Application For Environmental Clearance (Public Hearing)

February 2023

Draft Environmental Impact Assessment Report

For

Tvl.S.V.Granites Multicolour Granite Quarry – 1.91.50 Ha

at

S.F.Nos. 1124/7 (P), 1130/7 (P), 1131/7 and 1131/8 of Irudukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu State

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

Category of the Project: B1 Cluster Mining

Baseline Period: August - October 2022

Environmental Consultant & Laboratory details:

Ecotech Labs Pvt Ltd,

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

Proponent details:

Tvl.S.V.Granites,
No.17B/3,
Vellakottai 1st cross street,
Chennai Salai,
Krishnagiri District – 635 001.

Tvl.S.V.Granites,
No.17B/3, Vellakottai 1st Cross Street,
Chennai Salai,
Krishnagiri District-635 001.

UNDERTAKING

We, B.Sudhakar and B.Chinnasamy, undertaking that the Draft Environmental Impact Assessment (EIA) Report for 'Tvl.S.V.Granites Multicolour Granite Quarry' over an extent of 1.91.50 Ha at S.F.Nos. 1124/7 (P), 1130/7 (P), 1131/7 and 1131/8 of Irudukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu State under project category B1 and Schedule S.No.1 (a). TOR issued by the State Expert Appraisal Committee, TN vide Lr.No.SEIAA-TN/F.No.9443/TOR-1297/2022, Dated 28.10.2022.

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: 06.02.2023

Yours faithfully

B.Sudhakar
B.Chinnasamy

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 'Tvl.S.V.Granites Multicolour Granite Quarry' over an extent of 1.91.50 Ha at S.F.Nos. 1124/7 (P), 1130/7 (P), 1131/7 and 1131/8 of Irudukottai Village, Denkanikottai Taluk, Krishnagiri District, 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/2124/SA 0147

Date: 30.01.2023 Place: Chennai

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Abbreviation

LU –Land use

AP – Air Pollution monitoring, prevention and control

AQ- Meteorology, Air quality modeling and prediction

WP – Water pollution monitoring, prevention and control

EB- Ecology and Biodiversity

NV- Noise & Vibration

SE- Socio-economics

HG- Hydrology, ground water and water conservation

GEO –Geology

RH – Risk assessment and hazards management

SHW –Solid and Hazardous waste management

SC- Soil conservation

Declaration of Experts contributing to the EIA

Declaration by experts contributing to the EIA report for Proposed Multi Colour Granite Quarry mining project of Tvl. S.V. Granites Multi Colour Granite Quarry over an extent of 1.91.50 Ha is situated at Survey No. 1124/7(P), 1130/7(P), 1131/7 and 1131/8 of Irudukottai Village, Denkanikottai taluk, Krishnagiri District, Tamil Nadu State.

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

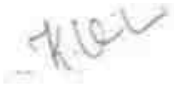
Project	Tvl. S.V. Granites Multi Colour Granite Quarry - 1.91.50 Ha
Type & Category	1 (a) Mining of Minerals
Project Proponent	Tvl. S.V. Granites
Environment Consultant with their Accreditation Status	M/s. Eco Tech Labs Pvt. Ltd., QCI Accredited
NABET Certificate No.	NABET/ EIA/2124/ SA 0147
EIA Coordinator Name **Signature** **Period of Involvement**	Dr. A. Dhamodharan (Mining of Minerals)  Dr. A. DHAMODHARAN (NABET APPROVED EIA COORDINATOR) NABET/EIA/2124/SA 0147 Environmental Consultant Eco Tech Labs Pvt. Ltd Plot No.48A, 2nd Main Road, Ram Nagar South Extn. Pallikaranai, Chennai - 600 100. Aug to Oct, 2022
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 environment and 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 experts	Involvement (period and task)	Signature and date
1	AP	Mrs. K. Vijayalakshmi	1. Selection of Baseline Monitoring stations based on the wind direction 2. Interpretation of Baseline data by comparing it with standards prescribed by CPCB against the type of area 3. Identification of sources of air pollution and suggesting mitigation measures to minimize impact ***Period: Aug 2022 – Till now***	
2	WP	Dr. A. Dhamodharan	1. Selection of baseline Monitoring Locations for Ground water analysis and also identifying nearest surface water to be studied. 2. Interpretation of baseline data collected 3. Identification of impacts based on the baseline study conducted and also to the ground water and nearby surface water due to the proposed project 4. Preparation of suitable and appropriate mitigation plan. ***Period: Aug 2022 – Till now***	
3	SHW	Dr. A. Dhamodharan	1. Identification of nature of solid waste generated 2. Categorization of the generated waste and estimating the quantity of waste to be generated based on the per capita basis. Identification of impacts of SHW on Environment	

			3. Suggesting suitable mitigation measures by recommending appropriate disposal method for each category of waste generated 4. Top soil and refuse management ***Period: Aug 2022 – Till now***	
4	SE	Mr. S. Pandian	1. Primary data collection through the census questionnaire 2. Obtaining Secondary data from authenticated sources and incorporating the same in EIA report. 3. Impact assessment & proposing suitable mitigation plan 4. CSR budget allocation by discussing with the local body and allotting the same for need based activity. ***Period: Aug 2022 – Till now*** ****Involves Public Hearing***	
5	EB	Dr. A. Dhamodharan	1. Primary data collection through field survey and sheet observation for ecology and biodiversity 2. Secondary Collection through various authenticated sources 3. Prediction of anticipated impacts and suggesting appropriate mitigation measures. ***Period: Aug 2022 – Till now***	
6	HG	Dr. T. P. Natesan	1. Study of existing surface drainage arrangements in the core and buffer zone, impact due to mining on these drainage courses and suggestion of mitigative measures 2. Determination of groundwater use pattern, development of rainwater harvesting program. Storm water management through garland drainage system. ***Period: Aug 2022 – Till now***	

7	GEO	Dr. T. P. Natesan	1. Field survey for assessing regional and local geology, aquifer distribution, Determination of groundwater use pattern, development of rainwater harvesting program. ***Period: Aug 2022 – Till now***	
8	SC	Dr. A. Dhamodharan	1. Interpretation of baseline report 2. Identification of possible impacts on soil, prediction of soil conservation and suggesting suitable mitigation measures. ***Period: Aug 2022 – Till now***	
9	AQ	Mrs. K. Vijayalakshmi	1. Collection of Meteorological data for the baseline study period 2. Plotting wind rose plot and thereby selecting the monitoring locations based on the wind pattern 3. Estimation of sources of air emissions and air quality modeling is done 4. Interpretation of the results obtained 5. Identification of the impacts and suggesting suitable mitigation measures. ***Period: Aug 2022 – Till now***	
10	NV	Mrs. K. Vijayalakshmi	1. Selection of monitoring locations 2. Interpretation of baseline data 3. Prediction of impacts due to noise pollution and suggestion of appropriate mitigation measures ***Period: Aug 2022 – Till now***	
11	LU	Dr. T. P. Natesan	1. Collection of Remote sensing satellite data to study the land use pattern. 2. Primary field survey and limited field verification for land categorization in the study area 3. Preparation of Land use map using Satellite data for 10km radius around the project site. ***Period: Aug 2022 – Till now***	

12	RH	Mrs. K. Vijayalakshmi	1. Identification of the risk 2. Interpreting consequence contours 3. Suggesting risk mitigation measures ***Period: Aug 2022 – Till now***	

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

I, Dr. A. Dhamodharan, hereby confirm that the above mentioned experts prepared the EIA report of mining project at Survey number. 1124/7(P), 1130/7(P), 1131/7 and 1131/8 of Irudukottai Village, Denkanikottai Taluk, Krishnagiri District, 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/2124/SA 0147

EXECUTIVE SUMMARY

1. Project Background:

Proposed proposal pertains to Multi Colour Granite mining project by open cast semi mechanized method on allotted mine lease area at Irudukottai Village, Denkanikottai taluk of Krishnagiri District, Tamil Nadu. It is a slightly elevated terrain. Proposed quarry was existing quarry and lease was granted in favour of Thiru. Jaramsundar in S.F.No.1130/7(P) & 1131/7 over an extent of 1.00 acre (0.40.0 Ha) of Irudukottai village vide G.O.(2D) No.166 Industries Department dated 18.08.1995 and the lease period expired on 04.09.2005.

The Proposed Multi Colour Granite Quarry over an extent of 1.91.50 Ha at S.F.No. 1124/7(P) 1130/7(P) 1131/7, 1131/8 of Irudukottai Village, Denkanikottai taluk, Krishnagiri District, Tamilnadu. Based on the 500m radius letter obtained from geology of mining, Krishnagiri vide letter no Roc.No73/MM4/2022 dated 23.07.2022 proposal coming under Cluster of mine exceeding more than 5 Ha and the total cluster area is 6.22.8 Ha. We have submitted our fresh application for ToR to SEIAA vide Proposal No: SIA/TN/MIN/82402/2022 on 17.08.2022.

The category of the project is B1 (cluster), the lease area exhibits slightly elevated terrain and sloping towards south-west side covered with Multi Colour Granite. The quarry operation is proposed to carry out with conventional open cast semi mechanized mining with 5.0-meter vertical bench with a bench width of 5.0 meter. In addition to the above the Quarry operation involves Diamond wire saw cutting, loading and transportation.

The quarry operation is proposed up to depth for 23 m below ground level. The Total Geological reserve is about 4,97,010 m^3 of Multi Colour Granite. The Mineable and the Recoverable reserves are 497010 m^3 respectively, the proposed Year wise production is carried out 20142 m^3 of Multi Colour Granite is to be mined for (Sixty months) Five years only.

Mining plan was approved by Commissionerate of Geology and Mining, Guindy vide letter Roc.No73/MM4/2022 dated 23.07.2022. The project area does not fall in Hill Area Conservation

Authority region. There is no interstate boundary, CRZ zone, Western Ghats, notified Bird sanctuaries, wild life sanctuaries as per Wild life protection Act 1972, within the radius of 15Km.

2. Nature & Size of the Project

The proposed Multi Colour Granite Quarry over an extent of 1.91.50 Hectares land is located at Irudukottai Village of Denkanikottai taluk, Krishnagiri District.

Mineral intends to quarry : Multi Colour Granite
District : Krishnagiri
Taluk : Denkanikottai
Village : Irudukottai
S. F. Nos. : 1124/7(P) 1130/7(P) 1131/7, 1131/8
Extent : 1.91.50 Hectares

Table 1: Brief Description of the Project

S. No.	Particulars	Details
1	Latitude	12° 25' 41.1003" N to 12° 25' 36.5229" N
2	Longitude	77° 50' 03.8947" E to 77° 49' 57.9786" E
3	Site Elevation above MSL	936 m from MSL
4	Topography	Slightly elevated terrain
5	Land use of the site	Patta land (Registered in name of M/s. S.V.Granites vide Patta No. 9241)
6	Extent of lease area	1.91.50Ha
7	Nearest highway/Road	➢ MDR 588 – Denkanikottai – Anchety – Natrampalayam Road, 9.17km, W ➢ SH 17A – Hosur – Denkanikottai Road – 12.57km, NW ➢ SH 17B – Hosur – Thally – Denkanikottai Road – 12.57 km, NW
8	Nearest railway station	Marandahalli Railway Station 20.38 Km – E
9	Nearest airport	Hosur Airport - 32.21Km – N Kempegowda International Airport – 86.50 Km, N

10	Nearest town / city	Town – Denkanikottai – 11.31 Km, NW City - Denkanikottai – 11.31 Km, NW District - Krishnagiri – 41.7 Km, ENE
11	Rivers / Canal	Nil
12	Lake	Nil
13	Hills / valleys	Nil in 15 km radius
14	Archaeologically places	Nil in 15 km radius
15	National parks / Wildlife Sanctuaries	Nil in 15 Km radius
16	Reserved / Protected Forests	❖ Denkanikotta R.F. – 7.10 km, N ❖ Manchi R.F. – 7.70 km, SW ❖ Udedurgam R.F. – 7.91 km, NE ❖ Galigattam R.F. – 11.28 km, SE
17	Seismicity	Proposed Lease area come under Seismic zone-II (low risk area)
18	Defense Installations	Nil in 15 Km radius

3. Need for the Project

The demand for granite increased due to rapid industrialization and growth in infrastructure. So the number of granite producing quarries is increasing in India. Granite is the chief material for the export industries like monuments, flooring slabs, Kitchen articles, sculptures & export. Based on the demand of Granite, the lessee intends to produce the required quantity of Multi Colour Granite for domestic market.

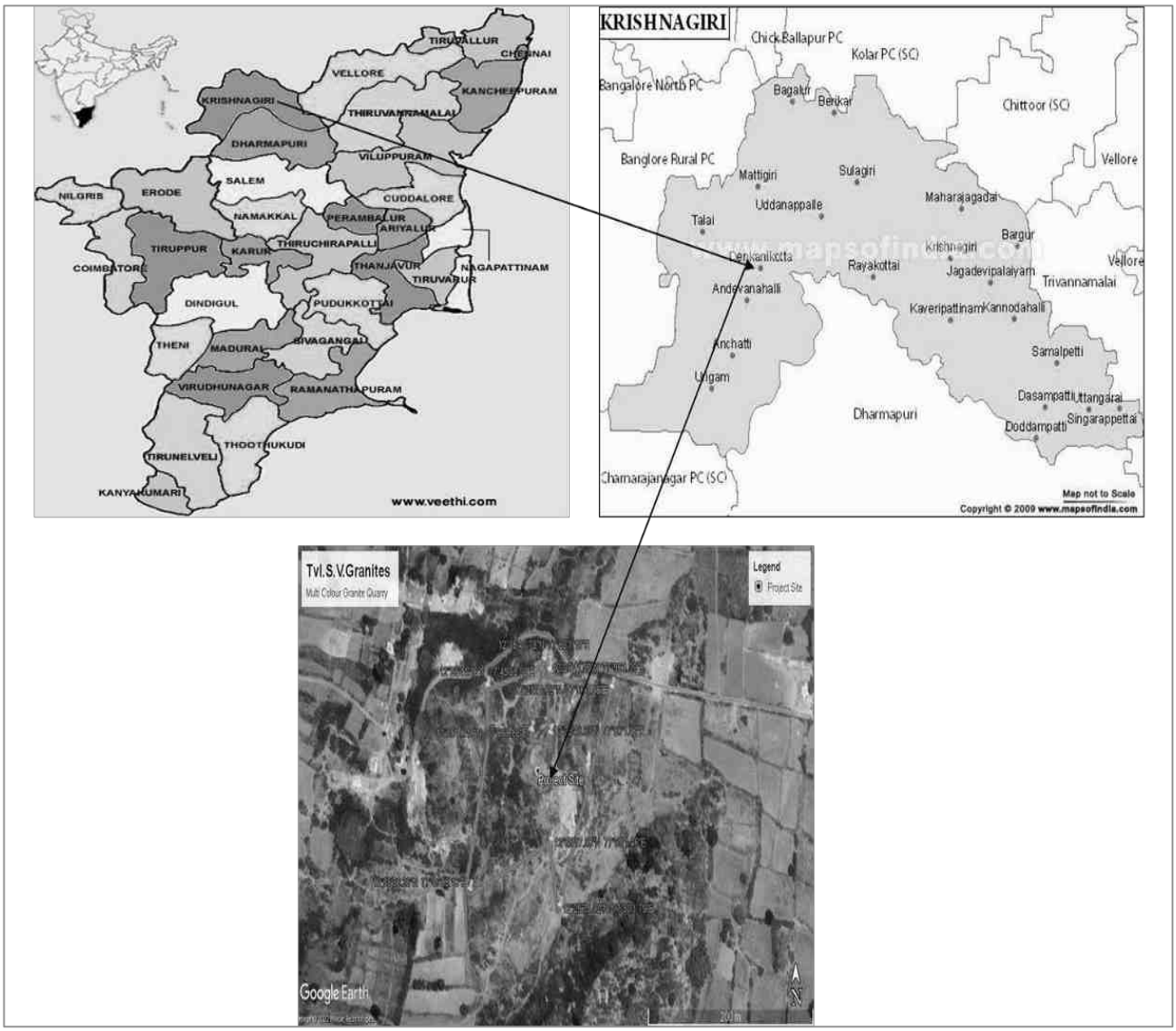


Figure 1: Location Map of the Project Site

Figure 2: Google Image of the Project Site

4. Multi Colour Granite

The Multi Colour Granite and granite gneiss is mainly composed of medium to fine grained with feldspar and quartz are main constituents, garnet and other mafic minerals are secondary minerals. It has commercially called as 'Paradiso' which is widely used for Slabs, Tiles and Monuments after cutting and polishing.

5. Geological Resources

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

Table 2. Geological resources

GRANITE GEOLOGICAL RESERVES										
Section	**Bench**	**Length in (m)**	**Width in (m)**	**Depth in (m)**	**Volume in M3**	**Total Reserve in M3**	**Granite Waste @ 40%**	**Multi-Colour Granite Recoverable Reserve @ 60%**	**Weathered Granite**	**Topsoil**
XY-AB	I	55	57	1						3135
	II	55	57	2					6270	
	III	55	57	5	15675	15675	6270	9405		
	IV	55	57	5	15675	15675	6270	9405		
	V	55	57	5	15675	15675	6270	9405		
	VI	55	57	5	15675	15675	6270	9405		
	VII	55	57	5	15675	15675	6270	9405		
	TOTAL				**78375**	**78375**	**31350**	**47025**	**6270**	**3135**
XY-EF	I	89	69	1						6141
	II	89	69	2					12282	
	III	38	69	5	13110	13110	5244	7866		
	IV	89	69	5	30705	30705	12282	18423		
	V	89	69	5	30705	30705	12282	18423		
	VI	89	69	5	30705	30705	12282	18423		
	VII	89	69	5	30705	30705	12282	18423		
	TOTAL				**135930**	**135930**	**54372**	**81558**	**12282**	**6141**
X1Y1-CD	I	59	66	1						3894
	II	59	66	2					7788	
	III	43	14	5	3010	3010	1204	1806		
	IV	59	41	5	12095	12095	4838	7257		
	V	59	66	5	19470	19470	7788	11682		
	VI	59	66	5	19470	19470	7788	11682		
	VII	59	66	5	19470	19470	7788	11682		
	VIII	59	66	5	19470	19470	7788	11682		
	IX	59	66	5	19470	19470	7788	11682		
	TOTAL				**112455**	**112455**	**44982**	**67473**	**7788**	**3894**

	I	110	57	1						6270
	II	110	57	2					12540	
	III	60	45	5	13500	13500	5400	8100		
	IV	110	57	5	31350	31350	12540	18810		
X1Y1	V	110	57	5	31350	31350	12540	18810		
-EF	VI	110	57	5	31350	31350	12540	18810		
	VII	110	57	5	31350	31350	12540	18810		
	VIII	110	57	5	31350	31350	12540	18810		
	TOTAL				**170250**	**170250**	**68100**	**102150**	**12540**	**6270**
GRAND TOTAL					**497010**	**497010**	**198804**	**298206**	**38880**	**19440**

Table 3. Mineable Resources

GRANITE MINEABLE RESERVES										
Section	**Bench**	**Length in (m)**	**Width in (m)**	**Depth in (m)**	**Volume in M3**	**Total Reserve in M3**	**Granite Waste @ 40%**	**Multi Colour Granite Recoverable Reserve @ 60%**	**Weathered Granite**	**Topsoil**
	I	47	36	1						1692
	II	45	34	2					3060	
	III	43	30	5	6450	6450	2580	3870		
XY-	IV	38	20	5	3800	3800	1520	2280		
AB	V	33	10	5	1650	1650	660	990		
	VI	28	1	5	140	140	56	84		
	VII	23	1	5	115	115	46	69		
	TOTAL				**12155**	**12155**	**4862**	**7293**	**3060**	**1692**
	I	80	61	1						4880
	II	79	60	2					9480	
XY-	III	38	57	5	10830	10830	4332	6498		
EF	IV	77	52	5	20020	20020	8008	12012		
	V	72	47	5	16920	16920	6768	10152		

	VI	67	42	5	14070	14070	5628	8442		
	VII	62	37	5	11470	11470	4588	6882		
	TOTAL				**73310**	**73310**	**29324**	**43986**	**9480**	**4880**
X1Y1-CD	I	52	46	1						2392
	II	52	44	2					4576	
	III	43	7	5	1505	1505	602	903		
	IV	43	23	5	4945	4945	1978	2967		
	V	38	29	5	5510	5510	2204	3306		
	VI	33	19	5	3135	3135	1254	1881		
	VII	28	9	5	1260	1260	504	756		
	VIII	23	1	5	115	115	46	69		
	IX	18	1	5	90	90	36	54		
	TOTAL				**16560**	**16560**	**6624**	**9936**	**4576**	**2392**
X1Y1-EF	I	73	49	1						3577
	II	72	48	2					6912	
	III	60	34	5	10200	10200	4080	6120		
	IV	64	41	5	13120	13120	5248	7872		
	V	59	36	5	10620	10620	4248	6372		
	VI	54	31	5	8370	8370	3348	5022		
	VII	49	26	5	6370	6370	2548	3822		
	VIII	44	21	5	4620	4620	1848	2772		
	TOTAL				**53300**	**53300**	**21320**	**31980**	**6912**	**3577**
GRAND TOTAL					**155325**	**155325**	**62130**	**93195**	**24028**	**12541**

Table 4. Year wise Production Plan

GRANITE YEARWISE DEVELOPMENT AND PRODUCTION RESERVES											
Year	**Section**	**Bench**	**Length in (m)**	**Width in (m)**	**Depth in (m)**	**Volume in M3**	**Total Reserve in M3**	**Granite Waste @ 40%**	**Multi Colour Granite Recoverable Reserve @ 60%**	**Weathered Granite**	**Topsoil**
	X1Y1-AB	I	60	46	1						2760
		II	57	44	2					5016	

I YEAR		III	53	7	5	1855	1855	742	1113		
		IV	43	23	5	4945	4945	1978	2967		
		TOTAL				**6800**	**6800**	**2720**	**4080**	**5016**	**2760**
II YEAR	X1Y1-CD	I	40	49	1						1960
		II	40	46	2					3680	
		IV	45	34	5	7650	7650	3060	4590		
		TOTAL				**7650**	**7650**	**3060**	**4590**	**3680**	**1960**
III YEAR	X1Y1-CD	V	45	32	5	7200	7200	2880	4320		
		TOTAL				**7200**	**7200**	**2880**	**4320**		
IV YEAR	X1Y1-AB	V	33	29	5	4785	4785	1914	2871		
		VI	23	19	5	2185	2185	874	1311		
		TOTAL				**6970**	**6970**	**2788**	**4182**		
V YEAR	X1Y1-CD	VI	45	22	5	4950	4950	1980	2970		
		TOTAL				**4950**	**4950**	**1980**	**2970**		
		GRAND TOTAL				**33570**	**33570**	**13428**	**20142**	**8696**	**4720**

6. Mining

Opencast mining

The quarry operation is proposed to carry out with conventional open cast semi mechanized mining with 5.0 meter vertical bench with a bench width of 5.0 meter. The Quarry operation involves Diamond wire saw cutting, loading and transportation.

Process Description

The proposed mining is planned to be carried out by open cast-semi mechanized method of mining, in this proposed mining area by using compressor operated jack hammer drills, excavators and dumpers etc.

Hydraulic excavator will be used to remove the over burden, Shifting of Blocks and waste removal etc. Compressor operated jack hammers will be used to drill the holes as preparatory work before cutting the Block by using Wire saw.

The diamond wire saw has many advantages to its credit such as

1) Reduced Consumption of Explosives.

2) Reduced noise level

3) Reduced Loss of material

4) Simple to use and saves squaring operation.

7. Water Requirement

Total water requirement for the mining project is 3 KLD. Domestic water will be sourced from nearby Irudukottai Village and other water will be source from nearby road tankers supply.

Table 5. Water Balance

Purpose	Quantity	Source
Domestic & Flushing	1.0 KLD	Packaged Drinking water vendors available in Irudukottai Village which is about ≃ 3.02 km on North side 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	**3.0 KLD**	

8. Man Power and Organization Chart

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

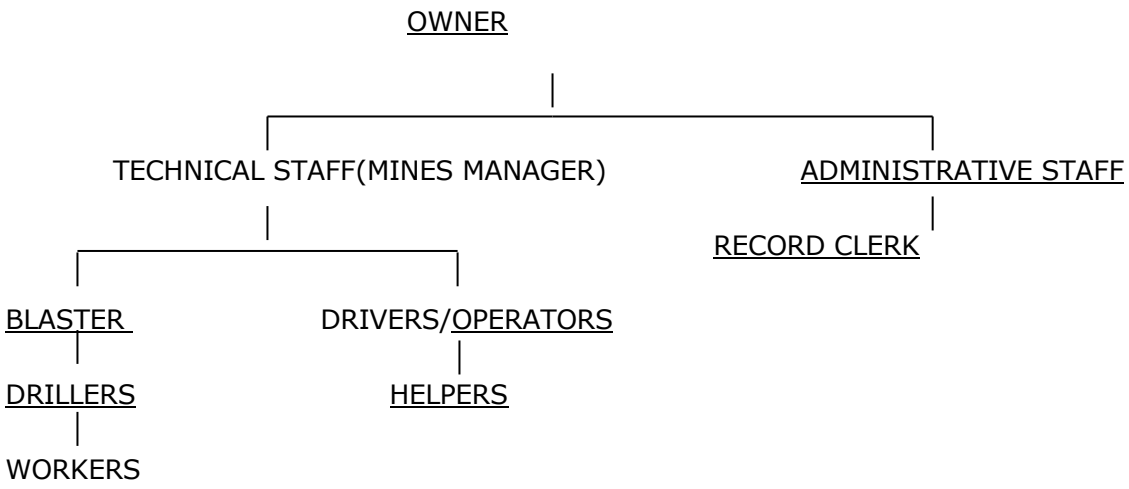
Table 6. Man Power

S.No.	Name of the Employment	No. of Employees
1.	Project Manager	1 No.
2.	Record Clerk	1 No.
3.	Skilled	
	Supervisor Cum Blaster	1 No.
	Compressor and Wagon Drill operators	2 No.

	Drillers /Workers	6 No.
	Excavator / Rock Breaker Operators	2 No.
	Vehicle Drivers	1 No.
4.	Semi – skilled	
	Watchman	1No.
5.	Unskilled	
	Cleaner	3 Nos.
	Total	**18 Nos.**

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

ORGANISATION CHART



9. Solid Waste Management

Table 7. Solid Waste Management

S. No	Type	Quantity	Disposal Method
1	Organic	4.86 kg/day	Municipal bin including food waste
2	Inorganic	3.24 kg/day	TNPCB authorized recyclers

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

Table 8. 500m Radius Cluster Mine

1) Existing quarries:

S. No.	Name of the applicant	Village & Taluk	S. F. No.	Extent
Nil				

2) Abandoned/Old quarries:

S. No.	Name of the applicant	Village & Taluk	S. F. No.	Extent
Nil				

3) Details of Proposed/Applied quarries:

S. No.	Name of the lessee / Permit Holder	Village & Taluk	S. F. No.	Extent	Lease Period
1.	M/s S.V.Grannites No. 17B-3, 1st Cross Street, vellakuttai, Krishnagiri	Denkanikottai Taluka-Irudhukottai Village	1124/7(P) 1130/7(P) 1131/7, 1131/8	1.91.5	**20**
2.	M/s K.P.R.Granites, No 2/223, Avvai Nagar, Noolahalli, Pennagaram, Krishnagiri	Denkanikottai Taluka-Irudhukottai Village	1123/4A, 4B, 5A, 5B, 6A, 6B, 1125/6, 1123/8(P)	2.34.3	--
3.	M/s K.P.R.Granites, No 2/223, Avvai Nagar, Noolahalli, Pennagaram, Krishnagiri	Denkanikottai Taluka-Irudhukottai Village	1121/6, 1125/3	1.97.0	--
				6.22.8	

The Total extent of the Existing / Lease expired / Proposed quarries are 6.22.8 Ha

10. Land Requirement

The total extent area of the project is 1.91.50 Ha, Patta land in Irudukottai Village of Denkanikottai taluk, Krishnagiri District.

Table 9. Land Use Breakup

Description	Present Area (Ha.)	Area to be required at the present scheme period (Ha)	End of life of Quarrying Period (Ha.)
Area under Quarry	0.00.9	0.48.0	1.18.0
Dumps	Nil	0.31.5	Backfilling
Stockyard	Nil	Nil	Nil
Infrastructure	Nil	0.01.0	0.02.0
Roads	0.03.0	0.01.0	0.04.0
Green Belt	Nil	0.17.0	0.67.5
Unutilized Area	1.87.6	0.93.0	Nil
Grand Total	**1.91.5**	**1.91.5**	**1.91.5**

11. Human Settlement

There are no habitations within 500m radius. There are villages located in this area within 5km radius of the quarry.

Table 10. Habitation

Direction	Village	Distance in Kms	Population
North	Santhanapalli	4.5	1200
East	Namreli	2.1	480
South	Bialam	1.5	250
West	Bikkanapalli	4.3	390

12. Power Requirement

The proposed granite building stone quarrying does not required any power supply for the quarrying operation.16 Litres diesel per hour required for excavator whenever needed.

13. Scope of the Baseline Study

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

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

13.1 Micro – Meteorology

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

i) Average Minimum Temperature : 26.3 ^{0}C

ii) Average Maximum Temperature. : 40 ^{0}C

iii) Average Annual Rainfall of the area : 806 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 5 km. radius, air quality survey has been conducted at 5 locations. Major air pollutants like Particulate Matter (PM10), Sulphur Dioxide (SO2), Nitrogen Dioxide (NO2) were monitored and the results are summarized below.

The baseline levels of PM10 (51(µg/m3), PM 2.5(30 (µg/m3), SOx 13 (µg/m3) ,NOx (27(µg/m3), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from Aug to Oct, 2022

13.3 Noise Environment

Ambient noise levels were measured at 5 locations around the proposed project site. The noise level during day varies from 44-58 dB(A) and during night varies between 37-44 dB(A).

13.4 Water Environment

- The average pH ranges from 6.68-7.88
- TDS value varied from 491 mg/l to 969 mg/l
- Hardness varied from 225 to 596 mg/l
- Chloride varied from 32.3 to 133 mg/l

13.5 Land Environment

The analysis results shows that the majority of soil in the project and surrounding area is slightly alkaline in nature and pH value ranges from 6.1 to 7.78 with organic matter 0.08 % to 1.07 %. The concentration of Nitrogen, Phosphorus & Potassium has been found to be in good amount in the soil samples.

13.6 Biological Environment

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

14. Rehabilitation/ Resettlement

- The overall land of the mine is private patta 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. Hence the mining activity does not involve any displacement of human settlement.

15. Greenbelt Development

1. The development of greenbelt in the peripheral buffer zone of the mine area.
2. Green belt has been recommended as one of the major component of Environmental Management Plan, which will improve ecology, environment and quality of the surrounding area.
3. Local trees like Neem will be planted along the lease boundary and avenues as well as over Non-active dumps at a rate of 60 trees per annum with interval 5m.
4. The rate of survival expected to be 70% in this area

Table 11 Plantation/ Afforestation Program

Year	No. of tress proposed to be planted	Name of the species	Survival rate expected in %	No. of trees expected to be grown
I	60	Neem	70	42
II	60	Neem	70	42
III	60	Neem	70	42
IV	60	Neem	70	42
V	60	Neem	70	42

16. Anticipated Environmental Impacts

16.1 Air Environment and Mitigation Measures

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

16.2 Noise Environment and Mitigation Measures

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

17. Responsibilities for Environmental Management Cell (EMC)

The responsibilities of the EMC include the following:

i. Environmental Monitoring of the surrounding area

ii. Developing the green belt/Plantation

iii. Ensuring minimal use of water

iv. Proper implementation of pollution control measures

18. Environmental Monitoring Program

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

19. Project Cost

The total project cost is **Rs.1,28,95,000** for deployment of machinery and creation of infrastructural facilities like approach road, Mine office / Workers Shed, First Aid Room etc., including electrifications and water supply

Table 12 Project Cost details

S. No.	Description	Cost
1	Fixed Asset Cost	**29,90,000**
2	Operational Cost	**95,00,000**
3	EMP Cost	**4,05,000**
	Total	**1,28,95,000**

20. Corporate Environmental Responsibility

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

Table 13 CER Cost

S.No.	CER Activity	CER (Rs.)
1.	Government High School, Unisetty, Krishnagiri District **Activity:** Provision of	

	➢ Solar powered Smart Classroom, ➢ Solar lights to the School, ➢ Environmental Awareness related books to the school library, ➢ Basic amenities such as safe Drinking Water, Hygienic Toilet facilities. ➢ Greenbelt development in and around the school	**6,00,000**

21. Benefits of the Project

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

1 Introduction

1.1 Preamble

Environment Impact Assessment (EIA) is a process used to identify the environmental, social & economic impacts of a project prior to decision making. It 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 of notification). The proposed project falls under item 1(a) of the EIA notification, 2006.

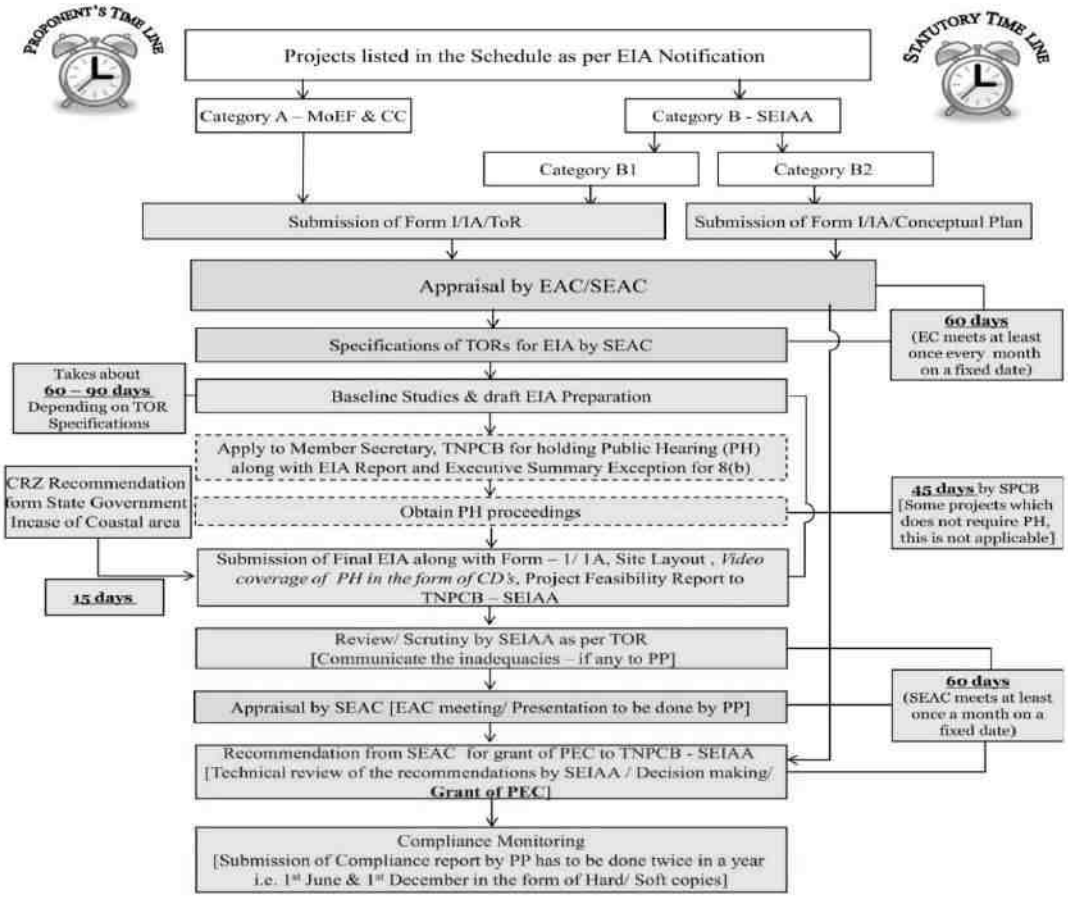
1.2 General Information on Mining of Minerals

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. Granite deposits suitable for the production of Jelly, cut stones and Pillar Stones are available throughout the Krishnagiri District. Granites 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 neighbouring districts. These products enter into the market in different parts of the country.

