Application Form For Environmental Clearance (Public Hearing)

Application Form
(Form I & Draft EIA Report)
For
Rough stone Quarry – 3.35.0 Ha

at
S.F. No. 63/2(P) in Bargur Village, Bargur Taluk, Krishnagiri District and Tamil Nadu

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

Category of the Project: B1 Cluster Mining

Baseline Period: June, July and August 2021

Environmental Consultant & Laboratory details:

Ecotech Labs Pvt Ltd,

No 48, 2nd Main road,
South extension Ram nagar,
Pallikaranai, Chennai - 600100.

Proponent details:

Thiru.C. Selvan,
S/O. Chinnamaadhu,
No.4/268,
Kumbalapadi, Indur, Nagar
Koodal Village,
Dharmapuri - 636 803
.

Thiru.C. Selvan,

S/O. Chinnamaadhu,

No.4/268, Kumbalapadi, Indur,

Nagar Koodal Village,

Dharmapuri - 636 803.

UNDERTAKING

I, Thiru.C. Selvan, undertaking that the Draft Environmental Impact Assessment (EIA) Report for Rough Stone Quarry over an extent of 3.35.0 Ha at S.No. 63/2(P) of Bargur Village, Bargur Taluk, Krishnagiri District of Tamil Nadu State under project category B1 and Schedule S.No.1(a)

TOR issued by the State Expert Appraisal Committee, TN vide Letter No. SEIAA-TN/F. No. 8529/SEAC/ToR-993/2021 Dated: 28.07.2021.

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

Thiru C. Selvan

Plot No.48A, 2nd Main Road,
Ram Nagar, South Extension,
Pallikkaranai, Chennai - 600 100.
GST NO. 33AADCE6103A2ZH
PAN NO. AADCE6103A

Eco Tech Labs Pvt Ltd

Cell No. 98400 87542
Email : info@ecotechlabs.in
Website : www.ecotechlabs.in
CIN : U74900TN2014PTC094895

UNDERTAKING

I, Dr. A. Dhamodharan, Managing Director confirms that this Draft EIA Report of Rough Stone Quarry over an extent of 3.35.0 Ha at S.No. 63/2(P) of Bargur Village, Bargur Taluk, Krishnagiri District of Tamil Nadu 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/1922/RA 0130

Date: 25.09.2021 Place: Chennai

Declaration of Experts contributing to the EIA

Declaration by experts contributing to the EIA report for Rough Stone Quarry (minor mineral) mining project of Thiru C. Selvan Rough Stone Quarry over a total extent of 3.35.0 Ha at S.No. 63/2(P) of Bargur Village, Bargur Taluk, Krishnagiri District and Tamil Nadu State.

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

Project	Rough Stone Quarry-3.35.0 Ha
Type & Category	1 (a) Mining of Minerals
Project Proponent	Thiru C. Selvan
Environment Consultant with their Accreditation Status	M/s. Eco Tech Labs Pvt. Ltd., QCI Accreditated
NABET Certificate No.	NABET/ EIA/1922/ RA 0130
EIA Coordinator Name **Signature** **Period of Involvement**	Dr. A. Dhamodharan (Mining of Minerals) June to August 2021
Contact Information	**M/s. Eco Tech Labs Pvt. Ltd.** No. 48, 2nd Main Road, Ram Nagar South Extension Pallikaranai, Chennai - 600 100 Mobile: +91 9789906200 E-mail: dhamo@ecotechlabs.in

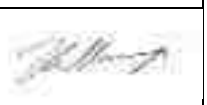
Functional Area Experts

The basic fact division that laboratory are accredited by NABL and Ministry of Environment and Forests, India and by other international bodies, stand testimony to its emphasis.

S. No.	Functional areas	Name of the expert/s	Involvement (Period and task)	Signature and date
1	AP	Mrs. K. Vijayalakshmi	Selection of Baseline Monitoring stations based on the wind direction, Interpretation of Baseline data by comparing it with standards prescribed by CPCB against the type of area. Identification of sources of air pollution and suggesting mitigation measures to minimize impact.	
2	WP	Dr. A. Dhamodharan	Selection of baseline Monitoring Locations for Ground water analysis and also identifying nearest surface to be studied, Preparing water balance for the project based on the anticipated occupancy load. Interpretation of baseline data collected, Identification of impacts based on the baseline.	

3	SHW	Dr. A. Dhamodharan	Identification of nature of solid waste generated, 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, Suggesting suitable mitigation measures by recommending appropriate disposal method for each category of waste generated.	
4	SE	Mr. S. Pandian	Primary data collection through the census questionnaire, Secondary data interpretation from authenticated sources, Impact assessment & proposing suitable mitigation plan. CSR budget allocation	

5	EB	Dr. A. Dhamodharan	Primary data collection through field survey and sheet observation for ecology and biodiversity, Secondary Collection through various authenticated sources, Prediction of anticipated impacts and suggesting appropriate mitigation measures.	
6	HG	Dr. T. P. Natesan	Field survey for assessing regional and local geology, aquifer distribution, water resource evaluation, change in ground water level throughout the year. Determination of groundwater use pattern, development of rainwater harvesting program, estimation of ground water direction.	
7	GEO	Dr. T. P. Natesan	Field survey for assessing regional and local geology, aquifer distribution. Determination of groundwater use pattern, development of rainwater harvesting program.	

8	SC	Dr. A. Dhamodharan	Interpretation of baseline report, Identification of possible impacts on soil, prediction of soil conservation and suggesting suitable mitigation measures.	
9	AQ	Mrs. K. Vijayalakshmi	Collection of Meteorological data for the baseline study period, Plotting wind rose diagram and thereby selecting the monitoring locations based on the wind pattern, estimation of sources of air emissions and air quality modeling is done. Interpretation of the results obtained, Identification of the impacts and suggesting suitable mitigation measures.	
10	N/V	Mr. Vivek Mariappan	Selection of monitoring locations, Interpretation of baseline report, Prediction of impacts due to noise pollution and suggestion of appropriate mitigation measures.	
11	LU	Dr. T. P. Natesan	Preparation of land use, land cover maps for the study area using satellite imagery.	

12	RH	Mr. Pinaki Dasgupta	Identification of the risk and Interpreting consequence contours. Suggesting risk mitigation measures.	

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 S.No. 63/2(P) of Bargur Village, Bargur Taluk, Krishnagiri District and Tamil Nadu State.

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: NABET/EIA/1922/RA 0130 Rev.01

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

1. Project Background:

The Rough stone Quarry project of Thiru C. Selvan is situated at 63/2(P) in Bargur Village, Bargur Taluk, Krishangiri District and Tamil Nadu over an extent of 3.35.0 hectares in Government Poromboke Lands for a period of 5 years.. The proposed project has been accorded with Terms of Reference from SEIAA, Tamil nadu vide Letter No. SEIAA – TN/F.No.8529/SEAC/ToR-993/2021 dated 28.07.2021. The project proponent possesses working lease for mine lease area 3.35.0 Ha for the period of 5 years from the District Collector, Krishnagiri.

The mining plan approval letter issued by The Deputy Director of Geology and Mining, Krishnagiri through letter Roc. No. 221/2019/mines dt. 06.09.2019. The copy of LOI, which enclosed in Annexure–I. The Precise Area Communication Letter No. ROC. No. 211/2019/Mines dated 13.06.2019 issued by District Collector, Krishnagiri.

The quarry operation is proposed to carry out with conventional open cast semi-mechanized mining with a bench height of 7m and bench width of 5m. The quarry operation is proposed up to depth of 43m. The Total Geological reserve is about 1790278M^3 of rough stone. The Mineable Reserves and the Proposed production for five years is 799240 M^3.

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 Wild life protection Act 1972, within the radius of 15km.

2. Nature and Size of the project:

The Rough Stone Quarry over an extent of 3.35.0 Hectares land is located Bargur Village of Bargur Taluk, Krishnagiri District.

Mineral intends to quarry	: Rough stone
District	: Krishnagiri
Taluk	: Bargur
Village	: Bargur
S. F. Nos.	: 63/2 (p)
Extent	: 3.35.0 Hectares

Table 1: Brief Description of the Project

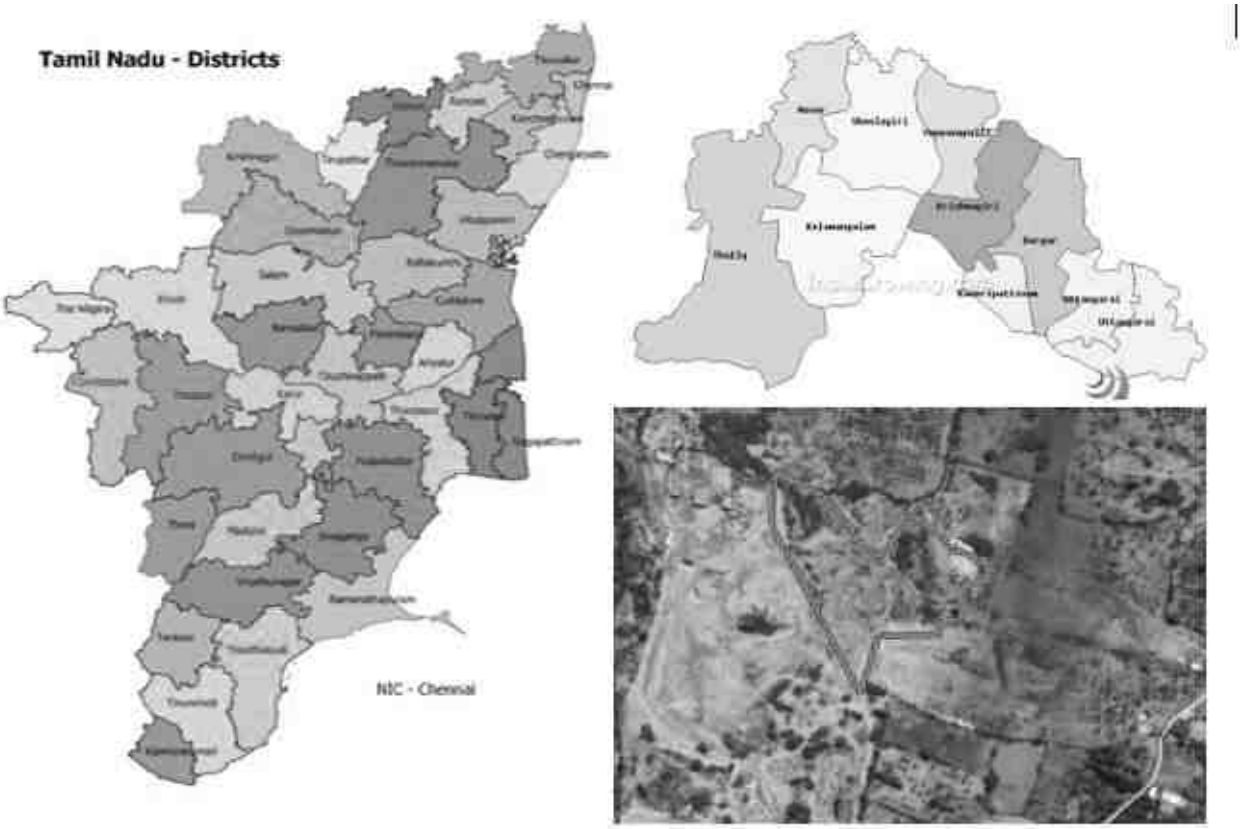
S. No	Particulars	Details
1	Latitude	12° 33' 21.83"N to 12° 33' 31.00"N
2	Longitude	78° 21' 43.58"E to 78° 21' 53.65"E
3	Site Elevation above MSL	493m above MSL
4	Topography	Plain Terrain
5	Land use of the site	Government Poromboke land
6	Extent of lease area	3.35.0 Ha
7	Nearest highway	NH 46 (1km, S)
8	Nearest railway station	Jolarpet (25 km, E)
9	Nearest airport	Bangalore – 112 km
10	Nearest town / city	Town - Burgur – 1 km, S District – Krishnagiri– 16 km, W
11	Rivers / Canal/Lake	❖ Orappam Lake – 10km, SW ❖ Marudapalli Lake – 11 km, SW
12	Reserved Forest / Wild life Sanctuary	➢ Burgur RF -2 km E ➢ Neralakotta RF -2 km N ➢ Varatanapalli RF -4 km W ➢ Nandibanda RF -5 km, NE ➢ Kothur RF - 6km, NNE
13	Seismic Zone	Zone – II [as per IS 1893 (Part-I): 2002]
14	Total Project Cost	Rs. 67,50,000/-

3. Need for the Project

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.

Krishnagiri District is covered with wide range of metamorphic rocks of peninsular gnessic complex. These rock formations occur as massive hillocks all over the district in government lands and patta lands, and extensively weathered formations are overlained by soil / alluvium deposits with an average thickness of 1 to 5mts. Rough stone deposits suitable for the production of Jelly, cut stones and Pillar Stones are available throughout the Krishnagiri District. Rough stones are widely used in this district as building stones, boulders, cut stones and for the production of Jelly, M.Sand, Crusher Dust. The rock products which are produced not only used in the Krishnagiri District alone but also transported to the neighboring districts. These products enter into the market in different parts of the country.



Location of the project site

Google Image of the Project Site

4. Geological Reserves

Table 2. Geological resources

GEOLOGICAL RESERVES								
Section	Bench	L(m)	W (m)	D (m)	Volume In M3	Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m3
XY-AB	I	114	82	1				9348
	II	114	82	7	65436	62164	3272	
	III	114	82	7	65436	62164	3272	
	IV	114	82	7	65436	62164	3272	
	V	114	82	7	65436	62164	3272	
	VI	114	82	7	65436	62164	3272	
	VII	114	82	7	65436	62164	3272	
	VIII	114	82	7	65436	62164	3272	
	IX	114	82	7	65436	62164	3272	
TOTAL					**523488**	**497312**	**26176**	**9348**
XY-CD	I	15	1	1				15
	II	15	1	7	105	100	5	
	III	15	1	7	105	100	5	
	IV	135	86	7	81270	77207	4063	
	V	135	86	7	81270	77207	4063	
	VI	135	86	7	81270	77207	4063	

	VII	135	86	7	81270	77207	4063	
	VIII	135	86	7	81270	77207	4063	
	IX	135	86	7	81270	77207	4063	
TOTAL					**487830**	**463442**	**24388**	**15**
X1Y1-CD	I	130	107	1				13910
	II	130	107	7	97370	92502	4868	
	III	130	107	7	97370	92502	4868	
	IV	130	107	7	97370	92502	4868	
	V	130	107	7	97370	92502	4868	
	VI	130	107	7	97370	92502	4868	
	VII	130	107	7	97370	92502	4868	
	VIII	130	107	7	97370	92502	4868	
	IX	130	107	7	97370	92502	4868	
TOTAL					**778960**	**740016**	**38944**	**13910**
GRAND TOTAL					**1790278**	**1700770**	**89508**	**23273**

5. Mineable Resources

Table 3 : Mineable Reserves

MINEABLE RESERVES								
Section	Bench	L(m)	W(m)	D(m)	Volume In M3	Mineable Rough stone Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m3
XY-AB	I	107	75	1				8025
	II	106	74	7	54908	52163	2745	
	III	101	69	7	48783	46344	2439	
	IV	96	64	7	43008	40858	2150	
	V	91	59	7	37583	35704	1879	
	VI	86	54	7	32508	30883	1625	
	VII	81	49	7	27783	26394	1389	
TOTAL					**244573**	**232346**	**12277**	**8025**
XY-CD	IV	120	86	7	72240	68628	3612	
	V	115	86	7	69230	65769	3461	
	VI	110	86	7	66220	62909	3311	
	VII	105	86	7	63210	60050	3160	
TOTAL					**270900**	**257356**	**13544**	
X1Y1-	I	115	100	1				11500

CD	II	113	99	7	78309	74394	3915	
	III	103	94	7	67774	64385	3389	
	IV	93	89	7	57939	55042	2897	
	V	83	84	7	48804	46364	2440	
	VI	73	79	7	40369	38351	2018	
	VII	63	74	7	32634	31002	1632	
TOTAL					**325829**	**309538**	**16291**	**11500**
GRAND TOTAL					**841302**	**799240**	**42062**	**19525**

6. Year wise production

Table 4 : Year wise Production

YEARWISE DEVELOPMENT AND PRODUCTION								
Section	Bench	L (m)	W (m)	D (m)	Volume In M3	Rough stone Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m3
I YEAR	I	107	75	1				8025
	II	106	74	7	54908	52163	2745	
	III	101	69	7	48783	46344	2439	
	I	115	100	1				11500
	II	113	99	7	78309	74394	3915	
	III	103	94	7	67774	64385	3389	
TOTAL					**249774**	**237286**	**12488**	**19525**
II YEAR	IV	96	64	7	43008	40858	2150	
	IV	120	86	7	72240	68628	3612	
	IV	93	89	7	57939	55042	2897	
TOTAL					**173187**	**164528**	**8659**	
III YEAR	V	91	59	7	37583	35704	1879	
	V	115	86	7	69230	65769	3461	
	V	83	84	7	48804	46364	2440	
TOTAL					**155617**	**147837**	**7780**	
IV YEAR	VI	86	54	7	32508	30883	1625	
	VI	110	86	7	66220	62909	3311	
	VI	73	79	7	40369	38351	2018	
TOTAL					**139097**	**132143**	**6954**	
V YEA	VII	81	49	7	27783	26394	1389	
	VII	105	86	7	63210	60050	3160	

R	VII	63	74	7	32634	31002	1632	
TOTAL					**123627**	**117446**	**6181**	
GRAND TOTAL					**841302**	**799240**	**42062**	**19525**

7. Topography:

The area applied for quarry lease is almost plain area sloping towards southern covered with Rough Stone which does not sustain any type of vegetation. The altitude of the area is 493m above MSL. No major river is found nearby the lease area.

8. Opencast Mines - Salient Features of Mode of working-:

Opencast method of semi mechanized mining is adopted to extract Rough Stone. Machineries like Tractor mounted compressor attached with Jack hammers is being used to drilling and Proposed Control Blasting. Excavators are operated for quarrying of Rough Stone and Tippers / Lorries are used for transportation of Rough Stone to the destination.

9. Top Soil

This area is covered 1.0m Top Soil in this mine area 19525m3. Topsoil formation will be removed and dumped in North, East and Southern side of the 7.5m Boundary Barrier of the lease area. And Party used for Plantation Purposes.

Proposed Dump Dimensions:
(664.4m(L)X7.5m(W)X3.91m(H)=19525m^3)

10. Water Requirement

Table 5: Water Requirement

Purpose	**Quantity**	**Sources**
Drinking Water	0.5KLD	Packaged Drinking water vendors available in Emakalnatham which is about 1.0 Km North of the area.
Green belt	1.0 KLD	Other domestic activities through road tankers supply
Dust suppression	1.0 kLD	From road tankers supply
Total	**2.5 KLD**	

11. Land Use Pattern Details

The details of land area indicating the area likely to be degraded due to mining will be as under: -

Table 6: Land use Pattern

Sl. No.	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)
1.	Area under quarrying	1.08.0	2.86.0
2.	Infrastructure	Nil	0.01.0
3.	Roads	0.01.0	0.01.0
4.	Green Belt	Nil	0.47.0
5.	Unutilized	2.26.0	Nil
	Total =	**3.35.0Ha**	**3.35.0Ha**

12. Manpower:

The total number of employees including skilled and un-skilled workers is 13which include workers for mine and ancillary unit. The details of the staff and workmen employed in the mine are given below:-

Table 7: Team of Quarry Operation

1.	Skilled	Operator	2 No.
		Mechanic	1 No.
		Blaster/Mat	1 No.
2.	Semi – skilled	Driver	2 Nos
3.	Unskilled	Musdoor / Labours	5 Nos
		Cleaners	3Nos
		Office Boy	1No
4.	Management & Supervisory staff		3No.
	Total =		18Nos

13. Solid Waste Management

Table 8 Solid Waste Management

S. No	Type	Quantity	Disposal Method

1	Organic	3.96 kg/day	Municipal bin including food waste
2	Inorganic	5.94 kg/day	TNPCB authorized recyclers

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

Table 9: Quarry within 500m Radius

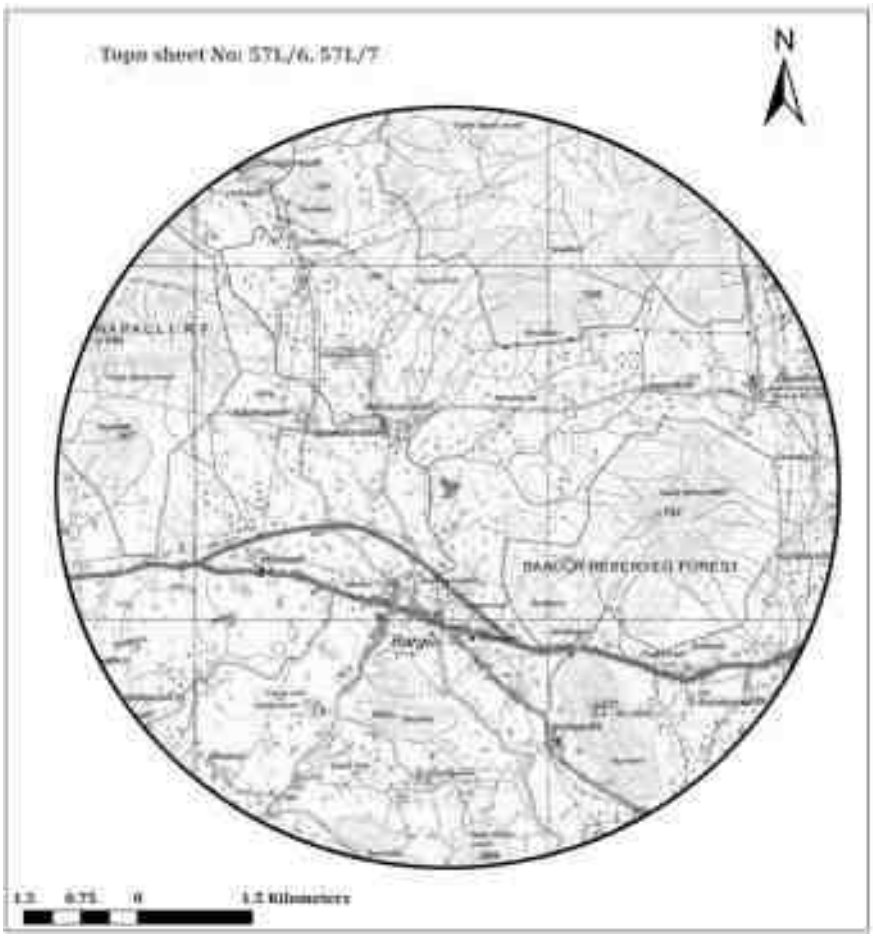
S. No.	Quarry detail	Village	S.F No	Extent (Ha)	G.O. No. & Date	Lease period
I. Existing Quarry						
1	Thiru N. Arumugam, S/o. Nallamuthu, D.No. 345 East Street, Maruvathur peralli (South), Perambalur District.	Bargur Village	63 (part – B)	4.44.0	Roc. No. 174/2018/Mines dated 27.11.2018	27.11.2018 to 26.11.2028
II. Abandoned Quarry						
NIL						
III. Proposed Quarry						
5	Thiru C. Selvam, S/o. Chinnamadhu, D.No. 4/268 Kumbalapadi Village,indur Post, Dharmapuri Dt.	Bargur	63/2 (Part)	3.35.0	Roc. No. 211/ 2019/mines Dt. 13.06.2019	Instant Proposal
Total				**7.79.0**		

13. Scope of the Baseline Study

The 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 : 19 ^{0}C

ii) Average Maximum Temperature. : 38 ^{0}C

iii) Average Annual Rainfall of the area : 616 mm

13.2 Air Environment

Ambient air monitoring was carried out on 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 10km radius, air quality survey has been conducted at 6 locations over a period of June - August 2021. Major air pollutants like, Particulate Matter (PM_{10}), Sulphur Dioxide (SO_2), NitrogenDioxide (NO_2) were monitored and the results are summarized below,

The baseline levels of PM10 (50-71 μg/m³), PM2.5 (20-29 μg/m³), SO_2 (5-10 μg/m³), NO2 (14 -24 μg/m³), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from June - August 2021.

13.3 Noise Environment

Ambient noise levels were measured at 6 locations around the proposed project site. Noise level varies from 45.0 to 54 dB(A) during day time and 35-44 dB(A) during night time. Maximum noise level were recorded at both project site and Gandhinagar (54 dBA) during day time.

13.4 Water Environment

During the study period ground water samples were collected at 6 locations

The analysis results indicate that the pH ranged between 7.1 to 7.7, which are well within the specified standard of 7.3 to 8.0 limit. Total hardness was recorded to range from 440 to 720 mg/l, which is within the permissible limit 600 mg/l at all locations. The Total Dissolved Solids (TDS) concentration recorded ranged between 923 to 1495 mg/l and was within the permissible limits (2000 mg/l) at all locations.

13.5 Land Environment

- pH is 7.32 which indicates soil is neutral.
- EC of soil is 0.013 mS/cm
- Organic matter in soil is 0.89%, The concentration of Nitrogen, Phosphorus & Potassium has been found to be in good amount in the soil samples.

13.6 Biological Environment

The Mining lease area is plain terrain and species observed in the study area, there is no extinct flora and fauna species found in the study area.

13.7 Socio Economic Environment

Krishnagiri district is bounded by Vellore and Tiruvannamalai districts in the East, Karnataka state in the west, State of Andhra Pradesh in the North Dharmapuri District in the south. Its area is 5143 Sq. Kms. This district is elevated from 300m to 1400m above the mean sea level. It is located between 11º 12'N to 12º 49'N Latitude,77º 27'E to 78º 38'E Longitude.

14. Rehabilitation/ Resettlement

- The overall land of the mine is Government poromboke land. There are 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 around 500m radius. Hence the mining activity does not involve any displacement of human settlement.

15. Greenbelt Development

- The development of greenbelt will be done in the peripheral buffer zone of the mine area.
- 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.
- Local trees like, Elamji, Vettithali and Poovam etc will be planted along the south side lease boundary and avenues as well as over Non-active dumps at a rate of 45 trees per annum with interval 5m .
- The rate of survival expected to be 80% in this area.

16. Anticipated Environmental Impacts

16.1 Air Environment and Mitigation Measures

- Water sprinkling will be done on the roads & unpaved roads.
- Proper mitigation measures like water sprinkling will be adopted to control dust emissions.
- Plantation will be carried out on approach roads & nearby mine premises.
- To control the emissions regular preventive maintenance of equipments will be carried out.

16.2 Noise Environment and Mitigation Measures

- Periodical monitoring of ambient noise will be done as per CPCB guidelines.
- No other equipment except the transportation vehicles and excavator for loading will be allowed.
- 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 Central Pollution Control Board (CPCB), shall be maintained.

19. Project Cost

The total project cost is **Rs.67, 50,000/-** including land cost and deployment of machinery and creation of infrastructural facilities like approach road, Mine office / Workers Shed, First Aid Room etc, electrifications and water supply.

Table 10: Project Cost

S.No.	**Description**	**Cost (Rs)**
1.	Land Cost	44,00,000
2.	Operational cost	20,00,000
3.	EMP Cost (Drinking water facility for Labourer, Safety kits, Water sprinkling, Afforestation, Plantation & Maintenance)	3,50,000
Total		67,50,000

20. Corporate Social Responsibility

The following Corporate Environment Responsibility (CER) activities before the commencement of the quarrying activities.

Table 11: Corporate Environment Responsibility

S.No.	**CER Activity**	**CER 2% of the project cost (Rs in Crores)**
1.	Developing the library, sports/Drinking water facilities in nearby school	1,35, 000
Total		**Rs. 1,35,000**

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.

ToR

TMT. P. RAJESWARI, I.F.S.,
MEMBER SECRETARY

STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY – TAMIL NADU
3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai-15.
Phone No. 044-24359973
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr No.SEIAA-TN/F.No.8529/SEAC/ToR- 993/2021 Dated: 28.07.2021

To

Thiru.C.Selvan
S/o.Chinnamaadhu
No.4/268, Kumbalapadi,Indur
Nagar Koodal Village
Dharmapuri-636803

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the Proposed Rough Stone Quarry lease over an extent of 3.35.0Ha in S.F.Nos.63/2 (Part) of Bargur Village, Bargur Taluk, Krishnagiri District, Tamil Nadu by Thiru.C.Selvan under project category – "B1" and Schedule S.No. 1(a) – ToR issued along with Public Hearing- preparation of EIA report –Regarding.

Ref: 1. Online proposal No.SIA/TN/MIN/62678/2021, dated: 14.04.2021
2. Your application submitted for Terms of Reference dated: 20.04.2021.
3. Minutes of the 215th SEAC Meeting held on 29.06.2021
4. Minutes of the 448th SEIAA Meeting held on 23.07.2021.

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

The proponent, Thiru.C.Selvan has submitted application for ToR with public Hearing on 20.04.2021, in Form-I, Pre- Feasibility report for the Proposed Rough Stone Quarry lease over an extent of 3.35.0Ha in S.F.Nos.63/2 (Part) of Bargur Village, Bargur Taluk, Krishnagiri District, Tamil Nadu.

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Discussion by SEAC and the Remarks:-

The proposal was placed for appraisal in this 215th meeting of SEAC held on 29.06.2021. Based on the presentation and documents furnished by the project proponent, SEAC decided to recommend the proposal for the grant of Terms of Reference (ToR) with Public Hearing, and also to make on the spot site inspection to access the field conditions, subject to the following specific ToR in addition to the standard terms of reference for EIA study for non-coal mining projects and details issued by the MoEF& CC to be included in EIA/EMP report:

1. Restricting the maximum depth of mining to 43m considering the environmental impacts due to the mining, safety of the working personnel and following the principle of the sustainable mining and consequently the maximum minable quantities of 799240cu.m of Rough stone are permitted for mining over five years.
2. A bench height of 5m needs to be maintained as per the approved mining plan considering the hydro-geological regime of the surrounding area as well as for safe mining.
3. There are many water bodies present within present within 500m and 1km and hence impact study shall be conducted considering those water bodies.
4. The cumulative impact analysis due to emission from the source and the fugitive emission due to mining as well as transport of minerals needs to be assessed and the report may be submitted.
5. During EIA presentation the maximum depth in adjacent mines should be given. Considering the data on all cluster mines the impact study shall be conducted.
6. The Project Proponent shall furnish the contour map of the water table detailing the number of wells located around the site and its impacts on the wells due to mining activity.
7. The Project Proponent shall conduct the hydro-geological study to evaluate the impact of proposed mining activity on the groundwater table, agriculture activity, and water bodies such as rivers, tanks, canals, ponds etc. located nearby by the proposed mining area.
8. The Project Proponent shall furnish the details on the number of groundwater pumping and open wells within 1 km (radius) along with the water levels in both monsoon and non-monsoon seasons. The proponent also shall collect the data of water table level from the PWD / TWAD in this area in both monsoon and non- monsoon seasons.

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9. The Proponent shall carry out the Cumulative impact study on the Agricultural area due to Mining, Crushers and other activities around the site area.
10. The details of surrounding well and the assessment of cumulative impact on the groundwater due to mining shall be the part of EIA study.
11. The Socio-economic study should be carried out within a 10 km buffer zone from the mines.
12. A tree survey study shall be carried out (number, variety name of the species, ageetc.,) in the mining lease applied area and its management during mining activity.
13. CER activities should be carried out taking into consideration the requirement of the local habitants available within the buffer zone as per Office Memorandum ofMoEF& CC.
14. A detailed mine closure plan for the proposed project shall be submitted.
15. A detailed report on the safety and health aspects of the workers and for the surrounding habitations during operation of mining for drilling and blasting shallbe submitted.
16. The recommendation for the issue of "Terms of Reference" is subjected to the outcome of the Hon'ble NGT, Principal Bench, New Delhi in O.A.No.186 of 2016 (M.A.No.350/2016) and O.A. No.200/2016 and O.A.No.580/2016 (M.A.No.1182/2016) and O.A.No.102/2017 and O.A.No.404/2016 (M.A.No.758/2016, M.A.No.920/2016, M.A.No.1122/2016, M.A.No.12/2017 & M.A.No.843/2017) and O.A.No.405/2016 and O.A.No.520 of 2016 (M.A.No.981/2016, M.A.No.982/2016 & M.A.No.384/2017).
17. A detailed study of the lithology of the mining lease area shall be furnished.
18. The project proponent shall furnish the details of the existing Green belt area earmarked with GPS coordinates and list of trees planted with a copy of photos/documents, and be included in the EIA Report.

Discussion by SEIAA and the Remarks:-

The proposal was placed in 448th meeting of SEIAA held on 23.07.2021. After detailed discussions, the Authority unanimously accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment

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Management Plan subject to the conditions as recommended by SEAC & normal condition in addition to the following conditions:

1. As per the recommendation of SEAC, the Permitted ultimate depth of mining to 43m considering the environmental impacts due to the mining, safety of the working personnel and following the principle of the sustainable mining and consequently the maximum minable quantities of 799240cu.m of Rough stone are permitted for mining over five years.
2. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.

A. STANDARD TERMS OF REFERENCE

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

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whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.

7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.

8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.

9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.

10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.

11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.

12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.

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13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.

14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.

15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.

16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.

17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.

18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.

19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.

20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized

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agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).

21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.

22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.

23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.

24) The water requirement for the Project, its availability and source should be furnished. A

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detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.

25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.

26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.

27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.

28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.

29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.

30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.

31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.

32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including

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those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.

33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.

34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.

35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.

36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.

37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.

38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.

39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.

40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.

41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.

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42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.

43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.

44) Besides the above, the below mentioned general points are also to be followed:-

a) Executive Summary of the EIA/EMP Report

b) All documents to be properly referenced with index and continuous page numbering.

c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.

d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.

e) Where the documents provided are in a language other than English, an English translation should be provided.

f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.

g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.

h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.

i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.

j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and

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sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

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

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

1. Project name and location (Village, District, State, Industrial Estate (if applicable).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.

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17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of is acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest , eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

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

a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.

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b. All documents may be properly referenced with index, page numbers and continuous page numbering.

c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.

d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.

e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website http://www.moef.nic.in/ may be referred.

- After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
- The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
- The TOR 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.

MEMBER SECRETARY
SEIAA-TN

Copy to:

1. The Principal Secretary to Government, Environment & Forests Department, Govt. of Tamil Nadu, Fort St. George, Chennai - 9
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD Cum-Office Complex, East Arjun Nagar, New Delhi 110032.

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3. The Member Secretary, Tamil Nadu Pollution Control Board,
   76, Mount Salai, Guindy, Chennai-600 032.
4. The APCCF (C), Regional Office, MoEF & CC (SZ), 34, HEPC Building, 1st & 2nd Floor, Cathedral Garden Road, Nungambakkam, Chennai -34.
5. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC,
   Paryavaran Bhavan, CGO Complex, New Delhi 110003
6. The District Collector, Krishnagiri District.
7. Stock File.

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ToR COMPLIANCE

COMPLIANCE OF TOR CONDITIONS

Point wise compliance of TOR points issued by SEIAA,TN vide letter No. SEIAA-TN /F.No.8529/SEAC/TOR-993/2021 Dated 28.07.2021 for Mining of Minor Minerals in the Mine of "Proposed Rough stone Quarry Over an Extent of 3.35.0 Ha in S.No. 63/2(P) in Bargur Village, Bargur Taluk, Krishangiri District and Tamil Nadu.

ToR Ref.	Description	Response	Page Ref. in EIA Report
1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification, 1994 came into force w.r.t. the highest production achieved prior to 1994.	This is a fresh mining project of Proposed Rough stone and Gravel quarry The Proponent has obtained Precise area communication Letter No. Na.Ka.No. 211/2019/Kanimam dated 06th September 2019 issued by District Collector, Krishnagiri. Mining plan was approved by Deputy Director, Geology and Mining, Krishnagiri with Letter Roc.No.221/2019, dated 06.09.2019 was issued. Proposed Production of Rough Stone for five years is proposed in the EIA/EMP in chapter no-2.	Annexure-II Chapter-2
2.	A copy of document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	The mine lease area of 3.35.0 hectare in Bargur Village for Rough stone quarry approved by Deputy Director,	Annexure-II

		Geology and Mining, Krishnagiri with Letter Roc.No.221/2019, dated 06.09.2019	
3	All documents including approved mine plan, EIA and public hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management and mining technology and should be in the name of the lessee.	All the documents i.e. Mining Plan, EIA, and public hearing is compatible with each other in terms of ML area production levels, waste generation and its management and mining technology are compatible with one another. The mining plan of the project site is recommended to The Deputy Director, Geology and Mining, Krishnagiri District.	Annexure-III Chapter-II
4	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery /toposheet 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).	Details of coordinates of all corners of proposed mining lease area have been incorporated in Chapter 2 of EIA/ EMP Report.	Chapter-2, Fig no. 2.1
5	Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, important water bodies, streams and rivers and soil characteristics	Topo map as attached in Chapter-2	Chapter-2, Fig no. 2.3

6.	Details about the land proposed for mining activities should be given with information as to whether conforms to the land use policy of the state; land diversion for mining should have approval from State land use board or the concerned authority	Details about the land proposed for mining activities should be given Chapter 2.	Chapte r-2
7	It should be clearly stated whether the proponent company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non- compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large may also be detailed in the EIA report.	Noted.	
8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	It is an open cast mining project. Blasting details are incorporated in chapter-2	Chapter-2, Page no.55

9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc should be for the life of the mine / lease period.	Study area comprises of 10 km radius from the mine lease boundary. Key Plan showing core zone (ML area).	Chapter-2 Fig no. 2.3 Page no.43
10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land Use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, National park, migratory routes of fauna, water bodies, human settlements and other ecological features has been prepared and incorporated in Chapter-4 of EIA/ EMP Report. There is no wildlife sanctuary and national park, migratory routes of fauna in the study area	Chapter -2, Table no. 2.6 Page no.37
11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	The overburden is in the form of topsoil and weathered rock formation; it will be removed during the quarrying operation, the same will be preserved all along the 7.5m safety boundary barrier for afforestation. Hence there is no waste anticipated during the Rough stone quarry operation	Chapter-2, Section 2.11 Page no.54

12	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.	The proposed mining lease area is not falling under forest land.	
13	Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	The proposed mining lease area is not falling under forest land.	
14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	Not Applicable. There is no involvement of forest land in the project area.	
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	Details of flora have been discussed in Chapter-4 of the EIA/EMP Report.	Chapter-4, section 3.12

16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly detailed mitigative measures required, should be worked out with cost implications, and submitted.	There is a relatively poor sighting of animals in the core and buffer areas of the mining lease. No significant impact is anticipated.	
17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger/Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the State Wildlife Warden under the Wildlife (Protection) Act, 1972 and copy furnished.	There is no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger/Elephant Reserves/Critically Polluted areas within 10 km radius of the mining lease area.	
18	A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan for their conservation should be prepared in consultation	Details biological study (flora & fauna) within 10 km radius of the project site have been incorporated in Chapter-3 of EIA/ EMP Report. No flora & fauna listed in scheduled-I have been found in study area so there is no need of conservation plan.	Chapter-3, Section 3.12

	with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	However, all care will be taken for protection of flora & fauna, if any in the lease hold area.	
19	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.	The proposed mining lease area is not falling under forest land.	19
20	Similarly, for coastal projects, A CRZ map duly authenticated by one of the authorized agencies Similarly , for coastal projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL,CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority)	There is no Coastal Zone within 15km radius of the project site.	20
21	R &R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be	There is no Rehabilitation and resettlement is involved. Land is Government Poromboke land	

	undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village located in the mine lease area will be shifted or not. The issues relating to shifting of Village including their R&R and socio-economic aspects should be discussed in the report.		
22	One season (non-monsoon)and (Summer Season),(Post monsoon) primary baseline data on ambient air quality CPCB Notification of 2009 water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre- dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	Baseline data collected during June to August 2021 has been incorporated in EIA/EMP report. The key plan of monitoring station has been discussed in Chapter-4. Locations of the monitoring stations have been selected keeping in view of existing environmental settings and location of the sensitive receptors and also that they represent whole of the study area.	Chapter 3

23	Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing predominant wind direction may also be indicated on the map.	Air quality modeling & Impact of Air quality will be furnished in Final EIA report Transportation of mineral during operation of mines will be done by road & SH-42 through dumpers and the impact of movement of vehicles are incorporated in EIA/EMP report. Air quality modeling & Impact of Air quality will be furnished in Final EIA report	Chapter-4 Page
24	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	Total water requirement: 2.5 KLD Dust Suppression: 1.0 KLD Domestic Purpose: 0.5 KLD Plantation :1.0 KLD Domestic Water will be sourced from nearby Emakalnatham (1km, N) and other water will be source from nearby road tankers supply	Chapter-2 Page no.57
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Not Applicable	

26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	At the last stage of mining operation, almost complete area will be worked to restore the land to its optimum reclamation for future use as water reservoir	
27	Impact of the project on the water quality, both surface and groundwater should be assessed and necessary safeguard measures, if any required, should be provided.	Impact of the project on the water quality & its mitigation measures has been incorporated in Chapter-4 of EIA/EMP report	Chapter-4 Page No. 119-1120
28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	Maximum working depth: 43 m BGL The ground water table is reported as 65m below ground level in nearby open wells and bore wells of this area. Now, the present quarry shall be proposed above the water table and hence, quarrying may not affect the ground water So mine working will not be intersecting the ground water table.	Chapter-2 Section 2.4
29	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	There is no any stream crossing in the proposed quarry	Executive Summary

30	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.	Highest elevation: 493m AMSL Depth: 65 m Below Ground Water Level	Chapter-2 Table no. 2.7 Page no. 49
31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant pollution	Green Belt Development plan is proved given in Chapter 2.	Chapter-2
32	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered.Project proponent shall conduct impact of Transportation	Impact on local transport infrastructure due to the project has been assessed. There shall not be much impact on local transport. Traffic density from the proposed mining activity has been incorporated in EIA/EMP report.	Chapter-4 Page No.114-115

	study as per Indian Road Congress Guidelines		
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA report.	Adequate infrastructure & other facilities shall be provided to the mine workers. Details are given in chapter-2 of EIA/EMP	Chapter-2 Page no. 60
34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	Conceptual post mining land use and Reclamation and restoration sectional plates are given in Mining Plan followed by Scheme of mining.	Mining plates Annexure
35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre- placement medical examination and periodical medical examination schedules should be incorporated in the EMP.The project in the mining area may be detailed	Suitable measure will be adopted to minimize occupational health impacts of the project. The project shall have positive impact on local environment. Details are given in chapter-9 of EIA/EMP.	Chapter-9
36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Suitable measure will be adopted to minimize occupational health impacts of the project.	Chapter-9
37	Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	As a part of CER, 2% of the project cost i.e, Rs. 1,35,000 will be allocated.	

<table>
<tr><td>38</td><td>Detailed environmental management plan to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.</td><td>Environment Management Plan has been described in detail in Chapter-9 of the EIA/EMP Report.</td><td>Chapter-9</td></tr>
<tr><td>39</td><td>Public hearing points raised and commitment of the project proponent on the same along with time bound action plan to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.</td><td>Public Hearing proceedings will be furnished in Final EIA report</td><td></td></tr>
<tr><td>40</td><td>Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the project should be given.</td><td>Not applicable

No. litigation is pending against the project in any court.</td><td></td></tr>
<tr><td>41</td><td>The cost of the project (capital cost and recurring cost) as well as the cost towards implementation of EMP should clearly be spelt out.</td><td><table><tr><th>S. No.</th><th>Description</th><th>Cost</th></tr><tr><td>1</td><td>Project Cost</td><td>44,00,000</td></tr><tr><td>2</td><td>Expenditure Cost</td><td>20,00,000</td></tr><tr><td>3</td><td>EMP Cost</td><td>3,50,000</td></tr><tr><td></td><td>Total</td><td>67,50,000</td></tr></table></td><td>Chapter-8</td></tr>
<tr><td>42</td><td>Disaster Management Plan</td><td>Disaster Management and Risk Assessment has be incorporated in Chapter-7</td><td>Chapter-7</td></tr>
</table>

43	Benefits of the project if the project is implemented should be spelt out. The benefits of the project shall clearly indicate environmental, social economic ,employment potential etc.	Benefits of the project has incorporated	Chapter-8
44	Besides the above, the below mentioned general points are also to be followed:		
(a)	Executive Summary of the EIA/EMP report	Executive Summary of EIA Report is given from page No.15-28	
(b)	All documents to be properly referenced with index and continuous page numbering.	Complied	
(c)	Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.	Complied	
(e)	Where the documents provided are in a language other than English, an English translation should be provided.	Complied	
(f)	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	The complete questionnaire has been prepared	
(g)	While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA.II(I) dated4th August, 2009, which are available on the website of this Ministry, should also be followed.	The EIA report has been prepared and complying with the circular issued by MoEF vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009.	

(h)	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation	There are no changes in prepared EIA as per submitted Form-1 & PFR	
(i)	As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, report on the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project by the Regional Office of Ministry of Environment & Forests, if applicable.	Will be complied after grant environment clearance form SEIAA, Tamilnadu	
(j)	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections (iii) sections of mine pit and external dumps, if any clearly showing the features of the adjoining area.	All Sectional Plates of Quarry is enclosed in Mining Plan.	

Additional ToR Compliance

1. Restricting the maximum depth of mining to 43m considering the environmental impacts due to mining, safety of the working personnel and following the principle of the sustainable mining and consequently the maximum minable quantities of 799240 Cum of rough stone are permitted for mining over five years.

We adhere to the restriction of maximum depth of mining to 43m considering the environmental impacts due to mining, safety of the working personnel and the maximum

mineable quantity of 799240 Cum of rough stone. The revised year wise production is given below:

2. A bench height of 5m needs to be maintained as per the approved mining plan considering the hydro – geological regime of the surrounding area as well as for safe mining.

Mining plan is prepared in such a way that the quarry operation is proposed to carry out with conventional open cast semi mechanized mining with 7.0-meter vertical bench and bench width of 5.0 meter.

3. There are many water bodies present within 500m and 1km and hence impact study shall be conducted considering those water bodies.

There are no water bodies present within 500m and 1km radius around the project site. The detailed impact study on the surrounding water bodies due to the proposed mining is elaborated in chapter 4.

4. The cumulative impact analysis due to emission form the source and the fugitive emission due to mining as well as transport of minerals needs to be assessed and the report may be submitted.

The study area of 10km radius around the project site is taken as buffer zone. Cumulative impact has been predicted taking into consideration of emission form the source and the fugitive emission due to mining as well as transport of minerals. The predicted impacts and the corresponding mitigation plan is detailed in chapter 4 under section 4.4.1.

5. During EIA Presentation, the maximum depth in adjacent mines should be given. Considering the data on all cluster mines the impact study shall be conducted.

There is only one existing quarry around 500m radius. The total extent of mining is 4.40.0 ha. EIA report has been prepared as per the Environmental Impact Assessment Guidance Manual for Mining Projects by MoEF & CC, February 2010. The study area of 10km radius around the project site is taken as buffer zone. Cumulative impact has been predicted taking into consideration of other mining activities around 10km radius. predicted impacts and the corresponding mitigation plan is detailed in chapter 4.

6. The Project Proponent shall furnish the contour map of the water table detailing the number of wells located around the site and its impacts on the wells due to mining activity.

The proposed mine site is located in S.No. 63/2(P) in Bargur Village, Bargur Taluk, Krishangiri District and Tamil Nadu.

The existing mines surrounding the project site are

S. No.	Quarry detail	Village	S.F No	Extent (Ha)	G.O. No. & Date	Lease period
I. Existing Quarry						
1	Thiru N. Arumugam, S/o. Nallamuthu, D.No. 345 East Street, Maruvathur peralli (South), Perambalur District.	Bargur Village	63 (part – B)	4.44.0	Roc. No. 174/2018/Mines dated 27.11.2018	27.11.2018 to 26.11.2028

The quarrying is planned up to a maximum depth of 43m below the ground level whereas ground water table in this area is 65m below ground level and contour map will be furnished in Final EIA Report

7. The Project Proponent shall conduct the hydro-geological study to evaluate the impact of proposed mining activity on the ground water table, agricultural activity and water bodies such as rivers, tanks, canals, ponds located nearby the proposed mining area.

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 the phreatic condition 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. Depth of well in hard rock generally ranges between 8 and 15m below ground level. Generally yield in open wells ranges from 30 to 250m3 /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 Lime stone, Calcareous sand - stone and marl. The Tertiary formation is argillaceous comprising of Silty clay stones, argillaceous Lime stone. 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, sand stone of tertiary formation are the potential groundwater reservoirs.

Aquifer Systems

Occurrence and storage of groundwater depend upon three factors viz., Geology, Topography and rainfall in the form of precipitation. Apart from Geology, wide variation in topographic profile and intensity of rainfall constitutes the prime factors of groundwater recharge. Aquifers are part of the more complex hydro geological system and the behaviour of the entire system cannot be interpreted easily. In hard rock terrain the occurrence of Ground Water is limited to top weathered, fissured and fractured zone which extends to maximum 30 m on an average it is about 10-15 m in Krishnagiri District. In Sedimentary formations, the presence of primary inter granular porosity enhances the transmitting capacity of groundwater where the yield will

be appreciable. The sedimentary area which occupies the eastern part of the District along the coastal tract is more favourable for groundwater recharge.

Ground Water occurs both in semi confined and confined conditions. A brief description of occurrence of groundwater in each formation is furnished below. Alluvial Formations In the river alluvium groundwater occurs under water table condition. The maximum thickness is 37 m and the average thickness of the aquifer is approximately 12 m. These formations are porous and permeable which have good water bearing zones. Tertiary Cuddalore sandstone Tertiary formations are represented by Cuddalore Sandstone and characterised as fluvial to brakish marine deposits. Predominantly this formation is divided into Lower and Upper Cuddalore formations. In the Upper Cuddalore formations the groundwater occurs in semi confined conditions, whereas in the Lower Cuddalore the groundwater occurs in confined condition with good groundwater potential.

Cretaceous Formations Groundwater occurring in the lens shape in the sandy clay lenses and fine sand is underlain by white and black clay beds which constitute phreatic aquifer depth which ranges 10m to 15m below ground level. Phreatic aquifer in Limestone is potential due to the presence of Oolitic Limestone. Hard Rock Formations Groundwater occurs under water table conditions but the intensity of weathering, joint, fracture and its development is much less in other type of rocks when compared to gneissic formation. The groundwater potential is low, when compared with the gneissic formations

Granitic Gneiss

Groundwater occurs under water table conditions in weathered, jointed and fractural formations. The pore space developed in the weathered mantle acts as shallow granular aquifers and forms the potential water bearing and yielding zones water table is shallow in canal and tank irrigation regions and it is somewhat deeper in other regions.

Charnokite

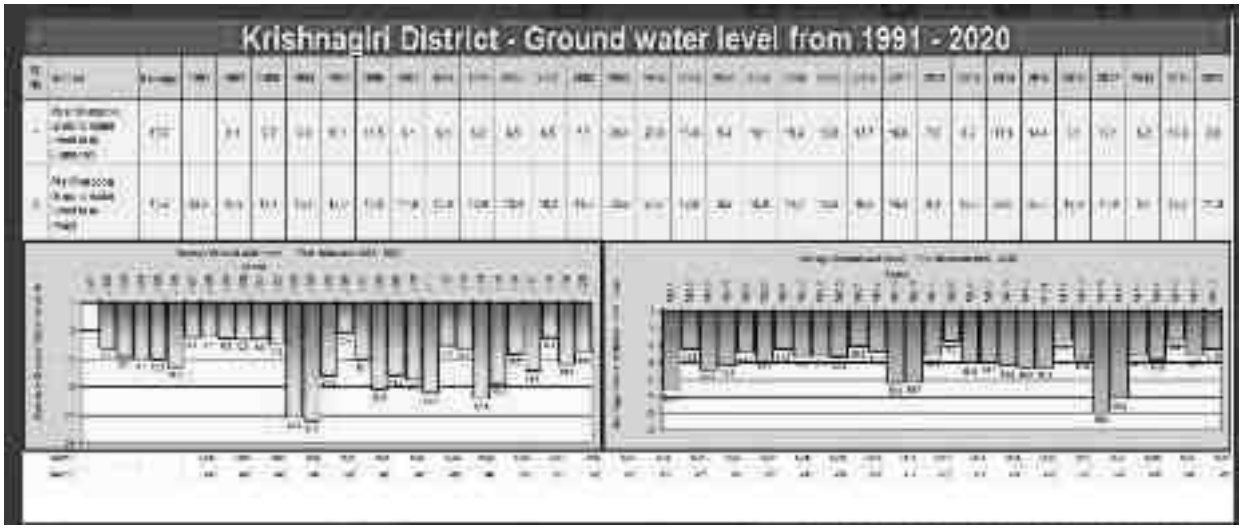
Groundwater occurs under water table conditions but the intensity of weathering, joint, fracture and its development is much less when compared to gneissic formations. The groundwater potential is low, when compared with the gneissic formations.

Aquifer Parameters

The thickness of aquifer in this district is highly erratic and varies between 15 m to 40 m below ground level. The inter granular Porosity is essentially dependent on the intensity and degree of weathering and fracture development in the bed rock. As discussed earlier deep weathering has developed in Gneissic formations and moderate weathering in charnockite formations.

Type Of Aquifer	Discontinuous Unconfined To Semi-Confined Aquifers In Fissured Formations
Aquifer Parameters	
Well yield lpm:	36 – 1125
Transmissivity (T)(m 2/day)	8 – 73
Permeability (K)m/day:	0.78 – 23
Depth of Water level	8m to 25m

Source: https://www.twadboard.tn.gov.in/content/krishnagiri



The project falls under Krishnagiri Block, which is categorized as Overexploited zone as per Annexure to G. O (Ms) No. 161, Public Works (R2) Department, Dated: 23.10.2019, where the eligibility for the extraction of groundwater, extraction will be permitted only in Safe/Semi critical and Non metro area for residential development where there is no any provision of piped water supply by Local body.)

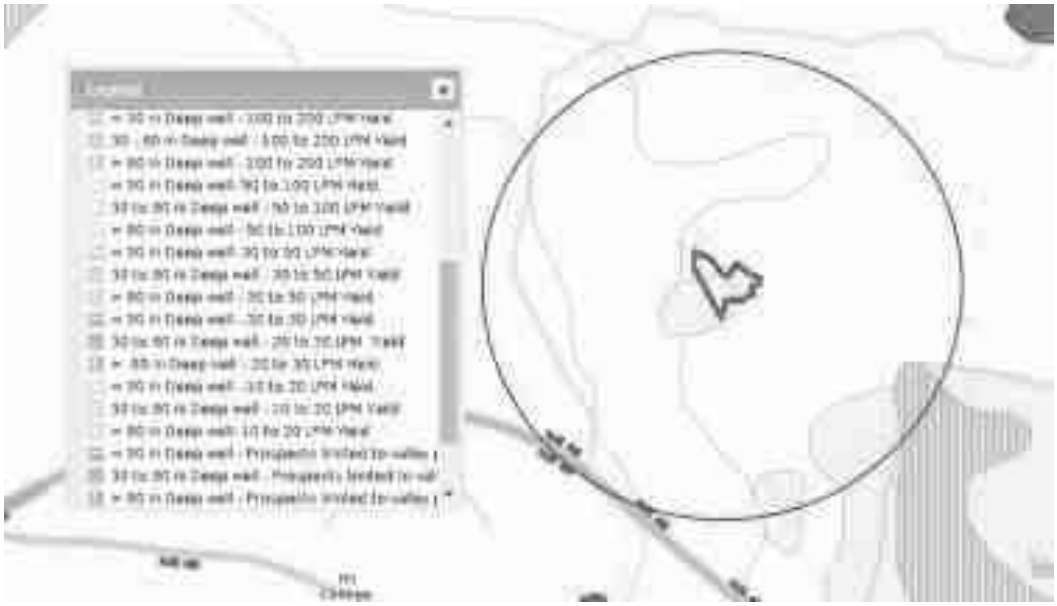


Figure **Error! No text of specified style in document.**.1 Groundwater potential around 1km radius (Source: Bhuvan)

The quarrying is planned upto a maximum depth of 43m below the ground level. The ground water table in the project site is found be 65m from the ground level. Hence there will not be any impact due to mining activity since it is not intersecting the ground water table.

8. The Project Proponent shall furnish the details on number of groundwater pumping and open wells within 1 km (radius) along with the water levels in both monsoon and non-monsoon seasons. The proponent also shall collect the Member Secretary Chairman SEAC -TN SEAC- TN data of water table level from the PWD / TWAD in this area in both monsoon and non-monsoon seasons.

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We agreed, we are in the processing and will be furnished in final EIA Report

9. The Proponent shall carry out the Cumulative impact study on the Agricultural area due to Mining, Crushers and other activities around the site area.

The proposed project lies in Bargur Village. There is no agricultural activity surrounding the project site. Hence livelihood of the local people will not be affected due to the proposed Mine Lease area. In turn it will improve the livelihood of the local people by providing direct and indirect employment opportunities.

10. The details of surrounding well and the cumulative impact on the ground water shall be part of EIA study.

Proper care will be exercised for the management of wastewater generating from the project site. The wastewater generated due to the domestic activities in the ML area will be disposed through septic tank along with soak pit arrangement. Hence there will not be any impact due to the proposed ML area.

The quarrying is planned upto a maximum depth of 43m below the ground level. The ground water table in the project site is found be 65m from the ground level. Hence there will not be any impact due to mining activity since it is not intersecting the ground water table.

Further samples were collected around 10km radius and the same was analysed for its physico - chemical properties. The detailed report was given in Chapter 3 under section table 3.7.

11.The Socio-economic studies should be carried out within 10 km buffer zone from the mines.

The details of socioeconomic studies were carried out within 10km buffer zone from the mine lease area. Demographic Studies like details of population, Household, Sex ratio, Literacy rate, SC, ST details were done for 20 villages to understand the existing scenario are discussed in Chapter 3 under Section 3.13.

12. A tree survey study shall be carried out (nos. name of the species, age) in the mining lease applied area and its management during mining activity.

No tree species were found inside the project site. only few shrubs and thorny bushes were present.

List of already existing tree species in the area (1km radius):

S. No	Name	Age (in Approximation)	Dimension
1	Coconut tree	15	1m*25m
2	Banyan Tree	9	5m*13m
3	Palm Tree	10	0.5m*25m
4	Neem Tree	20	1.8m*15m
5	Banana tree	15	1m*3m
6	Mango Tree	15	5m*12m
7	Ashoka Tree	40	2m * 7m

13. CER activities should be carried out taking into consideration the requirement of the local habitants available within the buffer zone as per Office Memorandum of MoEF & CC.

The following Corporate Environment Responsibility (CER) activities before the commencement of the quarrying activities.

S.No.	**CER Activity**	**CER 2% of the project cost (Rs in Crores)**
1.	Developing the library, sports/Drinking water facilities in nearby school	1,35, 000
Total		**Rs. 1,35,000**

14. A Detailed mining closure plan for the proposed project shall be submitted

Mine Closure Plan approved by Department of Geology and Mining; Krishnagiri District is attached as Annexure III.

15. A detail report on the safety and health aspects of the workers and for the surrounding habitants during operation of mining for drilling and blasting shall be submitted.

❖ All the labors will be checked and screened for health before employing them. After employing them, periodical medical checkups will be held once in every six months.

❖ Proper PPE kit (Safety jacket, Helmet, Safety Shoes, Gloves) etc will be provided to each employee in the mine lease concerning the safety of each labor.

❖ 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 – 4.30 P.M to 5.30 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.

16. The recommendation for the issue Terms of Reference is subject to the final outcome of the Hon'ble NGT, Principal Bench, New Dehi in O.A. No. 186 of 2016 (M.A.No.350/2016) and O.A. No. 200/2016 and O. A. No. 580/2016 (M.A. No.1182/2016) and O.A.No.520 of 2016 (M.A.No.981/2016, M.A.No.982/2016 & M.A.No.384/2017).

Noted.

17. A detailed study of the lithology of the mining lease area shall be furnished.

The details of Lithology of the Mining Lease Area are discussed in Chapter 2

18. The project proponent shall furnish the details along with the EIA Report of the existing Green belt area earmarked with GPS coordinates and list of trees are planted with copy of photos/documents.

The development of greenbelt will be done in the peripheral buffer zone of the mine area. 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. Local trees like, Neem, Pungam etc. will be planted along the safety distance at a rate of 45 trees per annum with interval 5m. The rate of survival expected to be 80% in this area.

EIA REPORT

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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 is a decision-making tool, which guides the project proponent in taking appropriate decisions for proposed projects. 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. EIA also lessens conflicts by promoting community participation, informs project proponent, and helps to lay the base for environmentally sound projects.

