUK	: SHOOLAGIRI
DISTRICT	: KRISHNAGIRI

INDEX

MINE LEASE BOUNDARY

SAFETY BOUNDARY

GRAVEL

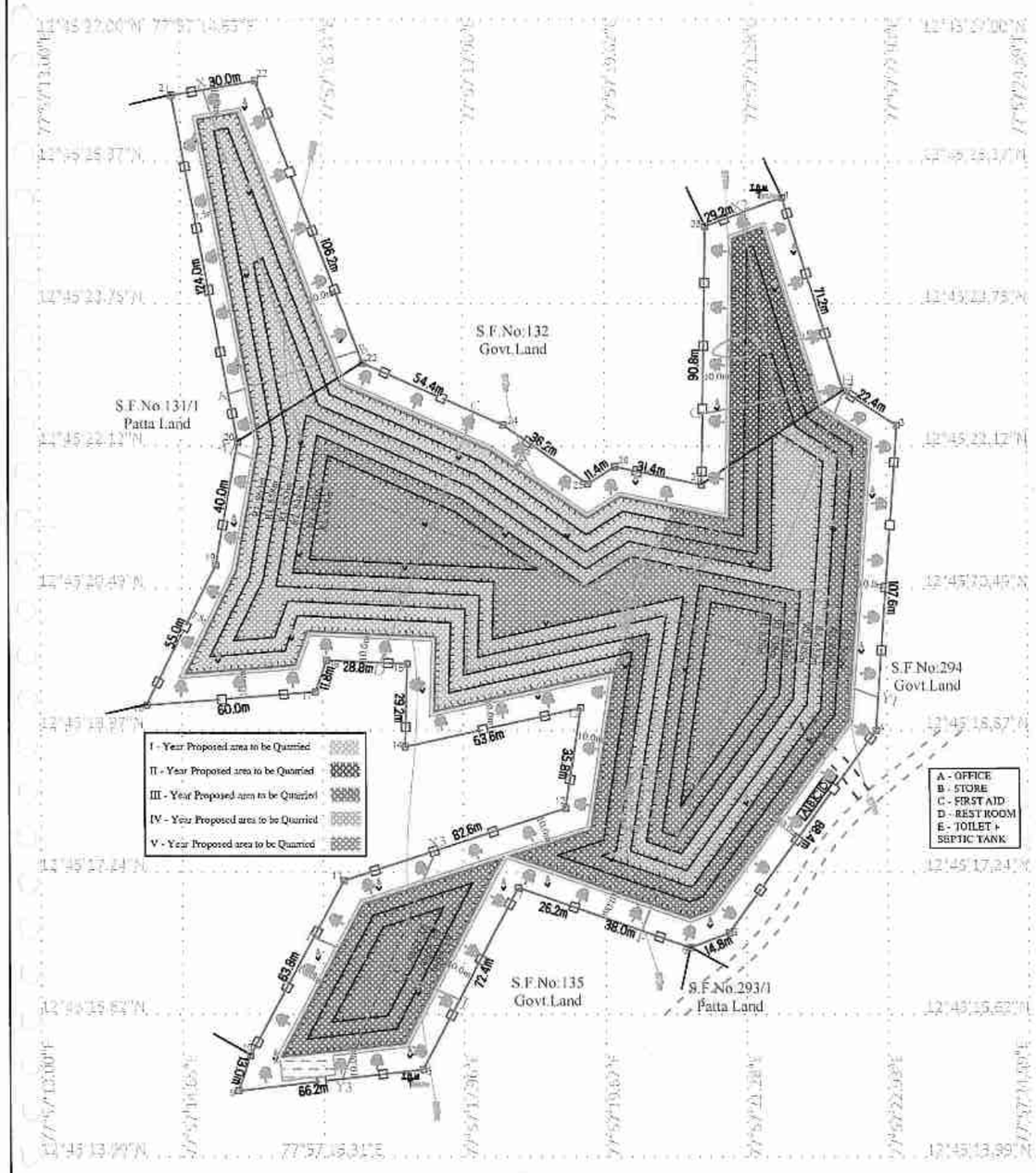
ROUGH STONE

GEOLOGICAL SECTIONS
SECTION HOR 1 : 1000 & VER 1: 500

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
RECOGNIZED QUALIFIED PERSON
RQP/MAS/263/2014/A

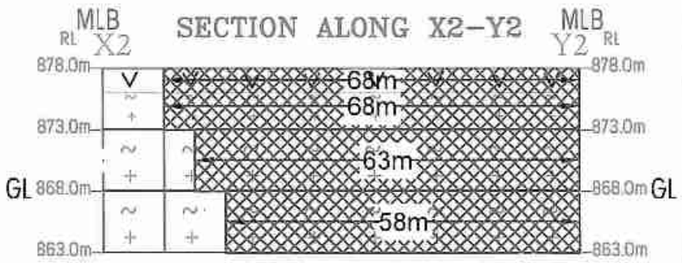


GL = GROUND LEVEL

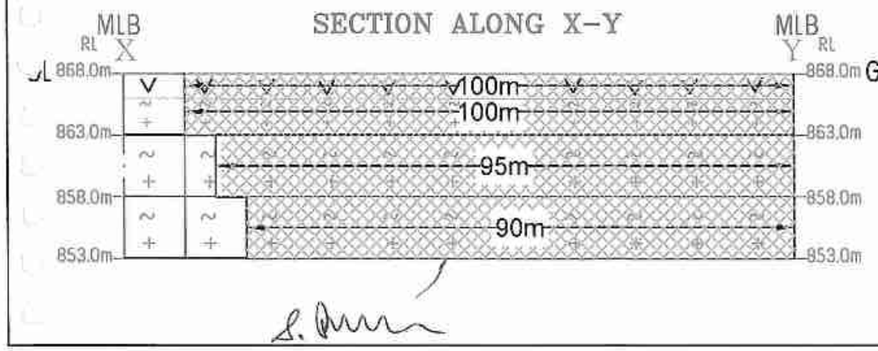
YEARWISE PRODUCTION RESERVES

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M^3	Rough Stone in M^3	Gravel in M^3
I	XY-AB	I	100	32	2	6400	.....	6400
		I	100	32	3	9600	9600	.....
		II	95	22	5	10450	10450	.....
		III	90	12	5	5400	5400	.....
	X1Y1-CD	I	133	74	2	19684	.....	19684
		I	90	54	3	14580	14580	.....
		II	133	69	5	45885	45885	.....
		III	128	59	5	37760	37760	.....
		TOTAL				**149759**	**123675**	**26084**
II	X2Y2-GH	I	68	32	2	4352	.....	4352
		I	68	32	3	6528	6528	.....
		II	63	22	5	6930	6930	.....
		III	58	12	5	3480	3480	.....
	X1Y1-EF	I	80	175	2	28000	.....	28000
		I	71	136	3	28968	28968	.....
		II	75	170	5	63750	63750	.....
		TOTAL				**142008**	**109656**	**32352**
III	X1Y1-EF	III	70	160	5	56000	56000	.....
	X3Y3-IJ	I	65	36	2	4680	.....	4680
		I	65	36	3	7020	7020	.....
		II	55	26	5	7150	7150	.....
		III	45	16	5	3600	3600	.....
	X1Y1-EF	IV	65	150	5	48750	48750	.....
		TOTAL				**127200**	**122520**	**4680**
IV	X1Y1-CD	IV	123	49	5	30135	30135	.....
		V	118	39	5	23010	23010	.....
	X1Y1-EF	V	60	140	5	42000	42000	.....
		VI	55	130	5	35750	35750	.....
		TOTAL				**130895**	**130895**	**0**
V	X1Y1-CD	VI	113	29	5	16385	16385	.....
		VII	108	19	5	10260	10260	.....
	X1Y1-EF	VII	50	120	5	30000	30000	.....
		VIII	45	110	5	24750	24750	.....
		IX	40	100	5	20000	20000	.....
		TOTAL				**101395**	**101395**	**0**
GRAND TOTAL						**651257**	**588141**	**63116**