1.3 Environmental Clearance

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

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



SEIAA : State Level EIA Authority
EIA : Environmental Impact Assessment
TNPCB : Tamil Nadu Pollution Control Board
SEAC : State Level Expert Appraisal Committee
TOR : Terms of Reference
PEC : Prior Environmental Clearance
PP : Project Proponent
: TNPCB - SEIAA
: SEAC
: PP

1.4 Terms of Reference (ToR)

The terms of Reference has been issued by SEAC TN vide Letter No. SEIAA-TN/F.No.9443/ToR-1297/2022 dt. 28.10.2022 (Annexure I). 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 and compliance is attached as Annexure II.

1.5 Post Environmental Clearance Monitoring

1.5.1 Methodology adopted

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

Table 1-1: Post Environmental Clearance Monitoring

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

1.6 Generic Structure of the EIA Document

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

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

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

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

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

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

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

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

Chapter 8: Project Benefits. This chapter should cover the benefits accruing to the locality, 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 : TVL. S.V. Granites

Status of the Proponent : Partnership Firm

Proponent's Name & Address : No.17B/3, Vellakottai 1st cross,
Chennai Salai,
Krishnagiri District.

1.8 Brief Description of the Project

1.8.1 Project Nature, Size & Location

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

Proposed proposal pertains to Multi Colour Granite mining project by semi mechanized open cast method on allotted mine lease area at Irudukottai Village, Denkanikottai taluk of Krishnagiri District, Tamil Nadu. It is an Slightly elevated terrain. The total allotted mine lease for the proposed project is 1.91.50 Ha with their production capacity i.e. 20142 m^3 of Multi Colour Granite for first Five years only (Sixty months) and total reserve of 36855 m^3

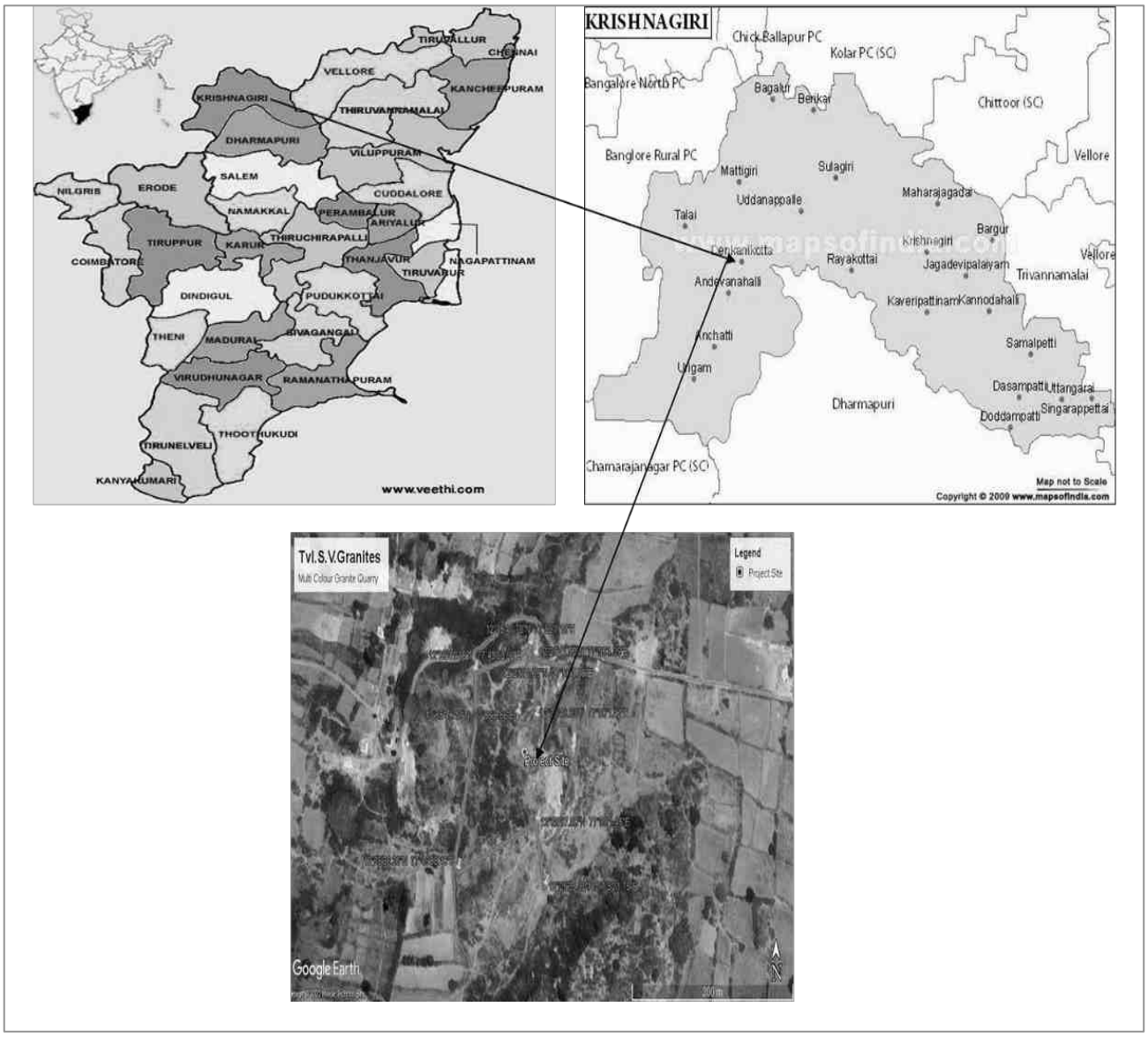


Figure 1-1: Location Map of the Project site

2 Project Description

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

2.1 General

- Proposed proposal pertains to Multi Colour Granite mining project by open cast semi mechanized method on allotted mine lease area at Irudukottai Village, Denkanikottai taluk of Krishnagiri District, Tamil Nadu. It is a slightly elevated terrain. Proposed quarry was existing quarry and lease was granted in favour of Thiru. Jaramsundar in S.F.No.1130/7(P) & 1131/7 over an extent of 1.00 acre (0.40.0 Ha) of Irudukottai village vide G.O.(2D) No.166 Industries Department dated 18.08.1995 and the lease period expired on 04.09.2005
- We have obtained scheme of mining plan approval for five years, i.e. from 2022-23 to 2026-27 from Commissionerate of Geology and Mining, Guindy for 1.91.50 Ha land area in the S.No.1124/7(P), 1130/7(P), 1131/7 and 1131/8 for a proposed mining depth of 23 m below ground level and first five years production of 20142 m^3 of Multi Colour Granite.

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 final 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 has been incorporated in the Final EIA Report.

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

Table 2-1: Quarry within 500m Radius

1) Existing quarries:

S. No.	Name of the applicant	Village & Taluk	S. F. No.	Extent
Nil				

2) Details of abandoned/old quarries:

S. No.	Name of the applicant	Village & Taluk	S. F. No.	Extent
Nil				

3) Details of proposed/applied quarries:

S. No.	Name of the lessee / Permit Holder	Village & Taluk	S. F. No.	Extent	Lease Period
1.	M/s S.V.Grannites No. 17B-3, 1st Cross Street, vellakuttai, Krishnairi	Denkanikottai Taluka-Irudhukottai Village	1124/7(P) 1130/7(P) 1131/7, 1131/8	1.91.5	**20**
2.	M/s K.P.R.Granites, No 2/223, Avvai Nagar, Noolahalli, Pennagaram, Krishnagiri	Denkanikottai Taluka-Irudhukottai Village	1123/4A, 4B, 5A, 5B, 6A, 6B, 1125/6, 1123/8(P)	2.34.3	--
3.	M/s K.P.R.Granites, No 2/223, Avvai Nagar, Noolahalli, Pennagaram, Krishnagiri	Denkanikottai Taluka-Irudhukottai Village	1121/6, 1125/3	1.97.0	--
				6.22.8	

The Total extent of the Existing / Lease expired / Proposed quarries are 6.22.8 Ha

2.1.1 Need for the project:

Multi Colour Granite is specifically used for the buildings, paving, monuments, aesthetics and many other exterior projects. This project will give employment opportunities to the nearby villagers directly and indirectly. The products of Multi Colour Granite is well known in the international supermarket which will fetch a good foreign exchange to the nation. The Multi Colour Granite quarry provides perennial employment to the villages and improves their standard of living. The product manufacturing industry from Multi Colour Granite improves the technical skill of the local people. This provides economic development and earn foreign exchange to our country

2.2 Brief Description of the project

Table 2-2 Salient Features of the Project

S. No.	Description	Details
1	Project Name	Proposed Multi Colour Granite Quarry-1.91.50Ha
2	Proponent	Tvl.S.V.Granites
3	Mining Lease Area Extent	1.91.50 Ha
4	Location	S.F.No. 1124/7(P), 1130/7(P), 1131/7 and 1131/8, Irudukottai Village, Denkanikottai taluk, Krishnagiri District.
5	Latitude	12° 25' 41.1003"N to 12° 25' 36.5229"N
6	Longitude	77° 50' 03.8947"E to 77° 49' 57.9786"E
7	Topography	Slightly elevated terrain
8	Site Elevation above MSL	936 m from MSL
9	Topo sheet No.	57H/15
10	Minerals of Mine	Multi Colour Granite
11	Proposed production of Mine	Proposed capacity of Multi Colour Granite : 20142 m^3 Recoverable Reserve of Multi Colour Granite : 36855 m^3
12	Ultimate depth of Mining	28 m below ground level

13	Method of Mining	Open cast, semi-mechanized mining
14	Water demand	3.0 KLD
15	Source of water	Water will be supplied through tankers supply and drinking water will be purchased from vendors
16	Man power	Direct :18 nos, Indirect :14 nos
17	Mining Lease	The Precise Area Communication letter obtained from the Industries (MME.2) Department, Secretariat, Chennai-600 009 vide Letter No.2666/MME.2/2022-1 dated 04.05.2022 for a period of Twenty Years.
18	Mining Plan Approval	The Mining plan was approved by The Commissioner, Dept. of Geology & Mining, Guindy, Chennai-600 032 vide letter Rc.No.73/MM4/2022, dated 23.07.2022
19	Production details	Geological reserves of Multi Colour Granite : 4,97,010 m^3 Proposed year wise recoverable reserves of Multi Colour Granite : 36855 m^3 (Multi Colour Granite Recovery @ 60% for first five years – 20142 m^3 and Granite Waste @ 40% - 13428 m^3)
20	Boundary Fencing	7.5m barrier all along the boundary, Fencing will be provided.
21	Disposal of overburden	The top soil of the lease area is 4720 m^3. Multi Colour Granite waste forms nearly 40% of ROM and the quantity of granite waste in the five years will be around 13428 m3. Total waste to be generated in five years is 26844 m3. Granite and other Waste will be dumped in the Western and South-Western side of the lease area for the next five years.
22	Ground water	The quarry operation is proposed up to a depth of **23 m** below ground level. The water table is below **52-60m** from ground level which is observed from the nearby open wells and bore wells. Hence the ground water will not be

		affected in any manner due to the quarrying operation during the entire lease period.
23	Habitations within 500m radius of the Project Site	There is no Habitation within 500m radius of the project site.
24	Drinking water	Water will be supplied through tankers and drinking water can be purchased from nearby vendors of village Irudukottai which is approx. 3.02 km from the project site in North Side.

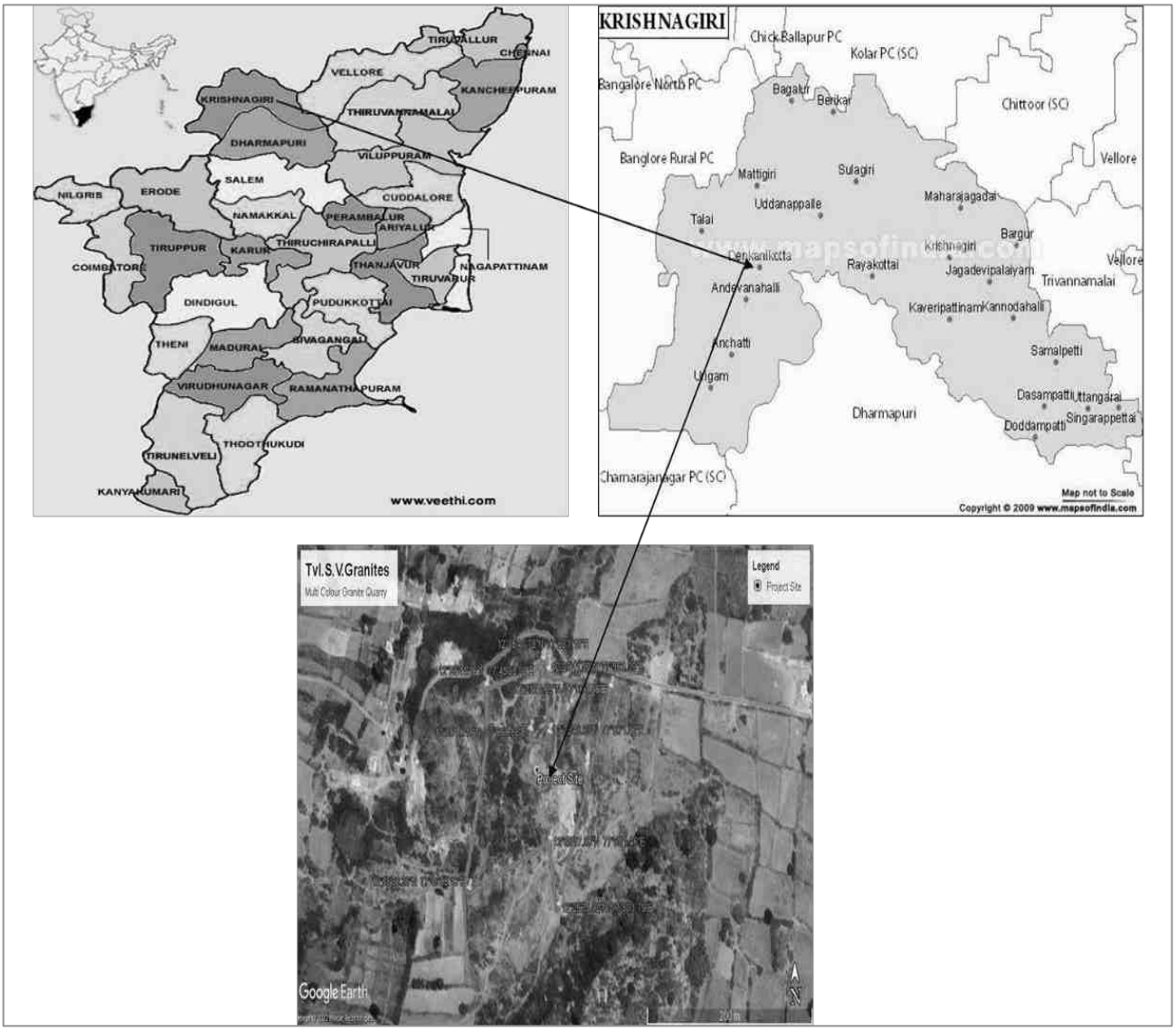


Figure 2-1: Location Map of the Project Site

Figure 2-2: Google Earth Image of the Project Site

2.2.1 Site Connectivity:

The site is connected through

- MDR 588 – Denkanikottai – Anchety – Natrampalayam Road, 9.17km, W
- SH 17A – Hosur – Denkanikottai Road – 12.57km, NW
- SH 17B – Hosur – Thally – Denkanikottai Road – 12.57 km, NW

2.3 Location Details:

Table 2-3: Location Details

S. No	Particulars	Details
1.	Latitude	12° 25’ 41.1003”N to 12° 25’ 36.5229”N
2.	Longitude	77° 50’ 03.8947”E to 77° 49’ 57.9786”E
3.	Site Elevation above MSL	936 m from MSL
4.	Topography	Slightly elevated terrain

5.	Land use of the site	Patta land - Registered in the name of M/s.S.V.Granites, Partners Mr.B.Chinnasamy & Mr.B.Sudhakar vide Patta No.9241
6.	Extent of lease area	1.91.50 Ha

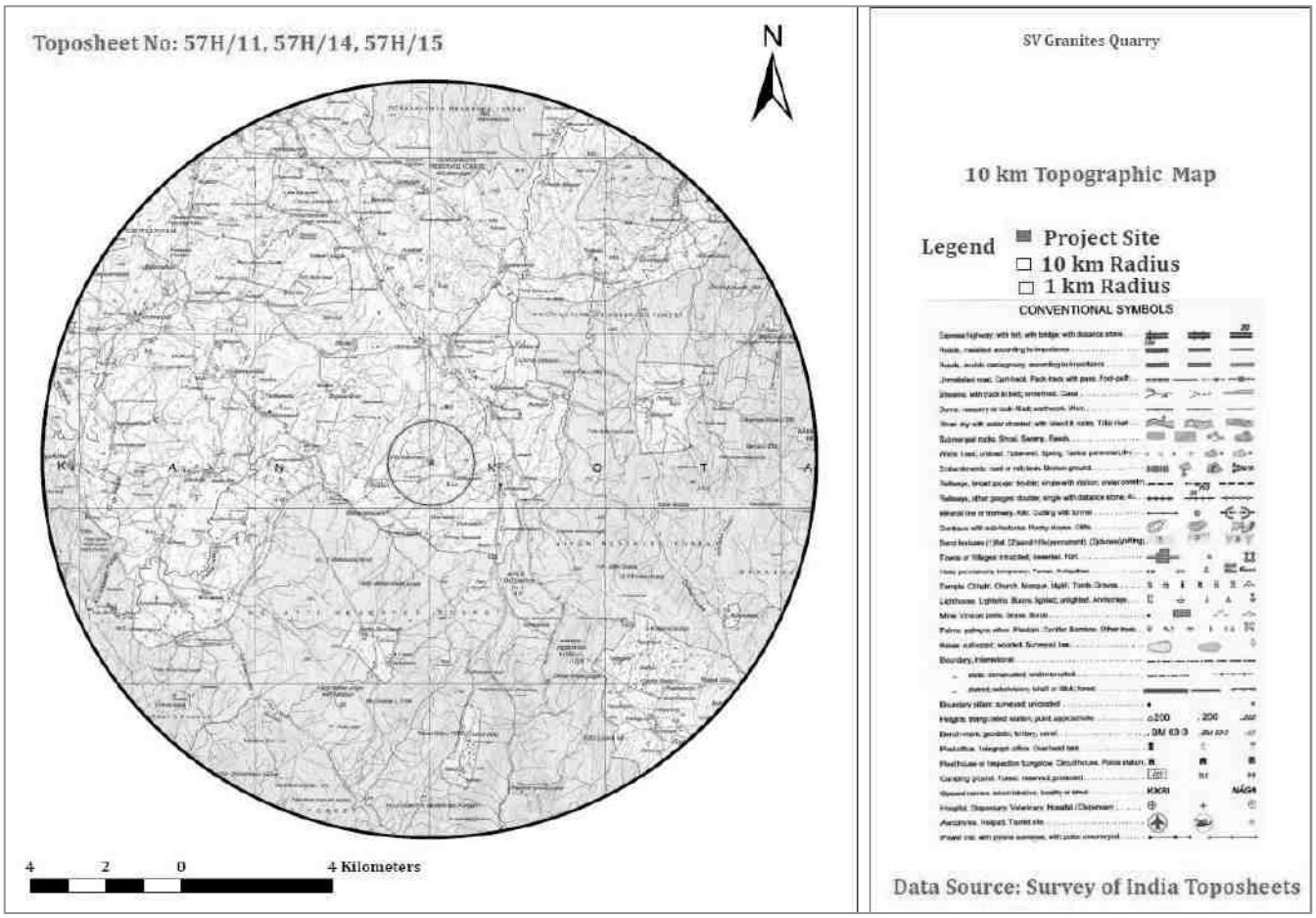


Figure 2-3: Topo Map of Project Site

Figure 2-4: Environmental Sensitivity within 15km radius

2.3.1 Site Photographs

The site photographs of the project site are as follows.

Figure 2-5: Site Photographs

2.3.2 Land Use Breakup of the Mine Lease Area

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

Table 2-4: Land use pattern

Description	Present Area (Ha.)	Area to be required at the present scheme period (Ha)	End of life of Quarrying Period (Ha.)
Area under Quarry	0.00.9	0.48.0	1.18.0
Dumps	Nil	0.31.5	Backfilling
Stockyard	Nil	Nil	Nil
Infrastructure	Nil	0.01.0	0.02.0
Roads	0.03.0	0.01.0	0.04.0
Green Belt	Nil	0.17.0	0.67.5
Unutilized Area	1.87.6	0.93.0	Nil
Grand Total	**1.91.5**	**1.91.5**	**1.91.5**

2.3.3 Human Settlement

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

Table 2-5: Habitation

Direction	Village	Distance in Kms	Population
North	Santhanapalli	4.5	1200
East	Namreli	2.1	480
South	Bialam	1.5	250
West	Bikkanapalli	4.3	390

2.4 Leasehold Area

The proposed Multi Colour Granite Quarry mine of 1.91.50 Ha is a Patta land. The lease area falls in S.F.No. 1124/7(P), 1130/7(P), 1131/7 and 1131/8, Irudukottai Village, Denkanikottai taluk, Krishnagiri District.s There is no reserve forest or protected forest land within the lease area. There is neither human settlement within 500m radius from the lease area.

2.5 Geology

Krishnagiri District is comprised of Achaean peninsular gneisses such as Charnockites, Hornblende gneisses, Biotite gneisses and migmatites, dolerites and is intruded by younger formations like pegmatite and quartz veins. The peninsular gneiss/migmatite consists of biotite mica, plagioclase and orthoclase feldspars and Quartz and are found as sheet rocks running to several kms from NNE-SSW as a massive rock formation.

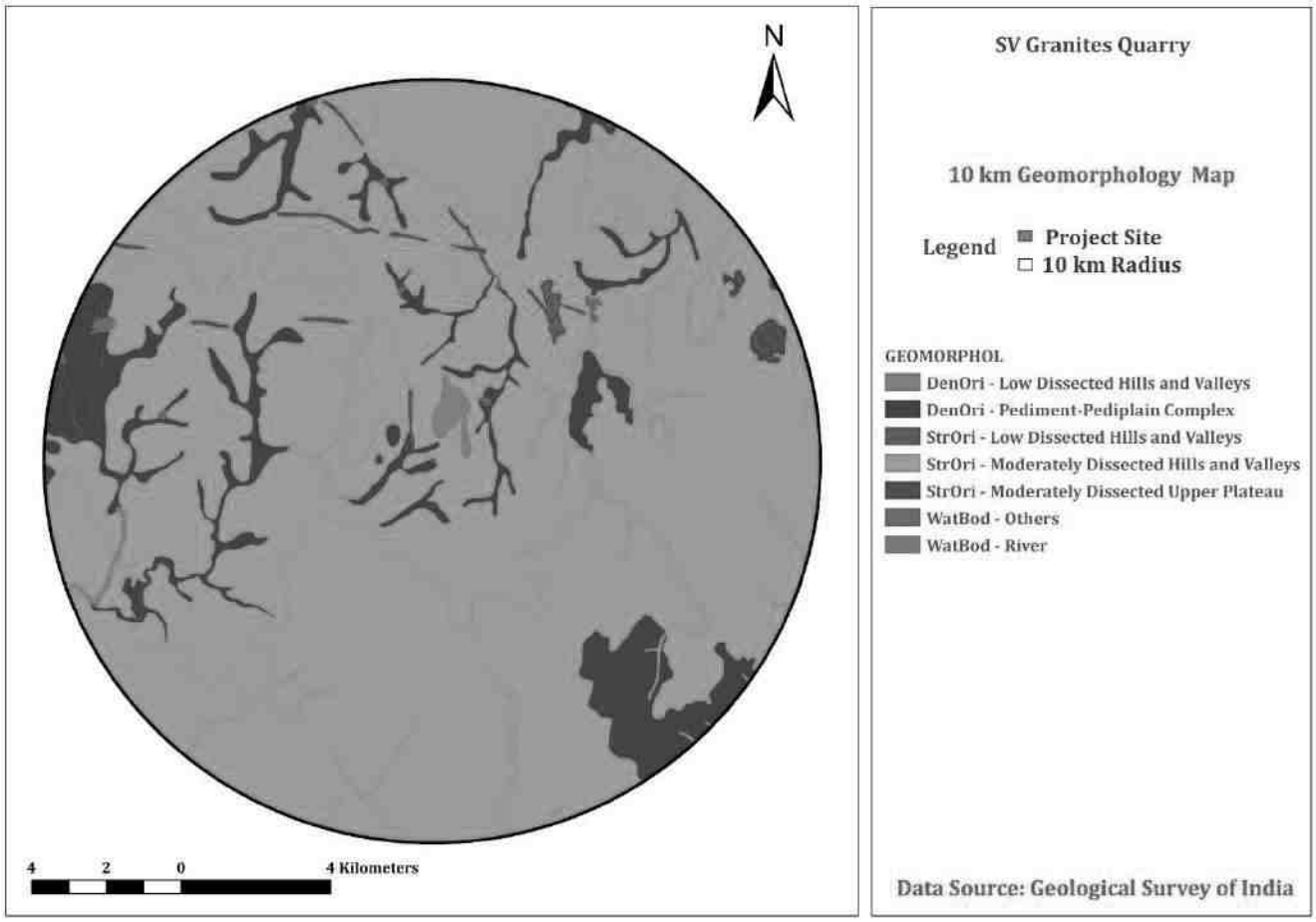


Figure 2-6: Geomorphology

The area applied for quarry lease is a plain ground sloping towards South. The general geological sequences of the rocks in this area are given below.

Description	Geological Age
Top soil	- Recent Age
Pegmatite and Quartz veins	- Archaean Age
Dolerite Dyke	- Archaean Age

Peninsular gneisses and Migmatites - Archaean (Kolar Group)

Biotite gneisses - Archaean complex

The regional rocks mostly composed of Quartz, plagioclase feldspar, Orthoclase feldspar and accessories like mica.

Description	Geological Age
Top Soil gravelly earth	- Recent Age
Pegmatite and Quartz veins	- Archaean Age
Dolerite Dyke	- Archaean Age
Migmatites (Paradiso& Multi)	- Archaean Age (Kolar Group)
Biotite Gneisses	- Archaean Complex

The Regional rocks mostly composed of quartz, plagioclase feldspar, orthoclase feldspar and accessories like mica.

2.6 Quality of Reserves:

The mining lease area is of 1.91.50Ha, with production capacity of **20142 m^3** of Multi Colour Granite , 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 2-6: Details of Mining

S. No	Particulars	Details
1	Method of Mining	Open Cast Semi-mechanized
2	Geological Reserves	Multi Colour Granite –497010 m^3
3	Mineable Reserves	Multi Colour Granite – 1,55,325 m^3
4	Proposed Production	Total Reserve – 36855 m^3 Recoverable Reserve – 20142 m^3
5	Elevation Range of the Mine Site	936 m from MSL

2.6.1 Estimation of Reserves

The geological plan demarcating the commercially viable granite body has been prepared in 1:1000 scale (Plate No. IV). With Five sections have been drawn, Two sections (X-Y) & (X1-Y1) drawn as lengthwise and another three sections are (A-B), (C-D) & (E-F) drawn as widthwise. These Sections are suitably chosen to cover maximum area.

The proved depth persistence of 38.0m only (1.0m Topsoil + 2.0m Weathered Granite + 35.0m Multi Colour Granite). has been worked out for each cross sectional area. The cross sectional area multiplied by its length of influence on the longer axis gives the volume. The total of the insitu reserves available within the individual cross sectional area gives the Geological Resources of the quarry lease area.

From the total Geological insitu Reserves, the quantity of saleable granite stones and quantity of granite waste generation are computed by applying recovery factor of about 60% by volume.

As the saleable Multi Colour Granite stone are in terms of cubic meters (Volume) only and not in terms of tonnage as in the case of major industrial mineral, the geological Reserves, mineable reserves and quantum of waste generated etc, are given only in terms of cubic meters. (Volume).

The details of estimation of Geological Reserves and Mineable Reserves with reference to the Geological Plan & section and Conceptual Plan & Section as shown in (Plate no.IV and VII) respectively.

2.6.2 Geological Reserves

The Geological reserve is estimated as 497010 m^3 upto a depth of 38.0m (1.0m Topsoil + 2.0m Weathered Granite + 35.0m Multi Colour Granite), by area cross sectional method

Table 2-7: Geological Reserves

GRANITE GEOLOGICAL RESERVES										
Section	**Bench**	**Length in (m)**	**Width in (m)**	**Depth in (m)**	**Volume in M3**	**Total Reserve in M3**	**Granite Waste @ 40%**	**Multi-Colour Granite Recoverable Reserve @ 60%**	**Weathered Granite**	**Topsoil**
XY-AB	I	55	57	1						3135
	II	55	57	2					6270	

	III	55	57	5	15675	15675	6270	9405		
	IV	55	57	5	15675	15675	6270	9405		
	V	55	57	5	15675	15675	6270	9405		
	VI	55	57	5	15675	15675	6270	9405		
	VII	55	57	5	15675	15675	6270	9405		
	TOTAL				**78375**	**78375**	**31350**	**47025**	**6270**	**3135**
XY-EF	I	89	69	1						6141
	II	89	69	2					12282	
	III	38	69	5	13110	13110	5244	7866		
	IV	89	69	5	30705	30705	12282	18423		
	V	89	69	5	30705	30705	12282	18423		
	VI	89	69	5	30705	30705	12282	18423		
	VII	89	69	5	30705	30705	12282	18423		
	TOTAL				**135930**	**135930**	**54372**	**81558**	**12282**	**6141**
X1Y1-CD	I	59	66	1						3894
	II	59	66	2					7788	
	III	43	14	5	3010	3010	1204	1806		
	IV	59	41	5	12095	12095	4838	7257		
	V	59	66	5	19470	19470	7788	11682		
	VI	59	66	5	19470	19470	7788	11682		
	VII	59	66	5	19470	19470	7788	11682		
	VIII	59	66	5	19470	19470	7788	11682		
	IX	59	66	5	19470	19470	7788	11682		
	TOTAL				**112455**	**112455**	**44982**	**67473**	**7788**	**3894**
X1Y1-EF	I	110	57	1						6270
	II	110	57	2					12540	
	III	60	45	5	13500	13500	5400	8100		
	IV	110	57	5	31350	31350	12540	18810		
	V	110	57	5	31350	31350	12540	18810		
	VI	110	57	5	31350	31350	12540	18810		
	VII	110	57	5	31350	31350	12540	18810		

	VIII	110	57	5	31350	31350	12540	18810		
	TOTAL				**170250**	**170250**	**68100**	**102150**	**12540**	**6270**
GRAND TOTAL					**497010**	**497010**	**198804**	**298206**	**38880**	**19440**

2.6.3 Mineable Reserves

The Mineable reserves are calculated by deducting 7.5m Safety distance and Bench Loss. The Mineable Reserve is calculated upto a depth of 1.0m Topsoil + 2.0m Weathered Granite + 35.0m Multi Colour Granite

Table 2-8: Mineable Reserves

GRANITE MINEABLE RESERVES										
Section	**Bench**	**Length in (m)**	**Width in (m)**	**Depth in (m)**	**Volume in M3**	**Total Reserve in M3**	**Granite Waste @ 40%**	**Multi Colour Granite Recoverable Reserve @ 60%**	**Weathered Granite**	**Topsoil**
XY-AB	I	47	36	1						1692
	II	45	34	2					3060	
	III	43	30	5	6450	6450	2580	3870		
	IV	38	20	5	3800	3800	1520	2280		
	V	33	10	5	1650	1650	660	990		
	VI	28	1	5	140	140	56	84		
	VII	23	1	5	115	115	46	69		
	TOTAL				**12155**	**12155**	**4862**	**7293**	**3060**	**1692**
XY-EF	I	80	61	1						4880
	II	79	60	2					9480	

	III	38	57	5	10830	10830	4332	6498		
	IV	77	52	5	20020	20020	8008	12012		
	V	72	47	5	16920	16920	6768	10152		
	VI	67	42	5	14070	14070	5628	8442		
	VII	62	37	5	11470	11470	4588	6882		
	TOTAL				**73310**	**73310**	**29324**	**43986**	**9480**	**4880**
X1Y1-CD	I	52	46	1						2392
	II	52	44	2					4576	
	III	43	7	5	1505	1505	602	903		
	IV	43	23	5	4945	4945	1978	2967		
	V	38	29	5	5510	5510	2204	3306		
	VI	33	19	5	3135	3135	1254	1881		
	VII	28	9	5	1260	1260	504	756		
	VIII	23	1	5	115	115	46	69		
	IX	18	1	5	90	90	36	54		
	TOTAL				**16560**	**16560**	**6624**	**9936**	**4576**	**2392**
X1Y1-EF	I	73	49	1						3577
	II	72	48	2					6912	
	III	60	34	5	10200	10200	4080	6120		
	IV	64	41	5	13120	13120	5248	7872		
	V	59	36	5	10620	10620	4248	6372		
	VI	54	31	5	8370	8370	3348	5022		
	VII	49	26	5	6370	6370	2548	3822		
	VIII	44	21	5	4620	4620	1848	2772		
	TOTAL				**53300**	**53300**	**21320**	**31980**	**6912**	**3577**
GRAND TOTAL					**155325**	**155325**	**62130**	**93195**	**24028**	**12541**

2.6.4 Year wise Production Plan

The year-wise development for the ensuing Five Years period is shown in the plates with cross sections. In view of the development, year wise proposal for the present scheme period is from existing pit towards Southeastern side of the lease area.