The Ministry of Environment & Forests, Govt. of India, made environmental clearance (EC) for certain development projects mandatory through its notification of 27/01/1994 under the Environment Protection Act, 1986 and subsequently the MoEF came out with Environment Impact Notification, S.O.1533(E), and dt.14/09/2006. It has been made mandatory to obtain environmental clearance for different kinds of developmental projects (Schedule-1 of notification). The proposed project falls under item 1(a) of the EIA notification, 2006.

1.2. General Information on Mining of Minerals

Krishnagiri District is covered with wide range of metamorphic rocks of peninsular gnessic complex. These rock formations occur as massive hillocks all over the district in government lands and patta lands, and extensively weathered formations are overlined by soil / alluvium deposits with an average thickness of 1 to 5mts. Rough stone deposits suitable for the production of Jelly, cut stones and Pillar Stones are available throughout the Krishnagiri District. Rough stones are widely used in this district as building stones, boulders, cut stones and for the production of Jelly, M.Sand, Crusher Dust. The rock products which are produced not only used in the Krishnagiri

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District alone but also transported to the neighboring districts. These products enter into the market in different parts of the country.

1.3. Environmental Clearance

Notification dated 14th September 2006, vide S.O.1599(E), any project or activity specified in Category B. As per the Gazette Notification, dated 14th September 2006.

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.

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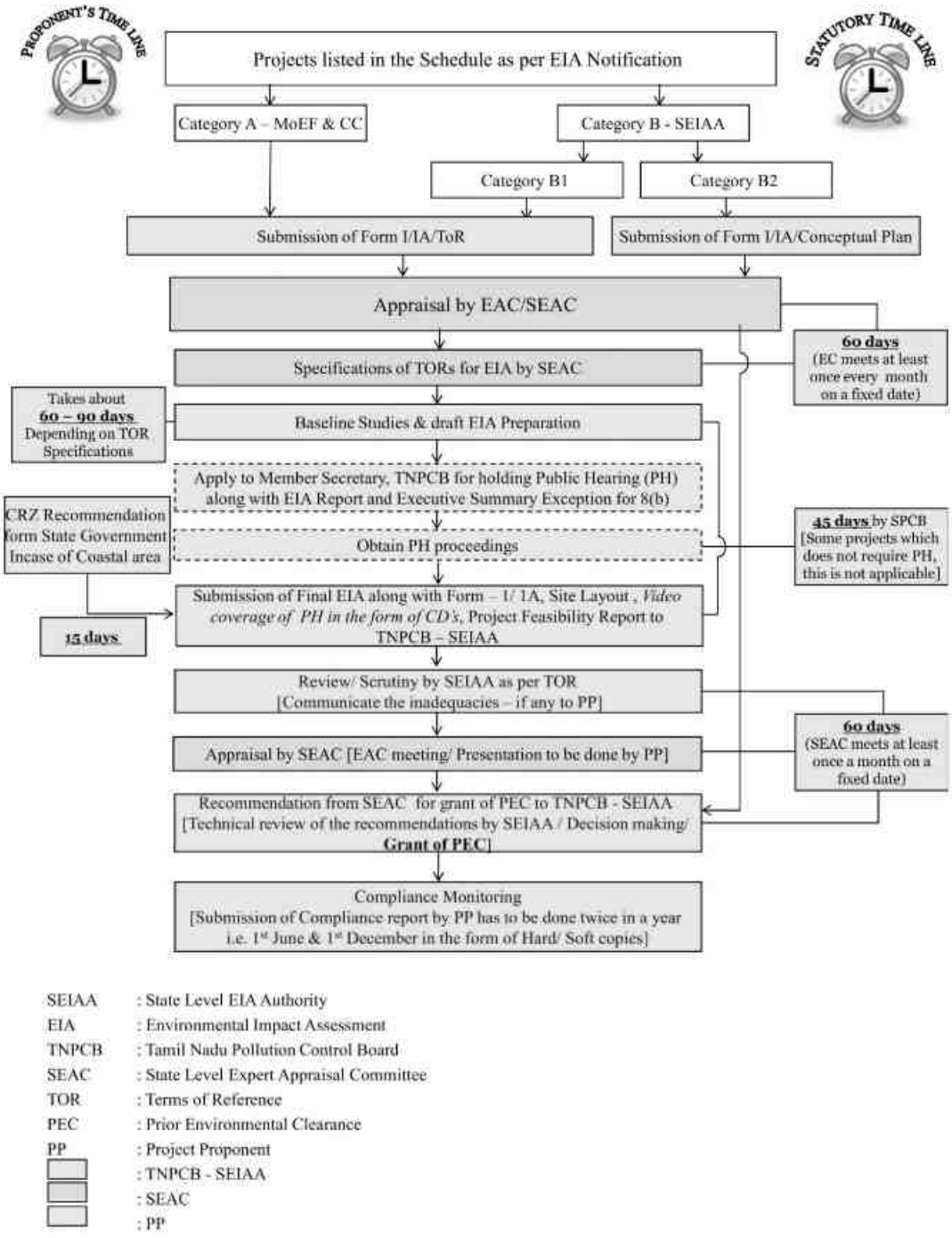

Figure 1.1 EIA – Process flow chart

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1.4. Terms of Reference (ToR)

The terms of Reference have been issued by SEAC TN vide Letter No. SEIAA-TN/F. No. 8529/SEAC/ToR-993/2021 Dated: 28.07.2021. 18 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.

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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.

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Chapter 8: Project Benefits This chapter should cover the benefits accruing to the locality, neighbourhood, 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 : Thiru.C. Selvan,
S/o. Chinnamaadhu,
Status of the Proponent : Individual, Government Poromboke Land
Proponent's Name & Address : Thiru.C. Selvan,
S/O. Chinnamaadhu,

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No.4/268, Kumbalapadi, Indur,
Nagar Koodal Village,
Dharmapuri - 636 803.

1.8. Brief Description of the Project

Thiru. C. Selvan, S/o. Chinnamaadhu, residing at No.4/268, Kumbalapadi, Indur, Nagar koodal Village, Dharmapuri District-636 803 has applied for the grant of quarry lease to quarry Rough Stone over an extent of 3.35.0Hectares. of Government Poromboke Land in S.F. No. 63/2(P) of Bargur Village, Bargur Taluk, Krishnagiri District of Tamil Nadu State for a period of Five Years.

Thiru. C. Selvan applied for mining of rough stone in survey numbers – 63/2(P) in Bargur Village, Bargur Taluk, Krishangiri District and Tamil Nadu State over an extent of 3.35.0 hectares in Government Poromboke Lands for a period of 5 years.

Precise Area Communication Letter was communicated vide Letter No. Na.Ka.No. 211/2019/Mines dated 13th June 2019 from The District Collector, Geology and Mining, Krishnagiri district, Krishnagiri for Preparation of Mining Plan and Obtaining Prior Environmental Clearance for Mining of Roughstone over an extent of 3.35.0 hectares for a period of 5 years.

1.9. 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. Excavators are operated for quarrying of Rough Stone and Tippers / Lorries are used for transportation of Rough Stone to the destination. It is a semi mechanized quarrying operation using shot hole drilling with the help of compressor and jack hammers, smooth blasting. Rough Stone are removed using Hydraulic excavator and loaded directly to the tippers and transported to the crushing plants for breaking into

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required size from 75mm jelly to 10mm chips. The project is located at Bargur Village, Bargur Taluk, Krishnagiri District, Tamil Nadu. It is a plain terrain. The total allotted mine lease for the proposed project is 3.35.0 Ha with their proposed production scheduled for the five years about 799240M³ of Rough Stone.

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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

Thiru C. Selvan applied for mining lease of Rough stone in survey numbers – 63/2(P) in Bargur Village, Bargur Taluk, Krishnagiri District and Tamil Nadu State over an extent of 3.35.0hectares Government Poromboke Lands for a period of 5 years.

Precise Area Communication Letter was communicated vide letter No. Na.Ka. No. 211/2019/Mines dated 13th June 2019 from the district collector, Geology and Mines, Krishnagiri district for Preparation of Mining Plan.

2.2. 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 is listed below:

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Table 2-1 Quarry within 500m Radius

S. No.	Quarry detail	Village	S.F No	Extent (Ha)	G.O. No. & Date	Lease period
I. Existing Quarry						
1	Thiru N. Arumugam, S/o. Nallamuthu, D.No. 345 East Street, Maruvathur peralli (South), Perambalur District.	Bargur Village	63 (part – B)	4.44.0	Roc. No. 174/2018/Mines dated 27.11.2018	27.11.2018 to 26.11.2028
II. Abandoned Quarry						
NIL						
III. Proposed Quarry						
5	Thiru C. Selvam, S/o. Chinnamadhu, D.No. 4/268 Kumbalapadi Village,indur Post, Dharmapuri Dt.	Bargur	63/2 (Part)	3.35.0	Roc. No. 211/ 2019/mines Dt. 13.06.2019	Instant Proposal
Total				**7.79.0**		

2.3. Need for the project:

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

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to the production of asphalt; the remainder is used 'dry' without the addition of other materials to provide a sturdy base for roads.

Krishnagiri District is comprised of Archaean peninsular gneisses such as Charnockites, Hornblende gneisses, Biotite gneisses and migmatites, dolerites and are intruded by younger formations like pegmatite and quartz veins. The peninsular gneisses/ migmatite consists of biotite mica, plagioclase and orthoclase feldspar and quartz and are found as sheet rocks. The rock formations surrounded by shear zones in between the country rocks and later period of intrusions, fractured / joint, weathered rock formations, the metamorphosed rock formations are in enormous in nature. The massive rock formations which are not suitable for the productions of granite slabs are also suitable and used to produce rough stones. The predominant occurrence of granitic gneissic rock formations which are most suitable to produce rough stone, jelly and for making M. Sand, crusher dust.

2.4. Brief Description of the project

Table 2-2 Salient Features of the Project

S. No.	Description	Details
1	Project Name	Thiru C. Selvan rough stone quarry
2	Proponent	Thiru C. Selvan
3	Mining Lease Area Extent	3.35.0 Ha
4	Location	63/2 (p) Bargur Village, Bargur Taluk, Krishnagiri Dt.
5	Latitude	12° 33' 21.83"N to 12° 33' 31.00"N
6	Longitude	78° 21' 43.58"E to 78° 21' 53.65"E
7	Topography	Plain terrain
8	Site Elevation above MSL	493m above MSL
9	Topo sheet No.	**57 – L/06**
10	Minerals of Mine	Rough stone
11	Proposed production of Mine	Geological Reserves - 1790278M³

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		Mineable Reserves – 799240 M^3 Proposed production for five years – 799240 M^3 of Rough Stone
12	Ultimate depth of Mining	43 m below ground level
13	Method of Mining	Opencast, Semi-mechanized Mining with a bench height of 7m and bench width of 5m is proposed.
14	Source of water	Packaged drinking water is available from the nearby approved water vendors from Emakalnatham (1km, N)
15	Manpower	18 Nos.
16	Mining Plan Approval	Mining Plan was approved by Deputy Director of Geology and Mining, Krishnagiri Roc. No. 221/2019/Mines dated 06.09.2019.
17	Precise Area Communication	Na.Ka. No. 211/2019/Mines dated 13th June 2019 from the district collector, Geology and Mines, Krishnagiri
18	Ground water	The quarry operation is proposed up to a depth of 43m below ground level. The ground water table is reported as 65m below ground level in nearby open 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.
19	Habitations within 500m radius of the Project Site	There is no Habitation within 500m radius
20	Rivers / Canal/Lake	❖ Orappam Lake – 10km, SW ❖ Marudapalli Lake – 11 km, SW ❖
21	Reserved Forest / Wild life Sanctuary	➢ Burgur RF -2 km E ➢ Neralakotta RF -2 km N ➢ Varatanapalli RF -4 km W ➢ Nandibanda RF -5 km, NE ➢ Kothur RF - 6km, NNE

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Figure 2.1 Google Earth Image of the Project Site

2.4.1. Details of Quarry within 500m Radius – Cluster Mines

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

Table 2-3 Quarry within 500m Radius

S. No.	Quarry detail	Village	S.F No	Extent (Ha)	G.O. No. & Date	Lease period
I. Existing Quarry						
1	Thiru N. Arumugam, S/o. Nallamuthu, D.No. 345 East Street, Maruvathur peralli (South), Perambalur District.	Bargur Village	63 (part – B)	4.44.0	Roc. No. 174/2018/Mines dated 27.11.2018	27.11.2018 to 26.11.2028
II. Abandoned Quarry						

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NIL						
III. Proposed Quarry						
5	Thiru C. Selvam, S/o. Chinnamadhu, D.No. 4/268 Kumbalapadi Village,indur Post, Dharmapuri Dt.	Bargur	63/2 (Part)	3.35.0	Roc. No. 211/ 2019/mines Dt. 13.06.2019	Instant Proposal
Total				**7.79.0**		

2.4.2. Site Connectivity:

The site is connected to NH 46 (1km, S).

Figure 2.2 Site Connectivity

2.5. Location Details:

Table 2-4: Location Details

S. No	Particulars	Details
1.	Latitude	12° 33' 21.83"N to 12° 33' 31.00"N

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2.	Longitude	78° 21' 43.58"E to 78° 21' 53.65"E
3.	Site Elevation above MSL	493m from MSL
4.	Topography	Plain terrain
5.	Land use of the site	Government Poromboke land
6.	Extent of lease area	3.35.0 Ha

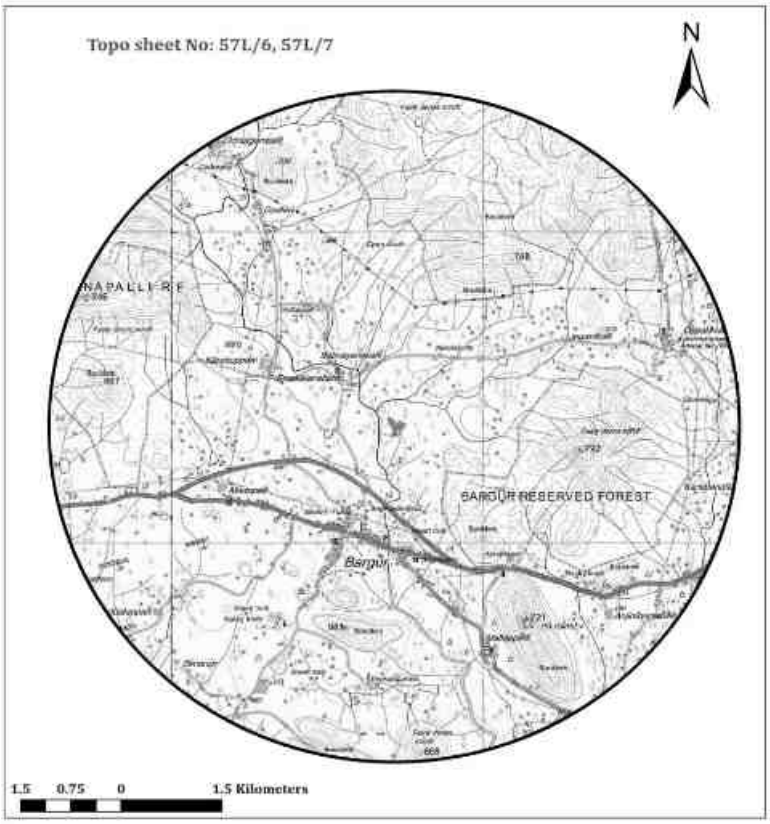

Figure 2.3: Topo Map of Project Site

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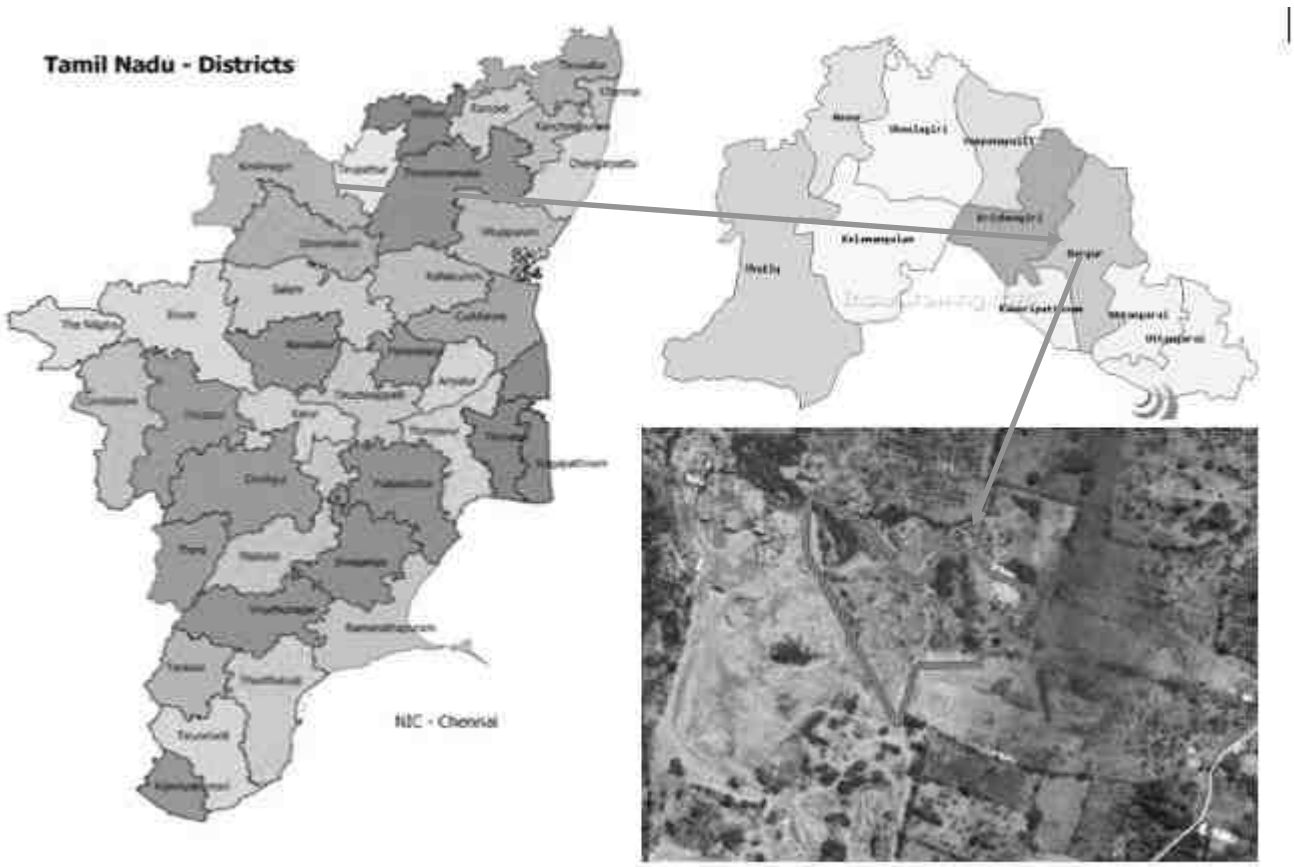

Figure 2.4 Location of the project site

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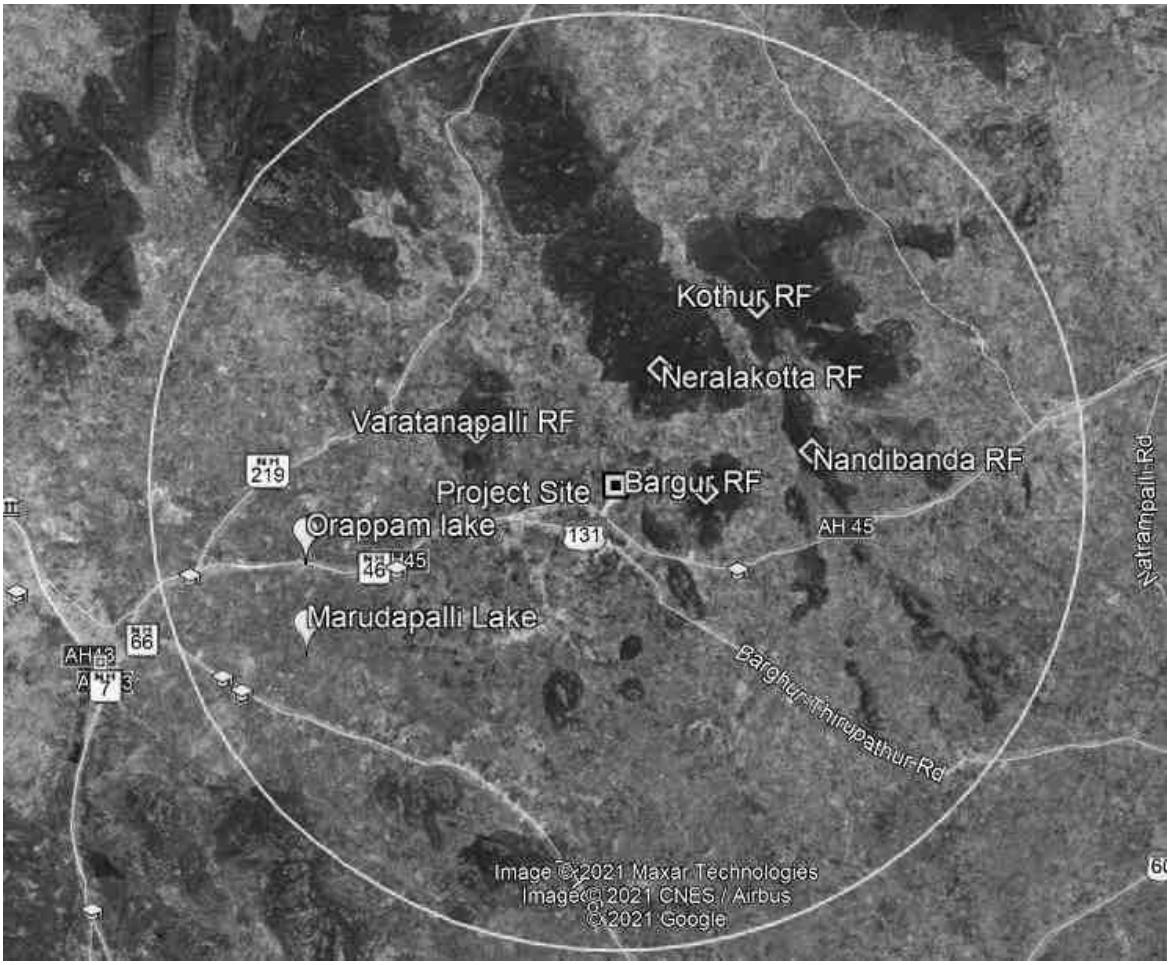

Figure 2.5: Environmental Sensitivity within 15km radius

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2.5.1. Site Photographs

The site photographs of the project site are as follows.

Figure 2.6: Site Photographs

2.5.2. Land Use Breakup of the Mine Lease Area

The area applied for quarry lease is almost plain area sloping towards southern covered with Rough Stone which does not sustain any type of vegetation. The altitude of the area is 493m above MSL. The land use pattern in and around the mine have no adverse effect in the environment changes.

The land use pattern at the end of the lease period:

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Table 2-5: Land use pattern

Sl. No.	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)
1.	Area under quarrying	1.08.0	2.86.0
2.	Infrastructure	Nil	0.01.0
3.	Roads	0.01.0	0.01.0
4.	Green Belt	Nil	0.47.0
5.	Unutilized	2.26.0	Nil
	Total =	**3.35.0Ha**	**3.35.0Ha**

2.5.3. Human Settlement

There are no habitations within the radius of 500m. the nearby habitations are as follows

Table 2-6: Habitation

Direction	Village	Distance in Kms	Population
North	Emakalnatham	1.0Kms	200
East	Oppathavadi	4.2 Kms	150
South	Mallapadi	3.6 Kms	450
West	Salinayanapalli	2.0Kms	100

2.6. Leasehold Area

Thiru. C. Selvan applied for mining of Rough stone in survey numbers – 63/2(P) in Bargur Village, Bargur Taluk, Krishnagiri District and Tamil Nadu State over an extent of 3.35.0 hectares in Government Poromboke Lands for a period of 5 years . The area lies in the latitude of 12° 33' 21.83"N to 12° 33' 31.00"N and longitude of 78° 21' 43.58"E to 78° 21' 53.65"E. The area is marked in the survey of India Topo sheet No. 57 – L/06. There is no human settlement within 500m radius from the lease area.

2.7. Geology

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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 the phreatic condition 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. Depth of well in hard rock generally ranges between 8 and 15m below ground level. Generally yield in open wells ranges from 30 to 250m3 /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 Lime stone, Calcareous sand - stone and marl. The Tertiary formation is argillaceous comprising of Silty clay stones, argillaceous Lime stone. 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

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formation which also form potential aquifers. In some areas, sand stone of tertiary formation are the potential groundwater reservoirs.

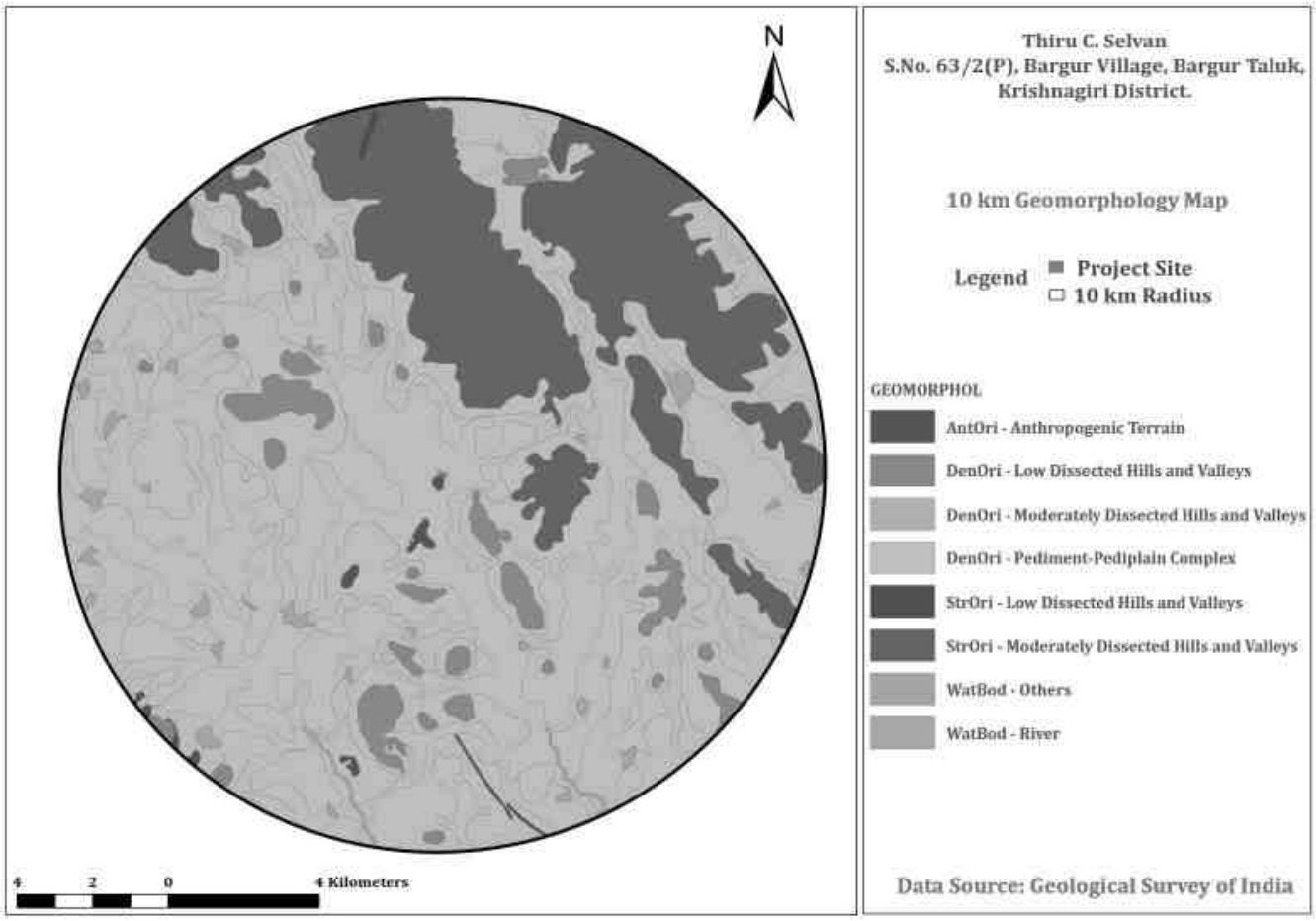

Figure 2.7 Geomorphology around 10km radius from the project site

The proposed project lies in the active quarry area.

2.8. Quality of Reserves:

The mining lease area is of 3.35.0 Ha. The proposed production of Rough stone for Five Years is 799240 m3. Due to significant role in the domestic as well as infrastructural market, making the mining of Stone along with associated minor minerals is economically viable.

Table 2-7: Details of Mining

S.No	Particulars	Details

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1	Method of Mining	Open Cast semi mechanized
2	Geological Reserves	1790278M³ of Rough stone
3	Mineable Reserves	799240 M³
4	Proposed production for five years	799240 M³
5	Elevation Range of the Mine Site	493m MSL
6	Bench Height	Opencast, Semi-mechanized Mining with a bench height of 7m and bench width of 5m is proposed.
7	Existing Pit Dimension	10826 Sq.mt X Avg. Depth 15.0mts=162390Cbm

2.9. Geological Reserves

Topsoil:

The Thickness of Topsoil in this area is 1.0m and the total volume of topsoil will be 23273m3.

Rough Stone:

The Geological Reserve is estimated as 1790278m3 respectively, at the rate of 95% Recovery upto the permissible depth. The Geological reserve of Rough stone and Top soil is calculated upto a depth of 57m(1m top soil + 56m Rough Stone).

Table 2-8:Geological Reserves

GEOLOGICAL RESERVES								
Section	Bench	L(m)	W (m)	D (m)	Volume In M3	Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m3
XY-AB	I	114	82	1				9348
	II	114	82	7	65436	62164	3272	
	III	114	82	7	65436	62164	3272	
	IV	114	82	7	65436	62164	3272	
	V	114	82	7	65436	62164	3272	
	VI	114	82	7	65436	62164	3272	
	VII	114	82	7	65436	62164	3272	
	VIII	114	82	7	65436	62164	3272	
	IX	114	82	7	65436	62164	3272	
TOTAL					**523488**	**497312**	**26176**	**9348**

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XY-CD	I	15	1	1				15
	II	15	1	7	105	100	5	
	III	15	1	7	105	100	5	
	IV	135	86	7	81270	77207	4063	
	V	135	86	7	81270	77207	4063	
	VI	135	86	7	81270	77207	4063	
	VII	135	86	7	81270	77207	4063	
	VIII	135	86	7	81270	77207	4063	
	IX	135	86	7	81270	77207	4063	
TOTAL					**487830**	**463442**	**24388**	**15**
X1Y1-CD	I	130	107	1				13910
	II	130	107	7	97370	92502	4868	
	III	130	107	7	97370	92502	4868	
	IV	130	107	7	97370	92502	4868	
	V	130	107	7	97370	92502	4868	
	VI	130	107	7	97370	92502	4868	
	VII	130	107	7	97370	92502	4868	
	VIII	130	107	7	97370	92502	4868	
	IX	130	107	7	97370	92502	4868	
TOTAL					**778960**	**740016**	**38944**	**13910**
GRAND TOTAL					**1790278**	**1700770**	**89508**	**23273**

2.10. Mineable reserve

The Mineable reserves are calculated by deducting 7.5m & 10.0m Safety distance to the Government Poromboke Land & and Bench Loss.

Topsoil: The Thickness of Top soil in this area is 1.0m and the total volume of topsoil will be 19525m3.

Rough Stone: The mineable reserves are 799240 m3, The Mineable reserve of Rough stone and Top soil is calculated upto a depth of 43 m(1m top soil + 42m Rough Stone).

Table 2-9 Mineable Reserve

MINEABLE RESERVES								
Section	Bench	L(m)	W(m)	D(m)	Volume In M3	Mineable Rough stone Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m3
	I	107	75	1				8025

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XY-AB	II	106	74	7	54908	52163	2745	
	III	101	69	7	48783	46344	2439	
	IV	96	64	7	43008	40858	2150	
	V	91	59	7	37583	35704	1879	
	VI	86	54	7	32508	30883	1625	
	VII	81	49	7	27783	26394	1389	
TOTAL					**244573**	**232346**	**12277**	**8025**
XY-CD	IV	120	86	7	72240	68628	3612	
	V	115	86	7	69230	65769	3461	
	VI	110	86	7	66220	62909	3311	
	VII	105	86	7	63210	60050	3160	
TOTAL					**270900**	**257356**	**13544**	
X1Y1-CD	I	115	100	1				11500
	II	113	99	7	78309	74394	3915	
	III	103	94	7	67774	64385	3389	
	IV	93	89	7	57939	55042	2897	
	V	83	84	7	48804	46364	2440	
	VI	73	79	7	40369	38351	2018	
	VII	63	74	7	32634	31002	1632	
TOTAL					**325829**	**309538**	**16291**	**11500**
GRAND TOTAL					**841302**	**799240**	**42062**	**19525**

2.11. Year wise Production

Rough stone production details as follows:

The proposed rate of production of Rough Stone is about 799240 m3 for five years. Total Depth-43m. (1m topsoil + 42m Rough Stone). Proposed Production of five Years.

Table 2-10 Year wise development and Production

YEARWISE DEVELOPMENT AND PRODUCTION								
Section	Bench	L (m)	W (m)	D (m)	Volume In M3	Rough stone Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m3
	I	107	75	1				8025
	II	106	74	7	54908	52163	2745	

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I YEAR	III	101	69	7	48783	46344	2439	
	I	115	100	1				11500
	II	113	99	7	78309	74394	3915	
	III	103	94	7	67774	64385	3389	
TOTAL					**249774**	**237286**	**12488**	**19525**
II YEAR	IV	96	64	7	43008	40858	2150	
	IV	120	86	7	72240	68628	3612	
	IV	93	89	7	57939	55042	2897	
TOTAL					**173187**	**164528**	**8659**	
III YEAR	V	91	59	7	37583	35704	1879	
	V	115	86	7	69230	65769	3461	
	V	83	84	7	48804	46364	2440	
TOTAL					**155617**	**147837**	**7780**	
IV YEAR	VI	86	54	7	32508	30883	1625	
	VI	110	86	7	66220	62909	3311	
	VI	73	79	7	40369	38351	2018	
TOTAL					**139097**	**132143**	**6954**	
V YEAR	VII	81	49	7	27783	26394	1389	
	VII	105	86	7	63210	60050	3160	
	VII	63	74	7	32634	31002	1632	
TOTAL					**123627**	**117446**	**6181**	
GRAND TOTAL					**841302**	**799240**	**42062**	**19525**

2.12. Type of Mining

2.12.1. Method of Working:

Opencast method of semi mechanized mining is adopted to extract Rough Stone. Machineries like Tractor mounted compressor attached with Jack hammers is being used to drilling and Proposed Control Blasting. Excavators are operated for quarrying of Rough Stone and Tippers / Lorries are used for transportation of Rough Stone to the destination.

It is a semi mechanized quarrying operation using shot hole drilling with the help of compressor and jack hammers, smooth blasting. Rough Stone are removed using Hydraulic excavator and loaded directly to the tippers and transported to the crushing plants for breaking into required size from 75mm jelly to 10mm chips.

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Drilling of shot holes will be carried out using compressor and jack hammer. Depth of holes shall be 1 to 2m bench height and spacing shall be 0.75m and burden shall be 0.60m from the preface. Details of drilling equipments are given below.

Type	Nos	Dia of hole	Size / Capacity	Make	Motive power	H.P.
Jack Hammer	7	25.5 mm	Hand held	Atlas copco 2Nos	Diesel	60

Loading of waste and rough stone shall be carried out by 10 tonne capacity tippers from the working place periodically. Details of loading equipment are given as under.

Type	Nos	Bucket Capacity (MT)	Make	Motive power	H.P.
Hydraulic excavator	1	1.2 M^3	L&T or Ex200	Diesel	120

Transport of raw materials and waste shall be done by Tipper of 10 M.T. capacity.

Type	Nos	Size / Capacity	Make	Motive power	H.P.
Tipper	4	10 M.T	Ashok Leyland	Diesel	110

2.12.2. Energy:

Electricity for mines and lights only at nights (working is restricted on day time only between 9Am to 5Pm). Diesel (HSD) will be used for quarrying machines around **642646 litres** of HSD will be used for the entire project life. Diesel will be brought from nearby diesel pumps. No power is required for the project. Lightings on the night will be taken from nearby electric poles after obtaining permission from concerned authorities.

(i) For Top soil:

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Per hour excavator will consume = 10 litres / hour

Per hour excavator will excavate = 60m^3 of Top soil

For 19525m^3 = 19525/60

= 325.4 hours

Diesel consumption 325.4 working hours = 325.4 x 10 litres

Total diesel consumption = **3254 litres of HSD will be utilized for Top Soil**

(ii) For Rough stone:

Per hour excavator will consume = 16 litres / hour

Per hour excavator will excavate = 20m^3 of rough stone

For 7992403m^3 = 799240/20

= 39962 hours

Diesel consume 39962 working hours = 39962 hours x 16 litres

Total diesel consumption = **639392 litres of HSD will be utilized for Rough Stone.**

Total diesel consumption is around =**642646 litres of HSD for the entire period of life**

2.12.3. Topsoil

The topsoil of the lease area is 19525m3. Topsoil formation will be removed and dumped in North, South and Eastern side of the 7.5m boundary barrier of the lease area. And Party used for road low lying area and Plantation Purposes.

Table 2-11 Dimension of dumps

Proposed Dump Dimensions:
(664.4m(L)X7.5m(W)X3.91m(H)=19525m^3)

2.13. 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 2-12: Man Power Requirements

1.	Skilled	Operator	2 No.

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		Mechanic	1 No.
		Blaster/Mat	1 No.
2.	Semi – skilled	Driver	2 Nos
3.	Unskilled	Musdoor / Labours	5 Nos
		Cleaners	3Nos
		Office Boy	1No
4.	Management & Supervisory staff		3No.
	Total =		18Nos

No child less than 21 years will be entertained during quarrying operations.

2.14. Water Requirement

This rough stone quarry project does not require huge water and electricity.

Table 2-13 Water Requirement

Purpose	**Quantity**	**Sources**
Drinking Water	0.5KLD	Packaged Drinking water vendors available in Emakalnatham which is about 1.0 Km North of the area.
Green belt	1.0KLD	Other domestic activities through road tankers supply
Dust suppression	1.0 KLD	From road tankers supply
Total	**2.5 KLD**	

2.15. Project Cost

Project Cost/Investment Cost

The total project cost is **Rs. 67,50,000/-** including land cost and deployment of machinery and creation of infrastructural facilities like Labour shed, Sanitary facility, fencing cost etc, electrifications and water supply.

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Table 2-14 Investment Cost

1	**A. Fixed Asset Cost**:		
	1. Land Cost	:	Rs. 40,00,000/-(Leased tender amount for Government Poramboke Land)
	2. Labour Shed	:	Rs. 1,00,000/-
	3. Sanitary Facility	:	Rs. 1,00,000/-
	4. Fencing cost	:	Rs. 2,00,000/-
	Total=		**Rs.44,00,000/-**
2	**B. Operational Cost: Machinery cost**	:	**Rs.20,00,000/-**
3	**C. EMP Cost:**		
	Drinking water facility	:	Rs. 1,10,000/-
	Safety kits	:	Rs. 75,000/-
	Water sprinkling	:	Rs. 50,000/-
	Afforestation	:	Rs. 25,000/-
	Water quality test	:	Rs. 30,000/-
	Air quality test	:	Rs. 30,000/-
	Noise/vibration test	:	Rs. 30,000/-
	Total=	:	**Rs. 3,50,000/-**
	Total Project Cost(A+B+C)	:	**Rs. 67,50,000/-**

2.16. Corporate Social Responsibility

The following Corporate Environment Responsibility (CER) activities before the commencement of the quarrying activities.

Table 2-15 CER Cost

S.No.	CER Activity	CER 2% of the project cost (Rs in Crores)
1.	Developing the library, sports/Drinking water facilities in nearby school	1,35, 000
Total		**Rs. 1,35,000**

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3. Description of the Environment

3.1. Introduction

This Chapter describes the baseline environmental conditions around the project site for various environmental attributes, i.e. physical, biological, and socio-economic conditions, within the 10-km radial zone of the proposed project site, which is termed as the study area. Topography, drainage, meteorology, air, noise, water, soil and land constitute the physical environment, whereas flora and fauna constitute the biological environment. Demographic details and occupational pattern in the study area constitute socio-economic environment.

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.

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3.2. Background and Salient Environmental Features of the Study Area:

Thiru. C. Selvan applied for mining of Rough stone in survey numbers – 63/2(P) in Bargur Village, Bargur Taluk, Krishnagiri District and Tamil Nadu State over an extent of 3.35.0 hectares in Government Poromboke Lands for a period of 5 years . The area lies in the latitude of 12° 33' 21.83"N to 12° 33' 31.00"N and longitude of 78° 21' 43.58"E to 78° 21' 53.65"E. The area is marked in the survey of India Topo sheet No. 57 – L/06.

3.2.1. Study Period

To establish the base line environmental status of the physico-chemical, biological and socio-economic parameters in the project area and within the project influence area the baseline study and primary data collection has been carried out during 1st June 2021 to 31st August 2021. Field monitoring for meteorological conditions, ambient air quality, Water quality, Noise quality, Soil quality etc. has been carried out, which constitute major portions of the Baseline environmental studies. In addition to these other major aspects like Geology, Hydrology, ground water and water conservation, Land use, Socioeconomic study, Ecology
and biodiversity etc. are also covered.

All this information is based on primary and secondary information sources and surveys and constitute the baseline environmental studies. The entire data have been collected through actual physical surveys and observations, literature surveys, interaction with locals, government agencies and departments.

3.2.2. Environmental Setting and Salient Environmental Features of the Project Area:

The proposed mine is situated in S.No. 63/2 (P) of Bargur village, Bargur Taluk and Krishnagiri district. The site is well connected with National Highway- 46 (1km, S direction). Nearest Railway station is Jolarpet Railway Station which is located at 25 km east from the Project Site. Nearest Airport form the project site is Bangalore located at 112 km. There are no surface water bodies within 10km radius around the project site.

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There are no environmentally sensitive components except few Forest blocks such as Neralakotta Reserved forest at a distance of 2 km (N); Kothur Reserved Forest 5km (NNE); Bargur Reserved Forest 1.2 km (SSE), Varatanapalli Reserved Forest 3.0 km (W).

Location map and Topo map showing site and surrounding environment features within the 10-km area is provided in Figure 3.2 & Figure 3.3 respectively.

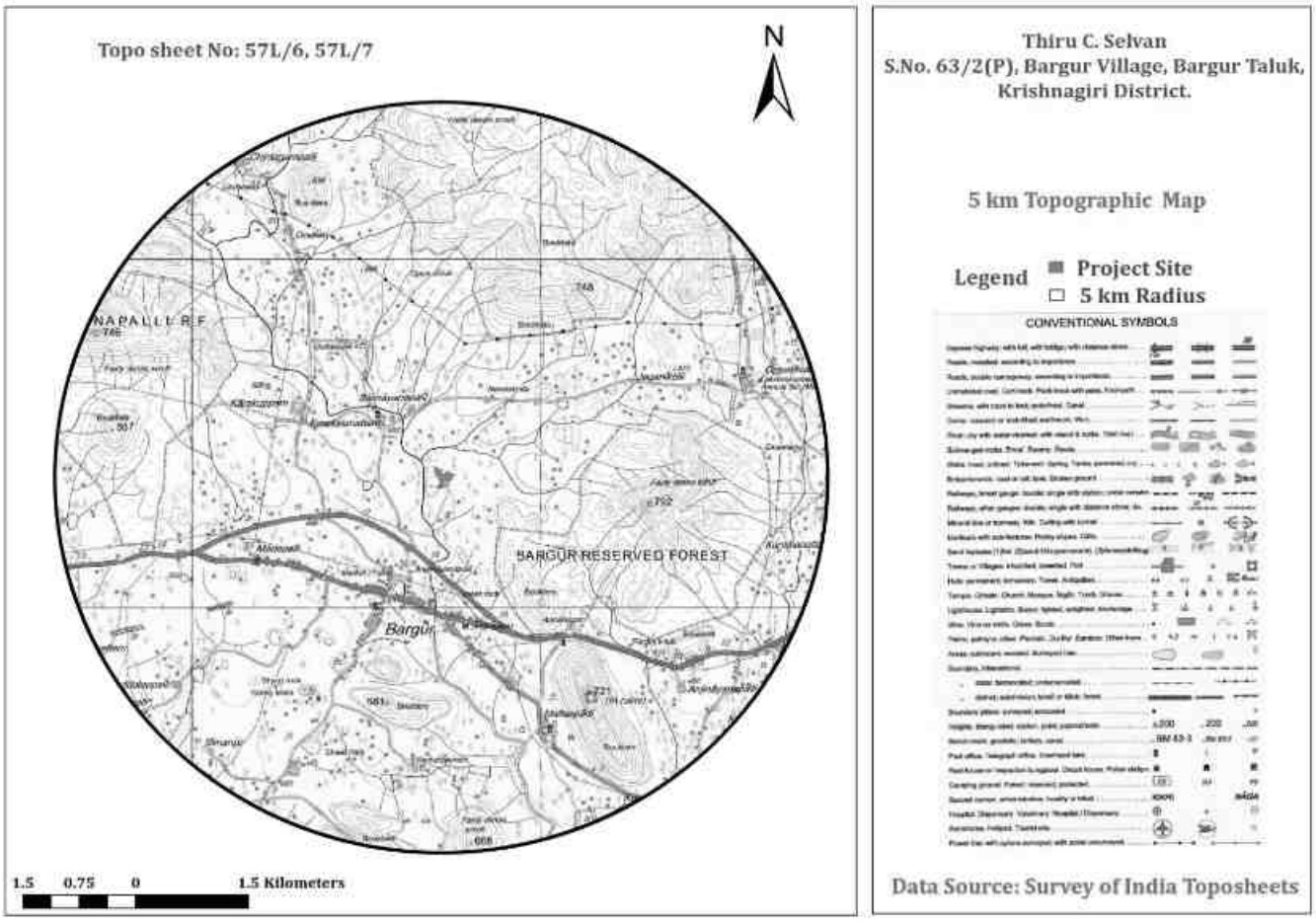

Figure 3.1 Topo map around 10km radius from the project site

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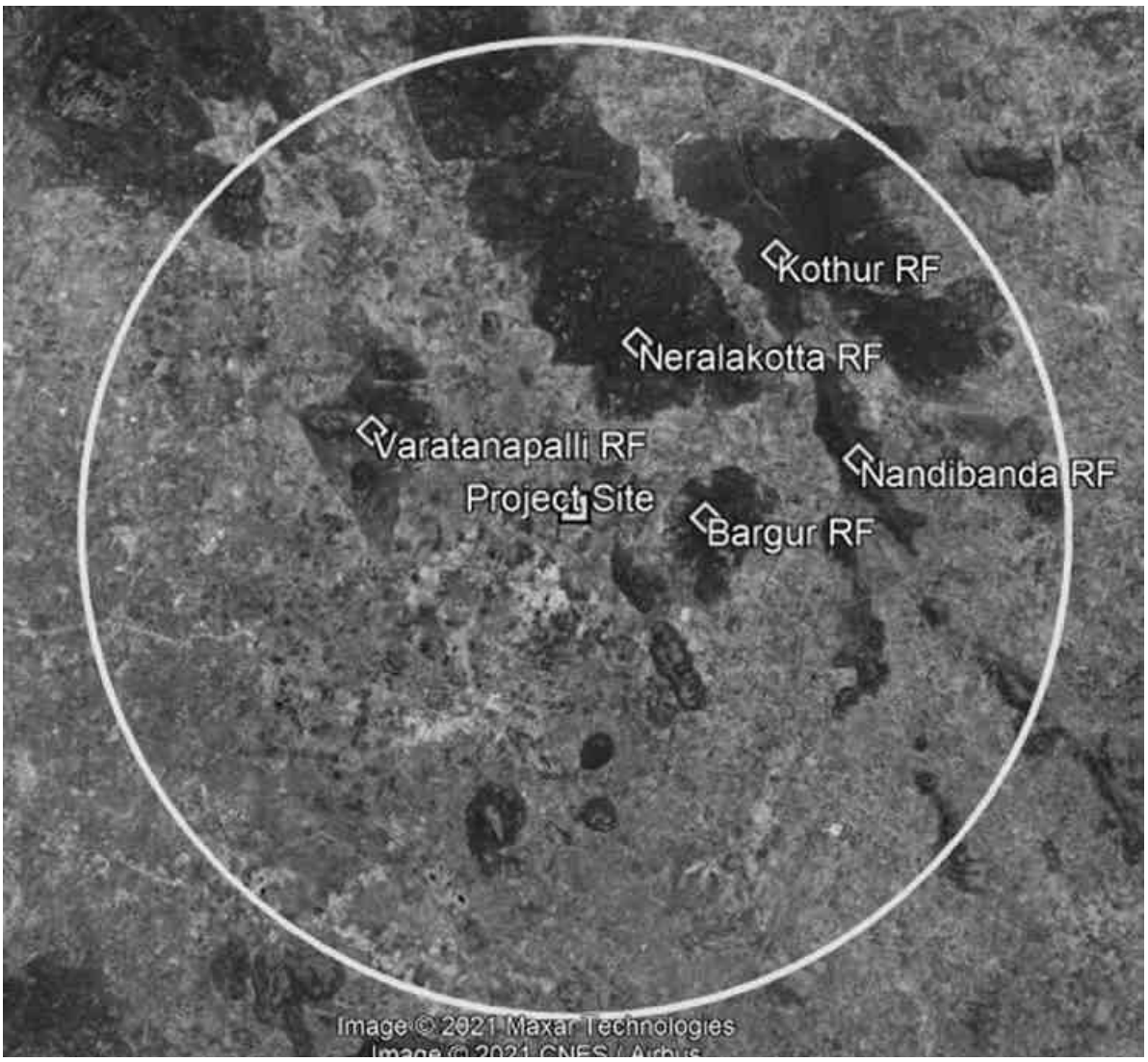

Figure 3.2 Environmental sensitivity around 10km radius

3.2.3. Components of Methodology of Baseline Survey

The guiding factors for the present baseline study are the Ministry of Environment, Forests & Climate Change's (MoEF&CC) requirements for the Environmental Impact Assessment (EIA) notification and local regulations and directives. The methodology to conduct baseline environmental survey has been considered as per the guidelines given in the Environmental Impact

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Assessment Guidance Manual. Further, a buffer area extending up to 10 km radius from the site has been studied. The studies were conducted by considering the following:

The various environmental attributes were divided into primary and secondary studies. Primary attributes such as air environment, water, soil, noise, flora and fauna, and Socio- economic were assessed by conducting field studies, on-site monitoring and review of the past studies conducted. Baseline data on environmental attributes (Air, Noise, Water and Soil) have been collected for June to August 2021 in the study area. The data has been collected by by engaging NABL/MoEF accredited laboratory team of M/s. Ecotech Labs Pvt. Ltd., Secondary attributes such as land use studies, geology, physiological characteristics, and socio-economic environment have been assessed by literature review of previous studies conducted by various government publications.

3.2.4. Frequency of Monitoring

Table 3-1Frequency of Sampling and Analysis

Atributes	**Sampling**	**Frequency**
Air environment – Meterological (wind speed, wind direction, rainfall, humidity, temperature)	Project site	1 hourly continuous
Air environment – Pollutants PM 10 PM 2.5 SO_2 NO_X Lead in PM	6 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	6 locations	24 hourly Once in 6 locations
Water (Ground water) pH, Temperature, Turbidity, Magnesium Hardness, Total Alkalinity, Chloride, Sulphate, Fluoride, Nitrate, Sodium, Potassium, Salinity, Total nitrogen, Total Coliforms, Fecal Coliforms	6 locations	Once in 6 locations

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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)	6 locations	Once in 6 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

3.3. Physical Environment

3.3.1. Topography

Krishnagiri district is located approximately between 11'12N and 12'49N of the North Latitude and between 77'27E and 78'38E of east longitude. The total geographical area of the district is 5143 Sq. Km. Krishnagiri district is elevated from 300m to 1400m above the mean sea level. The district is surrounded by Vellore and Tiruvannamalai districts in the East, Karnataka in the West, Andhra Pradesh in the North, Dharmapuri district in the South.

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 MSL. The plateau region along the western boundary and the northwestern part

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of the district has an average elevation of 914 m MSL. The Guthrayan Durg with an elevation of 1395 m MSL is the highest peak in the district.

3.3.2. Drainage

Krishnagiri district forms parts of Cauvery and East Coast Minor Rivers basins. Cauvery River forms the southwestern boundary of the district. Dodda Halla is the most important tributary of Cauvery draining the rugged terrain in the northwestern part of the district. Ponnaiyar is the major river draining the district and is ephemeral in nature. It originates from Nandhi hills in Karnataka, enters Tamil Nadu west of Bagalur and flows almost in a southeasterly direction till it reaches Manjamedu from where it flows along the district boundary before entering the district, again near Hanuman Tirtham. After flowing for a short distance in an easterly direction, it again follows the district boundary before entering the neighboring Dharmapuri district. Pambar and Burgur Ar., are among the important tributaries of Ponnaiyar draining part of the district.

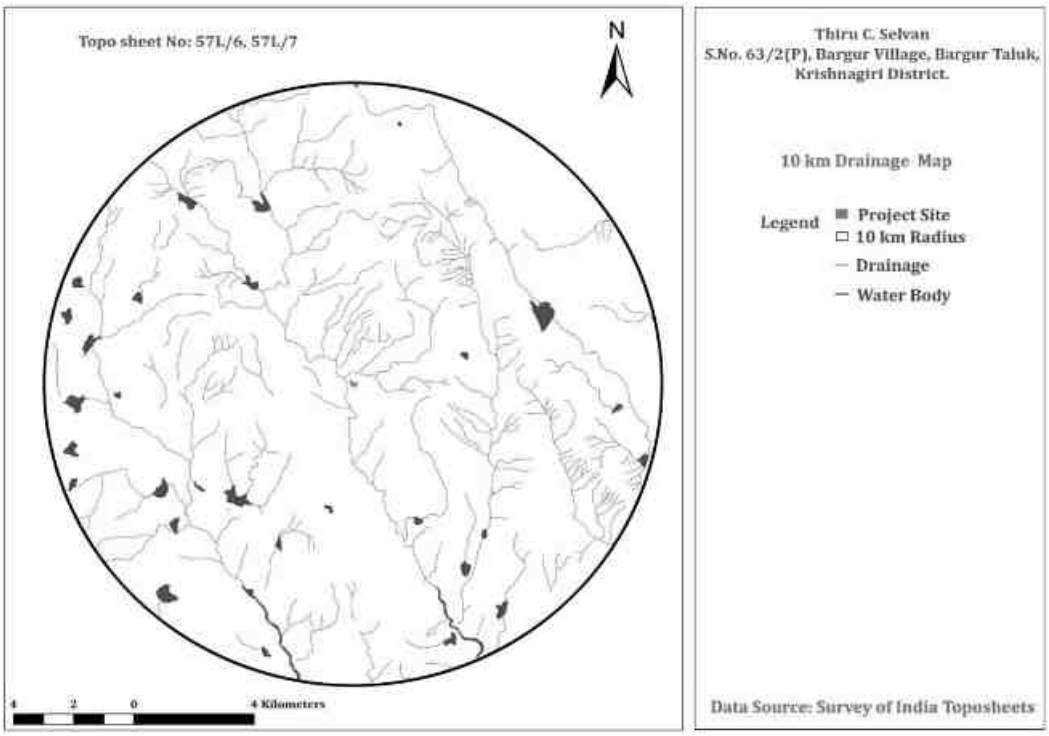

Figure 3.3 Drainage Map

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3.3.3. Geology & Hydrogeology

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 the phreatic condition 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. Depth of well in hard rock generally ranges between 8 and 15m below ground level. Generally yield in open wells ranges from 30 to 250m3 /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 Lime stone, Calcareous sand - stone and marl. The Tertiary formation is argillaceous comprising of Silty clay stones, argillaceous Lime stone. 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

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formation which also form potential aquifers. In some areas, sand stone of tertiary formation are the potential groundwater reservoirs.

3.3.4. Aquifer Systems

Occurrence and storage of groundwater depend upon three factors viz., Geology, Topography and rainfall in the form of precipitation. Apart from Geology, wide variation in topographic profile and intensity of rainfall constitutes the prime factors of groundwater recharge. Aquifers are part of the more complex hydro geological system and the behaviour of the entire system cannot be interpreted easily. In hard rock terrain the occurrence of Ground Water is limited to top weathered, fissured and fractured zone which extends to maximum 30 m on an average it is about 10-15 m in Krishnagiri District. In Sedimentary formations, the presence of primary inter granular porosity enhances the transmitting capacity of groundwater where the yield will be appreciable. The sedimentary area which occupies the eastern part of the District along the coastal tract is more favourable for groundwater recharge.

Ground Water occurs both in semi confined and confined conditions. A brief description of occurrence of groundwater in each formation is furnished below. Alluvial Formations In the river alluvium groundwater occurs under water table condition. The maximum thickness is 37 m and the average thickness of the aquifer is approximately 12 m. These formations are porous and permeable which have good water bearing zones. Tertiary Cuddalore sandstone Tertiary formations are represented by Cuddalore Sandstone and characterised as fluvial to brakish marine deposits. Predominantly this formation is divided into Lower and Upper Cuddalore formations. In the Upper Cuddalore formations the groundwater occurs in semi confined conditions, whereas in the Lower Cuddalore the groundwater occurs in confined condition with good groundwater potential.

Cretaceous Formations Groundwater occurring in the lens shape in the sandy clay lenses and fine sand is underlain by white and black clay beds which constitute phreatic aquifer depth which ranges 10m to 15m below ground level. Phreatic aquifer in Limestone is potential due to the presence of

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Oolitic Limestone. Hard Rock Formations Groundwater occurs under water table conditions but the intensity of weathering, joint, fracture and its development is much less in other type of rocks when compared to gneissic formation. The groundwater potential is low, when compared with the gneissic formations

Granitic Gneiss

Groundwater occurs under water table conditions in weathered, jointed and fractural formations. The pore space developed in the weathered mantle acts as shallow granular aquifers and forms the potential water bearing and yielding zones water table is shallow in canal and tank irrigation regions and it is somewhat deeper in other regions.

Charnokite

Groundwater occurs under water table conditions but the intensity of weathering, joint, fracture and its development is much less when compared to gneissic formations. The groundwater potential is low, when compared with the gneissic formations.

3.3.4.1. Aquifer Parameters

The thickness of aquifer in this district is highly erratic and varies between 15 m to 40 m below ground level. The inter granular Porosity is essentially dependent on the intensity and degree of weathering and fracture development in the bed rock. As discussed earlier deep weathering has developed in Gneissic formations and moderate weathering in charnockite formations.

Type Of Aquifer	Discontinuous Unconfined To Semi-Confined Aquifers In Fissured Formations
Aquifer Parameters	
Well yield lpm:	36 – 1125
Transmissivity (T)(m 2/day)	8 – 73
Permeability (K)m/day:	0.78 – 23
Depth of Water level	8m to 25m

Source: https://www.twadboard.tn.gov.in/content/krishnagiri

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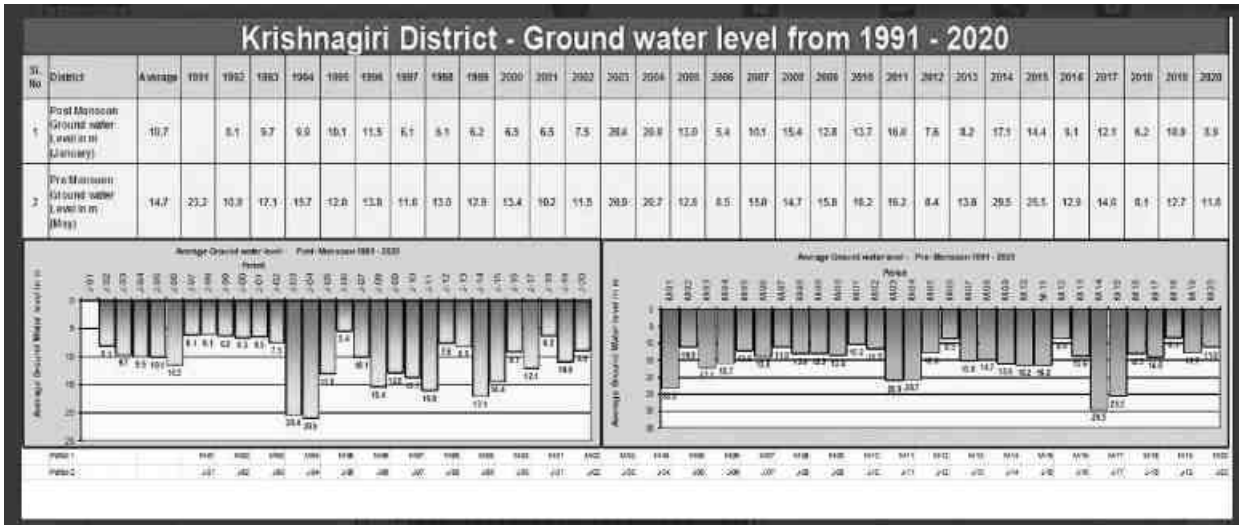

The project falls under Krishnagiri Block, which is categorized as Overexploited zone as per Annexure to G. O (Ms) No. 161, Public Works (R2) Department, Dated: 23.10.2019, where the eligibility for the extraction of groundwater, extraction will be permitted only in Safe/Semi critical and Non metro area for residential development where there is no any provision of piped water supply by Local body.)