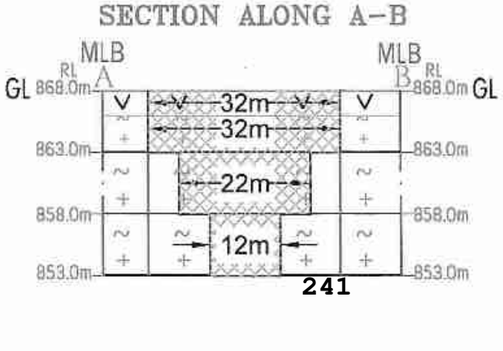
SECTION ALONG X2–Y2



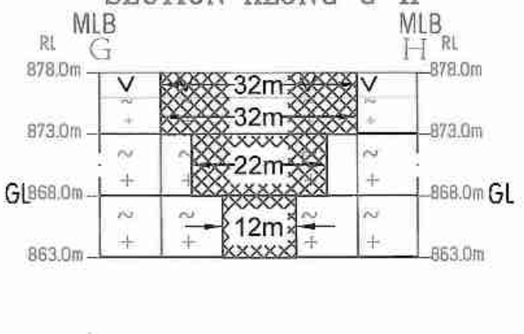
SECTION ALONG X–Y



SECTION ALONG A–B



SECTION ALONG G–H



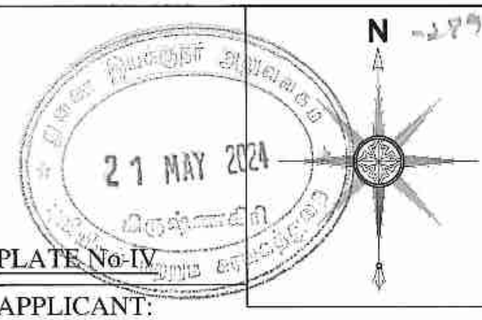


PLATE No-IV

APPLICANT:

M/s.ULTRA MINES PRIVATE LIMITED,
No.168/A1, SEETHARAMA NAGAR,
ANANDHA ELECTRICALS,
HOSUR TALUK,
KRISHNAGIRI DISTRICT - 635109.

LEASE APPLIED AREA:

S.F.No : 133/1 (Part), 133/2, 133/4, 134/1 & 134/2
EXTENT : 4.40.0 Hect
VILLAGE : VENKATESAPURAM
TALUK : SHOOLAGIRI
DISTRICT : KRISHNAGIRI

INDEX

- MINE LEASE BOUNDARY
- SAFETY BOUNDARY
- APPROACH ROAD
- CART ROAD
- BOUNDARY PILLAR STONES
- CONTOUR LINE
- TEMPORARY BENCH MARKS
- GRAVEL & SHRUBS
- OUTCROP
- ROUGH STONE
- FENCING
- PROPOSED BENCH
- SETTLING TANK & DRAINAGE

YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTIONS

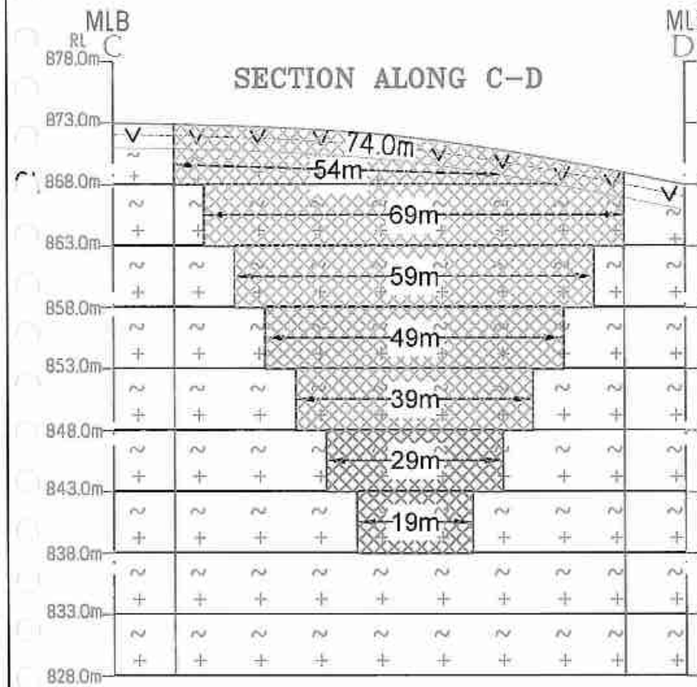
SCALE 1: 2000
SECTION HOR 1 : 1000 & VER 1: 500

Prepared By:

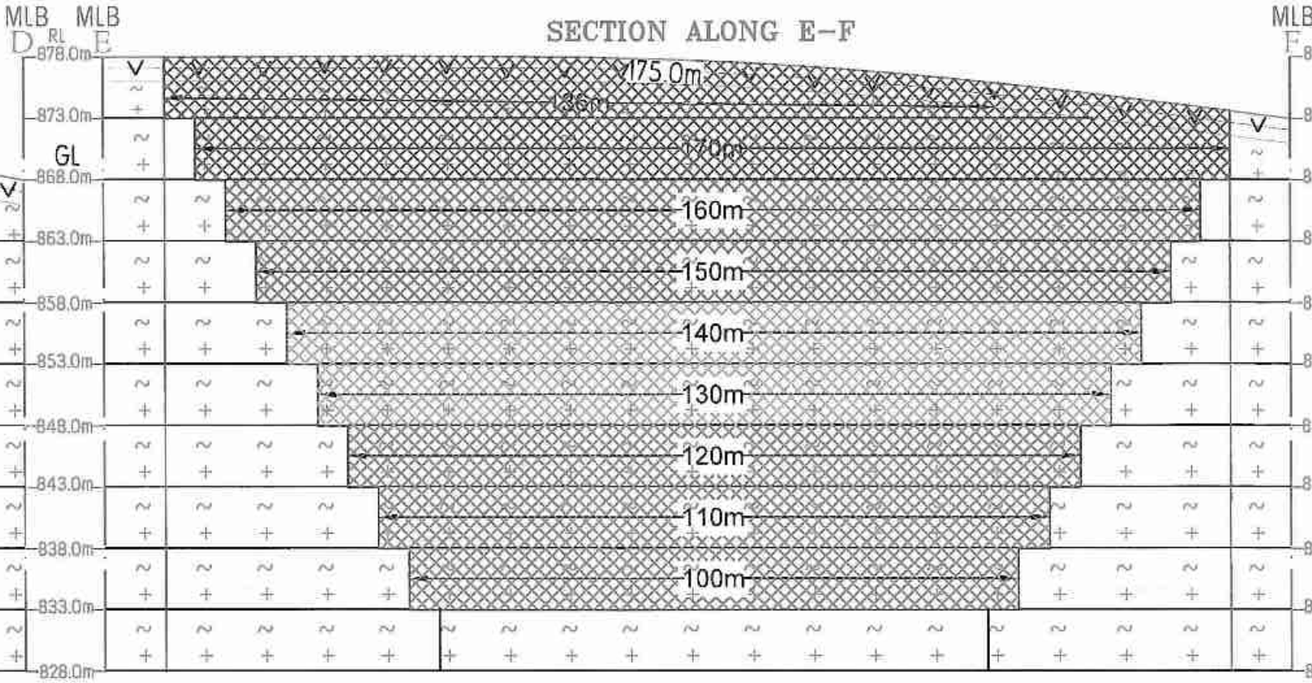
I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
RECOGNIZED QUALIFIED PERSON
RQP/MAS/263/2014/A