The Proposal for the next five Years reserves are calculated upto a depth of 23.0m

Table 2-9: Year wise Production Plan

GRANITE YEARWISE DEVELOPMENT AND PRODUCTION RESERVES											
Year	**Section**	**Bench**	**Length in (m)**	**Width in (m)**	**Depth in (m)**	**Volume in M3**	**Total Reserve in M3**	**Granite Waste @ 40%**	**Multi Colour Granite Recoverable Reserve @ 60%**	**Weathered Granite**	**Topsoil**
I YEAR	X1Y1-AB	I	60	46	1						2760
		II	57	44	2					5016	
		III	53	7	5	1855	1855	742	1113		
		IV	43	23	5	4945	4945	1978	2967		
		TOTAL				**6800**	**6800**	**2720**	**4080**	**5016**	**2760**
II YEAR	X1Y1-CD	I	40	49	1						1960
		II	40	46	2					3680	
		IV	45	34	5	7650	7650	3060	4590		
		TOTAL				**7650**	**7650**	**3060**	**4590**	**3680**	**1960**
III YEAR	X1Y1-CD	V	45	32	5	7200	7200	2880	4320		
		TOTAL				**7200**	**7200**	**2880**	**4320**		
		V	33	29	5	4785	4785	1914	2871		

IV YEAR	X1Y1-AB	VI	23	19	5	2185	2185	874	1311		
		TOTAL				**6970**	**6970**	**2788**	**4182**		
V YEAR	X1Y1-CD	VI	45	22	5	4950	4950	1980	2970		
		TOTAL				**4950**	**4950**	**1980**	**2970**		
		GRAND TOTAL				**33570**	**33570**	**13428**	**20142**	**8696**	**4720**

Total Reserves ROM = 236855 m3

Total production for the next Five Years (60%) = 20142 m3

(Multi Colour Granite)

Granite waste (40%) = 13428 m3

Total Waste = 26844 m3

Granite: Waste ratio is = 1:1.27

(* Total Waste- Granite waste)

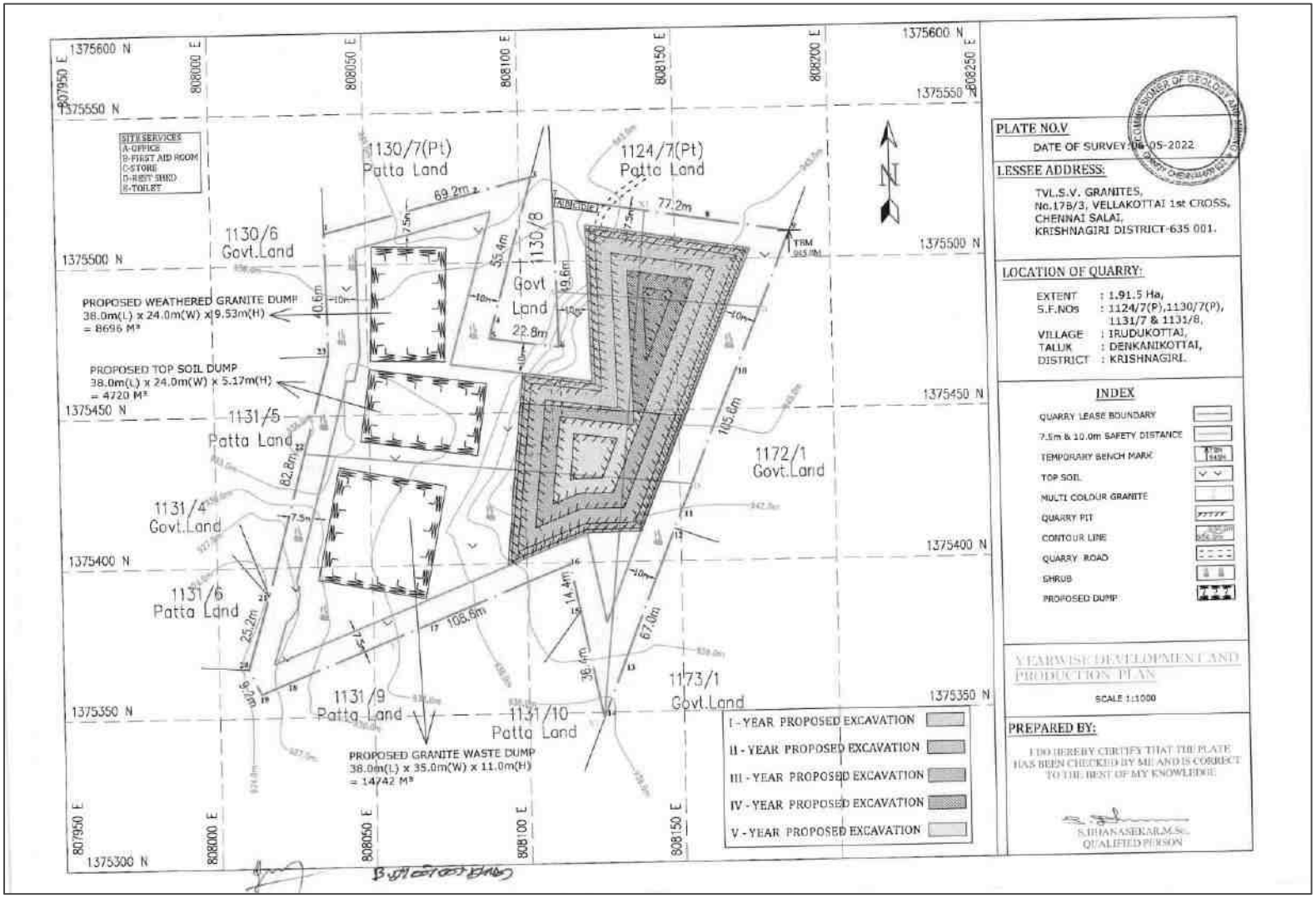


Figure 2-7 Year wise Production Plan

2.7 Type of Mining

The proposed project is an open cast semi mechanized mining with one 5.0 m bench for Top soil & Gravel followed by 5.0m vertical bench with a bench width not less than the bench height. However, as far as the quarrying of Granite is concerned, observance of the provisions of regulations 106(2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence, it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with the Regulation 106(2) (b) of MMR-1961, under Mines Act- 1952.

2.7.1 Method of Working:

In mechanized mining help of compressor, drilling, machine, various diamond saws, wire saws, channeling machines, wedges and broaching tools, cranes, dumpers etc., is taken. Endless braided steel wires and diamond saws are employed for cutting blocks. Jet channeling or jet piercing is quite common. In some mines flame cutting is done to cut the rocks.

In this proposed Quarry area under consideration mining will be done by opencast semi-mechanized method.

2.7.2 Overburden

The Top soil of the lease area is 4720 m^3 for the next five years. Weathered granite is 8696 m^3. Multi Colour Granite waste forms nearly 40% of ROM and the quantity of granite waste in the five years will be around 13428 m^3. Total waste generated will be 26844 m^3. Granite Waste will be dumped in the South Western side of the lease area for the next five years. The generated top soil during the entire life of the quarry will be utilized for construction of bunds, road and afforestation purpose. Suitable specific trees to be grown over in such soil dumps will be identified with the help of agriculture experts to evolve proper afforestation plan. Weathered Granite will be dumped in the western side of the lease area

	Proposed Waste Dump (Granite waste)
Length (m)	38.0
Width (m)	35.0
Height (m)	11.0

Total Quantity (m^3)	14742.0

2.7.3 Machineries to be used

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

Table 2-10: List of Machineries used

S.No	Type	Nos	Dia Hole mm	Size Capacity	Make	Motive power
1	Jack hammer & Accessories	3	32	1.2m to 6m	Atlas Copco	Compressed air
2	Compressor	2	-	400 psi	Atlas Capco	Diesel Drive
3	Diamond wire s	1	-	30m3/Day	Optima	Diesel Generator
4	Gen set	1	-	Powerica	-	CP 125 D5P (H.P)
5	Excavator	1	-	350	Kobelco	Diesel Drive
6	Tippers	1	-	10 tonnes	Tata	Diesel Drive

2.7.4 Blasting:

2.7.4.1 Blasting Pattern:

During future development of quarrying, removal of Top soil will be done by excavator and mild blasting with explosives in holes drilled by jack hammer of 32mm dia especially. No deep hole blasting is proposed. Portable magazine has been proposed to install in the ear marked places. Authorized explosive dealers supply the explosive at site as per the requirement.

2.7.4.2 Drilling & Blasting:

The drilling and blasting parameters are in correlation with the proposals laid down in the approved mining plan. Shallow holes of 32mm dia. holes are drilled and the depth of hole will be generally about 1.0m. Water sprinkled for suppression of air borne dust on Mine haulage roads and waste dumps on regular intervals by water tankers. Drilling of blast holes will be always under wet condition to prevent flying of dust. In the unloading point of Tippers, water was sprinkled and further the drillers were provided with respirators in accordance with mines regulations.

Conventional low explosives were used. Since the dimensional stones, which are needed to be without internal cracks, high explosives were not used. The scale of blasting was however very less considering the rate of production. Muffle blasting was not necessary as the area was free from dwelling houses, public utilities etc., Now wire saw machine is being utilized for primary cutting to liberate the required sizes of block from the parent rock The secondary splitting of the blocks been done by pressure-split method with the help of feather and wedges. In view of above, there is no adverse effect on dust, noise and ground vibration by mining activities.

2.7.4.3 Storage & Safety measures taken during blasting:

The project proponent "Tvl. S.V. Granites" will engage an authorized explosive agency to carry out the small amount of blasting (if necessary) and it will be supervised by Permit Mines Manager.

2.8 Man Power Requirements and Organization Chart

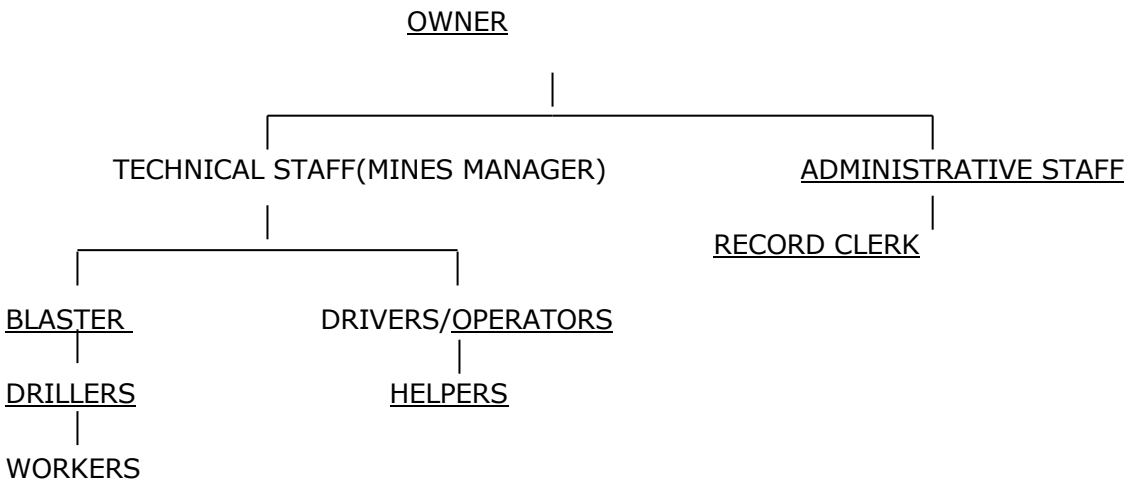
The manpower requirement to meet out the production Schedule and the machinery strength envisaged in the mining plan and to comply with the statutory provisions of the Mines Safety Regulations is as follows.

Table 2-11: Man Power Requirements

S.No.	Name of the Employment	No. of Employees
1.	Project Manager	1 No.
2.	Record Clerk	1 No.
3.	Skilled	
	Supervisor Cum Blaster	1 No.
	Compressor and Wagon Drill operators	2 No.
	Drillers /Workers	6 No.
	Excavator / Rock Breaker Operators	2 No.
	Vehicle Drivers	1 No.
4.	Semi – skilled	
	Watchman	1No.
5.	Unskilled	
	Cleaner	3 Nos.
	Total	**18 Nos.**

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

ORGANISATION CHART



2.8.1 Water Requirement

Total water requirement for the mining project is 3.0 KLD. Domestic water will be sourced from nearby Irudukottai Village and other water will be source from nearby road tankers supply.

Table 2-12: Water Requirment

Purpose	**Quantity**	**Sources**
Domestic & Flushing	1.0 KLD	Packaged Drinking water vendors available in Irudukottai Village which is about ≃ 3.02 km on North side 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	**3.0 KLD**	

2.9 Project Implementation Schedule

The implementation schedule of the proposed Mine Lease of Tvl.S.V.Granites (1.91.50Ha) is as follows.

Table 2-13: Mining Schedule

MINING SCHEDULE					
Activity	April-23	April-24	April-25	April-26	April-27
Site Clearance					
Excavation - Top Soil Removal/Overburden					
I Year Production – 4080 Cum – Multi Colour Granite					
II Year Production – 4590 Cum – Multi Colour Granite					
III Year Production – 4320 Cum – Multi Colour Granite					
IV Year Production - 4182 Cum – Multi Colour Granite					
V Year Production - 2970 Cum – Multi Colour Granite					

2.9 Solid Waste Management

Table 2-14: Solid Waste Management

S.No	Type	Quantity	Disposal Method
1	Organic	4.86 kg/day	Municipal bin including food waste
2	Inorganic	3.24 kg/day	TNPCB authorized recyclers

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

2.11 Mine Drainage

The quarry operation is proposed up to a depth of 23 m below ground level. The water table is below 52-60m from the ground level which is observed from the nearby bore wells and bore wells of this area. Hence the ground water will not be affected in any manner due to the quarrying operation during the entire lease period.

2.12 Power Requirement

The proposed Multi Colour Granite Building Stone quarrying does not required any power supply for the quarrying operation. **16 Liter** diesel per hour used for excavator whenever needed.

2.13 Project Cost

a. Fixed Asset Cost

Sl. No.	Description	Amount (Rs)
1	Land cost	24,00,000

2	Labour shed	3,00,000
3	Sanitary facility	1,20,000
4	Fencing cost	1,70,000
	Total	**29,90,000**

b. Operational Cost:

Sl. No.	Description	Approximate Amount (Rs)
1	Excavator	50,00,000
2	Tippers	30,00,000
3	Wire saw	8,00,000
4	Compressor with loose tools	7,00,000
	Total	**95,00,000**

c. EMP Cost:

SL.No	Description	Approximate Amount (Rs)
1	Drinking water facility	1,50,000
2	Safety kits	80,000
3	Water sprinkling	60,000
4	Afforestation	25,000
5	Water quality test	30,000
6	Air quality test	30,000
7	Noise / Vibration test	30,000
	Total	**4,05,000**

Grand Total project Cost = Rs. 1,28,95,000/-

2.14 Greenbelt

1. The development of greenbelt in the peripheral buffer zone of the mine area.
2. Green belt has been recommended as one of the major component of Environmental Management plan, which will improve ecology, environment and quality of the surrounding area.
3. Local trees (Neem) will be planted along the lease boundary and avenues as well as over Non-active dumps at a rate of 80 trees per annum with interval 5m.
4. The rate of survival expected to be 70% in this area

Table 2-15 Plantation/ Afforestation Program

Year	No. of tress proposed to be planted	Name of the species	Survival rate expected in %	No. of trees expected to be grown
I	60	Neem	70	42
II	60	Neem	70	42
III	60	Neem	70	42
IV	60	Neem	70	42
V	60	Neem	70	42

3 Description of the Environment

3.1 General:

The method of mining for extracting Multi Colour Granite quarry is required to be selected in such a manner to ensure sustainable development. Mining activities invariably affect the existing environmental status of the site. It has both adverse and beneficial effects. In order to maintain the environmental commensuration with the mining operation, it is essential to undertake studies on the existing environmental scenario and assess the impact on different environmental components. This would help in formulating suitable management plans and sustainable resource extraction.

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

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

3.1.1 Study Area:

The study area for the mining projects is as follows:

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

We have obtained Terms of Reference from SEIAA vide SEIAA-TN/F. No. 9443/ToR-1297/2022 Dated: 28.10.2022. The baseline monitoring is carried out in Aug to Oct 2022 and the analysis is briefed

in the EIA report. The proponent has engaged M/s. Ecotech labs Pvt. Ltd for carrying out the existing baseline study.

3.1.2 Instruments Used

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

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

3.1.3 Baseline Data Collection Period:

The baseline data is collected in accordance with the CPCB Guidelines. The Baseline study is carried out from Aug to Oct 2022.

3.1.4 Frequency of Monitoring

Table 3-1: Frequency of Sampling and Analysis

Attributes	Sampling	Frequency
Air environment – Meteorological (wind speed, wind direction, rainfall, humidity, temperature)	Project site	1 hourly continuous
Air environment – Pollutants PM 10 PM 2.5 SO_2 NO_X 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
Noise	5 locations	24 hourly Once in 5 locations
Water (Ground water)	5 locations	Once in 5 locations

pH, Temperature, Turbidity, Magnesium Hardness, Total Alkalinity, Chloride, Sulphate, Fluoride, Nitrate, Sodium, Potassium, Salinity, Total nitrogen, Total Coliforms, Fecal Coliforms		
Water (surface water) pH, Temperature, Turbidity, Magnesium Hardness, Total Alkalinity, Chloride, Sulphate, Fluoride, Nitrate, Sodium, Potassium, Salinity, Total nitrogen, Total Coliforms, Fecal Coliforms	1 location Sample from nearby lakes/river	One-time Sampling
Soil (Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	5 locations	Once in 5 locations
Ecology and biodiversity Study	Study area covering 10 km radius	One-time Sampling
Socio- Economic study (Population, Literacy Level, employment, Infrastructure like school, hospitals & commercial establishments)	Villages around 10 km radius	One-time Sampling

3.1.5 Secondary data Collection

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

- Flora & Faunal Study
- Land use study
- Demography and socio-economic analysis
- Meteorological data, from Indian Meteorological Department (IMD)

3.1.5.1 Study area details

Table 3-2 Study area details

S. No	Description	Details	Source
1.	Project Location	S.F.No. 1124/7(P), 1130/7(P), 1131/7 and 1131/8, Irudukottai Village, Denkanikottai taluk, Krishnagiri District.	Field Study
2.	Latitude & Longitude	Latitude: 12° 25' 41.1003"N to 12° 25' 36.5229"N Longitude: 77° 50' 03.8947"E to 77° 49' 57.9786"E	Topo Sheet
3.	Topo Sheet No.	57H/15	Survey of India Toposheet
4.	Mine Lease Area	1.91.50Ha	--
Demography in the study area (as per Census 2011)			
5.	Total Population	377513	Census Survey of India
6.	Total Number of Households	85759	
7.	Maximum Temperature (°C)	40	IMD
8.	Minimum Temperature (°C)	26.3	

9.	Ecological Sensitive Areas - Wetlands, watercourses or other waterbodies, coastal zone, biospheres, mountains, forests	Nil	Google Earth/Field Study
10.	Densely Populated area	Bialam (1.5 km, S)	
11.	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	**Schools & Colleges** 1. Govt. Hr. Sec. School, Unisetty (2.35 km, ESE) 2. Govt. High School, Irudukottai (3.17 km, N) 3. Govt. High School, Santhanapalli (4.21 km, NNE) **Hospitals** **1.** Govt. Primary Health Centre, Unisetty (1.95 Km, ENE) **2.** Primary Health Centre, Edayansathu (5.36 km, W) **Worship** **1.** DhaniChennama Temple (0.63 km, ESE) **2.** Sri Bhathrakali Amman Temple (0.90 km, S) **3.** Masjid Madani, Santhanapalli (5.41 km, N) **4.** FMPB Church Javanachandram (2.33 km, SE)	Google Earth/ Field Study

3.1.6 Site Connectivity:

- MDR 588 – Denkanikottai – Anchety – Natrampalayam Road, 9.17km, W
- SH 17A – Hosur – Denkanikottai Road – 12.57km, NW
- SH 17B – Hosur – Thally – Denkanikottai Road – 12.57 km, NW

3.2 Land use Analysis

3.2.1 Land Use Classification

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

3.2.2 Methodology

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

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

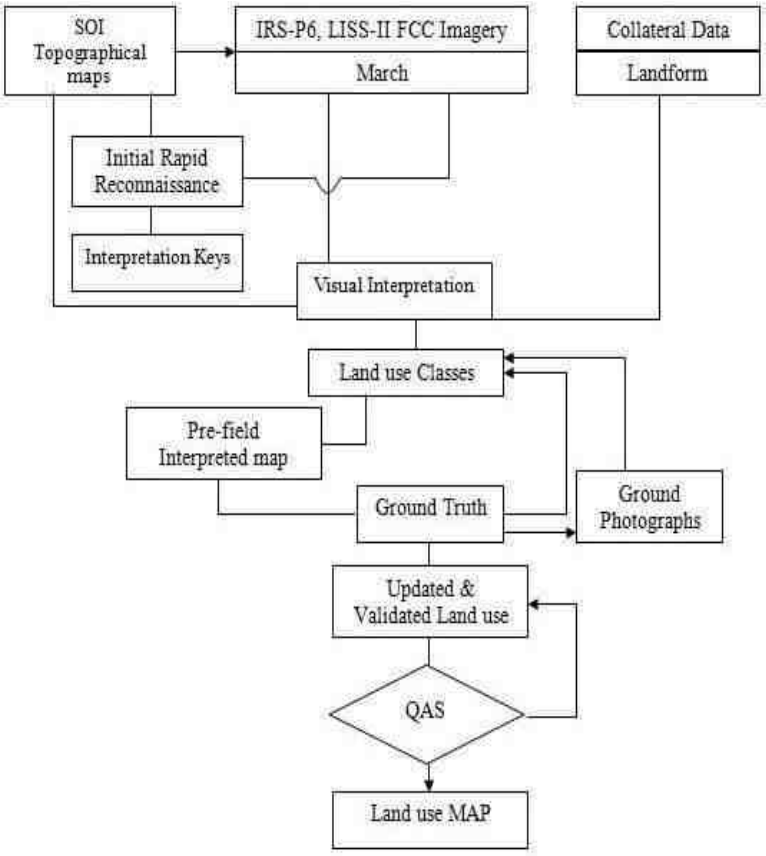


Figure 3-1 Flow Chart showing Methodology of Land use mapping

3.2.3 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.

3.2.4 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.

3.2.5 Interpretation Technique

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

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. Digitization 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/01,02,03 have been procured and interpreted using the ERDAS imaging and ARC-GIS software adopting the necessary interpretation techniques.

3. Satellite data interpretation and vectorization of the resulting units

4. Adopting the available guidelines from manual of LULC mapping using Satellite imagery (NRSA, 1989)

5. Field checking and ground truth validation

6. Composition of final LULC map

The LULC Classification has been done at three levels where level -1 being the broad classification about the land covers that is Built-up land, agriculture land, waste land, 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 classification has been undertaken. Field Verification

Field verification involved collection, verification and record of the different surface features that create specific spectral signatures / image expressions on FCC. In the study area, doubtful areas identified in

course of interpretation of imagery is systematically listed and transferred on to the corresponding SOI topographical maps for ground verification. In addition to these, traverse routes were planned with reference to SOI topographical maps to verify interpreted LU/LC classes in such a manner that all the different classes are covered by at least 5 sampling areas, evenly distributed in the area. Ground truth details involving LU/LC classes and other ancillary information about crop growth stage, exposed soils, landform, nature and type of land degradation are recorded and the different land use classes are taken.

3.2.6 Description of the Land Use / land cover classes

3.2.6.1 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. The built- up in 10 km radius from the proposed project site is as follows.

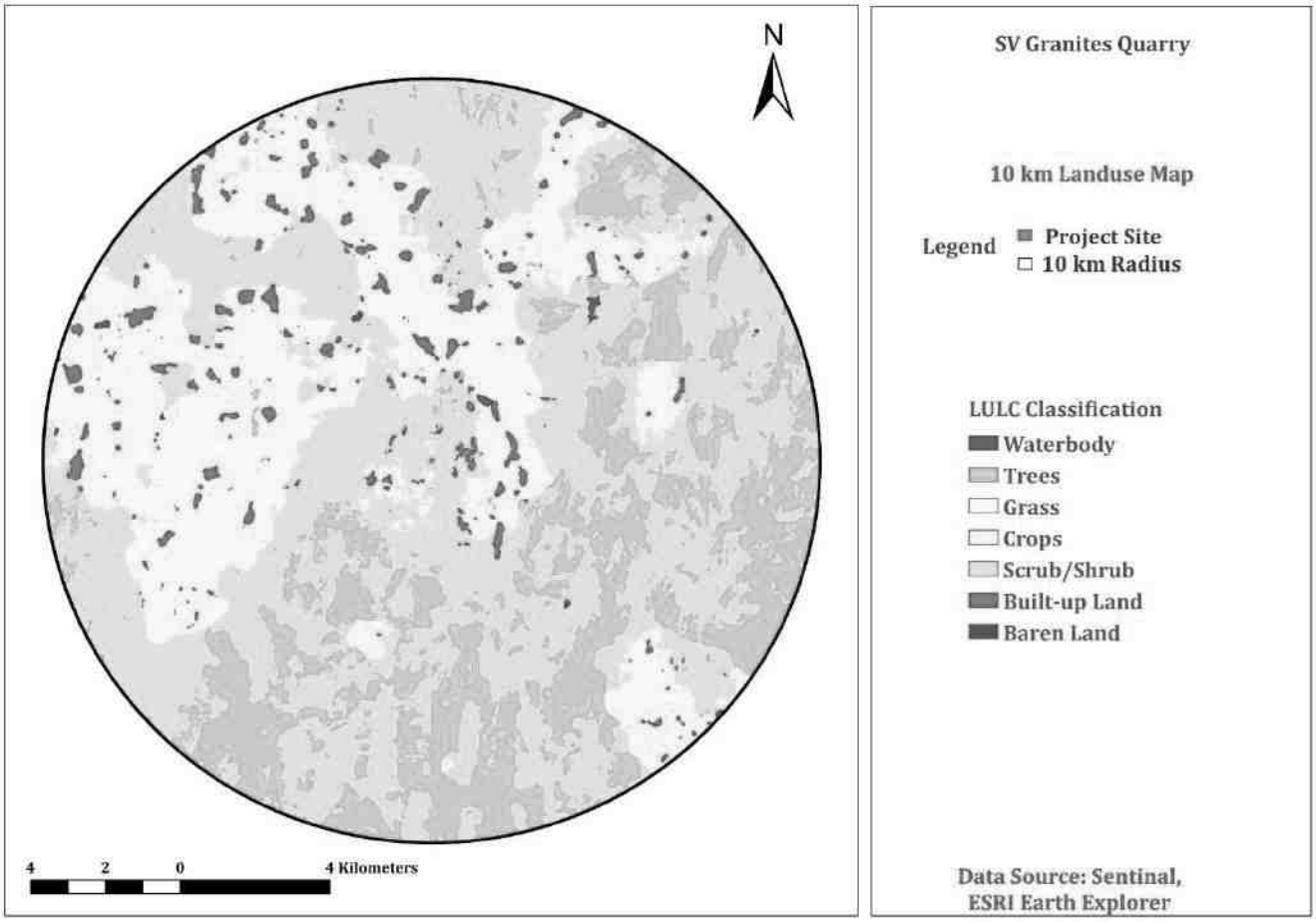


Figure 3-2 Land use classes around 10 km radius from the project site

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

Table 3-3 Land use pattern in 10 km Radius

Sl.No	Categories	Area in Hectares
1	Water Body	0.42
2	Trees	70.57
3	Grass	0.02
4	Crops	93.97
5	Scrub/Shrub	144.78
6	Built-up Area	8.49
7	Barren Land	0.1

3.3 Water Environment

3.3.1 Contour & Drainage

The project site is 936 m from MSL. The drainage pattern within in the 10 km of the project site is dendritic.

3.3.2 Geomorphology

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 heat rocks running to several kms from NNE-SSW as a massive rock formation. The order of superposition of geological sequence are given as under,

ROCK TYPE:

Top Soil gravelly earth	- Recent Age
Pegmatite and Quartz veins	- Archaean Age
Dolerite Dyke	- Archaean Age
Migmatites (Paradiso& Multi)	- Archaean Age (Kolar Group)
Biotite Gneisses	- Archaean Complex

The Regional rocks mostly composed of quartz, plagioclase feldspar, orthoclase feldspar and accessories like mica.

The geological formations of the district belong mainly to Archaean age along with rock of Proterozoic age. The former is rerpresented by Khondalite Group of rocks, Charnockite Group of rocks, Migmatites Complex, Sathyamangalam Group of rocks, while the latter is represented by Alkaline rocks. The Khondalite Group includes garnet sillimanite gneiss and quartzite which occur as small patches. The migmatite complex includes garnetiferous quartzofeldspathic gneiss and hornblends biotite gneiss, the former exposed on the western part of the district. The Sathyamangalam Group includes fuchsite quartzite, sillimanite mica schist and amphibolites. The Bhavani Group in this area includes fissile hornblende-biotite gneiss, granitoid gneiss and pink migmatite. Amphibolites with barbed ferruginous quartzite and associated quartzo- feldspathic rocks (Champion Gneiss) represent the Kolar group and are found west and southwest of Veppanapalli. Following this there are basic intrusions occurring as dykes.

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

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

The geomorphologic study is done within 10 km from the project site. The major formations are

- Denudational Origin- Pediment Pediplain Complex: The groundwater condition in pediments generally varies depending upon the type of underlying folded structures, fracture systems and degree of weathering. Groundwater prospecting in pediments is considered as normal to poor.

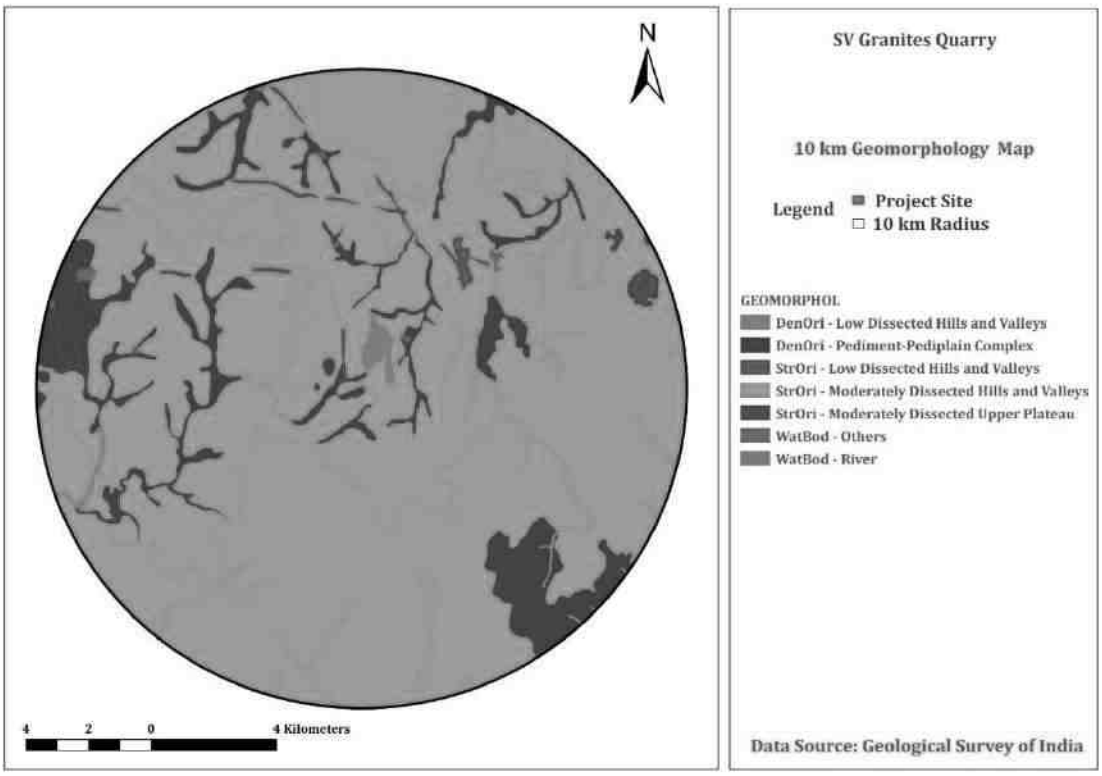


Figure 3-3 Geomorphology within 10km from the project site

3.3.3 Geology:

The area of mining lease comprised of Migmatite, a type of Multi Colour Granite. Its mineral constituents are biotite, Quartz, orthoclase feldspar, and plagioclase feldspar. The biotite is fine grained and other minerals are medium grained. The graphic texture and intergrowth of quartz and feldspar indicates that younger intrusive were invaded into the pre-existing country rock, which preferably would have been biotite gneisses (Peninsular Gneisses), Flowage structure and texture of rock indicates deep seated metamorphism at high temperature and pressure. Xenolith of schistose rock is also found in the adjacent Peninsular Gneisses which indicates assimilation of older rocks by the younger intrusive. Therefore, it is clear from the regional flow structure and texture of Xenolith, the rock would be a type of Migmatite. Since the fine-grained biotite is rich in assemblages shows a Grey shade to the Granite. The pinkish colour of the rock is due to rich fresh orthoclase feldspar. Dimensional cutting and polishing of these types of hard and compact rocks exhibits an attractive pinkish and Grey shades of background with attractive wave patterns. It is a part of peninsular gneisses migmatised by younger intrusive. It is commercially called as Paradiso by the buyers in view of its wave pattern of accessory minerals.

The rock is hard, compact and sheet in nature so as to cut required sizes of blocks.

The mineral constituents of the rock mass shall be about Orthoclase feldspar 40%, quartz roughly 25%, Plagioclase feldspar 25%, mica 15% and others 5%.

Lease Area

The area applied for lease is situated in a slightly elevated terrain with an average height of 5.0 meters gently sloping towards southwest. The rock type available in the area is granite gneiss having a general trend of N30ºE to S30ºW with dipping towards 80º West. Surface level outcrops of multi-colour granite deposits is observed on the north eastern side and in other areas concealed under top soil + weathered Rock and overburden having an average thickness of 3.0 meters. Below which massive formation may encounter. This rock type is having wavy pattern with quartz, orthoclase feldspar as major constituents, pyroxene, mica, garnet and other mafic minerals as accessories. The average recovery percentage is around 60%.

The Multi Colour Granite deposits of this area are rich in orthoclase feldspar with excellent wave pattern. It is commercially called as Paradiso. It is mainly composed of mineral constituents such as biotite, Quartz, orthoclase feldspar and less plagioclase feldspar. It is a type of para gneiss with alternative bands of orthoclase and dark minerals. The biotite is fine grained and other minerals like

alkaline and soda feldspars are medium grained. The flow structure, equigranular texture and presence of fresh orthoclase feldspars indicates that it is a type of Migmatite with purple colour feldspar. Presence of Xenoliths is common in this Multi Colour Granite. Dimensional cutting and polishing of these type of hard and compact rocks exhibits an attractive alternative bands of light pink and dark minerals with excellent wave patterns.

It is a Multi Colour granite covered partly by gravelly soil. The rock is hard, compact and sheet in nature so as to cut required sizes of blocks. The mineral constituents of the rock mass shall be about Orthoclase feldspar 45%, Quartz roughly 20%, Plagioclase feldspar 15%, mica 15% and others 5%.

Geological setting and structure:

The order of geological sequence are,

Description		Geological Age
Top Soil- (Intermittent)	-	Recent
Migmatite (Paradiso) with wave Pattern	-	Archaean
Biotite Gneisses (Peninsular Gneisses)	-	Archaean

The Top soil cover is found all around the exposures of outcrops of Multi Colour Granite. The trend of the rock formation is N300E – S300W direction dipping towards 800 West. The regional trend is shown in the geological plan. The Multi-Colour Granite that occur in this area is massive with less boulders of fractures. It is suitable for commercial exploitation of gang saw size rough blocks.

3.3.4 Hydrogeology

Krishnagiri district is underlained by Archaean crystalline formations with Recent alluvial deposits of limited areal extent and thickness along the courses of major rivers. The occurrence and movement of ground water are controlled by various factors such as physiography, climate, geology and structural features. Weathered, and fractured crystalline rocks constitute the important aquifer systems in the district. Ground water generally occurs under phreatic conditions in the weathered mantle and under semi-confined conditions in the fractured zones at deeper levels. The thickness of weathered zones in the district ranges from less than a meter to more than 28 m. The yield of large diameter dug wells in the district, tapping the weathered mantle of crystalline rocks ranges from 100 to 500 lpm. These wells normally sustain pumping for 2 to 6 hours per day, depending upon the local topography and characteristics of the weathered mantle. The depth to water level (DTW) during pre monsoon (May

2006) ranged between 0.5 and 9.9 m bgl in the district. In major part of the district the DTW is more than 5 5 mbgl. Whereas it ranged between 2 and 9.9 m bgl during post monsoon, in the district and the DTW is in the range of 5 – 10 m bgl in the entire district except a few isolated pockets. The yield of successful exploratory wells drilled in the district ranged from 0.78 lps to 26 lps. As per the studies the wells drilled in granitic gneiss have higher yields than the wells drilled in charnockites. The specific capacity of the wells ranged from 1.2 to 118.0 lpm/m/dd. The piezometric head of fracture zones varied between 0.50 and 18.45 m bgl.