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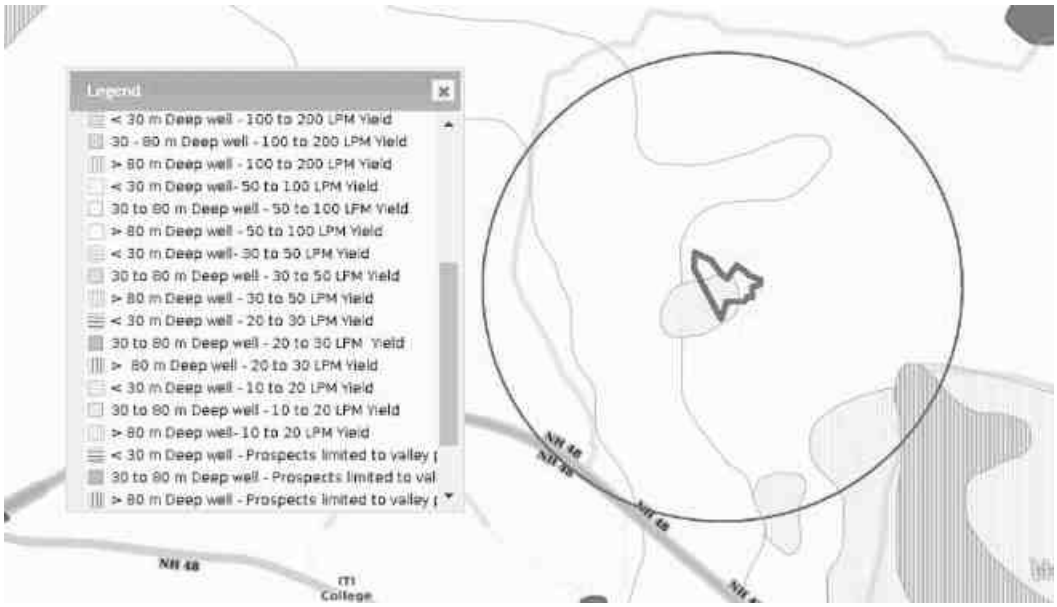

Figure 3.4 Groundwater potential around 1km radius (Source: Bhuvan)

3.4. Seismicity of the Study Area

Based on tectonic features and records of past earthquakes, a seismic zoning map of India has been prepared by a committee of experts under the auspices of Bureau of Indian Standard (BIS Code: IS: 1893: Part I 2002). As per Seismic map of India the study area falls in Zone-II (Least active Zone). The seismic zone map of study area is given in Figure 3.7.

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Figure 3.5 Seismic Map of India

3.5. Land use Analysis

3.5.1. 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.

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3.5.2. 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

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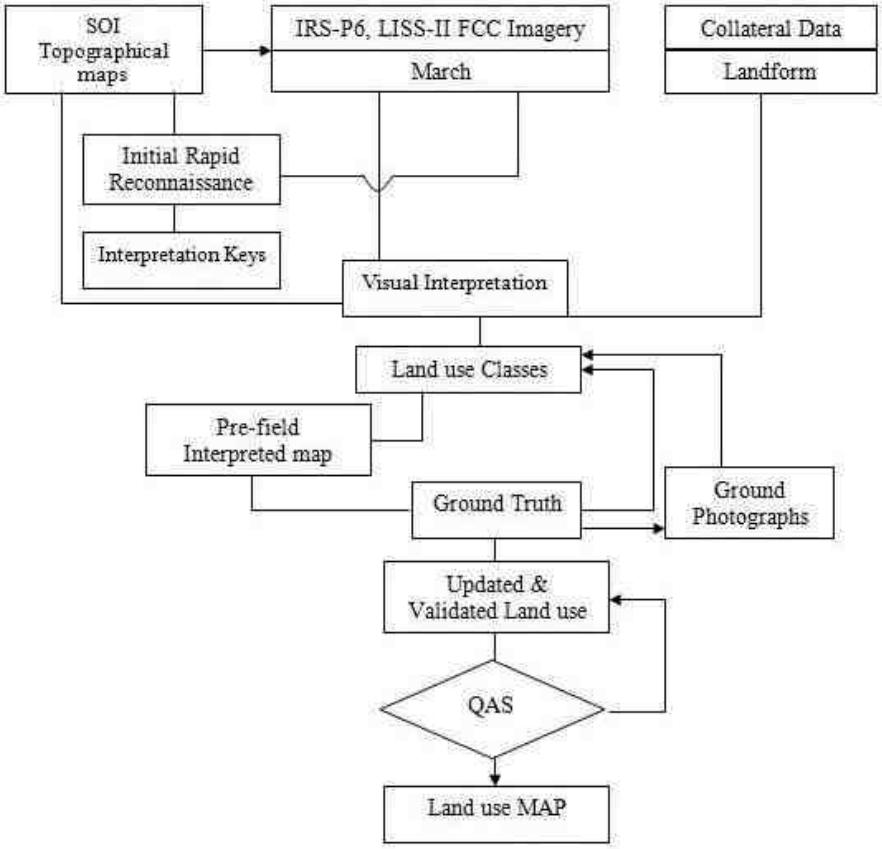

Figure 3.6 Flow Chart showing Methodology of Land use mapping

3.5.3. Satellite Data

IRS Resourcesat-2 LISS-III multispectral satellite data of 05th March 2016 was utilized for the present study. Details of satellite data is given below. The rectification of imagery was carried out on to bring the digital data on the earth coordinate system by means of ground control point (GCP) assignments/SOI topo sheets.

3.5.4. Scale of mapping

Considering the user defined scale of mapping, 1:50000 IRS-P6, LISS-III data on 1:50000 Scale 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.

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3.5.5. 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.

February 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. Digitisation of the study area (10 km radius from the proposed site) from the topo maps
2. In the present study the IRS –P6 satellite image and SOI topo sheets of 47-F/01,02,03have been procured and interpreted using the ERDAS imaging and ARC-GIS soft ware adopting the necessary interpretation techniques.
3. Satellite data interpretation and vectorisation 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, wet lands, and water bodies. These are followed by level –II where built-up land is divided into towns/cities as well 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

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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

3.5.6. 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.

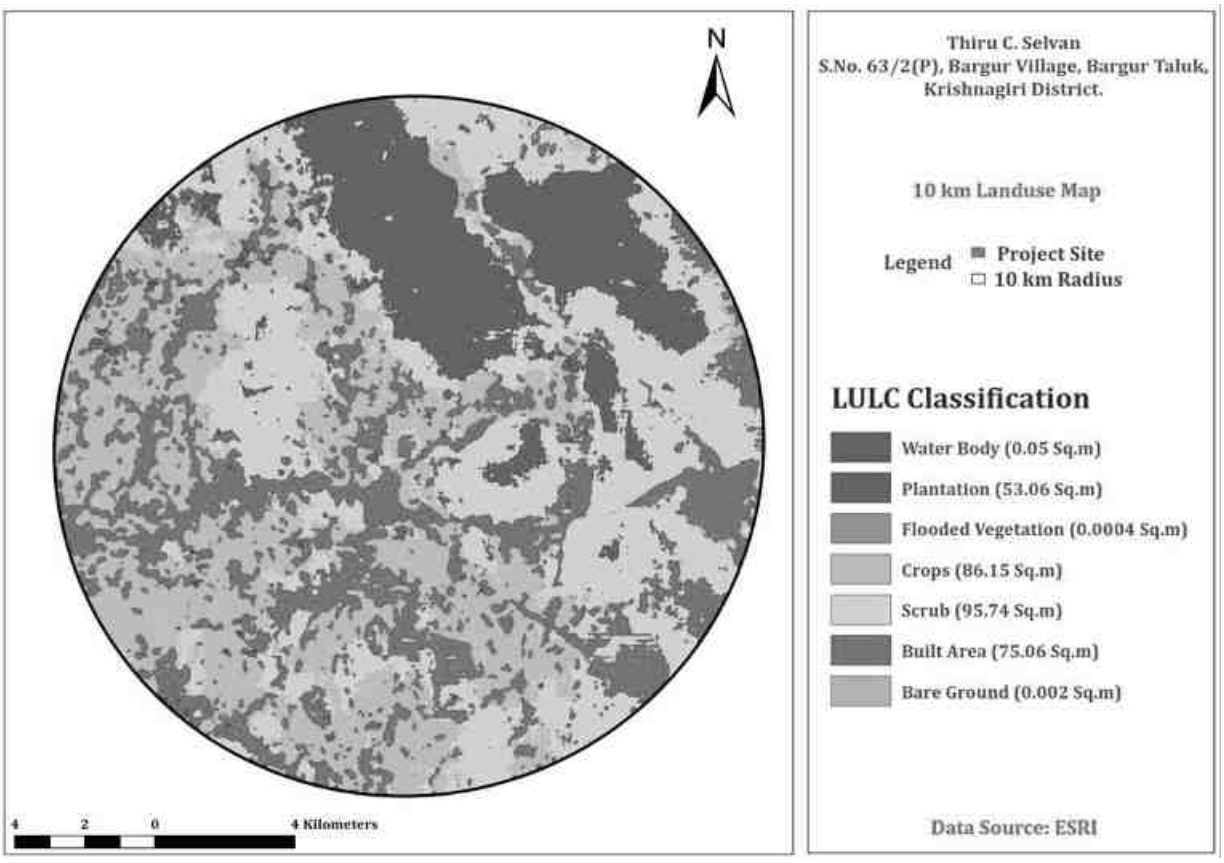

Figure 3.7 Land use classes around 10 km radius from the project site

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3.6. Description of the Land Use / land cover classes

3.6.1. Built-up land

It is defined as an area of human settlements composed of houses, commercial complex, transport, communication lines, utilities, services, places of worships, recreational areas, industries etc. Depending upon the nature and type of utilities and size of habitations, residential areas can be aggregated into villages, towns and cities. All the man-made construction covering land belongs to this category.

3.6.2. Agricultural land

This category includes the land utilized for crops, vegetables, fodder and fruits. Existing cropland and current fallows are included in this category.

It is described as an area under agricultural tree crops, planted adopting certain agricultural management techniques.

3.6.3. Forest land

These are the areas bearing an association predominantly of trees and other vegetation types (within the notified forest boundaries) capable of producing timber and other forest produce. The study area of 10 km buffer comprise of Forest plantation, forest blanks and Scrub Forest,

3.6.4. Wastelands

Wastelands are the degraded or underutilized lands most of which could be brought under productive use with proper soil and water management practices. Wasteland results from various environmental and human factors.

3.6.5. Land with or without Scrub

The land, which is outside the forest boundary and not utilized for cultivation. Land with or without scrub usually associated with shallow, stony, rocky otherwise non-arable lands.

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3.6.6. Water bodies

The category comprises area of surface water, either impounded in the form of ponds, reservoirs or flowing as streams, rivers and canals. River cater channel is inland waterways used for irrigation and for flood control.

3.6.7. Wastelands

Wastelands are the degraded or under utilized lands most of which could be brought under productive use with proper soil and water management practices. Wasteland results from various environmental and human factors.

The study reveals that the following major land use in the study area of 10 km radius from the project boundary

- Crop land (27 %) and scrubs (30%) occupies majority of the area.
- About 24 % is built up area land used for various developmental activities.
- Around 17% occupies vegetation

3.7. Soil Environment

Soil is the most important medium for supporting agricultural development. Its properties influence fertility, water retention capacity, physical support capacity of plant roots, determination of various other chemical constituent parameters. It is thus a vital necessity to study the nutrient status of soil regime.

3.7.1. Selection Criteria for Soil Sampling Location

For studying soil quality of the study area and with a view to ascertain the impacts due to proposed activities on the nearby agriculture, vegetative, urban settlement land , six sampling locations, representing various land use conditions, were selected to assess the existing soil conditions in and around the project area. The location of the soil samples is presented in Table 3.5.

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Table 3-2 Soil sampling location

Sample Code	Sampling locations	Distance, km	Direction	Coordinates	Remarks
SQ - 1	Project Site	-	-		Mine area
SQ - 2	Bargur	1	S	12°32'55.21"N, 78°21'31.19"E	Plantation
SQ - 3	Kothiyalaganoor	1	N	12°33'58.22"N, 78°22'6.89"E	Residential
SQ - 4	Karagakovilkothur	1.12	E	12°33'16.63"N, 78°22'26.05"E	Plantation cum Residential
SQ - 5	Oppunthavadi	5	E	12°32'27.05"N, 78°24'39.20"E	Residential
SQ - 6	Gandhi nagar	1	W	12°33'34.60"N, 78°21'18.41"E	Residential

3.7.2. Methodology

3.7.2.1. Sampling Technique

Soils vary from place to place. In view of this, efforts should be made to take the samples in such a way that it is fully representative of the field. Random five sub-locations were identified at each location. Scrap away surface liter; obtain a uniformly thick slice of soil from the surface to the plough depth from each place. A V-Shaped cut is made with a spade to remove 1 to 2 cm slice of soil. The sample may be collected on the blade of the spade and put in a clean bucket. In this way collect samples from all the spots marked for one sampling unit. In case of hard soil, samples are taken with the help of augur from the plough depth and collected in the bucket. Pour the soil from the bucket on a piece of clean paper or cloth and mix thoroughly. Spread the soil evenly and divide it into 4 quarters. Reject two opposite quarters and mix the rest of the soil again. Repeat the process till left with about half kg of the soil, collect it and put in a clean cloth / polyethylene bag. Each bag should be properly marked with the name of sampling location & number to identify the sample.

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3.7.2.2. Storage Technique

Collected Samples are immediately transported to the laboratory. They are shade dried in wooden or enameled trays (except for the analysis of moisture content) and stored. The dried soils are ground using mortar and pestle (taking care to break only the clods but not the sand and gravel particles) and sieved through a 2mm mesh sieve.

3.7.2.3. Soil Quality Parameters and Method of Analysis

The analysis of soil properties shall be done as per standard methods as described in the Methods Manual of Soil Testing in India, Department of Agriculture & Co-operation, Ministry of Agriculture, Government of India, New Delhi.

Table 3-3 Method for Analysis of Soil Properties

S.No.	Parameters	Method of Analysis
Physical Parameters		
1	Moisture content (%)	Gravimetric
2	Water Holding Capacity (%)	Gravimetric
3	Bulk Density (%)	Gravimetric
4	Texture	Hydrometer Method
5	Sand (%)	Hydrometer Method
6	Clay (%)	Hydrometer Method
7	Silt (%)	Hydrometer Method
Chemical Properties		
9	PH	Electrometric (pH meter)
10	EC (µS/m)	Electrometric
11	Total Nitrogen as N, Kg/ha	Kjeldhal Method
12	Available Phosphorous, Kg/ha	Spectrophotometer
13	Available Potassium, Kg/ha	Flame Photometer
14	Exchangeable Calcium as Ca, m.eq/100g	Titrimetric

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15	Exchangeable Magnesium as Mg, m.eq/100g	
16	Exchangeable Sodium as Na, m.eq/100g	
17	Organic matter (%)	

3.7.2.4. Protocol for Assessment of Soil Physico-Chemical Properties

Methods of Manual of Soil Testing in India, Department of Agriculture & Cooperation, Ministry of Agriculture, Government of India, New Delhi, shall be followed for collection of soil samples, its preparation for testing and analyzing various physico-chemical properties of soil.

3.7.2.5. Soil Quality Analysis

The homogenized samples were analyzed for physico chemical characteristics. The physical and chemical analysis results of the soil samples collected at site are presented in Table 3.7.

Table 3-4 Physicochemical Characteristics of Soil

S.No	Parameters	Unit	SQ 1	SQ2	SQ 3	SQ 4	SQ 5	SQ 6
1	pH (1:5 Suspension)		7.32	7.96	8.13	7.81	8.08	7.82
2	Bulk Density		0.034	0.009	0.119	0.002	0.005	0.01
3	Electrical conductivity, mS/cm (1:5 Suspension)	mS/cm	0.013	0.054	0.056	0.03	0.04	0.043
4	Total Nitrogen as N, Kg/ha	kg/ha	289	304	276	424	218	326
5	Available Phosphorous, Kg/ha	kg/ha	10.9	13.8	43.8	1.15	1.65	0.23
6	Available Potassium, Kg/ha	kg/ha	306	233	206	342	274	258
7	Exchangeable Calcium as Ca, m.eq/100g	m.eq/100g	7.3	5.9	6.1	5.6	8.0	3.6
8	Exchangeable Magnesium as Mg, m.eq/100g	m.eq/100g	2.6	2.2	8.1	3.4	2.1	2.2
9	Exchangeable Sodium as Na, m.eq/100g	m.eq/100g	2.42	1.98	2.36	1.14	1.03	2.78
10	Organic matter (%)	%	0.89	1.56	1.49	0.75	0.73	0.85
11	Texture Classification		Loam	Clay	Loam	Sand	Sand	Clay
12	Sand (%)	%	54.2	20.6	56.2	56.8	54.9	24.3

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13	Clay (%)	%	28.8	63.4	28.6	27.6	29.8	68.7
14	Silt (%)	%	17	16	15.2	15.6	15.3	7

3.7.2.6. Interpretation of Soil Characteristics

Soil Texture:

As per the grain size distribution the percentage of Sand in all sampled soil was found varied from 20% to 56%, Silt varied from 7% to 17% and Clay from 27% to 68% during study season. Thus, the soil texture is Clay Loam.

Soil Reaction:

Soil pH is an important soil property, which affects the availability of several plant nutrients. It is a measure of acidity and alkalinity and reflects the status of base saturation. The soil pH ranges were observed from 7.3 to 8.1 during study season, thereby indicating the soil is neutral to slightly alkaline in nature.

Macronutrients: Nutrients like nitrogen (N), phosphorus (P) and potassium (K) are considered as primary nutrients and sulphur (S) as secondary nutrient. These nutrients help in proper growth, development and yield differentiation of plants and are generally required by plants in large quantity.

Available Nitrogen:

Nitrogen is an integral component of many compounds including chlorophyll and enzyme essential for plant growth. It is an essential constituent for amino acids which is building blocks for plant tissue, cell nuclei and protoplasm. It encourage aboveground vegetative growth and deep green colour to leaves. Deficiency of nitrogen decreases rate and extent of protein synthesis and result into stunted growth and develop chlorosis. Available nitrogen content in the surface soils ranges between 218 kg/ha to 424 kg/ha thereby indicating that soils are medium in available nitrogen content.

Available Phosphorus:

Phosphorus is important component of adenosine di-phosphate (ADP) and adenosine tri-phosphate (ATP), which involves in energy transformation in plant. It is essential component of

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deoxyribonucleic acid (DNA), the seat of genetic inheritance in plant and animal. Phosphorous take part in important functions like photosynthesis, nitrogen fixation, crop maturation, root development, strengthening straw in cereal crops etc. The availability of phosphorous is restricted under acidic and alkaline soil reaction mainly due to P-fixation. In acidic condition it get fixed with aluminium and iron and in alkaline condition with calcium. Available phosphorus content ranges between 1.15kg/ha to 43.8 kg/ha thereby indicating that soils are medium in available phosphorus

Available Potassium:

Potassium is an activator of various enzymes responsible for plant processes like energy metabolism, starch synthesis, nitrate reduction and sugar degradation. It is extremely mobile in plant and help to regulate opening and closing of stomata in the leaves and uptake of water by root cells. It is important in grain formation and tuber development and encourages crop resistance for certain fungal and bacterial diseases. Available potassium content in these soils ranges between 206 kg/ha to 342 kg/ha thereby indicating that the soils are medium in potassium content.

3.8. Water Environment

Water quality is a complex subject, which involves physical, chemical, hydrological and biological characteristics of water and their complex and delicate relations. The quality of water is of vital concern for mankind since it is directly linked with human welfare. Water quality characteristics of aquatic environments arise from multitude of physical, chemical and biological interactions. The water bodies are continuously subjected to dynamic state of changes with respect to their geo-chemical characteristics. The dynamic balance in aquatic ecosystem is upset by human activities. For assessment of baseline data of water quality status, general reconnaissance survey of River upstream and downstream of proposed study area will be done. "Protocol for Water Quality Monitoring" notified by Govt of India in conjunction with CPCB Guidelines for Water Quality Monitoring, 2007-08, shall be followed

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3.8.1. Selection Criteria for Water Sampling Location

In case of groundwater sampling only tubewells, dug-well and handpumps which are in use should be selected. There are no surface water within 10km radius around the project site.

3.8.2. Sampling Frequency

Grab samples of surface and ground water were collected and analyzed once during study period (post Monsoon).

Table 3-5 Test method used for Analysis

S.No.	Parameter	Test Method
1	Colour	APHA 23rd EDITION 2120 C
2	Odour	APHA 23rd EDITION 2150 B
3	Taste	IS 3025 Part 8 (Reaff:2017)
4	Turbidity	IS : 3025 Part 10-1984 (Reaff: 2017)
5	pH at 25 °C	IS : 3025 Part 11- 1983 (Reaff: 2017)
6	Electrical Conductivity @25°C	IS : 3025 Part 14- 1984 (Reaff: 2019)
7	Total dissolved solids	IS : 3025 Part 16-1984 (Reaff: 2017)
8	Total Suspendid solids	IS : 3025 Part 17-1984 (Reaff: 2017)
9	Total Alkalinity as CaCO3	IS : 3025 Part 23- 1986(Reaff:2019)
10	Total Hardness as CaCO3	IS : 3025 Part 21-2009 (Reaff:2019)
11	Calcium as Ca	IS : 3025 Part 40-1991 (Reaff:2019)
12	Magnesium as Mg	APHA 23rd EDN-3500 Mg B
13	Chloride as Cl-	IS : 3025 Part 32-1988 (Reaff: 2019)
14	Sulphate as SO4	APHA 23rd EDN -4500-SO42- E
15	Nitrate as NO3	APHA 23rd EDN -4500- NO3- B
16	Iron as Fe	IS : 3025 Part 53-2003 (Reaff:2019)
17	Manganese as Mn	APHA 23rd EDN -3500-Mn D
18	Fluoride as F	APHA 23rd EDN -4500-F B&D
19	Ammonia as N	APHA 23rd EDN -4500- NH3 B&C
20	Molybdenum as Mo	APHA 23rd EDN -3111 D
21	Barium as Ba	APHA 23rd EDN -3111 D
22	Residual Free Chlorine as Cl2	APHA 23rd EDN -4500 Cl G
23	Sodium as Na	IS : 3025 Part 45-1993 (Reaff:2019)
24	Potassium as K	IS : 3025 Part 45-1993 (Reaff:2019)
25	Nickel as Ni	APHA 23rd EDN -3111 B
26	Chloromines	IS 3025(part 26)1986(RA 2019)
27	Aluminium as Al	IS:3025 Part:55-2003(Reaff:2019)

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28	Cadmium as Cd	APHA 23rd EDN -3111 B
29	Lead as Pb	IS:3025 Part 47-1994 (Reaff:2019)
30	Copper as Cu	APHA 23rd EDN -3111 B
31	Zinc as Zn	IS:3025 Part:49-1994 (Reaff:2019)
32	Total Chromium as Cr	APHA 23rd EDN -3111 B
33	Arsenic as As	IS:3025 Part:37-1988 (Reaff:2019)
34	Cyanide as CN	APHA 23rd EDN -4500-CN E
35	Selenium as Se	APHA 23rd EDN -3114 B
36	Mercury as Hg	IS:3025 Part 48-1994 (Reaff:2019)
37	Anionic Surfactants as MBAS	APHA 23rd EDN 5540 C
38	Phenolic Copounds as Phenol	APHA 23rd EDN 5530 B,C
39	Mineral Oil*	IS 3025 Part 39-1991 (Reaff:2019)
40	Total Coliforms	IS 1622: 1982 (RA 2014)
41	E.Coli	IS 1622: 1982 (RA 2014)

3.8.3. Selection Criteria for water Sampling Location

For studying water quality of the study area and with a view to ascertain the impacts due to proposed activities on the nearby agriculture, vegetative, urban settlement land , six sampling locations, representing various land use conditions, were selected to assess the existing soil conditions in and around the project area. The location of the water samples collected is presented in Table 3.5.

Table 3-6 Soil sampling location

Sample Code	**Sampling locations**	**Distance, km**	**Direction**	**Coordinates**	**Remarks**
GW - 1	Project Site	-	-		Mine area
GW - 2	Bargur	1	S	12°32'55.21"N, 78°21'31.19"E	Plantation
GW - 3	Kothiyalaganoor	1	N	12°33'58.22"N, 78°22'6.89"E	Residential
GW - 4	Karagakovilkothur	1.12	E	12°33'16.63"N, 78°22'26.05"E	Plantation cum Residential
GW - 5	Oppunthavadi	5	E	12°32'27.05"N, 78°24'39.20"E	Residential
GW - 6	Gandhi nagar	1	W	12°33'34.60"N, 78°21'18.41"E	Residential

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Table 3-7 Ground Water Quality

S. No	**Parameter**	**Unit**	**Test Method**	**GW 1**	**GW 2**	**GW 3**	**GW 4**	**GW 5**	**GW 6**	**Acceptable Limit as Per 10500:2012**
1	Colour	Hazen	APHA 23rd EDITION 2120 C	<1	<1	<1	<1	<1	<1	5
2	Odour	-	APHA 23rd EDITION 2150 B	No Odour Observed	No Odour Observed	No Odour Observed	No Odour Observed	No Odour Observed	No Odour Observed	Agreeable
3	Taste	-	IS 3025 Part 8 (Reaff:2017)	Not Aggrebl e	Not Aggrebl e	Not agreeab le	Not agreeab le	Not Aggrebl e	Agreea ble	Agreeabl e
4	Turbidity	NTU	IS : 3025 Part 10-1984 (Reaff: 2017)	0.53	BDL(< 0.1)	BDL(< 0.1)	1.1	BDL(< 0.1)	BDL(< 0.1)	1
5	pH at 25 °C	-	IS : 3025 Part 11-1983 (Reaff: 2017)	7.43	8.06	7.97	7.56	7.32	7.41	6.5-8.5
6	Electrical Conductivity @25°C	µS/cm	IS : 3025 Part 14-1984 (Reaff: 2019)	873	1324	1937	2210	1319	1311	Not Specified
7	Total dissolved solids	mg/l	IS : 3025 Part 16-1984 (Reaff: 2017)	923	1495	1010	1110	1286	1294	500
8	Total Suspendid solids	mg/l	IS : 3025 Part 17-1984 (Reaff: 2017)	<2	<2	<2	<2	<2	<2	Not Specified
9	Total Alkalinity as CaCO3	mg/l	IS : 3025 Part 23-1986(Reaff:2019)	240	240	368	296	320	320	200

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10	Total Hardness as CaCO3	mg/l	IS : 3025 Part 21-2009 (Reaff:2019)	440	720	510	640	670	710	200
11	Calcium as Ca	mg/l	IS : 3025 Part 40-1991 (Reaff:2019)	172	96	112	136	168	168	75
12	Magnesium as Mg	mg/l	APHA 23rd EDN-3500 Mg B	2.4	116.6	55.9	72.9	60.8	70.5	30
13	Chloride as Cl-	mg/l	IS : 3025 Part 32-1988 (Reaff: 2019)	164.5	303.3	190.2	308.4	298.1	298.1	250
14	Sulphate as SO4	mg/l	APHA 23rd EDN - 4500-SO42- E	178	167	165	170	214	224	200
15	Nitrate as NO3	mg/l	APHA 23rd EDN - 4500- NO3- B	6	11.5	7.1	8.3	6.2	4.8	45
16	Iron as Fe	mg/l	IS : 3025 Part 53-2003 (Reaff:2019)	BDL(< 0.02)	BDL(< 0.02)	BDL(< 0.02)	BDL(< 0.02)	BDL(< 0.02)	BDL(< 0.02)	1
17	Manganese as Mn	mg/l	APHA 23rd EDN - 3500-Mn D	BDL(< 0.02)	BDL(< 0.02)	BDL(< 0.02)	BDL(< 0.02)	BDL(< 0.02)	BDL(< 0.02)	0.1
18	Fluoride as F	mg/l	APHA 23rd EDN - 4500-F B&D	0.63	0.82	0.82	0.56	0.71	0.77	1
19	Ammonia as N	mg/l	APHA 23rd EDN - 4500- NH3 B&C	BDL(< 0.05)	BDL(< 0.05)	BDL(< 0.05)	BDL(< 0.05)	BDL(< 0.05)	BDL(< 0.05)	0.5
20	Molybdenum as Mo	mg/l	APHA 23rd EDN - 3111 D	BDL(< 0.05)	BDL(< 0.05)	BDL(< 0.05)	BDL(< 0.05)	BDL(< 0.05)	BDL(< 0.05)	0.07
21	Barium as Ba	mg/l	APHA 23rd EDN - 3111 D	BDL(< 0.1)	BDL(< 0.1)	BDL(< 0.1)	BDL(< 0.1)	BDL(< 0.1)	BDL(< 0.1)	0.7
22	Residual Free Chlorine as Cl2	mg/l	APHA 23rd EDN - 4500 Cl G	BDL(< 0.1)	BDL(< 0.1)	BDL(< 0.1)	BDL(< 0.1)	BDL(< 0.1)	BDL(< 0.1)	4
23	Sodium as Na	mg/l	IS : 3025 Part 45-1993 (Reaff:2019)	78	140	110	54	60	24	Not Specified
24	Potassium as K	mg/l	IS : 3025 Part 45-1993 (Reaff:2019)	4	3	5.1	2.1	3	1.5	Not Specified

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25	Nickel as Ni	mg/l	APHA 23rd EDN - 3111 B	BDL(< 0.02)	BDL(< 0.02)	BDL(< 0.02)	BDL(< 0.02)	BDL(< 0.02)	BDL(< 0.02)	0.02
26	Chloromines	mg/l	IS 3025(part 26)1986(RA 2019)	BDL(< 0.1)	BDL(< 0.1)	BDL(< 0.1)	BDL(< 0.1)	BDL(< 0.1)	BDL(< 0.1)	4
27	Aluminium as Al	mg/l	IS:3025 Part:55-2003(Reaff:2019)	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	0.03
28	Cadmium as Cd	mg/l	APHA 23rd EDN - 3111 B	BDL(< 0.003)	BDL(< 0.003)	BDL(< 0.003)	BDL(< 0.003)	BDL(< 0.003)	BDL(< 0.003)	0.003
29	Lead as Pb	mg/l	IS:3025 Part 47-1994 (Reaff:2019)	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	0.01
30	Copper as Cu	mg/l	APHA 23rd EDN - 3111 B	BDL(< 0.03)	BDL(< 0.03)	BDL(< 0.03)	BDL(< 0.03)	BDL(< 0.03)	BDL(< 0.03)	0.05
31	Zinc as Zn	mg/l	IS:3025 Part:49-1994 (Reaff:2019)	0.09	0.23	0.14	0.28	0.08	0.03	5
32	Total Chromium as Cr	mg/l	APHA 23rd EDN - 3111 B	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	0.05
33	Arsenic as As	mg/l	IS:3025 Part:37-1988 (Reaff:2019)	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	0.01
34	Cyanide as CN	mg/l	APHA 23rd EDN - 4500-CN E	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	0.05
35	Selenium as Se	mg/l	APHA 23rd EDN - 3114 B	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	BDL(< 0.01)	0.01
36	Mercury as Hg	mg/l	IS:3025 Part 48-1994 (Reaff:2019)	BDL(< 0.001)	BDL(< 0.001)	BDL(< 0.001)	BDL(< 0.001)	BDL(< 0.001)	BDL(< 0.001)	0.001
37	Anionic Surfactants as MBAS	mg/l	APHA 23rd EDN 5540 C	BDL(< 0.025)	BDL(< 0.025)	BDL(< 0.025)	BDL(< 0.025)	BDL(< 0.025)	BDL(< 0.025)	0.2
38	Phenolic Copounds as Phenol	mg/l	APHA 23rd EDN 5530 B,C	BDL(< 0.001)	BDL(< 0.001)	BDL(< 0.001)	BDL(< 0.001)	BDL(< 0.001)	BDL(< 0.001)	0.001

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39	Mineral Oil*	mg/l	IS 3025 Part 39-1991 (Reaff:2019)	BDL(< 0.5)	BDL(< 0.5)	BDL(< 0.5)	BDL(< 0.5)	BDL(< 0.5)	BDL(< 0.5)	0.5
40	Total Coliforms	MPN/ 100ml	IS 1622: 1982 (RA 2014)	<2	<2	<2	<2	<2	<2	Absent/ 100 ml
41	E.Coli	MPN/ 100ml	IS 1622: 1982 (RA 2014)	<2	<2	<2	<2	<2	<2	Absent/ 100 ml

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3.8.4. Interpretation of Ground Water Quality

The analysis results indicate that the pH ranged between 7.1 to 7.7, which are well within the specified standard of 7.3 to 8.0 limit. Total hardness was recorded to range from 440 to 720 mg/l, which is within the permissible limit 600 mg/l at all locations. The Total Dissolved Solids (TDS) concentration recorded ranged between 923 to 1495 mg/l and was within the permissible limits (2000 mg/l) at all locations.

Chlorides at all the locations were within the permissible limits (1000 mg/l) as it ranged between 164 – 308 mg/l. Sulphates at all the locations were within the permissible limits (400 mg/l) as it ranged between 165 – 224 mg/l. Bacteriological studies reveal that no coliform bacterial are present in the samples. The heavy metal contents were observed to be in below detectable limits. All physical and general parameters were observed within the permissible limit as per IS10500:2012 (Second Revision). Thus, it is recommended that water be filtered and disinfected prior to be given for drinking water requirements.

3.9. 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
Summer season	:	March to May
Monsoon season	:	July to September
Post-monsoon season	:	October to November

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i) Climate

Like the rest of the state, Krishnagiri experiences hot weather between April and July and is relatively cooler in December and January. The area exhibits a subtropical climate and the temperature that goes upto 42°C insummer and falls down to 27°C in December – January. The wind direction is NE-SW andvice-versa. Average annual rainfall is about 1071.4 mm in monsoon season..

ii) Temperature

The average daily temperature ranges from a maximum of 33.7 °C to a minimum of 24.2 °C

iii) Rainfall:

The historical rainfall data of past years is collected. The maximum rainfall is observed in November, 2015 with a rainfall of 1061.3 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
2014	0.5	3.4	0.0	0.0	35.7	117.6	50.9	130.9	130.6	196.3	135.0	106.9
2015	1.7	0.0	0.0	49.5	45.4	32.2	102.2	140.4	70.3	179.8	1061.3	574.0
2016	0.5	0	0	0	198.1	109.3	59.6	51.7	275.3	28.8	66.1	247.2
2017	4.5	0	0	0	1.8	58.5	86.6	233.4	71.2	269.8	583.8	84.2
2018	2.2	0.9	2.9	0	0	39.2	95.9	197.7	62.5	149.9	171.9	31.8
2019	0.1	1.5	0	0	0	56	191.5	142.9	197.5	277.6	145.4	214.7
2020	40.7	0.1	0	52.2	1	26	188.4	92.1	158.1	241.1	570.4	229.3

Source: Customized Rainfall Information System (CRIS), Hydromet Division, GOI

iv) Relative humidity

The district enjoys a subtropical climate. The period from April to July is generally hot and dry. The weather is pleasant during the period from November to January. Usually mornings are more humid than afternoons. The relative humidity is on an average between 65 and 85% in the mornings. Humidity in the afternoons is generally between 40 and 70.

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v) Wind Speed:

Wind speed was in the range of 2 Km/hr to 20 Km/hr. The wind speed was almost close to each other during the whole study period.

The site-specific meteorological data for the study period July to September 2020) is presented below. The maximum and minimum values for all the parameters except wind speed and wind direction are presented below.

vi) Metrological Data

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

vii) 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 June to August 2021. The wind rose is plotted using WR Plot.

viii) Selection of Sampling Locations:

Four Monitoring locations along with the project site is selected based on Wind Direction & Wind Speed.

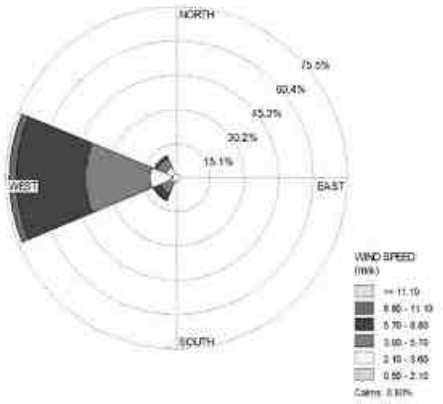

Figure 3.8 Windrose

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3.10. Ambient **Air Quality**

<table>
<tr><td colspan="2">Environmental Parameters: Ambient Air</td></tr>
<tr><td>Monitoring Period</td><td>June – August 2021</td></tr>
<tr><td>Design Criteria</td><td>The monitoring stations are selected based on factors like topography/terrain, prevailing meteorological conditions like predominant wind direction (June - August 2021), etc, play a vital role in selection of air sampling stations. Based on these criteria, 6 air sampling stations were selected in the area as shown below.</td></tr>
<tr><td>Monitoring Locations</td><td>
<table>
<tr><td>Location & Code</td><td>Distance (km)</td><td>Direction</td></tr>
<tr><td>Project Site -AAQ 1</td><td>-</td><td>-</td></tr>
<tr><td>Bargur – AAQ 2</td><td>1</td><td>S</td></tr>
<tr><td>Kothiyalaganoor– AAQ 3</td><td>1</td><td>N</td></tr>
<tr><td>Karagakovilkothur</td><td>1.12</td><td>E</td></tr>
<tr><td>Oppunthavadi – AAQ 5</td><td>5</td><td>E</td></tr>
<tr><td>Gandhi nagar – AAQ 6</td><td>1</td><td>W</td></tr>
</table>
</td></tr>
<tr><td>Methodology</td><td>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)</td></tr>
<tr><td>Frequency of Monitoring</td><td>2 days in a week, 4 weeks in a month for 3 months in a season.</td></tr>
</table>

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3.10.1. Ambient Air Quality: Results & Discussion

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

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Table 3-8 Ambient Air Quality

Code	Location	PM 10 (µg/m³)				PM 2.5 (µg/m³)				SO2 (µg/m³)				NOx (µg/m³)			
		Min	Max	Avg	98 percentile	Min	Max	Avg	98 percentile	Min	Max	Avg	98 percentile	Min	Max	Avg	98 percentile
AAQ 1	Project Site	50	71	58	70	20	29	24	28	5	10	7	10	14	24	18	23
AAQ 2	Bargur	50	68	57	65	24	30	26	30	5	11	8	10	12	23	17	22
AAQ 3	Kothiyalaganoor	39	53	45	52	18	24	21	24	5	8	6	8	12	19	15	18
AAQ 4	Karagakovilkothur	38	51	45	51	17	22	20	22	5	8	6	14.54	11	20	18	22.54
AAQ 5	Oppunthavadi	44	55	48	54	18	27	23	27	5	7	6	7	13	19	16	19
AAQ 6	Gandhi nagar	45	58	51	57	19	26	24	26	5	12	8	12	10	23	16	21
NAAQ Standards - Residential Area		**100 (µg/m³)**				**60(µg/m³)**				**80 (µg/m³)**				**80 (µg/m³)**			

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3.10.2. Interpretation of ambient air quality:

Observation:

The Maximum value of PM10 (71 (µg/m3) is observed in the project site. , PM 2.5 (30 (µg/m3) in Location 2 - Bargur, NOx (23 (µg/m3) – Bargur and Gandhinagar, Sox (12 (µg/m3) is observed in Gandhinagar.

PM 10 & PM 2.5:

The main source of ***PM 10 and PM 2.5*** is the dust emission and soot. The proposed mine lease area is located nearer to the **private crusher unit**. There will be a possibility of emission of fine particulate matter. The high value of 71 µg/m3 may occur due to inadequate control measures in the crushers. The dust emissions are substantial which leads to adverse impacts on workers as well as surrounding environment. In addition to that, the small collector roads near the monitoring locations are found to be mud road, which is unpaved leaving a way to dust emission.

NOx:

The major source of NOx is due to combustion of fossil fuels. The highest value is observed in Bargur and Gandhinagar . Burgur is located nearer to NH 46 connecting Krishnagiri to Walajabad where the movement of Public and Private transport for commutation will be more contributing to NOx emission. Apart from that, this road forms the route for transporting the mined out minerals from the existing nearby mine for marketing.

SOx:

The main source of SOx is Burning of fossil fuels such as coal, oil and natural gas. The project site is surrounded by cluster of mines which are in operation, where there is a usage of fuel for the operation of machineries which is contributing to the higher values of SOx.

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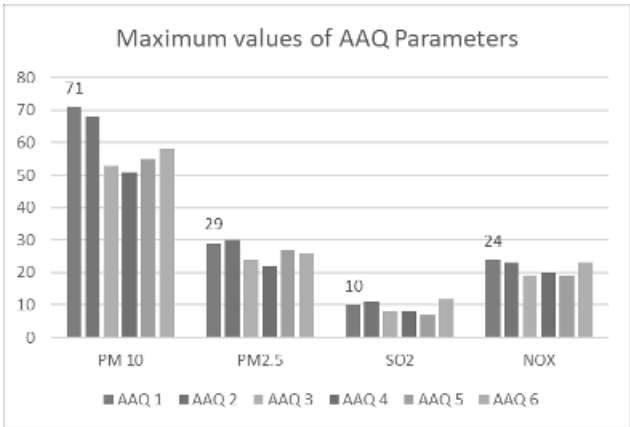
The observed values are all well within the Standards prescribed by NAAQ.



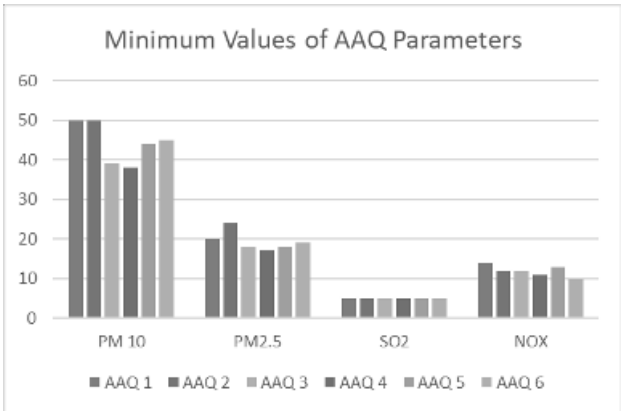


Figure 3.9 Maximum and minimum Values of Ambient Air Quality Parameters

3.11. Noise Environment:

Table 3-9 Noise Analysis

Environmental Parameters*: Noise Analysis*			
Monitoring Period	June – August 2021		
Design Criteria	Based on the Sensitivity of the area		
Monitoring Locations	Project Site -N 1	-	-
	Bargur – N2	1	S
	Kothiyalaganoor– N3	1	N
	Karagakovilkothur – N4	1.12	E
	Oppunthavadi – N 5	5	E
	Gandhi nagar – N 6	1	W
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

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3.11.1. Day Noise Level (Leq day)

Table 3-10 Day Noise Level (Leq day)

Location	Leq day in dB(A)		
	Max	Min	Average
Project Site -N 1	54	48	53.6
Bargur – N2	53	46	50.7
Kothiyalaganoor– N3	51	47	49.4
Karagakovilkothur – N4	52	46	50.6
Oppunthavadi – N 5	50	45	48.1
Gandhi nagar – N 6	54	47	52.7

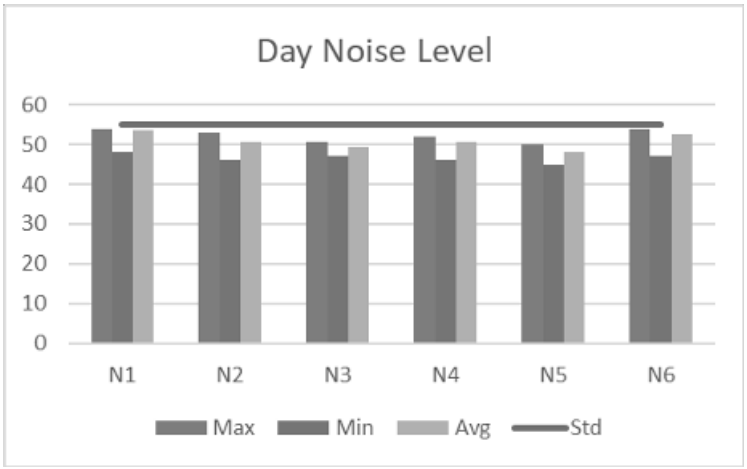

Figure 3.10 Day Noise Level (Leq day)

3.11.2. Night Noise Level (Leq Night)

Table 3-11 Night Noise Level (Leq Night)

Location	Leq Night in dB(A)		
	Max	Min	Average
Project Site -N 1	44	39	43
Bargur – N2	43	38	41
Kothiyalaganoor– N3	44	37	39
Karagakovilkothur – N4	43	36	38
Oppunthavadi – N 5	42	35	40

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Gandhi nagar – N 6	43	39	44

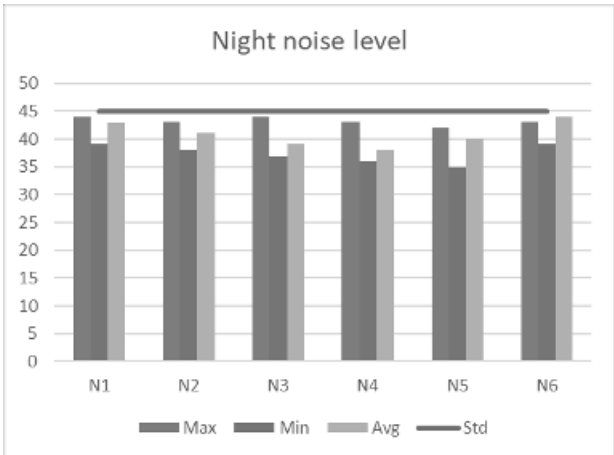

Figure 3.11 Night Noise Level (Leq Night)

3.11.3. Observation:

The maximum Day noise were found to be 54dB(A) respectively in Project site and Burgur. The night noise was found to be 44 dB(A) at Project site and Emakalnatham. The minimum Day Noise and Night noise were 45dB(A) and 35 dB(A) in Saliyanapalli.

3.11.4. Inference:

The maximum day noise in the project site is due to the running of crusher machines and vehicles carrying crushers to and from the unit, which are very close to the proposed mine lease area. The noise levels were also observed to be high in Burgur which is located nearer to NH 46, where the movement of vehicles is more during day and night. The observed values are all well within the Standards prescribed by CPCB.

3.12. Ecology and Biodiversity

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Ecology and Biodiversity is studied for 5 km radius around the project site. Project site and 2 km around the project site is considered as core zone and from 2 km to 5 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

3.12.1. Methods available for floral analysis:

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.

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.

3.12.2. Tools Used

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1. Nails,
2. String/Ropes,
3. Paper,
4. Pen,
5. Tape,
6. Hammer
7. GPS
8. Camera
9. Binocular

3.12.3. 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.

Table 3-12 Field study

S. No	Location	Latitude	Longitude	No of Quadrates		
				Trees (10m x 10m)	Shrubs (5m x 5m)	Herbs & grasses (1m x 1m)
1.	Project Site	12°33'26.58"N	78°21'36.39"E	1	4	5
2.	Near Bargur RF	12°32'55.21"N	78°21'31.19"E	1	4	5
3.	Near Varatanapallai RF	12°34'4.01"N	78°20'14.69"E	1	4	5
4.	Near Neralakottai RF (N)	12°34'24.30"N	78°22'3.81"E	1	4	5
5.	Oppunthavadi	12°32'25.33"N	78°24'39.70"E	1	4	5

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3.12.4. 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 3-13 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

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Table 3-14 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	Cassia siamea	ManjalKonrai	3	2	6	0.50	33.33	1.5	0.07	2.52	2.17	1.11	5.81	Least Concern
3	Acacia nilotica	Karuvelai	4	4	6	0.67	66.67	1	0.28	3.36	4.35	4.45	12.16	Least Concern
4	Bambusa vulgaris	Moongil	4	4	6	0.67	66.67	1	0.50	3.36	4.35	7.92	15.63	Not assessed
5	Anacardium occidentale	Cashew	1	1	6	0.17	16.67	1	0.44	0.84	1.09	6.96	8.88	Not assessed
6	Alstonia scholaris	Elilaipalai	2	2	6	0.33	33.33	1	0.27	1.68	2.17	4.31	8.16	Least Concern
7	Psidium guajava	Guava	3	3	6	0.50	50.00	1	0.23	2.52	3.26	3.61	9.39	Not assessed
8	Aegle marmelos	Vilvam	1	1	6	0.17	16.67	1	0.16	0.84	1.09	2.50	4.43	Not assessed
9	Causuarina equisetifolia	Savukku	2	2	6	0.33	33.33	1	0.21	1.68	2.17	3.34	7.20	Not assessed
10	Albizia amara	Wunja	1	1	6	0.17	16.67	1	0.20	0.84	1.09	3.22	5.14	Not assessed
11	Cocos nucifera	Thennai	10	6	6	1.67	100.00	1.67	0.15	8.40	6.52	2.39	17.32	Not assessed
12	Artocarpus heterophyllus	Palaa	2	2	6	0.33	33.33	1	0.18	1.68	2.17	2.85	6.70	Not assessed
13	Bombax ceiba	Sittan	4	4	6	0.67	66.67	1	0.08	3.36	4.35	1.27	8.98	Not assessed
14	Azadirachta indica	Veppam	17	6	6	2.83	100.00	2.833333	0.13	14.29	6.52	1.98	22.79	Not assessed

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15	Delonix regia	Cemmayir-Konrai	1	1	6	0.17	16.67	1	0.21	0.84	1.09	3.34	5.27	Least Concern
16	Delonix elata	Perungondrai	1	1	6	0.17	16.67	1	0.17	0.84	1.09	2.62	4.54	Least Concern
17	Dalbergia sissoo	Shisham	1	1	6	0.17	16.67	1	0.15	0.84	1.09	2.29	4.21	Not assessed
18	Ficus benghalensis	Alai	2	2	6	0.33	33.33	1	0.08	1.68	2.17	1.19	5.04	Not assessed
19	Annona squamosa	Sitapalam	1	1	6	0.17	16.67	1	0.23	0.84	1.09	3.61	5.53	Not assessed
20	Pithecellobium dulce	Kodukapuli	1	1	6	0.17	16.67	1	0.14	0.84	1.09	2.18	4.11	Not assessed
21	Ficus religiosa	Arasa maram	3	3	6	0.50	50.00	1	0.09	2.52	3.26	1.35	7.13	Not assessed
22	Couroupita guianensis	Nagalingam	5	3	6	0.83	50.00	1.67	0.14	4.20	3.26	2.18	9.64	Not assessed
23	Musa paradise	Vaazhai	3	3	6	0.50	50.00	1	0.08	2.52	3.26	1.19	6.97	Not assessed
24	Prosopis juliflora	Vaelikaruvai	3	3	6	0.50	50.00	1	0.21	2.52	3.26	3.34	9.13	Not assessed
25	Mangifera indica	Mamaram	7	6	6	1.17	100.00	1.166667	0.07	5.88	6.52	1.11	13.52	Data insufficient
26	Mimusops elengi	Magizham	2	2	6	0.33	33.33	1	0.18	1.68	2.17	2.85	6.70	Not assessed
27	Morinda pubescens	Nuna	6	6	6	1.00	100.00	1	0.24	5.04	6.52	3.74	15.31	Not assessed
28	Thespesia populnea	Poovarasam	3	3	6	0.50	50.00	1	0.15	2.52	3.26	2.39	8.18	Not assessed
29	Tectona grandis	Thekku	3	3	6	0.50	50.00	1	0.12	2.52	3.26	1.88	7.66	Not assessed
30	Tamarindus indica	Puli	10	6	6	1.67	100.00	1.666667	0.20	8.40	6.52	3.09	18.02	Not assessed
31	Syzygium cumini	naval	5	1	6	0.83	16.67	5	0.11	4.20	1.09	1.79	7.07	Not assessed
32	Carica papaya	Papaya	3	3	6	0.50	50.00	1	0.09	2.52	3.26	1.43	7.21	Not assessed
33	Ziziphus mauritiana	Elandai	1	1	6	0.17	16.67	1	0.28	0.84	1.09	4.45	6.38	Not assessed
34	Citrus medica	Elumichai	2	2	6	0.33	33.33	1	0.23	1.68	2.17	3.61	7.46	Not assessed
Total			119	92					6.35					

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Table 3-15 Shrubs in the Core Zone

S. No.	Scientific Name	Local Name	Total No. of species	Total Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IUCN Conservation Status
1	Jatropagossypifolia	Kaatamanaku	28	17	24	1.17	0.71	1.65	14.43	17.17	Not Assessed
2	Lantana trifolia	Shrub verbana	10	3	24	0.42	0.13	3.33	5.15	3.03	Not Assessed
3	Robiniapseudoacacia	Black locust	17	5	24	0.71	0.21	3.4	8.76	5.05	Least Concern
4	Lantana camara	Unnichedi	9	6	24	0.38	0.25	1.5	4.64	6.06	Not Assessed
5	Calotropis gigantea	Erukam	14	12	24	0.58	0.50	1.17	7.22	12.12	Not Assessed
6	Stachytarpheaurticifolia	Rat tail	15	9	24	0.63	0.38	1.67	7.73	9.09	Not Assessed
7	Datura metal	Ummattangani	5	4	24	0.21	0.17	1.25	2.58	4.04	Not Assessed
8	Hibiscus rosa sinensis	Sembaruthi	3	2	24	0.13	0.08	1.5	1.55	2.02	Not Assessed
9	Tabernaemontanadivaricata	Crepe Jasmine	3	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
10	Chloromolaena odorata	Venapacha	9	6	24	0.38	0.25	1.5	4.64	6.06	Least Concern
11	Euphorbia geniculata	Amman Pacharisi	3	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
12	Catharanthus roseus	Nithyakalyani	3	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
13	Woodfordiafruiticosa	Velakkai	3	3	24	0.13	0.13	1	1.55	3.03	Least Concern
14	Morindapubescens	Mannanunai	2	2	24	0.08	0.08	1	1.03	2.02	Not Assessed
15	Acalypha indica	Kuppaimeni	20	8	24	0.83	0.33	2.5	10.31	8.08	Not Assessed
16	Parthenium hysterophorous	Vishapoondu	50	13	24	2.08	0.54	3.85	25.77	13.13	Not Assessed

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Table 3-16 Herbs & Grasses in the core zone

S. No.	Scientific Name	Local Name	Total No. of species	Total Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IUCN Conservation status
1	Plumbago zeylanica	Chittiramoolam	3	3	30	0.10	0.10	1	1.19	3.23	Not assessed
2	Mimosa pudica	Thottacherungi	6	5	30	0.20	0.17	1.2	2.38	5.38	Least concern
3	Sida acuta	Malaidangi	10	3	30	0.33	0.10	3.33	3.97	3.23	Not assessed
4	Scrophularia nodosa	Sarakkothini	15	7	30	0.50	0.23	2.14	5.95	7.53	Not assessed
5	Helicteresisora	Valampuri	2	2	30	0.07	0.07	1	0.79	2.15	Not assessed
6	Cynodondactylon	Arugu	12	6	30	0.40	0.20	2	4.76	6.45	Not assessed
7	Sporobolus fertilis	Giant Parramatta Grass	9	4	30	0.30	0.13	2.25	3.57	4.30	Not assessed
8	Viburnum dentatum	Viburnum	5	5	30	0.17	0.17	1	1.98	5.38	Least concern
9	Heraculem spondylium	Hog Weed	20	10	30	0.67	0.33	2	7.94	10.75	Not assessed
10	Laportea canadensis	Peruganchori	30	20	30	1.00	0.67	1.5	11.90	21.51	Not assessed
11	Euphorbia hirta	Amman Pacharisi	5	4	30	0.17	0.13	1.25	1.98	4.30	Not assessed
12	Tridax procumbens	Vettukaayathalai	5	4	30	0.17	0.13	1.25	1.98	4.30	Not assessed
13	Tephrosia purpurea	Kavali	20	4	30	0.67	0.13	5	7.94	4.30	Not assessed
14	Sida cordifolia	Maanikham	45	4	30	1.50	0.13	11.25	17.86	4.30	Not assessed
15	Tridax procumbens	Cuminipachai	15	4	30	0.50	0.13	3.75	5.95	4.30	Not assessed
16	Ruelliastrepens	Grandinayagam	25	4	30	0.83	0.13	6.25	9.92	4.30	Not assessed
17	Senna occidentalis	Nattamsakarai	25	4	30	0.83	0.13	6.25	9.92	4.30	Not assessed

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3.12.5. 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 3-17 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

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

Table 3-18 Species Diversity

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Ficus Carica	Athi Maram	2	0.017857	-4.02535	-0.07188
Cassia siamea	ManjalKonrai	2	0.017857	-4.02535	-0.07188
Acacia nilotica	Karuvelai	4	0.035714	-3.3322	-0.11901
Bambusa vulgaris	Moongil	4	0.035714	-3.3322	-0.11901
Anacardium occidentale	Cashew	2	0.017857	-4.02535	-0.07188
Alstonia scholaris	Elilaipalai	2	0.017857	-4.02535	-0.07188
Psidium guajava	Guava	3	0.026786	-3.61989	-0.09696
Aegle marmelos	Vilvam	1	0.008929	-4.7185	-0.04213
Causuarina equisetifolia	Savukku	2	0.017857	-4.02535	-0.07188
Albizia amara	Wunja	1	0.008929	-4.7185	-0.04213
Cocos nucifera	Thennai	15	0.133929	-2.01045	-0.26926
Artocarpus heterophyllus	Palaa	2	0.017857	-4.02535	-0.07188
Bombax ceiba	Sittan	4	0.035714	-3.3322	-0.11901
Azadirachta indica	Veppam	10	0.089286	-2.41591	-0.21571
Delonix regia	Cemmayir-Konrai	1	0.008929	-4.7185	-0.04213
Delonix elata	Perungondrai	1	0.008929	-4.7185	-0.04213
Dalbergia sissoo	Shisham	1	0.008929	-4.7185	-0.04213
Ficus benghalensis	Alai	2	0.017857	-4.02535	-0.07188
Annona squamosa	Sitapalam	1	0.008929	-4.7185	-0.04213
Pithecellobium dulce	Kodukapuli	1	0.008929	-4.7185	-0.04213
Ficus religiosa	Arasa maram	3	0.026786	-3.61989	-0.09696
Couroupita guianensis	Nagalingam	5	0.044643	-3.10906	-0.1388
Musa paradise	Vaazhai	3	0.026786	-3.61989	-0.09696
Prosopis juliflora	Vaelikaruvai	3	0.026786	-3.61989	-0.09696
Mangifera indica	Mamaram	8	0.071429	-2.63906	-0.1885
Mimusops elengi	Magizham	2	0.017857	-4.02535	-0.07188
Morinda pubescens	Nuna	6	0.053571	-2.92674	-0.15679
Thespesia populnea	Poovarasam	3	0.026786	-3.61989	-0.09696
Tectona grandis	Thekku	3	0.026786	-3.61989	-0.09696
Tamarindus indica	Puli	8	0.071429	-2.63906	-0.1885
Syzygium cumini	naval	1	0.008929	-4.7185	-0.04213
Carica papaya	Papaya	3	0.026786	-3.61989	-0.09696
Ziziphus mauritiana	Elandai	1	0.008929	-4.7185	-0.04213
Citrus medica	Elumichai	2	0.017857	-4.02535	-0.07188

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Total		112			-3.22

H (Shannon Diversity Index) =1.76

Shrubs

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Jatropagossypifolia	Kaatamanaku	28	0.14433	-1.93565	-0.27937
Lantana trifolia	Shrub verbana	10	0.051546	-2.96527	-0.15285
Robiniapseudoacacia	Black locust	17	0.087629	-2.43464	-0.21335
Lantana camara	Unnichedi	9	0.046392	-3.07063	-0.14245
Calotropis gigantea	Erukam	14	0.072165	-2.6288	-0.18971
Stachytarpheaurticifolia	Rat tail	15	0.07732	-2.55981	-0.19792
Datura metal	Ummattangani	5	0.025773	-3.65842	-0.09429
Hibiscus rosa sinensis	Sembaruthi	3	0.015464	-4.16925	-0.06447
Tabernaemontanadivaricata	Crepe Jasmine	3	0.015464	-4.16925	-0.06447
Chloromolaena odorata	Venapacha	9	0.046392	-3.07063	-0.14245
Euphorbia geniculata	Amman Pacharisi	3	0.015464	-4.16925	-0.06447
Catharanthus roseus	Nithyakalyani	3	0.015464	-4.16925	-0.06447
Woodfordiafruiticosa	Velakkai	3	0.015464	-4.16925	-0.06447
Morindapubescens	Mannanunai	2	0.010309	-4.57471	-0.04716
Acalypha indica	Kuppaimeni	20	0.103093	-2.27213	-0.23424
Parthenium hysterophorous	Vishapoondu	50	0.257732	-1.35584	-0.34944
		194			-2.3656

H (Shannon Diversity Index) =1.97

Herbs

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Plumbago zeylanica	Chittiramoolam	3	0.011905	-4.43082	-0.05275
Mimosa pudica	Thottacherungi	6	0.02381	-3.73767	-0.08899
Sida acuta	Malaidangi	10	0.039683	-3.22684	-0.12805
Scrophularia nodosa	Sarakkothini	15	0.059524	-2.82138	-0.16794
Helicteresisora	Valampuri	2	0.007937	-4.83628	-0.03838
Cynodondactylon	Arugu	12	0.047619	-3.04452	-0.14498
Sporobolus fertilis	Giant Parramatta Grass	9	0.035714	-3.3322	-0.11901

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Viburnum dentatum	Viburnum	5	0.019841	-3.91999	-0.07778
Heraculem spondylium	Hog Weed	20	0.079365	-2.5337	-0.20109
Laportea canadensis	Peruganchori	30	0.119048	-2.12823	-0.25336
Euphorbia hirta	Amman Pacharisi	5	0.019841	-3.91999	-0.07778
Tridax procumbens	Vettukaayathalai	5	0.019841	-3.91999	-0.07778
Tephrosia purpurea	Kavali	20	0.079365	-2.5337	-0.20109
Sida cordifolia	Maanikham	45	0.178571	-1.72277	-0.30764
Tridax procumbens	Cuminipachai	15	0.059524	-2.82138	-0.16794
Ruelliastrepens	Grandinayagam	25	0.099206	-2.31055	-0.22922
Senna occidentalis	Nattamsakarai	25	0.099206	-2.31055	-0.22922
		252			-2.56298

H (Shannon Diversity Index) =2.39

Table 3-19 Evenness

Details	H	Hmax	Evenness	Species Richness (Margalef)
Trees	3.22	3.5	0.9	7
Shrubs	2.36	2.77	0.85	2.84
Herbs	2.56	2.83	0.9	2.89

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 as a whole. Species richness is high for herb community when compared with tree and shrubs.