SECTION ALONG C–D



SECTION ALONG E–F



I - Year Proposed area to be Quarried

II - Year Proposed area to be Quarried

III - Year Proposed area to be Quarried

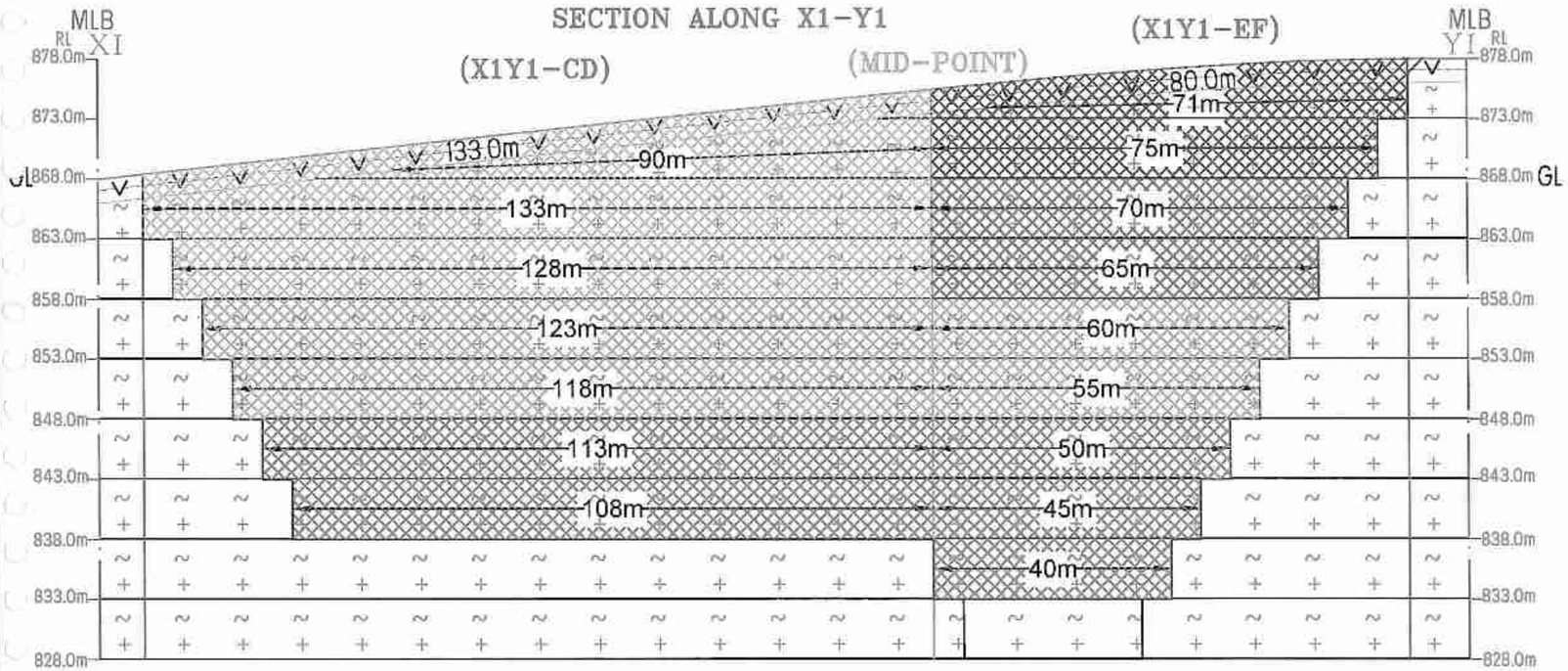
IV - Year Proposed area to be Quarried

V - Year Proposed area to be Quarried

PLATE No-IVA

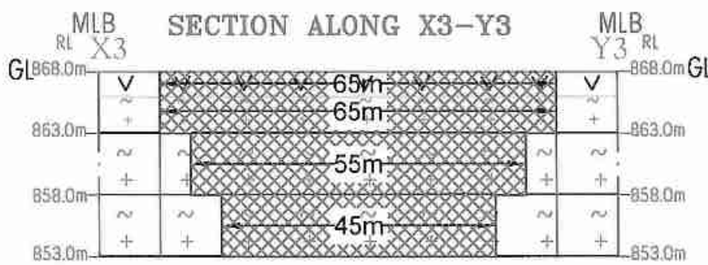
SECTION ALONG X1–Y1

(X1Y1–CD) (MID-POINT) (X1Y1–EF)

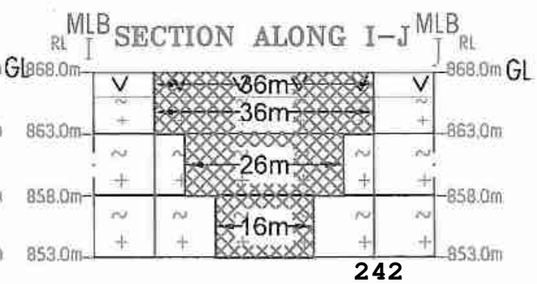


GL = GROUND LEVEL

SECTION ALONG X3–Y3



SECTION ALONG I–J



APPLICANT:

M/s.ULTRA MINES PRIVATE LIMITED,
No.168/A1, SEETHARAMA NAGAR,
ANANDHA ELECTRICALS,
HOSUR TALUK,
KRISHNAGIRI DISTRICT - 635109.

LEASE APPLIED AREA:

S.F.No	: 133/1 (Part), 133/2, 133/4, 134/1 & 134/2
EXTENT	: 4.40.0 Hect
VILLAGE	: VENKATESAPURAM
TALUK	: SHOOLAGIRI
DISTRICT	: KRISHNAGIRI

INDEX

- MINE LEASE BOUNDARY
- SAFETY BOUNDARY
- GRAVEL
- ROUGH STONE
- PROPOSED BENCH
- ULTIMATE BENCH

YEARWISE DEVELOPMENT &PRODUCTION SECTIONS
SECTION HOR 1 : 1000 & VER 1: 500

Prepared By:

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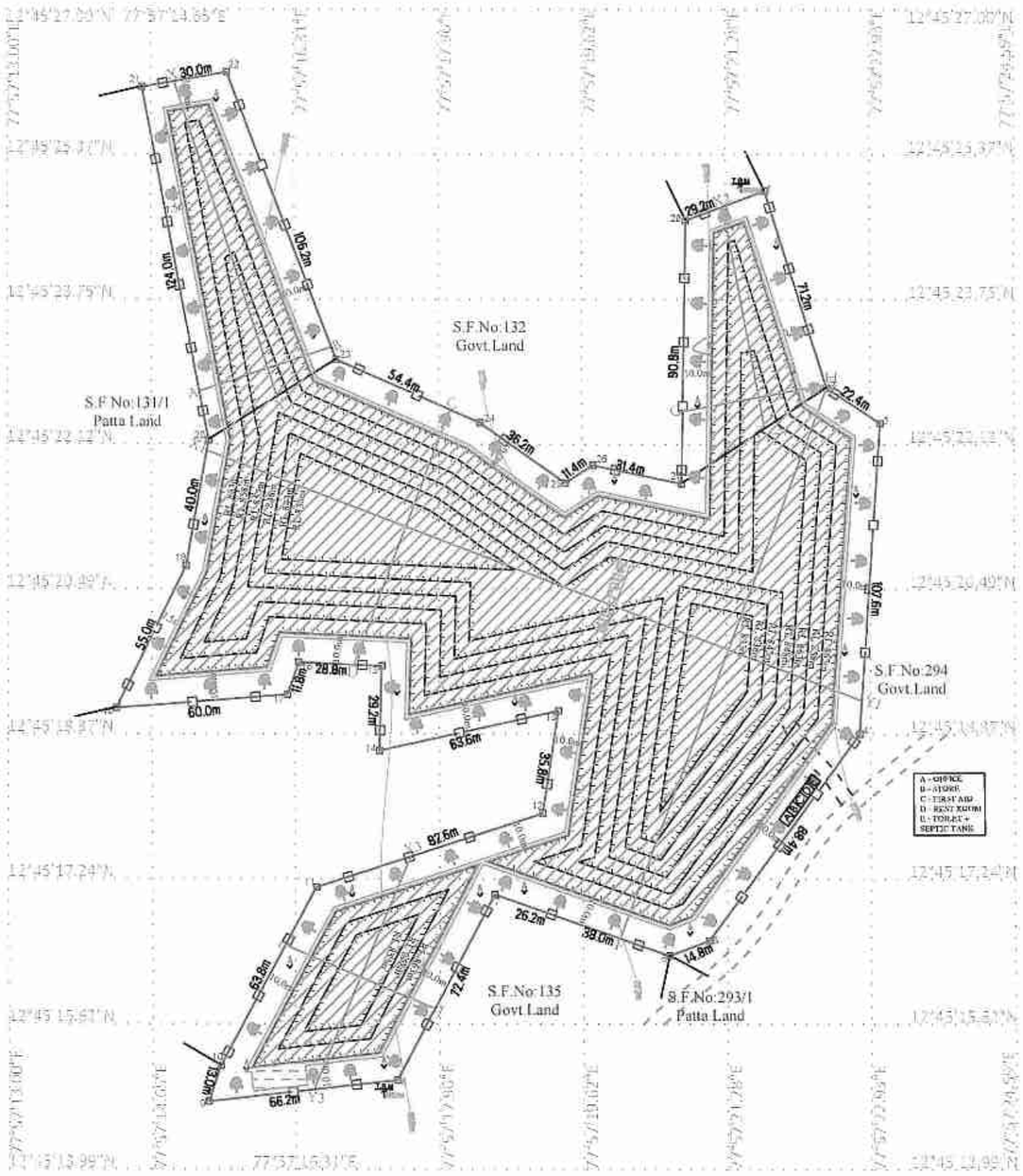

DESCRIPTION	PRESENT AREA (Hect)	AREA IN USE DURING THE QUARRYING PERIOD(Hect)	COLOR CODE
AREA UNDER QUARRYING	NIL	2.95.00	
INFRASTRUCTURE	NIL	0.02.00	ABCDE
ROADS	NIL	0.10.00	
UN-UTILIZED AREA	4.40.00	NIL	...
GREEN BELT	NIL	1.17.00	
SETTLING TANK & DRAINAGE	NIL	0.16.00	
GRAND TOTAL	4.40.00	4.40.00	...