3.3.5 Ground water quality monitoring

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

Table 3-4 Ground water Quality Analysis

Environmental Parameters: Ground water Quality Analysis	
Monitoring Period	Aug to Oct 2022
Design Criteria	Based on the Environmental settings in the study area
Monitoring Locations	Project Site – GW Mariamman temple – GW 2 Ganapathi temple – GW 3 FMPB Church- GW 4 Govt. High School, Irudukottai– GW5
Methodology	Water Samples were collected in 5 Litre fresh cans as per IS 3025 Part I and transported to the laboratory in Iceboxes
Frequency of Monitoring	Once in a season

3.3.5.1 Sampling Procedure

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

Table 3-5: Standard Procedure

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

Table 3-6 Ground water sampling results

S. No	Parameters	Units	Project Site	Mariamman temple GW 2	Ganpati Temple GW 3	FMPB Church GW 4	Govt. High School GW 5
1	pH (at 25°C)	-	7.88	7.41	6.68	7.73	7.68
2	Electrical Conductivity	µS/cm	990	893	1690	723	833
3	Colour	Hazen Unit	2	2	2	1	2
4	Turbidity	NTU	1	BQL(LOQ:1)	12.5	BQL(LOQ:1)	BQL(LOQ:1)

5	Total Dissolved Solids	mg/L	582	491	969	428	458
6	Total Suspended Solids	mg/L	BQL(LOQ: 2)	BQL(LOQ :2)	19.5	BQL(LOQ :2)	BQL(LOQ: 2)
7	Total Hardness as $CaCO_3$	mg/L	394	327	596	225	243
8	Calcium Hardness as $CaCO_3$	mg/L	109	79.3	152	51.8	52.6
9	Magnesium Hardness as $CaCO_3$	mg/L	29.5	31.4	52.4	23.3	27.1
10	Calcium as Ca	mg/L	133	61.7	198	32.3	40.5
11	Magnesium as Mg	mg/L	54.8	51.9	123	44.5	33
12	Chloride as Cl	mg/L	157	266	351	239	305
13	Sulphate as SO_4	mg/L	BQL(LOQ: 0.2)	BQL(LOQ :0.2)	18.5	BQL(LOQ :0.2)	BQL(LOQ: 0.2)
14	Total Alkalinity as $CaCO_3$	mg/L	19.9	37.6	57	108	67.2
15	Iron as Fe	mg/L	BQL(LOQ: 0.2)	BQL(LOQ :0.2)	BQL(LOQ:0. 2)	BQL(LOQ :0.2)	BQL(LOQ: 0.2)
16	Silica as SiO_2	mg/L	45.6	13.2	20.4	20.7	50.2
17	Fluoride as F	mg/L	8.1	3.8	19.3	1.9	2.4
18	Nitrate as NO_3	mg/L	86.2	56.1	157	24.3	38.7
19	Potassium as K	mg/L	7.88	7.41	6.68	7.73	7.68
20	Sodium as Na	mg/L	990	893	1690	723	833

3.3.6 Interpretation of results:

3.3.6.1 Physical parameters of water:

The basic physical parameters of water include

Colour:

Value observed in Project Site (True/Apparent Color): 1 Hazen unit. Value of color at Ganpati temple is 25 Hazen and this value is more than permissible limit of IS:10500.

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

Odour & Taste:

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

pH:

Value observed in the Project Site: 7.88

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

Turbidity:

Value observed in the Project Site: 1 NTU. Value of turbidity at Ganpati temple is 12.5 NTU and this value is more than permissible limit of IS:10500.

Acceptable and permissible limits: 1 NTU & 5 NTU respectively. The value of turbidity generally indicates the presence of phytoplanktons and other sediments. The value in the project site indicates the water is less turbid and no any physical treatment is required to treat the turbidity of the water.

Total Dissolved Solids:

Value observed in the Project Site: 582 mg/L. Value exceeds the desirable limit but within the permissible limit at Ganpati temple, i.e. 969 mg/l.

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

The TDS is the presence of the inorganic salts and small amounts of organic matter present in the water. This is mainly due to the result of surface runoff as the cations and anions in the top soil is carried away by the water. The value in the project site indicates the water is less turbid.

3.3.6.2 Chemical parameters of water:

The chemical parameters of the drinking water include,

Calcium:

Value observed in the Project Site: 109 mg/L. Value exceeds the desirable limits at project site, Mariamman temple and Ganpati temple whereas exceeds the permissible limits at Ganpati temple.

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

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

Magnesium:

Value observed in the Project Site: 29.5 mg/L. Value exceeds the desirable limit at Mariamman temple and Ganpati temple.

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

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

Chloride

Value observed in the project site: 133 mg/L.

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

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

Hardness:

Value observed in the Project Site: 394 mg/L. Value of hardness exceeds at all the locations but is within permissible limits

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

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

3.3.7 Surface Water Analysis

Surface water samples were taken from pond at Project site. The results are summarized below.

Table 3-7 Surface Water Sample Results

S. No.	Parameters	Units	Project site (pond)
1	pH (at 25°C)	-	8.07
2	Electrical Conductivity	µS/cm	596
3	Colour	Hazen Unit	15
4	Turbidity	NTU	3.6
5	Total Dissolved Solids	mg/L	345
6	Total Suspended Solids	mg/L	5.2
7	Total Hardness as $CaCO_3$	mg/L	204
8	Calcium Hardness as $CaCO_3$	mg/L	43.2
9	Magnesium Hardness as $CaCO_3$	mg/L	23.4
10	Calcium as Ca	mg/L	46.6
11	Magnesium as Mg	mg/L	24.4
12	Chloride as Cl	mg/L	229
13	Sulphate as SO_4	mg/L	0.3
14	Total Alkalinity as $CaCO_3$	mg/L	23.7
15	Iron as Fe	mg/L	BQL(LOQ:0.2)
16	Silica as SiO_2	mg/L	7.8
17	Fluoride as F	mg/L	2.8
18	Nitrate as NO_3	mg/L	42.2
19	Potassium as K	mg/L	8.07
20	Sodium as Na	mg/L	596

Inference: The surface water quality is compared with the CPCB Water Quality Criteria against A, B, C, D & E class of water.

3.3.8 Climatology & Meteorology:

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

The year may broadly be divided into four seasons:

Winter season : December to February

Pre-monsoon season : March to May

Monsoon season : June to September

Post-monsoon season : October to November

i) Climate

High temperature throughout the year. Generally a dry and hot climate prevails in the District. The district receives the rainfall under the influence of northeast monsoon. The heaviest rainfall in the district used to be received in the year of 2017 was 1145.9 mm.

ii) Temperature

The average daily temperature ranges from a maximum of 40 °C to a minimum of 26.3 °C

iii) Rainfall:

The total rainfall received during 2017 is 1130mm against the Normal rainfall of 842mm with average of 59 rainy days.

KRISHNAGIRI DISTRICT -NORMAL AND ACTUAL RAINFALL (2013 TO 2017)

Unit in mm.

Acutal Rainfall In Mm					Normal Rainfall In Mm
2013	2014	2015	2016	2017	
766.0	757.6	1049.7	590.6	1145.9	850.58

Source: TWAD Board

Metrological Data

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

vi) Wind Rose Diagram

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

The wind speed & wind direction data are taken and wind rose is plotted for Aug to Oct, 2022.

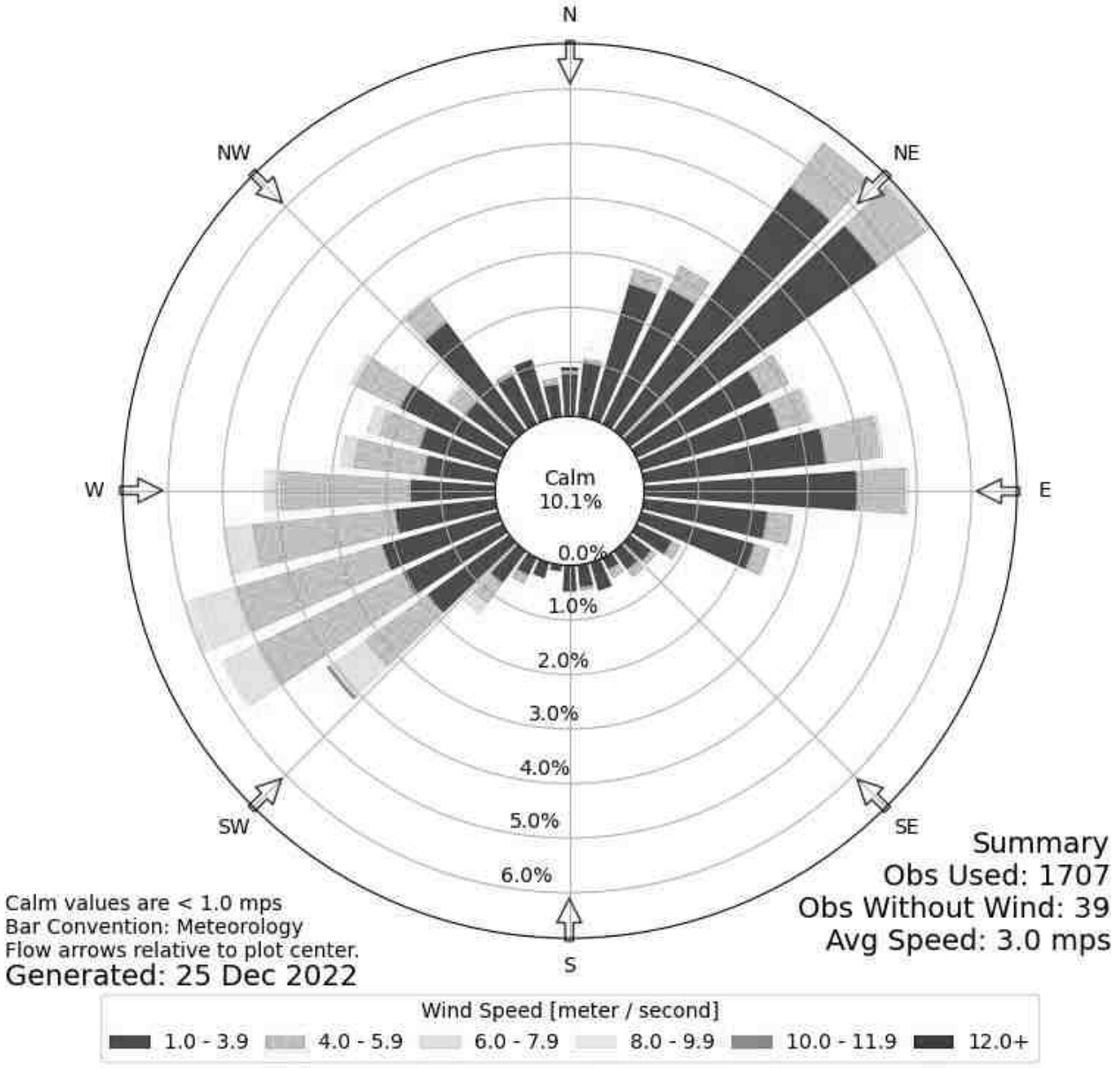


Figure 3-4 Wind-Rose

3.3.9 Selection of Sampling Locations:

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

3.4 Ambient Air Quality

Table 3-8: Selection of Sampling Location

Environmental Parameters*: Ambient Air*			
Monitoring Period	Aug to Oct, 2022		
Design Criteria	The monitoring stations are selected based on factors like topography/terrain, prevailing meteorological conditions like predominant wind direction, etc, play a vital role in the selection of air sampling stations. Based on these criteria, 5 air sampling station were selected in the area as shown below.		
Monitoring Locations	Location & Code	Distance (km)	Direction
	Project Site - AAQ 1	-	-
	Maiamman Temple – AAQ 2	4.32	W
	Ganpati Temple – AAQ 3	2.10	E
	FMPB Church – AAQ 4	2.34	SE
	Govt. High School, Irudukottai – AAQ 5	3.15	N
Methodology	Respirable Particulate Matter (PM10) - Gravimetric (IS 5182: Part 23:2006) Particulate Matter PM2.5 - Gravimetric (Fine particulate matter) Sulphur Dioxide - Calorimetric (West & Gaeke Method) (IS 5182: Part 02: 2001) Nitrogen Dioxide - Calorimetric (Modified Jacob & Hocheiser Method) (IS 5182: Part 06:2006)		
Frequency of Monitorin	2 days in a week, 4 weeks in a month for 3 months in a season.		

3.4.1 Ambient Air Quality: Results & Discussion

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

Table 3-9 Ambient Air Quality

Code	Location	PM 10 (µg/m³)				PM 2.5 (µg/m³)				SO2 (µg/m³)				NOx (µg/m³)			
		Max	Min	Avg	98 percentile	Max	Min	Avg	98 percentile	Max	Min	Avg	98 percentile	Max	Min	Avg	98 percentile
AAQ 1	Project Site - AAQ	56	42	48	54.9	24	18	21	23.9	8	5	6	7.8	18	9	13	17.9
AAQ 2	Mariamman Temple – AAQ 2	54	44	50	53.8	26	19	23	25.6	11	3	7	10.2	25	8	15	23.3
AAQ 3	Ganapathi Temple AAQ 3	59	50	54	57.9	29	20	24	28.5	13	6	9	12.0	27	13	19	26.3
AAQ 4	FMPB Church – AAQ 4	56	46	52	55.3	26	20	23	25.7	10	5	8	9.6	22	12	17	21.8
AAQ 5	Govt. High School, Irudukottai Village – AAQ 5	61	51	56	60.1	30	23	26	29.1	12	6	9	12.1	27	12	20	26.2
NAAQ Standards - Residential Area		100 (µg/m³)				60(µg/m³)				80 (µg/m³)				81 (µg/m³)			

3.4.2 Interpretation of ambient air quality:

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

Observation:

The Maximum value of PM10 (51(µg/m3), PM 2.5(30 (µg/m3), SOx 13 (µg/m3) ,NOx (27(µg/m3) is observed in different places.

Inference:

The monitoring results for PM10, PM2.5, NOx was found to be high in Magithgollahalli Village which densely populated small rural area where there is no commercial development like industry, college, etc. The only contributing factor to the higher values is due to the vehicular movement. In the absence of vehicular movement, the values of PM10, PM2.5, NOx was found to be less.

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

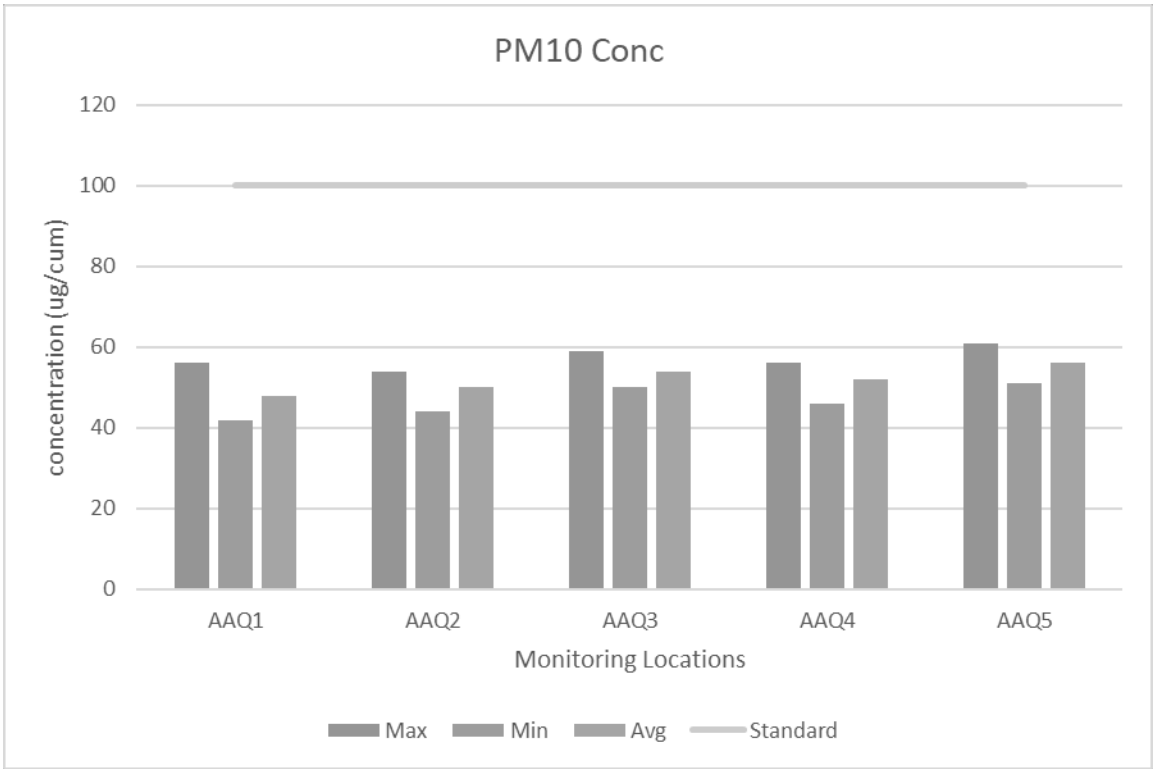


Figure 3-5 Concentration of PM10 (µg/m3) in Study Area

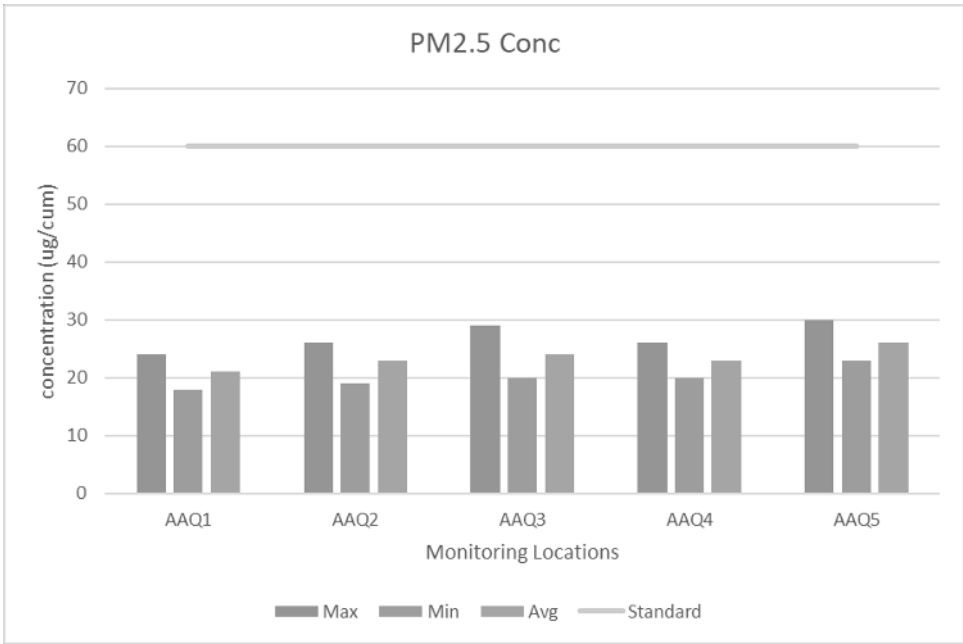


Figure 3-6 Concentration of PM2.5 (µg/m3) in Study Area

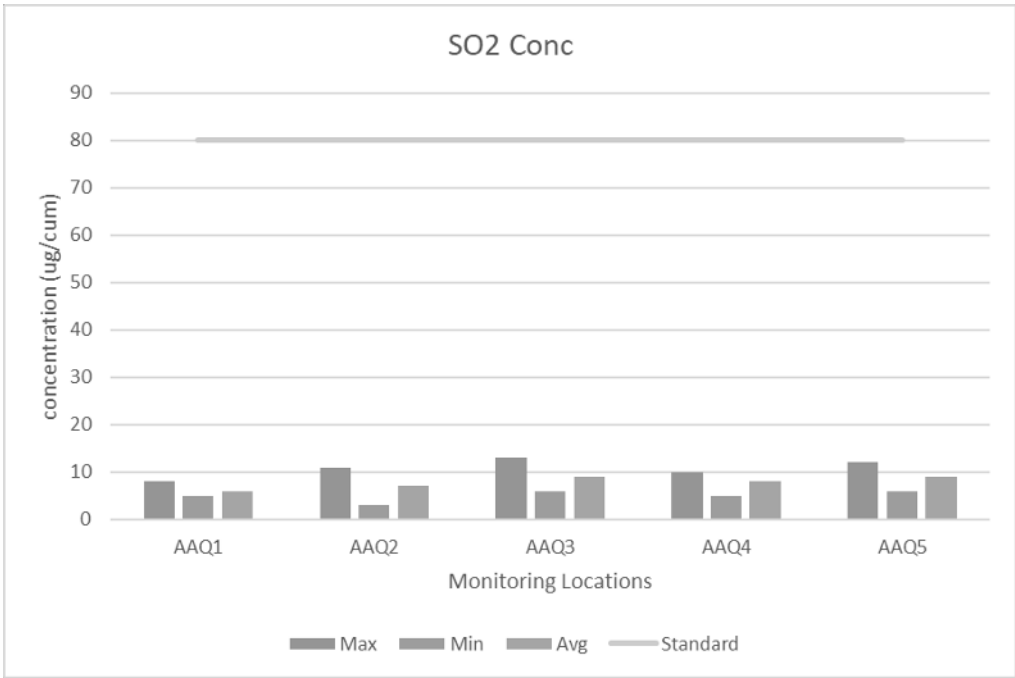


Figure 3-7 Concentration of SOx (µg/m3) in Study Area

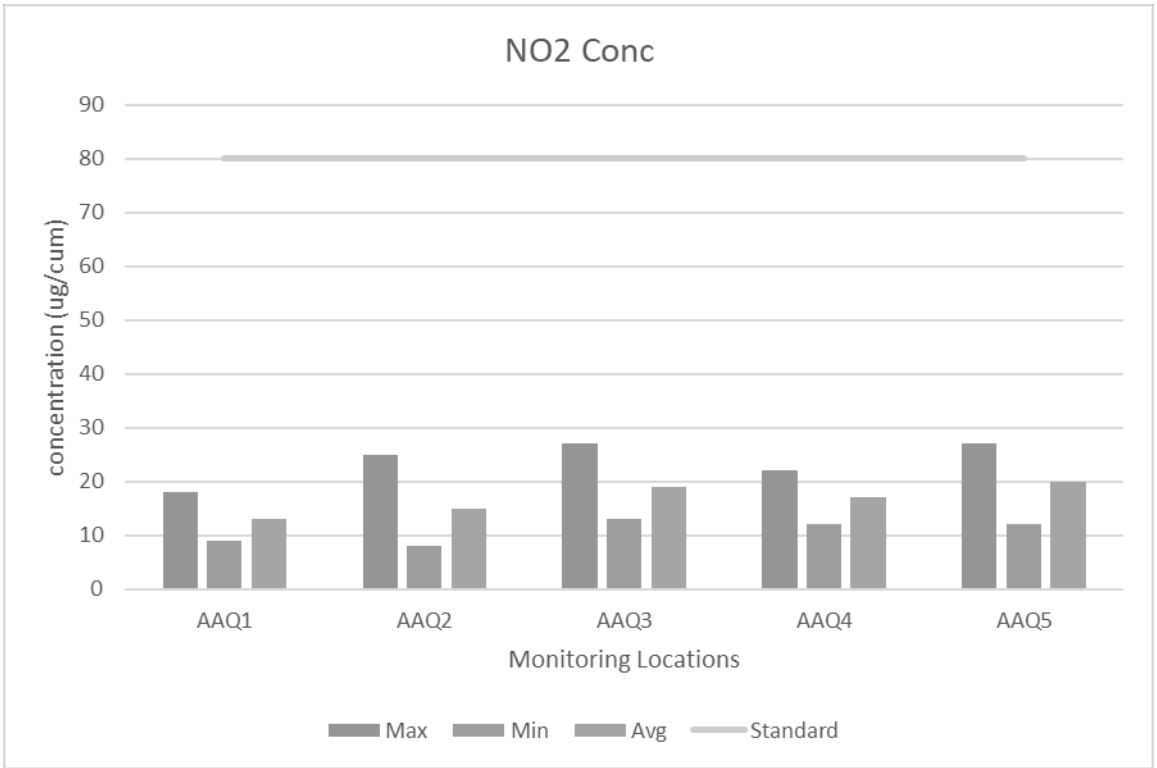


Figure 3-8 Concentration of NOx (µg/m3) in Study Area

3.5 Noise Environment:

Table 3-10 Noise Analysis

Environmental Parameters*: Noise Analysis*	
Monitoring Period	Aug to Oct 2022
Design Criteria	Based on the Sensitivity of the area
Monitoring Locations	Project Site – N-1 Mariamman temple – N-2 Ganpati temple – N 3 FMPB Church- N 4 Govt. High School, Irudukottai– N 5
Methodology	Noise level measurements were taken at the selected locations using noise level meter both during day and night time. Noise level measurements were taken continuously for 24 hours at hourly intervals

Frequency of Monitoring	Noise samples were collected from 5 locations - Once season

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

3.5.1 Day Noise Level (Leq day)

Table 3-11 Day Noise Level (Leq day)

Location	Noise level dB(A)			
	Max	Min	Average	Leq
Project Site – N-1	51	45	48	48.6
Mariamman temple – N-2	56	44	51	52.2
Ganpati temple – N 3	58	50	54	54.7
FMPB Church- N 4	53	45	49	50.1
Govt. High School, Irudukottai– N 5	55	49	53	52.8

3.5.2 Night Noise Level (Leq Night)

Table 3-12 Night Noise Level (Leq Night)

Location	Noise level dB(A)			
	Max	Min	Average	Leq
Project Site – N-1	44	38	41	38.8
Mariamman temple – N-2	44	38	41	39.8
Ganpati temple – N 3	43	37	39	37.8
FMPB Church- N 4	44	39	41	40.0
Govt. High School, Irudukottai– N 5	43	37	41	39.2

Observation:

The noise level during day varies from 44-58 dB(A) and during night varies between 37-44 dB(A).

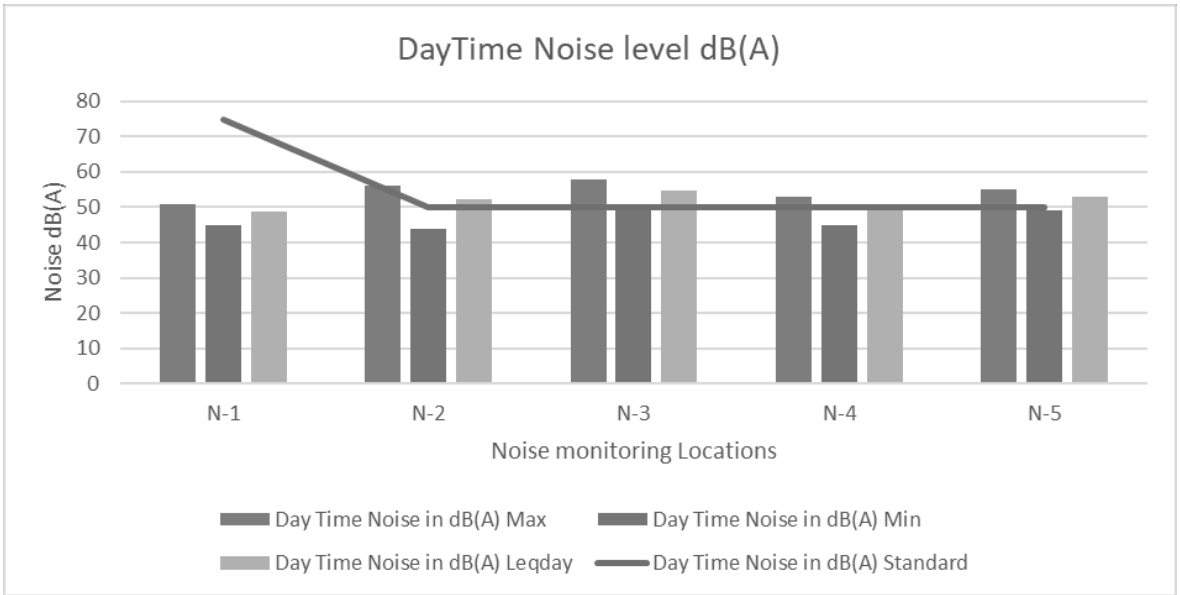


Figure 3-9 Day time Noise Level

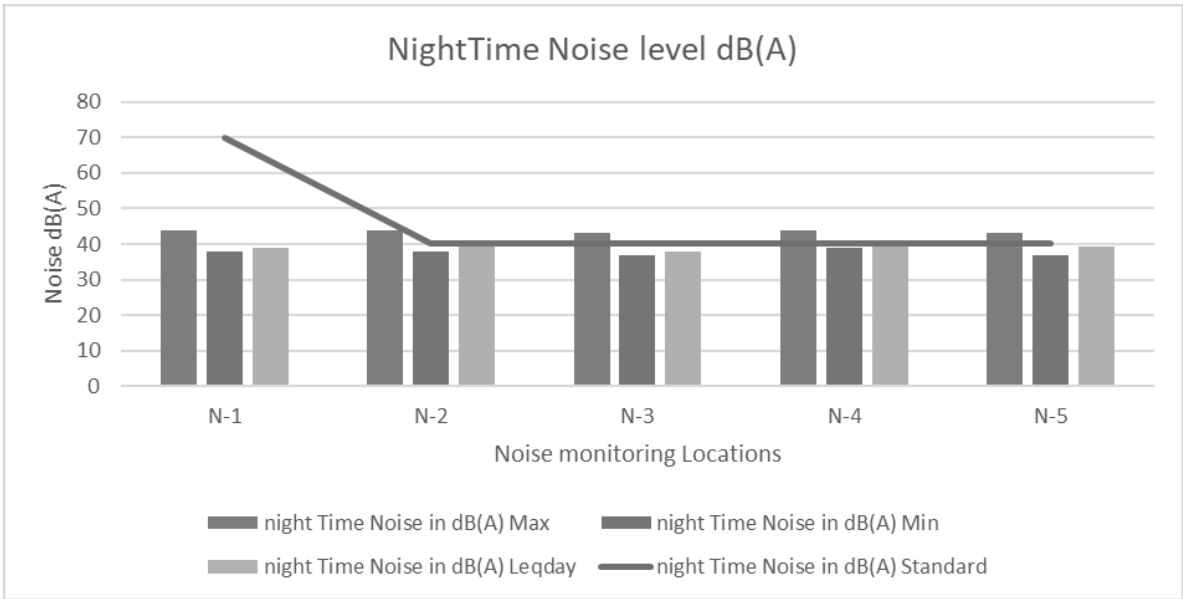


Figure 3-10 Night time Noise Level

3.6 Soil Environment

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

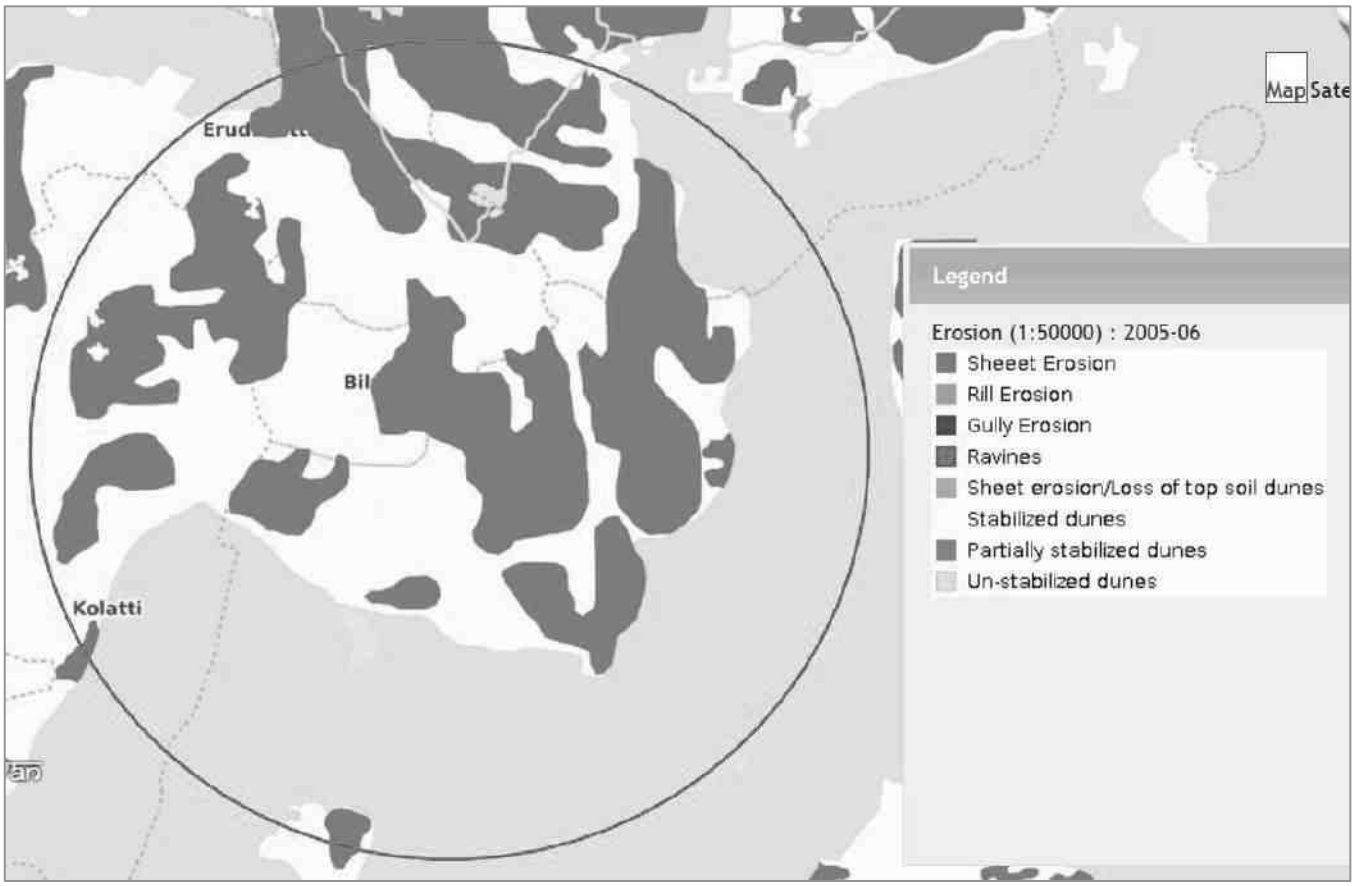


Figure 3-11 Soil Erosion pattern within 5 km radius of the project site

3.6.1 Baseline Data:

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

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

Table 3-13 Soil Quality Analysis

Environmental Parameters*: Soil Quality Analysis*	
Monitoring Period	Aug to Oct 2022

Design Criteria	Based on the environmental settings of the study area
Monitoring Locations	Project Site – SQ-1 Mariamman temple – SQ-2 Ganapathi temple – SQ-3 FMPB Church- SQ-4 Govt. High School, Irudukottai – SQ-5
Methodology	Composite soil samples using sampling augers and field capacity apparatus
Frequency of Monitoring	Soil samples were collected from 5 locations Once in a season

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

Table 3-14 Soil Quality Analysis Results

Parameters	Unit	SQ 1	SQ 2	SQ 3	SQ 4	SQ 5
pH (at 25°C)	-	6.47	6.49	6.9	7.78	6.1
Specific Electrical Conductivity	mS/cm	0.11	0.15	0.12	0.23	0.13
Water Holding Capacity	ml/l	3.12	4.25	3.82	3.16	2.78
Chloride	Meq/kg	47.4	170	56.1	114	112
Calcium as Ca	g/cm3	23.4	23.1	34.7	23.8	22.2
Sodium as Na	mg/kg	131	27.8	140	94.9	165
Potassium as K	mg/kg	10.6	5.5	7.78	14.5	12.6
Organic matter	%	1.07	0.19	0.08	0.21	0.14
Magnesium as Mg	mg/kg	18.8	98.5	20.8	42.3	41.4
Sulphate	mg/kg	199	19.6	179	19.8	187

Cation exchange capacity	meg/ 100g	8.95	6.88	57.6	28.7	7.95
Carbonate	mg/kg	NIL	NIL	NIL	NIL	NIL
Bi-carbonate	mg/kg	122	141	140	133	69.3
TKN	mg/l	0.022	0.029	0.027	0.041	0.030
Bulk Density	mg/kg	1.156	1.141	1.179	1.252	1.172
Available Phosphorous	mg/kg	202	190	181	210	188
Sand	%	63	77	67	54	73
Clay	%	6	8	14	15	9
Silt	%	31	15	17	31	18
SAR	meg/kg	7.14	9.68	7.53	7.46	7.21
Silicon	%	0.81	0.89	0.95	0.79	0.81

3.6.1.1 Physical Properties:

Regular cultivation practices increase the bulk density of soils thus inducing compaction. This results in reduction in water percolation rate and penetration of roots through soils. The soils with low bulk density have favorable physical conditions whereas those with high bulk density exhibit poor physical conditions for agriculture crops. The bulk density of the soil in the study area ranged between 1.141 to 1.252 g/cc which indicates favorable physical condition for plant growth. The water holding capacity was found in the range of 2.78 ml/l to 4.25 ml/l.