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3.12.7. Frequency Pattern

To understand the frequency pattern, the observed frequency is compared with the Raunkiaer's frequency. Any deviation from Raunkiaer's frequency implies disturbed community.

Classes of species in a community and normal value of class according to Raunkiaer

Table 3-20 Frequency Pattern

Class	Frequency (%)	Normal Value in the class
A	1-20	53
B	21-40	14
C	41-60	9
D	61-80	8
E	81-100	16

Where A>B>C>=<D<E

Table 3-21 Raunkiaer's class for the observed species

S. No.	Scientific Name	Local Name	Frequency (%)	Class as per Raunkiaer's Law
1.	Ficus Carica	Athi Maram	33.33	B
2.	Cassia siamea	ManjalKonrai	33.33	B
3.	Acacia nilotica	Karuvelai	66.67	D
4.	Bambusa vulgaris	Moongil	66.67	D
5.	Anacardium occidentale	Cashew	33.33	B
6.	Alstonia scholaris	Elilaipalai	33.33	B
7.	Psidium guajava	Guava	50.00	C
8.	Aegle marmelos	Vilvam	16.67	A
9.	Causuarina equisetifolia	Savukku	33.33	B
10.	Albizia amara	Wunja	16.67	A
11.	Cocos nucifera	Thennai	100	E
12.	Artocarpus heterophyllus	Palaa	33.33	B
13.	Bombax ceiba	Sittan	66.67	D
14.	Azadirachta indica	Veppam	100	E
15.	Delonix regia	Cemmayir-Konrai	16.67	A
16.	Delonix elata	Perungondrai	16.67	A

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17.	Dalbergia sissoo	Shisham	16.67	A
18.	Ficus benghalensis	Alai	33.33	B
19.	Annona squamosa	Sitapalam	16.67	A
20.	Pithecellobium dulce	Kodukapuli	16.67	A
21.	Ficus religiosa	Arasa maram	50.00	C
22.	Couroupita guianensis	Nagalingam	50.00	C
23.	Musa paradise	Vaazhai	50.00	C
24.	Prosopis juliflora	Vaelikaruvai	50.00	C
25.	Mangifera indica	Mamaram	100	E
26.	Mimusops elengi	Magizham	33.33	B
27.	Morinda pubescens	Nuna	100	E
28.	Thespesia populnea	Poovarasam	50.00	C
29.	Tectona grandis	Thekku	50.00	C
30.	Tamarindus indica	Puli	100	E
31.	Syzygium cumini	naval	16.67	A
32.	Carica papaya	Papaya	50.00	C
33.	Ziziphus mauritiana	Elandai	16.67	A
34.	Citrus medica	Elumichai	33.33	B

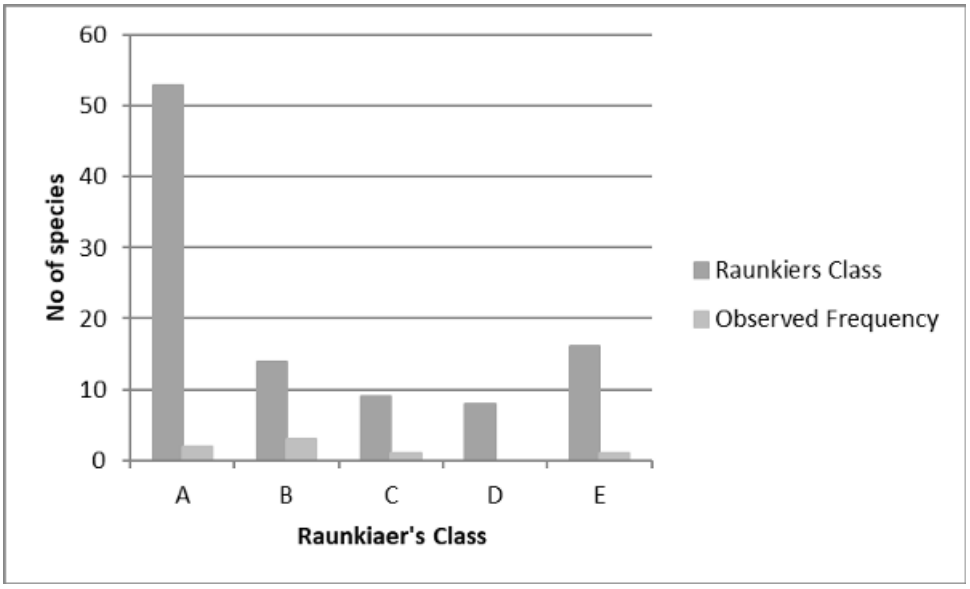

Figure 3.12 Raunkiaer's class for the observed species

Interpretation: Interpretation: The observed frequency is A<B>C>D<E, which does not follow Raunkiaer's Distribution Frequency and hence the ecology is disturbed.

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3.12.8. Floral study in the Buffer Zone:

Economically important Flora of the study area

Agricultural crops: Paddy, Maize are the main crop grown. Different fruits like Banana, papaya, mangoes, guava and vegetables like brinjal, drumsticks, onion, Coriander also grown 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.

3.12.9. 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.
- Road Side 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).
- Visual Encounter Method: A visual encounter survey (VES) is one in which field personnel walk through an area or habitat for a prescribed time period systematically searching for animals.

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

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herein as endangered species. Species listed in Ghosh (1994) are considered as Indian Red List species.

Methodology Adopted:

Visual encounter methodology is adopted without any time constraint

Tools Used:

Torch for carrying out survey during night time, Binoculars, Camera, GPS, Notebook, Pen

Study in the core zone:

Visual Encounter Methodology was adopted for the study within 2 km radius and the following species were observed

Study in the core Zone

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 and the frequency of the monitoring is once in a month during the study period of June – August 2021. 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 3-22 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

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Funambulus palmarum	Three stripped palm squirrel	IV	Least Concern
Herestes edwardsii	Common Man	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
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

Table 3-23 List of Bird Species observed during the survey

Scientific Name	Common Name	Schedule of wild life protection act	IUCN conservation status	Timing	Observed Month

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Bubulcus ibis	Cattle Egret	IV	Least Concern	Morning	August
Vanellus indicus	Red-Wattled Lapwing	IV	Least Concern	Morning	September
Columba livia	Blue Rock Pigeon	-		Morning	July
Microfus affinis	House swift	-	Common	Morning	September
Coracias benghalensis	Indian Roller	IV	Least Concern	Evening	July
Merops orinetali	Common bee eater	IV	Least Concern	Evening	July
Psittacula krameri	Rose Ringed Parakeet	IV	Least Concern	Seen in morning & evening multiple times	3 months
Eudynamis scolopaceus	Koel	IV	Common, Resident	Seen in morning & evening multiple times	3 months
Aredeola grayii	Indian Pond Heron	IV	Least Concern	Evening	August
Acridotheres ginginianus	Bank Myna	IV	Least Concern	Seen in morning & evening multiple times	3 months
Astur badius	Shikra	IV	Resident	Morning	August
Sturnus pagodarum	Brahminy Starling	IV	Least Concern	Evening	August
Pavo cristatus	Peafowl	I	Least Concern	Observed during evening time	3 months
Corvus splendens	Common Crow	V	Least Concern	Seen in morning & evening multiple times	3 months
Passer domesticus	House Sparrow	IV	Common, Resident	Seen in morning & evening multiple times	3 months

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Pycnonotus cafer	Red-Vented Bulbul	IV	Common	Evening	August
Egretta garzetta	Little Egret	IV	Common	Evening	September
Corvus corax	Common Raven	V	Least Concern	Seen in morning & evening multiple times	3 months
Acridotheres tristicus	Common myna	IV	Common	Seen in the noon and evening	3 months
Alcedo atthis	Common kingfisher	IV	Common	Morning	September
Athene brama	Spotted Owlet	IV	Common, Resident	Spotted during night	September
Bubo bubo	Indian great horned owl	IV	Common	Spotted during night	September
Caprimulgus asiaticus	Common Indian jar	IV	Common	Evening	September
Cinnyris asiatica	Purple sunbird	IV	Least Concern	Morning	July
Columbus livibus	Pigeon	IV	Common	Seen in morning & evening multiple times	3 months
Copsychus saularis	Magpie robin	IV	Common	Evening	July
Cuculus varius	Common-Hawk Cuckoo	IV	Common, Resident	Evening	July
Cypsiurus parvus	Palm Swift	IV	Common, Resident	Evening	July
Dendrocitta vagabunda	Indian Tree pie	IV	Common, Resident	Morning	July
Dicrurus longicaudatus	Grey drongo	IV	Resident	Morning	July
Dicrurus macrocerus	Black Drongo	IV	Common, Resident	Morning	July
Dissemurus paradiseus	Rackete tailed drongo	IV	Resident	Morning	July

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Francolinus pondicerianus	Grey Partridge	IV	Common, Resident	Evening	September
Galerida malabarica	Malabar crested lark	IV	Resident	Evening	September
Gallus gallus	Red jungle fowl	IV	Resident	Evening	July
Haliastur Indus	Brahmny kite	IV	Common	Evening	September
Hierococys varius	Common hawk cuckoo	IV	Common	Evening	July
Lobvanella indicus	Redwattled lapwing	IV	Resident	Morning	July, August
Lonchura malacca	Blackheade d Munia	IV	Common, Resident	Morning	July
Megalaima merulinus	Indian cuckoo	IV	Common	Evening	July, August
Milyus migrans	Common kite	IV	Common	Evening	July
Mirafra erythroptera	Red winged Bushlark	IV	Common, Resident	Morning	August
Phalacrocorax carbo	Cormorant	IV	Common, Resident	Morning	September
Quills contronix	Grey quail	IV	Common	Seen in morning & evening multiple times	3 months
Saxicoloides fulicata	Indian Robin	IV	Common, Resident	Morning	September
Tchitrea paradisi	Paradise FIycatcher	IV	Common	Morning	July, August
Temenuchus pagodarum	Brahmny myna	IV	Common	Seen in morning & evening multiple times	3 months
Tephrodornis pondiceraianus	Common wood shrike	IV	Common	Evening	July
Urolonchа striata	Spotted munia	IV	Common	Morning	August

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3.13. Demography and Socio Economics

The demography survey study is done within 10km from the project site. The population, Household, Sex ratio, Literacy rate, SC, ST details for all the villages in the study area is listed below:

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Table 3-24 Demographic study around 10km from the project site

List of Villages	Household	Population			Literacy Rate			Illiterates			SC	ST	Total worker
		Total	Male	Female	Total	Male	Female	Total	Male	Female			
Bargur	3760	16366	8316	8050	11598	6335	5263	4768	1981	2787	1731	208	6404
Jagadevipalayam	1607	6747	3398	3349	4474	2464	2010	2273	934	1339	1602	447	2720
Sigaralapalli	1799	7765	3975	3790	5347	2998	2349	2418	977	1441	1643	3	3862
Kondappanayakempalli	846	3653	1903	1750	2312	1331	981	1341	572	769	95	7	1666
Achamangalam	974	4179	2150	2029	2821	1634	1187	1358	516	842	611	0	2142
Mallapadi	1840	7707	3902	3805	5084	2846	2238	2623	1056	1567	724	46	3208
Oppathavadi	2156	9604	4805	4799	5668	3162	2506	3936	1643	2293	331	272	4971
Balinayanapalli	1132	4761	2470	2291	3121	1767	1354	1640	703	937	495	0	2013
Madepalli	1790	7341	3683	3658	5399	2906	2493	1942	777	1165	1474	27	3412
Palepalle	1847	7631	3698	3933	5448	2832	2616	2183	866	1317	1092	43	3597
Nandimangalam	591	2602	1314	1288	1406	797	609	1196	517	679	713	0	1260
Velakalnatham	420	1673	844	829	903	516	387	770	328	442	275	90	959
Varatanapalli	1693	7102	3586	3516	4622	2560	2062	2480	1026	1454	365	97	3404
Chinnathimminayanapalli	1115	4794	2390	2404	3067	1716	1351	1727	674	1053	1716	5	2726
Salinayapalli	1652	6744	3458	3286	4351	2417	1934	2393	1041	1352	958	387	3383
Chinmnamttarapalli.	1242	5138	2583	2555	3355	1852	1503	1783	731	1052	467	218	2282
Neralagiri	299	1453	767	686	816	471	345	637	296	341	95	0	608
Guruvinayanapalli	805	3484	1788	1696	1773	1022	751	1711	766	945	129	194	1702
Kottur	637	2712	1415	1297	1534	904	630	1178	511	667	458	6	1194

Source: Census of India, 2011

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Since the data is taken from Census Survey of India, 2011, population projection is found to increase by 8.5% since last survey based on the data released by ***World Bank, United States Census Bureau***

Krishnagiri District

Krishnagiri district is bounded by Vellore and Thiruvannamalai districts in the East, Karnataka state in the west, State of Andhra Pradesh in the North Dharmapuri District in the south. Its area is 5143 Sq. Kms. This district is elevated from 300m to 1400m above the mean sea level. It is located between 11º 12'N to 12º 49'N Latitude,77º 27'E to 78º 38'E Longitude.

Eastern part of the district experiences hot climate and Western part has a contrasting cold climate. The average rainfall is 830 mm per annum. March – June is summer season. July – November is Rainy Season and between December – February winter prevails. Three languages namely Tamil, Telugu and Kannada are predominantly spoken in this district. Major religions are Hindu, Islam and Christianity. This district stands as an ideal exhibit of National integration and religious harmony. The society exhibit the confluence of different languages and religion

Occupation:

Krishnagiri District is more suitable for cultivation of Horticulture crops. Other Plantation crops, medicinal plants, Fruits, Vegetables, Spices, and flowers are grown well by way of its moderate climate, high altitude and fertility of the soil. The important crops of Krishnagiri District are Paddy, Maize, Ragi, Banana, Sugarcane, Cotton, Tamarind, Coconut, Mango, Groundnut, Vegetables and Flowers.

Industrial details in the district is listed below:

Industries in the District : Premier Spinning Mill, TVS Motor Company Ltd., Exide Ltd., AV. Tech. Ltd., Titan Watches, Ashok Leyland Carborandim, Universal Ltd.,

Name of the industrial Park : Krishnagiri and Hosur

The major occupation during field survey is observed to be mining, Agriculture and in industries.

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Source: District Handbook – 2018-2019

Socio-economic survey methodology

Purposive sampling methods were used for selecting respondents (male and female) for household survey. For official information of village, Gram Panchyat member has been chosen. Structured questionnaire was used for survey. For group discussion, Panchyat bhavan, Aanganwadi bhavan, community halls were used. Out of total 15 villages, 5 villages (25%) were surveyed for which selection criteria is based on proximity to the project site and area with dense and scarce populations were chosen.

The villages chosen for primary study area

- Bargur
- Mallapadi
- Salinayapalli
- Oppathavadi
- Madepalli

10 households were surveyed in each village and the collective response are summarized below

3.13.1. Salient features in the study area:

House pattern: It is notable that nearly 30% of the houses were kachcha at survey area.

Employment: Main occupation of the people in the study area was labour work and agriculture and some other business. The labours were getting daily wage in the range of Rs.200-450, depending on type of work involved.

Fuel: Most of the villagers use fire woods and LPG for cooking purpose

Main Crops: The principal crops grown in agricultural farm were Cashew, Mango, Banana, Tapioca, Tomato, Brinjal, Bhendi, Onion, Turmeric, Chillies

Migration: During survey, it was found that local population were migrating for employment purpose. Since due to the presence of various industrial units,migration from other places were also noted.

Sanitation: More than 90% of the households were having toilet facilities in their houses. Drainage system was maintained in the study area.

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Drinking Water Facilities: Ground water is the major source of drinking water in the villages wherein hand pumps, tap water and dug wells are installed.

Education Facilities: Most of the villages had education facilities in the form of Anganwadi and Primary Schools. Higher education facilities were available in the range of 5-10 km. Colleges and other diploma courses were available at district place.

Transportation Facility: For transportation purpose Auto, Public and Private Bus services were available. Transportation facilities were frequently available in the study area and connecting major cities. Private vehicles like Bicycles & Motor Cycles were mostly used by villagers for transportation purpose

3.13.2. Key Socio economic Indicator

The consolidated report of the primary study revealing the exact scenario prevailing in the area based on the survey conducted in the 10 houses each in 5 villages (Total of 50 Houses) is listed below

S. No	Indicator	Percentage/Nos.
1	People below age 18	38
2	People age limit above 18	62
3	Literates	52
4	Illiterates	48
5	% of people employeed in company	26
6	% of people self employed	37
7	% of people seasonally employed	14
8	% of people unemployed	23
9	% of houses covered with LPG Cooking gas	80
10	% of houses covered with toilet facility	70
11	% of houses covered with piped water supply	60

Awareness and Opinion about the project

- The respondents all the villages are aware about this project.
- Since most of the respondents were about the project, some of the people welcomed this project for the employment opportunity but they need commitment that, only local

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people should be hired for the work. Some fear that water level in the region will decrease due to mine and associated activities.

- The skill based employment should be given to the local people.
- Road accident may increase due to Mine transport and associated activities.

Expectation from the project

- Local employment
- Plantation at nearby areas and ensure their survival rate.
- Increase educational facility in Govt. School and promote vocational & higher educational institute.

Other Infrastructural Facilities Available in the District

(Source: District Handbook – 2018-2019)

Drinking Water facility: The project falls under Krishnagiri Block

Source of water in Krishnagiri Block: Dug well, Filter point & Tube well

River: The main rivers that flow across the district are Kaveri and South Pennar Kaveri enters the district from South West in Denkanikottai taluk and exists in South West direction. It forms a waterfalls at Hokenakkal and joins Mettur Dam. South Pennar originates in Nandidurg of Karnataka and flows through Hosur, Krishnagiri and Uthangari Taluks. Vanniyar and Markanda rivers join this South Pennar

The communication details of the district is furnished below

Telephone:

- No. of Telephones in use : 31070
- No.of Telephones Exchanges : 64
- No.of Public calls with STD /ISD : 351

Post Office: . Head post office : 1

a. Sub Post Office : 38

b. Branch Post Offices : 263

Transport Facility of the District:

Railway Stations: 7

Banking Sector: 353 Cooperative Societies & Banks are available in the District.

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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

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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 3.35.0Ha mine in Bargur mines rough stone of 799240 M³ respectively. The quarry operation is proposed to carry out with conventional open cast semi mechanized mining with 7.0-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 of
<table>
<tr><th>Section</th><th>Bench</th><th>Length in (m)</th><th>Width in (m)</th><th>Depth in (m)</th></tr>
<tr><td rowspan="7">XY-AB</td><td>I</td><td>107</td><td>75</td><td>1</td></tr>
<tr><td>II</td><td>106</td><td>74</td><td>7</td></tr>
<tr><td>III</td><td>101</td><td>69</td><td>7</td></tr>
<tr><td>IV</td><td>96</td><td>64</td><td>7</td></tr>
<tr><td>V</td><td>91</td><td>59</td><td>7</td></tr>
<tr><td>VI</td><td>86</td><td>54</td><td>7</td></tr>
<tr><td>VII</td><td>81</td><td>49</td><td>7</td></tr>
</table>
This may lead to soil erosion, degradation and resource loss.</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 45 Nos of local tree species (Neem, Magizham, Tamarind, Elandhai and Vilvam) every year 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.</td>
</tr>
</table>

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		The top soil of the lease area is **19525m^3**. Topsoil formation will be removed and dumped in North, South and Eastern side of the 7.5m boundary barrier of the lease area. And Party used for road low lying area and Plantation Purposes.
	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.	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.
	Impact on soil of the study area will be minimal as there are no wastewater generated, heavy metal infusion, stack emissions.	The proposed mining activity is carried out in almost plain terrain where the contour level difference is 4m.
	Impact due to transformation of terrain characteristics over the large area results in soil degradation.	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.

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		Two tier tree belts will be planted along the safety distance.
	Solid waste will be generated from the mining activity as there will be refuse also generation of domestic waste. If it not properly managed, may cause odor and health problem to the workers.	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 43 meter below the ground level, whereas the ground water table is at 65m below the ground level. The municipal wastewater will be disposed into septic

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		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 65m BGL, the mining operation will not affect the aquifer. The ultimate pit at the end of the mining operation will be used for rain water 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 used in the mining operation for dust suppression.

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	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

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. 1 No of Tipper will be	***Mitigation Measures during Operation Phase*** It is proposed to plant 225 Nos of local species (with 45 Nos each year) 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 pollutionand with herbs (Nerium) in between the tree species. Planning transportation routes of the

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	used for loading and unloading, 1 No of Excavator(0.90 m^3 bucket capacity(with rock breaker attachment) will be used for excavation of the mineral which contributes to the 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 neighboring 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	mined out mineral, so as to reach the nearest paved roads (an approach road) by shortest route connecting to NH 46. Alternatively, graveled 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.

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	transportation can also affect the workers as well as nearby villagers. *Effect on Plants* • Stomatal index may be minimized due to dust deposit on leaf.	1 kLD of water will be proposed for sprinkling on unpaved roads to avoid dust generation during transportation.

4.4.1. Air Quality Modelling:

The major air pollutant from the mining activity will be suspended particulate matter. SPM will be emitted during various stages of the mining activity like excavation, drilling, blasting, loading, Haulage, etc. The pollutants released into the atmosphere will disperse in the down wind direction and finally reach the ground at farther distance from the source. The concentration of ground level concentrations mainly depends upon the strength of the emission source and micrometeorology of the study area.

Table 4-1 Overview of the source parameters

S. NO	Description	Symbol	Quantity
1.	Moisture Content (%)	M	5
2.	Silt Content (%)	s	10
3.	Wind Speed (m/s)	u	3
4.	Production (m^3/Day)		804.88
5.	No. of excavator on site		1

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6.	Average Speed of tipper on haul road (kmph)	S	25
7.	Weight of fully loaded truck (tons)	W	25
8.	Number of Tippers per day		135
9.	Distance travelled after loading per tipper per day (km)	VKT	2
10.	No of Working Days in Year		260
11.	Working Hours per day (hrs)		8
12.	Open Pit Area (Sq.m)	Aa	8025
13.	**Mist spraying Control Efficiency during excavation, Loading/Unloading and Haulage (%)**	**ŋ**	**91.95**
14.	Average time between spray application (hours)	t	4
15.	Spray Application rate (litres/ m^2)	k	8
16.	Evaporation rate of sprayed water (mm/hr)	p	1.2
17.	Vehicle traffic in Haul road (vehicles /hr)	r	17

4.4.2. Emission Calculations

Table 4-2 Emission factors for uncontrolled emissions

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***

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	Bulldozing	15.048 kg PM_{10}/ Hr excavation	***USEPA (2008)***	***methodology for open-pit mining areas, Environmental Science Pollution Research, 2012.***
	Loading	2.3237E-04 kg PM_{10}/ average time between spray application	***USEPA (2006a)***	
	Haulage	0.69718 kg PM_{10}/VKT	***USEPA (2006a) Cowherd (1988)***	
Rough stone mining	Wet drilling	8.00E-5 lbs PM_{10}/ 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 PM_{10}/ Ton produce		

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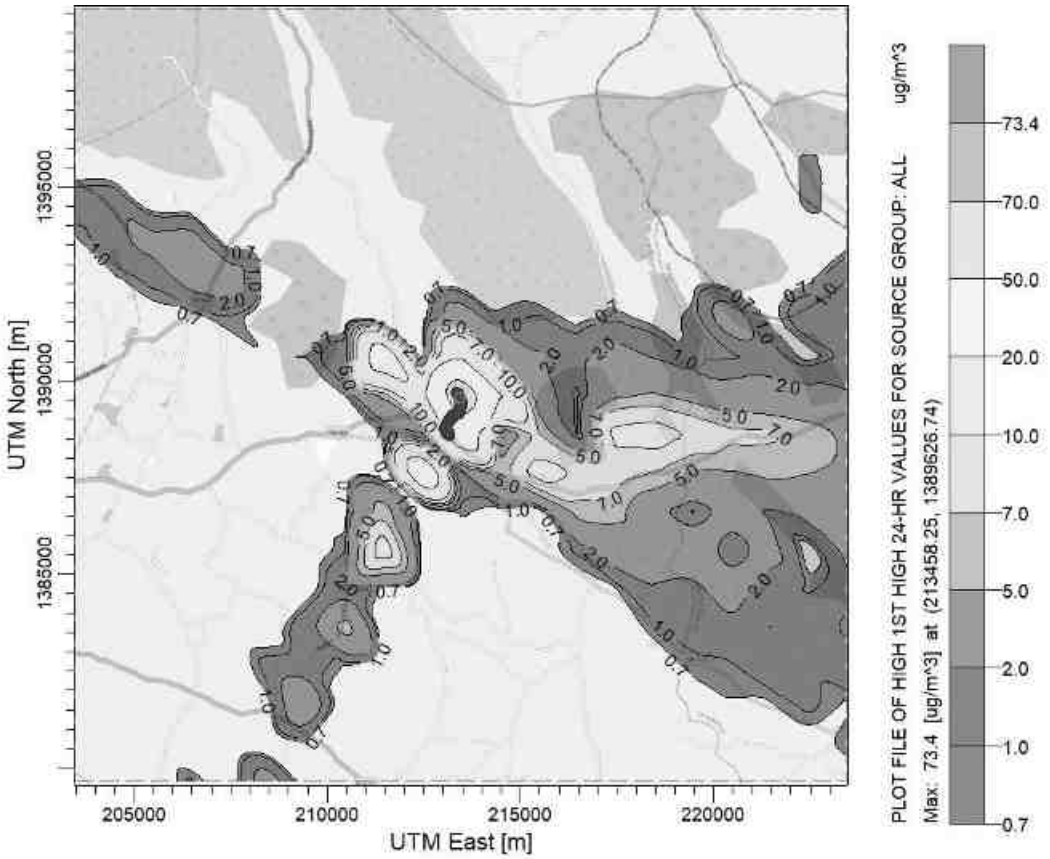

Figure 4.1 Predicted 24-Hrs GLC of Particulate matter TSPM within 10 km Radius of the Study Area

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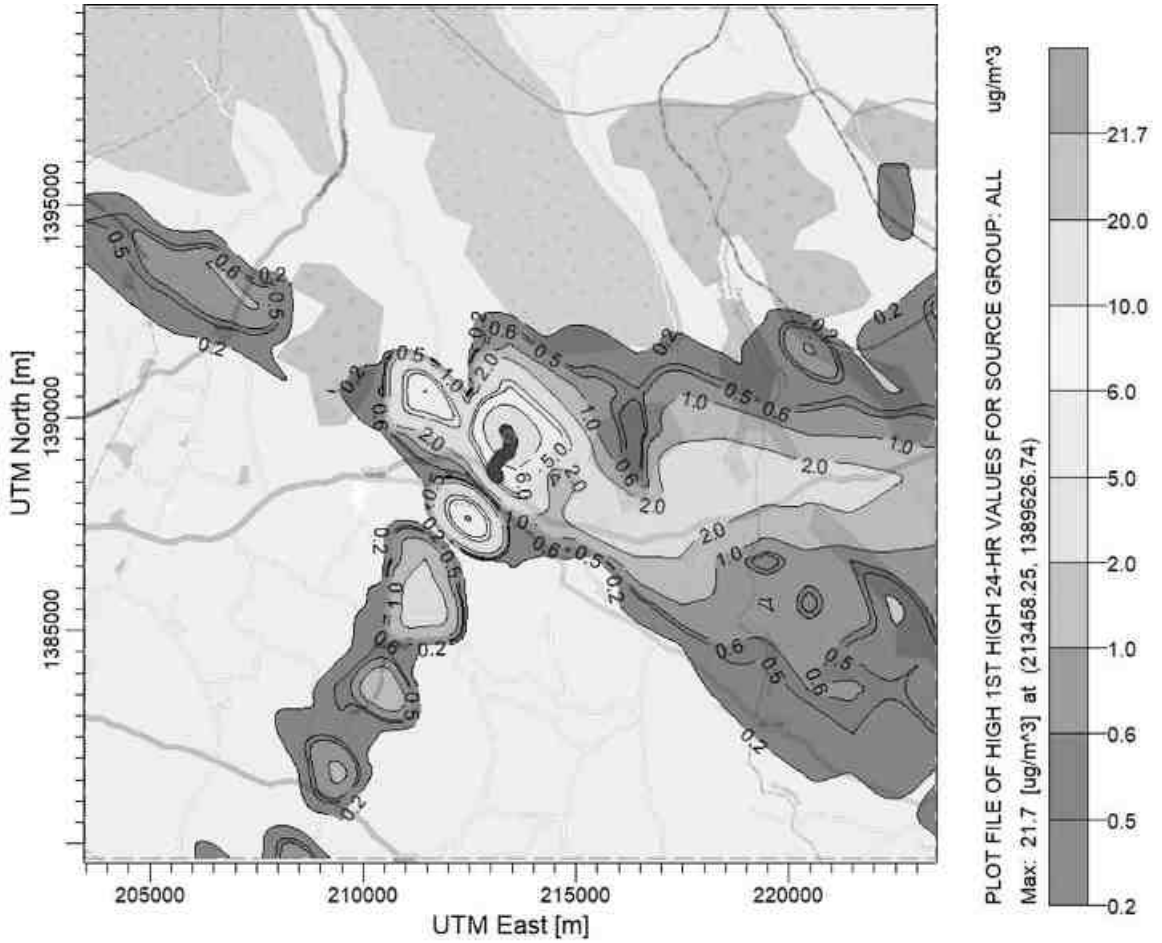

Figure 4.2 Predicted 24-Hrs GLC of PM10 within 10 km Radius of the Study Area

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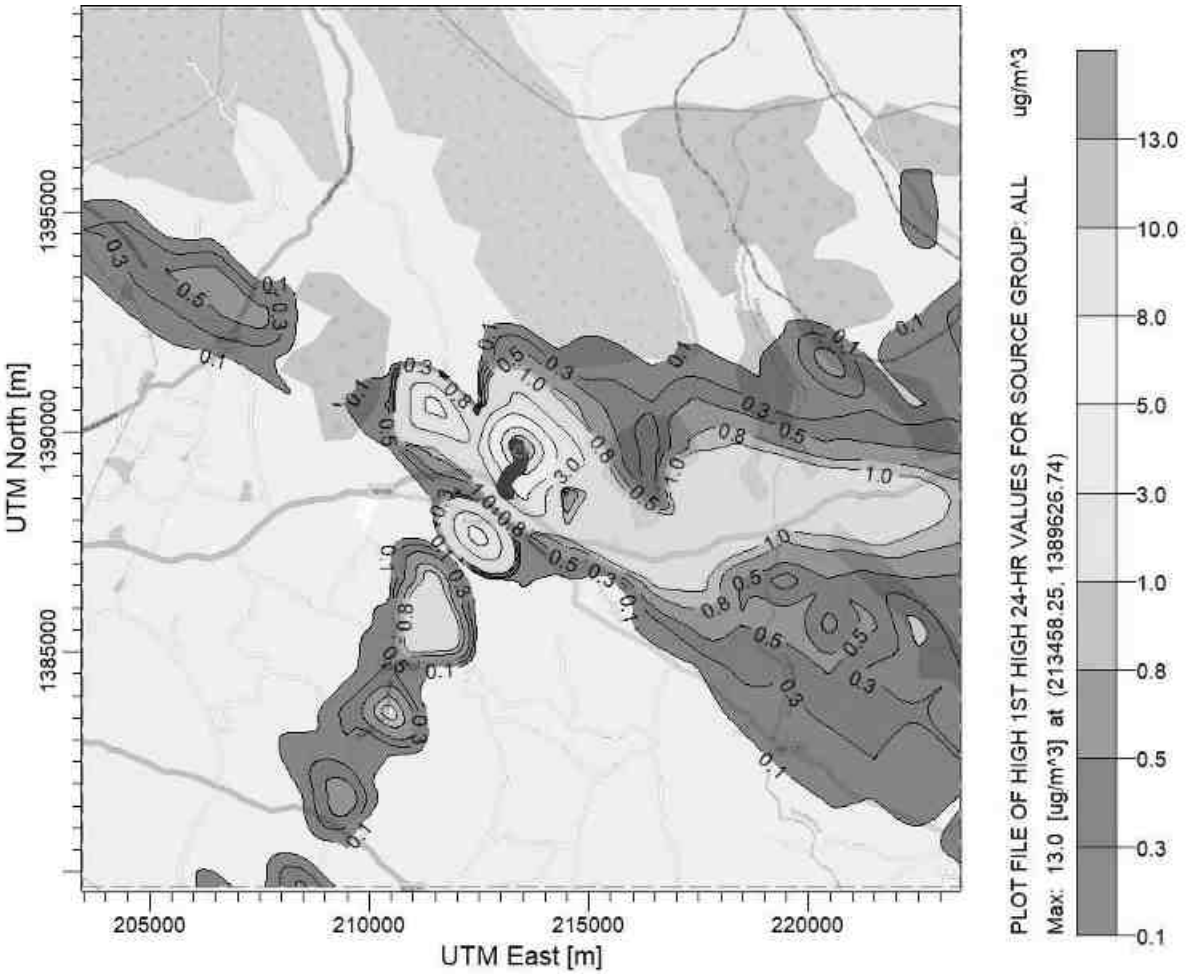

Figure 4.3 Predicted 24-Hrs GLC of PM2.5 within 10 km Radius of the Study Area

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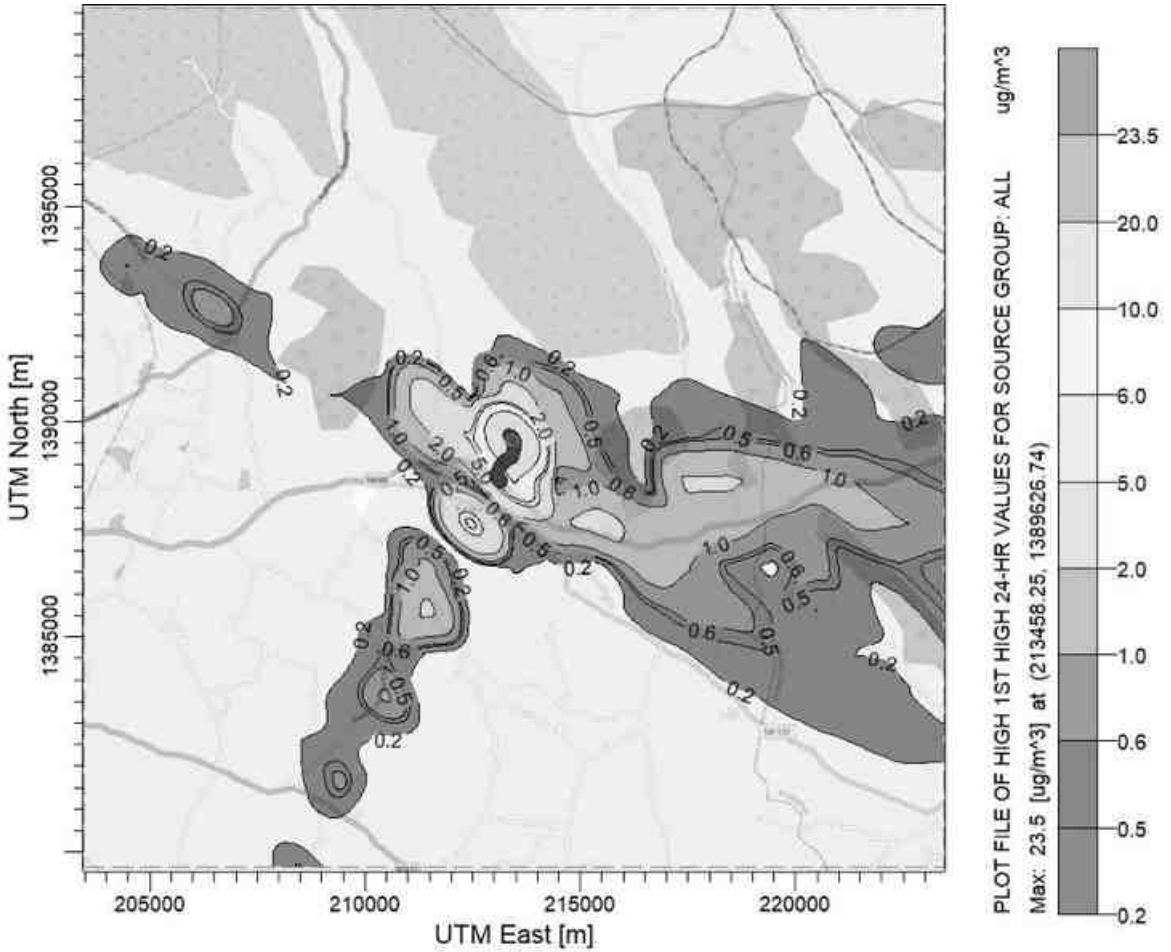

Figure 4.4 Predicted 24-Hrs GLC of NOX within 10 km Radius of the Study Area

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Table 4-3 Total Maximum GLCs from the mining Emissions

Pollutant	Max. Average Base Line Conc. ($\mu g/m^3$)	Estimated Incremental Conc. at source ($\mu g/m^3$)	Total Conc. ($\mu g/m^3$)	NAAQ Standard ($\mu g/m^3$)
PM10	71	21.69	92	100
$PM_{2.5}$	30	13.03	43	60
NO_X	24	23.46	47	80

4.5. NOISE ENVIRONMENT:

Aspect	Impact	Mitigation Measures
Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.	Usage of Equipments (Excavator – 82 dBA, 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.

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		• It will be ensured that all transportation vehicles carry a valid PUC Certificates.
	Number of vehicles will be increased due to theproposed 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.	• 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 225 Nos. of local species (Neem, Mandharai, Athi, Ashoka 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 connected to NH 46 • Health checkup camps will be organized once in six month.

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		• 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 barren 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.	7.5m safety distance will be provided all along the boundary of the mine lease area. Around 0.47.0 Ha of land is utilized for greenbelt development (225 Nos – 5 years) This will attract avifauna thus enhancing the existing ecological environment.

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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 Government Poromboke Land and the land is vacant where there are no human settlement within 500m radius. Hence the project does not involve Rehabilitation and resettlement
Drilling, Blasting, Loading and Transportation of the mined out 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 Emakalnatham, which is 1km away from the project 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 graveled 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 and gravel for the

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		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, 2% of the project cost i.e, Rs. 1,35,000 will be allocated. The detailed agenda, which is to be executed, has been framed. The salient features of the programme are as follows: Developing the library, sports/drinking water facility in nearby Government school.

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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 labor
2.	Screening of Labors	Labors will be checked for health condition before employing them in mining activity	All the labors will be checked and screened for health before employing them After employing them, periodical medical checkups will be held once in every six months

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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 work 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 Letter No. SEIAA-TN/F. No. 8529/SEAC/ToR-993/2020 Dated: 28.07.2021. The study for alternative analysis involves in-depth examination of site and technology.

5.2. Analysis for Alternative Sites and Mining Technology

5.2.1. 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.

5.2.2. Alternative Technology

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

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Table 5-1 Alternative for Technology and other Parameters

Sr. No.	Particular	Alternative Option 1	Alternative Option 2	Remarks
1.	Technology	Opencast semi mechanized mining	Opencast mechanized mining	Opencast mechanized mining is preferred
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 labors will be deployed from Emakalnatham, Kothur 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 Emakalnatham Village, 1.0km in North.

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6. Environmental Monitoring Plan

6.1. Introduction

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, 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 NO_X Lead in PM	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	Project Site, Kothur, Emakalnatham, Pariyur, Salinayana Pali, Bargur

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Noise	5 locations	24 hourly Once in 5 locations	Project Site, Kothur, Emakalnatham, Pariyur, Salinayana Pali, Bargur
Water (Ground water) • pH • Temperature • Turbidity • Magnesium Hardness • Total Alkalinity • Chloride • Sulphate • Fluoride • Nitrate • Sodium • Potassium • Salinity • Total nitrogen • Total Coliforms • Fecal Coliforms	5 locations	Once in 5 locations	Project Site, Kothur, Emakalnatham, Pariyur, Salinayana Pali, Bargur
Water (surface water) • pH • Temperature • Turbidity • Magnesium Hardness • Total Alkalinity • Chloride • Sulphate • Fluoride • Nitrate • Sodium • Potassium • Salinity	Sample from nearby lakes/river	One time Sampling	

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• Total nitrogen • Total Coliforms • Fecal Coliforms			
Soil (Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	5 locations	Once in 5 locations	Project Site, Kothur, Emakalnatham, Pariyur, Salinayana Pali, Bargur
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

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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) Quaterly/half yearly	Half yearly	Project Site

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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

7.2. Public Hearing:

As the proposed mining project falls under 1(a), Category B1 – Cluster Mining (which includes the mines as specified in the 500m radius DD Letter)

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

7.3. 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 concerned. The industry has to identify the hazards, assess the associated risks and bring the risks to tolerable level on a continuous basis.

Mining is a hazardous operation and consists of considerable environmental, health and safety risk to miners. Safety risk assessment is the systematic identification of potential hazards in workplace as a first step to controlling the possible risk involved. Unsafe conditions in mines lead to a number of accidents and cause loss and injury to human lives, damage to property, interruption in production etc.

Risk Assessment is a systematic method of identifying and analyzing the hazards associated with an activity and establishing a level of risk for each hazard.

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. Because of the existing hazards of mining as an activity and the complexity of mining machinery and equipment and the associated systems, procedures and methods, it is not possible to be naturally safe. Regardless of how well the machinery or methods are designed, there will always be potential for serious accidents. It is not possible for an external agency to

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ensure the safety of an organization such as a mining company nor of the machinery or methods it uses.

Risk Assessment tools are used to help to prevent major hazards in mining industry, e.g., fire, explosion, wind-blast, outbursts, spontaneous combustion, roof instability, chemical and hazardous substances, etc., from injuring miners. The structured process associated with risk assessment helps to characterize the major hazards and evaluate engineering, management and work process factors that impact how a mine mitigates its highest risk. The degree of success is influenced by the existing risk management culture at the mining operation, identification of risk, the design of the risk assessment, the risk management, the character of the risk assessment process, the extent of the existing controls, and the quality of the new ideas.

7.3.1. Need for Risk Assessment

- Identify hazards–something with the potential to cause harm,
- Assess the likelihood, or probability, of harm arising from the hazard,
- Assess the severity of harm resulting from realization of the hazard,
- Combine assessments of likelihood and severity to produce an assessment of risk and
- Use the assessment of risk as an aid to decision making.

7.3.2. Objectives of Risk Assessment

- Identifying hazardous activities
- Assessment of risk level and severity in different operations
- Identification of control measures
- Setting monitoring process
- Reduce the impact of mishaps of all kinds
- Reduce the inherent potential for major accidents.

7.4. Identification of Hazard

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7.4.3. Blasting Pattern:

The quarrying operation will be carried out by semi Mechanised opencast method in conjunction with conventional method of mining using Jack Hammer drilling and balsting for shattering effect and loosen the Rough Stone.

7.4.4. Drilling and Blasting

Drilling and Blasting parameters are as follows

Diameter of the hole	:	32-36 mm
Spacing	:	60 Cms
Depth	:	1 to 1.5m
Charge / Hole	:	D.Cord with water or 70 gms of gun powder or Gelatine.
Pattern of hole	:	Zig Zag
Inclination of hole	:	70^0 from the horizontal.
Quantity of rock broken	:	0.45 MT x 2.6 = 1.17 MT
Control Blasting efficiency @ 90%	:	1.17 x 90% = 1.05MT / hole
Charge per hole	:	140 gms of 25mm dia cartridge
Quantity of rock broken per day	:	662.69M^3.

Following explosives are recommended for efficient Proposed Control Blasting with safe practice.

S. No	Description	Class / Division	Type	Size
1.	Slurry	Class - 3	Nitro Compound	25 x 200
2.	Detonators	Class - 3	Ordinary and elec (OD & ED)	6.5 x 32
3.	Safety fuse	Class - 6	Blue sump fuse coils of 10mts each	

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The following steps shall be adopted to control ground vibration due to Proposed Control Blasting.

1. The minimum recommended delay time of 8ms was introduced to minimize ground vibration to avoid constructive interference of blast vibration waves and hence its impact or amplitude.
2. In case of electronic detonators, which are inherently much more accurate delays (+/- 0.2 milliseconds delay) to minimizes the ground vibration.
3. Use of Ammonium nitrate fuel oil mixture for shot holes may be avoided because which cause for high fly of rocks in view critical diameter problem. Only high strength explosives like slurry will be used in the form of cartridge.
4. Charge per hole should exceed the powder factor designed for each hole based on the quantum of Proposed Control Blasting, strength of rocks, fracture pattern etc.

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

a. 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.
- The Applicant stores the explosives as per the Indian Explosives Act, 1958.

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- The explosives to be used in mines being a small quantity, the District collector may be approached to keep the stocks not exceeding 5kgs at time or any other quantity permitted by the concerned authorities in a portable magazine of S & B types.
- An authorized explosive agency is engaged to carry out blasting.
- The blasting time in a day is between 5 PM to 6 PM.
- First Aid Box is kept ready at all the time.
- Necessary precautionary announcement is being carried out before the blasting operation.

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, Metalliferrous 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 (14 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 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 labours only;

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- Regular maintenance and testing of all mining equipment as per manufacturer's guidelines;
- Suppression of dust by sprinkling water on the haulage roads;

7.4.5. 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.

7.4.6. 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 centre will be used for the mines around the 500m radius.

7.5. 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.

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7.5.1 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)

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

7.5.2. Emergency Plan:

- The mining operations should be immediately stopped in case of any emergency. A siren will be sounded during emergency time.

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- 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

7.5.3. 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.

7.6. 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.

7.7. Resettlement and Rehabilitation:

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

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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.

8.2. Physical Benefits

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

a. ***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.

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

c. ***Enhancement of Green Cover & Green Belt Development***: As a part of reclamation plan, native tree species will be planted along the safety boundary (0.47.0 Ha) 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 at the rate of 45 trees per year along with some fruit bearing and medicinal trees during the mining plan period.

8.3. 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 and gravel for the infrastructural development in the area will be made available from the local markets at reasonably lower price.

As a part of CER, 2% of the project cost i.e., Rs. 1,35,000 will be allocated. The detailed agenda, which is to be executed has been framed. The salient features of the programme are as follows:

Developing the library, Sports/Drinking water facility in the nearby government school

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8.4. PROJECT COST / INVESTMENT DETAILS

Investment

i) Land cost

It's a Government Poromboke land. Lease tender for Government poromboke land is Rs.40,00,000.

i) Machinery to be used

The excavators of 0.90m bucket capacity and tippers of 10/20s capacity will be used. The quantity of Diesel consumption is based on the working hours of Excavators (Filling Factor and loading Cycling) Average Diesel consumption of Hitachi Excavator model EX 150-200 is **12 Litres/ Hr**.

iii) Refilling / Fencing

For fencing the cost involved is **Rs.2,00,000**.

iv) Laborers shed

The machine operators will be from nearby local villages, hence no cost is involved. Rest shelter will be constructed as semi-permanent structure at the cost of **Rs.1,00,000**.

v) Sanitary facility

Sanitary facility will be constructed as semi-permanent structure, the cost will be around **Rs.1,00,000.**

8.3.2 Expenditure

i) Drinking water facility for the laborers

Drinking water at the cost of **Rs.1,10,000/-** for a period of five years.

ii) Sanitary maintenance:

Sanitary maintenance at the cost of **Rs.1,00,000/-** for a period of five years.

iii) Safety kits:

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Rs.75,000 will be spent for the safety kits such as Helmet, Goggles, Ear plugs, Ear mask, Safety shoes and Reflector jackets.

iv)Water sprinkling

Water sprinkling on haul roads for dust suppression, the cost will be around **Rs. 50,000/-** for a period of five years.

v) Afforestation

Afforestation is proposed within the lease applied area, plantation will be carried out on the safety boundary of the proposed mine lease area. The cost estimate is around **Rs.25,000/-** in which includes Rs.15,000 for sapling & Rs.10,000 for maintenance.

Project Cost Budget:

Table 8-1 Budget for the proposed project

Proposed Financial Estimate / Budget for (EMP) Environment Management		
A. Fixed Asset Cost:		
Land Cost	:	Rs. 40,00,000/-(Leased tender amount for Government Poramboke Land)
Labour Shed	:	Rs. 1,00,000/-
Sanitary Facility	:	Rs. 1,00,000/-
Fencing cost	:	Rs. 2,00,000/-
Total=	:	**Rs.44,00,000/-**
B. Operational Cost:		
Machinery cost	:	**Rs.20,00,000/-**

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C. EMP Cost:		
8. Drinking water facility	:	Rs. 1,10,000/-
9. Safety kits	:	Rs. 75,000/-
10. Water sprinkling	:	Rs. 50,000/-
11. Afforestation	:	Rs. 25,000/-
12. Water quality test	:	Rs. 30,000/-
13. Air quality test	:	Rs. 30,000/-
14. Noise/vibration test	:	Rs. 30,000/-
Total=	:	**Rs. 3,50,000/-**
Total Project cost(A+B+C)	:	Rs. 67,50,000/-

The project cost including EMP Cost is about Rupees Sixty seven lakhs fifty thousand (Rs. 67,50,000) only.

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9. Environmental Management Plan

9.1. General:

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 semi 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 6m. The individual bench slope has been proposed to be kept at 60^0 from horizontal, while the ultimate pit slope has been kept 45^0 from horizontal. Moreover, all safety standards/ safeguards will be implemented as per prescribed guidelines.

9.3. Mine Drainage

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.,

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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.

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, Thiru C. Selvan will work in association with M/s. Ecotech Labs Pvt Ltd.

Table 9-1Impacts and mitigation measures

S. no	Impacts on Environment	Activity /Aspect	Anticipated impacts	Mitigation measures	Budgetary Allocation
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.	Rs.25,000 Rs.50,000
2.	Water	Wastewater Generation	Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health	• Provision of urinals/Latrines along with septic tank followed by soak pit arrangement will be provided in the Mine Lease area for the proper	Rs.1,00,000

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			impacts to the labors	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	Rs.10,000
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.	Rs.1,00,000
4.	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.	Rs.75,000

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				✓ 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. Fire fighting extinguishers and buckets of sand will be provided in the construction site	Rs.1,00,000 Rs.1,00,000 Rs.36,000 Rs.75,000
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.	

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Table 9-2: Budgetary Allocation for EMP during Mining

S. No	Description		Budgetary Allocation Rs.)
1.	**EMP COST**		
	1.	Drinking water facility for Labourers	1,10,000
	2.	Sanitary Maintenance	1,00,000
	3.	Safety Kits	75,000
	4.	Water Sprinkling	50,000
	5.	Fencing cost	2,00,000
	6.	Afforestation, Plantation & Maintenance	25,000
2.	**Environmental Monitoring**		
	1.	Air Quality Monitoring	30,000
	2.	Water Quality Monitoring (Bore well water)	30,000
	3.	Soil sample Analysis – 1 Location	15,000
	4.	Noise Monitoring	30,000
Total Cost			**6,65,000**

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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

Thiru. C. Selvan, S/o. Chinnamaadhu, residing at No.4/268, Kumbalapadi, Indur, Nagar koodal Village, Dharmapuri District-636 803 has applied for the grant of quarry lease to quarry Rough Stone over an extent of 3.35.0Hectares. of Government Poromboke Land in S.F. No. 63/2(P) of Bargur Village, Bargur Taluk, Krishnagiri District of Tamil Nadu State for a period of Five Years.

Thiru. C. Selvan applied for mining of Rough stone in survey numbers – 63/2(P) in Bargur Village, Bargur Taluk, Krishangiri District and Tamil Nadu State over an extent of 3.35.0 hectares in Government Poramboke Lands for a period of 5 years . The area lies in the latitude of 12° 33' 21.83"N to 12° 33' 31.00"N and longitude of 78° 21' 43.58"E to 78° 21' 53.65"E. The area is marked in the survey of India Topo sheet No. 57 – L/06.

10.2. Project Overview

Table 10-1Project Overview

S. No.	Description	Details
1	Project Name	Thiru C. Selvan rough stone quarry
2	Proponent	Thiru C. Selvan
3	Mining Lease Area Extent	3.35.0 Ha
4	Location	63/2 (p) Bargur Village, Bargur Taluk, Krishnagiri Dt.
5	Latitude	12° 33' 21.83"N to 12° 33' 31.00"N
6	Longitude	78° 21' 43.58"E to 78° 21' 53.65"E

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7	Topography	Plain terrain
8	Site Elevation above MSL	493m above MSL
9	Topo sheet No.	**57 – L/06**
10	Minerals of Mine	Rough stone
11	Proposed production of Mine	Geological Reserves - 1790278M³ Mineable Reserves – 799240 M³ Proposed production for five years – 799240 M³ of Rough Stone
12	Ultimate depth of Mining	43 m below ground level
13	Method of Mining	Opencast, Semi-mechanized Mining with a bench height of 7m and bench width of 5m is proposed.
14	Source of water	Packaged drinking water is available from the nearby approved water vendors from Emakalnatham (1km, N)
15	Manpower	18 Nos.
16	Mining Plan Approval	Mining Plan was approved by Deputy Director of Geology and Mining, Krishnagiri Roc. No. 221/2019/Mines dated 06.09.2019.
17	Precise Area Communication	Na.Ka. No. 211/2019/Mines dated 13th June 2019 from the district collector, Geology and Mines, Krishnagiri
18	Ground water	The quarry operation is proposed up to a depth of 43m below ground level. The ground water table is reported as 65m below ground level in nearby open 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.
19	Habitations within 500m radius of the Project Site	There is no Habitation within 500m radius
20	Rivers / Canal/Lake	❖ Orappam Lake – 10km, SW ❖ Marudapalli Lake – 11 km, SW

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21	Reserved Forest / Wild life Sanctuary	➢ Burgur RF -2 km E ➢ Neralakotta RF -2 km N ➢ Varatanapalli RF -4 km W ➢ Nandibanda RF -5 km, NE ➢ Kothur RF - 6km, NNE

10.3. Justification of the proposed project

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.

Krishnagiri District is covered with wide range of metamorphic rocks of peninsular gnessic complex. These rock formations occur as massive hillocks all over the district in government lands and patta lands, and extensively weathered formations are overlained by soil / alluvium deposits with an average thickness of 1 to 5mts. Rough stone deposits suitable for the production of Jelly, Cut stones and Pillar Stones are available throughout the Krishnagiri District. Rough stones are widely used in this district as building stones, boulders, cut stones and for the production of Jelly, M.Sand, Crusher Dust. The rock products which are produced not only used in the Krishnagiri District alone but also transported to the neighboring districts. These products enter into the market in different parts of the country.

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,	Proper mitigation measures like water sprinkling on haul roads will be adopted to control dust emissions.

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	excavation, loading and transportation. The dust 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

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		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.

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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.

11.2.1 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

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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.

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ANNEXURE I

MINING PLAN APPROVAL LETTER

From

Thiru.L.Suresh,M.Sc.,
Deputy Director,
Geology and Mining Dept.,
Krishnagiri.

To

C.Selvan,
S/o. Chinnamaadhu,
No.4/268, Kumbalapadi,
Indur, Nagar Koodal-Village,
Dharmapuri-District

Rc.No.211/2019/Mines dated: 06/09/2019

Sir,

Sub: Mines and Minerals - Krishnagiri District - Bargur Taluk, Bargur village - S.F.No.63/2(P) - Over an extent of 3.35.0 Hects of Government Poramboke lands - Quarry Lease for Rough Stone Application preferred by Thiru.C.Selvan S/o.Chinnamaadhu - Draft Mining Plan submitted - Approved - reg.

Ref: 1.Krishnagiri District Gazette press release No.07 Dt:21.02.2019.
2. The District Collector Krishnagiri Roc.No.211/2019/ Mines dated 13.06.2019.
3. Thiru.C.Selvan S/o. Chinnamaadhu, No.4/268, Kumbalapadi, Indur, Nagar Koodal Village, Dharmapuri-District Letter dt.12.08.2019.

****

Kind attention is invited to the reference cited,

Thiru.C.Selvan S/o. Chinnamaadhu, No.4/268, Kumbalapadi, Indur, Nagar Koodal Village, Dharmapuri District have been issued precise area over an extent of 3.35.0 hects. of Government poramboke land in S.F.No.63/2(P), in Bargur village, Bargur Taluk, Krishangiri District for the proposed grant of rough stone quarry lease for a period of 10 years under tender cum auction system vide in the reference 1st cited under the provisions of Rule 8(6)(b) of Tamil Nadu Minor Mineral Concession Rules, 1959 and they have been directed to submit approved mining plan and Environment Clearance vide the reference 2nd cited.

2. In this regard, Thiru.C.Selvan S/o. Chinnamaadhu, had submitted 03 copies of draft Mining Plan vide the reference 4th cited for approval for the said quarry lease.

3. The draft Mining Plan submitted by Thiru.C.Selvan S/o. Chinnamaadhu has been scrutinized as per the guide lines/ Instructions issued by the Commissioner of Geology and Mining, Chennai-32 in the reference first cited. The mining plan is prepared in accordance with the guidelines / instructions issued and tallies with the field conditions. The special conditions imposed in the precise area letter had been incorporated in the Mining Plan.

4. Hence, as per the guidelines / instructions issued by the Commissioner of Geology and Mining, Chennai, the said mining plan may be approved subject to the following conditions.

i) That the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.

ii) This approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of Mines and Minerals Development and Regulation) Act 1957, or any other connected laws including Forest (Conservation) Act 1957, or any other connected Laws industry Forest (Conservation) Act 1980, Forest Conservation Rules 1981 Environment protection Act 1980, Indian Explosive Act 1884 (Central Act IV of 1884) and the rules made there under, Minor Mineral Conservation and Development Rules, and The Tamil Nadu Minor Mineral Concession rules, 1959.

iii) That the mining plan is approved without prejudice to any other order or directions from any court of competent jurisdiction.