PLATE No- V

APPLICANT:

M/s.ULTRA MINES PRIVATE LIMITED,
No.168/A1, SEETHARAMA NAGAR,
ANANDHA ELECTRICALS,
HOSUR TALUK,
KRISHNAGIRI DISTRICT - 635109.

LEASE APPLIED AREA:

S.F.No	: 133/1 (Part), 133/2, 133/4, 134/1 & 134/2
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VILLAGE	: VENKATESAPURAM
TALUK	: SHOOLAGIRI
DISTRICT	: KRISHNAGIRI

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- BOUNDARY PILLAR STONES
- CONTOUR LINE
- TEMPORARY BENCH MARKS
- GRAVEL & SHRUBS
- OUTCROP
- ROUGH STONE
- FENCING
- PROPOSED BENCH
- SETTLING TANK & DRAINAGE

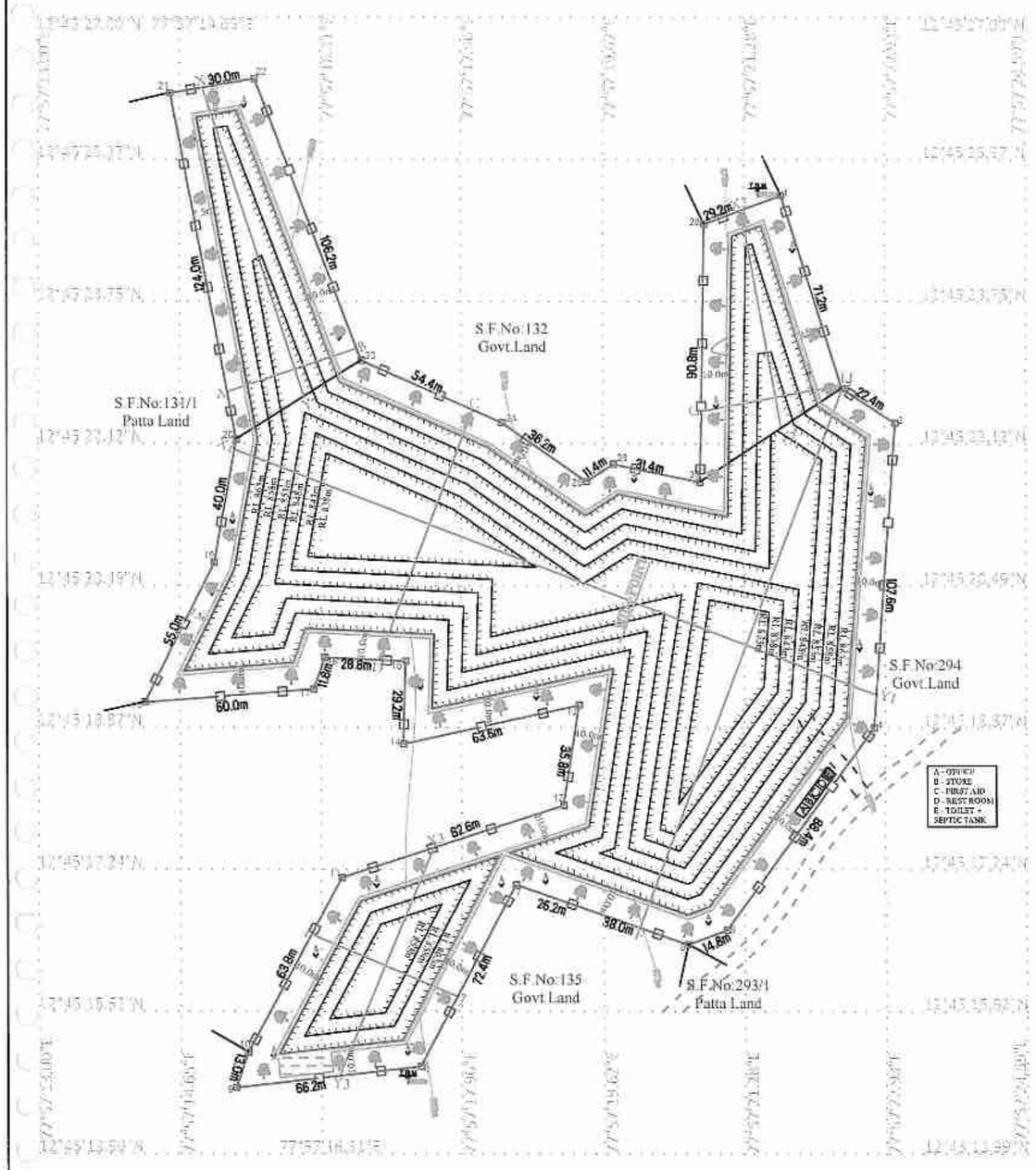
MINE LAYOUT PLAN AND LAND USE PATTERN

SCALE- 1:2000

Prepared By:

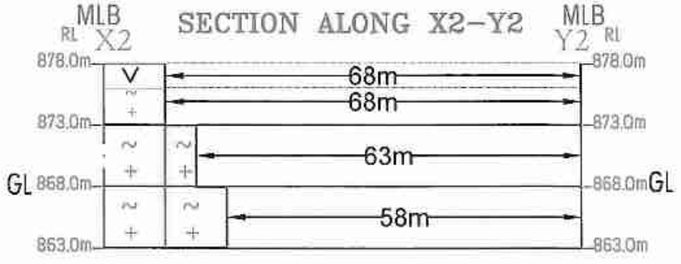
I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

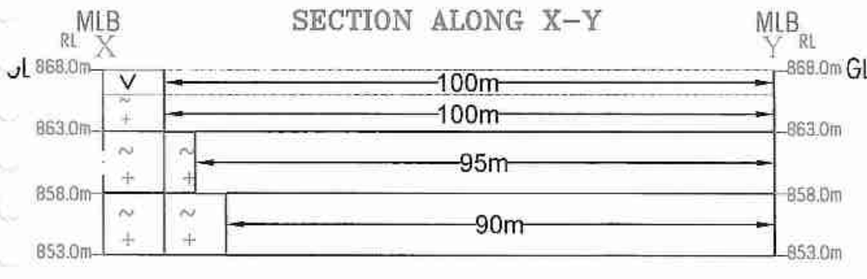
Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
RECOGNIZED QUALIFIED PERSON
RQP/MAS/263/2014/A

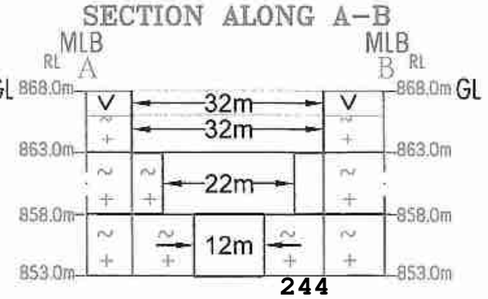


GL = GROUND LEVEL

PRODUCTION RESERVES							
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M^3	Rough Stone in M^3	Gravel in M^3
XY-AB	I	100	32	2	6400	.....	6400
	I	100	32	3	9600	9600	.....
	II	95	22	5	10450	10450	.....
	III	90	12	5	5400	5400	.....
TOTAL				**15**	**31850**	**25450**	**6400**
X1Y1-CD	I	133	74	2	19684	.....	19684
	I	90	54	3	14580	14580	.....
	II	133	69	5	45885	45885	.....
	III	128	59	5	37760	37760	.....
	IV	123	49	5	30135	30135	.....
	V	118	39	5	23010	23010	.....
	VI	113	29	5	16385	16385	.....
	VII	108	19	5	10260	10260	.....
TOTAL				**35**	**197699**	**178015**	**19684**
X1Y1-EF	I	80	175	2	28000	.....	28000
	I	71	136	3	28968	28968	.....
	II	75	170	5	63750	63750	.....
	III	70	160	5	56000	56000	.....
	IV	65	150	5	48750	48750	.....
	V	60	140	5	42000	42000	.....
	VI	55	130	5	35750	35750	.....
	VII	50	120	5	30000	30000	.....
	VIII	45	110	5	24750	24750	
	IX	40	100	5	20000	20000	.....
TOTAL				**45**	**377968**	**349968**	**28000**
X2Y2-GH	I	68	32	2	4352	.....	4352
	I	68	32	3	6528	6528	.....
	II	63	22	5	6930	6930	.....
	III	58	12	5	3480	3480	.....
TOTAL				**15**	**21290**	**16938**	**4352**
X3Y3-IJ	I	65	36	2	4680	.....	4680
	I	65	36	3	7020	7020	.....
	II	55	26	5	7150	7150	.....
	III	45	16	5	3600	3600	.....
TOTAL				**15**	**22450**	**17770**	**4680**
GRAND TOTAL					**651257**	**588141**	**63116**







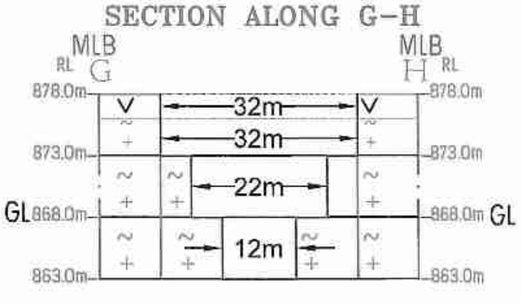


PLATE No-VI

APPLICANT:

M/s.ULTRA MINES PRIVATE LIMITED,
No.168/A1, SEETHARAMA NAGAR,
ANANDHA ELECTRICALS,
HOSUR TALUK,
KRISHNAGIRI DISTRICT - 635109.