3.6.1.2 Chemical Properties:

Chemical characteristics of soils include pH, exchangeable cations and fertility status in the form of NPK values and organic matter. The value of the pH ranges from 6.1 to 7.78, which it indicates majority of pH of the soil is slightly alkaline. The soil in the project site is sodic in nature, which challenges because they tend to have very poor structure which limits or prevents water infiltration and drainage. The organic matter varies from 0.08 to 1.07 mg/kg, which indicates the soil is slightly unfertile.

3.7 Ecology and Biodiversity

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

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

3.7.1 Methods available for floral analysis:

3.7.1.1 Plot Sampling Methods

- Quadrat – 2D shape (e.g. square or rectangle, or other shape) used as a sampling unit
- Transect
    - Line transects feature only a length dimension, usually defined by a tape stretched across the area to be sampled.
    - Belt transects have a width as well as length.
    - Pace-transects are established when the observer strides along an imaginary line across the sample site and uses their foot placement to determine specific sampling points.

3.7.1.2 Plot less Sampling Methods

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

3.7.2 Field study& Methodology adopted:

To assess the suitability of the methodology, random field survey was done. Field survey was conducted around 2 km radius from the project site and five locations were chosen based on the species density. Quadrat method is chosen for the proposed study as compared to other sampling methods, because they

are relatively simple to use. Quadrat plots are uniform in size and shape and distributed randomly throughout the sample area, which makes the study design straightforward. They are also one of the most affordable techniques because they require very few materials.

3.7.3 Study outcome:

Phyto-sociological parameters, such as ***Density, Frequency, Basal Area, Abundance and Importance Value Index*** of individual species (Trees) were determined in randomly placed quadrate of different sizes in the study area. Relative frequency, relative basal area and relative density were calculated and the sum of these three represented Importance Value Index (IVI) for various species. For shrubs, herbs and grasses, ***Density, Frequency, Relative Density & Relative Frequency were found***.

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

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

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

Table 3-16 Tree Species in the core Zone

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Dominance	Relative Density	Relative Frequency	Relative Dominance	IVI	IUCN Conservation Status
1	Ficus Carica	Athi Maram	2	2	6	0.33	33.33	1	0.28	1.68	2.17	4.45	8.31	Least Concern
2	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	100.0	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	100.0	2.83	0.13	14.29	6.52	1.98	22.79	Not assessed
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	100.0	1.16	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	100.0	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	100.0	1.66	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					

Table 3-17 Shrubs in the Core Zone

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IUCN Conservation Status
1	Jatropagossypifolia	Kaatamanaku	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

Table 3-18 Herbs & Grasses in the core zone

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants	Total No. of	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

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

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

Table 3-19 Calculation of species diversity

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

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

i. Species Diversity

Scientific Name	**Common Name**	**No. of Species**	**Pi**	**ln (Pi)**	**Pi x ln (Pi)**
Ficus Carica	Athi Maram	2	0.017857	-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
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
Total		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
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
Total		252			-2.56298

H (Shannon Diversity Index) =2.39

i. 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.

3.7.6 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

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
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

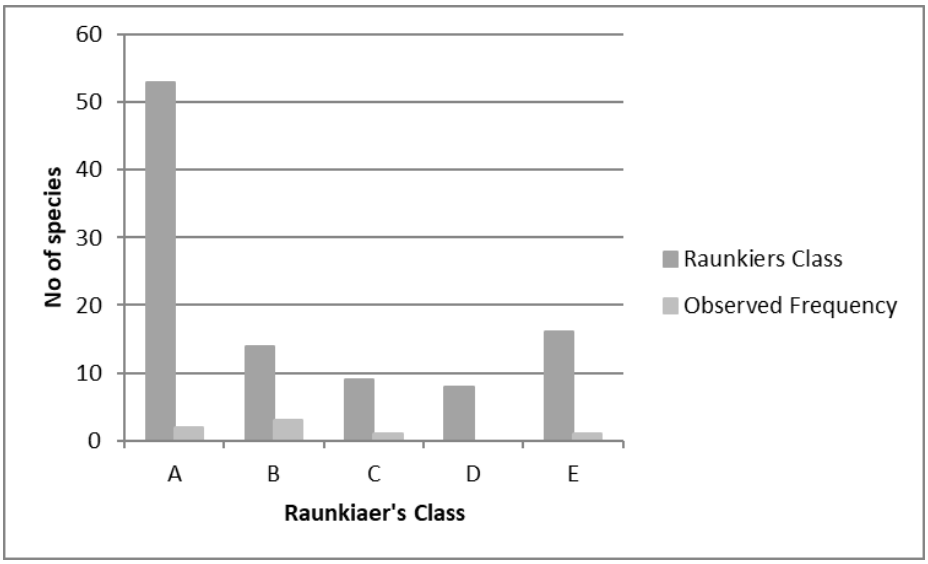


Figure 3-12 Raunkiaer's class for the observed species

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.

3.7.7 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.

3.7.8 Faunal Communities

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

- Point Survey Method: Observations were made in each site for 28 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).

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

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

Methodology Adopted:

Point Survey method was adopted for this development project where observations were made in each site for 28 minutes duration (10 times).

Study in the core zone:

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

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

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

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

Table 3-21 List of fauna species

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

Mammals			
Funambulus pennanti	Palm Squirrel	IV	Least Concern
Mus rattus	Indian rat	IV	Not listed
Bandicota bengalensis	Indian mole rat	IV	Least Concern
Funambulus palmarum	Three stripped palm squirrel	IV	Least Concern
Herestes edwardsii	Common Mangoose	IV	Not listed
Mus musculus	Common Mouse	IV	Least Concern
Bandicota indica	Rat	IV	Least Concern
Lepus nigricollis	Indian Hare	IV	Least Concern
Felis catus	Cat	Not listed	Not listed
Canis lupus familiaris	Indian dog	Not listed	Not listed
Bos Indicus	Indian Cow	Not listed	Not listed
Bubalus bubalis	Buffalo	I	Not listed
Sus scrofa domesticus	Domestic pig	Not listed	Not listed
Birds			
Milvus migrans	Black kite	IV	Least concern
Saxicoloides fulicatus	Indian Robin	IV	Least concern
Pycnonotus cafer	Red vented Bulbul	IV	Least concern
Phragamaticola aedon	Thick billed warbler	IV	Least concern
Pericrocotus cinnamomeus	Small Minivet	IV	Least concern
Eudynamys scolopaceus	Koel	IV	Least concern
Psittacula krameni	Rose ringed parakeet	IV	Least concern
Dicrurus marcocercus	Black drongo	IV	Least concern
Columba livia	Rock pigeon	IV	Least concern
Corvus splendens	House crow	IV	Least concern
Alcedo atthis	Small blue kingfisher	IV	Least concern
Cuculus canorus	Common Cukoo	IV	Least concern
Reptiles & Amphibians			

Chameleon zeylanicum	Chameleon	IV	Not listed
Calotes versicolor	Common garden lizard	II	Not listed
Bungarus caeruleus	Common krait	IV	Not listed
Ophisops leschenaultia	Snake eyed lizard	--	Not listed
Bufo melanostictus	Toad	IV	Least concern
Ptyas mucosa	Rat snakes	IV	Least concern
Hemidactylus sp.	House lizard	--	Not listed
Butterflies			
Danaus chrysippus	Plain Tiger	--	Not listed
Papilio demoleus	Common lime	--	Not listed
Euploea core	Common crow	--	Least concern
Danaus genutia	Common tiger	--	Not listed
Eurema brigitta	Small grass yellow	--	Least concern

3.8 Demography and Socio Economics

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

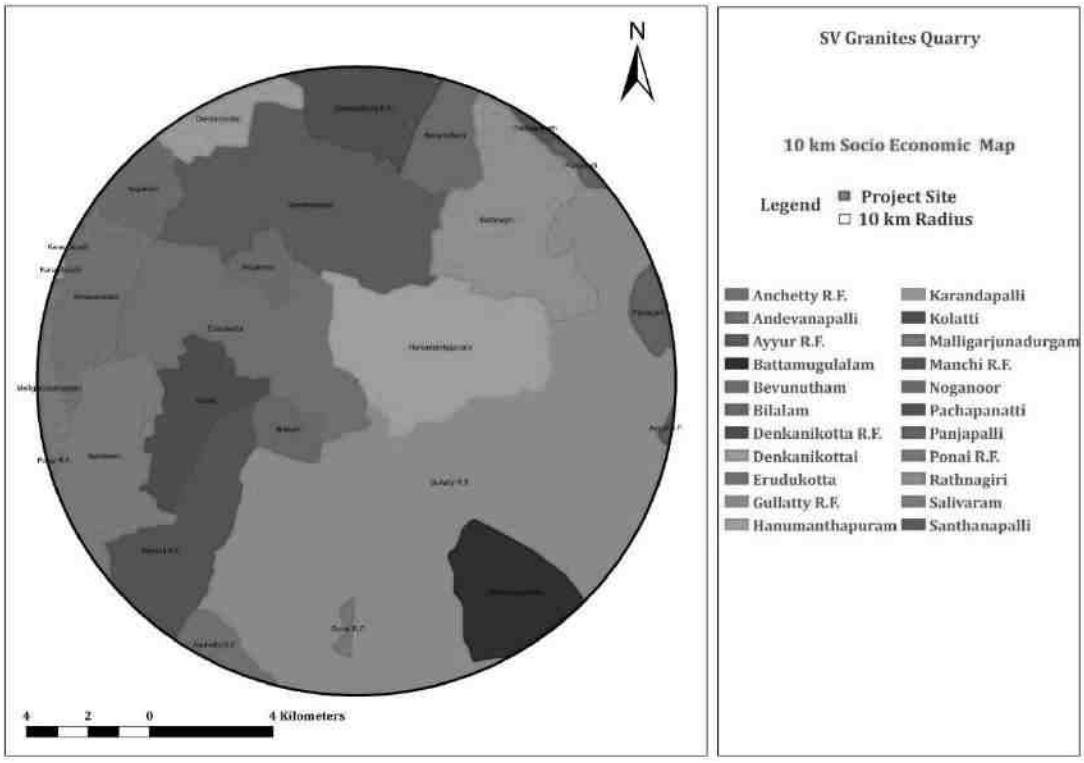


Figure 3-13 Socio Economic map around 10km radius from the project site

Table 3-22: Demography Survey StudySource: Census of India, 2011

Villages	Household	Population	Sex Ratio		Literacy Rate		SC	ST
			Male	Female	Male	Female		
Anchetty	3750	16578	8596	7982	4948	3491	2116	119
Andevanapalli	1101	4908	2509	2399	1550	1103	383	1
Battamugulalam	1662	7929	4067	3862	1743	1128	557	1910
Bevunutham	823	3768	1985	1783	1157	778	300	3
Bilalam	154	774	414	360	174	82	6	0
Denkanikottai	70781	309901	159980	149921	96127	68656	44399	11277
Erudukotta	1190	5563	2914	2649	1571	1065	821	29
Hanumanthapuram	1125	5241	2712	2529	1578	1089	652	739
Karandapalli	863	3678	1934	1744	1145	661	283	6
Noganoor	692	2984	1546	1438	968	727	424	19
Pachapanatti	863	3895	1959	1936	1183	915	380	231
Rathnagiri	505	2342	1221	1121	766	550	369	127
Salivaram	817	3407	1735	1672	1064	706	477	148
Santhanapalli	1433	6545	3417	3128	1974	1426	1922	112

3.9 Traffic Impact Assessment

Traffic data collected continuously for 24 hours by visual observation and counting of vehicles under three categories, viz., heavy motor vehicles, light motor vehicles and two/three wheelers. As traffic densities on the roads are high, two skilled persons were deployed simultaneously at each station during each shift- one person on each of the two directions for counting the traffic. At the end of each hour, fresh counting and recording was undertaken. Total numbers of vehicles per hour under the three categories were determined.

Table 3-23: No. of Vehicles per Day

S. No	Vehicles Distribution	Number of Vehicles Distribution/Day	Passenger Car Unit (PCU)	Total Number of Vehicle in PCU
		MDR-588	**-**	**MDR-588**
1	Cars	950	1	950
2	Buses	324	3	108
3	Trucks	366	3	122
4	Two wheelers	950	0.5	1900
5	Three wheelers	390	1.5	260
Total		**2980**	**-**	**3340**

Table 3-24: Existing Traffic Scenario and LOS

Road	V (Volume in PCU/hr)	C (Capacity in PCU/hr)	Existing V/C Ratio	LOS
MDR-588	3340/24=139	413	0.33	**B**

Note: The existing level may be "Very Good" for MDR=413.

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

4 Anticipated Environmental Impacts & Mitigation Measures

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

4.1 Introduction

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

Environmental Impacts can be group into Primary impacts & Secondary Impacts

Primary Impacts: These impacts are directly attributed by the project

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

Assessment of impacts is done for the following Environmental Parameters:

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

4.2 LAND ENVIRONMENT:

<table>
<tr><th>Aspect</th><th>Impact</th><th>Mitigation Measures</th></tr>
<tr><td>Mining of Granite</td><td>The proposed 1.91.50 Ha mine located in Irudukottai Village, Multi Colour Granite of 20142 m3 at a depth of 23 m BGL for the period of respectively. The quarry operation is proposed to carry out with conventional open cast semi mechanized mining with 5.0 meter vertical bench and bench width of 5.0 meter. At the end of 5 years, mining lease area will be converted into ultimate pit.

<table>
<tr><td colspan="3">ULTIMATE PIT DIMENSIONS</td></tr>
<tr><td>Length(m)</td><td>Width(m)</td><td>Depth(m)</td></tr>
<tr><td>125.0m(avg)</td><td>64.0m(avg)</td><td>38.0m</td></tr>
</table>
</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 60 Nos of local tree species per year (Casuarina and Pungan) 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.

Top soil of the lease area is Nil for the next five years. Multi Colour Granite waste forms nearly 40% of ROM and the quantity of waste in the five years will be around 13428m3. Granite Waste will be dumped in the South-Western side of the lease area for the next five years. Other waste include top-soil of 4720 m^3 and Weathered granite is 8696 m^3. The generated top soil during the entire life of the</td></tr>
</table>

		quarry will be utilized for construction of bunds, road and afforestation purpose. Suitable specific trees to be grown over in such soil dumps will be identified with the help of agriculture experts to evolve proper afforestation plan. Weathered Granite will be dumped in the western side of the lease area
	The main impact of open cast mining on land-use is land degradation. The land is bound to be excavated for mining of Multi Colour Granite Quarry.	The source of dust generation is majorly due to drilling, blasting (mild blasting if necessary), 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 slightly elevated terrain.
	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. 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 is not properly managed, may cause odor and health problem to the workers.	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 23 meter below the ground level, whereas the ground water table is at 52-60 m below the ground level. The municipal wastewater will be disposed into septic tanks of 5 cum and soak pit. No chemicals consisting of toxic elements will be used for carrying out mining activity.
	The ground water depletion may occur due to mining activity	The ground water table is at a depth of 52-60 m 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 (if necessary) 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.

	Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labours.	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 used for loading and unloading, 1 No of Excavator (1.2 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.	***Mitigation Measures during Operation Phase*** It is proposed to plant 300 Nos of local species (with 60 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) in two tier to combat air pollution and with herbs (Nerium) in between the tree species. Planning transportation routes of the mined out mineral, so as to reach the nearest paved roads (an approach road) by shortest route connecting to MDR-588. Alternatively, gravelled road may be

		constructed between mine lease area and nearest paved road connectivity. The speed of trucks plying on the haul road will be limited to 20km/hr to avoid generation of dust. The trucks will be covered by tarpaulin. Overloading will be avoided.
	Effect on Human • Adverse effect on human health of working labourers and neighbouring villagers like effect on breathing and respiratory system, damage to lung tissue, influenza or asthma. • Dust generation due to loading and unloading of mineral and due to transportation can also affect the workers as well as nearby villagers. *Effect on Plants* • Stomatal index may be minimized due to dust deposit on leaf.	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. 1.0 KLD of water will be proposed for sprinkling on unpaved roads to avoid dust generation during transportation.

Air Quality Modeling:

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

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

Special features of AERMOD include its ability to treat the vertical in homogeneity of the planetary boundary layer special treatment of surface releases, irregularly shaped area sources, a plume model for the convective boundary layer, limitation of vertical mixing in the stable boundary layer, and fixing the reflecting surface at the stack base.

The AERMET is the meteorological preprocessor for the AERMOD. Input data can come from hourly cloud cover observations, surface meteorological observations and twice-a-day upper air soundings. Output includes surface meteorological observations and parameters and vertical profiles of several atmospheric parameters.

The AERMAP is a terrain preprocessor designed to simplify and standardize the input of terrain data for the AERMOD. Input data include receptor terrain elevation data. Output includes, for each receptor, location and height scale, which are elevations used for the computation of airflow around hills.

4.4.1 Source Characterization

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

The emission Sources from the proposed operation are

Point Sources:

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

1. Hydraulic excavator – 1.2 Cum Bucket Capacity (with Rock Breaker Attachment)
2. Jack Hammer 25.5mm Dia
3. Tipper
4. Tractor Mounted - Compressor
5. Drilling and excavation with Accessories

Road Sources:

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

The parameters considered for the hauling operation include the following,

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

Other fugitive particulate emission sources:

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

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

Post Project Scenario

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

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

Table 4-1 Controlled emission calculation (24Hour- average modeling inputs)

Activity		Source Type	Emissions (g/s)				
			TSPM	PM_{10}	$PM_{2.5}$	NO_X	CO
Haulage		Line volume	4.796E-02	1.356E-02	8.134E-03	3.364E-02 (from tipper)	2.0291E-03 (from tipper)
Topsoil handling	Scraper	open pit	Negligible	Negligible	Negligible	N/A	N/A
	Bulldozing		9.014E-02	2.991E-02	1.795E-02	6.70E-03 (from excavator)	5.833E-02 (from excavator)
Granite mining	Wet drilling		1.88E-04	3.76E-05	2.25E-05	5.22E-03 (from compressor)	1.13E-03 (from compressor)
	Loading		2.34E-04	4.69E-05	2.82E-05	N/A	N/A

4.5 NOISE ENVIRONMENT:

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

	Number of vehicles will be increased due to the proposed mining activity hence vehicle may collate which may result in unwanted sound and can also cause impact on human health like breathing and respiratory system, damage to lung tissue, influenza or asthma.	levels. Adequate silencers will be provided in all the diesel engines of vehicles. • It will be ensured that all transportation vehicles carry a valid PUC Certificates. • Speed of trucks entering or leaving the mine will be limited to moderate speed (20km/hr) to prevent undue noise from empty vehicles. The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipments. • It is proposed to plant 300 Nos. of local species (Neem) to reduce the impact of noise in the study area. The development of green belts around the periphery of the mine will be implemented to attenuate noise. • The trucks will be diverted on two roads viz. MDR-588 and a District road to avoid traffic congestion. • Health check-up camps will be organized once in six month.

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

4.6 BIOLOGICAL ENVIRONMNENT:

Aspect	Impacts	Mitigation Measures
Site Clearance	Loss of habitat due to site clearance which may lead to ecological disturbance.	The proposed mining lease is already a dry land hence no site clearance is required. Only few shrubs and herbs like parthenium sp., prosopis juliflora were present.
Planting of trees	Development of afforestation in the mine lease area will have a positive impact as the land was initially a barren.	7.5m safety distance will be provided all along the boundary of the mine lease area and safety. Around 0.67.5 Ha of land is utilized for greenbelt development (300 Nos – 5 years). This will attract avifauna thus enhancing the existing ecological environment.

4.7 SOCIO ECONOMIC ENVIRONMNENT:

Aspect	Impact	Mitigation Measures
Proposed implementation of Mining activity	Land acquisition for the implementation of the project may result in loss of assets, which in return will make the	The proposed project is a patta land of ***Tvl.S.V.Granite*** and the land is vacant where there are no human settlement within 500m radius. Hence the project

	PAP to shift, losing their normal routine and livelihood	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 Bialam village which is 1.5 km-S 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 gravelled road and nearest paved road and preferred not to use unpaved roads. In addition to that, the speed of trucks will be limited to 20km/hr to avoid any accidents.
Employment opportunity	The project will improve the livelihood of the local people	After the development of the proposed mine, it will improve the livelihood of local people and also provide the direct and indirect employment opportunities. The Multi Colour Granite building stone for the infrastructural development in the area will be made available from the local markets at reasonably lower price.
Corporate Environmental Responsibility	The proposed project will help in natural resource augmentation & Community resource development.	As a part of CER, 2% of the project cost i.e, 2.579 Lakhs will be allocated. Developing the library, Sports/Drinking water facilities in nearby school.

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.	Blasting	Injury to the labours due to the blasting activity	Alarm system in the form of Siren will be engaged in the project site to caution the blasting activity. In addition to that, the blasting activity (if necessary) will be scheduled at particular time – 5 P.M to 6 P.M (or whenever required) so that the employees will be aware of the activity. Smoking will be banned in the site and sign boards will be displayed in various places at site.
3.	Screening of Labors	Labors will be checked for health condition before employing them in mining activity	All the 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.

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 first scheme of mining plan has been approved by the Commissionerate of Geology and Mining, Guindy prior to submission of the Form-1 and PFR.

ToR issued by the SEIAA-TN vide Letter No. . SEIAA-TN/F.No.9443/ToR-1297/2022 dt. 28.10.2022.. The study for alternative analysis involves in-depth examination of site and technology.

5.1.1 Analysis for Alternative Sites and Mining Technology

5.1.1.1 Alternative Site

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

5.1.1.2 Alternative Technology

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

Table 5-1: Alternative for Technology and other Parameters

S. No.	Particular	Alternative Option 1	Alternative Option 2	Remarks

1.	Technology	Opencast semi mechanized mining	Opencast mechanized mining	Opencast semi mechanized Involving drilling and blasting are preferred. Benefits: Material is hard so to make it loose and to bring it to appropriate size.
2.	Employment	Local employment.	Outsource employment	Local employment is preferred Benefits: Provides employment to local people along with financial benefits No residential building/ housing is required.
3.	Labour transportation	Public transport	Private transport	Local labours will be deployed from Irudukottai village so they will either reach mine site by bicycle or by foot. Benefits: Cost of transportation of labors will be negligible
4.	Material transportation	Public transport	Private transport	Material will be transported through trucks/trolleys on the contract basis Benefits: It will give indirect employment.
5.	Water	Tanker supplier	Ground water	Tanker supply will be preferred. Water will be sourced from Bialam Village which is located in 1.5 km in South side from the project site.

6. Environmental Monitoring Program

6.1 General:

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

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

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

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

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

Table 6-1: Environmental Monitoring Programme

Parameters	Sampling	Frequency	Location
Air environment – Pollutants PM 10 PM 2.5 SO_2	5 locations	24 hourly twice a week 4 hourly. Twice a week, One non monsoon season	Project Site, Ganapathy Temple, Hanumanthapuram Village, Sri Mariamman Temple, Kolatti Village,

NO_x Lead in PM		8 hourly, twice a week 24 hourly, twice a week	Govt. High School, Irudukottai Village & FMPB Church, Javanachandram
Noise	5 locations	24 hourly Once in 5 locations	Project Site, Ganapathy Temple, Hanumanthapuram Village, Sri Mariamman Temple, Kolatti Village, Govt. High School, Irudukottai Village & FMPB Church, Javanachandram
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, Ganapathy Temple, Hanumanthapuram Village, Sri Mariamman Temple, Kolatti Village, Govt. High School, Irudukottai Village & FMPB Church, Javanachandram

Water (surface water) • pH • Temperature • Turbidity • Magnesium Hardness • Total Alkalinity • Chloride • Sulphate • Fluoride • Nitrate • Sodium • Potassium • Salinity • Total nitrogen • Total Coliforms • Fecal Coliforms	Sample from nearby lakes/river	One time Sampling	
Soil (Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	5 locations	Once in 5 locations	Project Site, Ganapathy Temple, Hanumanthapuram Village, Sri Mariamman Temple, Kolatti Village, Govt. High School, Irudukottai Village & FMPB Church, Javanachandram
Ecology and biodiversity Study	Study area covering 5 km radius	One time Sampling	

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

Table 6-2: Monitoring Schedule during Mining

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

7 Additional Studies

7.1 General

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

7.1.1 Public Hearing:

As the proposed mining project falls under 1(a), Category B1 – Cluster Mining (includes Other proposed Quarries M/s K.P.R.Granites, No 2/223, Avvai Nagar, Noolahalli, Pennagaram, Krishnagiri -2.34.3 ha & 1.97.0 ha, total extent of Existing / Abandoned/Lease expired / Proposed quarries are 6.22.8 Ha

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

7.1.2 Risk assessment:

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

7.1.3 Identification of Hazard

7.1.3.1 Blasting Pattern:

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

7.1.3.2 Drilling and Blasting:

Drilling and Blasting parameters are as follows:

S.No.	Type	Nos	Dia Hole mm	Size Capacity	Make	Motive power
1	Jack hammer & Accessories	3	32	1.2m to 6m	Atlas Copco	Compressed air
2	Compressor	2	-	400 psi	Atlas Capco	Diesel Drive
3	Diamond wire saw	1	-	30m3/Day	Optima	Diesel Generator
4	Gen set	1	-	Powerica	-	CP 125 D5P (H.P)
5	Excavator	1	-	350	Kobelco	Diesel Drive
6	Tippers	1	-	10 tonnes	Tata	Diesel Drive

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

- For Mining – Excavator of 1.2 Cum Bucket capacity (with Rock Breaker attachment), Jack Hammers (25.5 mm Dia) of 3Nos.
- Loading Equipment – Excavator of 1.2 Cum Bucket Capacity (with Bucket attachment)
- Transportation (includes within the mine and mine to destination) – Tipper 1 No of 10 M.T capacity (from quarry to needy peoples and local crushers)

a. Risk:

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

b. Mitigation measures to minimize the risk

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

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

- In order to take care of above hazard/disaster, the following control measures will be adopted:
- All safety precautions and provisions of Mine Act,1952, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations;
- Entry of unauthorized persons will be prohibited;
- Firefighting and first-aid provisions in the ECC and mining area;
- Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the workers (18 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;
- Regular maintenance and testing of all mining equipment as per manufacturer's guidelines;
- Suppression of dust by sprinkling water on the haulage roads;

7.1.5 Safety Team:

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

7.1.6 Emergency Control Centre

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

7.2 Disaster Management:

The possible risks in the case of stone along with associated minor minerals mining projects are fly rock, vibration failure of pit, slope and waste dump, accidents due to transportation. Mining and allied activities are associated with several potential hazards to both the employees and the public at large. Safety of the mine and the employees is taken care of by the mining rules & regulations, which

are well defined with laid down procedure for safety, which when scrupulously followed, safety is ensured not only to manpower but also to machines & working environment.

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

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

Major objectives of this onsite – offsite emergency plan are:

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

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

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

• Onsite (Within ML boundary)

• Offsite (Outside ML boundary)

7.2.2 Onsite off-site emergency Plan:

1- Emergency on account of:

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

2- Disaster due to natural calamities like:

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

7.2.3 Emergency Plan:

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

7.2.4 Emergency Control:

- Shut down of mining operations: Raising the alarm or siren followed by immediate safe shut down of the power supply, and isolation of affected areas.
- Treatment of injured: First aid and hospitalization of injured persons
- Protection of environment and property: During mitigation, efforts will be made to prevent impacts on environment and property to the extent possible.
- Preserving all evidences and records: This will be done to enable a thorough investigation of the true causes of the emergency.
- Ensuring safety of personnel prior to restarting of operations: Efforts required will be made to ensure that work environment is safe prior to restarting the work.

7.3 Natural Resource Conservation

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

7.4 Resettlement and Rehabilitation:

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

8 Project Benefits

8.1 General

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

8.1.1 Physical Benefits

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

a.*Market:* Generating useful economical resource for construction. Due to demand supply chain, excavated mineral (Multi Colour Granite) will sold in the market in the affordable price.

b.*Infrastructure:* The excavated Multi Colour Granite will be used for ***Building & Construction Projects.***

c.*Enhancement of Green Cover & Green Belt Development*: As a part of reclamation plan, native tree species will be planted along the safety boundary (0.67.5 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 60 numbers of native species along with some fruit bearing and medicinal trees during the mining plan period.

8.2 Social Benefits

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

As a part of CER, 6.00 Lakhs will be allocated. The detailed agenda, which is to be executed has been framed. The salient features of the programme are as follows:

Government High School, Unisetty, Krishnagiri District

Activity:

Provision of

- Solar powered Smart Classroom,
- Solar lights to the School,
- Environmental Awareness related books to the school library,
- Basic amenities such as safe Drinking Water, Hygienic Toilet facilities.

Greenbelt development in and around the school

8.3 Project Cost / Investment Details

(a) Fixed Asset Cost :

SL.No	Description	Amount (Rs)
1	Land cost	24,00,000
2	Labour shed	3,00,000
3	Sanitary facility	1,20,000
4	Fencing cost	1,70,000
Total		**29,90,000**

(b) **Operational Cost:**

SL.No	Description	Approximate Amount (Rs)
1	Excavator	50,00,000
2	Tippers	30,00,000
3	Wire saw	8,00,000
4	Compressor with loose tools	7,00,000
Total		**95,00,000**

(c) EMP Cost :

SL.No	Description	Approximate Amount (Rs)
1	Drinking water facility	1,50,000
2	Safety kits	80,000

3	Water sprinkling	60,000
4	Afforestation	25,000
5	Water quality test	30,000
6	Air quality test	30,000
7	Noise / Vibration test	30,000
Total		**4,05,000**

GRAND TOTAL PROJECT COST = Rs. 1,28,95,000/-

9 Environmental Cost Benefit Analysis

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

10 Environmental Management Plan

10.1 Introduction

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

10.2 Subsidence

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

10.3 Mine Drainage

10.3.1 Storm water Management

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

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

10.3.2 Drainage

Local workers will be deployed for the project. But, urinals and Latrines will be provided and the same will be connected to septic tank followed by soak pit arrangement. No domestic waste will be deposited into the nearby area. Regular checking will be carried out to find any blockage due to

silting or accumulation of loose materials. The drains will also be checked for any damage in lining / stone pitching, etc.

10.3.3 Administrative and Technical Setup

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

To carry out the above activities, Tvl. S.V. Granites will work in association with M/s. Ecotech Labs Pvt Ltd.

Table 10-1: Impacts 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.50,000 Rs.1,50,000
2.	Water	Wastewater Generation	Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health 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.	Rs.55,000
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

5.	Social Responsibility	Mining workers	Unhygienic site sanitation facilities may cause health damage to workers.	The objective is to ensure health and safety of the workers with effective provisions for the basic facilities of sanitation, drinking water, safety of equipments or machinery etc. The following will be done in the site ✓ By complying with the safety procedures, norms and guidelines (as applicable) as outlined in the National Building Code of India, Bureau of Indian Standards. ✓ Provide adequate number of decentralized latrines and urinals ✓ Providing Septic tank along with Soak pit arrangement ✓ Providing First Aid room, conducting frequent health checkups to labor and conducting free medical camps ✓ Providing safety helmet, Gloves, Jacket & Boots ✓ Providing measures to prevent fires. Fire fighting extinguishers and buckets of sand will be provided in the construction site	Rs.25,000 Rs.30,000 Rs.1,00,000 Rs.36,000 Rs.50,000
6.	Building materials resource conservation	Building Material consumption	Use of farfetched construction materials than the locally available construction	• Use of locally available construction materials.	

			materials may lead to over exploitation of natural resources & increase in carbon footprint.		

Table 10-2: Budgetary Allocation for EMP during Mining

S. No.	Description		Budgetary Allocation (in Rs.)
1.	**EMP COST**		
	i.	Drinking water facility	1,50,000
	ii.	Safety Kits	80,000
	iii.	Water Sprinkling	60,000
	iv.	Afforestation	25,000
2.	**Environmental Monitoring**		
	i.	Air Quality Monitoring	30,000
	ii.	Water Quality Monitoring	30,000
	iii.	Noise/Vibration Monitoring	30,000
		Total Cost	**4,05,000**

11 Summary & Conclusion

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

11.1 Introduction

Tvl.S.V.Granites site is a cluster of three mining project. The individual mine lease area is 1.91.50 Ha of Multi Colour Granite Quarry located at S.No.1124/7(P), 1130/7(P), 1131/7 and 1131/8 of Irudukottai Village, Denkanikottai taluk in Krishnagiri District.

11.2 Project Overview

Table 11-1: Project Overview

S. No.	Description	Details
1	Project Name	Proposed Multi Colour Granite Quarry-1.91.50 Ha
2	Proponent	Tvl. S.V.Granites
3	Mining Lease Area Extent	1.91.5 Ha
4	Location	S.No.1124/7(P), 1130/7(P), 1131/7 and 1131/8, Irudukottai Village, Denkanikottai taluk, Krishnagiri District.
5	Latitude	12° 25' 41.1003"N to 12° 25' 36.5229"N
6	Longitude	77° 50' 03.8947"E to 77° 49' 57.9786"E
7	Topography	Slightly elevated terrain
8	Site Elevation above MSL	936 m from MSL
9	Topo sheet No.	57H/15
10	Minerals of Mine	Multi Colour Granite
11	Proposed production of Mine	Proposed capacity of Multi Colour Granite : 20142 m^3 Recoverable Reserve of Multi Colour Granite : 36855 m^3
12	Ultimate depth of Mining	28 m below ground level
13	Method of Mining	Open cast, semi-mechanized mining
14	Water demand	3.0 KLD

15	Source of water	Water will be supplied through tankers supply and drinking water will be purchased from vendors
16	Man power	Direct :18 nos, Indirect :14 nos
17	Mining Lease	The Precise Area Communication letter obtained from the Industries (MME.2) Department, Secretariat, Chennai-600 009 vide Letter No.2666/MME.2/2022-1 dated 04.05.2022 for a period of Twenty Years.
18	Mining Plan Approval	The Mining plan was approved by The Commissioner, Dept. of Geology & Mining, Guindy, Chennai-600 032 vide letter Rc.No.73/MM4/2022, dated 23.07.2022
19	Production details	Geological reserves of Multi Colour Granite : 4,97,010 m^3 Proposed year wise recoverable reserves of Multi Colour Granite : 36855 m^3 (Multi Colour Granite Recovery @ 60% for first five years – 20142 m^3 and Granite Waste @ 40% - 13428 m^3)
20	Boundary Fencing	7.5m barrier all along the boundary, Fencing will be provided.
21	Disposal of overburden	The top soil of the lease area is 4720 m^3. Multi Colour Granite waste forms nearly 40% of ROM and the quantity of granite waste in the five years will be around 13428 m3. Total waste to be generated in five years is 26844 m3. Granite and other Waste will be dumped in the Western and South-Western side of the lease area for the next five years.
22	Ground water	The quarry operation is proposed up to a depth of **23 m** below ground level. The water table is below **52-60m** from ground level which is observed from the nearby open wells and bore wells. Hence the ground water will not be affected in any manner due to the quarrying operation during the entire lease period.