The applicant should get prior Environmental clearance from the appropriate authority and should submit it to the District Collector, Krishnagiri.

Deputy Director,
Geology & Mining Dept.,
Krishnagiri.

Copy submitted to :
1. The Chairman, Krishnagiri State Level Environment Impact Assessment Authority, Saidapet, Chennai.
2. The Commissioner of Geology and Mining, Guindy, Chennai -32.

ANNEXURE II

MINING PLAN WITH PLATES

MINING PLAN

FOR

GRANT OF ROUGH STONE QUARRY LEASE IN

GOVERNMENT PORAMBOKE LAND

PROPOSED PERIOD OF MINING 5 YEARS

(Prepared Under Rule 8(6)(b) Tamil Nadu Minor Mineral Concession Rules, 1959 & As Per Amendment Under Rule 41 & 42)

06 SEP 2019

LOCATION OF THE APPLIED AREA

EXTENT : 3.35.0Ha.

S. F. No : 63/2(P)

VILLAGE : BARGUR.

TALUK : BARGUR.

DISTRICT : KRISHNAGIRI.

STATE : TAMIL NADU.

APPLICANT

THIRU.C. SELVAN,

S/o. CHINNAMAADHU,

No.4/268, KUMBALAPADI, INDUR,

NAGAR KOODAL VILLAGE,

DHARMAPURI - 636 803.

PREPARED BY

S.DHANASEKAR, M.Sc.,

RQP/MAS/225/2011/A

8/3, KULLAPPAN STREET,

OPP,INDIAN BANK LINE,

OMALUR TALUK – 636 455

SALEM DISTRICT.

Email: geodhana@yahoo.co.in

CELL : 98946-28970 & 73733-74702.

06 SEP 2019

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ANNEXURES

Sl. No.	Description	Annexure No.
1.	Precise Area Communication letter	I
2.	Copy of Krishnagiri District Gazette	II
3.	Copy of DFO Clearance letter	III
4.	Copy of FMB & Combined Sketch	IV-A & B
5.	Copy of Land Documents	V
6.	Copy of Applicant ID Proof	VI
7.	Copy of RQP Certificate	VII
8.	Copy of Applied Area Photos	VIII

LIST OF PLATES

Sl. No.	Description	Plate No.	Scale
1	Location Plan	I	Not To Scale
2	Route Map	IA	Not To Scale
3	Topo Sheet Map	IB	1:50,000
4.	Satellite Imaginary Map	IC	1:10,000
5.	Mine Lease Plan	II	1:1000
6.	Surface & Geological Plan	III	1:1000
7.	Geological Sections	III-A	1:1000
8.	Year Wise Development And Production Plan	IV	1:1000
9.	Year Wise Development And Production Sections	IV- A	1:1000
10.	Mine Layout Plan And Land Use Pattern	V	1:1000
11.	Conceptual/Final Mine Closure Plan	VI	1:1000
12.	Conceptual/Final Mine Closure Sections	VI- A	1:1000
13.	Environmental Plan	VII	1:5000
14.	Progressive Mine Closure Plan	VIII	1:1000

C. SELVAN,
S/o. CHINNAMAADHU,
No. 4/268, KUMBALAPADI, INDUR,
NAGAR KOODAL VILLAGE,
DHARMAPURI-636 803.

06 SEP 2010

CONSENT LETTER FROM THE APPLICANT

I hereby give my consent for preparing the Mining Plan in respect of **Rough Stone** quarry over an extent of **3.35.0Hectares** of **Government Poramboke Land** in **S.F.No.63/2(P)** of **Bargur** Village, **Bargur** Taluk, **Krishnagiri** District, Tamil Nadu State has been prepared by Shri. **S. Dhanasekar,** M.Sc.,Regn.No. **RQP/MAS/225/2011/A.**

I request the Deputy Director, Department of Geology and Mining, KRISHNAGIRI District to make further correspondence regarding the Mining Plan with the said Recognized Qualified Person on this following address.

S.DHANASEKAR, M.Sc.,
RQP/MAS/225/2011/A
8/3, Kullappan Street,
Opposite Indian bank Line,
Omalur Taluk - 636455
Salem District.
E-Mail: geodhana@yahoo.co.in
Cell: 98946-28970

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.

(C. SELVAN)
Signature of the Applicant

Place: DHARMAPURI

Date:

4

C. SELVAN,
S/o. CHINNAMAADHU,
No. 4/268, KUMBALAPADI, INDUR,
NAGAR KOODAL VILLAGE,
DHARMAPURI-636 803.

06 SEP 2010

DECLARATION

I hereby declare that the Mining Plan in respect of **Rough Stone** quarry over an extent **3.35.0Hectares** of **Government Poramboke Land** in **S.F. No. 63/2(P)** of **Bargur** Village, **Bargur** Taluk, **Krishnagiri** District, and Tamil Nadu State has been prepared with my consultation and I have understood the contents and agree to implement the same in accordance with the Mining Laws.

(C. SELVAN)
Signature of the Applicant

Place: DHARMAPURI

Date:

KRK MEMORIAL
MINING SERVICES

S.DHANASEKAR
Senior Geologist / Recognized Qualified Person
Off 86680 20217
No.5/30-7B, Avvai Nagar, Ponkumar Mines Road, Jagir Ammapalayam, Salem - 636 302.
GST : 33ALIPD6733

06 SEP 2019

CERTIFICATE

This is to certify that, the provisions of Minor Minerals Conservation and Development Rules, 2010 (MMCDR) have been observed in the Mining Plan for the grant of **Rough Stone** quarry lease over an extent of **3.35.0Hectares** of **Government Poramboke Land** in **S.F.No. 63/2(P)** of **Bargur** Village, **Bargur** Taluk, **Krishnagiri** District, Tamil Nadu State obtained by **Thiru. C. SELVAN** for applied quarry lease.

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.

Certified

Signature of Recognized Qualified Person.

S.DHANASEKAR, M.Sc.,(Geo);
RQP/MAS/225/2011/A

Place: SALEM

Date:

11°41'29.45" N
78°07'13.58" E

98946 28970
73733 74702

krkmemorialminingservices@gmail.com
geodhana@yahoo.co.in

Branch
8/3, Kullappan Street,
Opp. Indian Bank Line,
Omalur, Salem - 636 455

KRK MEMORIAL MINING SERVICES

S.DHANASEKAR
Senior Geologist / Recognized Qualified Person

Off
86680 20217

No.5/30-78, Avvai Nagar,
Ponkumar Mines Road,
Jagir Ammapalayam,
Salem - 636 302.

GST : 33ALIPD6733A1Z

06 SEP 2019

CERTIFICATE

This is to certify that during preparation of Mining Plan for **Rough Stone** quarry over an extent of **3.35.0Hectares** of **Government Poramboke Land** in **S.F.No. 63/2(P)** of **Bargur** Village, **Bargur** Taluk, **Krishnagiri** District, Tamil Nadu State for **Thiru. C. SELVAN** covers all the provisions of Mines Act, Rules, and Regulations etc made there under and whenever specific permission are required, the applicant will approach the Director General of Mines Safety, Chennai. The standards prescribed by DGMS in respect of Mines Health will be strictly implemented.

Certified

Signature of Recognized Qualified Person.

S.DHANASEKAR, M.Sc.,(Geo)
RQP/MAS/225/2011/A

Place: SALEM

Date:

11°41'29.45" N
78°07'13.58" E

98946 28970
73733 74702

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Branch
8/3, Kullappan Street,
Opp. Indian Bank Line,
Omalur, Salem - 636 455.

MINING PLAN FOR MINOR MINERALS

ROUGH STONE QUARRY

PROPOSED PERIOD OF MINING 5 YEARS

Over an extent of 3.35.0Hectares of **Government Porambоke Land** in **S.F. No. 63/2(P) of Bargur Village, Bargur Taluk, Krishnagiri District, Tamilnadu State.**

(Prepared Under Rule 8(6)(b) Tamil Nadu Minor Mineral Concession Rules, 1959 & As Per Amendment Under Rule 41 & 42)

1.0 INTRODUCTION AND EXECUTIVE SUMMARY:

1. **Thiru. C. SELVAN,** S/o. Chinnamaadhu, residing at No.4/268, Kumbalapadi, Indur, Nagar koodal Village, Dharmapuri District-636 803 has applied for the grant of quarry lease to quarry **Rough Stone** over an extent of **3.35.0Hectares.** of **Government Porambоke Land** in **S.F. No. 63/2(P)** of **Bargur** Village, **Bargur** Taluk, **Krishnagiri** District of Tamil Nadu State for a period of Five Years.
2. The Applicant has been the Successful **HIGHEST BIDDER** for an **Amount Rs. 40,00,000/-** in a tender cum public action conducted by the Government of Tamilnadu and Precise area had been given for the proposed grant of Rough Stone quarry lease to **THIRU. C. SELVAN** over an extent of 3.35.0 hectares in Government Porambоke land in S.F.No. 63/2(P) of Bargur Village, Bargur Taluk, Krishnagiri District of Tamil Nadu State for a period of **Five Years** Vide Letter No. **Rc. No. 211/2019/Mines dated 13.06.2019** and directed to submit the approved Mining Plan and Environmental Clearance certificate from the State Environment Impact Assessment Authority (SEIAA) for the grant of quarry lease for the applied area.
3. Accordingly, Mining Plan is prepared under Rule 8(6)(b) Tamil Nadu Minor Mineral Concession Rules, 1959 & As per Amendment under Rule 41 & 42 by incorporating the conditions imposed in the precise area communication letter and by incorporating all the details proposed in the letter to obtain environment clearance from State Environment Impact Assessment Authority.
4. In the above circumstances **Thiru. C. SELVAN** is here by preparing the Mining Plan for approval and subsequent submission of Form-I and pre Feasibility report to obtain environmental clearance from the SEIAA of Tamil Nadu.
5. This Mining Plan is prepared for the applied Rough Stone Quarry for the period of Five years by considering the TNMMCR 1959 and as per the EIA Notification 2006 and subsequent amendments and judgements.

S.DHANASEKAR, M.Sc.,(Geo)
RQP/MAS/225/2011/A

8

6. This Mining Plan is prepared by considering the TNMMCR 1959, and as per the EIA Notification 2006 and it are subsequent amendments and judgments.
7. The available Geological Reserves is estimated as **1790278M³** and Mineable Reserves is estimated as **1046346M³** and recoverable reserves is estimated as **994033M³** of **Rough Stone** after leaving necessary safety distance from the lease boundary as indicated in the precise area communication letter and relevant mining laws in force.
8. The proposed production scheduled for the five years about **994033M³** of **Rough Stone**. Proposed average annual production of Rough stone **198807M³**.
9. Environmental parameters,
   i) There is no interstate boundary around 10Kms radius.
   ii) There is no wild life animal sanctuary within 10Kms radius form the project site area under the Wildlife (Protection) Act, 1972. Therefore the project seeks clearance only from State Environmental Impact Assessment Authority (SEIAA), under B2 Category.
10. Environmental measures to be adopted shall be,
   i) Dust Control at source while drilling and Proposed Control Blasting,
   ii) Dust suppression at loading point and transport haul roads,
   iii) Noise Control in Proposed Control Blasting, control of fly rock missiles and vibration by doing peak particle velocity within standard as prescribed by the DGMS and MoEF.
   iv) Unnecessary land degradation should be avoided or damaged land should be reclaimed or rehabilitated.
   v) Avoid uneven rat hole mining and follow scientific and systematic mining by safe bench system of open cast mining.
   vi) Mining near major fracture zones if any should be avoided to control ground water fluctuation in the adjacent agricultural lands.
   vii) Emission test of vehicles should be in stack to maintain minimum emission level of flue gases.
   viii) Noise level should not exceed 80db and the vehicles should use only permitted Air Horn while on road near residential areas.
   ix) Safety zones as prescribed by the Department of Geology and Mining from adjacent infrastructures should be strictly adhered to.
   x) And any other conditions as stipulated by the concerned authorities should be followed to protect the environment.

2.0 EXECUTIVE SUMMARY:

a.	Name of the Village	:	Bargur
b.	Name of the Panchayat / Union	:	Bargur / Bargur
c.	The proposed total Mineable Reserves	:	**994033M³** (Total Depth of **57m** - Top Soil **1m** + Rough stone **56m**).
d.	The proposed quantity of reserves (level of production) for **Five Years** to be mined is (Recoverable reserves)	:	**994033M³** (Total Depth of **57m** - Top Soil **1m** + Rough stone **56m**).
e.	Total extent of the area	:	**3.35.0Ha**
f.	Proposed Period of mining	:	**Five years**
g.	Proposed Depth of mining	:	**57m**
h.	Existing Pit Dimension		10826 Sq.mt X Avg. Depth 15.0mts=162390Cbm
i.	Average production per year	:	**198807M³**
j.	Method of mining / level of mechanization	:	Opencast, Semi-mechanized Mining with a bench height of **7m** and bench width of **5m** is proposed.
k.	Types of Machineries used in the quarry	:	i) Compressor with jack hammer. ii) Excavator of 0.90Cbm bucket Capacity.
l.	Cost of the Project a. Fixed Cost b. Operational Cost c. EMP Cost	 : : :	 Rs.44,00,000/- Rs.20,00,000/- Rs.3,50,000/-
m.	The area applied for lease is bounded by four corners and the coordinates are Latitude Longitude North East South East North West South West	: : : : : : :	Toposheet No. **57 – L/06** **12° 33' 21.83"N to 12° 33' 31.00"N** **78° 21' 43.58"E to 78° 21' 53.65"E** 12° 33' 29.59" N 78° 21' 49.66"E 12° 33' 24.50" N 78° 21' 50.77"E 12° 33' 31.00" N 78° 21' 43.79"E 12° 33' 21.83" N 78° 21' 47.32"E

3.0 GENERAL INFORMATION:

3.1	a.	Name of the Applicant	:	**Thiru. C. SELVAN,**
	b.	Address of the Applicant with phone No and e-mail id if any	:	**C. SELVAN,** S/o. CHINNAMAADHU, No. 4/268, KUMBALAPADI, INDUR, NAGAR KOODAL VILLAGE, DHARMAPURI-636 803.
	c.	Status of the Applicant	:	Individual
3.2	a.	Mineral Which the applicant intends to mine	:	Rough Stone
	b.	Precise area communication letter No.	:	**Rc. No. 211/2019/MINES dated 13.06.2019**
	c.	Period of permission	:	5 Years
	d.	Name and Address of the RQP preparing Mining Plan	:	**S.Dhanasekar, M.Sc.,** RQP/MAS/225/2011/A 8/3, Kullappan Street, Opposite Indian bank Line, Omalur Taluk -636455, Salem District. Email: geodhana@yahoo.co.in
	e.	RQP Regn. No.	:	RQP/MAS/225/2011/A Valid up to 12.01.2021.

4.0 LOCATION:

a. **Details of the Area:**

State	District	Panchat / Union	Taluk	Village	S.F.No.	Extent in Ha.
Tamilnadu	Krishnagiri	Bargur / Bargur	Bargur	Bargur	63/2(P)	3.35.0
TOTAL =						**3.35.0Ha.**

b.	Classification of the Area (Ryotwari / poramboke / others)	:	It is a Government Poramboke Land, which is not fit for vegetation/cultivation.

c.	Ownership / Occupancy of the Applied Lease area (Surface rights)	:	It is a Government Poramboke land. The applicant had been given precise area for the proposed grant of Rough Stone Quarry Lease.
d.	Toposheet No. with Latitude and Longitude	: : :	**Toposheet No. 57 – L/06** **12° 33' 21.83"N to 12° 33' 31.00"N** **78° 21' 43.58"E to 78° 21' 53.65"E**
e.	Existence of Public Road / Railway line if any nearby the area and approximate distance	:	Krishnagiri - Bargur = 14.0 Kms Quarry site is located in Northern side at a distance of 2.0 km. from Bargur.

PART - A

5.0 GEOLOGY AND MINERAL RESERVES:

5.1 a. Topography:

1. The area applied for quarry lease is almost plain area sloping towards southern covered with Rough Stone which does not sustain any type of vegetation. The altitude of the area is 493m above MSL.
2. No major river is found nearby the lease area.
3. Water table is noticed at a depth of **65m** from the below surface in the adjacent open wells and bore wells of the area.
4. Temperature of the area is reported to be 18^0C to a maximum of 38^0C during summer.
5. Rainfall of this area is about 800mm to 900 mm during the monsoons in a year.

b. Infrastructures nearby the applied Lease area.

1. Post Office	:	Bargur – 2.0 Kms
2. Police Station	:	Bargur - 2.0 Kms
3. G.H	:	Bargur 2.0 Kms
4. Fire service	:	Krishnagiri – 14.0 Kms
5. Railway Station	:	Jolarpet – 25.0 Kms
6. School	:	Bargur 2.0 Kms
7. Airport	:	Bangalore - 112.0 Kms
8. Seaport	:	Chennai – 220.0 Kms

	c.	Regional Geology	:	**KRISHNAGIRI** District is underlined by the wide range of metamorphic rocks of peninsular gneissic complex. These rocks are extensively weathered and overlain by the recent valley fills and alluvium at places. The geological formations found in the District are Archaean rocks like Gneisses, Granites, Charnockite basic granulites and calc-gneisses. The younger formations are Quartz veins and pegmatite. The generalized stratigraphic succession of the geological formations met within this District is as follows.

	Age	Rock Formation
1.	Recent to Sub recent	Soil, Alluvium
2.	Archaean	Granites, basic granulites, Peninsular Gneiss, Calc Gneiss and Charnockites

	d.	Geology of the Lease Area		1. The area is mainly composed of Archaean crystalline metamorphic complex. 2. The rock type noticed in the area for lease is **Granite Gneiss** which contains mostly Quartz and Feldspar with some ferromagnesian minerals. The Granite Gneiss is part of peninsular Gneisses, a high grade metamorphic rock. 3. The general trend of formation is NW – SE and dip towards NE. The general geological succession of the area is given as under.

	Age	Rock Formation
1.	Recent to Sub recent	Soil, Alluvium
2.	Archaean	Charnockites
3.	Archaean	Peninsular Gneiss, and Calc Gneiss

5.2		Details of Exploration already carried out if any	:	Since the **Rough Stone** is seen from the Surface itself, no exploration is needed. However, the area was personally examined by the Geologist who prepared the Mining Plan.
5.3	a.	Already excavated pit dimensions		10826 Sq.mt X Avg. Depth 15.0mts=162390Cbm

b. **GEOLOGICAL RESERVES:**

Top Soil:

The Thickness of Top soil in this area is 1.0m and the total volume of topsoil will be **23273m^3**.

Rough Stone :

The Geological Reserve is estimated as **1790278m^3** respectively, at the rate of 95% Recovery upto the permissible depth. The Geological reserve of Rough stone and Top soil is calculated upto a depth of **57m**(1 m top soil + **56m** Rough Stone).

GEOLOGICAL RESERVES

Section	Bench	L(m)	W (m)	D (m)	Volume In M3	Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m3
XY-AB	I	114	82	1				9348
	II	114	82	7	65436	62164	3272	
	III	114	82	7	65436	62164	3272	
	IV	114	82	7	65436	62164	3272	
	V	114	82	7	65436	62164	3272	
	VI	114	82	7	65436	62164	3272	
	VII	114	82	7	65436	62164	3272	
	VIII	114	82	7	65436	62164	3272	
	IX	114	82	7	65436	62164	3272	
TOTAL					**523488**	**497312**	**26176**	**9348**
XY-CD	I	15	1	1				15
	II	15	1	7	105	100	5	
	III	15	1	7	105	100	5	
	IV	135	86	7	81270	77207	4063	
	V	135	86	7	81270	77207	4063	
	VI	135	86	7	81270	77207	4063	
	VII	135	86	7	81270	77207	4063	
	VIII	135	86	7	81270	77207	4063	
	IX	135	86	7	81270	77207	4063	
TOTAL					**487830**	**463442**	**24388**	**15**
X1Y1-CD	I	130	107	1				13910
	II	130	107	7	97370	92502	4868	
	III	130	107	7	97370	92502	4868	
	IV	130	107	7	97370	92502	4868	
	V	130	107	7	97370	92502	4868	
	VI	130	107	7	97370	92502	4868	
	VII	130	107	7	97370	92502	4868	
	VIII	130	107	7	97370	92502	4868	
	IX	130	107	7	97370	92502	4868	
TOTAL					**778960**	**740016**	**38944**	**13910**
GRAND TOTAL					**1790278**	**1700770**	**89508**	**23273**

c. **MINEABLE RESERVES:**

The Mineable reserves are calculated by deducting 7.5m & 10.0m Safety Margin to the Government Poramboke Land & and Bench Loss.

Top Soil: The Thickness of Top soil in this area is 1.0m and the total volume of topsoil will be **19525m^3**.

Rough Stone :

The mineable reserves and the recoverable reserves are **1046346m^3** and **994033m^3** respectively, The Mineable reserve of Rough stone and Top soil is calculated upto a depth of **57m(1m** top soil + **56m** Rough Stone).

MINEABLE RESERVES								
Section	Bench	L(m)	W(m)	D(m)	Volume In M3	Mineable Rough stone Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m3
XY-AB	I	107	75	1				8025
	II	106	74	7	54908	52163	2745	
	III	101	69	7	48783	46344	2439	
	IV	96	64	7	43008	40858	2150	
	V	91	59	7	37583	35704	1879	
	VI	86	54	7	32508	30883	1625	
	VII	81	49	7	27783	26394	1389	
	VIII	76	44	7	23408	22238	1170	
	IX	71	39	7	19383	18414	969	
TOTAL					**287364**	**272998**	**14366**	**8025**
XY-CD	IV	120	86	7	72240	68628	3612	
	V	115	86	7	69230	65769	3461	
	VI	110	86	7	66220	62909	3311	
	VII	105	86	7	63210	60050	3160	
	VIII	100	86	7	60200	57190	3010	
	IX	95	86	7	57190	54331	2859	
TOTAL					**388290**	**368877**	**19413**	
X1Y1-CD	I	115	100	1				11500
	II	113	99	7	78309	74394	3915	
	III	103	94	7	67774	64385	3389	
	IV	93	89	7	57939	55042	2897	
	V	83	84	7	48804	46364	2440	
	VI	73	79	7	40369	38351	2018	
	VII	63	74	7	32634	31002	1632	
	VIII	53	69	7	25599	24319	1280	
	IX	43	64	7	19264	18301	963	
TOTAL					**370692**	**352158**	**18534**	**11500**
GRAND TOTAL					**1046346**	**994033**	**52313**	**19525**

6.0 MINING:

6.1	Method of Mining	:	1. Opencast method of semi mechanized mining is adopted to extract Rough Stone. 2. Machineries like Tractor mounted compressor attached with Jack hammers is being used to drilling and Proposed Control Blasting. Excavators are operated for quarrying of Rough Stone and Tippers / Lorries are used for transportation of Rough Stone to the destination
6.2	Mode of Working	:	It is a semi mechanized quarrying operation using shot hole drilling with the help of compressor and jack hammers, smooth blasting. Rough Stone are removed using Hydraulic excavator and loaded directly to the tippers and transported to the crushing plants for breaking into required size from 75mm jelly to 10mm chips..
6.3	Proposed bench height & Width	:	Bench height = 7mts. Bench width = 5mts.
6.4	Details of Overburden / Mineral Production proposed for **Five year**	:	**Top Soil/ Overburden production details follows:** This area is covered 1.0m Top Soil in this mine area **19525m^3**. Topsoil formation will be removed and dumped in North, East and Southern side of the 7.5m Boundary Barrier of the lease area. And Party used for Plantation Purposes.

Year wise reserves calculations :

Rough stone production details as follows:

The proposed rate of production of **Rough Stone** is about **994033m^3** for five years. The average proposed rate of production of **Rough Stone** is about **198807m^3** per year at the rate of 95% recovery upto the permissible depth. Total Depth-**57m.** (**1m** top soil + **56m** Rough Stone). Proposed Production of five Years.

YEARWISE DEVELOPMENT AND PRODUCTION

Section	Bench	L (m)	W (m)	D (m)	Volume In M3	Rough stone Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m3
I YEAR	I	107	75	1				8025
	II	106	74	7	54908	52163	2745	
	III	101	69	7	48783	46344	2439	
	I	115	100	1				11500
	II	113	99	7	78309	74394	3915	
	III	103	94	7	67774	64385	3389	
TOTAL					**249774**	**237286**	**12488**	**19525**

	II YEAR	IV	96	64	7	43008	40858	2150		
		IV	120	86	7	72240	68628	3612		
		IV	93	89	7	57939	55042	2897		
	TOTAL					**173187**	**164528**	**8659**		
	III YEAR	V	91	59	7	37583	35704	1879		
		V	115	86	7	69230	65769	3461		
		V	83	84	7	48804	46364	2440		
	TOTAL					**155617**	**147837**	**7780**		
	IV YEAR	VI	86	54	7	32508	30883	1625		
		VII	81	49	7	27783	26394	1389		
		VI	110	86	7	66220	62909	3311		
		VII	105	86	7	63210	60050	3160		
		VI	73	79	7	40369	38351	2018		
		VII	63	74	7	32634	31002	1632		
	TOTAL					**262724**	**249589**	**13135**		
	V YEAR	VIII	76	44	7	23408	22238	1170		
		IX	71	39	7	19383	18414	969		
		VIII	100	86	7	60200	57190	3010		
		IX	95	86	7	57190	54331	2859		
		VIII	53	69	7	25599	24319	1280		
		IX	43	64	7	19264	18301	963		
	TOTAL					**205044**	**194793**	**10251**		
	GRAND TOTAL					**1046346**	**994033**	**52313**	**19525**	

6.5 a. Mining : Drilling of shot holes will be carried out using compressor and jack hammer. Depth of holes shall be 1 to 2m bench height and spacing shall be 0.75m and burden shall be 0.60m from the preface. Details of drilling equipments are given below.

Type	Nos	Dia of hole	Size / Capacity	Make	Motive power	H.P.
Jack Hammer	7	25.5 mm	Hand held	Atlas copco 2Nos	Diesel	60

b. Loading : Loading of waste and rough stone shall be carried out by 10 tonne capacity tippers from the working place periodically. Details of loading equipment are given as under.

Type	Nos	Bucket Capacity (MT)	Make	Motive power	H.P.
Hydraulic excavator	1	1.2 M^3	L&T or Ex200	Diesel	120

	c	Transportation	:	Transport of raw materials and waste shall be done by Tipper of 10 M.T. capacity

Type	Nos	Size / Capacity	Make	Motive power	H.P.
Tipper	4	10 M.T	Ashok Leyland	Diesel	110

d. **Energy:**

Electricity for mines and lights only at nights (working is restricted on day time only between 9Am to 5Pm). Diesel (HSD) will be used for quarrying machines around **798480 litres** of HSD will be used for the entire project life. Diesel will be brought from nearby diesel pumps. No power is required for the project. Lightings on the night will be taken from nearby electric poles after obtaining permission from concerned authorities.

For Top soil:

Per hour excavator will consume = 10 litres / hour

Per hour excavator will excavate = $60m^3$ of Top soil

For $19525m^3$ = 19525/60

= 325.4 hours

Diesel consumption 325.4 working hours = 325.4 x 10 litres

Total diesel consumption = **3254 litres of HSD will be utilized for Top Soil**

For Rough stone:

Per hour excavator will consume = 16 litres / hour

Per hour excavator will excavate = $20m^3$ of rough stone

For $994033m^3$ = 994033/20

= 49701.65 hours

Diesel consume 49701.65 working hours = 49701.65 hours x 16 litres

Total diesel consumption = **795226 litres of HSD will be utilized for Rough Stone.**

Total diesel consumption is around **–798480 litres of HSD for the entire period of life**

6.6	Disposal of Overburden	:	The top soil of the lease area is **$19525m^3$**. Topsoil formation will be removed and dumped in North, South and Eastern side of the 7.5m boundary barrier of the lease area. And Party used for road low lying area and Plantation Purposes.

				Proposed Dump Dimensions: (664.4m(L)X7.5m(W)X3.9m(H)=19525m^3)
6.7.		Brief Note on Conceptual Mining Plan for the entire lease period	:	Conceptual Mining Plan is prepared with an object of **Five year** of systematic development of bench lay outs, selection of ultimate pit limit, depth of quarrying, ultimate pit slope, etc., Average Ultimate Pit dimension in given as Under,

ULTIMATE PIT DIMENSION

Section	Bench	Length in (m)	Width in (m)	Depth in (m)
XY-AB	I	107	75	1
	II	106	74	7
	III	101	69	7
	IV	96	64	7
	V	91	59	7
	VI	86	54	7
	VII	81	49	7
	VIII	76	44	7
	IX	71	39	7

Ultimate pit size is designed based on certain practical factors such as the economical depth of mining, safety zones, permissible areas etc.

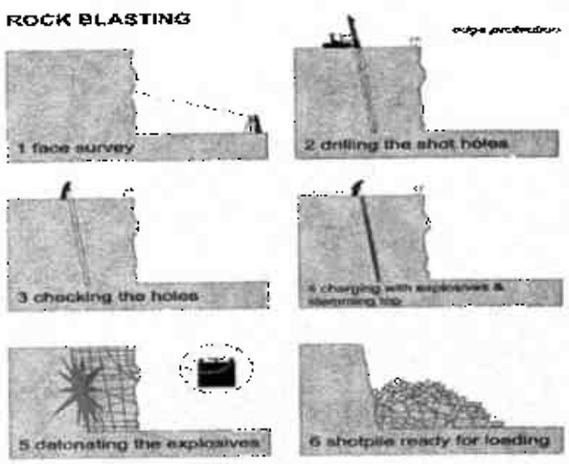
Afforestation has been proposed on the boundary barrier by planting trees. All the baseline information studies like Air Quality monitoring, Noise and Vibration monitoring, Water Analysis studies will be carried out every year as per the MOEF norms.

7.0 BLASTING:

7.1	Proposed Control Blasting Pattern	:	The massive formation shall be broken into pieces of portable size by drilling and Proposed Control Blasting using jack hammers and shot hole Blasting. Powder factor of explosives for breaking such hard rock shall be in the order of 6 to 7 tonnes per K.g of explosives.

Proposed Control Blasting parameters are as follows

Diameter of the hole	:	32-36 mm
Spacing	:	60 Cms
Depth	:	1 to 1.5m
Charge / Hole	:	D.Cord with water or 70 gms of gun powder or Gelatine.
Pattern of hole	:	Zig Zag
Inclination of hole	:	70^0 from the horizontal.
Quantity of rock broken	:	0.45 MT x 2.6 = 1.17 MT
Control Blasting efficiency @ 90%	:	1.17 x 90% = 1.05MT / hole
Charge per hole	:	140 gms of 25mm dia cartridge
Quantity of rock broken per day	:	662.69M^3.



7.2 Types of Explosives : Following explosives are recommended for efficient Proposed Control Blasting with safe practice.

S. No	Description	Class / Division	Type	Size
1.	Slurry	Class - 3	Nitro Compound	25 x 200
2.	Detonators	Class - 3	Ordinary and elec (OD & ED)	6.5 x 32
3.	Safety fuse	Class - 6	Blue sump fuse coils of 10mts each	

20

7.3	Measures proposed to minimize ground vibration due to Proposed Control Blasting	:	The following steps shall be adopted to control ground vibration due to Proposed Control Blasting. 1. The minimum recommended delay time of 8ms was introduced to minimize ground vibration to avoid constructive interference of blast vibration waves and hence its impact or amplitude. 2. In case of electronic detonators, which are inherently much more accurate delays (+/- 0.2 milliseconds delay) to minimizes the ground vibration. 3. Use of Ammonium nitrate fuel oil mixture for shot holes may be avoided because which cause for high fly of rocks in view critical diameter problem. Only high strength explosives like slurry will be used in the form of cartridge. 4. Charge per hole should exceed the powder factor designed for each hole based on the quantum of Proposed Control Blasting, strength of rocks, fracture pattern etc.
7.4	Storage of Explosives and safety measures to be taken while Proposed Control Blasting.	:	1. The Applicant stores the explosives as per the Indian Explosives Act, 1958. 2. The explosives to be used in mines being a small quantity, the District collector may be approached to keep the stocks not exceeding 5kgs at time or any other quantity permitted by the concerned authorities in a portable magazine of S & B types. 3. An authorized explosive agency is engaged to carry out blasting. 4. The blasting time in a day is between 5 PM to 6 PM. 5. First Aid Box is kept ready at all the time. 6. Necessary precautionary announcement is being carried out before the blasting operation. operation.

8.0 MINE DRAINAGE:

8.1	Depth of Water table	:	The ground water table is reported as 65m below ground level in nearby open wells and bore wells of this area. Mining depth taken as 57m. Now, proposed quarry depth is above the water table. Hence, quarrying may not affect the ground water.
8.2	Arrangement 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.

9.0 OTHER PERMANENT STRUCTURES:

9.1	Habitations / Village	:	There are no villages within a radius of 500m. The nearest habitations with the population is given as under,

Direction	Village	Distance in Kms	Population
North	Emakalnatham	1.0Kms	200
East	Oppathavadi	4.2 Kms	150
South	Mallapadi	3.6kms	450
West	Salinayanapalli	2.0Kms	100

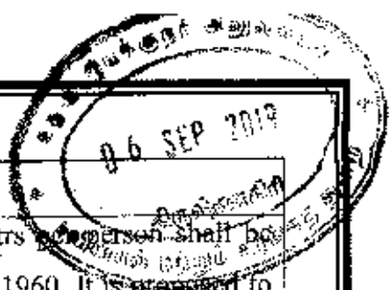
9.2	Power lines (HT/LT)	:	No power line is located in the lease area.
9.3	Water bodies (River, Pond, Lake, Odai, Channel etc)	:	There is No Water bodies (River, Pond, Lake, Odai, Channel etc) located within a radius of 500m.
9.4	Archeological / Historical Monuments	:	There are no Archeological / Historical Monuments within a radius of 500m.
9.5	Road (NH, SH, Village Road etc)	:	Krishnagiri - Bargur – 14.0 Kms Quarry site is located in Northern side at a distance of 2.0 km. from Bargur.

9.6	Places of Worship	:	There are no Places of Worship within a radius of 500m.
9.7	Reserved Forest / Forest / Social Forest / Wild Life Sanctuary etc.,	:	There are no Social Forest / Wild Life Sanctuary etc. within a radius of 10km.
9.8	Any Interstate Border, Protected areas under the Wild Life (Protection) Act, 1972, Critically Polluted Areas as Identified by Central Pollution Control Board and Notified Eco sensitive areas	:	There are No inter State border within a radius of 10 kms. North Cauvery Wild life Sanctuary located within the distance of about 42.31 Kms from the lease area. Wildlife Boundary GPS (12°30' 51.21"N - 77°58' 23.89"E) Quarry Boundary GPS (12° 33' 18.63"N - 78° 21' 37.27"E)
9.9	Any Other Structures	:	Nil

10.0 EMPLOYMENT POTENTIAL & WELFARE MEASURES:

10.1	Employment Potential (Management & Supervisory personal)	:	1. As per Mines safety under the provisions of MMR, 1961 under the Mines Act, 1952, whenever the workers are employed more than 10, it is preferred to have a qualified Mining Mate to keep all the workers directly under his control and supervision. 2. The following man power is proposed for quarrying Rough Stone during the five years period to achieve the proposed production to the provisions of the Government norms.

1.	Skilled	Operator	2 No.
		Mechanic	1 No.
		Blaster/Mat	1 No.
2.	Semi – skilled	Driver	2 Nos
3.	Unskilled	Musdoor / Labours	5 Nos
		Cleaners	3Nos
		Office Boy	1No
4.	Management & Supervisory staff		3No.
	Total =		18Nos



10.2		Welfare Measures		
	a.	Drinking Water	:	Drinking water at the rate of 2Ltrs per person shall be provided as per the Mines Rules, 1960. It is proposed to make a borehole for providing uninterrupted supply of drinking water and other utilities.
	b.	Sanitary facilities	:	Semi permanent latrines & urinals shall be maintained at convenient places for use of labours as per the provisions of Rule (33) of the Mines Rules, 1960 separately for males and females. Washing facilities are also arranged as per rule (36) of the Mines Rules, 1960.
	c.	First Aid Facility	:	Being a small mine First Aid station as per provisions under Rule (44) of the Mines Rules 1960 will be provided with facilities as per the third schedule as prescribed. Qualified First Aid personnel should be appointed or nominated to attend emergency first aid treatment.
	d.	Labour Health	:	As per Mines Rule, Periodic medical examination has been arranged for occupational health once in a year in addition to attending medical treatment of occupational injuries under the Rule 45 (A), MR, 1960.
	e.	Precautionary safety measures to the Laborers	:	Safety provisions like helmet, goggles, safety shoes, Dust mask, Ear muffs etc have been provided as per the circulars and amendments made for Mine labours under the guidance of DGMS being a semi-mechanized operation. Necessary training will be conducted once in a year to all the employees with the help of qualified and experienced officers to train about the safe and system at quarrying operation.

PART – B

11.0 ENVIRONMENTAL MANAGEMENT PLAN:

<table>
<tr><td>11.1</td><td>Existing Land Use Pattern</td><td>:</td><td>The existing land use pattern is given as under.
<table>
<tr><th>Sl. No.</th><th>Land Use</th><th>Present Area (Hect)</th><th>Area in use during the quarrying period (Hect)</th></tr>
<tr><td>1.</td><td>Area under quarrying</td><td>1.08.0</td><td>2.86.0</td></tr>
<tr><td>2.</td><td>Infrastructure</td><td>Nil</td><td>0.01.0</td></tr>
<tr><td>3.</td><td>Roads</td><td>0.01.0</td><td>0.01.0</td></tr>
<tr><td>4.</td><td>Green Belt</td><td>Nil</td><td>0.47.0</td></tr>
<tr><td>5.</td><td>Unutilized</td><td>2.26.0</td><td>Nil</td></tr>
<tr><td></td><td>Total =</td><td>3.35.0Ha</td><td>3.35.0Ha</td></tr>
</table></td></tr>
<tr><td>11.2</td><td>Water Regime</td><td>:</td><td>Water table in this area is noticed at a depth of 65m and presently, the quarrying of Rough Stone is proposed up to a depth of 57m and hence, it will not affect the ground water depletion of this area.</td></tr>
<tr><td>11.3</td><td>Flora and Fauna</td><td>:</td><td>Except acacia bushes, no other valuable trees are noticed in the applied lease area. Further, neither flora of botanical interest nor fauna of zoological interest is noticed in this area.</td></tr>
<tr><td>11.4</td><td>Climatic conditions</td><td>:</td><td>Generally sub tropical climatic condition prevails throughout the year and this District receives rain both in South west and North east monsoon. The average rainfall is about 800mm to 900mm and the temperature ranges from 18^0C during winter and to a maximum of 38^0C during the summer.</td></tr>
<tr><td>11.5</td><td>Human Settlement</td><td>:</td><td>The nearest habitations with the population is given .
<table>
<tr><th>Direction</th><th>Village</th><th>Distance in Kms</th><th>Population</th></tr>
<tr><td>North</td><td>Emakalnatham</td><td>1.0Kms</td><td>200</td></tr>
<tr><td>East</td><td>Oppathavadi</td><td>4.2 Kms</td><td>150</td></tr>
<tr><td>South</td><td>Mallapadi</td><td>3.6 Kms</td><td>450</td></tr>
<tr><td>West</td><td>Salinayanapalli</td><td>2.0Kms</td><td>100</td></tr>
</table></td></tr>
<tr><td>11.6</td><td>Plan for Air, Dust Suppression</td><td>:</td><td>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. For the sampling of air, high volume air sampler (Model VFC-PM10) was used (10 meter above and 5 meter away from road) and the particulates were collected on what man GFA glass fiber filters dried in a hot air oven at 105°C for 1hr and weighed. The average flow rate was about 1.1 cubic meters.</td></tr>
</table>

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11.7	Plan for Noise Control	:	Quarrying of Rough Stone will be carried out by drilling and Proposed Control Blasting by using low power explosives, and hence, noise will be very Minimum. However, periodical noise level monitoring will be carried out to check the noise level in and around the quarry site. In order to assess the extent of noise pollution due to vehicular traffic different zones viz., Silence zone, Residential Zone, Commercial zone, Traffic signals and Industrial zones were identified in urban and suburban areas of Krishnagiri. Adequate Number of observations were made in all the selected sites by using the sound level meter (LT Lutron SL-4001).
11.8	Environmental Impact Assessment Statement Describing Impact on mining on the next five years	:	Factors to be considered for EIA are, 1. Dust generation, 2. Land degradation 3. Stabilization and vegetation of dumps 4. Adverse effect on water regime 5. Socio economic benefits arising out of Mining. 6. Noise and Vibration.
	a. Dust	:	Dust is expected to be generated from drilling, hauling roads; place of excavation etc and it will be suppressed by periodical wetting of lands.
	b. Land degradation	:	Land degradation is by means of cutting the trees and removal of fertile soil does not arise. Proposed usage of land for the next five years hall is less than **3.35.0Ha.** Afforestation will be started during the first year of mining operation itself.
	c. Stabilization and vegetation of dumps	:	The topsoil will be spread over the non-active dumps along the slope and edges to plant tree saplings to form vegetal cover over the dumps. Such vegetal cover will prevent erosion of dumps during rainy seasons.
	d. Socio economic benefits arising out of mining	:	1. To provide Employment opportunities of the nearby villagers. 2. For the cultural development of the nearby villagers.
	e. Noise and vibration	:	Since, no deep hole blasting is proposed, small dia explosives are used for breaking the hard rock and boulders, the noise and vibration will be very minimum and are within the permissible limits.

11.9	Proposal for Waste Management	:	The wastes are generated during the mining period is **52313m^3** will be proposed to backfilling into the Eastern side of the mined out pits of the lease area. **Proposed Mineral Reject backfilling area:** 78.0m(L) X 75.0m(W) X 8.94m(H) = 52313 m^3
11.10	Proposal of Reclamation of Land affected during mining activities and at the end of mining.	:	The present mining is proposed to an average depth is **57m.** The mined out area will be fenced on top of open cast working with S1 fencing. 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.
11.11	Program for Afforestation	:	Trees like tamarind, casuarinas etc will be planted along the North, East and Western side of 7.5m lease boundary and avenues as well as over non active dumps at a rate 45 trees per annum with an interval of 5m. The rate of survival expected to be 80% in this area.

11.12	Proposed Financial Estimate / Budget for (EMP) Environment Management **A. Fixed Asset Cost**:		
	Land Cost	:	Rs. 40,00,000/-(Leased tender amount for Government Poramboke Land)
	Labour Shed	:	Rs. 1,00,000/-
	Sanitary Facility	:	Rs. 1,00,000/-
	Fencing cost	:	Rs. 2,00,000/-
	Total=	:	**Rs.44,00,000/-**
	B. Operational Cost: **Machinery cost**	:	**Rs.20,00,000/-**

	C. EMP Cost:		
	1. Drinking water facility	:	Rs. 1,10,000/-
	2. Safety kits	:	Rs. 75,000/-
	3. Water sprinkling	:	Rs. 50,000/-
	4. Afforestation	:	Rs. 25,000/-
	5. Water quality test	:	Rs. 30,000/-
	6. Air quality test	:	Rs. 30,000/-
	7. Noise/vibration test	:	Rs. 30,000/-
	Total=	:	**Rs. 3,50,000/-**
	Total Project cost(A+B+C)	:	Rs. 67,50,000/-

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12.0 MINE CLOSURE PLAN:

12.1	Steps proposed for phased restoration, reclamation of already mined out area.	:	The present mining is proposed to an average depth of 57m. The mined out area will be fenced on top of open cast working with S1 fencing to arrest the entry of cattle's and public in to the quarry site.
12.2	Measures to be under taken on mine closure as per Act & Rules	:	Measures will be taken as per the Acts and Rules. The quarried pit will be fenced by using Barbed wire fencing. Green belt development at the rate of 45 trees per year will be proposed.
12.3	Mitigation measures to be undertaken for safety and restoration/ reclamation of the already mined out area	:	It is a fresh Rough stone quarry with a minable depth **57m** only and hence, no need of mitigation and restoration / reclamation of the applied lease area.

13.0 ANY OTHER DETAILS INTEND TO FURNISH BY THE APPLICANT

(i) Permission will be obtained from the Director of Mines Safety for the extracting the Rough Stone from the Boundary barriers and from slopes.

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

(iii) The applicant will endeavor every attempt to quarry the Rough Stone economically without any wastage and to improve the environment and ecology.

(iv) Accordingly, Mining Plan is prepared under Rule 8(6)(b) Tamil Nadu Minor Mineral Concession Rules, 1959 & As per Amendment under Rule 41 & 42 by incorporating the conditions imposed in the precise area communication letter and by incorporating all the details proposed in the letter to obtain environment clearance from State Level Environmental Impact Assessment Authority.

(v) This Mining Plan is prepared for the Applied Rough Stone Quarry for a period of Five Years.

(vi) The proposed production of Rough stone for Five Years is **994033m^3** and average production per year is **198807m^3**.

S.DHANASEKAR, M.Sc.,(Geo)
RQP/MAS/225/2011/A

This Mining Plan is approved based on guidelines / instruction issued and as [illegible] of the particulars specified in [illegible] No. 211/19/ Mines Dated 06-09-19 of the Duputy Director of Geology [illegible] and subject to further fulfillment [illegible] under Tamil Nadu [illegible] Rules, 1959 and Minor Mineral Concession and Development Rule 2010.

Deputy Director of Geology and Mining
Krishnagiri

This Mining Plan [illegible] to the conditions / Stipulation [illegible] in the Mining Plan Approval

Letter Roc. No. 211/19/Mines Dated 06-09-19

ANNEXURE

ந.க எண் 211/2019/கனிமம்

மாவட்ட ஆட்சியர் அலுவலகம்,
(புவியியல் மற்றும் சுரங்கத்துறை)
கிருஷ்ணகிரி மாவட்டம்,
கிருஷ்ணகிரி.
நாள் 13.06.2019.

குறிப்பாணை

பொருள்: கனிமங்களும் குவாரிகளும் - சிறுகனிமம் - சாதாரண கற்கள் கிருஷ்ணகிரி மாவட்டம் - பர்கூர் வட்டம் - பர்கூர் கிராமம் அரசு புல எண் 63/2 (பகுதி)ல் 3.35.0 ஹெ.நக்டேர் பரப்பளவில் அரசு நிலத்தில் அமைந்துள்ள சாதாரண கற்குவாரிக்கு டெண்டருடன் இணைந்த ஏல முறையில் குத்தகை வழங்க டெண்டர்/ பொது ஏலம் நடத்தப்பட்டது ... பொது ஏலத்தில் அதிக தொகை கோரிய திரு செல்வன், த/பெ. சின்னமாது, 4/268 கும்பளப்பாடி இண்டூர் நாகர் கூடல் கிராமம் தருமபுரி மாவட்டம் என்பவருக்கு சாதாரண கற்குவாரி குத்தகை வழங்குதல் தொடர்பாக அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம், தமிழ்நாடு மாதில சுற்றுச் சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் தடையின்மைச் சான்று மற்றும் தமிழ்நாடு மாசு கட்டுப்பாட்டு வாரிய இசைவு ஆகியவற்றை பெற்று வழங்க கோருதல் - தொடர்பாக.

பார்வை
1. கிருஷ்ணகிரி மாவட்ட அரசிதழ் சிறப்பு வெளியீடு எண்.07 நாள்:21.02.2019.
2. 02.03.2019 அன்று தினமணி நாளிதழில் வெளியிடப்பட்ட பத்திரிக்கை செய்தி.
3. திரு செல்வன், த/பெ. சின்னமாது, 4/268 கும்பளப்பாடி இண்டூர் நாகர் கூடல் கிராமம் தருமபுரி மாவட்டம் என்பவரது டெண்டர் விண்ணப்ப நாள் 08.03.2019.

கிருஷ்ணகிரி மாவட்டம் பர்கூர் வட்டம் பர்கூர் கிராமம் அரசு புல எண் 63/2 (பகுதி) ல் 3.35.0 ஹெக்டேர் பரப்பளவில் அமைந்துள்ள சாதாரண கற்குவாரிக்கு ஐந்து ஆண்டுகளுக்கு குவாரி குத்தகைவழங்குவது தொடர்பாக 08.03.2019 அன்று நடைபெற்ற பொது ஏலத்தில் திரு செல்வன், த/பெ. சின்னமாது, 4/268 கும்பளப்பாடி இண்டூர் நாகர் கூடல் கிராமம் தருமபுரி மாவட்டம் என்பவர் அரசு நிர்ணயம் செய்த குறைந்தபட்ச குத்தகை தொகையை விட அதிக தொகையான ரு 40,00,000/- (நாற்பது லட்சம் மட்டும்) ஐ பொது ஏலத்தில் கோரியதால் அவருக்கு தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959ன் விதி 8 (6) (b) ன்படி அவருக்கு கீழ்க்கண்ட நிபந்தனைகளுடன் குவாரி குத்தகை வழங்க உத்தேசிக்கப்பட்டுள்ளது.

(i) குவாரி குத்தகை வழங்க உத்தேசிக்கப்பட்டுள்ள குவாரிக்கு அருகிலுள்ள பட்டா நிலங்களுக்கு 7.5 மீட்டர் பாதுகாப்பு இடைவெளியும், அரசு நிலங்களுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளியும் விட்டு குவாரிப்பணி செய்ய வேண்டும்.

(ii) அருகிலுள்ள கிராம சாலைகளுக்கு 10 மீட்டர் பாதுகாப்பு இடைவெளியும், இதர நெடுஞ்சாலைகளுக்கு 50 பாதுகாப்பு இடைவெளியும் விட்டு குவாரிப்பணி செய்யவேண்டும்.

2. எனவே கிருஷ்ணகிரி மாவட்டம் பர்கூர் வட்டம், பர்கூர் கிராமம் புல எண் 63/2 (பகுதி) ல் 3.35.0 ஹெக்டேர் பரப்பளவில் புல வரைபடத்தில் குறிப்பிட்டுள்ள பகுதியில் குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றும் நாளிலிருந்து ஐந்து ஆண்டுகளுக்கு சாதாரண கற்கள் வெட்டியெடுக்க குவாரி குத்தகை வழங்குதல் தொடர்பாக தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959ன் விதி 41 மற்றும் 42ன் ஆகியவற்றில் கண்டுள்ள காவரையறைக்குள் அங்கீகரிக்கப்பட்ட சுரங்கத்திட்டம், தமிழ்நாடு சுற்றுச் சூழல் பாதிப்பு மதிப்பீட்டு ஆணையத்தின் இசைவு மற்றும் தமிழ்நாடு மாசுக்கட்டுப்பாட்டு வாரியத்தின் இசைவு ஆகியவற்றை சமர்ப்பிக்க வேண்டும் என செல்வன் என்பவருக்கு தெரிவிக்கப்படுகிறது.

3. உரிய காலத்தில் மேற்கண்ட ஆவணங்களை சமர்பிக்க தவறினால் விதிகளின்படி உரிய நடவடிக்கை எடுக்கப்படும் எனவும், தெரிவிக்கப்படுகிறது.

4. மேற்கூறிய ஆவணங்களை சமர்ப்பித்த பின்பு குவாரி குத்தகை வழங்கப்பட்டு குவாரி குத்தகை ஒப்பந்த ஆவணம் நிறைவேற்றிய பின்பே மேற்கண்ட புலத்தில் குவாரிப்பணிகளை தொடங்கவேண்டும். தவறினால் தமிழ்நாடு சிறுகனிமச் சலுகை விதிகள் 1959ன் விதி36 (அ)ன்படி உரிய நடவடிக்கை எடுக்கப்படும் எனவும் தெரிவிக்கப்படுகிறது.

இணைப்பு : புல வரைபடம்

ஒப்/எஸ். பிரபாகர்,
மாவட்ட ஆட்சியர்,
கிருஷ்ணகிரி.

/உண்மை நகல்/

மாவட்ட ஆட்சியருக்காக,
கிருஷ்ணகிரி.

S.DHANASEKAR,M.Sc.,B.L.,
ROP/MAS/225/2011/A

பெறுநர்
திரு செல்வன்,
த/பெ. சின்னமாது,
4/268 கும்பளாப்பட்டி, இண்டூர்
நாகர் கூடல் கிராமம்
தருமபுரி மாவட்டம்.

ANNEXURE

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கிருஷ்ணகிரி மாவட்ட அரசிதழ்

சிறப்பு வெளியீடு

ஆணையின்படி வெளியிடப்பட்டது

கிருஷ்ணகிரி, பிப்ரவரி 21, 2019 [எண் 7

[விளம்பி, மாசி 9 - திருவள்ளுவர் ஆண்டு 2050]

மாவட்ட ஆட்சியர் அறிவிக்கை

(ந.க.எண். 1609/2018/கனிமம் நாள்: 21-02-2019)

சாதாரண கற்குவாரி ஒப்பந்தப்புள்ளி (டெண்டர்) மற்றும் ஏலம் குறித்த அறிவிப்பு

டெண்டர் விண்ணப்பங்கள் பெற கடைசி நாள் : 07-03-2019

பெற்ற [illegible] மற்றும் டெண்டர் விண்ணப்பங்களின் பிரித்து/பிரிக்கிக்கும் நாள் : 08-03-2019

1. கிருஷ்ணகிரி மாவட்டத்தில் அரசு புறம்போக்கு நிலங்களில் அமைந்துள்ள சாதாரண கற்குவாரி [illegible] சிறுகனிமங்களான சாதாரணகற்களை வெட்டியெடுத்துச் செல்வதற்கு தனிநபர் மற்றும் [illegible] குவாரி குத்தகை உரிமம் வழங்க மூடி முத்திரையிடப்பட்ட ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் [illegible] அறிவிப்பு.

2. 1958 ஆம் ஆண்டு தமிழ்நாடு சிறுகனிமச் சலுகை விதிகளின் விதி 8-ன்படி கிருஷ்ணகிரி [illegible] இணைக்கப்பட்ட அட்டவணையில் குறிப்பிடப்பட்டுள்ள அரசு புறம்போக்கு நிலங்களில் அமைந்துள்ள சாதாரண [illegible] சாதாரணகற்களை குவாரி செய்து எடுத்துச் செல்ல டெண்டருடன் இணைந்த ஏல முறையில் குவாரி [illegible] முத்திரையிடப்பட்ட டெண்டர் விண்ணப்பங்கள் 3 பிரதிகளில் கிருஷ்ணகிரி மாவட்ட ஆட்சியரால் [illegible]

3. இந்த அறிவிக்கையின்படி விண்ணப்பிக்கப்படும் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பம் 1958 ஆம் ஆண்டு [illegible] சிறுகனிமச் சலுகை விதிகளின் பின்இணைப்பு VI-ல் குறிப்பிடப்பட்டுள்ள படிவத்தில் இருக்க வேண்டும் [illegible] இந்த மாவட்ட அரசிதழ் சிறப்பு வெளியீட்டின் இணைப்பில் பிரசுரிக்கப்பட்டுள்ளது. இணைப்பில் பிரசுரிக்கப்பட்டுள்ள [illegible] பூர்த்தி செய்து அனுப்பப்படாத விண்ணப்பங்கள் ஏற்றுக் கொள்ளப்படமாட்டாது.

4. ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்களுடன் இணைத்து அனுப்பப்பட வேண்டிய [illegible] மற்றும் குத்தகை நிபந்தனைகள் பற்றிய விவரங்கள் குறிப்பிடப்பட்டுள்ள அரசிதழ் கிருஷ்ணகிரி, மாவட்ட ஆட்சியர் அலுவலகம், கிருஷ்ணகிரி பயிரியல் மற்றும் காங்கத்துறை துணை இயக்குநர் அலுவலகம், கிருஷ்ணகிரி மாவட்டத்தில் [illegible] ஆட்சியர்/ வருவாய் கோட்டாட்சியர், வட்டாட்சியர் மற்றும் ஊராட்சி ஒன்றிய ஆணையர் அலுவலகங்களின் [illegible] விளம்பரம் செய்யப்பட்டுள்ளது.

[illegible]

5. ஆட்டவணையில் குறிப்பிட்டுள்ள குவாரிகளின் குத்தகை காலம் குத்தகை ஒப்பந்த பத்திரம் கிரயமாக [illegible] ஏற்கனவே குவாரி குத்தகை வழங்கப்பட்டு குத்தகை காலம் முடிவுற்று சாதாரண கற்குவாரிகளுக்கு 5 ஆண்டுகளும் மலைக் கோவில்பட்டியுள்ள சாதாரண கற்குவாரிகளுக்கு 10 ஆண்டுகளும் ஆகும்.

6. ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பதாரர் தனது விண்ணப்பத்தில் குவாரியின் மொத்த குத்தகை காலத்திற்கான ஒரு முழுமையில் [illegible] குத்தகை தொகையை உரிய இடத்தில் கண்டிப்பாக எழுதுதல் வேண்டும்.

7. மாவட்ட ஆட்சியர், சார் ஆட்சியர் / வருவாய் கோட்டாட்சியர், பாருகால் வட்டாட்சியர், வாழப்பாடி வருவாய் துணை இயக்குநர் (புவியியல் மற்றும் சுரங்கத்துறை) அலுவலக தகவல் வலைதளங்களில் பதிவிடப்பட்டுள்ள குத்தகை கோருவோர்களின் பூர்த்தி செய்யப்பட்ட ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்களை அனைத்து நிலைகளிலும் கையில் வைத்து ஒரு முத்தரை இட்டு மாவட்ட ஆட்சித்தலைவர் திருவுளத்தின் மற்ற பிறருடன் தேவிலை [illegible] பெறுதல்க பதிவஞ்சல் மூலமாகவோ மாவட்ட ஆட்சியர் அலுவலக வளாக தரைதளத்தில் தனி எண்ணிடப்பட்ட மற்றும் வரங்கருணை தூண்ட இயக்குநர் முழுமையாக 2019ம் ஆண்டு மார்ச் திங்கள் 1-ம் நாள் காலை 9.30 மணிக்கு பின்னே கிடைக்கும்படி அனுப்பப்பட வேண்டும். கவரின் மீது விண்ணப்பிக்கும் குவாரியின் விபரம் மற்றும் அது சம்பந்தமான குத்தகையின் எண்ணை எனவும் தெளிவாகவும் தவறாமல் குறிப்பிட வேண்டும்.

8. மேலே குறிப்பிட்ட காலக்கெடுவிற்குள் வரப்பெற்ற விண்ணப்பங்கள் மட்டும் மாவட்ட ஆட்சியர் அல்லது அவர் அல்லாதவர் இருப்பின் அலுவலரால் திருவுளத்தின் மாவட்ட ஆட்சியர் முன்னிலை வகிக்கும் 2019ம் ஆண்டு மார்ச் திங்கள் 1-ம் நாள் காலை 11.00 மணிக்கு மிகாமலிருக்கும் வண்ணம் பிரித்து விண்ணப்பித்துள்ள கோருவோர்கள் முன்னிலையில் திறக்கப்பட வேண்டும். மொத்த எடையில் வரும் மொலைகளை முன்னிலையில் ஆட்சியரால் உரிய குவாரிகளில் எவ்வித விருப்பமும் இல்லை ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் திருப்பி அளிக்கப்படும்.

9. மேலே குறிப்பிட்ட நாளில் ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்களுள் திறக்கப்படும் முன்னர் ஒவ்வொரு தனித்தனியே மொத்த எடை விபரமும் எவ் நடைமுறை முறை பெற்ற மிக அதிகமான விண்ணப்பங்கள் மிகுந்து பரிசீலிக்கப்படும். டெண்டர் விண்ணப்பம் முழுமை தேவைப்படின் அல்லது ஏதும் மூலம் கோரப்பட்ட உறுதுகள் முன்னரை தொகை இதில் எது அதிகமோ அதற்கான உயர்ந்தபட்ச குத்தகை தொகையாக எடுத்துக்கொள்ளப்பட்டு குவாரி குத்தகை உரிமம் வழங்குதல் பரிசீலனைக்கு மேற்கொள்ளப்படும்.

10. மேற்கண்டபடி வரப்பெறும் டெண்டர் / ஏல விண்ணப்பங்கள், 1958ம் ஆண்டு மதராஸ் [illegible] விதிகள், சாலைகள் மற்றும் கனிமங்கள் (கனிமத்தின் மீதும் நிலவரிகளுக்கும்) சட்டம் 1957 மற்றும் [illegible] குறிப்பிட்டுள்ள முக்கிய நிபந்தனைகளின்படி பரிசீலிக்கப்பட்டு கலந்தாலோசித்து மாவட்ட [illegible] நிறுவனங்களுக்கு.