LEASE APPLIED AREA:

S.F.No : 133/1 (Part), 133/2, 133/4, 134/1 & 134/2
EXTENT : 4.40.0 Hect
VILLAGE : VENKATESAPURAM
TALUK : SHOOLAGIRI
DISTRICT : KRISHNAGIRI

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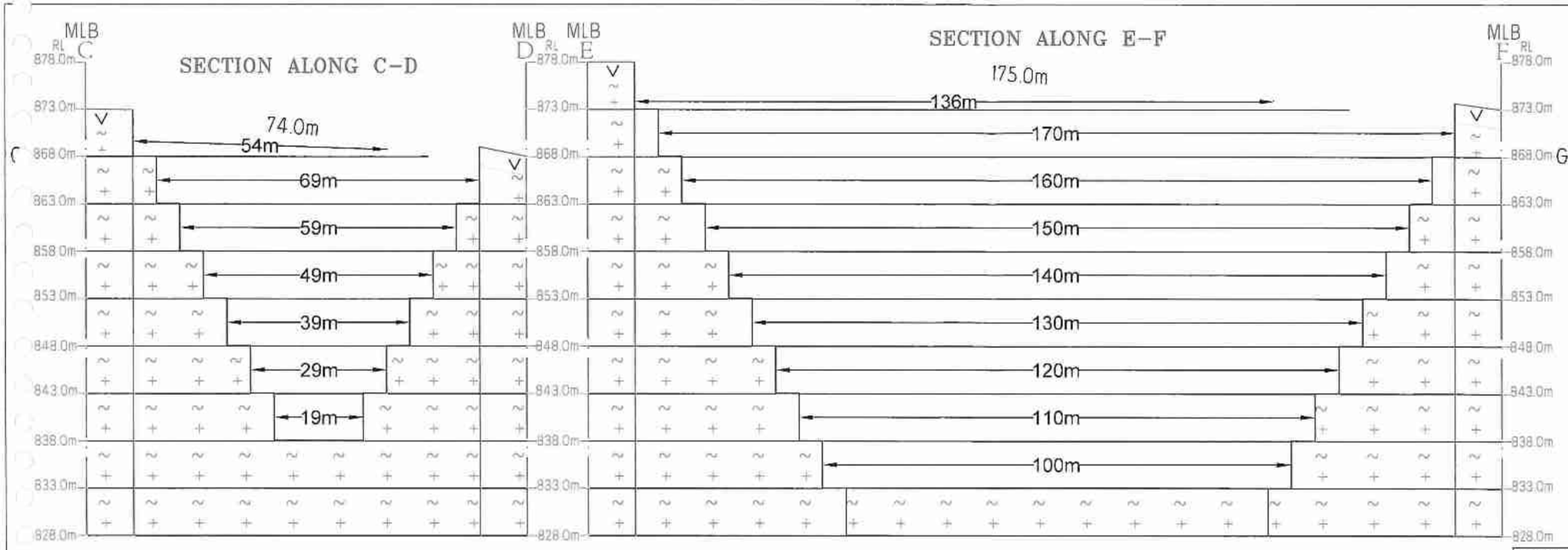
- BOUNDARY PILLAR STONES
- CONTOUR LINE
- TEMPORARY BENCH MARKS
- GRAVEL & SHRUBS
- OUTCROP
- ROUGH STONE
- FENCING
- PROPOSED BENCH
- SETTLING TANK & DRAINAGE

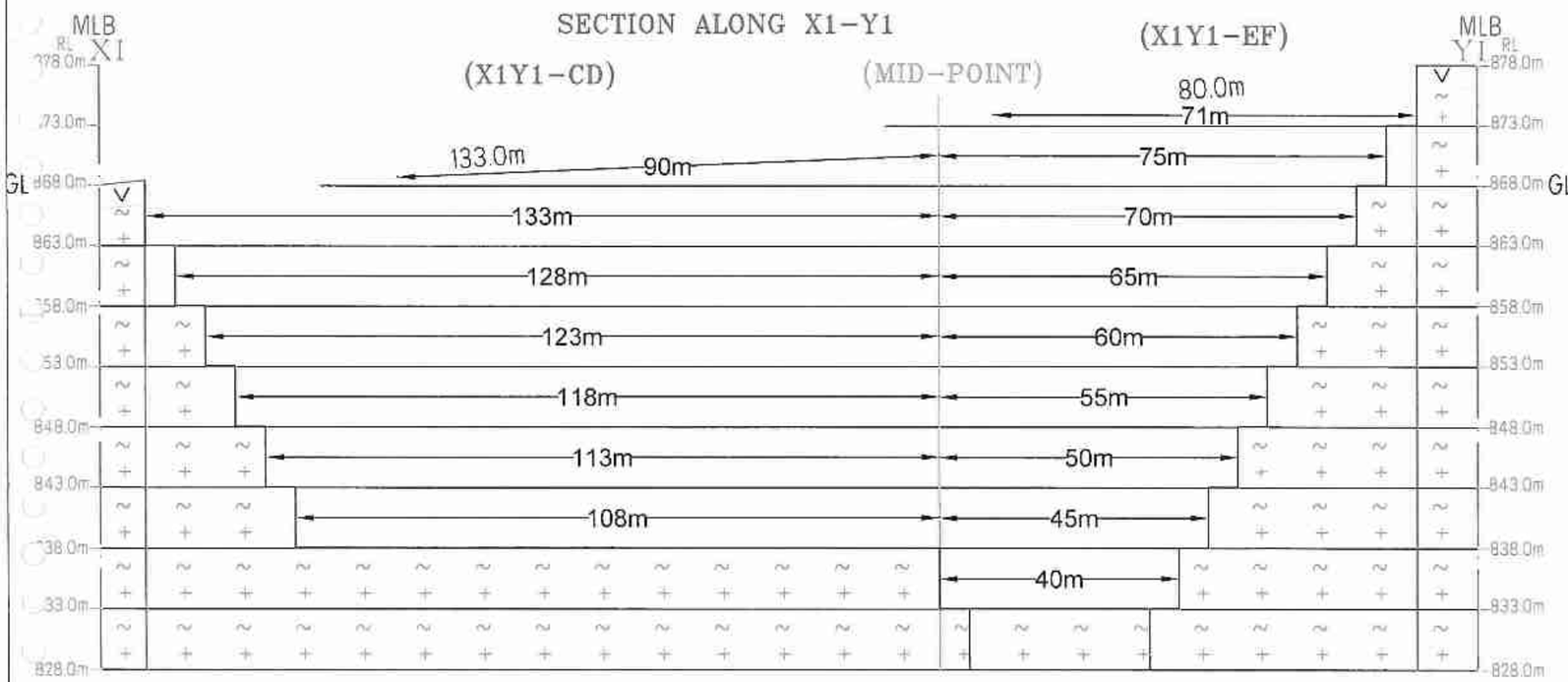
PROGRESSIVE MINE CLOSUER
PLAN & SECTIONS
SCALE 1: 2000
SECTION HOR 1 : 1000 & VER 1: 500

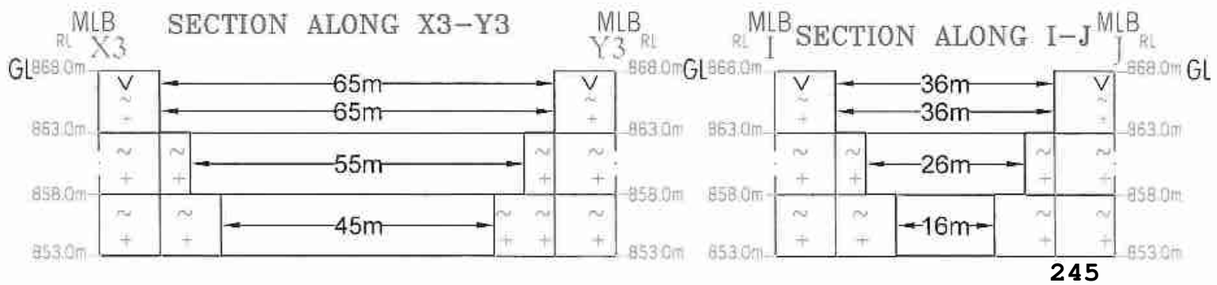
Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
RECOGNIZED QUALIFIED PERSON
RQP/MAS/263/2014/A







GL = GROUND LEVEL

PLATE No-VIA

APPLICANT:
M/s.ULTRA MINES PRIVATE LIMITED,
No.168/A1, SEETHARAMA NAGAR.
ANANDHA ELECTRICALS.
HOSUR TALUK.
KRISHNAGIRI DISTRICT - 635109.