23	Habitations within 500m radius of the Project Site	There is no Habitation within 500m radius of the project site.
24	Drinking water	Water will be supplied through tankers and drinking water can be purchased from nearby vendors of village Irudukottai which is approx. 3.02 km from the project site in North Side.

11.3 Justification of the proposed project

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

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

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

Table 11-2: Anticipate Impacts & Appropriate Mitigation Measures

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

	air in the and around the mine area. The increased emission may cause respiratory & Cardiovascular problems in human health	To control the emissions regular preventive maintenance of equipments will be carried out on contractual basis. Plantation will be carried out along approach roads & mine premises.
2	Waste water will be generated due to mining activity and from other domestic activities. These may contaminate the ground water leading to ground water. The mining activity may affect the ground water table	No waste water will be generated from the mining activity of minor minerals as the project only involves lifting of over burden from mine site. The wastewater generated from the domestic activity will be disposed off safely through the proposed septic tank. Mining will not intersect ground water table. Hence the water table will not be impacted due to the proposed project
3	Noise will be generated in the mine area during various mining activities such as blasting, drilling, excavation. During transportation of the mined out mineral, there may be noise generation due to the movement of vehicles. This may impact the health condition of the workers by creating headache	Periodical monitoring of noise will be done. No other equipments except the transportation vehicles and Excavator (as & when required) for loading will be allowed at site. Noise generated by these equipments shall be intermittent and does not cause much adverse impact. Plantation will be carried out along approach roads. The plantation minimizes propagation of noise and also arrest dust.
4	Solid waste will be generated from the mining activity as there will be refuse after	The 100% recovery is achieved by extracting the entire mineable reserve.

	95% recovery and also generation of domestic waste	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.

12. Disclosure of Consultant

12.1 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.

12.2 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.

12.2.1 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 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.

ANNEXURE-I

STANDARD TOR CONDITIONS WITH ADDITIONAL TOR POINTS

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

STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY-TAMILNADU
3rd Floor, Panagal Maaligai,
No.1, Jeenis Road, Saidapet,
Chennai - 600 015.
Phone No. 044-24359973
Fax No. 044-24359975

TERMS OF REFERENCE (ToR)

Lr No. SEIAA-TN/F.No.9443/ToR- 1297/2022 Dated: 28.10.2022.

To

Tvl.S.V.Granites
No.17B/3, Vellakottai 1st street
Chennai Salai
Krishnagiri-635001

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Terms of Reference with public Hearing (ToR) for the Proposed Multicolour Granite Quarry over an Extent of 1.91.50 Ha in S.F.Nos. 1124/7 (P), 1130/7 (P), 1131/7 and 1131/8 of Irudukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu by Tvl.S.V.Granites- 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/82402/2022, dated 17.08.2022.
2. Your application submitted for Terms of Reference dated: 22.08.2022.
3. Minutes of the 319th SEAC meeting held on 12.10.2022.
4. Minutes of the 564thAuthority meeting held on 28.10.2022.

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

The proponent, Tvl.S.V.Granites has submitted application for Terms of Reference (ToR) with public Hearing on 22.08.2022, for the Proposed Multicolour Granite Quarry over an Extent of 1.91.50 Ha in S.F.Nos. 1124/7 (P), 1130/7 (P), 1131/7 and 1131/8 of Irudukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu.

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Discussion by SEAC and the Remarks: -

Proposed Multicolour Granite Quarry lease over an extent of 1.91.5 Ha at S.F.Nos. 1124/7 (P), 1130/7 (P), 1131/7 and 1131/8 of Irudukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu by Tvl. S.V. Granites - For Terms of Reference.

The proposal was placed in 319th SEAC meeting held on 12.10.2022. The details of the project furnished by the proponent are given in the website (parivesh.nic.in).

The SEAC noted the following:

1. The Project Proponent, Tvl. S.V. Granites has applied for Terms of Reference for the Proposed Multicolour Granite Quarry lease over an extent of 1.91.5 Ha at S.F.Nos. 1124/7 (P), 1130/7 (P), 1131/7 and 1131/8 of Irudukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006.

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

1. The proponent is requested to carry out a survey and enumerate on the structures located within 50m, 100m, 150m, 200m, 250m, 300m and 500m from the boundary of the mine lease area.
2. The proponent shall detail the mitigation measures in CNWLS at the cost of 10 lakhs in EMP, after consulting the concerned Wildlife Warden.
3. The proponent shall adhere to the bench height - 5m as stated in the approved mining plan.
4. The proponent shall give an affidavit stating that the quarry will participate in the Anna University Star Rating system annually after the commencement of mining operations.
5. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Necessary data and documentation in this regard may be provided.

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6. The PP shall prepare and submit a Standard Operating Procedures (SoP) during the EIA appraisal, which is in line with the safety provisions as laid for the operation of Diamond Wire Saw machines and use of Cranes vide DGMS Tech Circulars No: 02 of 29.11.2019 & No. 10 of 19.07.2002 respectively.
7. The proponent shall submit the details on the type of controlled blasting activity if it is proposed during the quarrying operation.
8. The PP shall furnish DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., upto a radius of 25 km from the proposed site.
9. The PP shall make necessary announcement regarding the Public Hearing to the nearby house owners located in the vicinity of the project site such that their presence is ensured during the meeting.
10. In the case of proposed lease in an existing (or old) quarry where the benches are non-existent (or) partially formed critical of the bench geometry approved in the Mining Plan, the Project Proponent (PP) shall prepare and submit an 'Action Plan' for carrying out the realignment of the 'highwall' benches to ensure slope stability in the proposed quarry lease which shall be vetted by the concerned Asst. Director of Geology and Mining, during the time of appraisal for obtaining the EC.
11. The Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry indicating the proposed stabilizing measures during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.
12. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.
13. The PP shall furnish a Standard Operating Procedure for carrying out the safe blasting operation if any other quarries lies/operates in a radial distance of 500 m from the proposed quarry.
14. Details of Green belt & fencing shall be included in the EIA Report.
15. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.

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16. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
17. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
    a. Quantity of minerals mined out.
    b. Highest production achieved in any one year
    c. Detail of approved depth of mining.
    d. Actual depth of the mining achieved earlier.
    e. Name of the person already mined in that leases area.
    f. If EC and CTO already obtained, the copy of the same shall be submitted.
    g. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
18. All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
19. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,
20. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
21. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.
22. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.

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23. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.
24. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
25. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
26. 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.
27. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.
28. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.
29. 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.
30. Impact on local transport infrastructure due to the Project should be indicated.
31. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.
32. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.

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33. Public Hearing points raised and commitments of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.
34. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
35. The PP shall produce/display the EIA report, Executive summery and other related information with respect to public hearing in Tamil Language also.
36. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
37. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
38. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
39. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
40. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
41. 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

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project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.

42. 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.
43. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
44. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
45. 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.
46. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.
47. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
48. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.

Discussion by SEIAA and the Remarks: -

The proposal was placed in the 564th Authority meeting held on 28.10.2022. The Authority noted that the proposal was placed in 319th SEAC meeting held on 12.10.2022.

Based on the presentation made by the proponent SEAC decided to recommend for grant of Terms of Reference (TOR) with Public Hearing. After detailed deliberations, the Authority accepted the recommendations of SEAC and decided to grant Terms of Reference subject to the conditions as

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recommended by SEAC in addition to the following conditions and conditions stated therein vide Annexure 'B':

1. Restricting the depth to 23m in Section X1Y1-AB and 18m in Section X1Y1-CD considering safety aspects and to ensure sustainable mining. Hence, authority decided to issueTerms of Reference for a production quantity of 20,142 $m^3$of Multi colour Granite @ 60% recovery.
2. From the KML file uploaded by the proponent in online through Parivesh portal, it is ascertained that the proposed mine lease area appears to be a micro catchment. Hence, the proponent shall submit a detailed report on the following
   (i) Impacts on nearby agricultural land due to the proposed activity and its mitigation measures.
   (ii) Due to the proposed mining activity the hillock will be deprived of water and hence shall discuss about the measures that will be adopted to mitigate.
   (iii) The hillock will act as sponge for slow runoff of water. Hence, it's impacts and mitigation measures shall be studied in detail conducted by reputed government intuitions only. (Excluding NABET accredited institutions).
   (iv) Impact on Biodiversity, Horticulture, Flora & Fauna and soil.
   (v) Number of trees that will be removed and its impact.
   (vi) Pattern of Rainfall in the proposed area and it's drainage pattern.
   (vii) Runoff characteristics and the reduction in the runoff due to the proposed mine area and further it's effects on the agricultural land which is dependent on the runoff for irrigation purposes.

Annexure 'B'

1. Cluster Management Committee, which must include all the proponents in the cluster as members including the existing as well as proposed quarry.
2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,
3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.

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4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.
5. The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.
6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.
7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.
8. The committee shall furnish the Emergency Management plan within the cluster.
9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.
10. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
    a) Soil health & bio-diversity.
    b) Climate change leading to Droughts, Floods etc.
    c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
    d) Possibilities of water contamination and impact on aquatic ecosystem health.
    e) Agriculture, Forestry & Traditional practices.
    f) Hydrothermal/Geothermal effect due to destruction in the Environment.
    g) Bio-geochemical processes and its foot prints including environmental stress.
    h) Sediment geochemistry in the surface streams.
11. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
12. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.
13. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.

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14. Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.
15. Impact on surrounding agricultural fields around the proposed mining Area.
16. Erosion Control measures.
17. Impact on soil flora & vegetation around the project site.
18. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
19. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.
20. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.
21. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.
22. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.
23. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
24. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
25. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
26. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
27. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
28. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.

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29. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.
30. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.
31. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.
32. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.
33. The project proponent shall study and furnish the details on potential fragmentation impact of natural environment, by the activities.
34. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape. damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
35. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.
36. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
37. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
38. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.
39. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.

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40. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.
41. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.

A. STANDARD TERMS OF REFERENCE

1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ topo sheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of

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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.

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

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out with cost implications and submitted.

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

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

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

20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease with respect to CRZ, coastal 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

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issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.

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

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

24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.

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

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

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present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.

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

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

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

32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.

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

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

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

36) Public health implications of the Project and related activities for the population in the impact

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zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.

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

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

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

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

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

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

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

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

a) Executive Summary of the EIA/EMP Report

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

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

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

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

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

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

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

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

j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

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

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

1. Project name and location (Village, District, State, Industrial Estate (if applicable).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
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

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there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.

10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of is acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET 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

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during the operations of the mines.

29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

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

a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
b. All documents may be properly referenced with index, page numbers and continuous page numbering.
c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF& CC vide O.M. No. J-11013/41/2006-IA. II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2nd December, 2009, 18th March 2010, 28th May 2010, 28th June 2010, 31st December 2010 & 30th September 2011 posted on the Ministry's website http://www.moef.nic.in/ may be referred.
    - After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.

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

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Copy to:

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

COMPLIANCE OF TOR CONDITIONS

Point wise compliance of TOR points issued by SEIAA, TN vide letter No. SEIAA-TN/F.No.9443/TOR-1297/2022, dated 28.10.2022 for Mining of Minor Minerals in the Mine of "Proposed Multicolour Granite Quarry" over an Extent of 1.91.50 Ha in S.F.Nos. 1124/7 (P), 1130/7 (P), 1131/7 and 1131/8 of Irudukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu State.

<table>
<tr><th>ToR Ref.</th><th>Description</th><th>Response</th><th>Page Ref. in EIA Report</th></tr>
<tr><td>1</td><td>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.</td><td>This is a proposed Multicolour Granite Quarry

The Proponent has obtained the Precise Area Communication letter from Industries (MME.2) Department, Secretariat, Chennai-600 009 vide Letter No.2666/MME.2/2022-1 dated 04.05.2022 for a period of Twenty Years.
The Mining plan was approved by The Commissioner, Dept. of Geology & Mining, Guindy, Chennai-600 032 vide letter Rc.No.73/MM4/2022, dated 23.07.2022

<table><tr><th>Year</th><th>Multicolour Granite Volume (m^3)</th></tr><tr><td>I-</td><td>4080</td></tr><tr><td>II-</td><td>4590</td></tr><tr><td>III-</td><td>4320</td></tr><tr><td>IV-</td><td>4182</td></tr><tr><td>V-</td><td>2970</td></tr></table></td><td>Annexure-II & Annexure - III</td></tr>
<tr><td>2.</td><td>A copy of document in support of the fact that the Proponent is the rightful lessee of the mine should be given.</td><td>The mine lease area of 1.91.50 hectare in Irudukottai Village for Multicolour Granite Quarry approved by Commissionerate of Geology and Mining, Guindy vide letter Rc.No.73/MM4/2022, dated 23.07.2022</td><td>Annexure-III</td></tr>
</table>

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 are 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 was approved by The Commissioner, Dept. of Geology & Mining, Guindy, Chennai-600 032 vide letter Rc.No.73/MM4/2022, dated 23.07.2022	Annexure-II and Annexure-IV
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 corner of proposed mining lease area have been incorporated in Chapter 2 of EIA/ EMP Report.	Chapter-2, Table no. 2.2
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	Topo map as attached in Chapter-2	Chapter-2
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 in Chapter 2.	Chapter-2 Table 2.4

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. The details are incorporated in Chapter 2 of the EIA report.	Chapter-2, Section 2.7.4
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. 2.5

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. 2.2
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 Top soil of the lease area is 4720m^3 for the five years. Multicolour Granite waste forms nearly 40% of ROM and the quantity of waste in the five years will be around 13428 m^3. Granite Waste will be dumped in the Western side of the lease area for the next five years.	Chapter-2, Page no.40
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-3 of the EIA/EMP Report.	Chapter-3
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	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.	-

	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, 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 with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	Detailed biological study (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. However, all care will be taken for protection of flora & fauna, if any in the lease hold area.	Chapter-3
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.	-

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.	-
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 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.	There is no Rehabilitation and resettlement is involved. Land classified as Patta land.	-

22	One season (non-monsoon)and (Summar 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 August to October 2022 has been incorporated in EIA/EMP report. The key plan of monitoring station has been discussed in Chapter-3. Locations of the monitoring stations have been selected keeping in view the pre-dominant downwind direction 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 incorporated in final EIA report. Transportation of mineral during operation of mines will be done by road & NH-77 through dumpers and the impact of movement of vehicles are incorporated in Draft EIA/EMP report.	Chapter-3 and Chapter-4

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: 3.0 KLD Dust Suppression: 1.0 KLD Domestic Purpose: 1.0 KLD Plantation : 1.0 KLD Domestic Water will be sourced from nearby Irudukottai village and other water will be sourced from nearby road tankers supply.	Chapter-2
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Not Applicable Water will be taken from nearby villages.	-
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
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: 23 m BGL The ground water table is reported as 52-60m below ground level in nearby 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

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: 936m AMSL Ultimate Depth of mining : 23 m BGL Ground Water Table : 52-60m BGL	Chapter-2 Table no. 2.2
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 has been given in Chapter 2.	Chapter-2 Section 2.14

32	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project proponent shall conduct impact of Transportation study as per Indian Road Congress Guidelines.	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 Draft EIA/EMP report.	Chapter-3
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
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 Scheme of Mining Plan.	Mining Plan with plates Annexure-5
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-7 of Draft EIA/EMP.	Chapter-7

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-7
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.	CSR Activity Affidavit Earlier submitted to SEIAA. The details are incorporated in the Draft EIA/EMP report.	Executive Summary
38	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.	Environment Management Plan has been described in detail in Chapter-10 of the Draft EIA/EMP Report.	Chapter-10
39	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.	Public Hearing proceedings will be furnished in Final EIA report.	-
40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the project should be given.	Not applicable No. litigation is pending against the project in any court.	-

<table>
<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>Fixed Asset</td><td>29,90,000</td></tr><tr><td>2</td><td>Operational Cost</td><td>95,00,000</td></tr><tr><td>3</td><td>EMP Cost</td><td>4,05,000</td></tr><tr><td></td><td>Total</td><td>1,28,95,000</td></tr></table></td><td>Chapter-8</td></tr>
<tr><td>42</td><td>A Disaster Management Plan shall be prepared and included in the EIA/EMP Report.</td><td>Disaster Management and Risk Assessment Plan has been incorporated in Chapter-7 of Draft EIA/EMP report.</td><td>Chapter-7</td></tr>
<tr><td>43</td><td>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.</td><td>Benefits of the project has been incorporated in the Chapter 8 of the Draft EIA Report.</td><td>Chapter-8</td></tr>
<tr><td>44</td><td colspan="3">Besides the above, the below mentioned general points are also to be followed:</td></tr>
<tr><td>(a)</td><td>Executive Summary of the EIA/EMP report</td><td>Executive Summary of EIA Report is given from page No.15-32</td><td>-</td></tr>
<tr><td>(b)</td><td>All documents to be properly referenced with index and continuous page numbering.</td><td>Complied</td><td>-</td></tr>
<tr><td>I</td><td>Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.</td><td>Complied</td><td>-</td></tr>
<tr><td>(d)</td><td>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.</td><td>Complied</td><td>-</td></tr>
</table>

I	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) dated 4th 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, certified 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 from 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

S.No.	Condition	Compliance
1.	The proponent is requested to carry out a survey and enumerate on the structures located within 50m, 100m, 150m, 200m, 250m, 300m and 500m from the boundary of the mine lease area.	There is nearly 10 huts around the mine lease area within 500m radius.
2.	The proponent shall detail the mitigation measures in CNWLS at the cost of 10 lakhs in EMP, after consulting the concerned Wildlife Warden.	We assure that before obtaining CTO from TNPCB we will spend an amount of Rs.10 Lakhs for the mitigation measures in CNWLS consulting with the concerned Wildlife Wardern.
3.	The proponent shall adhere to the bench height - 5m as stated in the approved mining plan	Bench height considered is 5 m.
4.	The proponent shall give an affidavit stating that the quarry will participate in the Anna University Star Rating system annually after the commencement of mining operations.	Affidavit is attached as Annexure IV
5.	The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD/TWAD so as to assess the impacts on the wells due to mining activity. Necessary data and documentation in this regard may be provided	There are no surface water resources within 15 km of project site except a pond within project site. The hydro-geological study will be conducted and submitted in Final EIA report.
6.	The PP shall prepare and submit a Standard Operating Procedures (SOP) during the EIA appraisal, which is in line with the safety provisions as laid for the operation of Diamond Wire Saw machines and use of Cranes vide DGMS Tech Circulars No: 02 of 29.11.2019& No. 10 of 19.07.2002 respectively.	SOP details will be incorporated along with the final EIA report
7.	The proponent shall submit the details on the	Details are provided in section 2.7.4

	type of controlled blasting activity if it is proposed during the quarrying operation.	of Chapter 2
8.	The PP shall furnish DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., upto a radius of 25 km from the proposed site.	We are in processing of obtaining DFO letter and once obtained the same will be submitted along with the Final EIA report.
9.	The PP shall make necessary announcement regarding the Public Hearing to the nearby house owners located in the vicinity of the project site such that their presence is ensured during the meeting	Announcements shall be made as prescribed.
10.	In the case of proposed lease in an existing (or old) quarry where the benches are non- existent (or) partially formed critical of the bench geometry approved in the Mining Plan, the Project Proponent (PP) shall prepare and submit an 'Action Plan' for carrying out the realignment of the 'highwall' benches to ensure slope stability in the proposed quarry lease which shall be vetted by the concerned Asst. Director of Geology and Mining, during the time of appraisal for obtaining the EC.	Previously quarry was proposed in S.F.No.1130/7(P) & 1131/7 over an extent of 1.00 acre (0.40.0 Ha) of Irudukottai village vide G.O.(2D) No.166 Industries Department dated 18.08.1995 and the lease period expired on 04.09.2005. Now the proposed quarry is spread over area of 1.91.50 ha spread over .F.No. 1124/7(P) 1130/7(P) 1131/7, 1131/8. The Action Plan will be incorporated in the Final EIA report.
11.	The Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry indicating the proposed stabilizing measures during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.	Depth of the excavation is 23 m bgl. The bench height should not exceed 5.0m and bench width should not be less than bench height . The slope of the bench should not exceed 60° from horizontal. All the working faces and sides shall be adequately benched and sloped. Since the entire terrain is made up of hard rock, compact sheet and possess high stability on slope even at higher vertical angles
12.	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, III Class mines manager appointed by the proponent.	Affidavit is attached as Annexure VI

13.	The PP shall furnish a Standard Operating Procedure for carrying out the safe blasting operation if any other quarries lies/operates in a radial distance of 500 m from the proposed quarry.	Only controlled blasting will be carried out. Details are provided in section 2.7.4 of Chapter 2. Details of other quarries within 500 m are given in Table 2.1 of Chapter 2
14.	Details of Green belt & fencing shall be included in the EIA Report.	Detail of green belt is given in section 2.14 of Chapter 2
15.	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.	There is no quarry being operated by the project proponent
16.	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines.	No mining works have been undertaken in proposed mining site. As per the letter obtained from the Deputy Director, Department of Geology and Mining Krishnagiri District vide letter Roc.No.754/2021/Mines dated 28.07.2022 the existing pit dimension is 90 Sq.m Area and 5 m Depth.
17.	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines? a. Quantity of minerals mined out. b. Highest production achieved in any one year c. Detail of approved depth of mining. d. Actual depth of the mining achieved earlier. e. Name of the person already mined in that leases area. f. If EC and CTO already obtained, the copy of the same shall be submitted. g. Whether the mining was carried out as per	No existing mines at this location was operated after 2005. Details of other quarries within 500 m are given in Table 2.1 of Chapter 2

	the approved mine plan (or EC if issued) with stipulated benches.	
18.	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Coordinates of the project site are given below: 1. 12°25'41.16"N & 77°49'58.90"E 2. 12°25'41.78"N & 77°50'1.18"E 3. 12°25'40.10"N & 7 77°50'0.66"E 4. 12°25'40.03"N & 77°50'1.42"E 5. 12°25'41.09"N & 77°50'3.86"E 6. 12°25'35.92"N & 77°50'1.79"E 7. 12°25'37.50"N & 77°50'1.46"E 8. 12°25'36.26"N & 77°49'58.10"E Toposheet and geology of mining lease area is given in sections 2.3 & 2.5 of chapter 2 of EIA report. Land use detail of mine lease area is given in section 2.3.2
19.	The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.	We assure that the Drone Video Survey covering the cluster area, greenbelt and fencing photos will be incorporated and submitted in the final EIA report.
20.	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	Agreed, photographs will be incorporated along with the final EIA report.
21.	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.	Details are provided in section 2.6 of chapter 2 of EIA report
22.	The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act 1952 and the MMR,	The Organization chart has been discussed in Section 2.8 of Chapter 2 of the Draft EIA Report.

	1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment	
23.	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.	Baseline data is presented in Chapter 3 of EIA Report
24.	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	Impact assessment study is conducted and provided in Chapter 4
25.	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted	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.
26.	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.	Details are given in section 3.2.6 of Chapter 3 of EIA Report
27.	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the minc lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.	Details are provided in section 2.7.2 of Chapter 2 of EIA report
28.	Proximity to Areas declared as 'Critically	None

	Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	
29.	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.
30.	Impact on local transport infrastructure due to the Project should be indicated.	Traffic Impact Assessment is provided in section 3.9
31.	A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	Detail of trees in core and buffer zones is provided in section 3.7
32.	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	Approved mining plan including mine closure plan is attached as Annexure V.
33.	Public Hearing points raised and commitments of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.	Public Hearing proceedings will be furnished in Final EIA report.
34.	The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.	The Public hearing advertisement will be published in one major National daily and one most circulated vernacular daily.
35.	The PP shall produce/display the EIA report, Executive summery and other related blic hearing in Ta information with respect to public hearing in Tamil Language also	Executive summary in Tamil along with Draft EIA report will be submitted as required to SPCB prior

		public hearing.
36.	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible	Detail of flora & fauna in core and buffer zones is provided in section 3.7
37.	The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.	Green belt plantation plan is provided in section 2.14 Approved mining plan including green belt development plan is attached as Annexure III & V.
38.	Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner	Green belt plantation plan is provided in section 2.14 Approved mining plan including green belt development plan is attached as Annexure III & V.
39.	A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period	Disaster management Plan is provided as section 7.2
40.	A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	Risk Assessment and management Plan is provided as section 7.2
41.	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	Occupational Health impacts are discussed in section 4.8

	periodical medical examination schedules should be incorporated in the EMP. The project specme occupationar neann migation measures with required actres proposed in the mining area may be detailed.	
42.	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.	Impact on socio-economic environment is discussed in section 4.7
43.	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Socio-economic study has been conducted and is provided in section 3.8
44.	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No litigation is pending against the project
45.	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.	Project benefits are detailed in Chapter 8
46.	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB. 47. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	No quarrying has been undertaken for the proposed project till now
47.	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit	Noted and Agreed to comply.

	stating to abide the EMP for the entire life of mine.	
48.	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.	Noted
	SEIAA RECOMMENDATIONS	
49.	Restricting the depth to 23m in Section X1Y1-AB and 18m in Section X1Y1-CD considering safety aspects and to ensure sustainable mining. Hence, authority decided to issue Terms of Reference for a production quantity of 20,142 $m^3$of Multi colour Granite @ 60% recovery.	Depth of mining is as per approved mining plan. We assure that the depth of mining for our project is 23m BGL and for a production quantity of 20,142 m^3 of Multi Colour Granite @ 60% recovery.
50.	From the KML file uploaded by the proponent in online through Parivesh portal, it is ascertained that the proposed mine lease area appears to be a micro catchment. Hence, the proponent shall submit a detailed report on the following (i) Impacts on nearby agricultural land due to the proposed activity and its mitigation measures. (ii) Due to the proposed mining activity the hillock will be deprived of water and hence shall discuss about the measures that will be adopted to mitigate. (iii) The hillock will act as sponge for slow runoff of water. Hence, it's impacts and mitigation measures shall be studied in detail conducted by reputed government instuitions only. (Excluding NABET accredited institutions). (iv) Impact on Biodiversity, Horticulture, Flora & Fauna and soil.	Detailed report will be submitted along with final EIA report.

	(v) Number of trees that will be removed and its impact. (vi) Pattern of Rainfall in the proposed area and it's drainage pattern. (vii) Runoff characteristics and the reduction in the runoff due to the proposed mine area and further it's effects on the agricultural land which is dependent on the runoff for irrigation purposes.	
51.	Cluster Management Committee, which must include all the proponents in the cluster as members including the existing as well as proposed quarry	Agreed
52.	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,	Agreed
53.	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	Will be followed
54.	Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.	Agreed
55.	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.	Agreed
56.	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the	Agreed

	committee in implementing the environmental policy devised shall be given in detail.	
57.	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	Approved mining plan including mine closure plan is attached as Annexure VII. 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.
58.	The committee shall furnish the Emergency Management plan within the cluster	Emergency Management plan is given in section 7.2
59.	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public	Occupational Health impacts are discussed in section 4.8
60.	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following a) Soil health & bio-diversity. b) Climate change leading to Droughts, Floods etc. c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people. d) Possibilities of water contamination and impact on aquatic ecosystem health. e) Agriculture, Forestry & Traditional practices. f) Hydrothermal/Geothermal effect due to destruction in the Environment. g) Bio-geochemical processes and its foot prints including environmental stress. h) Sediment geochemistry in the surface streams.	Impact assessment is carried out on various environmental components and is provided in Chapter 4
61.	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	Mining activity shall be carried out sustainable and plan for environmental management is given in Chapter 9
62.	The committee shall furnish the fire safety and	Disaster management Plan is

	evacuation plan in the case of fire accidents.	provided as section 7.2
63.	The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished	Environment Management Plan is provided in Chapter 9
64.	Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP	Green belt plantation plan is provided in section 2.14 Approved mining plan including green belt development plan is attached as Annexure VII
65.	Impact on surrounding agricultural fields around the proposed mining Area. 17. Erosion Control measures	Impact assessment is carried out on various environmental components and is provided in Chapter 4
66.	Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas	Impact assessment is carried out on various environmental components and is provided in Chapter 4
67.	The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc	VAO certificate is attached as Annexure VI
68.	As per the MOEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	Agreed
69.	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	Impact assessment is carried out on various environmental components and is provided in Chapter 4
70.	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	Impact assessment is carried out on various environmental components and is provided in Chapter 4
71.	Action should specifically suggest for	Noted and Agreed to comply.

	sustainable management of the area and restoration of ecosystem for flow of goods and services.	
72.	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	Project will not impact any waterbody as there is no surface waterbody within 15 km radius of project site except a seasonal pond at project site
73.	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	Impact on land environment is provided in section 4.2
74.	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	Project will not have impact on any forest land, endemic, vulnerable and endangered indigenous flora and fauna.
75.	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection	Proposed site does not support any trees except few plants of acacia
76.	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.	No wetland, water bodies, rivers streams, lakes and farmer sites will be affected due to this project
77.	The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.	Environment management plan with budget is provided in chapter 9
78.	The project proponent shall study and furnish the impact of project on plantations in adjoing patta lands, Horticulture, Agriculture and livestock.	Green belt plantation plan is provided in section 2.14 Approved mining plan including green belt development plan is attached as Annexure VII
79.	The project proponent shall study and furnish the details on potential fragmentation impact of natural environment, by the activities.	No natural environment will be fragmented due to project.
80.	The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form	There is no water body within 15 km radius of the project site exce[t a seasonal pond at project site

	changes visual and aesthetic impacts.	
81.	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported	No such impacts are anticipated due to project
82.	The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.	No reserve forest site will be affected due to proposed project
83.	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.	Maximum working depth: 23 m BGL The ground water table is reported as 52-60 m below surface ground level in nearby 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.
84.	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued	Disaster management Plan is provided as section 7.2
85.	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Risk Assessment and management Plan is provided as section 7.2
86.	Detailed Mine Closure Plan covering entire mine lease period as per precise area communication order issued	Approved mining plan including mine closure plan is attached as Annexure III & V.

87.	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued	Environment Management Plan is provided in Chapter 10 of EIA report.

ANNEXURE-II

PRECISE AREA COMMUNICATION LETTER

ANNEXURE-1

Industries (MME.2) Department,
Secretariat, Chennai – 600 009.

Letter No.2666/MME.2/2022-1, Dated 04.05.2022

From
Thiru S. Krishnan, I.A.S.,
Additional Chief Secretary to Government.

To
Tvl. S.V. Granites,
No.17B/3, Vellakottai 1st cross,
Chennai Salai,
Krishnagiri – 635 001.

Sir,

Sub: Industries - Mines and Minerals – Minor Mineral – Multi Colour Granite – Krishnagiri District - Denkanikottai Taluk – Irudukottai Village - Over an extent of 1.91.50 hectares of Patta lands in S.F.Nos.1124/7(P) (0.67.0), 1130/7(P) (0.29.0), 1131/7 (0.92.0) and 1131/8 (0.03.5) – Quarry Lease Application preferred by M/s. S.V. Granites – Precise Area Communicated – Approved mining Plan and Environmental Clearance – Called for.

Ref:
1. Your Quarry Lease Application dated:Nil [received on 05.08.2021]
2. From the District Collector, Krishnagiri, File Roc.No.754/ 2021/Mines, dated 30.12.2021.
3. From the Director of Geology and Mining, File Rc. No.73/MM4/2022, dated: 02.03.2022.

I am directed to refer your quarry lease application first cited and to state that in the references second and third cited, the District Collector, Krishnagiri and the Director of Geology and Mining respectively have recommended your quarry lease application for grant of quarry lease for quarrying of Multi Colour Granite over an extent of 1.91.50 hectares of Patta lands in S.F.Nos.1124/7(P) (0.67.0), 1130/7(P) (0.29.0), 1131/7 (0.92.0) and 1131/8 (0.03.5) in Irudukottai Village, Denkanikottai Taluk, Krishnagiri District for a period of 20 years under rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959.

2. In this connection, I am directed to request you to furnish Approved Mining Plan through the Director of Geology and Mining within a period of 3 months as per sub-rule (13) of Rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959 and to produce Environmental

Clearance obtained from the competent authority for the above said area to the Government for grant of quarry lease subject to the following conditions:-

1. A safety distance of 7.5 m should be left out for the adjoining patta lands and should not cause any hindrance while quarrying and transportation.
2. A distance of 10m should be maintained to the Government land in S.F. No.1130/8 (Podugal); S.F.No.1130/6 and 1131/4 (Podugal) situated on the northern side and western side of the applied area.
3. A safety distance of 10 m shall be maintained for the Government land (Pathai) in S.F.Nos. 1172/1 and 1173/1 situated on the eastern side of the area.
4. A safety distance of 10 m shall be maintained for the state on ground village road in patta lands situated on the north and eastern side of the applied area.
5. The four boundaries of the applied area shall be fixed and the quarrying activity should be restricted within the area granted on lease.
6. If elephant / animals passes nearby quarry site, the quarry operation should be stopped until the elephant migrates from the subject area.
7. Quarry operation should be carried out by complying all the Forest Act/ rules without hindrance to the forest animals.
8. Quarrying activity should be carried out from 6.00 A.M. to 6.00 P.M. only.
9. Barbed wire fencing or Compound wall should be erected all along the boundary of the lease granted area.
10. The waste materials generated during the course of quarrying should be dumped only within the lease hold area.
11. Environment Clearance should be obtained from the competent authority in respect of the subject area as per Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the notification of the Ministry of Environment and Forest and any other clearances if any.

12 The applicant firm should fence the lease granted area with barbed wire before the execution of lease deed as follows:

- ❖ The pillar post shall be firmly grounded with concrete foundation of height not less than 2 m with a distance between two pillars shall not be more than 3 m.
- ❖ The applicant firm shall incorporate the DGPS readings for the entire boundary Pillars of the area and the same should be clearly shown in the mining plan.
- ❖ A soft copy of the digitized map with DGPS readings should be submitted in the CD form to the Deputy Director, Krishnagiri.

13 The conditions mentioned in G.O. (Ms) No.79, Industries (MMC.1) Department, dated 06.04.2015 should be complied with.

14 As per rule 12 (V) of Mineral (other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016, the applicant firm shall at his own expenses erect, maintain and keep in repair all the boundary pillars.

15 The applicant firm should comply with the additional conditions stipulated in the Government of India, Ministry of Mines order No.11/02/2020, dated 14.01.2020 issued as pass the order of Hon'ble Supreme Court of India, dated 08.01.2020 that states "The mining lease holders shall after ceasing mining operations, under take re-grassing the mining area and any other area which may have been disturbed due to this mining activities and restore the land to a condition which is fit for growth of fodder, flora and fauna etc.,"

16 The applied area should satisfy Rule 36(1-A)(d) and (e) of the Tamil Nadu Minor Mineral Concession Rules, 1959.

17 The applicant firm shall submit scheme of mining; mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.

18 The applicant firm should use mild explosives during quarrying.

B. Dhanalakshmi

19 Child labourers should not be engaged in the quarry works.

20 If any violation is found during quarrying operation, the penal provisions of the Tamil Nadu Minor Mineral Concession Rules, 1959 and other rules and act in force will attract.

21 Quarrying shall be done as per the approved Mining Plan and 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.

22 All the quarry labourers should be registered with the Labour Welfare Board of Government of Tamil Nadu and to be enrolled in the Group Insurance Scheme.

23 The District Collector, Krishnagiri shall obtain a sworn-in-affidavit from the applicant / firm containing the above conditions before execution of lease deed and also ensure that the instructions issued in Government Letter No. 12789 / MMB.2 / 2002-7, Industries Department, dated 09.01.2003 are complied with.

Yours faithfully,

4.5.2022

for Additional Chief Secretary to Government

4/5/2002

Copy to:

The Director of Geology and Mining,
Guindy, Chennai – 600 032.
The District Collector, Krishnagiri.