11. [illegible] மாவட்ட ஆட்சித் அதிகாரிக்கு பெறுவிக்கப்பட்ட விண்ணப்ப [illegible] முழுமை உரிமை, நிபந்தனைகளை மாற்றியோ அல்லது ரத்து செய்யவோ மற்றும் முழுமை அல்லது [illegible] உரிமம் கோரும் ஒப்பந்தப்புள்ளி [illegible] அனைத்தையும் ஏற்கவோ, [illegible] முற்றிலுமாகவோ உறுதுகள் நிராகரிக்கும் உரிமை மற்றும் ஏலம் தொடர்பான அனைத்து [illegible] நிறுவனங்களுக்கோ மாவட்ட ஆட்சியருக்கு முழு அதிகாரம் உண்டு. ஏதாவது காரணத்தினால் ஒப்பந்தப்புள்ளி [illegible] பழுதாகிவிட்டால் மாற்றும் கட்டாய உரிமை இல்லை.

12. விண்ணப்பதாரர் ஒவ்வொரு குவாரிக்கும் தனித்தனியே ஒரு ஒப்பந்தப்புள்ளி [illegible] நிலையுறுதொகை தனியே செலுத்த வேண்டும். ஒரே விண்ணப்பத்தில் ஒரு குவாரிக்கு மேல் ஒரு குவாரிக்கான ஒப்பந்தப்புள்ளி அனுமதி விண்ணப்பம் நிராகரிக்கப்படும்.

13. ஒப்பந்தப்புள்ளி விண்ணப்பம் அனுப்புவதற்கு முன் / மனுவில் வரைந்து கொடுப்பதற்கு முன் குவாரிகளை நேரில் அறிவிக்கையுடன் இணைத்துள்ள [illegible] வரை சம்பந்தப்பட்ட குவாரியை / குவாரிகளை விண்ணப்பதாரர் அனைவரும் சொந்த செலவிலேயே நேரில் பார்வையிட்டு தனக்கு வரும் லாபத்தின் அளவினை மதிப்பிட்டுக் கொள்ள வேண்டும். மேலும் குத்தகை உரிமம் கோரி விண்ணப்பிக்க வேண்டும் மற்றும் ஏலத்தில் கலந்து கொள்ளுவோர் [illegible] அலுவலர் அலுவலகத்தில் [illegible] வரை மட்டும், குவாரிகளின் நன்கு எல்லைகளை, [illegible] வரையறுத்து நிலத்தில் திருப்பி குறிப்பிட்டு சரிபார்த்த தகவலைப் பெற்ற குத்தகைதாரருக்கு உரிமை [illegible].

14. 1958ம் ஆண்டு தமிழ்நாடு சிறுகனிம சலுகை விதிகளில் வரையறுக்கப்பட்டுள்ள நடைமுறைகளுக்கு [illegible] முடிவில் உரிய குத்தகை பெற்றவர்களையும் நன்கு தொடர்பு கொண்டு [illegible] ஒப்பந்தப்புள்ளி [illegible] ஒப்பந்தப்புள்ளி தாமதமாக வரும் விண்ணப்பம் உறுதியில் [illegible] விதிகள் மற்றும் குத்தகைதாரர் [illegible] மேற்கண்ட எந்த முறைதாரி காரணம் அதற்கு எந்த பொறுப்பேற்கவில்லை [illegible].

3

[illegible] அலுவலகம்
06 SEP 2019
[illegible]

15. ஒப்பந்தப்புள்ளி (டெண்டர்) மற்றும் சில நிபந்தனைகள் :

1) ஒவ்வொரு குளமிக்கும் இந்த அறிவிப்பின் பிற்சேர்க்கையில் இணைக்கப்பட்டுள்ள இணைப்பு VI-ல் காணும் படிவத்தில் [illegible] தனித்தனி விண்ணப்பங்களில் விண்ணப்பிக்க வேண்டும்.

2) [illegible] ஒரு நபருக்கு இரண்டு குளமிகளுக்கு மட்டும்தான் குத்தகை உரிமம் வழங்கப்படும்.

3) இந்த அறிவிப்பின் அட்டவணையில் குறிப்பிட்டுள்ள குளமிகளின் குத்தகை காலம் [illegible] 5 ஆண்டுகளும் [illegible] 10 ஆண்டுகளும் [illegible] குத்தகை காலம் [illegible] பட்டது.

4) ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பத்துடன் கீழ்கண்டவற்றை இணைத்து அனுப்ப வேண்டும்.

(அ) திருப்ப வழங்க இயலாத விண்ணப்பக் கட்டணமாக ரூ.1500/-க்கான கேட்பு வரைவோலையை (டிமாண்ட் டிராப்ட்) [illegible] ஒரு தேசிய மயமாக்கப்பட்ட வங்கியில் மாவட்ட ஆட்சியர் திருவள்ளூர் மாவட்டம் அவர்களின் பெயரில் பெற்று இணைக்க வேண்டும்.

(ஆ) பிணை வைப்புத்தொகை (Earnest money deposit) ரூ.25000/- (ரூபாய் இருபத்தைந்தாயிரம் மட்டும்)க்கான கேட்பு வரைவோலையை ஏதேனும் ஒரு தேசியமயமாக்கப்பட்ட வங்கியில் மாவட்ட ஆட்சியர் திருவள்ளூர் மாவட்டம் அவர்களின் பெயரில் பெற்று இணைக்க வேண்டும். குத்தகை உரிமம் வழங்கப்படுபவர் [illegible] டெண்டர் [illegible] தொகையில் [illegible] செய்து கொள்ளப்படும்.

(இ) ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பத்தில் குறித்துள்ள மொத்த குத்தகை தொகையில் 10 சதவீதத் தொகைக்கான கேட்பு வரைவோலை (டிமாண்ட் டிராப்ட்) மாவட்ட ஆட்சியர் திருவள்ளூர் மாவட்டம் அவர்களின் பெயரில் ஏதேனும் ஒரு தேசியமயமாக்கப்பட்ட வங்கியில் பெற்று இணைக்க வேண்டும்.

(ஈ) [illegible] / [illegible] அல்லது [illegible] ஆகியவற்றை சான்றொப்பம் (அட்டெஸ்ட்) பெற்று தெரிவிக்க வேண்டும்.

i. [illegible] குளமி குத்தகை அனுமதி பற்றி விவரம்.
ii. [illegible] குளமி குத்தகை அனுமதி பற்றி விவரம்.
iii. [illegible] குளமி குத்தகை அனுமதி விவரம்.
iv. [illegible] அல்லது [illegible] இணைக்கப்பட வேண்டும்.
v. வருமான வரி செலுத்திய சான்றிதழ் அல்லது வருமானவரி [illegible] நகலினை இணைக்கப்பட வேண்டும்.

5) [illegible] பூர்த்தி செய்யப்பட்ட விண்ணப்பத்துடன் [illegible] விண்ணப்பக்கட்டணம் ரூ.1500/- மற்றும் பிணை வைப்புத்தொகை ரூ.25000/- ஆகியவற்றிற்கான கேட்பு வரைவோலை (டிமாண்ட் டிராப்ட்) மாவட்ட ஆட்சியர் திருவள்ளூர் மாவட்டம் அவர்களின் பெயரில் [illegible] ஏதேனும் ஒரு தேசியமயமாக்கப்பட்ட வங்கியில் பெற்று [illegible] வேண்டும். [illegible] தொகையில் 10 சதவீதத் தொகை [illegible] ஒரு வங்கியில் [illegible] வேண்டும்.

6) ஒப்பந்தப்புள்ளி (டெண்டர்) விண்ணப்பங்கள் [illegible] இணைப்புகளுடன் [illegible] ஆட்சியர் அலுவலக [illegible] அறை எண் 30ல் இயங்கும் திருவள்ளூர் [illegible] 2019ஆம் ஆண்டு [illegible] 7-ஆம் நாள் மாலை [illegible] வேண்டும். [illegible] டெண்டர் விண்ணப்பங்கள் [illegible] பெயர் மற்றும் [illegible] தெளிவாக குறிப்பிட [illegible] குளமி அமைந்துள்ள கிராமம், [illegible] அறிவிப்பின் இணைப்பில் [illegible] வேண்டும்.

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முடிவு மாறும் தருவாய் வரும்போது உயர்மட்டத்தரும் அதிகமட்ட ஏலம் / டெண்டர் கேட்டு நடவடி
செலுத்திய வைப்புத்தொகை திருப்பி தரப்படும். ஏலம் / டெண்டர் உறுதி செய்யப்பட்ட
தொகையினை ஏழு தினங்களுக்குள் செலுத்தியிட வேண்டும். தவறும் பட்சத்தில் ஏலம் / டெண்டர் ரத்துசெய்யப்பட்டு
முன்வைப்புத்தொகை அனைத்து தொகைகளும் பறிமுதல் செய்து அரசு கணக்கில் சேர்க்கப்படும்.

12) (அ) சிறப்பு நிபந்தனைகள்:

(i) இந்த டெண்டர் மற்றும் ஏலமுறையில் கலந்து கொள்ளும் விண்ணப்பதாரர்கள் அனைவரும் இந்திய அரசின் வருமான வரித்துறையினரால் வழங்கப்படும் நிரந்தர கணக்கு எண் (PAN - CARD) அடையாளம் தெரிவிக்கவேண்டும்.

(ii) இந்த நிரந்தர கணக்கு எண்ணை சமர்ப்பித்து டெண்டர் மற்றும் ஏலம் கோரும் தொகைக்கு 2.00 சதவீத வருமான வரியை கிருஷ்ணகிரி மாவட்ட முதன்மைக் மற்றும் சார்நிலை நீதிபதி, முன்சீப் நீதிமன்றம், குன்னூர் அவர்களுக்கு வருமான வரித்துறையினரால் அளிக்கப்பட்டுள்ள TAN.No.CHED05905E என் கீழ் உரிய வருமானவரித்துறை செலுத்துச்சீட்டில் முன் ஏலம் செலுத்தவேண்டும்.

(iii) மேலும் குத்தகை உரிமம் பெற்ற பின்னர் கனிமங்களை எடுத்துச் செல்ல போக்குவரத்து அனுமதி சீட்டுக்கு ஒவ்வொரு முறையும் செலுத்தவேண்டிய சிறியதொகையின் மீது 2.00 சதவீத வருமான வரி தொகை செலுத்தவேண்டும்.

(iv) மேலும் குத்தகை உரிமம் பெற்ற பின்னர் கனிமங்களை எடுத்துச் செல்ல போக்குவரத்து அனுமதி சீட்டுக்கு ஒவ்வொரு முறையும் செலுத்தவேண்டிய சிறியதொகையின் மீது 10 சதவீத தொகையை கிருஷ்ணகிரி மாவட்ட கனிம வளங்கட்டளை நிதியாக கிருஷ்ணகிரி மாநில வங்கி (State Bank of India) கணக்கு எண்.37243180936 ல் செலுத்த முன் ஏலம் செலுத்த வேண்டும்.

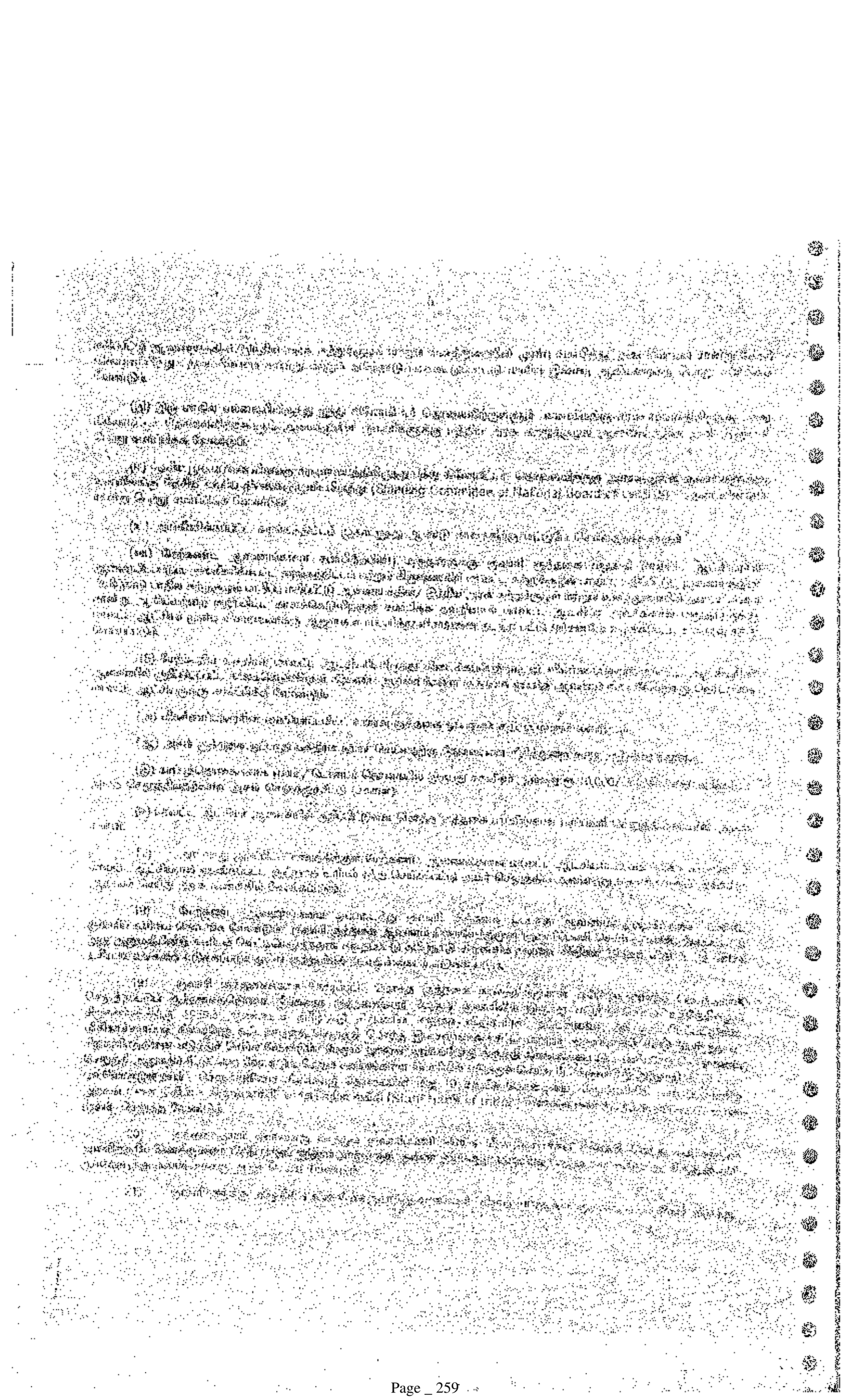
13) ஒரு குவாரிக்கு ஒரு டெண்டர் விண்ணப்பம் மட்டும் வரப்பெற்று ஏலம் கேட்க யாரும் முன்வராவிடினும் எழுதி வந்த ஒரு விண்ணப்பதாரர் குறிப்பிட்ட தொகை நிர்ணயமானது சுற்றுச் சூழல் கனிம அபிவிருத்திக்கு உகந்தது என்றும் மேலும் ஆட்சியரால் கருதப்பட்டால் அவருக்கு ஏலம் / ஆட்சியரால் குத்தகை உரிமம் வழங்கப்படும். அந்த ஒரு விண்ணப்பதாரரால் குறிப்பிடப்பட்ட தொகை நிர்ணயமானது அல்ல என்றும் அவருக்கு உரிமம் வழங்குவது கனிம அபிவிருத்திக்கு உகந்ததல்ல எனறும் மாவட்ட ஆட்சியர் கருதினால், அவருடைய விண்ணப்பம் ஏலமிட ஆட்சியரால் நிராகரிக்கப்படும். ஒரு குவாரிக்கு ஒன்றுக்கு மேற்பட்ட விண்ணப்பங்கள் வரப்பெறின் அதிகபட்ச ஏலத்தொகை / டெண்டர் தொகை நிர்ணயமானது எனக் கருதப்படும் பட்சத்தில் குவாரி குத்தகை வழங்க நடவடிக்கை எடுக்கப்படும். ஒரு குவாரிக்கு பெறப்பட்ட அதிகபட்ச ஏல தொகை / டெண்டர் தொகை நிர்ணயமானது அல்ல என்றும் கனிம அபிவிருத்திக்கு உகந்ததல்ல என மாவட்ட ஆட்சியர் கருதும் பட்சத்தில் அதனை முற்றிலும் நிராகரித்து ஏலத்தொகை / டெண்டர் தொகையில் 10% தொகையை மேல் வழங்கு மற ஏலம் மற்றும் டெண்டருக்கு கொண்டு வர நடவடிக்கை மேற்கொள்ளப்படும்.

14) மாண்புமிகு இந்திய உச்சநீதிமன்றம் வழக்கு எண் சிவில் மேல் முறையீடு எண்.12-13/2012 எஸ்.எல்.பி (சி) எண்.19628 - 19629/2009 ஆகியவற்றின் மீது 27.02.2012 அன்று வழங்கியுள்ள தீர்ப்பாணைகளின்படியும், இந்திய அரசு சுற்றுச் சூழல் மற்றும் வனத்துறை அமைச்சகம் எண். எஸ்.ஓ.1011/47/2011 - IA.II(M) நாள் 13.05.2012ன்படியும், அரசாணை எண். (நிலை)எண். 79, வேதியல் (சுரங்கங்கள்) துறை நாள் 06.04.2015ன்படி 1959ம் வருடத்திய சுரங்கங்கள் மற்றும் கனிமங்கள் (வளர்ச்சி மற்றும் முறைப்படுத்துதல்) சட்டத்தின் விதி எண். 41 மற்றும் 42-ன் படியும் அனைத்து சிறுவகை குவாரிகளுக்கும் குவாரி குத்தகை வழங்குவதற்கு முன்பாக சுற்றுச்சூழல் அனுமதி பெறுவதற்கு மாவட்ட சுற்றுச்சூழல் பொறியாளர் மதிப்பீட்டு குழுவை அணுகி, சுற்றுச்சூழல் அனுமதி பெற்று அதன் பின்பு குவாரி குத்தகை வழங்க முடியும்.

15) அரசாணை நிலை எண்.113, தொழில் (எம்.எம்.சி.1) துறை நாள் 17.02.2016ன்படி குவாரி குத்தகை உரிமம் வழங்கப்பட்டுள்ள குவாரிகளில் மட்டும், பதிவு செய்த விவரங்கள் அடங்கிய அறிவிக்கை வழங்கப்பட்டு அங்கீகரிக்கப்பட்ட வாகனங்களுக்கு மட்டும் கிருஷ்ணகிரி மாவட்ட சுற்றுச்சூழல் பொறியாளர் மதிப்பீட்டு குழுவால் அனுமதி வழங்கப்பட்டு, அதன் பின்பு மாவட்ட சுற்றுச்சூழல் பொறியாளர்/ இந்திய அரசு சுற்றுச்சூழல் மற்றும் வனத்துறையின் தலைமையகம் வழங்கும் அதிகாரி மூலம் கட்டுப்பாடு மாவட்ட சுற்றுச்சூழல் பொறியாளர் இசைவு ஆணையினை பெற்று சமர்ப்பித்த பின்பு மட்டுமே குவாரி குத்தகை வழங்க முடியும்.

16) பொதுவான அறிவிக்கை பெறுவதில் ஏதாவது சிரமங்கள் ஏற்படும் பட்சத்தில் தனியாக அறிவிக்கை (QP) மூலம் தனி நபருக்கு மட்டும் வழங்கப்படும் வகையில் மாவட்ட சுற்றுச்சூழல் பொறியாளர் அவர்களுக்கு தனியாக பரிந்துரை செய்ய வேண்டும்.

17) மேலும் மாவட்ட சுற்றுச்சூழல் பொறியாளர் மற்றும் வனத்துறையின் தலைமையகம் வழங்கும் அதிகாரி மூலம் கட்டுப்பாடு மாவட்ட சுற்றுச்சூழல் பொறியாளர் இசைவு ஆணையினை பெற்று சமர்ப்பித்த பின்பு மட்டுமே குவாரி குத்தகை



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(27) முத்தலாக்குடைய விவாகரத்தை அங்கீகரிக்கும் 1950ம் ஆண்டைய தமிழ்நாடு திருமணத் தடை விதிகள், சமரசங்கள் மற்றும் சமரசங்கள் (செயல்படுத்துதல் மற்றும் முறைப்படுத்துதல்) சட்டம் 1957 மற்றும் இந்த நடவடிக்கைகளை சிறப்பு நிபந்தனைகளாக மற்றும் அவசர அவசியமாக கொண்டுவரப்படும் ஆணைகளும் விதிவிலக்கு அளிக்கப்பட்டுள்ளன.

(28) முஸ்லிம்களிலிருந்து மாறுபடுவதால் குறிப்பிட்ட சமூக சகவாழ்வுக்கான கொள்கை முரண்பாட்டை வளர்க்கிறது என்பதால் மனுதாரர் கோரிய நிவாரணம் முற்றிலும் தவறானது. முஸ்லிம் சமூகத்தின் ஒரு பிரிவினரால் மட்டுமே இந்த நடைமுறை பின்பற்றப்படுகிறது என்பதால் இந்த நடைமுறை அரசியலமைப்பின் 14 மற்றும் 15 வது பிரிவுகளை மீறுவதாக கூற முடியாது.

(29) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 14 மற்றும் 15 வது பிரிவுகளை மீறுவதாக கூற முடியாது.

(30) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 25 வது பிரிவுக்கு எதிரானது.

(31) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 21 வது பிரிவுக்கு எதிரானது.

(32) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 44 வது பிரிவுக்கு எதிரானது.

(33) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51 வது பிரிவுக்கு எதிரானது.

(34) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(e) பிரிவுக்கு எதிரானது.

(35) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(f) பிரிவுக்கு எதிரானது.

(36) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(h) பிரிவுக்கு எதிரானது.

(37) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(j) பிரிவுக்கு எதிரானது.

(38) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(k) பிரிவுக்கு எதிரானது.

(39) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(l) பிரிவுக்கு எதிரானது.

(40) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(m) பிரிவுக்கு எதிரானது.

(41) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(n) பிரிவுக்கு எதிரானது.

(42) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(o) பிரிவுக்கு எதிரானது.

(43) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(p) பிரிவுக்கு எதிரானது.

(44) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(q) பிரிவுக்கு எதிரானது.

(45) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(r) பிரிவுக்கு எதிரானது.

(46) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(s) பிரிவுக்கு எதிரானது.

(47) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(t) பிரிவுக்கு எதிரானது.

(48) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(u) பிரிவுக்கு எதிரானது.

(49) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(v) பிரிவுக்கு எதிரானது.

(50) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(w) பிரிவுக்கு எதிரானது.

(51) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(x) பிரிவுக்கு எதிரானது.

(52) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(y) பிரிவுக்கு எதிரானது.

(53) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(z) பிரிவுக்கு எதிரானது.

(54) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(aa) பிரிவுக்கு எதிரானது.

(55) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(bb) பிரிவுக்கு எதிரானது.

(56) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(cc) பிரிவுக்கு எதிரானது.

(57) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(dd) பிரிவுக்கு எதிரானது.

(58) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(ee) பிரிவுக்கு எதிரானது.

(59) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(ff) பிரிவுக்கு எதிரானது.

(60) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(gg) பிரிவுக்கு எதிரானது.

(61) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(hh) பிரிவுக்கு எதிரானது.

(62) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(ii) பிரிவுக்கு எதிரானது.

(63) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(jj) பிரிவுக்கு எதிரானது.

(64) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(kk) பிரிவுக்கு எதிரானது.

(65) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(ll) பிரிவுக்கு எதிரானது.

(66) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(mm) பிரிவுக்கு எதிரானது.

(67) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(nn) பிரிவுக்கு எதிரானது.

(68) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(oo) பிரிவுக்கு எதிரானது.

(69) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(pp) பிரிவுக்கு எதிரானது.

(70) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(qq) பிரிவுக்கு எதிரானது.

(71) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(rr) பிரிவுக்கு எதிரானது.

(72) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(ss) பிரிவுக்கு எதிரானது.

(73) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(tt) பிரிவுக்கு எதிரானது.

(74) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(uu) பிரிவுக்கு எதிரானது.

(75) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(vv) பிரிவுக்கு எதிரானது.

(76) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(ww) பிரிவுக்கு எதிரானது.

(77) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(xx) பிரிவுக்கு எதிரானது.

(78) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(yy) பிரிவுக்கு எதிரானது.

(79) மனுதாரர் கோரிய நிவாரணம் அரசியலமைப்பின் 51A(zz) பிரிவுக்கு எதிரானது.

48) குத்தகைதாரர் குத்தகை வழங்கப்பட்ட குவாரி முகப்பில் குவாரியின் புல எண் பரப்பு குத்தகைதாரர் பெயர் குத்தகை வழங்கப்பட்ட மாவட்ட ஆட்சியர் செயல்முறை எண் குத்தகை தொகை, குத்தகை காலம் போன்ற விபரங்கள் அடங்கிய பலகையை தனது சொந்த செலவில் வைத்து குத்தகை காலம் முழுவதும் பராமரிக்கவேண்டும்.

49) குத்தகைதாரர் குவாரியின் எல்லைகளை தெளிவாக தெரியும்படி வண்ணமிட்ட எல்லைக்கற்கள் அமைத்து அடையாளமிட்டு வேலி குவாரிசெய்ய வேண்டிய எல்லைகற்களை குத்தகை காலம் முழுவதும் தனது சொந்த செலவில் நாட்டி பராமரிக்கவேண்டும்.

50) குத்தகைக்கு வழங்கப்பட்ட கல்குவாரிகளில் சாதாரண கற்கள், கட்டுகல், சவுக்கு கற்கள், ஜல்லிகற்கள் மற்றும் பாலைகளை மட்டுமே குவாரி செய்ய வேண்டும். அரசு நாட்டிற்கு எற்றுமதி செய்வதற்கும் வேறு ஏற்றுவதற்கும் பயன்படும் வகையைக்கூடிய கற்களை உற்பத்தி செய்யக்கூடாது.

51) குவாரியில் வெடி வைத்து கற்களை உடைக்க அங்கீகாரம் பெற்ற வெடிபொருள் விற்பனையாளரிடம் (Licenced Explosive Dealer). வெடிபொருட்களை கொள்முதல் செய்து சான்று பெற்ற வெடி வெடிப்பவரை(Licenced shot Firer) கொண்டு அனைத்து பாதுகாப்பு நிபந்தனைகளையும் கடைபிடித்து வெடிகளை வெடிக்க வைக்க வேண்டும்.

52) குவாரியில் சாதாரண ஏர் கம்பரசர்களை கொண்டு துளையிட்டு வெடிவைக்க வேண்டும். ஆழ்துளை கிணறு உபகரணங்களை (Rig Bore) கொண்டு துளையிட்டு வெடிவைக்கக்கூடாது. அருகிலுள்ள விவசாய நிலங்கள், பொதுச்சொத்துக்கள் மற்றும் பொதுமக்கள் ஆகியோருக்கு எவ்வித பாதிப்பும் ஏற்படாமல் வெடி வைக்க வேண்டும்.

53) அரசு அலுவலர்கள் பயிற்சியில் மற்றும் வருவாய்துறை மற்றும் மாவட்ட ஆட்சியரால் இது தொடர்பாக ஏற்படுத்தப்படும் பல்வேறு அய்வுகளை மேற்கொள்ளும் போது அதற்கு ஒத்துழைப்பு நல்கவேண்டும் மேலும் அவர்களுக்கும் குத்தகைதாரர் கட்டுப்பாடு செய்ய வேண்டும்.

54) 1961ம் ஆண்டின் வெடிபொருட்கள் சட்டம், 1936 ஆம் ஆண்டின் சுரங்கம் தொடர்பான சட்டம், 1884 ஆம் ஆண்டின் இந்திய வெடிபொருட்கள் சட்டம், 1854 ஆம் ஆண்டு குறைந்தபட்ச கட்டிடச்சட்டம் ஆகியவற்றிற்கு கட்டுப்பட்டு குத்தகைதாரர் கனிமங்கள் வெட்டி எடுத்து வெளியேற்ற வேண்டும்.

55) குவாரியில் வேலை செய்யும் தொழிலாளர்கள் மற்றும் இதர நபர்களுக்கு விபத்து ஏற்படும் அதற்கான முழு பொறுப்பும் குத்தகைதாரரே ஏற்க வேண்டும். அதற்கு எவ்வகையிலும் அரசு பொறுப்பாகாது.

56) குவாரிகளில் நவம்பர், டிசம்பர், ஜனவரி மற்றும் பிப்ரவரி மாதங்களில் காலை ஆறு மணிக்கு மேல் காலை ஆறு மணி வரை பணியாளர்களை வெடி வைத்து தகர்க்க கூடாது.

57) குவாரிகளில் இருந்து நவம்பர், டிசம்பர், ஜனவரி மற்றும் பிப்ரவரி மாதங்களில் காலை ஆறு மணிக்கு மேல் காலை ஆறு மணி வரை கற்களை வெளியில் எடுத்துச் செல்லக் கூடாது.

58) குவாரி தொடர்பான அனைத்து பணிகளும் காலை 6.00 மணி முதல் மாலை 6.00 மணி வரை மட்டுமே மேற்கொள்ள வேண்டும்.

59) குவாரி குத்தகை வழங்கப்படும் பரப்பினை கற்றி குறைந்த பட்சம் 100 மரக்கன்றுகளாவது நடுவதை உறுதி செய்து பராமரித்து பசுமை சூழலை அமைக்கப்பட வேண்டும்.

60) அங்கீகரிக்கப்பட்ட வரைவு திட்ட அறிக்கையில் குவாரி பணி செய்யப்பட வேண்டும். குத்தகை காலத்தில் அங்கீகரிக்கப்பட்ட வரைவு திட்ட அறிக்கையில் குறிப்பிட்ட அளவை விட அதிகமான கனிமத்தை குவாரி செய்ய வேண்டியிருப்பின், திருத்தப்பட்ட வரைவு திட்ட அறிக்கையை சுரங்கம் மற்றும் அதனுடன் தொடர்புடைய துறை அலுவலர்களை கலந்து ஆலோசித்து பின்பு அனுமதி பெற்று செயல்படுத்த வேண்டும்.

61) குத்தகை விதிகளுக்கான ஒருங்கிணைந்த நகராணை 64/2014/கனிமம்) நாள் 19.08.2019 அன்றைய நடைமுறையில் உள்ளபடி மற்றும் கொள்வதற்கு முன்பாக முத்திரைதாளில் அனுமதி கடிதம் செய்து தர வேண்டும்.

62) குவாரி பணியினை தொடங்கிய அறிவிப்பை (Notice of opening) இரண்டு அரசு செய்தித்தாளில் வெளியிட்டு அதன் நகலை இணைத்து அலுவலருக்கு அனுப்ப வேண்டும்.

63) குவாரியில் அங்கீகாரம் பெற்ற வெடிபொருள் மேலாளர்/வெடிப்பவர்களை பணியமர்த்தி அவர்களை பணியினை தொடங்க வேண்டும்.

64) குவாரி குத்தகை காலத்தில் வெடிபொருட்களை பாதுகாப்பாக வைத்திருக்க வெடிபொருள் சேமிப்பு கிடங்கினை அமைக்க வேண்டும்.

65) குவாரி குத்தகை விதிகளில் ஏதும் ஏற்படாத வகையில் உடனுக்குடன் திருத்தம் செய்வதற்கு தனது முழு ஒத்துழைப்பினை மாவட்ட ஆட்சியர் அவர்களுக்கும் வழங்க வேண்டும். குவாரி பகுதியில் ஏற்படும் விபத்துக்கு குவாரி குத்தகைதாரரே முழு பொறுப்பாவார்.

குளகினி வட்டம்

வ. எண்	கிராமம்	சர்வே	மொத்த பரப்பு	குவாரி குத்தகை வழங்கும் பரப்பு	வகைப்பாடு	குத்தகை காலம் (வருடங்கள்)
(1)	(2)	(3)	(4) (ஹெக்டேர்)	(5) (ஹெக்டேர்)	(6)	(7)
10	முகலூர்	232/2 (பகுதி)	15.66.5	2.40.0	நீர்த	10
11	அத்திமுகம்	303 (பகுதி-1)	8.58.0	2.00.0	பாறை	10
12	அத்திமுகம்	303 (பகுதி-2)	8.58.0	2.00.0	பாறை	10
13	மணலாட்டன்னி	306 (பகுதி)	3.56.0	1.56.0	நீர்த பாறை	10
14	மலைமாட்டன்னி	306 (பகுதி)	3.56.0	2.00.0	நீர்த பாறை	10
15	காலன்தொட்டி	178/1 (ம) 181 (பகுதி-1)	8.63.0	3.00.0	நீர்த தரிசு	10
16	காலன்தொட்டி	178/1 (ம) 181 (பகுதி-2)	8.63.0	2.00.0	நீர்த தரிசு	10
17	காலன்தொட்டி	653 (பகுதி)	7.56.0	3.35.0	நீர்த தரிசு	5
18	பெருமாதுர்கம்	940/1 (பகுதி-1)	102.76.5	4.02.0	அரை புறம்போக்கு (மலை)	10
19	பெருமாதுர்கம்	940/1 (பகுதி-2)	102.76.5	4.24.5	அரை புறம்போக்கு (மலை)	10
20	முப்பாளப்பன்னி	420 (பகுதி)	46.61.0	4.90.0	நீர்த (கரடு)	5
21	முப்பாளப்பன்னி மற்றும் அதனை அடுத்துள்ள	537(பகுதி) (ம) 4 (பகுதி)	25.22.0 (ம) 2.55.0	2.00.0	நீர்த புறம்போக்கு	10
22	பேரிகை	316/1 (பகுதி)	3.35.5	0.95.0	நீர்த பாறை	
23	கொலுகேசனஹள்ளி	288 (பகுதி)	5.00.0	2.20.0	நீர்த பாறை	10
24	சானமாவு	964(ம)	12.50.0	3.00.0	கரடு நீர்த பாறை	5 10

தேன்கனிக்கோட்டை வட்டம்

வ. எண்	கிராமம்	சர்வே	மொத்த பரப்பு	குவாரி குத்தகை வழங்கும் பரப்பு	வகைப்பாடு	குத்தகை காலம் (வருடங்கள்)
(1)	(2)	(3)	(4) (ஹெக்டேர்)	(5) (ஹெக்டேர்)	(6)	(7)
25	நல்லாங்கம்	629 (பகுதி-3)	188.50.0	3.20.5	நீர்த்த கல்லாங்குத்து	10
26	நல்லாங்கம்	560 (ம) 563 (பகுதி)	113.36.0	2.00.0	நீர்த கரடு	10

திருவண்ணாமலை
21-02-2019

கூ. பிரபாகர்,
மாவட்ட ஆட்சியர்,
திருவண்ணாமலை மாவட்டம்.

மணல் மற்றும் மணல் சார்ந்த தாதுப்பொருட்கள் சேமிப்பு மற்றும் விற்பனை செய்ய மாவட்ட ஆட்சியரால் வெளியிடப்பட்டது

இணைப்பு- I

பின் இணைப்பு VI

கி. ஸ்ட்ர் விண்ணப்பம் / குவாரி குத்தகை உரிமம் வழங்குதற்கான விண்ணப்பம்

(முன்று பிரதிகளில் சமர்ப்பிக்கப்பட வேண்டும்)

விடுதர்

பெறுநர்

மாவட்ட ஆட்சித்தலைவர்,
திருவண்ணாமலை.

அய்யா,

திருவண்ணாமலை மாவட்ட அரசிதழ் (சிறப்பு வெளியீடு)எண். நாள் 2016 திணைப்பில் வெளியிட்ட நாள் 2016ன் படி இத்துடன் தமிழ்நாடு சிறுகனிம சலுகை விதிகள் 1959 விதி 8ன் கீழ் வரது / எங்களது விண்ணப்பத்தினை சமர்ப்பிக்கின்றேன் / சமர்ப்பிக்கின்றோம்.

தமிழ்நாடு சிறு கனிம சலுகை விதிகள் 1959 விதி 8ன் கீழ் குவாரி குத்தகை உரிமம் வழங்கும் படி நான் கேட்டுக்கொள்கிறேன் / நாங்கள் கேட்டுக்கொள்கிறோம்.

தேவையான விபரங்கள் கீழே கொடுக்கப்பட்டுள்ளது

1) விண்ணப்பதாரர் பெயர் மற்றும் முழு முகவரி :

2) விண்ணப்பதாரர்

அ) 1) தனிநபர் :

2) தனிப்பட்ட நிறுவனமா ?

3) நிறுவனமா அல்லது கழகமா

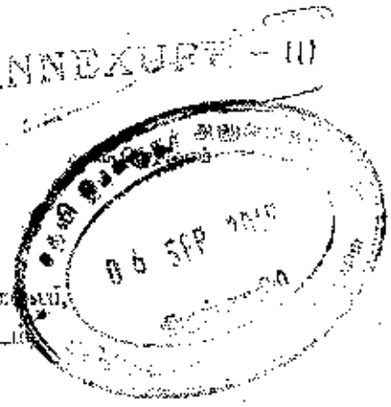
ஆ) தனிநபர்களால் விண்ணப்பதாரர்

எந்த நாட்டைச் சார்ந்தவர்

இ) தனிப்பட்ட நிறுவனமானால்/
கழகமானால் பெற்கண்ட
நிறுவனத்தின் / கழகத்தின்
இயக்குநர்களின் தாய் நாட்டை, தனிய
விவரம் (எழுத்து) பூர்வ ஆதாரங்கள்
இணைக்கப்பட வேண்டும்

S.DHANASEKAR, M.Sc. (Geo.)
RQP/MAS/225/2011/A

ANNEXURE - III



கைபேசியில்

தமிழ்நாடு மின்னாற்றுறை

அனுப்புதல்
திரு. தீபக் எஸ். பில்கி, இ.ஆ.ப.,
மின்னுற்பத்திப்பகர்,
ஒருங் கன்ற்றடைபன்னாட்டு ஆற்றல்,
பத்திரிகி, ஒருர் - 635 110.
தொலைபேசி எண். 04344-262259.

பெறுதல்
மாவட்ட ஆட்சித் தலைவர்,
திருப்பத்தூர் மாவட்டம்
திருப்பத்தூர்.

ந.க.எண்.153/2019-எஸ், நாள். 30.01.2019
(பூர் விண்ணப்ப எண் 15, திருப்பத்தூர் மாவட்டம்)

அய்யா,

பொருள் : கனிம்மற்றும் குவாரிகளும் - சிறுகனிமம் --மாதிரிவெடிகள் - திருப்பத்தூர் மாவட்டத்தில் உள்ள ஒரு குறிப்பிட்ட நிலப்பகுதியில் உள்ள மாதிரிகல் வெட்டியெடுக்க பொன்டருடன் நிலவரித் திட்டமுறையில் குவாரி குத்தகை பரிந்துரைக் வனத்துறை பரிந்துரை பெற்றுத் தருமாறு கோரியது– வனத்துறை நிபந்தனைகள் பெறுவது-சார்பு.

பார்வை : 1. மாவட்ட ஆட்சித் தலைவர், திருப்பத்தூர் மாவட்டம் ந.க.எண்.1609/2018(கனிமம்) நாள்.29.12.2018 மற்றும் 04.01.2019.
2. வனக்காப்பு அலுவலர், ஒருர் முகம் ந.க.எண்.02/2019 நாள்.23.01.2019.

*****

பார்வை 1-ம் கண்ட திருப்பத்தூர் மாவட்ட ஆட்சித் தலைவர் அவர்களது கடிதத்தில், திருப்பத்தூர் மாவட்டத்தில் உள்ள ஒரு குறிப்பிட்ட நிலப்பகுதியில் மாதிரி கல் வெட்டி எடுக்க பொன்டர் / பொது ஏலம் மூலம் குத்தகைக்கு வழங்க, மாவட்டத்தை நேரில் ஆய்வு செய்து மேற்கண்ட வனத்துறையின் நிபந்தனைகளை சான்று வழங்கிவேண்டி கேட்டுக்கொண்டிருந்தது.

மேற்படி மாறு நீரு நடவடிக்கை எடுக்கும் பொருட்டு, ஒருர் வன வனச்சரக அலுவலர் மற்றும் வன பணியாளர்களுடன் 21.01.2019 அன்று நேரில்சென்று ஆய்வுசெய்து அறிக்கை சமர்ப்பித்துள்ளார்.

ஒருர் வனச்சரக அலுவலர் அறிக்கையின் அடிப்படையில், மேற்படி பரிந்துரைக்கும், ஒருர் வன பணியாளர்களுடன் நேரில்சென்ற ஆய்வின்போது, திருப்பத்தூர் மாவட்டத்தில் உள்ள குவாரி புறம்போக்கு பகுதிகளுக்கு மாதிரி கல் வெட்டி எடுக்க பொன்டர் / பொது ஏலம் மூலம் குத்தகைக்கும் கீழ்க்கண்டவாறு வனத்துறையின் நிபந்தனைகள் விதிக்கப்படுகிறது.

சாதாரண கற்கள் வெட்டி எடுக்க டெண்டருடன் இணைந்த எவ்முறை வழங்க முடிந்தவை
செய்யப்படும் குவாரிப் பகுதிகள் விபரம்

06 SEP 2019

Shoolagiri Taluk

Sl. No.	Taluk / village	S.F.No.	Total Extent	Extent Proposed for Quarry Lease	Classification	Lease Period in years	Coordinates	
							Latitude	Longitude
1	Shoolagiri / Athimugam	303 (Part-1)	8.58.0	2.00.0	Parai	10	12° 45' 19.65"N	77° 59' 39.87"E
2	Shoolagiri / Athimugam	303 (Part-2)	8.58.0	2.00.0	Parai	10	12° 45' 17.23"N	77° 59' 43.19"E
3	Shoolagiri / Pannapalli	306 (Part)	3.56.0	1.56.0	UAW-Parai	10	12° 45' 22.49"N	77° 59' 47.26"E
4	Shoolagiri / Pannapalli	306 (Part)	3.56.0	2.00.0	UAW-Parai	10	12° 45' 22.49"N	77° 59' 47.26"E
5	Shoolagiri / Kamandoddi	653 (Part)	7.56.0	3.35.0	Tharisu	5	12° 39' 53.00"N	77° 56' 59.54"E
6	Hosur / Alur	209 (Part)	8.82.5	4.50.0	Vari-UAW	10	12° 44' 04.34"N	77° 54' 52.17"E
7	Shoolagiri / Venkatesa puram	288 (Part)	5.00.0	3.00.0	Malai	5	12° 45' 13.34"N	77° 57' 33.01"E
8	Shoolagiri / Thuppuganapalli	420 (Part)	46.61.0	4.00.0	Malai	5	12° 37' 20.99"N	77° 57' 08.89"E
9	Shoolagiri / Thuppuganapalli & Agaram Agraharam	637 (Part) & 4 (Part)	25.27.0 & 2.55.0	2.00.0 0.95.0	Poram / UAW UAW/ Parai	10	12° 37' 35.14"N	77° 57' 24.25"E
10	Shoolagiri / Berigai	316/1 (Part)	3.35.5	2.20.0	UAW-Parai	10	12° 47'24.01"N	77° 57'36.06"E

Krishnagiri Taluk

Sl. No.	Taluk / village	S.F.No.	Total Extent	Extent Proposed for Quarry Lease	Classification	Lease Period in years	Coordinates	
							Latitude	Longitude
11	Krishnagiri/ Appinayakkankottai	54/2	2.68.5	1.70.0	UAW-Kunduru	10	12° 41' 40.07"N	78° 07' 55.33"E
12	Krishnagiri/ Appinayakkankottai	32/1(Part)	2.27.5	1.10.0	UAW - Parai	10	12° 41' 56.73"N	78° 07' 57.[illegible]
13	Krishnagiri/ Kothapetta	56/1 (Part)	26.04.0	1.56.0	Malai	5	12° 32' 45.80"N	78° [illegible]

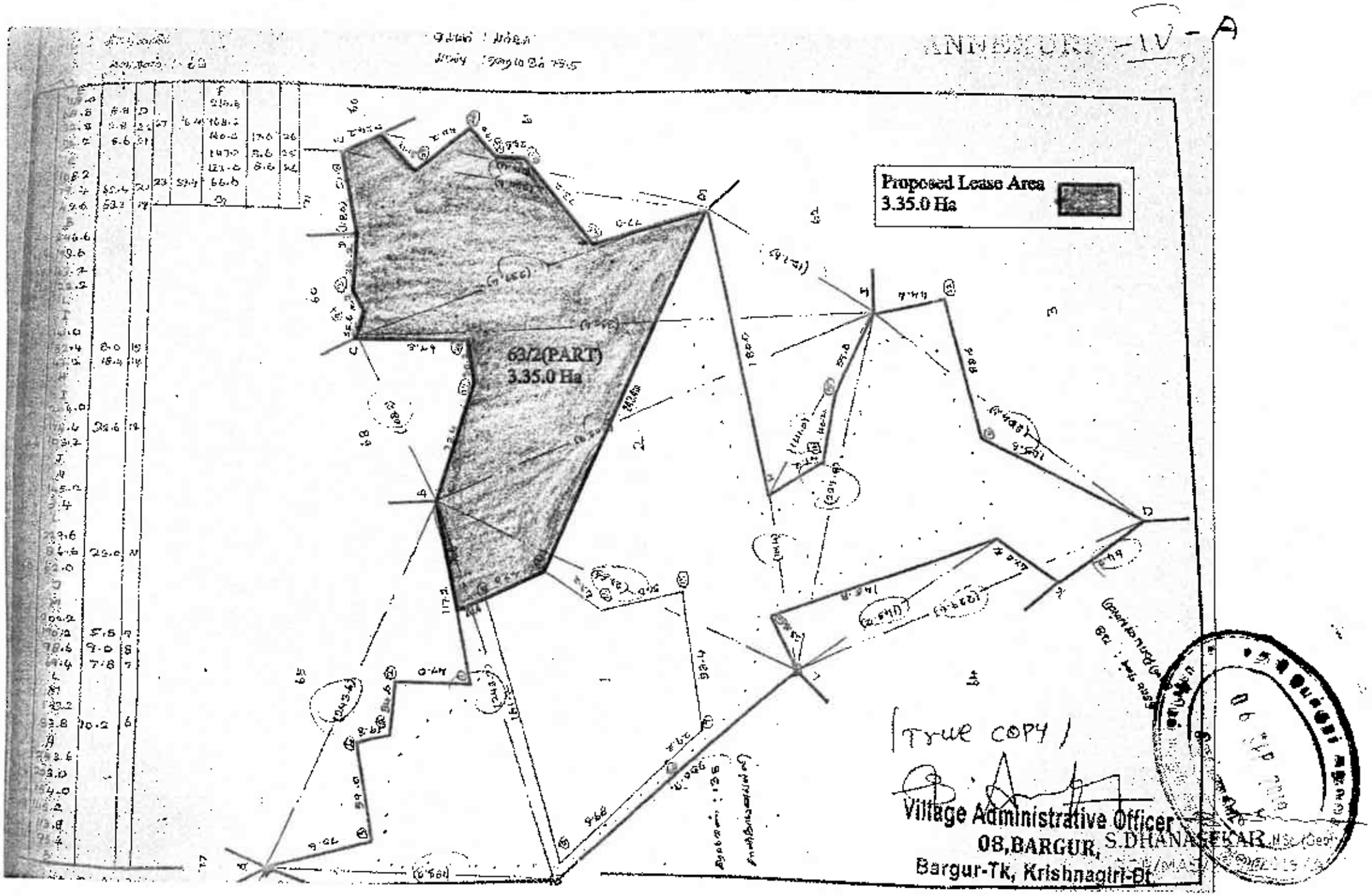
Bargur Taluk

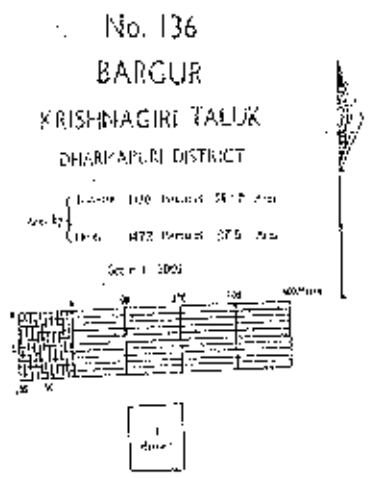
Sl. No	Taluk / village	S.F.No.	Total Extent	Extent Proposed for Quarry Lease	Classification	Lease Period in years	Coordinates	
							Latitude	Longitude
14	Bargur / Bargur	63/2 (Part)	9.35.50	3.35.0	UAW - Kallankuthu	5	12° 33' 21.83"N	78° 21' 47.32"E
15	Bargur / Sigaralapalli	284 (Part-1)	7.59.0	2.50.0	Govt.Poram - Karadu	10	12° 30' 02.16" N	78° 24' 19.98"E
16	Bargur / Pallepalli	126/2A2 (Part-I)	4.21.0	2.00.0	UAW-Tharisu	10	12° 33' 32.39"N	78° 20' 35.15"E
17	Bargur / Pallepalli	126/2A2 (Part-II)	4.21.0	2.00.0	UAW-Tharisu	10	12° 34' 20.98"N	78° 18' 02.21"E
18	Bargur / Pallepalli	830 (Part-I)	7.62.5	2.00.0	UAW-Tharisu	10	12° 32' 51.25"N	78° 19' 43.21"E
19	Bargur / Pallepalli	830 (Part-II)	7.62.5	3.00.0	UAW-Tharisu	10	12° 32' 48.46"N	78° 19' 38.14"E
20	Bargur / Pallepalli	896 (Part)	3.64.5	2.00.0	Govt. Poram - Kallankuthu	10	12° 33' 36.35"N	78° 18' 40.20"E
21	Bargur / Chinnathirumanayanapalli	506/1 (Part)	11.51.0	2.00.0	UAW-Tharisu	10	12° 35' 51.58"N	78° 16' 29.09"E
22	Uthangarai / Veppampatti	7/1 (Part)	2.84.5	0.84.0	UAW-Kallankuthu	10	12°12' 48.78"N	78° 32' 10.15"E
		7/4	0.03.0	0.03.0				
		8/3	0.24.0	0.24.5				
		TOTAL		1.11.5				

மேற்கண்ட நிலங்களுக்கு பெல்லட் / மொத்த எடையில் குத்தகைக்குவிடுவதற்கான குத்தகையின் தடையில்லாச் சான்று தரும்போது அளிக்கப்படுகிறது. மற்றொரு முறை ஆய்வு செய்யும் வரைமுறையின் முறைச் தணிக்கையை நடைமுறை பெற்றவர்கள் அரசு விதிமுறைக்கு உட்பட்டு, மாவட்டத்து உள்ளிட்ட மற்ற பிரமைகளை மேலும்ச்ச சாதாரண pluing) மனித ... வன விலங்கு மோதல்கள் மற்றும் மண் வளம் பாதுகாப்பு குத்தகையாளரின் வரைமுறையின் கருத்துகள் மற்றும் நிபந்தனைகளை ... மேலும் முறைகேடுகள் தணிக்கையில் கண்டறியப்பட்டால் அரசு அ ... மேற்கொள்ளலாம்.

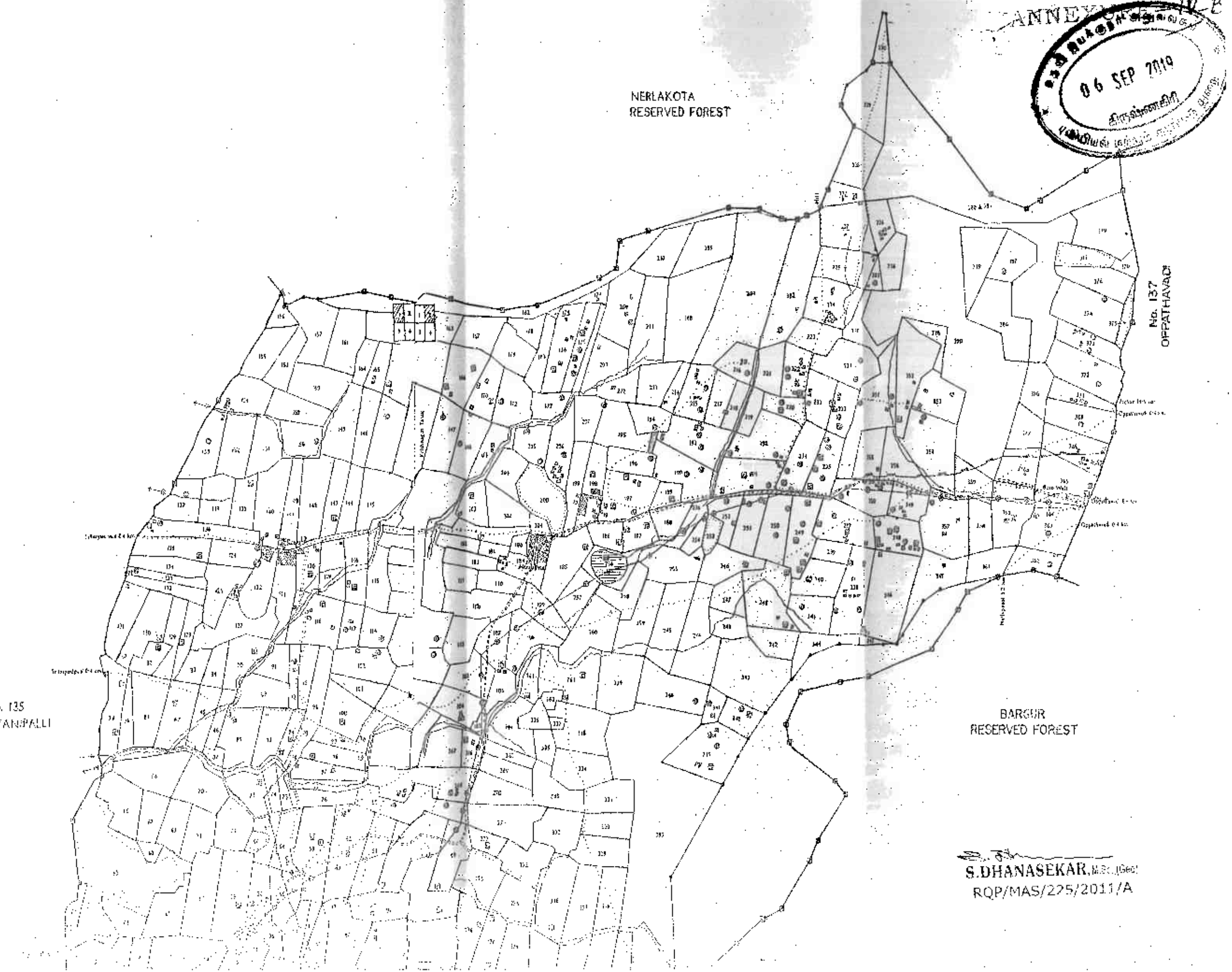
கனிம வள அலுவலர்

S.DHANASEKAR, A.R.L.,Dip
DP/MAS/225/2017/2

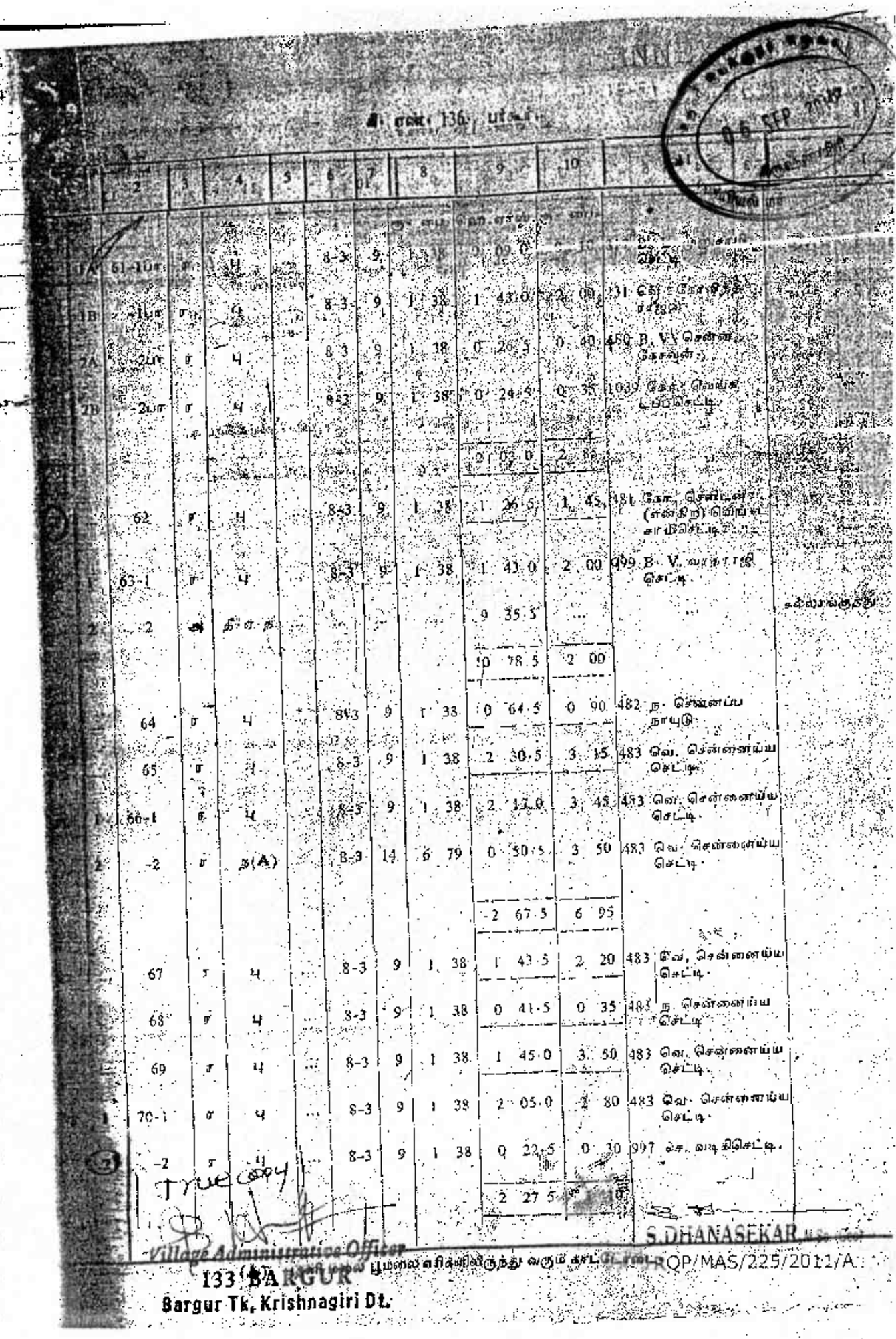

ANNEXURE - IV - A
Proposed Lease Area
3.35.0 Ha
63/2(PART)
3.35.0 Ha
True COPY
Village Administrative Officer
08,BARGUR, S.DHANASEKAR
Bargur-Tk, Krishnagiri-Dt.


No. 136
BARGUR
KRISHNAGIRI TALUK
DHARMAPURI DISTRICT

Survey No.
Name of Stretch


NERLAKOTA
RESERVED FOREST
No. 137
OPPATHAVADI
No. 135
SALINAYANIPALLI
BARGUR
RESERVED FOREST
S.DHANASEKAR, M.Sc.,(Geo)
RQP/MAS/225/2011/A

06 SEP 2019



1A	61-1	ம	ப		8-3	9	1	38	0 09 0			
1B	-1	ம	ப		8-3	9	1	38	1 43 0	2 00	31	தெ. கோபிநாத்
2A	-2	ம	ப		8-3	9	1	38	0 26 5	0 40	450	B. V. சென்னை தேசவன்
2B	2	ம	ப		8-3	9	1	38	0 24 5	0 35	1039	தெ. செல்வ டெப்பெட்டி
									2 07 0	2		
	62	ம	ப		8-3	9	1	38	1 26 5	1 45	181	தோ. சென்னன் (எஸ்கிரு) பெரிய சாமிசெட்டி
1	63-1	ம	ப		8-3	9	1	38	1 43 0	2 00	999	B. V. வரதராஜி செட்டி
2	-2	ம	தோ. ம						9 35 5	...		கல்யாணதூர்
									10 78 5	2 00		
	64	ம	ப		8-3	9	1	38	0 64 5	0 90	482	ந. செங்கப்ப நாயடு
	65	ம	ப		8-3	9	1	38	2 30 5	3 15	483	வெ. சென்னையய்ய செட்டி
1	66-1	ம	ப		8-3	9	1	38	2 12 0	3 45	483	வெ. சென்னையய்ய செட்டி.
2	-2	ம	ப(A)		8-3	14	6	79	0 50 5	3 50	483	வெ. சென்னையய்ய செட்டி.
									2 67 5	6 95		
	67	ம	ப		8-3	9	1	38	1 43 5	2 20	483	வெ. சென்னையய்ய செட்டி.
	68	ம	ப		8-3	9	1	38	0 41 5	0 35	483	ந. சென்னையய்ய செட்டி
	69	ம	ப		8-3	9	1	38	1 45 0	3 50	483	வெ. சென்னையய்ய செட்டி.
1	70-1	ம	ப		8-3	9	1	38	2 05 0	2 80	483	வெ. சென்னையய்ய செட்டி.
2	-2	ம	ப		8-3	9	1	38	0 22 5	0 30	997	செ. வடிவுசெட்டி.
									2 27 5			

True copy

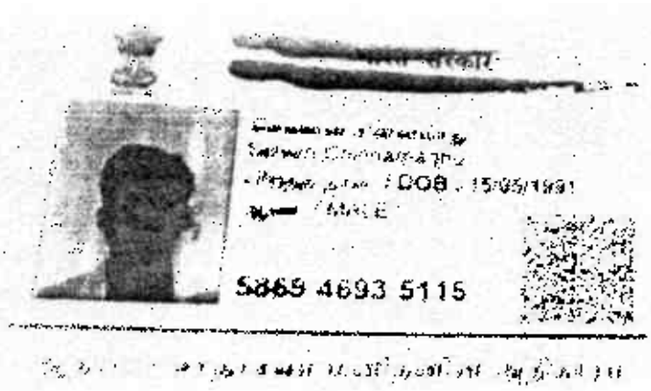
S.DHANASEKAR

Village Administrative Officer

133 BARGUR

Bargur Tk, Krishnagiri Dt.