LEASE APPLIED AREA:

S.F.No	: 133/1 (Part), 133/2, 133/4, 134/1 & 134/2
EXTENT	: 4.40.0 Hect
VILLAGE	: VENKATESAPURAM
TALUK	: SHOOLAGIRI
DISTRICT	: KRISHNAGIRI

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- GRAVEL
- ROUGH STONE
- PROPOSED BENCH
- ULTIMATE BENCH

PROGRESSIVE MINE CLOSURE SECTIONS
SECTION HOR 1 : 1000 & VER 1: 500

Prepared By:

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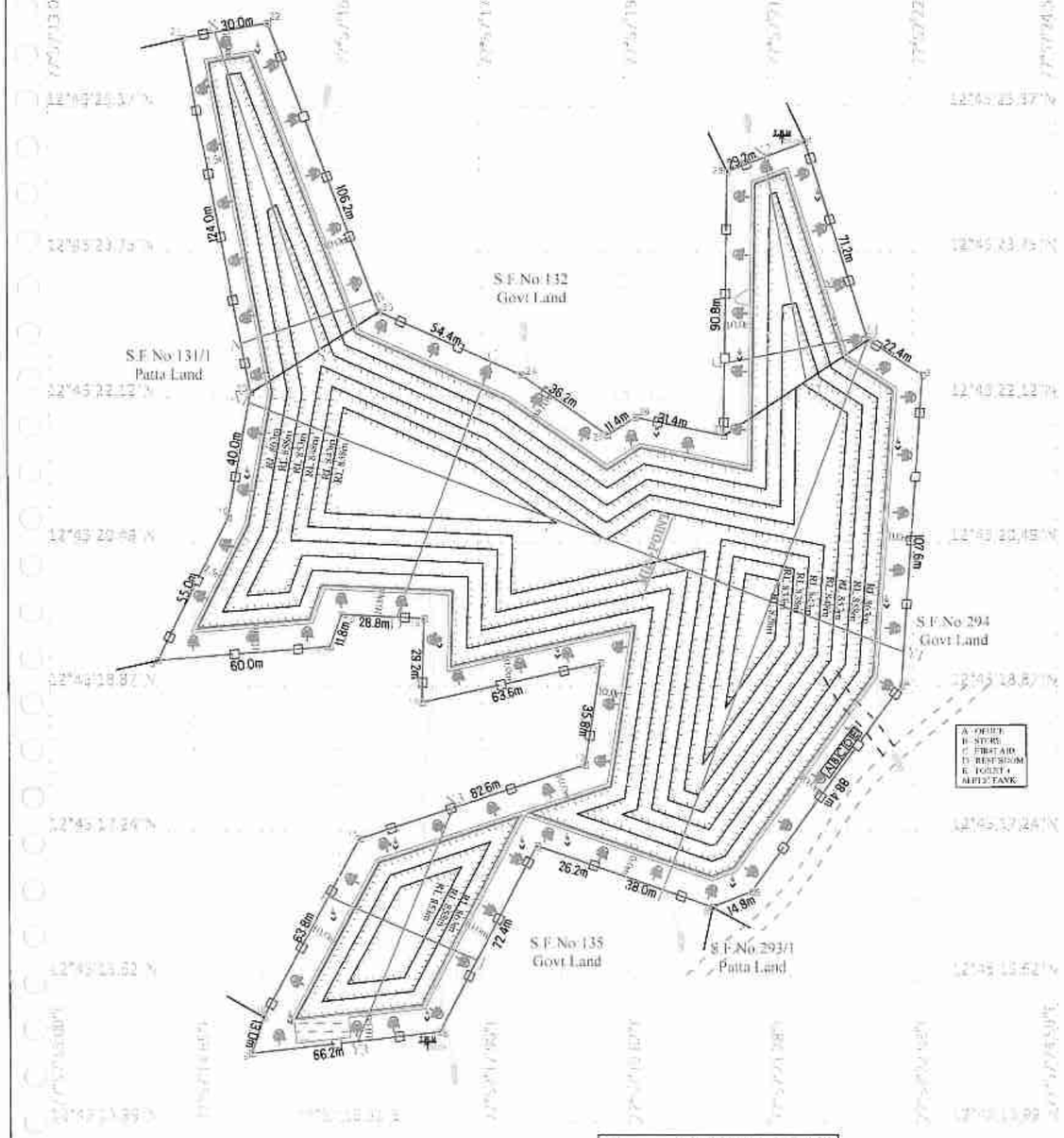
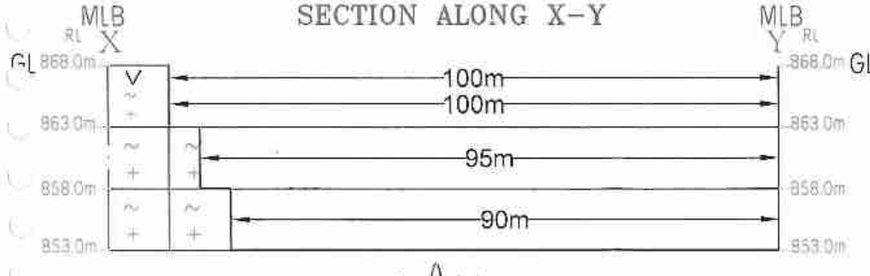
Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
RECOGNIZED QUALIFIED PERSON
RQP/MAS/263/2014/A