S.DHANASEKAR, M.Sc.,(Geo)
Qualified Person

ANNEXURE-III

MINING PLAN APPROVAL LETTER

COMMISSIONERATE OF GEOLOGY AND MINING

From
Thiru.J.Jayakanthan, I.A.S.,
Commissioner,
Departmentof Geology and Mining,
Guindy, Chennai - 600 032.

To
Tvl.S.V.Granites,
No.17B/3, Vellakottai 1st Cross,
Chennai Salai,
Krishnagiri- 635001.

Rc. No.73/MM4/2022, dated: 23.07.2022

Sir,

Sub: Mines and Minerals – Minor Mineral – Multi Colour Granite – Krishnagiri District – Denkanikottai Taluk – Irudukottai Village - Patta lands -S.F.No.1124/7(P) (0.67.0), 1130/7(P) (0.29.0), 1131/7 (0.92.0) and 1131/8 (0.03.5)- over an extent 1.91.50 hects - Quarry lease application preferred by M/s. S.V.Granites– Precise area communicated by the Government – Mining Plan submitted –Approval accorded - reg.

Ref :
1. District Collector, Krishnagiri letterRc.No.754/2021/Mines, dated 30.12.2021.
2. Director of Geology and Mining letter in Rc.No.73/MM4/2022, dated:02.03.2022.
3. Government letter No.2666/MME.2/2022-1, dated:04.05.2022.
4. Mining Plan submitted by the lessee M/s. S.V.Granites, dated 16.05.2022.
5. Deputy Director,(G&M), Krishnagiriletter Rc.No.754/2021/Mines, dated 19.05.2022.

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Kind attention is invited to the references cited.

2) A proposal recommending for grant of Multi Colour Granite quarry lease over an extent of 1.91.5 hects of Patta lands in S.F.No.1124/7(P) (0.67.0), 1130/7(P) (0.29.0), 1131/7 (0.92.0) and 1131/8 (0.03.5)of Irudukottai Village, Denkanikottaitaluk, Krishnagiri district for a period of 20 years was forwarded to the Government vide reference 2ndcited. In the reference 3rdcited, the Government have communicated precise area to the applicant with a direction to submit the approved mining plan as per sub-rule (13) of Rule 19-A of Tamil Nadu Minor Mineral Concession Rules, 1959 and to produce environmental clearance from the competent authority for the said area.

3) The mining plan and the connected records are scrutinized and the following are submitted.

a) The Deputy Director(G&M), Krishnagiri has reported that the draft mining plan is prepared by the Recognized Qualified Person and the details such as geological, mineable reserves, year wise production and development program have been incorporated in the draft mining plan. Further, he reported the following:

i) Geological Reserves (ROM) = 4,97,010cbm
ii) Mineable Reserves (ROM) = 1,55,325cbm
iii) Recoverable Reserves @ 60%Recovery = 93,195cbm
iv) Proposed Production for 1st fiveyears = 22,113cbm
v) Year wise Proposed production:

Year	**Production (m^3) @ 60% Recovery**
1st year	4080
2nd year	4590
3rd year	4320
4th year	4533
5th year	4590
Total	**22,113**

b) Finally, the Deputy Director, (G&M), Krishnagiri has recommended the mining plan for approval subject to the condition that the applicant firm should obtain prior Environmental Clearance from the competent authority.

4) The mining plan submitted by M/s. S.V Granites,the report of the Deputy Director,(G&M),Krishnagiri have been examined with reference to the provisions of Rule 12, 13 and 15 of Granite Conservation and Development Rules, 1999 read with G.O.(Ms) No.87, Industries (MMC.1) Department dated 22.02.2001 and the mining plan is approved subject to

the following conditions in addition to the conditions stipulated in the precise area communication issued by the Government.

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

iii. This mining plan including progressive mine closure plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.

iv. Provisions of the Mines Act, 1952 and the Rules and Regulations made there under including submission of notice of opening, appointment of manager and other statutory officials as required under Mines Act, 1952 shall be complied with.

v. Provisions made under Mines and Minerals (Development & Regulation) Act, 1957, MMDR Amendment Act, 2015 and Granite conservation and Development Rules, 1999 made there under shall be complied with.

vi. Relaxation to be obtained under Rule 106(2)(b) of Metalliferous Mines Regulations, 1961 from the Director of Mines Safety, if necessary.

vii. The applied areas should satisfy Rule 36(1-A) (d) and (e) of the Tamilnadu Minor Mineral Concession Rules, 1959 as amended vide G.O.(D) No.295, Industries (MMC1) Dept., dated 03.11.2021.

viii. The applicant should comply with the additional conditions stipulated in the Government of India, Ministry of Mines, Order No.11/02/2020, dated.14.01.2020 issued as per the Order of the Hon'ble Supreme Court of India, dated.08.01.2020 states that, "The Mining lease holders shall after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc".

Encl: 2 copies of Approved mining plan.

23/7/2022

Commissioner of Geology and Mining

Copy Submitted to:

23/7/22

The Additional Chief Secretary to Government,
Industries, Investment Promotion
and Commerce Department,
Secretariat,Chennai-600009.

Copy to:

1. The Director of Mines Safety,
   Lapis Lagoon, AA Block
   New No.05, (Old No.46),
   2nd Street, Shanthi Colony,
   Anna Nagar, Chennai-40.

2. The District Collector,
   Krishnagiri District.

ANNEXURE-IV

500M Radius letter

From

Dr. S.Vediappan, M.Sc.,Phd.,
Deputy Director,
Dept of Geology and Mining,
Krishnagiri.

To

M/s. S.V.Granites,
No. 17B-3, 1st Cross Street,
Vellakuttai,
Krishnagiri – 635 001.

Roc.No.754/2021 /Mines dated: 28 .07.2022.

Sir,

Sub: Mines and Minerals – Krishnagiri District – Multi Colour Granite – Krishnagiri District - Denkanikottai Taluk – Irudhukottai Village in Patta land in S.F.No. 1124/7(P) (0.67.0), 1130/7(P) (0.29.0), 1131/7 (0.92.0) and 1131/8 (0.03.5) – Over an extent of 1.91.5 Hect of Multi Colour Granite quarry lease application preferred by M/s. S.V.Granites - Details of quarries situated within 500 mts radial distance – Requested by the applicant – Details furnished - reg.

Ref:
1. The District Collector, Krishnagiri letter Rc.No. 754/2021/Mines dated: 30.12.2021.
2. Government Letter No. 2666/MME.2/2022-1 dated: 04.05.2022.
3. The Director of Geology and Mining letter Rc.No. 73/MM4/2022 Dated: 23.07.2022.
4. M/s. S.V.Granites, letter dated: 27.07.2022.

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kind attention is invited to the reference cited.

2) M/s. S.V.Granites, have preferred an application for the grant of quarry lease for Multi Colour Granite over an extent of 1.91.5 Hects in patta lands in S.F.No. 1124/7(P) (0.67.0), 1130/7(P) (0.29.0), 1131/7 (0.92.0) and 1131/8 (0.03.5) in Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District for a period of 20 years under the provisions of Rule 19 (A) of Tamil Nadu Minor Mineral Concession Rule 1959. The Precise area has been communicated vide the Government letter dated : 04.05.2022 and informed to the applicant to furnish the approved Mining Plan and Environmental Clearance from the competent Authority for the above said area.

3. The Mining Plan submitted by the applicant has been approved by the Director of Geology and Mining, vide letter dated: 23.07.2022.

4. In this connection, the applicant has requested to furnish the details of quarries situated within cluster category for the proposed area vide letter dated: 27.07.2022.

5. As requested by the applicant the details of quarries situated within 500m radius is furnished as follows:

I. Details of Existing quarries.

Sl No	Name of the lessee	GO.No. & Dated	Village & Taluk	S.F No.	Extent in Het	Lease period.
1	---------- Nil ----------					

II. Details of abandoned/Old quarries.

Sl. No.	Name of the lessee	GO.No. & Dated	Village & Taluk	S.F No.	Extent in Het	Lease period.
1	---------- Nil ----------					

Details of other Proposed/applied quarries

Sl. No.	Name of the lessee	GO.No. & Dated	Village & Taluk	S.F No.	Extent in Het	Lease period.
1.	M/s. S.V.Granites, No. 17B-3, 1st Cross Street, Vellakuttai, Krishnagiri	-	Denkanikottai Taluk – Irudhukottai Village	1124/7(P) 1130/7(P) 1131/7, 1131/8	1.91.5	Instant Proposal (Precise area given)
2.	M/s. K.P.R.Granites, No. 2/223, Avvai Nagar, Noolahalli, Pennagaram, Krishnagiri.	-	Denkanikottai Taluk – Irudhukottai Village	1123/4A,4B, 5A, 5B, 6A,6B, 1125/6, 1123/8(P)	2.34.3	Applied area and under process
3.	M/s. K.P.R.Granites, No. 2/223, Avvai Nagar, Noolahalli, Pennagaram, Krishnagiri.	-	Denkanikottai Taluk – Irudhukottai Village	1121/6, 1125/3	1.97.0	Applied area and under process

28.07.22

Deputy Director,
Dept of Geology and Mining,
Krishnagiri.

Copy to :-

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

ANNEXURE-V

MINING PLAN REPORT & PLATES

MINING PLAN
FOR
IRUDUKOTTAI MULTI COLOUR GRANITE

(Under Rule 19A of TNMMCR 1959 & Rule 12, 13 & 16 of GCDR, 1999)

EXTENT : 1.91.50 HA

S.F.Nos. : 1124/7(P), 1130/7(P), 1131/7 & 1131/8

VILLAGE : IRUDUKOTTAI

TALUK : DENKANIKOTTAI

DISTRICT : KRISHNAGIRI

STATE : TAMIL NADU

APPLICANT

Tvl. S.V. GRANITES,

NO. 17B/3, VELLAKOTTAI 1st CROSS,

CHENNAI SALAI,

KRISHNAGIRI DISTRICT – 635 001.

Prepared by

S. DHANASEKAR, M.Sc.(Geol),M.M.E.A.I.,

QUALIFIED PERSON,

NO. 5/30-7 B, AVVAI NAGAR,

PONKUMAR MINES ROAD,

JAGIR AMMAPALAYAM,

SALEM DISTRICT – 636 302.

E-mail: geodhana@yahoo.co.in

CELL: 98946 28970 & 73733-74702.

Tvl. S.V. GRANITES,
NO. 17B/3, VELLAKOTTAI 1st CROSS,
CHENNAI SALAI,
KRISHNAGIRI DISTRICT – 635 001.

CONSENT LETTER FROM APPLICANT

The Mining Plan in respect of Multi Colour Granite Quarry over an Extent of 1.91.50Ha. in S.F.Nos.1124/7 (P), 1130/7(P), 1131/7 & 1131/8 in Irudukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamilnadu State has been prepared by Mr. S.Dhanasekar.M.Sc., Qualified Person.

I request the Director, Department of Geology and Mining, Chennai to make further correspondence regarding the modification/clarification in respect of the Mining Plan with the said qualified person at the following address.

S.Dhanasekar.M.Sc.,(Geol),M.M.E.A.I.,
Qualified Person,
No.5/30-7B, Avvai Nagar,
Ponkumar Mines Road,
Jagirammapalayam,
Salem- 636 302.

I hereby undertake that all the modifications, if any made in the mining plan by the qualified person may be deemed to have been made with my knowledge and consent and shall be acceptable to me and binding on me in all respects.

For Tvl. S.V. Granites,

Signature of the Applicant

Place: Krishnagiri
Date:

Tvl. S.V. GRANITES,
NO. 17B/3, VELLAKOTTAI 1st CROSS,
CHENNAI SALAI,
KRISHNAGIRI DISTRICT – 635 001.

DECLARATION OF MINE OWNER

The Mining Plan in respect of Multi Colour Granite Quarry over an Extent of 1.91.50Ha. of Patta Land in S.F.Nos. 1124/7 (P), 1130/7(P), 1131/7 & 1131/8 in Irudukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamilnadu State has been prepared in full consultation with me by Mr.S.Dhanasekar.M.Sc., Qualified Person.

I have understood its contents and agree to implement the same in accordance with Laws applicable to Mines.

For Tvl. S.V. Granites,

Signature of the Applicant

Place: Krishnagiri
Date:

S.Dhanasekar.M.Sc.,(Geol),M.M.E.A.I.,
Qualified Person,
No.5/30-7B, Avvai Nagar,
Ponkumar Mines Road,
Jagirammapalayam,
Salem- 636 302.

CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the Provisions of Granite Conservation and Development Rules, 1999 and Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Mining Plan for Multi Colour Granite Quarry over an Extent of 1.91.50Ha. of Patta Land in S.F.Nos. 1124/7 (P), 1130/7(P), 1131/7 & 1131/8 in Irudukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamilnadu State. The Mining Plan has been prepared for Tvl. S.V. Granites, No. 17B/3, Vellakottai 1st Cross, Chennai Salai, Krishnagiri District -635 001.

Whenever specific permissions/exemptions/ relaxations and approvals are required, the applicant will approach the concerned authorities of Department of Geology and Mining, Government of Tamilnadu, Guindy, Chennai– 600 032 for such permissions/ exemptions /relaxations and approvals.

It is also certified that information furnished in the above Mining Plan are true and correct to the best of my knowledge.

S.DHANASEKAR, M.Sc.,(Geo)
Qualified Person

Place: Salem.
Date:

S.Dhanasekar.M.Sc.,(Geol),M.M.E.A.I.,
Qualified Person,
No.5/30-7B, Avvai Nagar,
Ponkumar Mines Road,
Jagirammapalayam,
Salem- 636 302.

COMMISSIONER OF GEOLOGY AND MINES * CHENNAI-600 032 *

CERTIFICATE FROM THE QUALIFIED PERSON

Certified that the Provisions of Mines Act, Rules and Regulations made there under have been observed in the preparation of Mining Plan for Multi Colour Granite over an Extent of 1.91.50Ha. of Patta Land in S.F.Nos. 1124/7 (P), 1130/7(P), 1131/7 & 1131/8 in Irudukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamilnadu. This Mining Plan has been prepared for Tvl. S.V. Granites, No. 17B/3, Vellakottai 1st Cross, Chennai Salai, Krishnagiri District - 635 001.

Wherever specific permissions/exemptions/ relaxations and approvals are required, the applicant will approach the concerned authorities of the Director General of Mines Safety (DGMS), No.5, IInd Street, Block – AA, Anna Nagar, Chennai, Tamil Nadu for such permissions/ exemptions /relaxations and approvals.

It is also certified that information furnished in the mining plan are true and correct to the best of my knowledge.

S.DHANASEKAR, M.Sc.,(Geo)
Qualified Person

Place: Salem.
Date:

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B. ஜி.கண்ணதாசன்

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B. [illegible]

MINING PLAN FOR
IRUDUKOTTAI MULTI COLOUR GRANITE

(Under Rule 19 A of TNMMCR 1959 & Rule 12, 13 & 16 of Granite Conservation and Development Rules, 1999)

I. INTRODUCTION:

The present mining plan and Environmental Management Plan has been prepared to in favour of **TVL. S.V. GRANITES, NO.17B/3, VELLAKOTTAI, 1ST CROSS, Chennai Salai, Krishnagiri District – 635 001** who has been granted to quarry **Multi Colour Granite** over an Extent of **1.91.50 Ha** in S.F. Nos.**1124/7(P), 1130/7(P), 1131/7 & 1131/8** in **Irudukottai** Village, **Denkanikottai** Taluk, **Krishnagiri** District for a period of twenty years vide the precise area communication **Govt. letter No.2666/MME.2/2022-1 dated 04.05.2022** With the following conditions

1) *A Safety distance of 7.5 meters should be provided to the adjacent patta lands and should not cause any hindrance to them while quarrying and transportation.*
2) *A Safety distance of 10 meters should be maintainted to the Government land in S.F.No.1130/8 (Podugal); S.F. No.1130/6 and 1131/4 (Podugal) situated on the northern side and western side of the applied area.*
3) *A safety distance of 10m shall be maintained for the government land (Pathai) in S.F.Nos. 1172/1and 1173/1 situated on the eastern side of the applied area.*
4) *A safety distance of 10m shall be maintained for the state on ground village road in patta lands in situated on the north and eastern side of the applied area.*
5) *The four boundaries of the applied area shall be fixed and the quarrying activity should be restricted within the area granted on lease.*
6) *If elephant/ animals passes nearby quarry site, the quarry operation should be stopped until the elephant migrates from the subject area.*
7) *Quarry operation should be carried out by complying all the forest Act/ rules without hindrance to the forest animals.*
8) *The quarrying activity should be carried out from 6.00 A.M to 6.00 P.M. only.*
9) *Barbed wire fencing or compound wall should be erected all along the boundary of the lease granted area.*
10) *The waste materials generated during the course of quarrying should be dumped only within the lease hold area.*
11) *Environment clearance should be obtained from the competent authority in respect of the subject area as per Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the notification of the Ministry of Environment and Forest and any other clearances if any.*

S.DHANASEKAR, M.Sc.,(Geo)
Qualified Person

12) The applicant firm should fence the lease granted area with barbed wire before the execution of lease deed as follows:-

- The pillar post shall be firmly grounded with concrete foundation of height not less than 2 meters with a distance between two pillars shall not be more than 3 meters.
- The applicant firm shall incorporate the DGPS readings for the entire boundary Pillars of the lease area and the same should be clearly shown in the mining plan.
- A soft copy of the digitized map with DGPS readings should be submitted in the CD form of the Deputy Director (i/c), Krishnagiri.

13) The conditions mentioned in G. O. (Ms) No.79, Industries (MMC.1) Department , dated 06.04.2015 should be complied with.

14) As per the rule 12 (V) of Minerals (other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016, the applicant firm shall at his own expenses erect , maintain and keep in repair all the boundary pillars.

15) The applicant firm should comply with the additional conditions stipulated in the Government of India , Ministry of Mines order No.11/02/2020, dated 14.01.2020 issued as pass the order of Hon'ble Supreme Court of India, dated 08.01.2020 that states "The mining lease holders shall after ceasing mining operations, under take re-grassing the mining area and any other area which may have been disturbed due to this mining activities and restore the land to a condition which is fit for growth of fodder, flora and fauna etc.,"

16) The applied area should satisfy Rule 36(1-A)(d) and (e) of the Tamil Nadu Minor Mineral Concession Rules, 1959.

17) The applicant firm shall submit scheme of mining; mine closure plan and other statutory requirements within the time stipulated for submission of above, as per rules.

18) The applicant firm should use mild explosives during quarrying.

19) Child Labourers should not be engaged in quarry works.

20) If any violation is found during quarrying operation, the penal provisions of the Tamil Nadu Minor Mineral Concession Rules, 1959 and other rules and act in force will attract.

21) Quarrying shall be done as per the approved Mining Plan and 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.

22) All the quarry labourers should be registered with the Labour Welfare Board of Government of Tamil Nadu and to be enrolled in the Group Insurance Scheme.

23) The District Collector, Krishnagiri shall obtain a sworn-in-affidavit from the applicant firm containing the above conditions before execution of lease deed and also ensure that the instructions issued in Government Letter No.12789/MMB.2/2002-7, Industries Department, Dated: 9.1.2003 are complied with.

The mining plan has been prepared incorporating the above conditions, complying the Rules and Regulations stipulated by the Government of Tamilnadu before and during the course of quarry operation.

The area applied for is a fresh lease over an extent of 1.91.50 Hectares in S.F.Nos. 1124/7(P), 1130/7(P), 1131/7 & 1131/8 in Irudukottai Village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu State. This mining plan is prepared as per the Rule 19A of TNMMCR 1959 & Rule 12, 13 & 16 of Granite Conservation and Development Rules, 1999.

M/s. S.V.Granites is a partnership firm. The land has been registered in the name of M/s. S.V. Granites, Partners Thiru. B. Sudhakar and Thiru. B. Chinnasamy, Vide Patta No.9241 in Irudukottai village records. Hence, the applicant has got surface right over the area.

Previously quarried old pit with boulder removal of dimension of 90 Sq.mts area with 5.0mts depth is noticed in the subject area quarried on the strength of the earlier lease granted in favour of Thiru. Jayaramsundar to quarry multi-colour granite in S.F.1130/7(P), 1131/7(P) over an extent of 1.00 acre (0.40.0 hects) of Irudukottai village vide G.O.(2D)No.166 Industries Department dated 18.08.1995 and the lease period expired on 04.09.2005. There is no recent quarrying activity noticed in the subject area and partly covered with bushes. Since the top weathered layer upto 3.00mts was quarried earlier the recovery in the top layer was very minimum. Further, the ex-lessee has obtained transport permit for 14 blocks with a volume of 105.997 cbm and totally 11 Old granite blocks with a volume of 55.381 cbm is kept in the applied area.

The applied area is 1.90kms from the Cauvery Wild life Sanctuary. The Government of India, Ministry of Environment, Forest and Climate Change vide Notification S.O. 07 (E) dated 01.01.2020 had declared the boundary for Eco sensitive Zone of Cauvery Wild life sanctuary as 1 Km on the northern side. Hence the applied area does not come under the eco sensitive zone.

The quarry lease applied area is a slightly elevated terrain with an average height of 5.0m gently sloping towards southwest. Multi-colour Granite deposit is observed below the topsoil and weathered rock having an average thickness of 3.0mts as observed in the old pit of the previous lease. Open cast method should be adopted to win the Multi-colour Granite dimensional stones occurring in this area.

B. சுதாகர்

The following Open cast method will be adopted to win the Multi Colour granite dimensional stones occurring in this area.

The Top soil is removed by using excavator. The soil type of the area is gravelly in nature and it is having a thickness upto 1.0m & weathered Rock upto 3.0m and below which massive formation of Multi Colour Granite may be encountered.

Usage of explosives is very minimal. Mild blasting with explosives in holes drilled by jack hammer of 32mm dia. will be adopted. No deep hole blasting is proposed.

Diamond wire saw cutting method: By this method the dimensional granite stones were splitted from the parent rock.

Using feather and wedges the defective portions are removed. Experienced Chisel men are used for dressing the blocks into required rectangular shaped dimensional stones without much wastage.

These rectangular dimensional granite stones are marketed to different needy customers by adopting strict quality control measures by experienced markers.

2.0 GENERAL

2.1 NAME OF THE APPLICANT WITH ADDRESS:

Name : TVL. S.V. Granites

Address : No.17B/3, Vellakottai 1st cross,
Chennai Salai,
Krishnagiri District.

District : Krishnagiri.

Pin code : 635 001

Mobile No: +91 8098182919

2.2 STATUS OF THE APPLICANT

The applicant TVL. S.V. Granites is a Partnership firm.

2.3 MINERAL WHICH THE APPLICANT INTENDS TO MINE

The applicant intends to quarry Multi Colour Granite Dimensional Stone.

2.4 NAME AND ADDRESS OF THE QUALIFIED PERSON WHO PREPARED THE MINING PLAN

Name : S.DHANASEKAR.M.Sc.,(Geol),M.M.E.A.I.,
QUALIFIED PERSON,

Address : 5/30-7B, Avvai Nagar,
Ponkumar Mines Road,
Jagir Ammapalayam,
Salem- 636 302.
Mobile No: +91 98946 28970
Mail:geodhana@yahoo.co.in

2.5 NAME AND ADDRESS OF THE PROSPECTING AGENCY

Long time back in the year 1992-93 the State Geology and Mining Dept., Govt. of Tamil Nadu, has also carried out the prospecting and exploration in these areas.

A detailed mapping of the commercial granite deposits of Tamilnadu has also been carried out by the Geological Survey of India. Apart from the survey conducted by the GSI, the Qualified Person along with his experienced team members made a detailed geological investigation of the area and demarcated the deposit clearly with a mine surveyor. The trend of the rock formation is N30^{0}E – S30^{0}W direction dipping towards 80^0 West.

Address of the prospecting Agency:

(i) STATE GEOLOGICAL DEPARTMENT

O/O The Commissioner of Geology and Mining
Thiru Ve Ka industrial Estate,
Guindy, Chennai – 32.

ii) GEOLOGICAL SURVEY OF INDIA,

Elliot Beach Road,
Rajaji Bhavan,
C.G.O Complex,
Besant Nagar,
Chennai – 600 090.

2.6 DETAILS OF THE AREA

a. The area is marked by the Geological Survey of India, Topo Sheet No.57-H/15.

b. The details of the land covered by the area is given below.

Table -1

District & State	Taluk	Village	S.F.No.	Area in Hect.	Ownership occupancy
Krishnagiri & Tamilnadu	Denkanikottai	Irudukottai	1124/7(P)	0.67.0	It is a Patta land, registered in the name of M/s S.V Granite, Partners Mr.B. Chinnasamy & Mr.B.Sudhakar Vide Patta No.9241
			1130/7(P)	0.29.0	
			1131/7	0.92.0	
			1131/8	0.03.5	
Total Extent				1.91.50	

The area lies the North Latitude 12^{0}25'41.1003"N to 12^0 25' 36.5229"N and East Longitude of 77^0 50' 03.8947"E to 77^{0}49'57.9786"E on WGS datum-1984. (Plate No. II).

B. [illegible]

Satellite Map Showing on the Lease Applied Area Boundary Pillars GPS-Coordinates

2.7 WHETHER THE AREA RECORDED TO BE IN FOREST DEPARTMENT:

Irudukottai village of Denkanikottai Taluk in which the lease applied area does not come under any of the forest land and also not classified as a hill area vide G.O.M.S.No.49 Housing & Urban Development (UD 22) Department dated 24.03.2003 and hence obtaining N.O.C. from the Hill area conservation authority does not arise.

2.8 PERIOD FOR WHICH THE MINING AREA IS REQUIRED:

The quarry lease for **Multi Colour Granite** is applied for a period of Twenty years. Under Rule 19A of TNMMCR 1959 & Rule 12, 13 & 16 of Granite Conservation and Development Rules, 1999.

B. [illegible]

2.9 INFRASTRUCTURE:

The quarry lease applied area is situated at a distance of about 2.1kms from Namreli Village. Namrelli is at a distance of 13.0 kms from Panjapalli. Panjapalli is at a distance of 17.0kms from Rayakottai. Rayakottai is at a distance of 25.0Kms from Krishnagiri. Please refer Route Map - Plate No.IA.

TABLE – 2

Particulars	:	Location	Distance from the investigated area
Nearest Post Office	:	Denkanikottai	13.5 kms - N
Nearest Town	:	Denkanikottai	13.5 kms - N
Nearest Police Station	:	Denkanikottai	13.5 kms -N
Nearest Hospital	:	Denkanikottai	12.5 kms -N
Nearest School	:	Denkanikottai	12.5 kms -N
Nearest D.S.P. Office	:	Hosur	37.0kms -N
Nearest Railway Station	:	Kelamangalam	24.7kms -NE
Nearest Seaport	:	Chennai	330.0kms - NE
Nearest Airport	:	Bangalore	111.0kms - N

WATER:

Good drinking water is available from the nearby community wells and approved water vender situated in Irudukottai Village also supplies drinking water. Besides, the ground water is potable without any adverse health effects.

RIVERHEAD:

There is no Rivers/Stream, Lakes, Reservoir or any water bodies within the 50m distance to the lease applied area.

There are no permanent structures like National monuments, Places of worship, Residential areas, and places of Archaeological interest within 500m radius from the area applied for quarrying lease.

3.0 GEOLOGY AND RESERVES

3.1 PHYSIOGRAPHY

The applied lease area is slightly elevated terrain mostly covered up to 1m top soil and 2.0m Weathered Granite followed by fresh Multi Colour Granite deposits. Some detached weathering and fractured are observed along the strike which is the characteristic of granite deposits.

The average elevation of the study area is about 936m above M.S.L. The trend of the rock formation is N30^{0}E – S30^{0}W direction dipping towards 80^0 West.

There are few villages located within the 5 kms radius of quarry site and approximate distance with direction & population are given below.

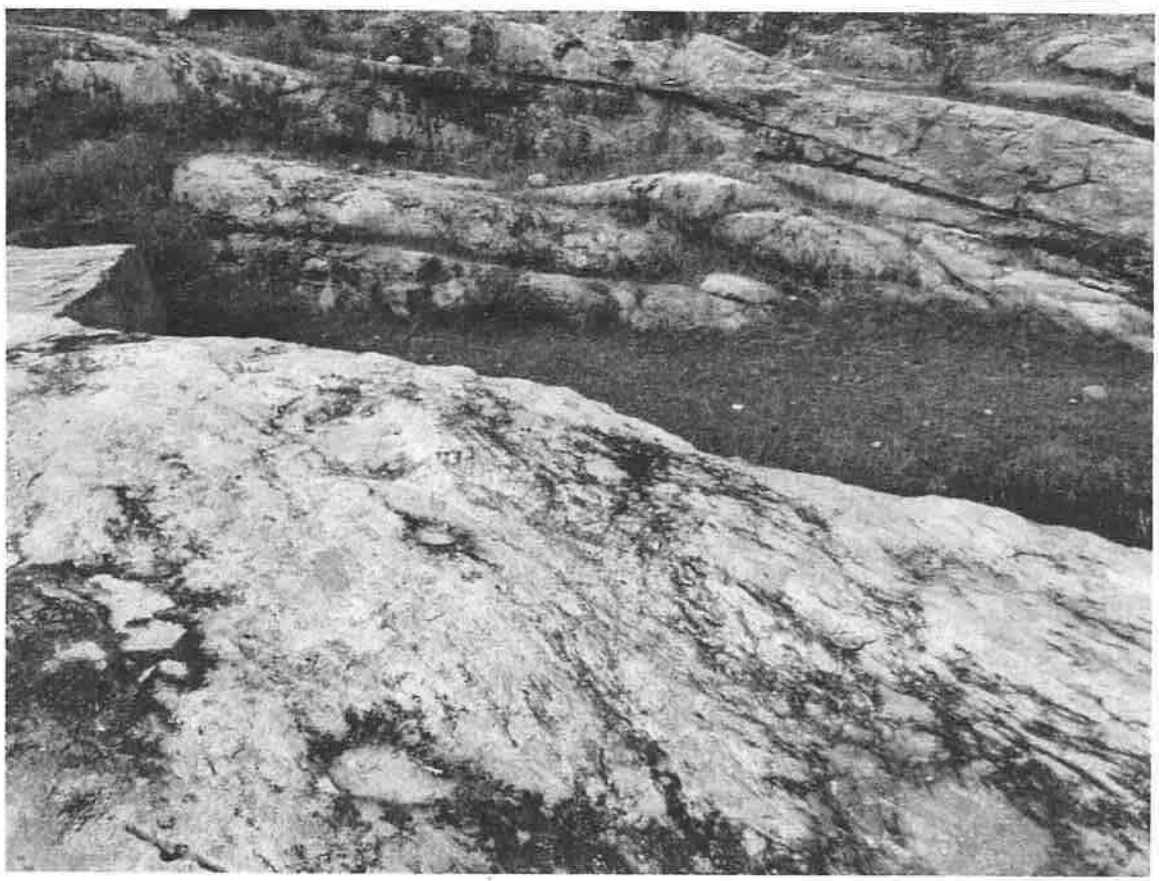
Table -3

S.No	Name of the Village	Direction	Approximate Distance	Approximate population
1.	Santhanapalli	North	4.5kms	1200
2.	Namreli	East	2.1kms	480
3.	Bilalam	South	1.5kms	250
4.	Bikkanapalli	West	4.3kms	390

Water table is found at a depth of 60m, in summer and at 52m in rainy season. The area receives rain fall of about 700 to 800 mm/per annum and the rainy period is mainly from Oct – Jan during North East monsoon. The summer is hot with maximum temperature up to 43°c.

The top soil is to a thickness of about 1.0m. The area experiences moderate climate and there is scanty growth of vegetation in and around the quarry lease applied area.

Topographical View of the Multi Colour Granite Quarry Lease Applied Area



B. தி சஞ்சீவன்

Photo View of the Multi Colour Granite

Megascopic Multi Colour and Texture of Minerals

B. [illegible]

3.2 GEOLOGY

a. REGIONAL GEOLOGY:

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 heat rocks running to several kms from NNE-SSW as a massive rock formation.

The order of superposition of geological sequence are given as under,

ROCK TYPE:

Top Soil gravelly earth	- Recent Age
Pegmatite and Quartz veins	- Archaean Age
Dolerite Dyke	- Archaean Age
Migmatites (Paradiso& Multi)	- Archaean Age (Kolar Group)
Biotite Gneisses	- Archaean Complex

The Regional rocks mostly composed of quartz, plagioclase feldspar, orthoclase feldspar and accessories like mica.

b. GEOLOGY OF THE LEASE APPLIED AREA:

The area applied for is situated in a slightly elevated terrain with an average height of 5.0 meters gently sloping towards southwest. The rock type available in the area is granite gneiss having a general trend of N30°E to S30°W with dipping towards 80° West. Surface level outcrops of multi-colour granite deposits is observed on the north eastern side and in other areas concealed under top soil + weathered Rock and overburden having an average thickness of 3.0 meters. Below which massive formation may encounter. This rock type is having wavy pattern with quartz, orthoclase feldspar as major constituents, pyroxene, mica, garnet and other mafic minerals as accessories. The average recovery percentage is around 60%.

i) Mineralogy:

The Multi Colour Granite deposits of this area are rich in orthoclase feldspar with excellent wave pattern. It is commercially called as **Paradiso.** It is mainly composed of mineral constituents such as biotite, Quartz, orthoclase feldspar and less plagioclase feldspar. It is a type of para gneiss with alternative bands of orthoclase and dark minerals. The biotite is fine grained and other minerals like alkaline and soda feldspars are medium grained. The flow structure, equigranular texture and presence of fresh orthoclase feldspars indicates that it is a type of Migmatite with purple colour feldspar. Presence of Xenoliths is common in this Multi Colour Granite. Dimensional cutting and polishing of these type of hard and compact rocks exhibits an attractive alternative bands of light pink and dark minerals with excellent wave patterns.

It is a Multi Colour granite covered partly by gravelly soil. The rock is hard, compact and sheet in nature so as to cut required sizes of blocks. The mineral constituents of the rock mass shall be about Orthoclase feldspar 45%, Quartz roughly 20%, Plagioclase feldspar 15%, mica 15% and others 5%.

ii) Geological setting and structure:

The order of geological sequence are,

Description		**Geological Age**
Top Soil- (Intermittent)	-	Recent
Migmatite (Paradiso) with wave Pattern	-	Archaean
Biotite Gneisses (Peninsular Gneisses)	-	Archaean

The Top soil cover is found all around the exposures of outcrops of Multi Colour Granite. The trend of the rock formation is $N30^0E$ – $S30^0W$ direction dipping towards 80^0 West. The regional trend is shown in the geological plan. The Multi-Colour Granite that occur in this area is massive with less boulders of fractures. It is suitable for commercial exploitation of gang saw size rough blocks.

c. QUALITY OF THE DEPOSIT:

The granite gneiss is inequigranular, medium to coarse grained having wavy pattern. Because of having flow texture with feldspar, quartz and other mafic minerals, the gneissic rock is suitable for ornamental purposes after cutting and polishing.

The physical attitude of the Multi Colour Granite deposits of this area are given below.

Area in Ha	–	1.91.50 Ha
Strike Direction	–	$N30^0E$ – $S30^0W$
Dip direction	–	80^0West

3.3 DETAILS OF EXPLORATION

3.3.1 ALREADY CARRIED OUT

As far as Multi Colour Granite deposits are concerned, the only practical method is the systematic geological mapping, delineation of commercial Multi Colour Granite bodies within the field and careful evaluation of body luster, physical properties, commercial aspects etc.

Explorations were conducted by the Central and State Governments.

1. In the year 1966 the Government of India conducted exploration study of the availability of Granite blocks in this area through Geological Survey of India.
2. Between the year 1992 to 1993 the State government represented by the Department of Geology and Mining conducted the exploration study for granite in this area.