QP/MAS/225/2011/A



S.DHANASEKAR,
ROP/MAS/225/2011/A

06 SEP 2019

ANNEXURE – VII

CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON TO PREPARE MINING PLANS

(Under Rule 22 C of Mineral Concession Rules 1960)

Shri S. DHANASEKAR resident of Old No.6, New No.8/3, Kullappan Street, Opp. Indian Bank Line, Omalur (P.O), Salem – 636 455, son of Shri A. SUNDARAM having given satisfactory evidence of his qualifications and experience is hereby granted recognition under Rule 22C of the Mineral Concession Rules, 1960 as a Qualified Person to prepare Mining Plans.

His registration number is **RQP/MAS/225/2011/A**

recognition is valid for a period of ten years ending 12.01.2021.

Regional Controller of Mines
Indian Bureau of Mines
Chennai Region

Place : Chennai
Date : 13.01.2011

S.DHANASEKAR, M.Sc.(Geo)
RQP/MAS/225/2011/A

ANNEXU

PHOTO SHOWN PROPOSED LEASE AREA VIEW-1

PHOTO SHOWN PROPOSED LEASE AREA VIEW-2

S.DHANASEKAR, M.Sc.,(Geo)
RQP/MAS/225/2011/A

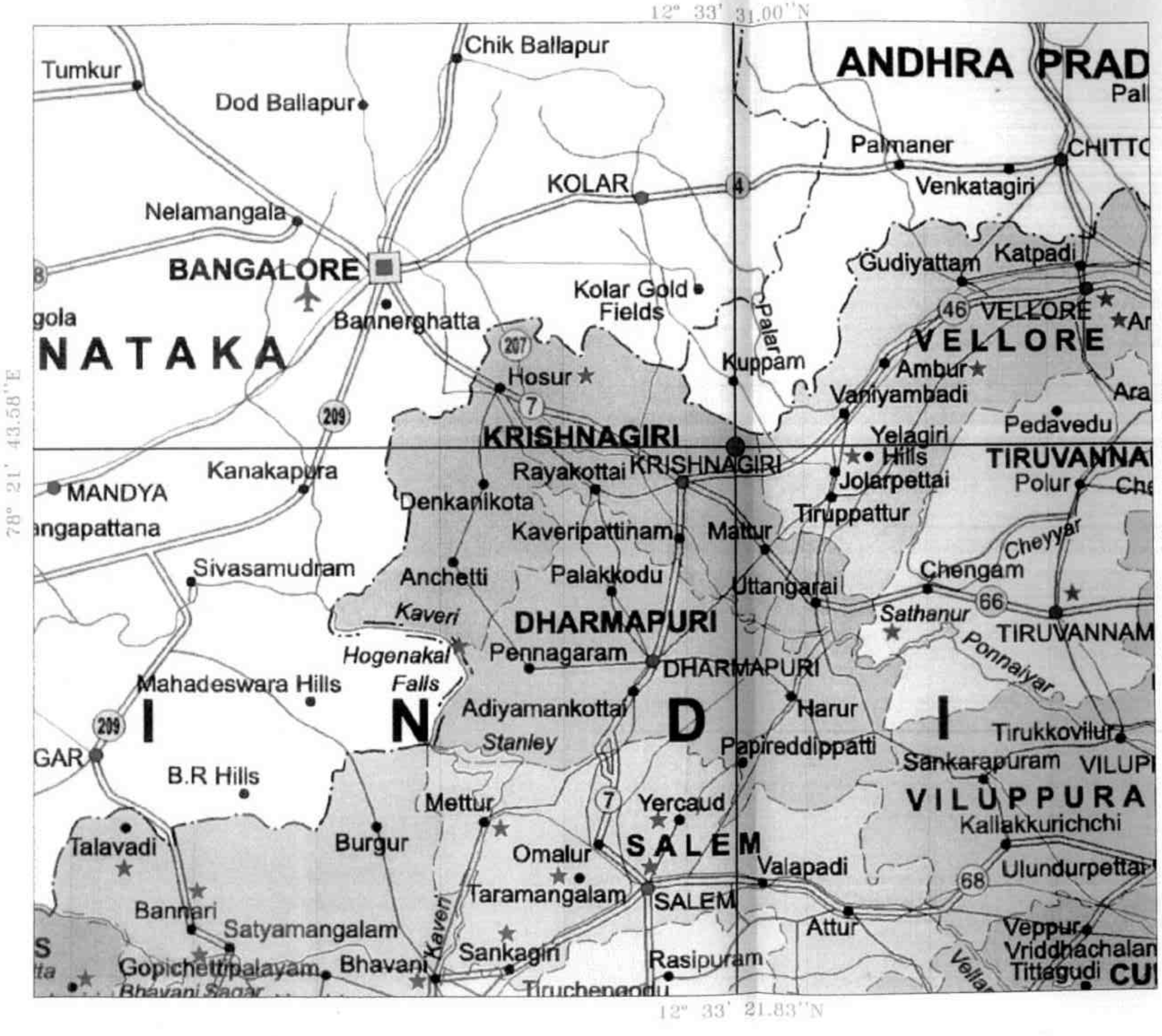
ANNEXURE VOL-B

06 SEP 2019

PHOTO SHOWN PROPOSED LEASE AREA VIEW-3

PHOTO SHOWN BOUNDARY PILLAR VIEW

S.DHANASEKAR, M.Sc. (Geo)
RQP/MAS/225/2011/A



06 SEP 2019

PLATE NO: I

DATE OF SURVEY: 14-06-2019

APPLICANT:

THIRU. C. SELVAN,
S/o. CHINNAMAADHU,
No.4/268,KUMBALAPADI, INDUR,
NAGAR KOODAL VILLAGE,
DHARMAPURI - 636 803.

LOCATION:

EXTENT	:	3.35.0 Ha,
S.F.NO	:	63/2 (PART),
VILLAGE	:	BARGUR,
TALUK	:	BARGUR,
DISTRICT	:	KRISHNAGIRI.

INDEX

MINE LEASE AREA :

TOPO SHEET NO. : 57 L/06

LATITUDE : 12° 33' 21.83"N to 12° 33' 31.00"N

LONGITUDE : 78° 21' 43.58"E to 78° 21' 53.65"E

LOCATION PLAN

NOT TO SCALE

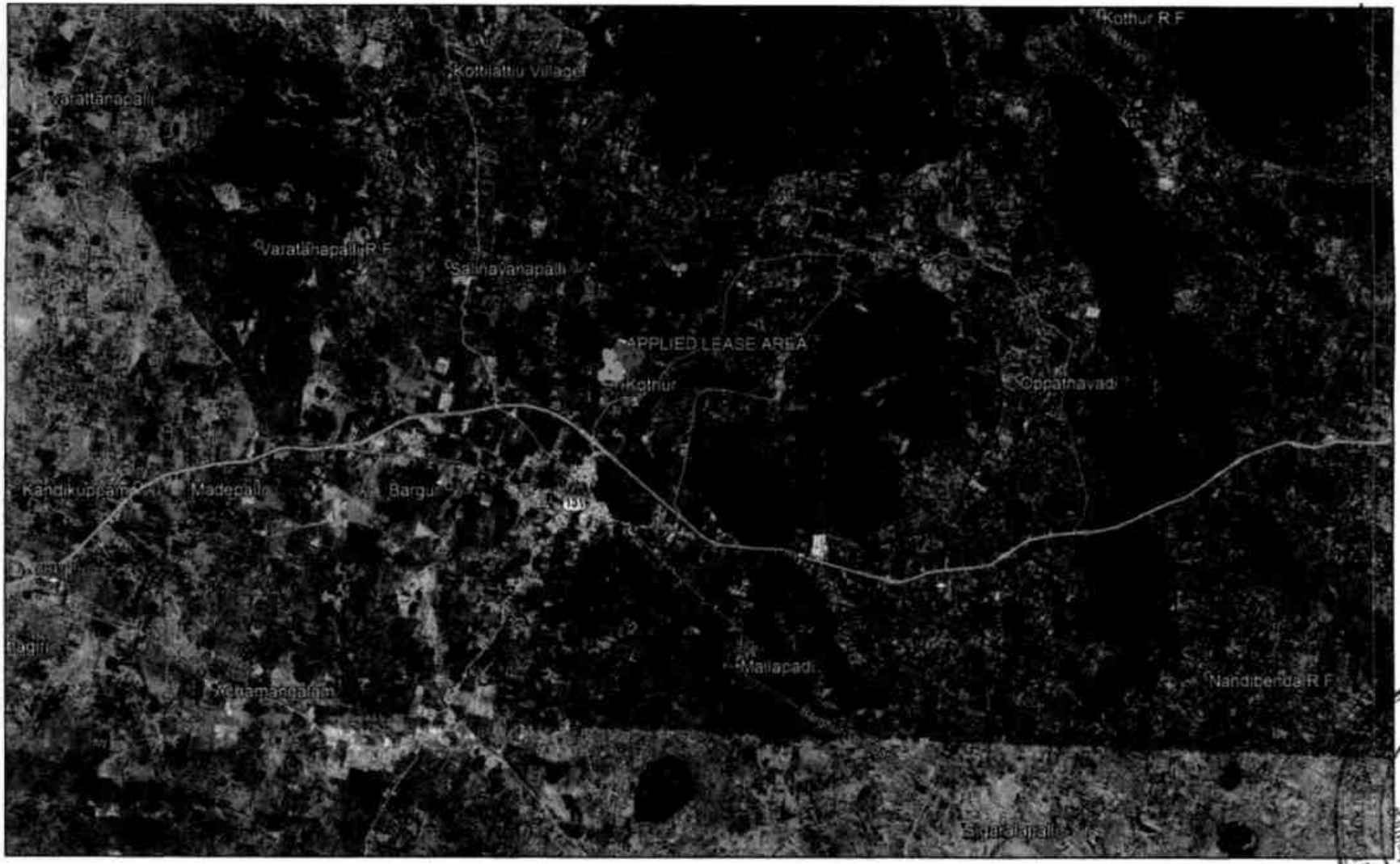
Prepared By:

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

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

ROUTE MAP

PLATE NO-IA



S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

06 SEP 2019

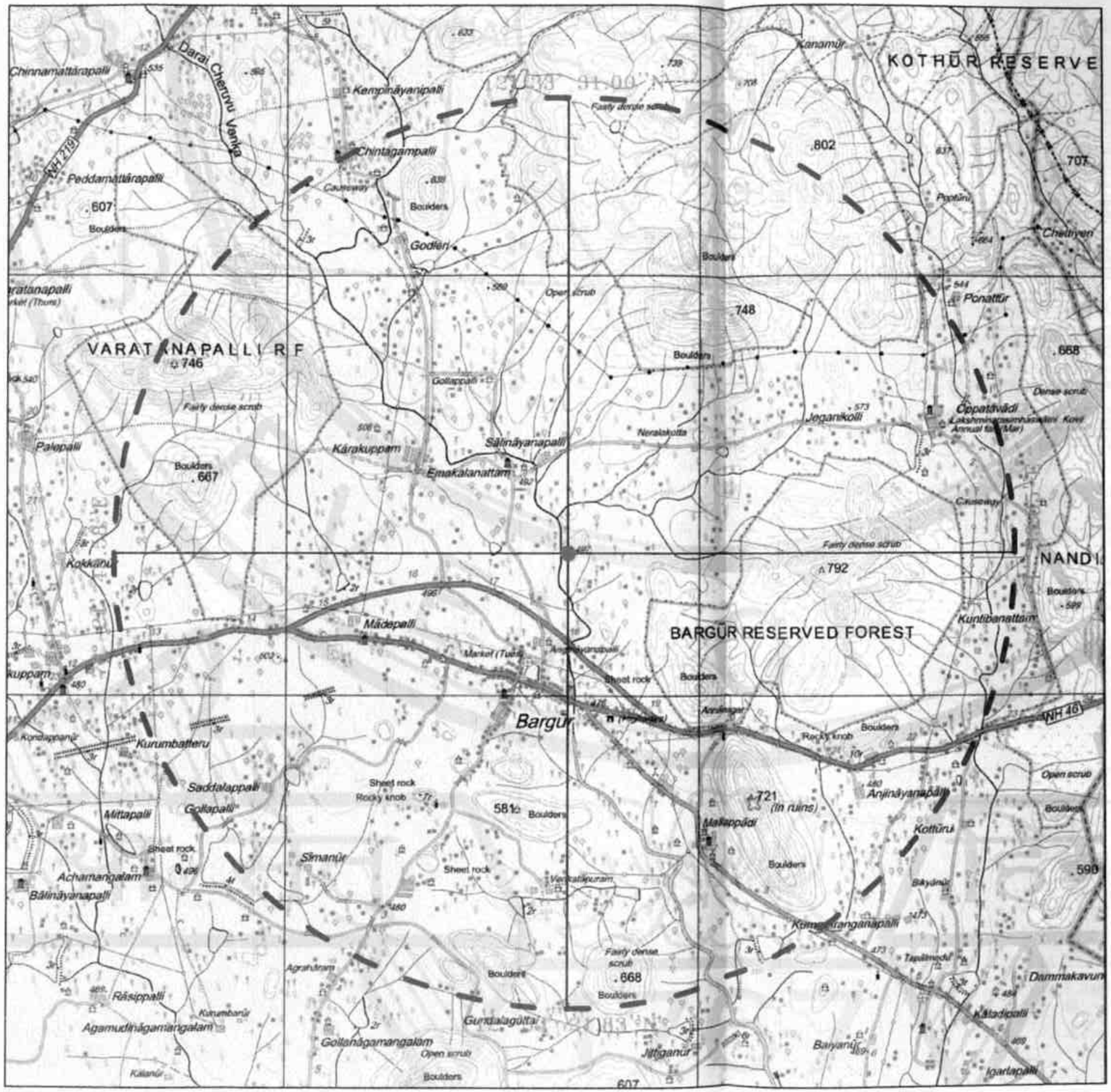


PLATE NO: I B

DATE OF SURVEY: 14.08.2018

APPLICANT:

THIRU. C. SELVAM,
S/o. CHINNAMAADHU,
No.4/268,KUMBALAPADI INDUR,
NAGAR KOODAL VILLAGE,
DHARMAPURI - 636 803.

06 SEP 2018

LOCATION:

EXTENT	:	3.35.0 Ha,
S.F.NO	:	63/2 (PART),
VILLAGE	:	BARGUR,
TALUK	:	BARGUR,
DISTRICT	:	KRISHNAGIRI.

INDEX

MINE LEASE AREA :

500M RADIUS :

TOPO SHEET NO. : 57 L/06

LATITUDE : 12° 33' 21.83"N to 12° 33' 31.00"N

LONGITUDE : 78° 21' 43.58"E to 78° 21' 53.65"E

TOPO SHEET KEY MAP

SCALE-1:50,000

Prepared By:

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

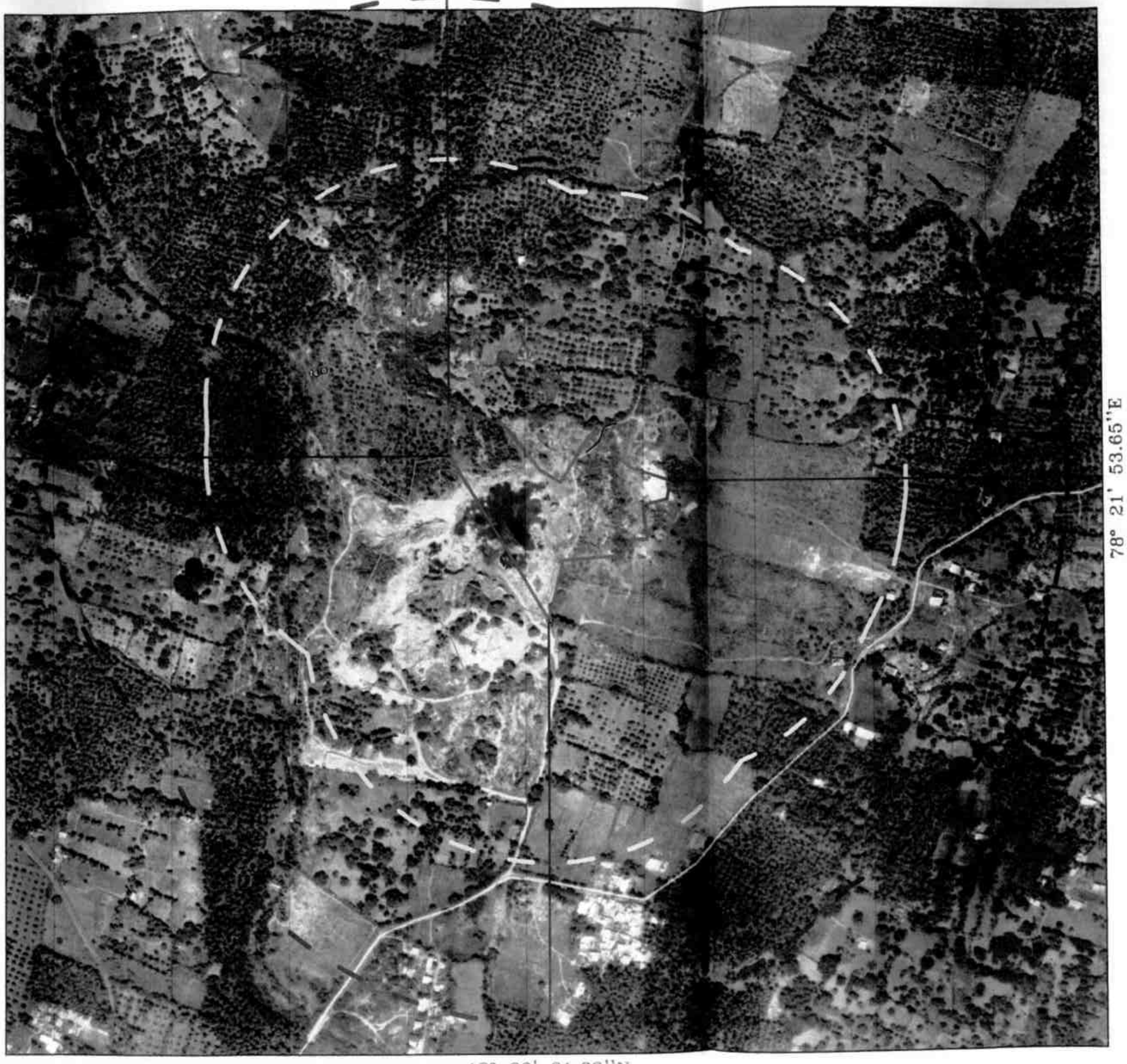
S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

12° 33' 31.00"N

78° 21' 43.58"E

78° 21' 53.65"E

12° 33' 21.83"N



06 SEP 2019

PLATE NO: IC

DATE OF SURVEY: 14-06-2019

APPLICANT ADDRESS:

THIRU. C. SELVAN,
S/o. CHINNAMAADHU,
No.4/268,KUMBALAPADI, INDUR,
NAGAR KOODAL VILLAGE,
DHARMAPURI - 636 803.

LOCATION:

EXTENT	:	3.35.0 Ha,
S.F.NO	:	63/2 (PART),
VILLAGE	:	BARGUR,
TALUK	:	BARGUR,
DISTRICT	:	KRISHNAGIRI.

INDEX

QUARRY LEASE AREA

500m RADIUS

300M RADIUS

TOPO SHEET NO. : 57 L/06

LATITUDE : 12° 33' 21.83"N to 12° 33' 31.00"N

LONGITUDE : 78° 21' 43.58"E to 78° 21' 53.65"E

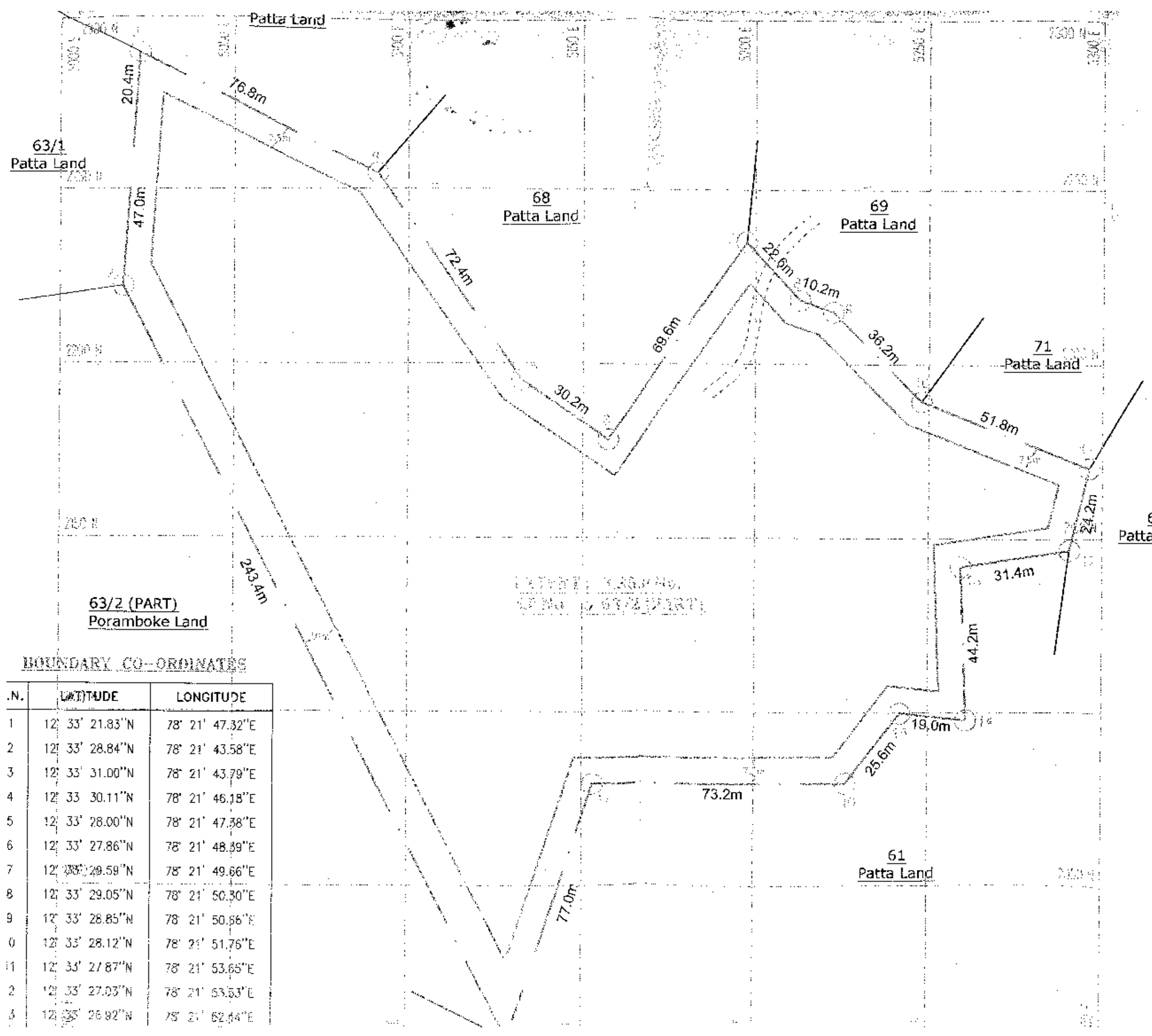
SATELLITE IMAGINARY MAP

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

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A



BOUNDARY CO-ORDINATES

.N.	LATITUDE	LONGITUDE
1	12° 33' 21.83"N	78° 21' 47.32"E
2	12° 33' 28.84"N	78° 21' 43.58"E
3	12° 33' 31.00"N	78° 21' 43.79"E
4	12° 33 30.11"N	78° 21' 46.18"E
5	12° 33' 28.00"N	78° 21' 47.38"E
6	12° 33' 27.86"N	78° 21' 48.89"E
7	12° 33' 29.59"N	78° 21' 49.66"E
8	12° 33' 29.05"N	78° 21' 50.30"E
9	12° 33' 28.85"N	78° 21' 50.56"E
0	12° 33' 28.12"N	78° 21' 51.76"E
1	12° 33' 27.87"N	78° 21' 53.65"E
2	12° 33' 27.03"N	78° 21' 53.53"E
3	12° 33' 26.92"N	78° 21' 52.64"E

PLATE NO: II

DATE OF SURVEY: 14-06-201

APPLICANT:

THIRU. C. SELVAN,
S/o. CHINNAMAADHU,
No.4/268,KUMBALAPADI, INDU
NAGAR KOODAL VILLAGE,
DHARMAPURI - 636 803.

INDEX

Q.L.BOUNDARY

7.5m & 10.0m
SAFETY DISTANCE

TEMPORARY BENCH MARK

APPROACH ROAD

BOUNDARY PILLARS

LOCATION:

EXTENT : 3.35 0 Ha,
S.F.NO : 63/2 (PART),
VILLAGE : BARGUR,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI.

SCALE - 1 : 1000

65
Patta Land

63/1
Patta Land

68
Patta Land

69
Patta Land

71
Patta Land

60
Patta Land

61
Patta Land

63/2 (PART)
Poramboke Land

20.4m
76.8m
47.0m
72.4m
30.2m
69.6m
22.6m
10.2m
36.2m
51.8m
24.2m
31.4m
44.2m
19.0m
25.6m
73.2m
77.0m
243.4m

478.5M
479.5M
478.0M
479.0M

Old Pit Dimension
=10826 Sq.mt X Avg.Depth 15.0mts
=162390 Cbm

PLATE NO: III

DATE OF SU

APPLICANT:

THIRU. C. SE
S/o. CHINNAI
No.4/268,KUI
NAGAR KOO
DHARMAPUR

Q.L.BOUNDARY

7.5m & 10.0m
SAFETY DISTAN

TOP SOIL

ROUGH STONE

OLD WORKING F

MINE ROAD

STRIKE & DIP

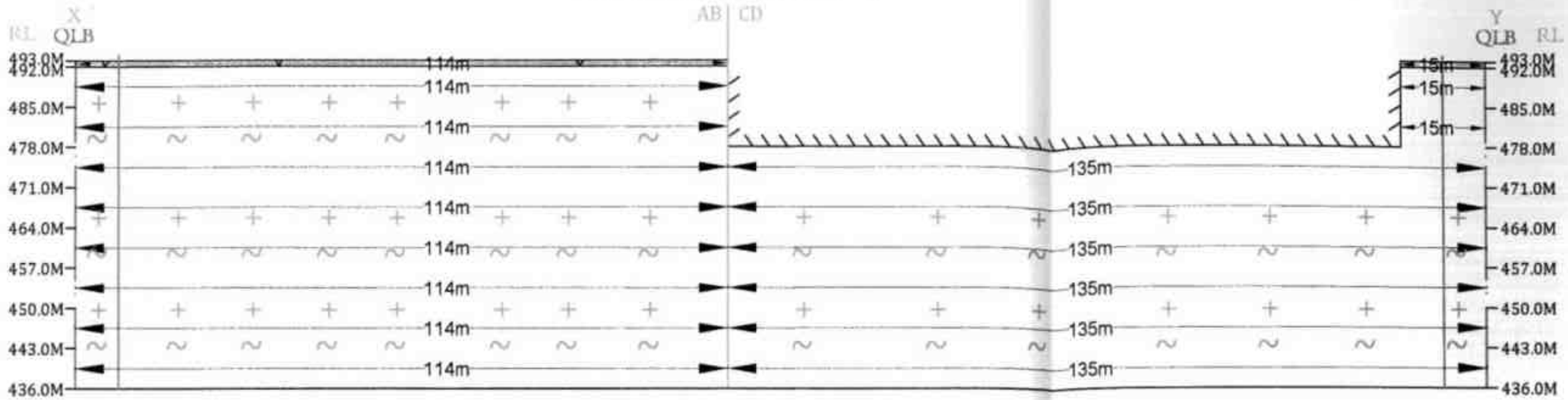
SHRUB

LOCATION:

EXTENT :
S.F.NO :
VILLAGE :
TALUK :
DISTRICT :

SCALE

SECTION ALONG X-Y



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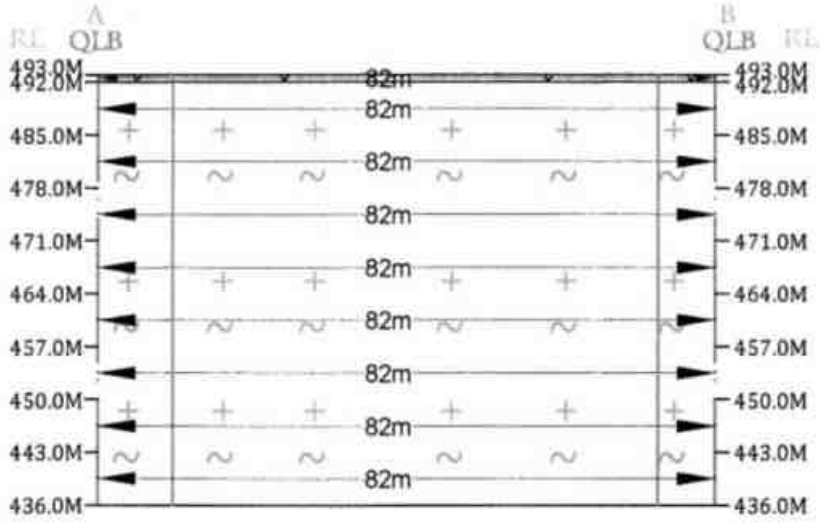
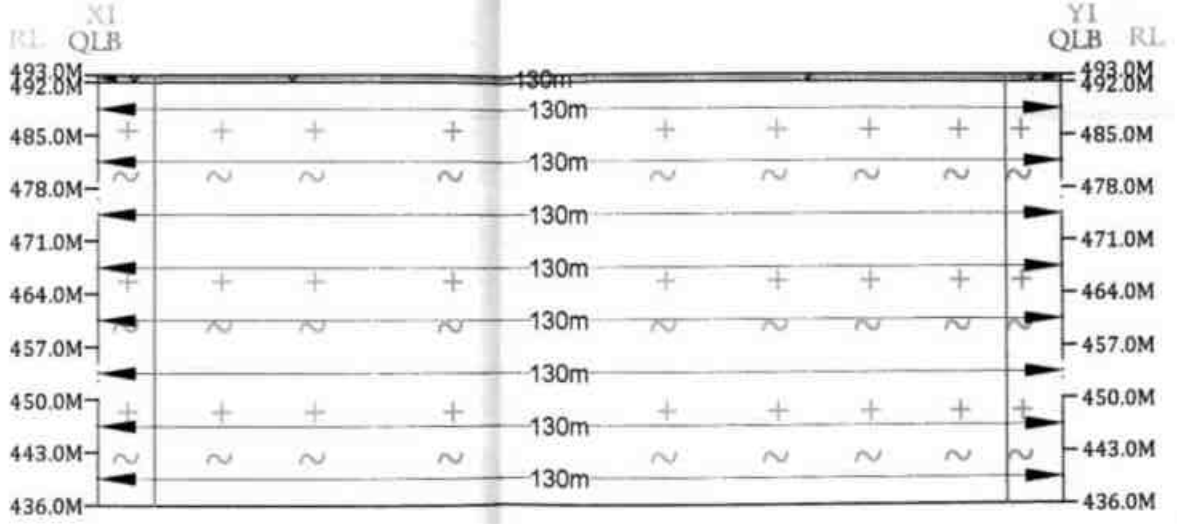
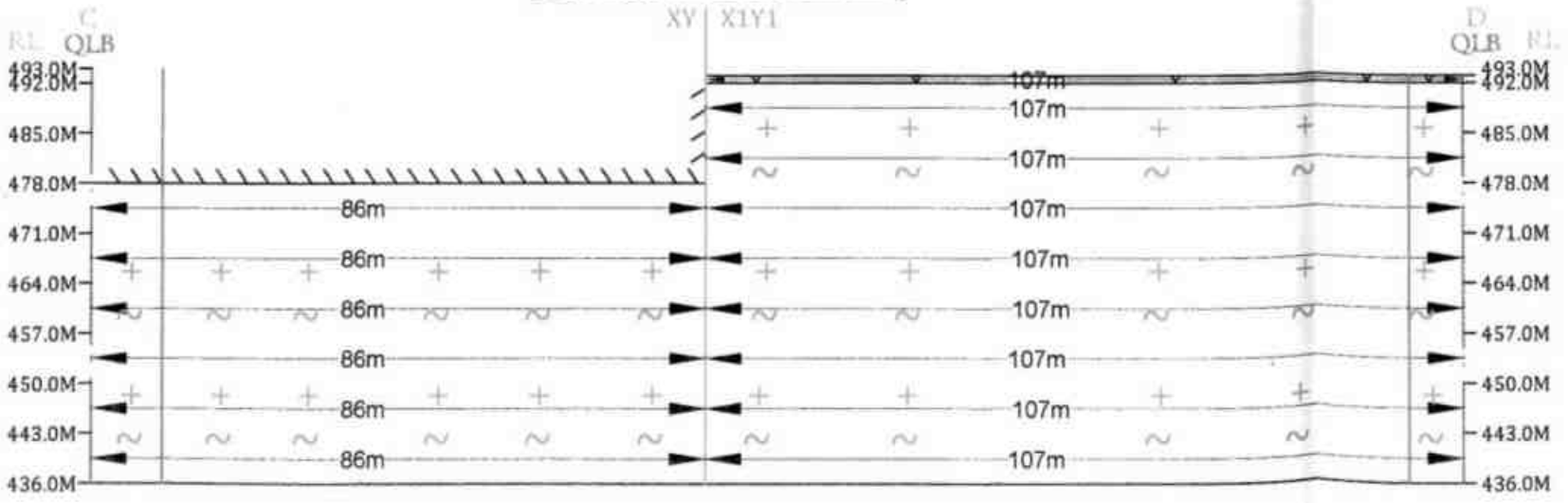


SECTION ALONG X1-Y1



SECTION ALONG C-D



06 SEP 2019

PLATE NO: III-A

DATE OF SURVEY: 14-06-2019

APPLICANT:

THIRU. C. SELVAN,
S/o. CHINNAMAADHU,
No.4/268,KUMBALAPADI, INDUR,
NAGAR KOODAL VILLAGE,
DHARMAPURI - 636 803.

INDEX

- Q.L.BOUNDARY
- 7.5m & 10.0m SAFETY DISTANCE
- TOP SOIL
- ROUGH STONE
- OLD WORKING PIT

LOCATION:

EXTENT	:	3.35.0 Ha,
S.F.NO	:	63/2 (PART),
VILLAGE	:	BARGUR,
TALUK	:	BARGUR,
DISTRICT	:	KRISHNAGIRI.

GEOLOGICAL SECTIONS

SCALE - 1 : 1000

PREPARED BY:

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

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

GEOLOGICAL RESERVES

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M3	Mineable Roughstone Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m3
XY-AB	I	114	82	1				9348
	II	114	82	7	65436	62164	3272	
	III	114	82	7	65436	62164	3272	
	IV	114	82	7	65436	62164	3272	
	V	114	82	7	65436	62164	3272	
	VI	114	82	7	65436	62164	3272	
	VII	114	82	7	65436	62164	3272	
	VIII	114	82	7	65436	62164	3272	
	IX	114	82	7	65436	62164	3272	
TOTAL					**523488**	**497312**	**26176**	**9348**
XY-CD	I	15	1	1				15
	II	15	1	7	105	100	5	
	III	15	1	7	105	100	5	
	IV	135	86	7	81270	77207	4063	
	V	135	86	7	81270	77207	4063	
	VI	135	86	7	81270	77207	4063	
	VII	135	86	7	81270	77207	4063	
	VIII	135	86	7	81270	77207	4063	
	IX	135	86	7	81270	77207	4063	
TOTAL					**487830**	**463442**	**24388**	**15**
X1Y1-CD	I	130	107	1				13910
	II	130	107	7	97370	92502	4868	
	III	130	107	7	97370	92502	4868	
	IV	130	107	7	97370	92502	4868	
	V	130	107	7	97370	92502	4868	
	VI	130	107	7	97370	92502	4868	
	VII	130	107	7	97370	92502	4868	
	VIII	130	107	7	97370	92502	4868	
	IX	130	107	7	97370	92502	4868	
TOTAL					**778960**	**740016**	**38944**	**13910**
GRAND TOTAL					**1790278**	**1700770**	**89508**	**23273**

PREPARED BY:

SUDHANSHU R.M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/115/2011/A

Patta Land

63/1
Patta Land

63/2 (PART)
Poramboke Land

68
Patta Land

69
Patta Land

71
Patta Land

60
Patta Land

61
Patta Land

PROPOSED
REJECT BACK FILLING AREA
=(78.0mLX75.0mWX8.94mH)
= 52313 m³

PROPOSED REJECT DUMP
=(664.4mLX7.5mWX3.91mH)
= 19525 m³

20.4m
76.8m
47.0m
72.4m
69.6m
30.2m
22.6m
10.2m
36.2m
51.8m
24.2m
31.4m
44.2m
19.0m
25.6m
73.2m
77.0m
243.4m
478.5M
479.5M
478.0M
479.0M

I - Year PROPOSED EXCAVATION
II - Year PROPOSED EXCAVATION
III - Year PROPOSED EXCAVATION
IV - Year PROPOSED EXCAVATION
V - Year PROPOSED EXCAVATION

N

PLATE NO: IV

DATE OF SURVE

APPLICANT:

THIRU. C. SELVAM
S/o. CHINNAMAAD
No.4/268,KUMBAL
NAGAR KOODAL
DHARMAPURI - 6

IN

Q.L BOUNDARY

7.5m & 10.0m
SAFETY DISTANCE

TOP SOIL

ROUGH STONE

OLD WORKING PIT

MINE ROAD

ULTIMATE PIT LIMIT

PROPOSED DUMP

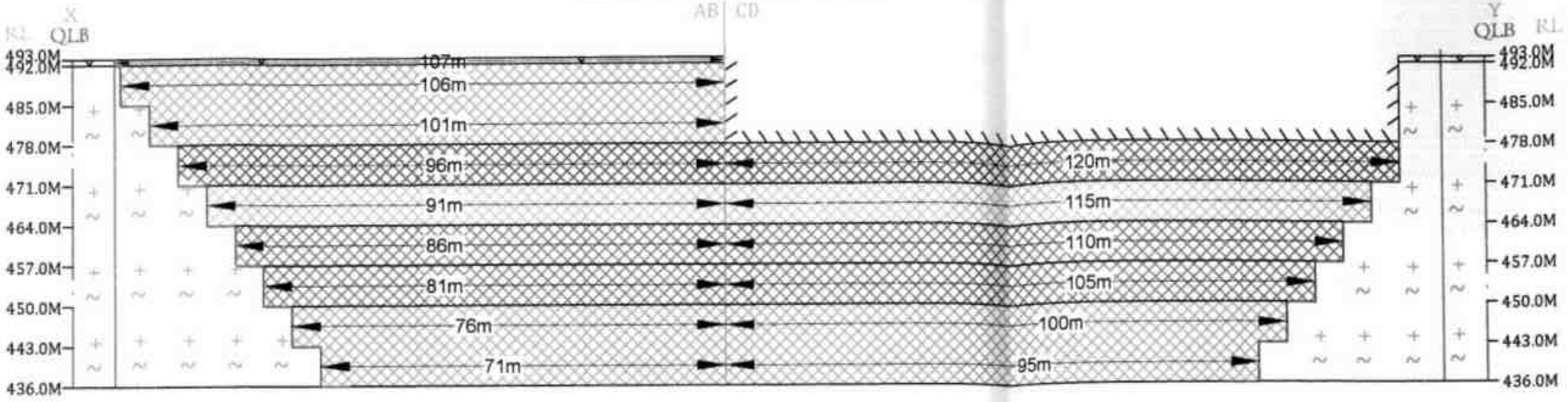
PROPOSED
REJECT BACK FILLING

LOCATION:

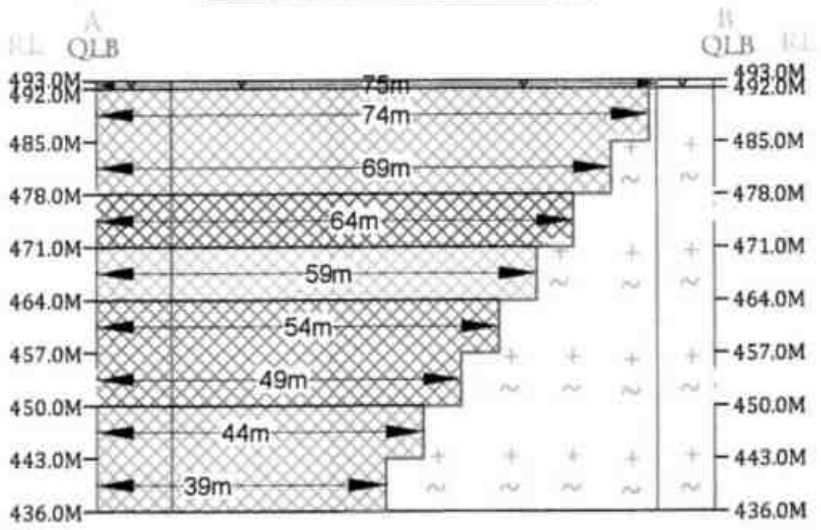
EXTENT	:	3.35.
S.F.NO	:	63/2
VILLAGE	:	BAR(
TALUK	:	BAR(
DISTRICT	:	KRIS

SCALE - 1

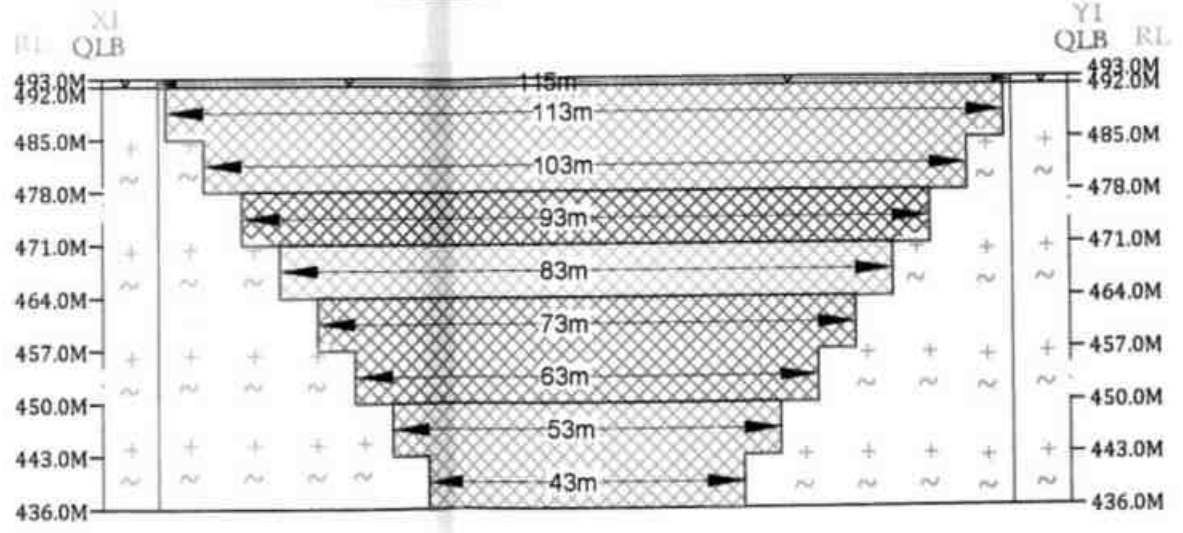
SECTION ALONG X–Y



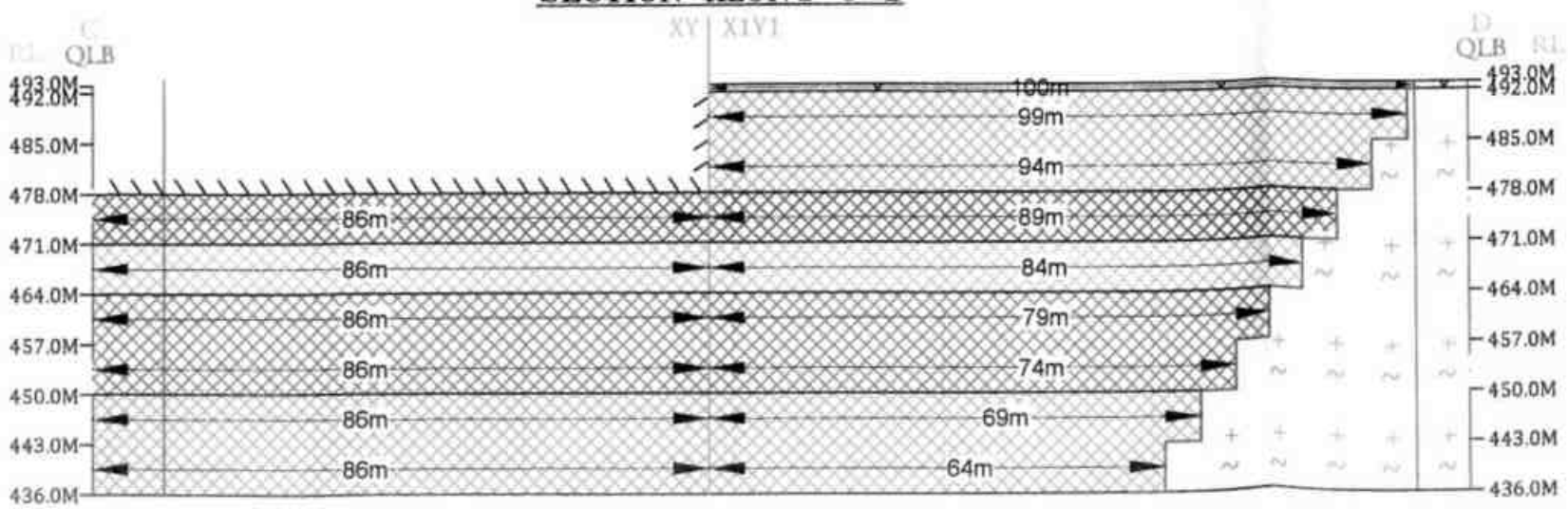
SECTION ALONG A–B



SECTION ALONG X1–Y1



SECTION ALONG C–D



I - Year PROPOSED EXCAVATION
II - Year PROPOSED EXCAVATION
III - Year PROPOSED EXCAVATION
IV - Year PROPOSED EXCAVATION
V - Year PROPOSED EXCAVATION

06 SEP 2019

PLATE NO: IV-A

DATE OF SURVEY: 14-06-2019

APPLICANT:

THIRU. C. SELVAN,
S/o. CHINNAMAADHU,
No.4/268,KUMBALAPADI, INDUR,
NAGAR KOODAL VILLAGE,
DHARMAPURI - 636 803.

INDEX

- Q.L.BOUNDARY
- 7.5m & 10.0m SAFETY DISTANCE
- TOP SOIL
- ROUGH STONE
- OLD WORKING PIT
- ULTIMATE PIT SLOPE

LOCATION:

EXTENT : 3.35.0 Ha,
S.F.NO : 63/2 (PART),
VILLAGE : BARGUR,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI.

YEARWISE PRODCUTION AND DEVELOPMENT SECTIONS

SCALE - 1 : 1000

PREPARED BY:

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

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

YEARWISE DEVELOPMENT AND PRODUCTION								
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M3	Roughstone Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m3
I YEAR	I	107	75	1				8025
	II	106	74	7	54908	52163	2745	
	III	101	69	7	48783	46344	2439	
	I	115	100	1				11500
	II	113	99	7	78309	74394	3915	
	III	103	94	7	67774	64385	3389	
TOTAL					**249774**	**237286**	**12488**	**19525**
II YEAR	IV	96	64	7	43008	40858	2150	
	IV	120	86	7	72240	68628	3612	
	IV	93	89	7	57939	55042	2897	
TOTAL					**173187**	**164528**	**8659**	
III YEAR	V	91	59	7	37583	35704	1879	
	V	115	86	7	69230	65769	3461	
	V	83	84	7	48804	46364	2440	
TOTAL					**155617**	**147837**	**7780**	
IV YEAR	VI	86	54	7	32508	30883	1625	
	VII	81	49	7	27783	26394	1389	
	VI	110	86	7	66220	62909	3311	
	VII	105	86	7	63210	60050	3160	
	VI	73	79	7	40369	38351	2018	
	VII	63	74	7	32634	31002	1632	
TOTAL					**262724**	**249589**	**13135**	
V YEAR	VIII	76	44	7	23408	22238	1170	
	IX	71	39	7	19383	18414	969	
	VIII	100	86	7	60200	57190	3010	
	IX	95	86	7	57190	54331	2859	
	VIII	53	69	7	25599	24319	1280	
	IX	43	64	7	19264	18301	963	
TOTAL					**205044**	**194793**	**10251**	
GRAND TOTAL					**1046346**	**994033**	**52313**	**19525**

S.DHANASEKAR,M.Sc.,
RECOGNISED QUALIFIED PERSON
RQP/MAS/225/2011/A

65
Patta Land

63/1
Patta Land

68
Patta Land

69
Patta Land

71
Patta Land

60
Patta Land

61
Patta Land

63/2 (PART)
Poramboke Land

PROPOSED
REJECT BACK FILLING AREA
=(78.0mL X75.0mWX8.94mH)
= 52313 m³

PROPOSED REJECT DUMP
=(664.4mL X7.5mWX3.91mH)
= 19525 m³

20.4m
76.8m
47.0m
72.4m
30.2m
69.6m
22.6m
10.2m
36.2m
51.8m
24.2m
31.4m
44.2m
19.0m
25.6m
73.2m
77.0m
243.4m
478.5M
479.5M
478.0M
479.0M

I - Year PROPOSED PLANTATION
II - Year PROPOSED PLANTATION
III - Year PROPOSED PLANTATION
IV - Year PROPOSED PLANTATION

N

PLATE NO: V

DATE OF SURVEY: 14-0

APPLICANT:

THIRU. C. SELVAN,
S/o. CHINNAMAADHU,
No.4/268,KUMBALAPADI
NAGAR KOODAL VILLA
DHARMAPURI - 636 80

INDEX

- Q.L.BOUNDARY
- 7.5m & 10.0m SAFETY DISTANCE
- TOP SOIL
- ROUGH STONE
- OLD WORKING PIT
- MINE ROAD
- PROPOSED DUMP
- MINE LAYOUT
- PROPOSED REJECT BACK FILLING AREA

LOCATION:

EXTENT	:	3.35.0 Ha.
S.F.NO	:	63/2 (PAR
VILLAGE	:	BARGUR,
TALUK	:	BARGUR,
DISTRICT	:	KRISHNAC

63
Patta Land

63/1
Patta Land

68
Patta Land

69
Patta Land

71
Patta Land

60
Patta Land

61
Patta Land

63/2 (PART)
Poramboke Land

PROPOSED
REJECT BACK FILLING AREA
=(78.0mLX75.0mWX8.94mH)
= 52313 m³

PROPOSED REJECT DUMP
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243.4m
24.2m
31.4m
44.2m
478.0M
19.0m
25.6m
73.2m
479.0M
77.0m

I - Year PROPOSED PLANTATION
II - Year PROPOSED PLANTATION
III - Year PROPOSED PLANTATION
IV - Year PROPOSED PLANTATION
V - Year PROPOSED PLANTATION

N

PLATE NO: VI

DATE OF SURVEY: 14

APPLICANT:

THIRU. C. SELVAN
S/o. CHINNAMAADH
No.4/268,KUMBALAPA
NAGAR KOODAL VILL
DHARMAPURI - 636 8

INDE

Q.L.BOUNDARY

7.5m & 10.0m
SAFETY DISTANCE

TOP SOIL

ROUGH STONE

OLD WORKING PIT

MINE ROAD

PROPOSED DUMP

FENCING

PARAPET WALL

PROPOSED WATER STORAG

ULTIMATE PIT LIMIT

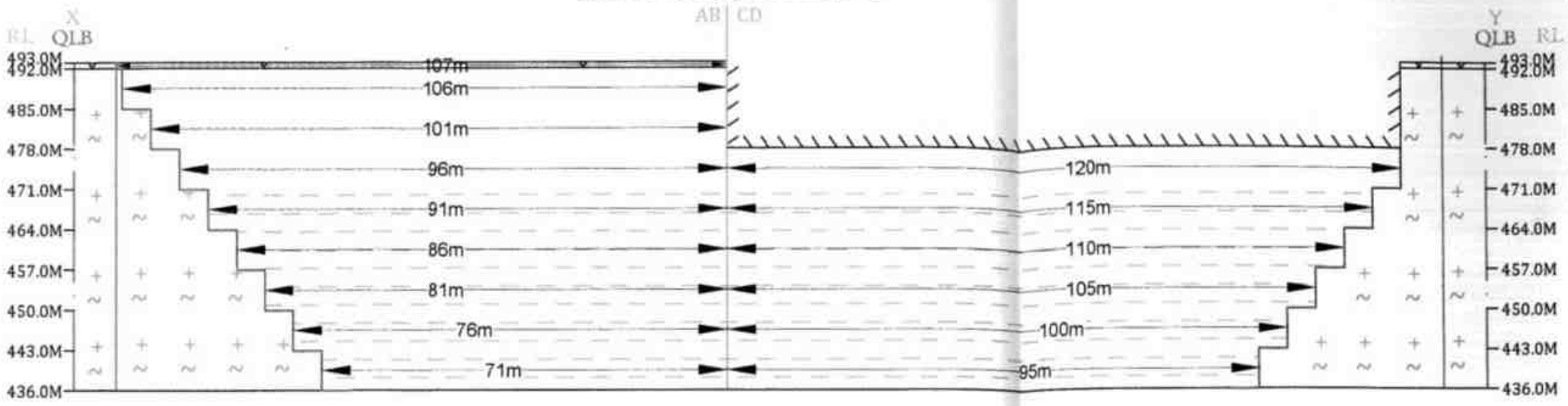
PROPOSED
REJECT BACK FILLING ARE

LOCATION:

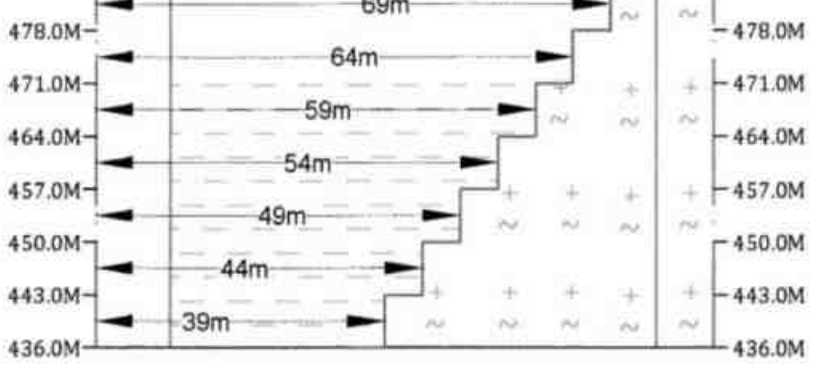
EXTENT : 3.35.0 H
S.F.NO : 63/2 (PA
VILLAGE : BARGU
TALUK : BARGU
DISTRICT : KRISHN

SCALE - 1 : 10

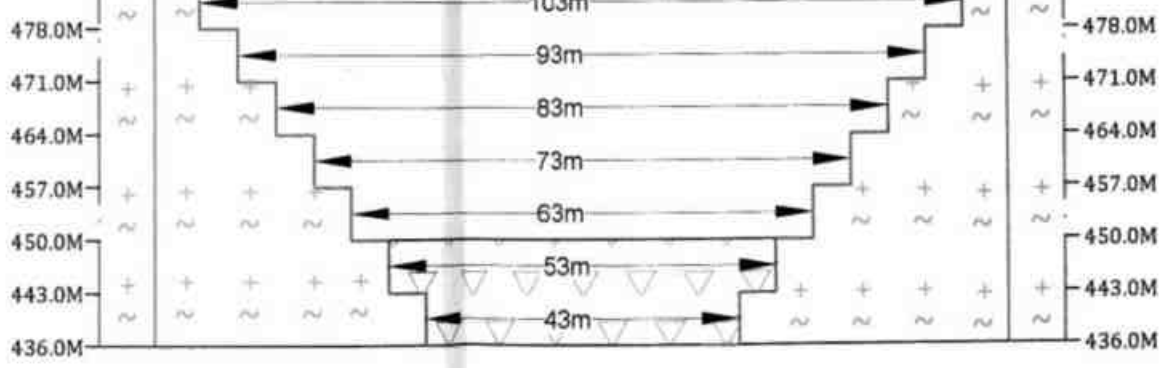
SECTION ALONG X-Y



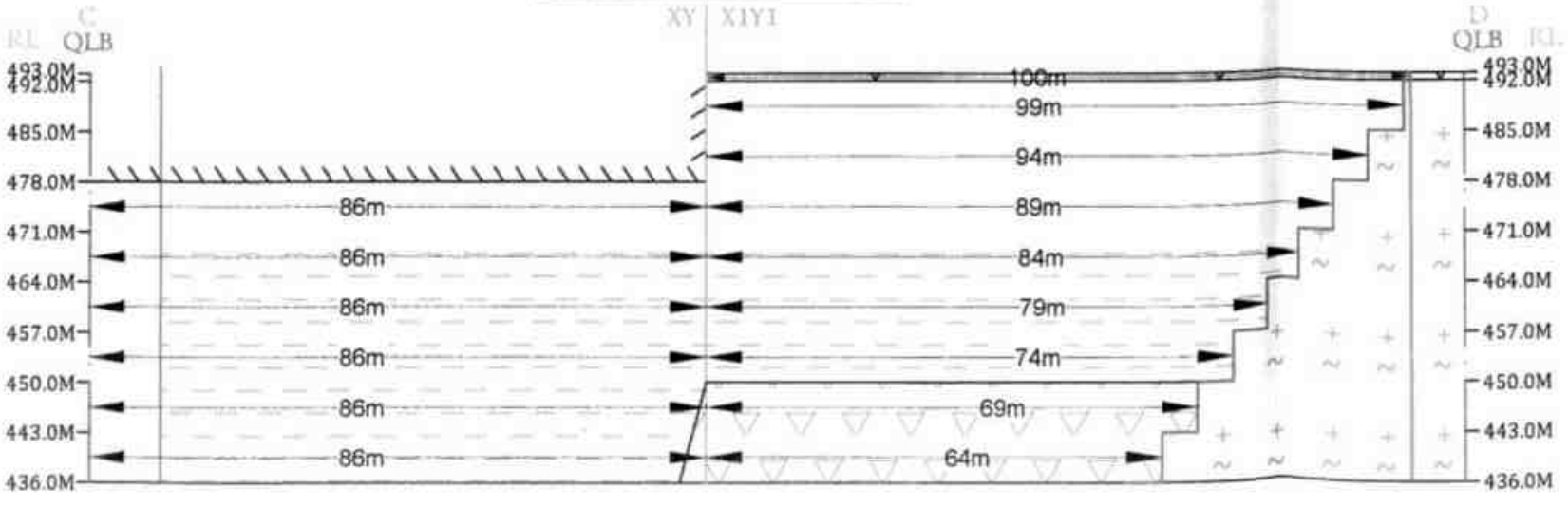
SECTION ALONG A-B



SECTION ALONG X1-Y1



SECTION ALONG C-D



ULTIMATE PIT DIMENSION

Section	Bench	Length in (m)	Width in (m)	Depth in (m)
PIT	I	107	75	1
	II	106	74	7
	III	101	69	7
	IV	96	64	7
	V	91	59	7
	VI	86	54	7
	VII	81	49	7
	VIII	76	44	7
	IX	71	39	7

06 SEP 2019

PLATE NO: VI-A

DATE OF SURVEY: 14-06-2019

APPLICANT:

THIRU. C. SELVAN,
S/o. CHINNAMAADHU,
No.4/268,KUMBALAPADI, INDUR,
NAGAR KOODAL VILLAGE,
DHARMAPURI - 636 803.