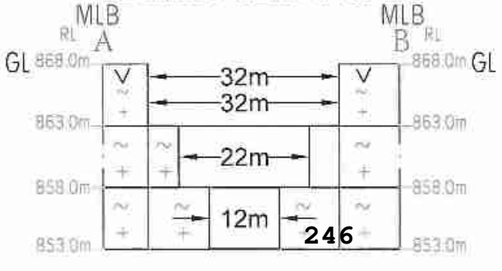


GL = GROUND LEVEL

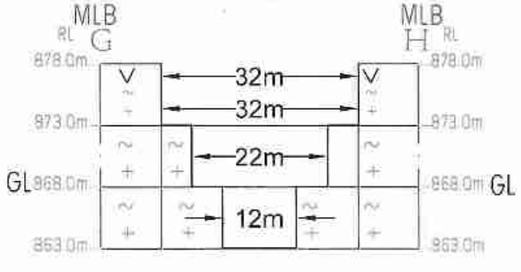
SECTION ALONG X-Y



SECTION ALONG A-B



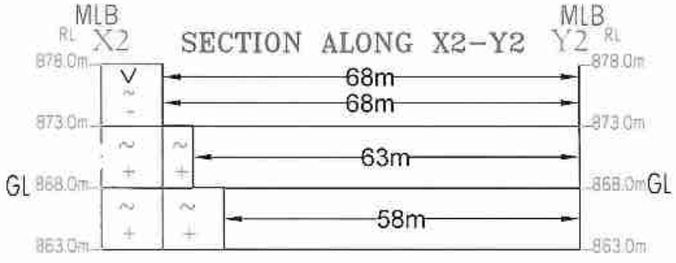
SECTION ALONG G-H



MINEABLE RESERVES

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M^3	Rough Stone in M^3	Gravel in M^3
XY-AB	I	100	32	2	6400	.....	6400
	I	100	32	3	9600	9600	.....
	II	95	22	5	10450	10450	.....
	III	90	12	5	5400	5400	.....
TOTAL				**15**	**31850**	**25450**	**6400**
X1Y1-CD	I	133	74	2	19684	.....	19684
	I	90	54	3	14580	14580	.....
	II	133	69	5	45885	45885	.....
	III	128	59	5	37760	37760	.....
	IV	123	49	5	30135	30135	.....
	V	118	39	5	23010	23010	.....
	VI	113	29	5	16385	16385	.....
	VII	108	19	5	10260	10260	.....
TOTAL				**35**	**197699**	**178015**	**19684**
X1Y1-EF	I	80	175	2	28000	.....	28000
	I	71	136	3	28968	28968	.....
	II	75	170	5	63750	63750	.....
	III	70	160	5	56000	56000	.....
	IV	65	150	5	48750	48750	.....
	V	60	140	5	42000	42000	.....
	VI	55	130	5	35750	35750	.....
	VII	50	120	5	30000	30000	
	VIII	45	110	5	24750	24750	
	IX	40	100	5	20000	20000	.....
	X	30	90	5	13500	13500	.....
TOTAL				**50**	**391468**	**363468**	**28000**
X2Y2-GH	I	68	32	2	4352	.....	4352
	I	68	32	3	6528	6528	.....
	II	63	22	5	6930	6930	.....
	III	58	12	5	3480	3480	.....
TOTAL				**15**	**21290**	**16938**	**4352**
X3Y3-IJ	I	65	36	2	4680	.....	4680
	I	65	36	3	7020	7020	.....
	II	55	26	5	7150	7150	.....
	III	45	16	5	3600	3600	.....
TOTAL				**15**	**22450**	**17770**	**4680**
GRAND TOTAL					**664757**	**601641**	**63116**

SECTION ALONG X2-Y2



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N

PLATE No-VII

APPLICANT:

M/s.ULTRA MINES PRIVATE LIMITED,
No.168/A1, SEETHARAMA NAGAR,
ANANDHA ELECTRICALS,
HOSUR TALUK,
KRISHNAGIRI DISTRICT - 635109.

LEASE APPLIED AREA:

S.F.No : 133/1 (Part), 133/2, 133/4, 134/1 & 134/2
EXTENT : 4.40.0 Hect
VILLAGE : VENKATESAPURAM
TALUK : SHOOLAGIRI
DISTRICT : KRISHNAGIRI

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- FENCING
- ULTIMATE BENCH
- SETTLING TANK & DRAINAGE

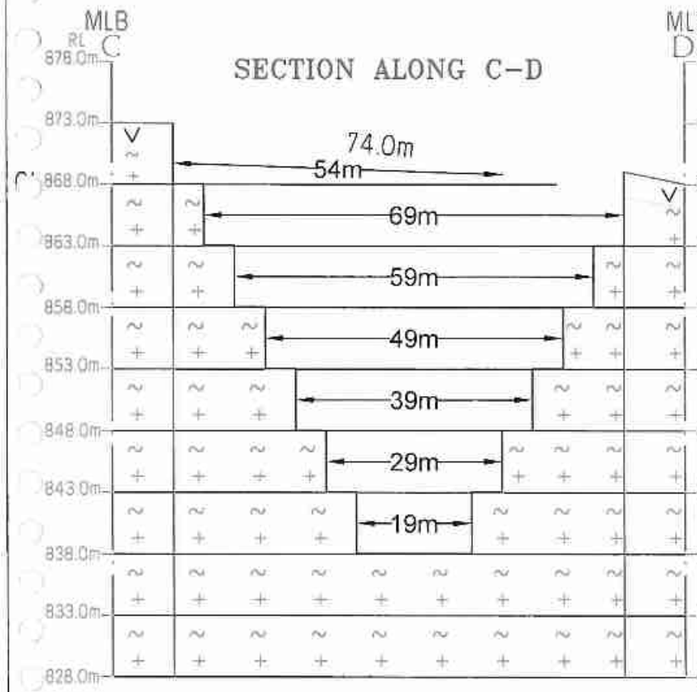
CONCEPTUAL PLAN & SECTIONS
SCALE 1: 2000
SECTION HOR 1 : 1000 & VER 1: 500

Prepared By:

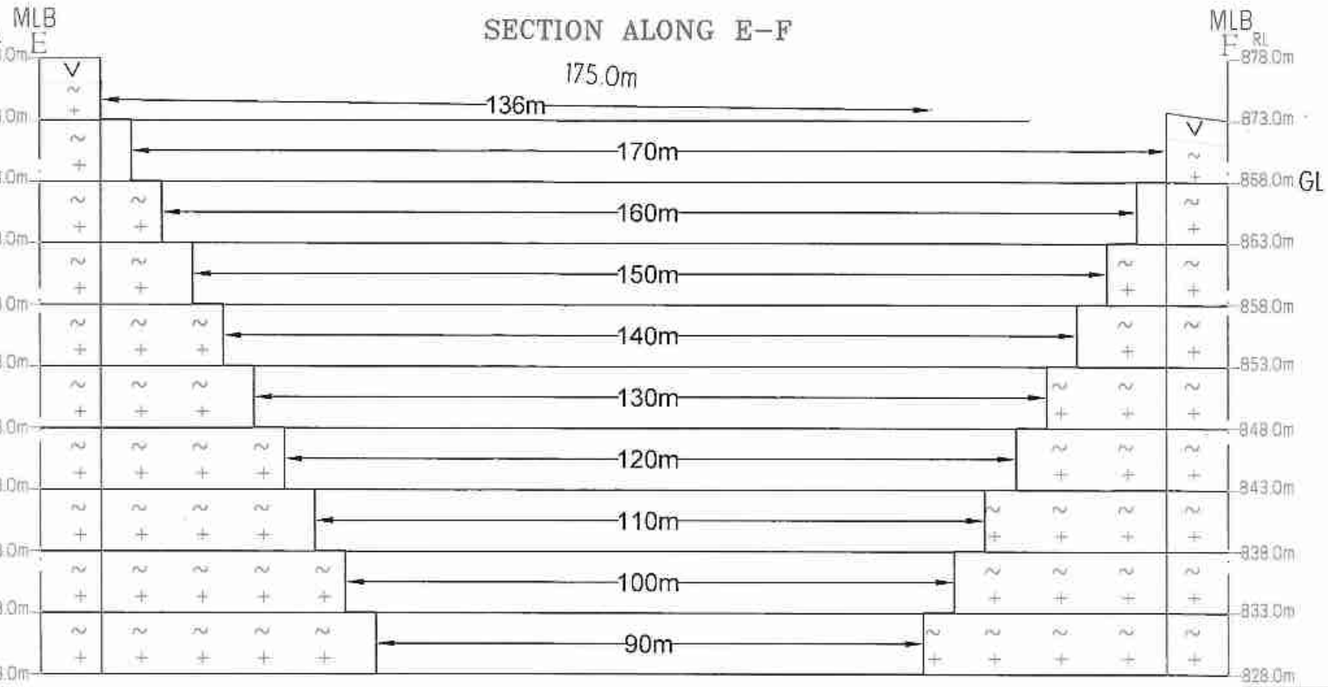
I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
RECOGNIZED QUALIFIED PERSON
RQP/MAS/263/2014/A