INDEX

- Q.L.BOUNDARY
- 7.5m & 10.0m SAFETY DISTANCE
- TOP SOIL
- ROUGH STONE
- OLD WORKING PIT
- ULTIMATE PIT SLOPE
- PROPOSED WATER STORAGE
- PROPOSED REJECT BACK FILLING AREA

LOCATION:

EXTENT : 3.35.0 Ha,
S.F.NO : 63/2 (PART),
VILLAGE : BARGUR,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI.

CONCEPTUAL / FINAL MINE CLOSURE SECTIONS

SCALE - 1 : 1000

PREPARED BY:

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

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

MINEABLE RESERVES								
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M3	Mineable Roughstone Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m3
XY-AB	I	107	75	1				8025
	II	106	74	7	54908	52163	2745	
	III	101	69	7	48783	46344	2439	
	IV	96	64	7	43008	40858	2150	
	V	91	59	7	37583	35704	1879	
	VI	86	54	7	32508	30883	1625	
	VII	81	49	7	27783	26394	1389	
	VIII	76	44	7	23408	22238	1170	
	IX	71	39	7	19383	18414	969	
TOTAL					**287364**	**272998**	**14366**	**8025**
XY-CD	iV	120	86	7	72240	68628	3612	
	V	115	86	7	69230	65769	3461	
	VI	110	86	7	66220	62909	3311	
	VII	105	86	7	63210	60050	3160	
	VIII	100	86	7	60200	57190	3010	
	IX	95	86	7	57190	54331	2859	
TOTAL					**388290**	**368877**	**19413**	
X1Y1-CD	I	115	100	1				11500
	II	113	99	7	78309	74394	3915	
	III	103	94	7	67774	64385	3389	
	IV	93	89	7	57939	55042	2897	
	V	83	84	7	48804	46364	2440	
	VI	73	79	7	40369	38351	2018	
	VII	63	74	7	32634	31002	1632	
	VIII	53	69	7	25599	24319	1280	
	IX	43	64	7	19264	18301	963	
TOTAL					**370692**	**352158**	**18534**	**11500**
GRAND TOTAL					**1046346**	**994033**	**52313**	**19525**

PREPARED BY

S.DHANASHEKAR.M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/KA/2015/201/A

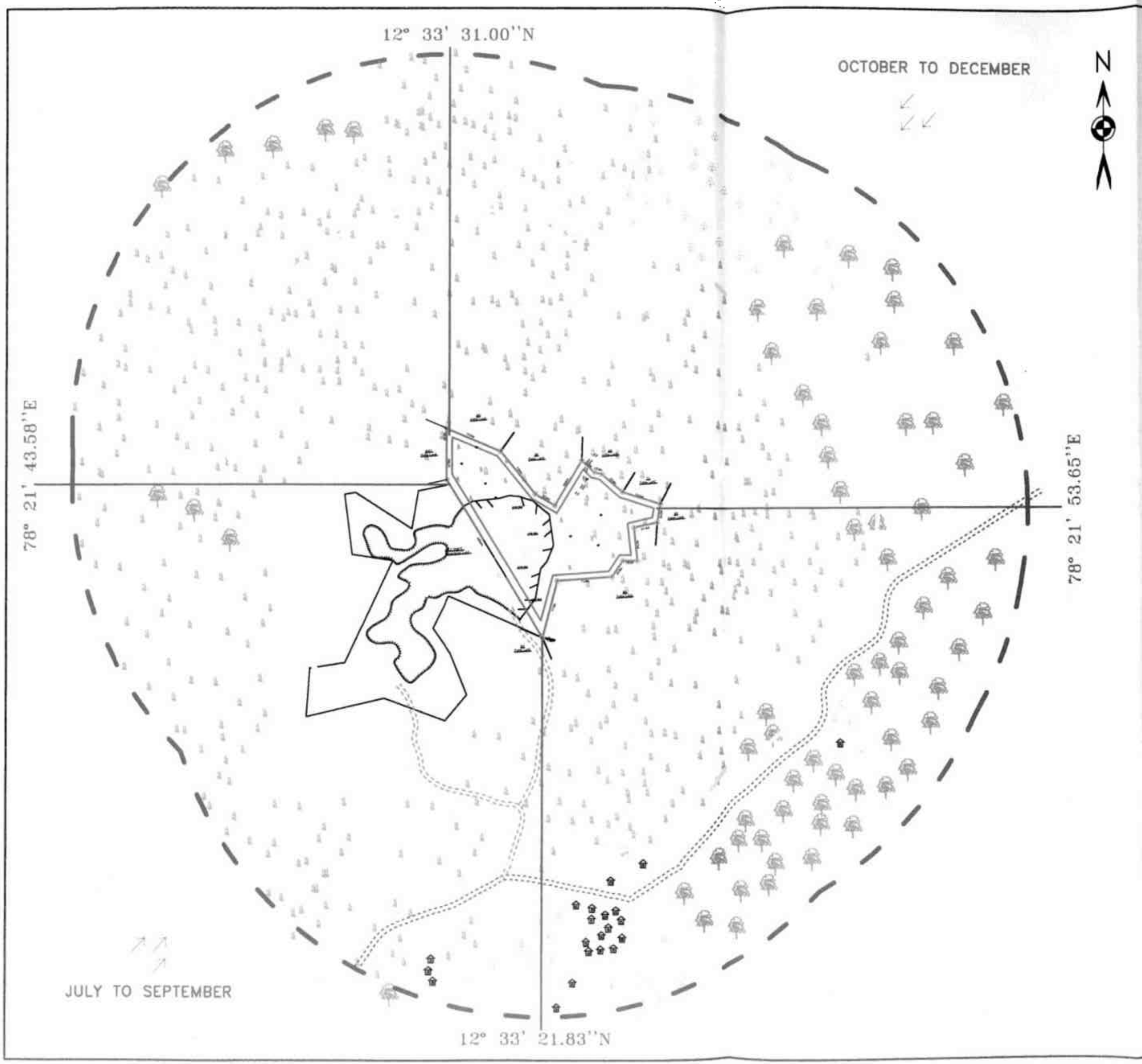


PLATE NO: VII

DATE OF SURVEY: 14-06-201

APPLICANT:

THIRU. C. SELVAN,
S/o. CHINNAMAADH
No.4/268,KUMBALA
NAGAR KOODAL V
DHARMAPURI - 636

06 SEP 201

TOPO SHEET NO. : 57 L/06

LATITUDE : 12° 33' 21.83''N to 12° 33' 31.00''N

LONGITUDE : 78° 21' 43.58''E to 78° 21' 53.65''E

INDEX

- Q.L.BOUNDARY
- 500m RADIUS
- 300m RADIUS
- 60M RADIUS
- TREES
- MINE ROAD
- APPROACH ROAD
- WIND DIRECTION
- INFRASTRUCTURES
- DRY AGRICULTURAL LAND
- SHRUB
- ADJACENT QUARRY

LOCATION:

EXTENT	:	3.35.0 Ha,
S.F.NO	:	63/2 (PART),
VILLAGE	:	BARGUR,
TALUK	:	BARGUR,
DISTRICT	:	KRISHNAGIRI.

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

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

65
Patta Land

63/1
Patta Land

68
Patta Land

69
Patta Land

71
Patta Land

60
Patta Land

61
Patta Land

63/2 (PART)
Poramboke Land

PROPOSED
REJECT BACK FILLING AREA
=(78.0mLX75.0mWX8.94mH)
= 52313 m^3

PROPOSED REJECT DUMP
=(664.4mLX7.5mWX3.91mH)
= 19525 m^3

20.4m
16.8m
47.0m
72.4m
30.2m
69.6m
22.6m
10.2m
36.2m
51.8m
24.2m
31.4m
44.2m
19.0m
25.6m
73.2m
77.0m
243.4m
478.5M
479.5M
478.0M
479.0M

2300 N
2250 N
2200 N
2150 N
2100 N
2050 N
5100 E
5150 E
5200 E
5250 E
5300 E

N

PLATE NO: VIII

DATE OF SURVEY:

APPLICANT:

THIRU. C. SELVAN
S/o. CHINNAMAAD
No.4/268,KUMBALA
NAGAR KOODAL
DHARMAPURI - 63

IN

Q.L.BOUNDARY

7.5m & 10.0m
SAFETY DISTANCE

TOP SOIL

ROUGH STONE

OLD WORKING PIT

MINE ROAD

PROPOSED DUMP

MINE LAYOUT

PROPOSED
REJECT BACK FILLING

LOCATION:

EXTENT : 3.35
S.F.NO : 63/2
VILLAGE : BAR
TALUK : BAR
DISTRICT : KRI

SCALE - 1 :

I - Year PROPOSED PLANTATION
II - Year PROPOSED PLANTATION
III - Year PROPOSED PLANTATION
IV - Year PROPOSED PLANTATION
V - Year PROPOSED PLANTATION

DESCRIPTION	PRESENT AREA (Ha)	AREA IN USE DURING THE	COLOR CODE

From

Thiru.L.Suresh,M.Sc.,
Deputy Director,
Geology and Mining Dept.,
Krishnagiri.

To

C.Selvan,
S/o. Chinnamaadhu,
No.4/268, Kumbalapadi,
Indur, Nagar Koodal-Village,
Dharmapuri-District

Rc.No.211/2019/Mines dated: 06/09/2019

Sir,

Sub: Mines and Minerals - Krishnagiri District - Bargur Taluk, Bargur village - S.F.No.63/2(P) - Over an extent of 3.35.0 Hects of Government Poramboke lands - Quarry Lease for Rough Stone Application preferred by Thiru.C.Selvan S/o.Chinnamaadhu - Draft Mining Plan submitted - Approved - reg.

Ref: 1.Krishnagiri District Gazette press release No.07 Dt:21.02.2019.
2. The District Collector Krishnagiri Roc.No.211/2019/ Mines dated 13.06.2019.
3. Thiru.C.Selvan S/o. Chinnamaadhu, No.4/268, Kumbalapadi, Indur, Nagar Koodal Village, Dharmapuri-District Letter dt.12.08.2019.

****

Kind attention is invited to the reference cited,

Thiru.C.Selvan S/o. Chinnamaadhu, No.4/268, Kumbalapadi, Indur, Nagar Koodal Village, Dharmapuri District have been issued precise area over an extent of 3.35.0 hects. of Government poramboke land in S.F.No.63/2(P), in Bargur village, Bargur Taluk, Krishangiri District for the proposed grant of rough stone quarry lease for a period of 10 years under tender cum auction system vide in the reference 1st cited under the provisions of Rule 8(6)(b) of Tamil Nadu Minor Mineral Concession Rules, 1959 and they have been directed to submit approved mining plan and Environment Clearance vide the reference 2nd cited.

2. In this regard, Thiru.C.Selvan S/o. Chinnamaadhu, had submitted 03 copies of draft Mining Plan vide the reference 4th cited for approval for the said quarry lease.

3. The draft Mining Plan submitted by Thiru.C.Selvan S/o. Chinnamaadhu has been scrutinized as per the guide lines/ Instructions issued by the Commissioner of Geology and Mining, Chennai-32 in the reference first cited. The mining plan is prepared in accordance with the guidelines / instructions issued and tallies with the field conditions. The special conditions imposed in the precise area letter had been incorporated in the Mining Plan.

4. Hence, as per the guidelines / instructions issued by the Commissioner of Geology and Mining, Chennai, the said mining plan may be approved subject to the following conditions.

i) That the mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority.

ii) This approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of Mines and Minerals Development and Regulation) Act 1957, or any other connected laws including Forest (Conservation) Act 1957, or any other connected Laws industry Forest (Conservation) Act 1980, Forest Conservation Rules 1981 Environment protection Act 1980, Indian Explosive Act 1884 (Central Act IV of 1884) and the rules made there under, Minor Mineral Conservation and Development Rules, and The Tamil Nadu Minor Mineral Concession rules, 1959.

iii) That the mining plan is approved without prejudice to any other order or directions from any court of competent jurisdiction.

The applicant should get prior Environmental clearance from the appropriate authority and should submit it to the District Collector, Krishnagiri.

Deputy Director,
Geology & Mining Dept.,
Krishnagiri.

Copy submitted to :
1. The Chairman, Krishnagiri State Level Environment Impact Assessment Authority, Saidapet, Chennai.
2. The Commissioner of Geology and Mining, Guindy, Chennai -32.

ANNEXURE III

YEARWISE PRODUCTION PLAN

MINEABLE RESERVES								
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M3	Mineable Roughstone Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m3
XY-AB	I	107	75	1				8025
	II	106	74	7	54908	52163	2745	
	III	101	69	7	48783	46344	2439	
	IV	96	64	7	43008	40858	2150	
	V	91	59	7	37583	35704	1879	
	VI	86	54	7	32508	30883	1625	
	VII	81	49	7	27783	26394	1389	
TOTAL					**244573**	**232346**	**12227**	**8025**
XY-CD	IV	120	86	7	72240	68628	3612	
	V	115	86	7	69230	65769	3461	
	VI	110	86	7	66220	62909	3311	
	VII	105	86	7	63210	60050	3160	
TOTAL					**270900**	**257356**	**13544**	
X1Y1-CD	I	115	100	1				11500
	II	113	99	7	78309	74394	3915	
	III	103	94	7	67774	64385	3389	
	IV	93	89	7	57939	55042	2897	
	V	83	84	7	48804	46364	2440	
	VI	73	79	7	40369	38351	2018	
	VII	63	74	7	32634	31002	1632	
TOTAL					**325829**	**309538**	**16291**	**11500**
GRAND TOTAL					**841302**	**799240**	**42062**	**19525**

PREPARED BY:

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

YEARWISE DEVELOPMENT AND PRODUCTION								
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume In M3	Roughstone Reserves in m3 @ 95%	Mine waste in m3 @ 5%	Top Soil in m3
I YEAR	I	107	75	1				8025
	II	106	74	7	54908	52163	2745	
	III	101	69	7	48783	46344	2439	
	I	115	100	1				11500
	II	113	99	7	78309	74394	3915	
	III	103	94	7	67774	64385	3389	
TOTAL					**249774**	**237286**	**12488**	**19525**
II YEAR	IV	96	64	7	43008	40858	2150	
	IV	120	86	7	72240	68628	3612	
	IV	93	89	7	57939	55042	2897	
TOTAL					**173187**	**164528**	**8659**	
III YEAR	V	91	59	7	37583	35704	1879	
	V	115	86	7	69230	65769	3461	
	V	83	84	7	48804	46364	2440	
TOTAL					**155617**	**147837**	**7780**	
IV YEAR	VI	86	54	7	32508	30883	1625	
	VI	110	86	7	66220	62909	3311	
	VI	73	79	7	40369	38351	2018	
TOTAL					**139097**	**132143**	**6954**	
V YEAR	VII	81	49	7	27783	26394	1389	
	VII	105	86	7	63210	60050	3160	
	VII	63	74	7	32634	31002	1632	
TOTAL					**123627**	**117446**	**6181**	
GRAND TOTAL					**841302**	**799240**	**42062**	**19525**

PREPARED BY:

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

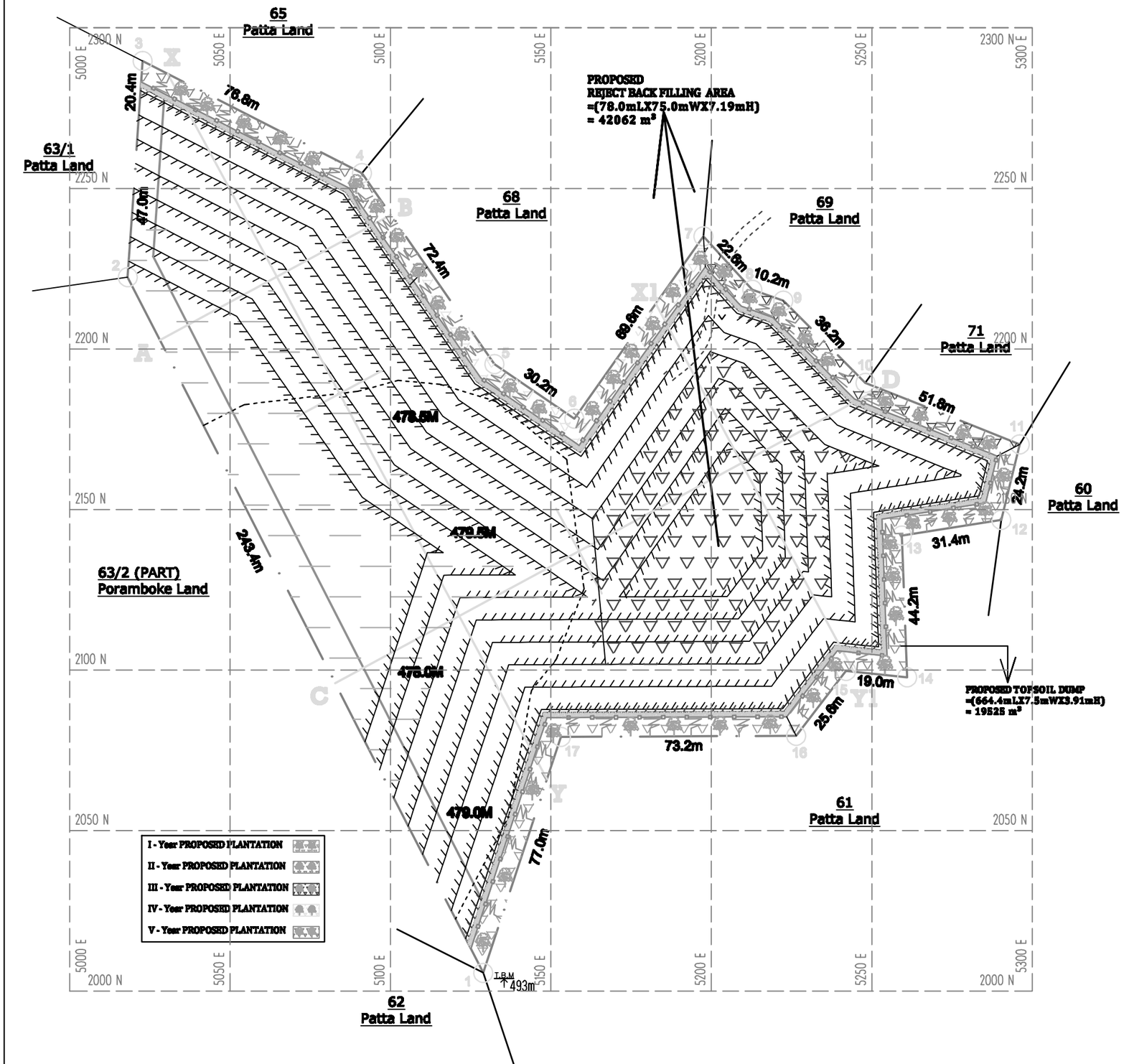


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PLATE NO: VI

DATE OF SURVEY: 14-08-2019

APPLICANT:

THIRU. C. SELVAN,
S/o. CHINNAMAADHU,
No.4/268,KUMBALAPADI, INDUR,
NAGAR KOODAL VILLAGE,
DHARMAPURI - 636 803.

INDEX

- Q.L.BOUNDARY
- 7.5m & 10.0m SAFETY DISTANCE
- TOP SOIL
- ROUGH STONE
- OLD WORKING PIT
- MINE ROAD
- PROPOSED DUMP
- FENCING
- PARAPET WALL
- PROPOSED WATER STORAGE
- ULTIMATE PIT LIMIT
- PROPOSED REJECT BACK FILLING AREA

LOCATION:

EXTENT : 3.35.0 Ha,
S.F.NO : 63/2 (PART),
VILLAGE : BARGUR,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI.

CONCEPTUAL / FINAL MINE CLOSURE PLAN

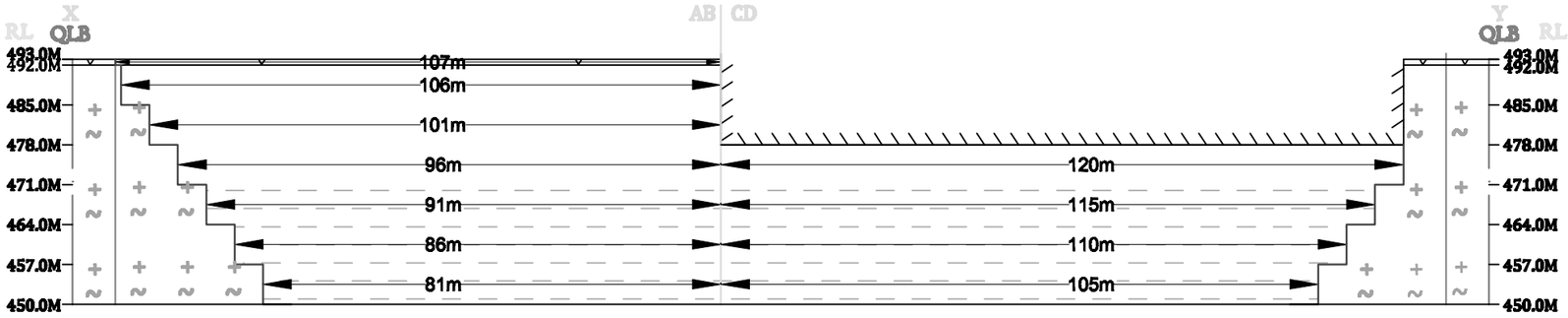
SCALE - 1 : 1000

PREPARED BY:

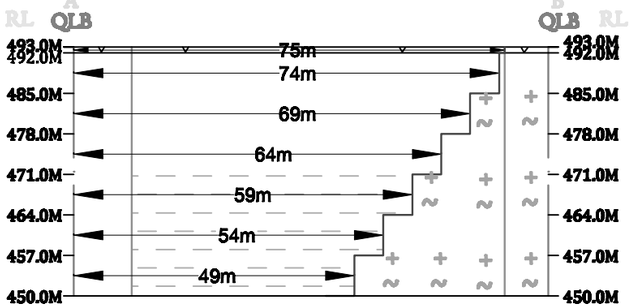
I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
EQP/MAS/225/2011/A

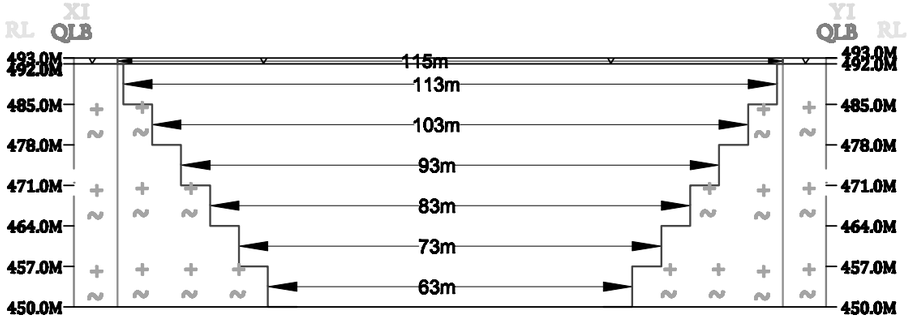
SECTION ALONG X-Y



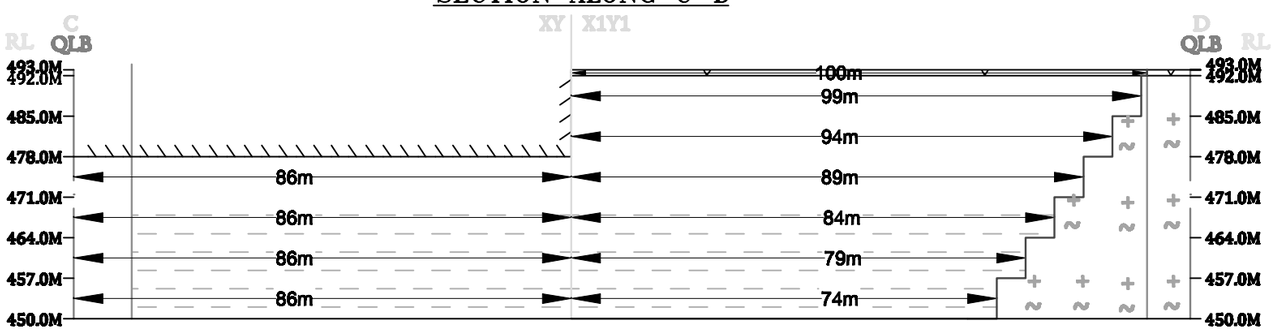
SECTION ALONG A-B



SECTION ALONG X1-Y1



SECTION ALONG C-D



ULTIMATE PIT DIMENSION

Section	Bench	Length in (m)	Width in (m)	Depth in (m)
PIT	I	107	75	1
	II	106	74	7
	III	101	69	7
	IV	96	64	7
	V	91	59	7
	VI	86	54	7
	VII	81	49	7

PLATE NO: VI-A

DATE OF SURVEY: 14-06-2019

APPLICANT:

THIRU. C. SELVAN,
S/o. CHINNAMAADHU,
No.4/268,KUMBALAPADI, INDUR,
NAGAR KOODAL VILLAGE,
DHARMAPURI - 636 803.

INDEX

- Q.L.BOUNDARY
- 7.5m & 10.0m SAFETY DISTANCE
- TOP SOIL
- ROUGH STONE
- OLD WORKING PIT
- ULTIMATE PIT SLOPE
- PROPOSED WATER STORAGE
- PROPOSED REJECT BACK FILLING AREA

LOCATION:

EXTENT : 3.35.0 Ha,
S.F.NO : 63/2 (PART),
VILLAGE : BARGUR,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI.

CONCEPTUAL / FINAL MINE CLOSURE SECTIONS

SCALE - 1 : 1000

PREPARED BY:

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

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

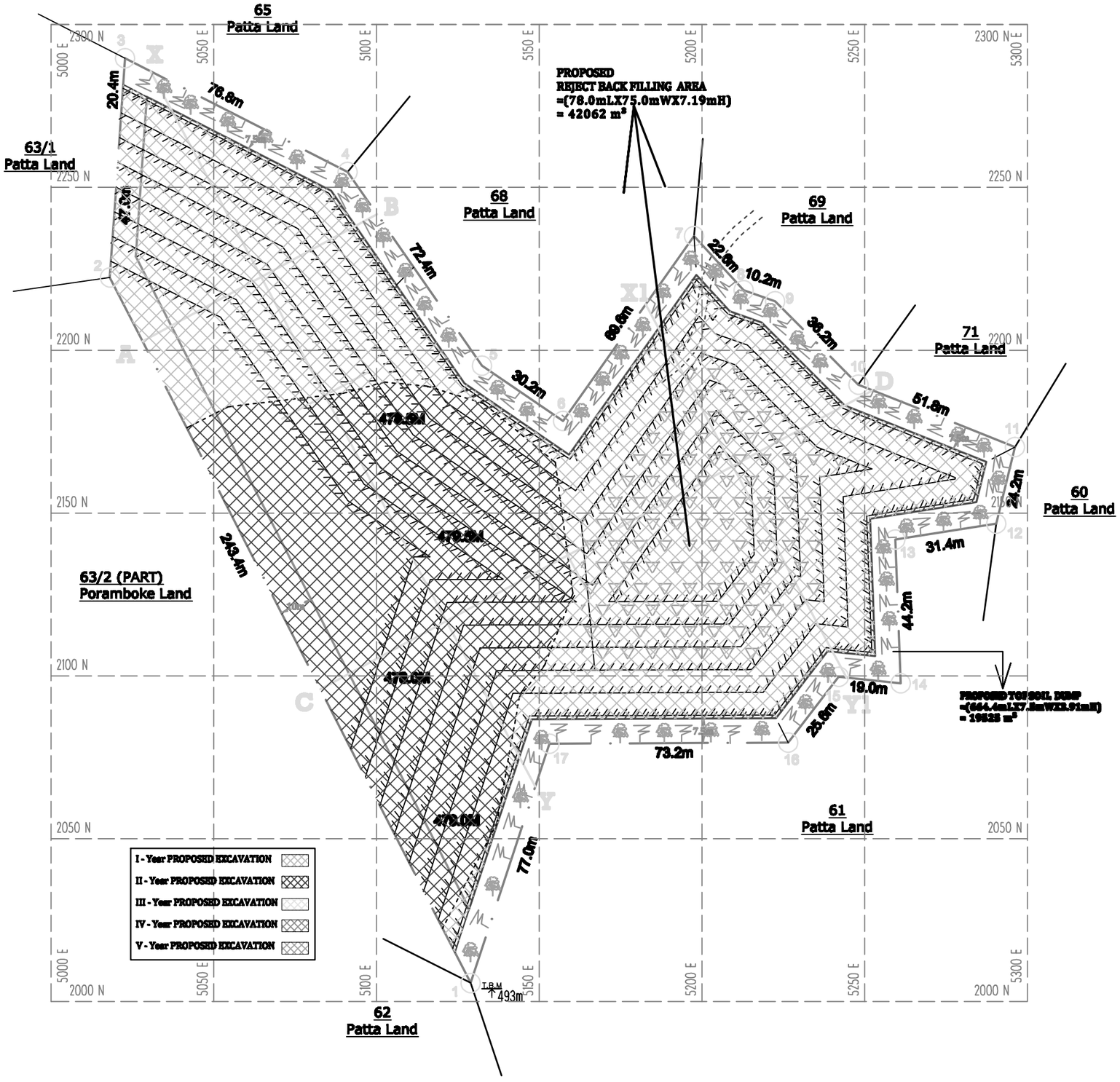


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PLATE NO: IV

DATE OF SURVEY: 14-06-2019

APPLICANT:

THIRU. C. SELVAN,
S/o. CHINNAMAADHU,
No.4/268,KUMBALAPADI, INDUR,
NAGAR KOODAL VILLAGE,
DHARMAPURI - 636 803.

INDEX

- Q.L.BOUNDARY
- 7.5m & 10.0m SAFETY DISTANCE
- TOP SOIL
- ROUGH STONE
- OLD WORKING PIT
- MINE ROAD
- ULTIMATE PIT LIMIT
- PROPOSED DUMP
- PROPOSED REJECT BACK FILLING AREA

LOCATION:

EXTENT : 3.35.0 Ha,
S.F.NO : 63/2 (PART),
VILLAGE : BARGUR,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI.

YEARWISE PRODCUTION AND DEVELOPMENT PLAN

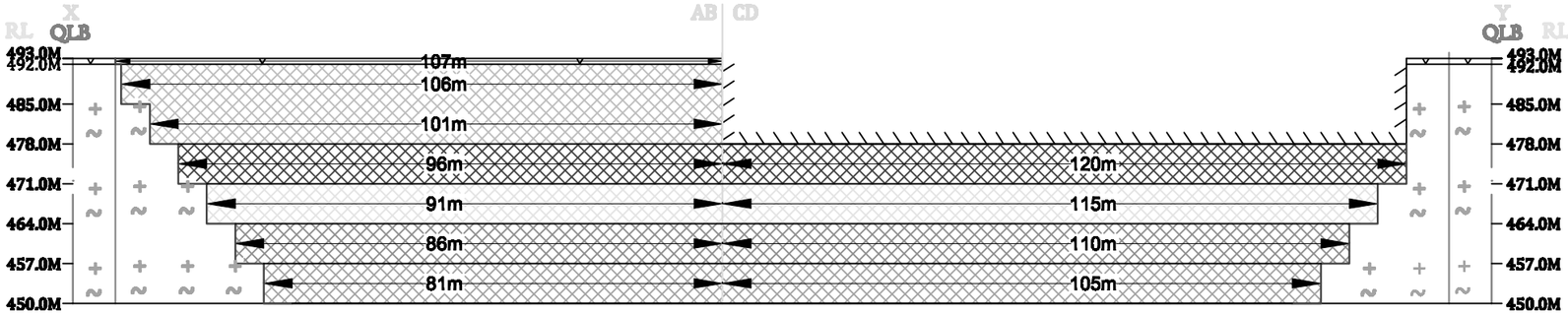
SCALE - 1 : 1000

PREPARED BY:

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

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

SECTION ALONG X-Y



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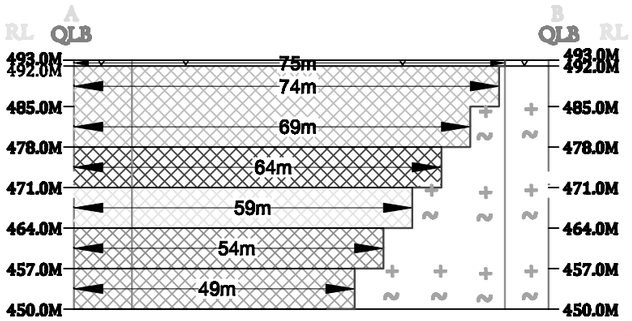
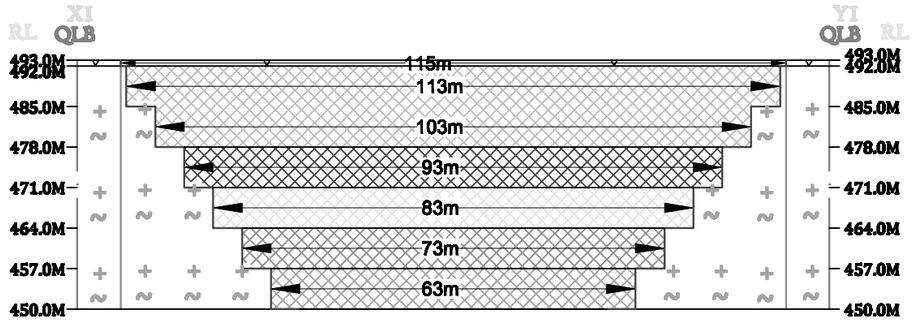
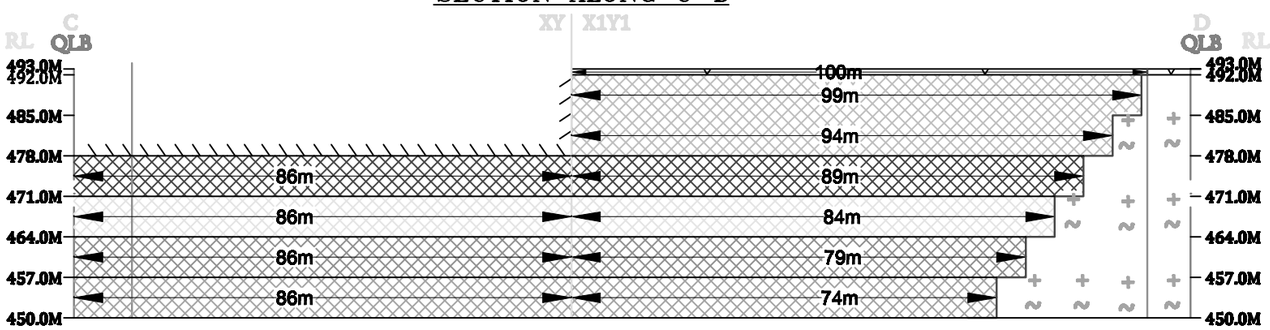


SECTION ALONG X1-Y1



SECTION ALONG C-D



I - Year PROPOSED EXCAVATION
II - Year PROPOSED EXCAVATION
III - Year PROPOSED EXCAVATION
IV - Year PROPOSED EXCAVATION
V - Year PROPOSED EXCAVATION

PLATE NO: IV-A

DATE OF SURVEY: 14-06-2019

APPLICANT:

THIRU. C. SELVAN,
S/o. CHINNAMAADHU,
No.4/268,KUMBALAPADI, INDUR,
NAGAR KOODAL VILLAGE,
DHARMAPURI - 636 803.

INDEX

Q.L.BOUNDARY

7.5m & 10.0m SAFETY DISTANCE

TOP SOIL

ROUGH STONE

OLD WORKING PIT

ULTIMATE PIT SLOPE

LOCATION:

EXTENT : 3.35.0 Ha,
S.F.NO : 63/2 (PART),
VILLAGE : BARGUR,
TALUK : BARGUR,
DISTRICT : KRISHNAGIRI.

YEARWISE PRODCUTION AND DEVELOPMENT SECTIONS

SCALE - 1 : 1000

PREPARED BY:

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

S.DHANASEKAR,M.Sc.,
RECOGNIZED QUALIFIED PERSON
RQP/MAS/225/2011/A

ANNEXURE IV

AFFIDAVIT

ANNEXURE - III

भारतीय गैर न्यायिक

भारत

पचास रुपये

रु.50

FIFTY RUPEES

Rs.50

INDIA

INDIA NON JUDICIAL

தமிழ்நாடு तमिलनाडु TAMILNADU

BA 444932

C. SELVAM
DHARMAPURI

S. ராக்குமார்
மு.தா. வி
L.No: 6/2000
மு.சி.ரி. தமிழ்நாடு

20 MAR 2021

AFFIDAVIT TO SEIAA, TAMIL NADU

I, Thiru C Selvan, S/o. Chinnamaadhu, residing at No.4/268, Kumbalapadi, Indur, Nagar Koodal village, Dharmapuri-636803, do hereby solemnly declare and sincerely affirm that, I have applied for Terms of reference towards getting environment clearance from SEIAA Tamil Nadu for Rough stone Quarry at Survey No. 63/2(P) over an area of 3.35.0 Ha in Bargur village and Taluk, Krishnagiri District, Tamil Nadu.,

1. I swear to state and confirm that within 10km area of the quarry site, we have applied for environmental clearance, the following is situated
   a. Protected areas notified under the wild life (Protection) Act, 1972 (NBWL).
   b. Critically polluted areas as notified by the central pollution control board constituted under water (Prevention and control of Pollution) Act 1974 is not present.
   c. Tamil Nadu- Andhra Pradesh Interstate boundary lies at a distance of 4.80Km from the lease area.
   d. 10 km buffer from the lease area does not fall in the Western Ghats ESA as per MoEF & CC draft notification dated 3rd October 2018

NOTARY GOVT OF INDIA

80

2. I will complete the following Corporate Environment Responsibility (CER) activities before commencement of the quarrying activities.

CER Activity	Project cost (Rs)	CER cost 2 % of Project cost (Rs)
Developing the library, Sports/ Drinking water facilities in nearby school.	Rs. 67,50,000/-	Rs.1,35,000/-
Total cost Allocation	**Rs. 67,50,000/-**	**Rs.1,35,000/-**

3. Details of quarries located within 500m radius from the periphery of our quarry

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

S.No	Name of the Owner	Village	S.F.Nos	Extent in Ha	Remarks
i)Existing other Quarries					
1	Thiru N.Arumugam, S/o Nallamuthu, D.No.345, East Street, Maruvathur Peralli (South) Perambalur District.	Bargur Taluk, Bargur Village	63 (Part-B)	4.40.0	Roc.No.174/2018/Mines dated 27.11.2018. Lease period: 27.11.2018 to 26.11.2028
Total				**4.40.0**	
ii)Proposed Area:					
S.No	**Name of the Owner**	**Village**	**S.F.Nos**	**Extent in Ha**	**Lease Status**
1	Thiru C.Selvan S/o Chinnamadhu, D.No.4/268,Kumbalapadi village, Indur post, Dharmapuri District	Bargur	63/2(Part)	3.35.0	Roc.No.211/2019/Mines dated 13.06.2019
Total				**3.35.0**	
Grand Total				**7.75.0**	

The total lease within the 500m radius (Proposed+ Existing) works out to 7.75.0 ha including this lease area. Although the individual lease area of this project is less than 5 Ha, the cluster area within 500m is more than 5 Ha, but the combined area is < 25Ha only. **Under the above circumstances, Terms of Reference is requested towards obtaining environmental clearance.**

4. There will not be hindrance or disturbance to the people living enroute/ nearby our quarry site while transporting the mineral and due to quarrying activities.
5. There is no approved habitation within 300m radius from the periphery of our quarry.
6. I swear that afforestation will be carried out during the course of quarrying operation and maintained.
7. The required insurance will be taken in the name of the laborers working in our quarry site.

8. The existing road from the main road to quarry is in good condition and the same will be maintained and utilized for Transportation of Rough Stone and Gravel.
9. I will not engage any child labor in our quarry site and I aware that engaging child labor is punishable under the law.
10. All types of safety / protective equipment will be provided to all the laborers working in our quarry.
11. No permanent structures, temple etc., are located within 500m radius from the periphery of our quarry.

I ensure to do the social and Environment commitment as mentioned in the Mining plan to the best of our knowledge.

C.Selvan
(Deponent)

NOTARIAL NOTARIAL NOTARY GOVT. OF INDIA

5/4/2021

Cell:(0)944[illegible]
SARAVANAKUMAR.B.Sc.,B.L.,
ADVOCATE & NOTARY,
(GOVT. OF INDIA)
NO:11,A.V.Mansion,
Ist Gate, Near Sona College,,
Junction Main Road, SALEM-636 005.

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ANNEXURE V

500M RADIUS LETTER &

EXISTING PIT DIMENSION LETTER FROM AD

From
Thiru L.Suresh, M.Sc.,
Assistant Director
(Additional Charge)
Geology and Mining,
Krishnagiri.

To
Thiru.C. Selvan,
S/o Chinnamadhu,
D.No. 4/268 Kumbalapadi Village,
Indur Post, Dharmapuri District

Roc. 211/2019 /Mines dated .10.2019

Sir,

Sub: Mines and Minerals - Krishnagiri District - Bargur Taluk, Bargur village - S.F.No. 63/2 (part) - Over an extent of 3.35.0 Hects of Government Poramboke lands - proposed grant of quarry Lease for Rough Stone for a period of 05 years under Tender-cum-Auction system - Precise area communicated to Thiru C. Selvan, S/o Chinnamadhu, D.No. 4/268 Kumbalapadi Village, Indur Post, Dharmapuri District- Details of quarries situated within 500 mts radial distance – requested by the applicant to obtain Environmental Clearance – Details furnished - reg.

Ref:
1. The Gazette of India, Ministry of Environment Forest and Climate change Notification, New Delhi dt 01.07.2016.
2. Quarry lease application for rough stone preferred by Thiru C. Selvan, S/o Chinnamadhu, D.No. 4/268 Kumbalapadi Village, Indur Post, Dharmapuri District letter dt: 08.03.2019
3. The District Collector Krishnagiri Roc.No.211/ /2019/Mines dated 13.06.2019.
4. The Deputy Director of Geology and Mining, Krishnagiri letter Roc.No.221/2019/mines Dt: 06.09.2019
5. Thiru C. Selvan, S/o Chinnamadhu, D.No. 4/268 Kumbalapadi Village, Indur Post, Dharmapuri District Lr. Dt: 14.10.2019.

I am to invite kind attention to the reference cited.

Thiru C. Selvan, S/o Chinnamadhu, D.No. 4/268 Kumbalapadi Village, Indur Post, Dharmapuri District had preferred a quarry lease application for the Rough Stone over an extent of 3.35.0 Het. in Government land S.F Nos. 63/2 (Part) of Bargur Village Bargur Taluk Krishnagiri District for a period of 5 years vide reference 2nd cited under Tender cum auction system under the provisions of Rule 8 (1) of Tamil Nadu Minor Mineral Concession Rule 1959.

In the reference 3rd cited, the District Collector in his proceedings have communicated precise area over an extent of 3.35.0 Hect. in Government land S.F Nos. 63/2 (part) in Bargur Village Bargur Taluk Krishnagiri District and requested the applicant to furnish the approved Mining Plan and Environmental Clearance from the Competent Authority for the above said area.

The Mining Plan submitted by the applicant has been approved by the Deputy Director of Geology and Mining, Krishnagiri vide the reference 4th cited.

In the reference 5th cited the applicant has requested to furnish the details of quarries situated within 500 mts radial distance from the said quarry in order to obtain Environmental Clearance.

As per the notification issued by the Ministry of Environment Forest and Climate Change Notification, New Delhi dt. 01.07.2016, vide the reference 1st cited, the following instructions was given.

The leases not operative for three years or more and leases which have got environmental clearance as on 15th January, 2016 shall not be counted for calculating the area of cluster, but shall be included in the Environmental Management plan and the Regional Environmental Management plan.

As requested by the applicant and based on the above said MoEF notification the details of quarries situated within 500 mts Radial distance from the said quarry is furnished as follows:

(i) Details of Existing quarries.

Sl.No.	Name of the lessee	Village	S.F No.	Extent in Het	GO No.& Date	Lease period.
1	Thiru N. Arumugam, S/o Nallamuthu, D.No. 345 East Street, Maruvathur, Peralli (South), Perambalur District.	Bagur Taluk Bargur Village	63 (Part-B)	4.40.0	Roc. No. 174/2018/Mines dated 27.11.2018	27.11.2018 To 26.11.2028

(ii) Details of abandoned/Old quarries.

Sl.No.	Name of the lessee	Village	S.F No.	Extent in Het	GO No.& Date	Lease period.
-NIL-						

(iii) Details of Proposed quarries

Sl. No.	Name of the lessee	Village	S.F No.	Extent in Het	GO No.& Date	Remarks
1	Thiru.C. Selvan, S/o Chinnamadhu, D.No. 4/268 Kumbalapadi Village, Indur Post, Dharmapuri District	Bargur	63/2 (part)	3.35.0	Roc. No. 211/2019/Mines Dt:13.06.2019	Instant proposal.
			Total	3.35.0		

(iv) Details of applied area.

Sl. No.	Name of the lessee	Village	S.F No.	Extent in Het	GO No.& Date	Remarks
- Nil-						

Assistant Director
(Additional Charge)
Geology and Mining
Krishangiri.

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

From

Thiru L.Suresh, M.Sc.,
Assistant Director,
Additional Charge,
Dept of Geology and Mining,
Collectorae, Krishnagiri.

To

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

Roc.No.211/2019/Mines Dated: 12.02.2021.

Sir,

Sub : Mines and Minerals – Rough Stone -Krishnagiri District - – Bargur Taluk and Village – Government Poramboke land in S.F Nos. 63/2(Part) over an extent of 3.35.0 Hect proposed grant of lease to Thiru.C.Selvan S/o. chinnamadhu, D.No.4/268, Kumbalapadi, Indur, Nagar Koodal Village, Dharmapuri District - quarry pit dimension details requested – furnished - reg.

Ref :
1. Krishnagiri District Gazette Press release No.7 dt:21.02.2019.
2. The District Collector Krishnagiri Roc.No.211/2019/M dated 13.06.2019.
3. The Deputy Director of Geology and Mining, Krishnagiri letter Roc.No.221/2019/Mines Dt: 06.09.2019
4. Thiru.C.Selvan, S/o Chinnamadhu, D.No. 4/268 Kumbalapadi Village, Indur Post, Dharmapuri District Lr. Dt: 05.02.2021.
5. The Inspection report of the Assistant Geologist O/o the Assistant Director of Geology and Mining, Krishnagiri dated: 10.02.2021.

I am to invite kind attention to the reference cited.

Thiru.C.Selvan S/o.Chinnamadhu, D.No.4/268 Kumbalapadi Village, Indur Post, Dharmapuri District had preferred a quarry lease application for the Rough Stone over an extent of 3.35.0 Het. in Government land S.F Nos. 63/2 (Part) of Bargur Village Bargur Taluk Krishnagiri District for a period of 5 years vide reference 2nd cited under Tender cum auction system under the provisions of Rule 8 (1) of Tamil Nadu Minor Mineral Concession Rule 1959

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Thiru.C.Selvan, S/o Chinnamadhu vide the reference 4th cited, has stated that while he apply for Enviornmental Clearance in SEIAA, they have instructed to get the crushing quarry pit dimension details in the proposed quarry and requested to give the same to get Environmental Clearance.

In this regard the subject quarry has been inspected and the measurement of the existing pit in the proposed quarry area is as follows:

The average dimension is as follows:

Pit Dimension	Pit Volume
10826 Sq.mt X 15.0m(D)	162390 Cbm

Assistant Director (Addl.Charge),
Geology and Mining,
Krishangiri.

Copy to:-

Thiru C. Selvan,
S/o Chinnamadhu,
D.No. 4/268 Kumbalapadi Village,
Indur Post,
Dharmapuri District .

ANNEXURE VI

VAO LETTER

THIRU. C. SELVAN, S/o.Chinnamaadhu, Roughstone Quarry in the S.F.Nos.63/2(P) over an extent of 3.35.0 ha. in Bargur Village, Bargur Taluk, Krishnagiri District.

GENERAL VIEW OF THE LEASE APPLIED AREA

(Deponent)

(VAO)

Village Administrative Officer
OF BARGUR,
Bargur-Tk. Krishnagiri-Dt

Village Administrative Officer
VR, BARGUR,
Bargur Tk. Krishnagiri Dt.

Village Administrative Officer
08,BARGUR,
Bargur-Tk. Krishnagiri-Dt.

62	1		P	ரயத்துவாரி	புஞ்சை			8 - 3	9	1	38	0	45.50	0	52	481-ஆ. யுவராஜ் மற்றும் 1 நபர்கள்	
62	2		P	ரயத்துவாரி	புஞ்சை			8 - 3	9	1	38	0	81.00	0	93	1058-ஆ. [illegible]	
								TOTAL FOR SURVEY NUMBER- 62				1	26.50	1	45		
63	1	63-1	P	ரயத்துவாரி	புஞ்சை			8 - 3	9	1	38	1	43.00	2	00	999-[illegible] [illegible] 1 நபர்கள்	
63	2	-2	P	அரசு	[illegible]			0	0	0	00	9	35.50	0	00		[illegible]
								TOTAL FOR SURVEY NUMBER - 63				10	78.50	2	00		
64	-	64	P	ரயத்துவாரி	புஞ்சை			8 - 3	9	1	38	0	64.50	0	00	1760-ஆ. [illegible]	
65	-	65	P	ரயத்துவாரி	புஞ்சை			8 - 3	9	1	38	2	30.50	3	15	524-க [illegible] 2 நபர்கள்	

Village Administrative Officer
08,BARGUR,
Bargur-Tk. Krishnagiri-Dt.

1	2	3	4	5	6	7	8	9	10	11	12
							ரூ. பை.	ஹெ. ஏர்ஸ்.	ரூ. பை.		
1A	61-1பா	ர	பு	...	8-3	9	1 38	0 09.0	[illegible]	[illegible] ஆசாரி செட்டி.	
1B	-1பா	ர	பு	...	8-3	9	1 38	1 43.0	2 00	131 வெ. கோவிந்த ராஜன்.	
2A	-2பா	ர	பு	...	8-3	9	1 38	0 26.5	0 40	480 B. V. சென்ன கேசவன்.	
2B	-2பா	ர	பு	...	8-3	9	1 38	0 24.5	0 35	1039 கோ. வெங்க டப்பசெட்டி.	
								2 03.0	2 85		
...	62	ர	பு	...	8-3	9	1 38	1 26.5	1 45	481 கோ. செவிடன் (எஸ்திரி) வெங்கட சாமிசெட்டி.	
1	63-1	ர	பு	...	8-3	9	1 38	1 43.0	2 00	999 B. V. வரதராஜி செட்டி.	
2	-2	அ	தீ.எ.த.	...	...	...	...	9 35.5	...	...	கல்லாங்குந்து
								10 78.5	2 00		
...	64	ர	பு	...	8-3	9	1 38	0 64.5	0 90	482 த. சென்னப்ப நாயுடு.	
...	65	ர	பு	...	8-3	9	1 38	2 30.5	3 15	483 வெ. சென்னைய்ய செட்டி.	
1	66-1	ர	பு	...	8-3	9	1 38	2 17.0	3 45	483 வெ. சென்னைய்ய செட்டி.	
2	-2	ர	ந(A)	...	8-3	14	6 79	0 50.5	3 50	483 வெ. சென்னைய்ய செட்டி.	
								2 67.5	6 95		
...	67	ர	பு	...	8-3	9	1 38	1 43.5	2 20	483 வெ. சென்னைய்ய செட்டி.	
...	68	ர	பு	...	8-3	9	1 38	0 41.5	0 35	483 த. சென்னைய்ய செட்டி.	
...	69	ர	பு	...	8-3	9	1 38	1 45.0	3 50	483 வெ. சென்னைய்ய செட்டி.	
1	70-1	ர	பு	...	8-3	9	1 38	2 05.0	2 80	483 வெ. சென்னைய்ய செட்டி.	
2	-2	ர	பு	...	8-3	9	1 38	0 22.5	0 30	997 ச. வடிவிசெட்டி.	
								2 27.5	3 10		

(A) பதவி மலை பூமலை ஏரிக்கலிலிருந்து வரும் காட்டோடை.

Village Administrative Office
08, BARGUR,
Bargur-Tk. Krishnagiri-Dt.

[illegible]

[illegible]

[illegible] 178/1 [illegible] 181

[illegible] 8-63-0 [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Village Administrative Officer
No. 126, Kamandoddi,
Shaalagiri Tk, Krishnagiri Dt.

ANNEXURE VII

BLASTING CERTIFICATE

VISHNU EXPLOSIVES

Blasting Contractor

Office : Door No. 273-A, Keelpaiyur, Paiyur Village, Kaveripattinam, Krishnagiri Dt. Pin - 635 112.
Magazine at : SF No. 344/3B, Paiyur Village, Kaveripattinam, Krishnagiri Dt.
Cell : 98427 44073, 99655 44073, 94437 44073

To

Date: 24.02.2021

Thiru C.Selvan,
S/o Chinnamaadhu,
No-4/268, Kumbalapadi, Indur
Nagar Koodal Village,
Dharmapuri district,
Tamilnadu.

Respected Sir,

Sub: Regarding supply of explosives in your proposed quarry site -Reg.

Sir we are having explosives license in Form 22 Holding No.E/HQ/TN/22/335 (E64278)& E/SC/TN/22/463(E[illegible]) SF No. 344/3B, Paiyur Village, Krishnagiri Taluk & District, TamilNadu, Our Office functioning at address: No. 273-A,Keel Paiyur Village, Kaveripattinam, Krishnagiri, Tamainadu – 635112.

We are enacting our own explosives van for transporting explosives from magazine to your site. We are supplying Explosives as per the requirement of explosives placed by the Mining Personnel appointed by the Mine Owner depends on holes drilled at your Rough Stone quarry at **Sf.No.63/2(Part) Over an extent of 3.35.0 hectares in, Bargur Village&Taluk, Krishnagiri District,Tamilnadu.** After Completion of blasting operations, left out or unused explosives will be returned to the magazine on the same day, from where the supply was effected.

Assuring you best of our Services and thanking you,

For VISHNU EXPLOSIVES.

VISHNU EXPLOSIVES

PARTNER

Enclosure: Magazine License Copy.

अनुज्ञप्ति पत्र एल. ई.-3 | LICENCE FORM LE-3

(विस्फोटक नियम, 2008 की अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (घ) देखिए)
(See article 3(a) to (d) of Part I of Schedule IV of Explosives Rules, 2008)

(ग) उपयोग के लिए एक समय पर वर्ग 1,2,3,4,5 या वर्ग 7 के विस्फोटक का किसी मैगजीन में वर्ग 6 के विस्फोटक रखने के लिए अनुज्ञप्ति

Licence to possess (c) for use explosives of class 1, 2,3,4,5,6 or 7 in a magaz

अनुज्ञप्ति सं.(Licence No.) : E/HQ/TN/22/335(E64278)
वार्षिक फीस रुपए (Annual Fee Rs): 12000/-

1. Licence is hereby granted to

M/s Vishnu Explosives (अधिभोगी / Occupier : Shri V.G. Vishwanathan) Shri V.G. Vishwanathan Prop. Plot No. 273-A Keel Paiyur, Paiyur Village, Kaveripattinam PO, Krishnagiri-635112 (Tamil Nadu), Town/Village - Kaveripattinam District-KRISHNAGIRI, State-Tamil Nadu, Pincode - 635112

2. अनुज्ञप्ति अहस्तांतरणीय की जाती है।
अनुज्ञप्तिधारी की प्रास्थिति Licence Individual

3. अनुज्ञप्ति निम्नलिखित प्रयोजनों के लिए विधिमान्य है। Licence is valid only for the following purpose

powder for use of Safety Fuse, Detonating Fuse, Nitrate - Slurry and Emulsion Explosives, के उपयोग के लिए

4. अनुज्ञप्ति विस्फोटकों के निम्नलिखित किस्मों, प्रवर और मात्रा के लिए विधिमान्य है।
License is valid for the following kinds and quantity of explosives. – (क) (a)

क्र. Sl. No	नाम और विवरण Name and Description	वर्ग और प्रभाग Class & Division	उप-प्रभाग Sub-division	मात्रा किसी एक समय में Quantity at any one time
1.	Nitrate mixture - Slurry and Emulsion Explosives	2.0	0	7600 Kg
2.	Safety Fuse	6.1	0	3000 Mtrs
3.	Detonating Fuse	6.2	0	30000 Mtrs

(ख) किसी एक कैलेंडर माह में खरीदे जाने वाले विस्फोटक की मात्रा (अनुच्छेद 3(ख) और (ग) के अधीन अनुज्ञप्ति के लिए) 20 times as above.
(b) Quantity of explosives to be purchased in a calendar month(applicable for licence under article 3(b) and (c))

5. निम्नलिखित रेखांक (रेखांकों) से अनुज्ञप्त परिसर की पुष्टि होती है।
The licensed premises shall conform to the following drawing(s):

रेखांक क्र. (Drawing No.) E/HQ/TN/22/335(E64278)
दिनांक (Dated) 22/08/2012

6. अनुज्ञप्ति धारी का निम्नलिखित पते पर स्थित है। The licensed premises are situated at following address:
Survey No. 344/3B, ग्राम (Town/Village) : Paiyur Village, Kaveripattinam पुलिस थाना (Police Station) : Kaveripattinam
जिला (District) KRISHNAGIRI राज्य (State) Tamil Nadu पिनकोड (Pincode) 635112
दूरभाष (Phone) 9842744073 ई मेल (E-Mail) फैक्स (Fax)

7. अनुज्ञप्ति परिसर में निम्नलिखित सुविधाएं अंतर्विष्ट हैं।
The licensed premises consist of following facilities. a main magazine room, a lobby and a detonator storage room.

8. अनुज्ञप्ति समय - समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उसके अधीन विरचित विस्फोटक नियम, 2008 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपाबंधों के अधीन रहते हुए अनुदत्त की जाती है।
The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2008 framed there under and the conditions, additional conditions and the following Annexures.

1. उपर्युक्त क्रम सं. 5 में यथा कथित रेखांक (स्थान संन्निर्माण संबंधी और अन्य विवरण दर्शित करते हुए)।
Drawings (showing site, constructional and other details) as stated in serial No. 5 above
2. अनुज्ञप्ति प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञप्ति की शर्तें और अतिरिक्त शर्तें।
Conditions and Additional Conditions of this licence signed by the licensing authority
3. दूरी प्रपत्र DE-2 | Distance Form DE-2.

9. यह अनुज्ञप्ति तारीख 31 मार्च 2015 तक विधिमान्य रहेगी। This licence shall remain valid till 31st day of March 2015.

यह अनुज्ञप्ति अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VIII के अधीन तथा उपवर्णित इस अनुज्ञप्ति की शर्तों का अतिक्रमण करने या यदि अनुज्ञप्त परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिसंहृत की जा सकती है, जहां वह लागू है।
This licence is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Set VIII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and Annexure attached hereto

तारीख | The Date - 22/08/2012

Sd/-
मुख्य विस्फोटक नियंत्रक | Chief Controller of Explosives

Amendments :

ANNEXURE VIII

NABET CERTIFICATE

Quality Council of India

National Accreditation Board for Education & Training

CERTIFICATE OF ACCREDITATION

Eco Tech Labs Pvt. Ltd.

48, 2nd Main Road, Ram Nagar South Extn, Pallikaranai, Chennai, Tamil Nadu – 600100

Accredited as **Category - A** organization under the QCI-NABET Scheme for Accreditation of EIA Consultant Organizations: Version 3 for preparing EIA-EMP reports in the following Sectors:

Sl. No.	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals including Open cast/ Underground mining	1	1 (a) (i)	A
2	Coal washeries	6	2 (a)	B
3	Metallurgical industries (Non-ferrous only)	8	3 (a)	B
4	Cement plants	9	3 (b)	A
5	Chemical fertilizers	16	5 (a)	A
6	Synthetic organic chemicals industry (dyes & dye intermediates; bulk drugs and intermediates excluding drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates)	21	5 (f)	A
7	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	A
8	Building and construction projects	38	8 (a)	B
9	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RA AC minutes dated May 03, 2019 posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no. QCI/NABET/ENV/ACO/19/0991 dated May 27, 2019. The accreditation needs to be renewed before the expiry date by Eco Tech Labs Pvt. Ltd., Chennai, following due process of assessment.

Sr. Director, NABET
Dated: July 30, 2019

Certificate No.
NABET/ EIA/1922/ RA 0130 Rev. 01

Valid till
16.03.2022

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