SECTION ALONG C–D



SECTION ALONG E–F

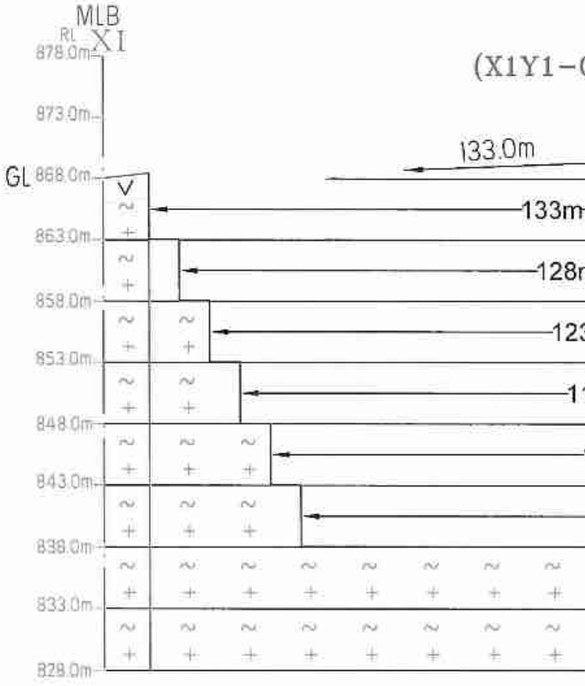


21 MAY 2024

GL = GROUND LEVEL

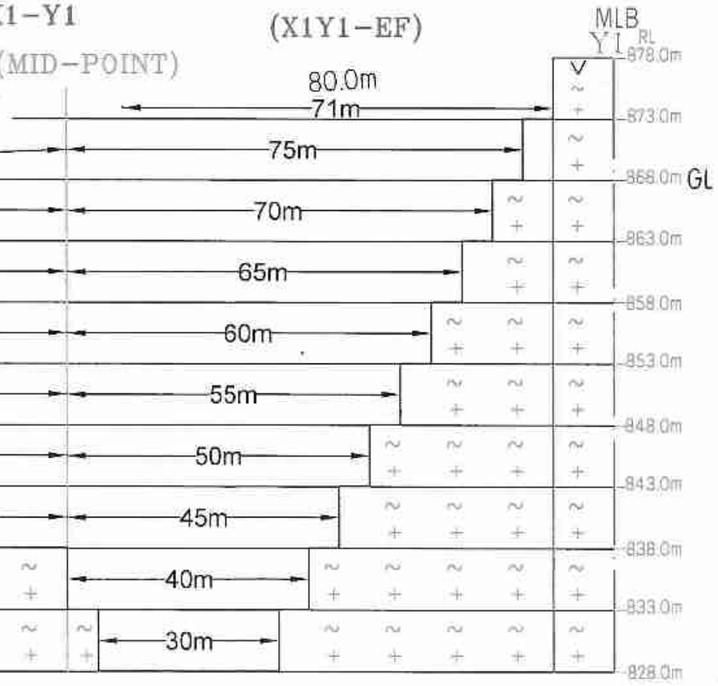
SECTION ALONG X1–Y1

(X1Y1–CD)

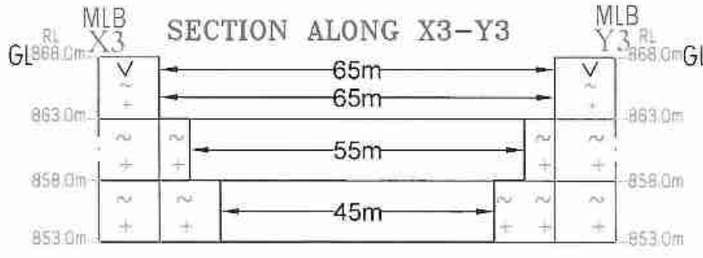


(MID–POINT)

(X1Y1–EF)



SECTION ALONG X3–Y3



SECTION ALONG I–J

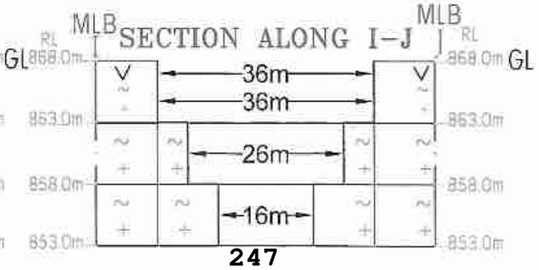


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PLATE No-VIIA

APPLICANT:
M/s.ULTRA MINES PRIVATE LIMITED,
No.168/A1, SEETHARAMA NAGAR,
ANANDHA ELECTRICALS,
HOSUR TALUK,
KRISHNAGIRI DISTRICT - 635109.

LEASE APPLIED AREA:

S.F.No	: 133/1 (Part), 133/2, 133/4, 134/1 & 134/2
EXTENT	: 4.40.0Hect
VILLAGE	: VENKATESAPURAM
TALUK	: SHOOLAGIRI
DISTRICT	: KRISHNAGIRI

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- SAFETY BOUNDARY
- GRAVEL
- ROUGH STONE
- ULTIMATE BENCH

CONCEPTUAL SECTIONS
SECTION HOR 1 : 1000 & VER 1: 500

Prepared By:

I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

Dr.S.KARUPPANNAN,M.Sc.,Ph.D.
RECOGNIZED QUALIFIED PERSON
RQP/MAS/263/2014/A

From

Dr.P.Jayapal,M.Sc.,Ph.D.,
Deputy Director,
Dept of Geology and Mining,
Collectorate,
Krishnagiri.

To

M/s. Ultra Mines Private Limited,
No. 168/A1, Seetharama Nagar,
Ananda Electricals,
Hosur Taluk,
Krishnagiri District - 635109.

Rc.No. 86 /2024/Mines Dated: 21.05.2024.

Sir,

Sub: Mines and Minerals – Minor Mineral - Rough Stone - Krishnagiri District – Shoolagiri Taluk – Venkatesapuram Village- Patta land in S.F.No. 133/1(P) (1.82.0 ha), 133/2 (0.28.00 ha), 133/4 (0.64.00 ha), 134/1 (1.03.00 ha), & 134/2 (0.63.00 ha) over an extent of 4.40.00 ha - Application preferred by M/s. Ultra Mines Private Limited - Draft Mining Plan submitted - Approved - reg.

Ref:
1. Application preferred by M/s. Ultra Mines Private Limited, dated 30.01.2024.
2. This Office Letter No. 86/2024/Mines dated 10.05.2024.
3. Draft Mining plan submitted by M/s. Ultra Mines Private Limited, dated 15.05.2024.

****

Kind attention is invited to the references cited above.

2. M/s. Ultra Mines Private Limited had preferred an application for quarrying Rough stone over an extent of 4.40.00 ha of patta land in S.F.No. 133/1(P) (1.82.0 ha), 133/2 (0.28.00 ha), 133/4 (0.64.00 ha), 134/1 (1.03.00 ha), & 134/2 (0.63.00 ha) in Venkatesapuram Village, Shoolagiri Taluk, Krishangiri District for a period of 10 years under the provisions of Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959. In this regard, the precise area communication was issued to the lessee vide the reference 2nd cited with a direction to submit approved mining plan and Environment Clearance.

3. Accordingly, M/s. Ultra Mines Private Limited has submitted 03 copies of draft Mining Plan vide letter dated 15.05.2024 and the same has been examined in details and it is found correct.

4. As per the mining plan the year wise production for the proposed first five years is given as follows.

Year	Rough Stone (m^3)	Gravel in (m^3)
1st Year	123675	26084
2nd year	109656	32352
3rd year	122520	4680
4th year	130895	0
5th year	101395	0
Total	**588141**	**63116**

5. Hence, the power delegated under Rule 4 of TNMMCR, 1959 and as per the guidelines/instructions issued by the Commissioner of Geology and Mining, vide letter Rc.No.3868/LC/2012 dated 19.11.2012, the said mining plan submitted by the applicant is hereby approved subject to the following conditions.

i) The mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.

ii) This approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of Mines and Minerals Development and Regulation Act, 1957 or any other connected laws including Forest (Conservation) Act, 1957 Forest (Conservation) Act, 1980 Forest Conservation Rules, 1981, Environment protection Act, 1980 Indian Explosive Act, 1884 (Central Act IV of 1884) and the rules made there under and the Tamil Nadu Minor Mineral Concession rules, 1959.

iii) The mining plan is approved without prejudice to any other orders or directions from any court of competent jurisdiction.

iv) All the conditions mentioned in the precise area letter shall be followed during quarry operation as per rules.

v) The applicant shall get prior Environmental clearance from the appropriate authority and shall submit it to the District Collector, Krishnagiri.

vi) Every Mining Plan duly approved under the rule 41(9) of TNMMCR, 1959 shall be valid for a period of five years. Further, the applicant shall review the mining plan and submit the scheme of mining for the next five years of the lease for approval wherever quarrying lease is required beyond 5 years.

vii) If the approved mining plan required modifications within the lease period, the applicant shall carry out such modifications and resubmit the modified mining plan for approval.

21/05/24

Deputy Director,
Dept of Geology and Mining,
Krishnagiri.

21-05-24

Copy submitted to : 1. The Commisssioner,
Dept of Geology and Mining,
Guindy, Chennai -32.

சான்று

கிருஷ்ணகிரி மாவட்டம், ஓசூர் வட்டம், வெங்கடேசபுரம் கிராமம். புல எண்கள்: 133/1, (Part), 133/2, 133/4, 134/1, மற்றும் 134/2, பட்டா நிலமானது மொத்தப் பரப்பு 4.40.0 ஹெக்டேர் கொண்ட நிலம் பட்டா எண்: 1588 & 1589, நிலமானது M/s. ULTRA MINES PVT LTD. என்ற பெயரில் உள்ளது. சாதாரண கற்கள்/ கிராவல் வெட்டி எடுக்க கிரஷர் உரிமம் வழங்க ஆகவும் இடத்திலிருந்து சுமார் 3000 மீ தூரத்தளவில் கிராமம், குடியிருப்புகள், பள்ளிகள், மற்றும் புராதன சின்னங்கள் ஏதுமில்லை எனச் சான்றளிக்கிறேன்.

Village Administrative Officer
123, VENKATESAPURAM
Hosur Tk, Krishnagiri-Dt.