   Based on the valuable geological information available by the exploration conducted by the Central and the State Government, the geological reserves are estimated. Considering the waste expected, mineable reserves are arrived.

B. [illegible]

3.3.2 PROPOSED STUDY TO BE CARRIED OUT:

The petrogenetic Character of the Multi Colour granite stone may be beyond 38.0m depth but the economically viable depth persistence of the Multi Colour Granite Stone has been taken to calculate all the categories of proved, probable and possible reserves as 38.0m only (1.0m Topsoil + 2.0m Weathered Granite + 35.0m Multi Colour Granite). The recovery of saleable Multi Colour Granite stones (Gang saw size) has been taken as 60%.

The proposed depth of the quarry for the **first 5 years** is given upto **28.0m** below ground level. The quarrying activities during the first 5 years with deep cut as envisaged in the mining plan may render additional data as may be required for future planning.

3.4 METHOD OF ESTIMATION OF RESERVES

The geological plan has been prepared in 1:1000 scale (Plate No. IV). With Five sections have been drawn, Two sections (X-Y) & (X1-Y1) drawn as lengthwise and another three sections are (A-B), (C-D) & (E-F) drawn as widthwise. These Sections are suitably chosen to cover maximum area.

The proved depth persistence of 38.0m only (1.0m Topsoil + 2.0m Weathered Granite + 35.0m Multi Colour Granite). has been worked out for each cross sectional area. The cross sectional area multiplied by its length of influence on the longer axis gives the volume. The total of the insitu reserves available within the individual cross sectional area gives the Geological Resources of the quarry lease applied area.

The quantity of saleable granite stones and quantity of granite waste generation are computed by applying recovery factor of about 60% from the total geological resources. The salable Multi Colour Granite stone are in terms of cubic meters (Volume) only. This differs from the other Major minerals which are quantified in Tonnage. In Granite the geological resources, mineable reserves and quantum of waste generated etc, are given only in terms of cubic meters. (Volume).

The details of estimation of Geological Resources and Mineable Reserves with reference to the Geological Plan & Cross section and Conceptual Plan & Section as shown in (Plate no.IV and VIII) have been furnished in Table - 4 & Table - 5 respectively.

3.5.0 GEOLOGICAL RESOURCES:

Table -4

GRANITE GEOLOGICAL RESERVES										
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in M3	Total Reserve in M3	Granite Waste @ 40%	Multi-Colour Granite Recoverable Reserve @ 60%	Weathered Granite	Topsoil
XY-AB	I	55	57	1						3135
	II	55	57	2					6270	
	III	55	57	5	15675	15675	6270	9405		
	IV	55	57	5	15675	15675	6270	9405		
	V	55	57	5	15675	15675	6270	9405		
	VI	55	57	5	15675	15675	6270	9405		
	VII	55	57	5	15675	15675	6270	9405		
	TOTAL				**78375**	**78375**	**31350**	**47025**	**6270**	**3135**
XY-EF	I	89	69	1						6141
	II	89	69	2					12282	
	III	38	69	5	13110	13110	5244	7866		
	IV	89	69	5	30705	30705	12282	18423		
	V	89	69	5	30705	30705	12282	18423		
	VI	89	69	5	30705	30705	12282	18423		
	VII	89	69	5	30705	30705	12282	18423		
	TOTAL				**135930**	**135930**	**54372**	**81558**	**12282**	**6141**

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Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in M3	Total Reserve in M3	Granite Waste @ 40%	Multi-Colour Granite Recoverable Reserve @ 60%	Weathered Granite	Topsoil
X1Y1-CD	I	59	66	1						3894
	II	59	66	2					7788	
	III	43	14	5	3010	3010	1204	1806		
	IV	59	41	5	12095	12095	4838	7257		
	V	59	66	5	19470	19470	7788	11682		
	VI	59	66	5	19470	19470	7788	11682		
	VII	59	66	5	19470	19470	7788	11682		
	VIII	59	66	5	19470	19470	7788	11682		
	IX	59	66	5	19470	19470	7788	11682		
	TOTAL				**112455**	**112455**	**44982**	**67473**	**7788**	**3894**
X1Y1-EF	I	110	57	1						6270
	II	110	57	2					12540	
	III	60	45	5	13500	13500	5400	8100		
	IV	110	57	5	31350	31350	12540	18810		
	V	110	57	5	31350	31350	12540	18810		
	VI	110	57	5	31350	31350	12540	18810		
	VII	110	57	5	31350	31350	12540	18810		
	VIII	110	57	5	31350	31350	12540	18810		
	TOTAL				**170250**	**170250**	**68100**	**102150**	**12540**	**6270**
GRAND TOTAL					**497010**	**497010**	**198804**	**298206**	**38880**	**19440**

Topsoil = 19440 m^3
Total Reserves ROM = 497010 m^3
Multi Colour Granite Recovery @ 60% = 298206 m^3
Granite Waste ratio = 1:0.86

Weathered Granite = 38880 m^3
Granite Waste @ 40% = 198804 m^3
Total Waste = 257124 m^3

MINEABLE RESERVES:

Table -5

GRANITE MINEABLE RESERVES										
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in M3	Total Reserve in M3	Granite Waste @ 40%	Multi Colour Granite Recoverable Reserve @ 60%	Weathered Granite	Topsoil
XY-AB	I	47	36	1						1692
	II	45	34	2					3060	
	III	43	30	5	6450	6450	2580	3870		
	IV	38	20	5	3800	3800	1520	2280		
	V	33	10	5	1650	1650	660	990		
	VI	28	1	5	140	140	56	84		
	VII	23	1	5	115	115	46	69		
	TOTAL				**12155**	**12155**	**4862**	**7293**	**3060**	**1692**
XY-EF	I	80	61	1						4880
	II	79	60	2					9480	
	III	38	57	5	10830	10830	4332	6498		
	IV	77	52	5	20020	20020	8008	12012		
	V	72	47	5	16920	16920	6768	10152		
	VI	67	42	5	14070	14070	5628	8442		
	VII	62	37	5	11470	11470	4588	6882		
	TOTAL				**73310**	**73310**	**29324**	**43986**	**9480**	**4880**

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Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in M3	Total Reserve in M3	Granite Waste @ 40%	Multi Colour Granite Recoverable Reserve @ 60%	Weathered Granite	Topsoil
X1Y1-CD	I	52	46	1						2392
	II	52	44	2					4576	
	III	43	7	5	1505	1505	602	903		
	IV	43	23	5	4945	4945	1978	2967		
	V	38	29	5	5510	5510	2204	3306		
	VI	33	19	5	3135	3135	1254	1881		
	VII	28	9	5	1260	1260	504	756		
	VIII	23	1	5	115	115	46	69		
	IX	18	1	5	90	90	36	54		
	TOTAL				**16560**	**16560**	**6624**	**9936**	**4576**	**2392**
X1Y1-EF	I	73	49	1						3577
	II	72	48	2					6912	
	III	60	34	5	10200	10200	4080	6120		
	IV	64	41	5	13120	13120	5248	7872		
	V	59	36	5	10620	10620	4248	6372		
	VI	54	31	5	8370	8370	3348	5022		
	VII	49	26	5	6370	6370	2548	3822		
	VIII	44	21	5	4620	4620	1848	2772		
	TOTAL				**53300**	**53300**	**21320**	**31980**	**6912**	**3577**
GRAND TOTAL					**155325**	**155325**	**62130**	**93195**	**24028**	**12541**

Topsoil = 12541 m^3

Total Reserves ROM = 155325 m^3

Multi Colour Granite Recovery @ 60%= 93195 m^3

Granite Waste ratio: = 1:1.05

Weathered Granite = 24028 m^3

Granite Waste @ 40% = 62130 m^3

Total Waste = 98699 m^3

B. Prabhakaran

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The geological resources computed based on the geological cross sections up to the economically workable depth of 38.0m from the top surface of the area wise (1.0m topsoil + 2.0 m Weathered rock + 35.0m Multi Colour Granite) works out to 298206m^3 (60% recovery) cubic meters (Table-4) and mineable reserves have been computed as 93195m^3 (Table-5) at the rate of 60% recovery upto a depth of 38.0m(1.0m topsoil + 2.0m Weathered Granite + 35.0m Multi Colour Granite).

The mineable reserve is found out by deducting the locked up area in safety distance all along the perimeter of the lease boundaries. Proved & possible reserves are categorized up to 38.0m depth (1.0m topsoil +2.0m Weathered Granite + 35.0m Multi Colour Granite).

The Multi Colour Granite body occurring in this area exhibits more or less uniform color and texture and sold in par with commercial granite deposit. If any variations occur locally during mining such as cracks flaws and patches, the defective area is removed during dressing & marketed. The deposit is uniform and no gradational change is noticed except some shear, cracks, xenoliths and slender pegmatite veins.

4.0 MINING

Under the regulation 106 (2) (b) of the Metallurgical Mines Regulation 1961, in all open cast mining, the bench height should not exceed 5.0m and bench width should not be less than bench height . The slope of the bench should not exceed 60° from horizontal.

Due to the prevailing difficulties in mining granite dimensional stone, it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety Chennai for which necessary provision is available with the Regulation 106 (2) (b) of the Metallurgical Mines Regulation 1961.

The production of Multi Colour Granite dimensional stone is contrary to the method of mining of other major minerals.

The following methods are familiar with the production of Multi Colour Granite dimensional stone:

PRIMARY CUTTING: By adopting the method of Diamond wire cutting considerable volume of the Multi Colour granite dimensional stone is carefully removed by splitting from the parent rock. Special care is being taken to avoid any visibly seen defects such as cracks.

This liberation of huge volume of granite body from the parent rock is called "primary cutting". This huge portion is further split into several blocks of desirable dimension.

Hydraulic cranes are used to lift the blocks splitted and shifted to the dressing yard for further processing.

B. [illegible]

Skilled laborers will be engaged for removing the defective portions and dressing them in to dimensional blocks by manual methods using feather and wedges and chiseling respectively.

Under the continuous supervision of experienced personals the defects free dimensional stone of different sizes are thus produced by the method as described above. The marketable grade of Multi Colour granite dimensional stone is segregated depending upon the need of customers.

The Top soil and Weathered Granite will be dumped in the western side of the lease area. The granite waste(40%) material generated during quarrying activity will be taken in tippers and proposed to dump in the Southwestern side of the lease applied area with dimension of L38.0m X W35.0mX H11.0m. (Plate No. V and VI) for the first 5 years.

The excavated top soil will be utilized for afforestation and construction of bunds and haul roads.

4.1 YEAR WISE DEVELOPMENT AND PRODUCTION FOR THE FIRST FIVE YEARS

Table -6

GRANITE YEARWISE DEVELOPMENT AND PRODUCTION RESERVES

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in M3	Total Reserve in M3	Granite Waste @ 40%	Multi Colour Granite Recoverable Reserve @ 60%	Weathered Granite	Topsoil
I YEAR	X1Y1-AB	I	60	46	1						2760
		II	57	44	2					5016	
		III	53	7	5	1855	1855	742	1113		
		IV	43	23	5	4945	4945	1978	2967		
		TOTAL				**6800**	**6800**	**2720**	**4080**	**5016**	**2760**
II YEAR	X1Y1-CD	I	40	49	1						1960
		II	40	46	2					3680	
		IV	45	34	5	7650	7650	3060	4590		
		TOTAL				**7650**	**7650**	**3060**	**4590**	**3680**	**1960**
III YEAR	X1Y1-CD	V	45	32	5	7200	7200	2880	4320		
		TOTAL				**7200**	**7200**	**2880**	**4320**		
IV YEAR	X1Y1-AB	V	33	29	5	4785	4785	1914	2871		
		VI	23	19	5	2185	2185	874	1311		
		VII	13	9	5	585	585	234	351		
		TOTAL				**7555**	**7555**	**3022**	**4533**		
V YEAR	X1Y1-CD	VI	45	22	5	4950	4950	1980	2970		
		VII	45	12	5	2700	2700	1080	1620		
		TOTAL				**7650**	**7650**	**3060**	**4590**		
		GRAND TOTAL				**36855**	**36855**	**14742**	**22113**	**8696**	**4720**

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Topsoil	= 4720 m^3
Weathered Granite	= 8696 m^3
Total Reserves ROM first five years	= 36855 m^3
Multi Colour Granite 60% Recovery first five years	= 22113 m^3
Granite waste @ 40%	= 14742 m^3
Total Waste	= 28158 m^3
Granite Waste ratio	= 1:1.27

Estimated Life of the quarry

Mineable ROM	= 155325 m^3
Mineable Recoverable Reserve(60%)	= 93195 m^3
Average production per year	= 4423 m^3
Estimated Life of the Quarry	= 93195 / 4423 = 21.0 years

Life = 21 years

The year wise quantum of work proposed and the details of estimation of production quantity and generation of waste are furnished in Table-6 with reference to Year wise Development and Production plan (Plate No.V).

The quarrying block is shown in such a way to meet the average annual production. The average annual production for the first five years is 4423m^3 at the rate of 60% recovery. (Refer Table No.6).

For achieving this rate of production a total quarrying block with dimension of 99m(L) x 46m(W) x 28m(D) of I^{st} to 5^{th} year is selected from the North side towards southern side of the lease applied area. More details of the five year wise production parameter are explained with bench length, width and height in Plate No.V & Table No.6.

4.2 PROPOSED RATE OF PRODUCTION WHEN THE QUARRY IS FULLY DEVELOPED

The proposed rate of production when the quarry is fully developed is 4423m^3 per annum and 22113m^3 for the first five years @ 60% recovery. (Table-6).

4.3 MINEABLE RESERVES AND ANTICIPATED LIFE OF MINE

The Multi Colour Granite is deep seated in nature. The depth persistence of the Multi Colour Granite will be beyond the economically workable depth. The method of extraction of rock mass from Multi Colour Granite rock is highly expensive affair at greater depths.

An optimum depth of 38.0m (1.0m topsoil +2.0m Weathered Granite + 35.0m Multi Colour Granite) for entire lease period has been established as economically viable depth. Eventually this depth is the optimum depth for safe and scientific quarrying.

The mineable reserves are calculated by excluding the mining loss due to formation of benches, ultimate depth of mine, the mineral reserve held up within the safety distances all along the boundary of quarry lease applied area.

The mineable reserves for this Multi Colour Granite quarry is thus arrived as **93195m³** (Table-5) and **ROM 155325m³** (Table-5) for an assumed depth of 38.0m from top surface (1.0m topsoil + 2.0m Weathered Granite + 35.0m Multi Colour Granite). The details of estimation of five years development plan (plate no.V) is furnished in Table-6.

The average rate of production of Multi Colour Granite from this quarry is 4423m³ per year and mineable reserves 155325m³.

Based on the above, and taking into consideration of the available Mineable Reserves, **the life of mine will be about 21 years,** if the quarry is being worked continuously with prevailing market conditions and according to this mining plan.

4.3.1 CONCEPTUAL MINING PLAN

Conceptual mining plan is prepared with an object of long term systematic development of benches; lay outs, selection of permanent ultimate pit limit, depth of mining and ultimate pit, selection of sites for construction of infrastructure etc.

The ultimate pit size is designed based on certain practical parameters such as economical depth of mining, safety zones, permissible area etc. The ultimate pit dimensions of the quarry are given below. (Please refer Plate No.VIII).

Table -7

ULTIMATE PIT DIMENSION		
Length	Width	Depth
125.0m(avg)	64.0m(avg)	38.0m

However, during extraction of blocks each bench will be of 5 mts height with vertical slope for proper dimensional cutting. The quantum of excavation is estimated to be 155325 m³ for depth of 38.0m (1.0m topsoil + 2.0m Weathered Granite + 35.0m Multi Colour Granite)(refer Table-5).

The waste is estimated as 62130m³, (Table-5) and marketable granite blocks as 93195m³. (Plate No-VIII). An earth bund of 1m height will be formed around the quarry lease boundary over the topsoil.

4.4.0 METHOD OF MINING

4.4.1 OPEN CAST WORKING

In accordance with the Regulation 106 (2) (b) of the Metalliferous Mines Regulations 1961, in all open cast working where the ore body forms hard rock, the working faces and sides should be adequately benched and sloped; a bench height not exceeding 5m and a bench width not less than the bench height has to be maintained. The slope angle of such benches and sides should not exceed 60° from horizontal.

However, observance of these statutory provisions in granite dimensional stone mining is seldom possible due to the field difficulties and technical reasons as below:

1. Complying the statutory parameters, series blasting may not be possible due to formation of benches and sides. Special care to be taken for the production of undamaged rectangular dimensional blocks. Due to the generation of blasting cracks the marketable granite stone may get spoiled.
2. The 60° slope formation poses practical difficulty in forming benches within the granite deposit. The granite portion confined within the 60° while extracted as blocks will generate mineral waste while shaping into rectangular blocks.
3. The size of the granite blocks extracted plays a major role in the industry. Huge blocks with measurements up to 3 m x 2 m x 2 m. is not at all possible with a moving bench of 5m height. Production of such huge blocks in turn increases the recovery and reduces the mineral waste during dressing. Smaller size of blocks of certain varieties of granite are not marketable now-a-days (or) has a less commercial value.
4. The problem of mineral locked up prevails during the formation of too many benches with more height and the width equal to the height.

To facilitate economical mining operations, it is proposed to obtain relaxation to the provisions of Regulation 106 (2) (b) Metalliferous Mines Regulations 1961 up to a bench parameter of 5.0m height & 5.0m width with vertical faces.

Since the entire terrain is made up of hard rock, compact sheet and possess high stability on slope even at higher vertical angles the proposed bench parameters may not be detrimental to the DGMS.

4.4.2 EXTENT OF MECHANIZATION / COST OF MACHINERY:

The following machineries are utilized on rental basis for the development and production work at this mine.

I. DRILLING MACHINE

Table -8

S.No	Type	Nos	Dia Hole mm	Size Capacity	Make	Motive power
1	Jack hammer & Accessories	3	32	1.2m to 6m	Atlas Copco	Compressed air
2	Compressor	2		400 psi	Atlas Capco	Diesel Drive
3	Diamond wire saw	1	-	$30m^3$/Day	Optima	Diesel Generator
4	Gen set	1	-	Powerica	-	CP 125 D5P (H.P)

II. LOADING EQUIPMEN

Table -9

S.No.	Type	Nos	Capacity	Make	Motive Power
1	Excavator	1	350	Kobelco	Diesel Drive

III. HAULAGE WITHIN THE MINE & TRANSPORT EQUIPMENT

Table -9

S.No.	Type	Nos	Capacity	Make	Motive Power
1	Tippers	1	10 tonnes	Tata	Diesel Drive

IV. TRANSPORT FROM THE QUARRY HEAD TO DESTINATION

The Raw blocks from Quarry head is transported to the Dressing Site, then to desired destination by trucks or by trailers.

V. MISCELLANEOUS:

Apart from the above the following tools and tackles are required for quarry operation.

A. For operation

The operation of granite quarry requires the following loose tools material and have to be kept sufficiently in stock for non - interruption of the quarry work.

1. Drill roads - 0.3m ,0.4m , 0.5 m ,0.6m , 0.75m ,1.65m, 2.25m, 3m, 3.6m, 3.6m, 4.6m, 5.6m & 6.6m.
2. Steel Alloy chains of sufficient length of 12mm, 16mmand 18mm, sizes.
3. 'D' shackets to link the chain lengths.
4. Rubber hose of required length.
5. Hose clamps to link the compressor delivery hoses.
6. Feather and wedges of 6" and 12" dia sizes utilize for splitting the block from the parent rock. This is an important tool in the operation of a quarry.
7. Crow bars.
8. Spades.
9. Sludge Hammer
10. Iron Pans
11. Pitcher Hammer
12. Chisels.
13. Consumables, such as diesel, Hydraulic oil, grease, abrasive wheels, welding Machines etc.
14. Stock of essential spare parts of machinery.

B. [illegible]

In addition to the above diamond wire saw equipment with accessories are required to remove rock from parent body rapidly with minimum damage.

The above machineries are adequate to meet out the simultaneous development and production schedule drawn out in this mining plan.

5. BLASTING

During future development of quarrying, removal of Top soil will be done by excavator and mild blasting with explosives in holes drilled by jack hammer of 32mm dia especially. No deep hole blasting is proposed. Portable magazine has been proposed to install in the ear marked places. Authorized explosive dealers supply the explosive at site as per the requirement.

6.0 MINE DRAINAGE

Quarry operation is confined to 38m which is well above the water table which is 60m in summer and 52m during rainy season. This water table is observed in nearby wells. Even during rainy season if there is any water seepage the same may be drained out using diesel pumps and will be utilized for afforestation area.

7.0 STACKING OF MINERAL WASTE AND DISPOSAL OF WASTE

a) Topsoil:

The topsoil of the lease area is 4720m^3 will be dumped in the western side of the lease area and it will be utilized for construction of bunds, road and afforestation purpose.

b)Weathered Granite:

The Weathered Granite of the lease area is 8696m^3 will be dumped in the western side of the lease area.

c) Granite waste:

First five years Multi Colour Granite waste forms nearly 40% of ROM and the quantity of waste in the five years will be around 14742m^3. The Granite waste material will be proposed to dump in the Southwestern side of the lease area.

d) Land chosen for disposal of waste:

The Proposed granite waste (40%) will be dumped in the Southwestern side of the lease applied area with dimensions 38.0m (L) X 35.0 (W) X 11.0m (H). which will also accommodate the waste generated during the first five years. (Plate No. V and VIII).

e) Manner of disposal of waste:

As and when there is accumulation of waste, the same will be loaded into the tipper by loading machines and dumped in the respective places.

B. [illegible]

The waste management plan with reference to the quantum of waste generated (Table No-6) is shown in Mine layout and Afforestation plan (Plate No.VI).

8.0 USE OF THE GRANITE STONE

The quarried Multi Colour Granite blocks are either exported as raw blocks or processed as value added products such as slabs, tiles, fancy items, Monuments, precision surface plates for engineering application.

The export market for granite is china, European Country, North America, Middle East, Far East, Japan, Taiwan & Canada besides catering local markets.

9.0 QUALITY CONTROL

The Multi Colour Granite deposit occurring in this quarry shows uniform quality throughout and hence will be quarried and marketed as a single variety.

The excavated blocks will be carefully inspected for any natural defects such as joints, cracks, xenoliths growth etc and such defects will be removed manually using feather and wedges and the blocks are then shaped into perfect rectangular dimensional stone blocks by chiseling. Different price for each quality material have been fixed and the entire production quantity is marketed accordingly.

10. SURFACE TRANSPORT

The mode of transport of the granite blocks produced and marketed is by road to various customer destinations and granite processing units located at different parts of the country. The Multi Colour Granite blocks approved for export market are shipped from Tuticorin Harbour to various countries and if required the blocks may be shifted to Chennai Harbour which depend upon the exporters' destination.

11. SITE SERVICES

The simple methods adopted and the limited scale of activities involved in granite dimensional stone quarrying does not require high tension electric power supply or huge worship facilities. The quarry operation is restricted to one general shift during day time only. Machinery repair works are attended at Denkanikottai (13.5kms) town. Minor repairs carried out by applicant staff at the quarry site itself.

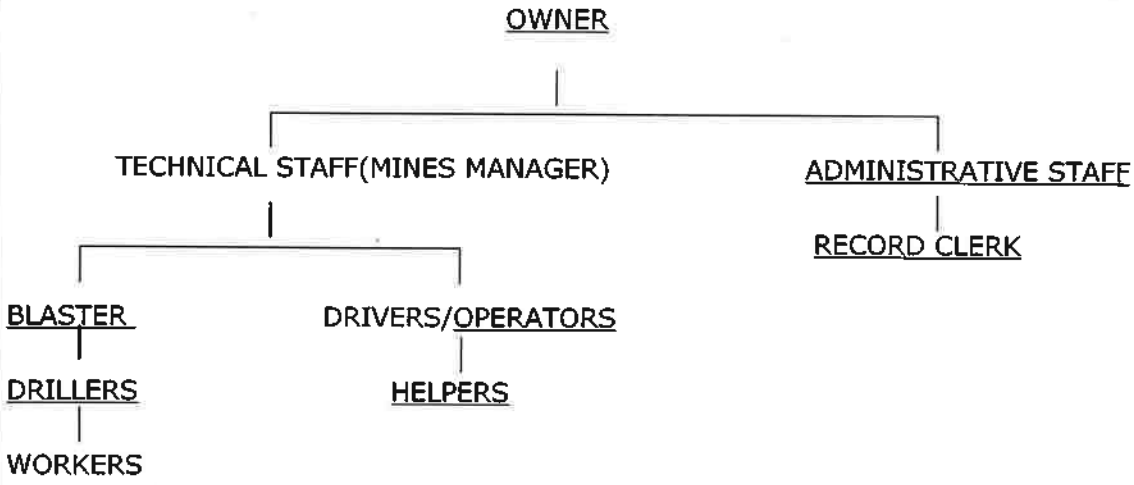
Potable drinking water will be supplied from the nearby community wells and approved water vender can be transported to the work site through tanker placed on tippers. Quarry office, first-aid room, store room, rest shed, toilet etc, will be provided on semi - permanent structures within the quarry lease applied area (Plate No - V - IX).

B. [illegible]

12. EMPLOYMENT POTENTIAL

The man power is proposed for the Multi Colour Granite Quarry to look after and carryout the day-to-day quarrying activities, and achieves targeted production duly comply with the statutory provisions of the Quarry is as summarized below:

ORGANISATION CHART



The strength of man power requirement is proportionate to the proposed production for the Colour Granite Quarry in the referred area as detailed below:

1.	Mines Manager	:	1
2.	Record Clerk	:	1
	Total	:	**2 Nos.**
Highly skilled, Skilled, Semi-skilled and Unskilled:			
	Supervisor Cum Blaster	:	1
Skilled:			
	Compressor and Wagon Drill operators	:	2
	Drillers / Workers	:	6
	Excavator / Rock Breaker Operators	:	2
	Vehicle Driver	:	1
	Total	:	**12 Nos**
Semi-skilled:			
	Watchman	:	1
	Total	:	**1 Nos**
Unskilled - Cleaner		:	3
	Total	:	**3 Nos**
	Grand Total	:	**18 Nos**

The man power strength is subject to the extent of mechanizations. The above mentioned technical staff and administrative staff are to be considered to meet out the production schedule and to comply with the statutory provisions of the Mines Safety Regulations.

B. Thangaraj

13.0 ENVIRONMENTAL MANAGEMENT PLAN

13.1 BASELINE INFORMATION

The following observations are made for environmental management plan.

I. EXISTING LAND USE PATTERNS:

The quarry lease applied area is slightly elevated terrain with an average height of 5.0m gently sloping towards southwest. The area receives 700mm - 800mm rainfall/annum and the ground water occurs at a depth of 60m in summer and 52m during rainy season. Villagers use water for drinking and other domestic purposes without any adverse health effect. Agricultural activities are carried out by utilizing well water (lift irrigation). The area experiences moderate climate and there is scanty growth of vegetation in and around the quarry lease applied area.

II. WATER REGIME:

Quarry operation is confined to 38m which is well above the water table which is 60m in summer and 52m during rainy season. This water table is observed in nearby wells. The water level would not be affected by the quarry operation. There is no lake, river or reservoir within 50m radius of the quarry lease applied area.

III. FLORA AND FAUNA:

The main crops are Neem, Mango, Plam, Julia flora, aspera.,etc. In some places lift irrigation is carried out. The applied area is 1.90kms from the Cauvery Wild life Sanctuary. The Government of India, Ministry of Environment, Forest and Climate Change vide Notification S.O. 07 (E) dated 01.01.2020 had declared the boundary for Eco sensitive Zone of Cauvery Wild life sanctuary as 1 Km on the northern side. Hence the applied area does not come under the eco sensitive zone. There is no wild life, bird sanctuary, reserve or social forest within 1km radius of the quarry lease applied area.

IV. CLIMATIC CONDITIONS:

The prevailing climatic condition experienced in the quarry lease applied area is semi-arid with maximum temperature up to 43°C in summer is very dry and falls down to 22^0 C during winter seasons. The area receives 700 – 800mm rainfall per annum during both south west and north east monsoons.

V. HUMAN SETTLEMENT:

There are few villages located within the radius of 5km from the quarry lease applied area. It is rural area with small hamlets scattered all around the area.

The approximate distance and population are given below.

Table -10

S.No	Name of the Village	Direction	Approximate Distance	Approximate population
1.	Santhanapalli	North	4.5kms	1200
2.	Namreli	East	2.1kms	480
3.	Bilalam	South	1.5kms	250
4.	Bikkanapalli	West	4.3kms	390

Basic human welfare amenities such as health center, schools, communication facilities, commercial centers etc are available in Denkanikottai town which is at a distance of about 13.5kms towards North western side of the lease applied area.

VI. PUBLIC BUILDINGS, MONUMENTS AND PLACES OF WORSHIPS:

There are no permanent structures like National Monuments, Places of Worship, Residential Areas and Places of Archaeological Interest within 300m radius from the area applied for quarrying lease.

13.2 ENVIRONMENT IMPACT ASSESSMENT STATEMENT

The mining plan is proposed for production of Multi Colour Granite dimensional stone without involving deep hole drilling. Mild blasting is done to minimize the shattering effect. Such limited mining activity will not cause any impact adversely on environment as far as pollution of air, water and noise is concerned.

(a) Four Boundaries of the Lease applied area:

Table -11

Applied area in S.F.No.	**Direction**	**S.F.No.**	**Classification**
1121/7(P)	North	1124/7(P)	Patta
	East	1172/1 & 1173/1	Government land -Pathai.
	South	1131/10	Patta
	West	1130/8,	Government land (Podugal)
		1131/8	Patta
1130/7(P)	North	1130/7(P)	Patta
	East	1130/8	Government land (Podugal)
	South	1131/7	Patta
	West	1130/6	Government land (Podugal)
1131/7	North	1130/7,	Patta
		1130/8	Government land
	East	1131/8	Patta
	South	1131/9	Patta
	West	1131/5 & 1131/6,	Patta
		1131/4	Government land
1131/8	North	113178	Patta
	East	1124/7	Patta
	South	1131/10	Patta
	West	1131/7 & 1131/9	Patta

(b) Approach road facility:

Approach road facility is available.

(c) Environmental Aspects:

The area applied for quarry lease is situated in a slightly elevated terrain with an average height of 5.00 meters gently sloping towards southwest. The rock type available in the area is granite gneiss having a general trend of N30°E to S30°W with dipping towards 80° West. Surface level outcrops of multi-colour granite deposits is observed on the north eastern side and in other areas concealed under top soil + weathered Rock and overburden having an average thickness of 3.00 meters. Hence, there is no chance for slope destabilization of the area. Since there is no fauna and flora of botanical importance is noticed there will be no chance for the degradation of environment and ecology of the area due to the proposed quarrying activity.

(d) Whether HACA Clearance has been obtained:

The lease applied area Irudukottai village of Denkanikottai Taluk is not classified under hill area as per G.O.M.S.No.49 Housing & Urban Development (UD 22) Department dated 24.03.2003 and hence obtaining clearance from Hill area conservation authority does not arise.

e) PROPOSED ENVIRONMENT MANAGEMENT(EMP) FOR FIXED ASSET COST AND OPERATIONAL COST

Table -12

A.FIXED ASSET COST:

SL.No	Description	Amount (Rs)
1	Land cost	24,00,000
2	Labour shed	3,00,000
3	Sanitary facility	1,20,000
4	Fencing cost	1,70,000
Total		**29,90,000**

B.OPERATIONAL COST:

SL.No	Description	Approximate Amount (Rs)
1	Excavator	50,00,000
2	Tipper	30,00,000
3	Wire saw	8,00,000
4	Compressor with loose tools	7,00,000
Total		**95,00,000**

B.

C. EMP COST:

SL.No	Description	Approximate Amount (Rs)
1	Drinking water facility	1,50,000
2	Safety kits	80,000
3	Water sprinkling	60,000
4	Afforestation	25,000
5	Water quality test	30,000
6	Air quality test	30,000
7	Noise / Vibration test	30,000
Total		**4,05,000**

Total Project Cost (A+B+C) =Rs. 1,28,95,000/-

13.3.0 ENVIRONMENT MANAGEMENT PLAN

13.3.1 PROPOSAL FOR WASTE MANAGEMENT

The Top soil, the waste material generated during quarrying activity includes rock fragments of different sizes and waste chips (Rubble) during dressing of the blocks forms the total waste.

During the mining plan period (five years) of quarry, the total waste to be produced will be 28158m^3. (refer Table - 6).

The waste management plan with reference to the quantum of waste generated (Table - 6) is shown in Mine layout plan (Plate No. VI). The wastes will be dumped in the West & Southwestern side of the lease area.

The generated top soil during the entire life of the quarry will be utilized for construction of bunds, road and afforestation purpose. The waste generated during the quarrying will be dumped in the demarcated Southwestern side of the lease area. Suitable specific trees to be grown over in such soil dumps will be identified with the help of agriculture experts to evolve proper afforestation plan.

13.3.2 PROPOSAL FOR RECLAMATION OF LAND AFFECTED BY MINING ACTIVITIES DURING & AT THE END OF QUARRYING

The depth persistence of the granite body in this quarry is beyond the workable limits due to nature of occurrence of massive granite formation. In the proposed mining plan only 38m depth (1.0m topsoil +2.0m weathered rock + 35.0m Multi Colour Granite) has been envisaged as workable depth for safe, systematic & economic mining. The Proposed waste will also be used for Back-filling at the end of quarry lease. The quarried out pits will be protected by providing fencing with barbed wire.

13.3.3 PHASED PROGRAMME OF PLANTING TREES

The essential safety distance provided along the lease boundary has been identified for dumping the Top soil wastes to maintain afforestation. Appropriate species of Neem trees will be planted in a phased manner as described below.

Table -13

Year	No. of tress proposed to be planted	Name of the species	Survival rate expected in %	No. of trees expected to be grown
I	60	Neem	70	42
II	60	Neem	70	42
III	60	Neem	70	42
IV	60	Neem	70	42
V	60	Neem	70	42

Nearly 1000Sq.m area is proposed for afforestation by planting 60 Nos. of Neem trees during every year and expected growth is around 42 no. of Neem trees at a survival rate of 70%. The afforestation plan is shown in Plate No.VI.

13.3.4 MEASURES FOR DUST SUPPRESSION:

Diamond wire saw cutting will minimize the shattering effect. As the granite rocks are quarried without involving deep hole drilling and mild blasting, generation of lumps, fines and dust are negligible. This quantum of quarrying activity will not generate the dust which is detrimental to the health of the persons employed. The approach roads and waste dumps will be sprinkled with water for the suppression of air borne dust from quarry on regular intervals using water tankers. Drilling of blast holes of 32 mm dia will be always under wet conditions to prevent flying of dusts. In the unloading points, water will be sprinkled through tippers to suppress dust. The drillers are provided with respirators in accordance with the Mines Regulations.

13.3.5 MEASURES TO MINIMIZE GROUND VIBRATION DUE TO BLASTING AND CHECK NOISE POLLUTION

Special care will be taken to minimize ground vibration due to blasting and check noise pollution. Shallow holes of 32mm diameter will be drilled and conventional low explosives such as gun powder, ordinary safety fuse will be used for removal of side burden. Hence ground vibration and noise pollution will be minimal and restricted with the quarry workings. The blasting will be taken up at appointed timing and with sufficient caution to the public. The noise produced by diamond wire saw cutting will be negligible.

B. [illegible]

13.3.5.1 STABILIZATION AND VEGETATION OF DUMPS

There is a stable temporary dump even at higher slopes will be formed by the waste generation in the quarry which includes hard rock fragments of considerable size and irregular shape with varying angularity. To increase the stability of the sides of the waste dumps suitable soil will be brought from outside and also used for planting trees over safety zone in a phased manner as discussed in chapter 13.3.3.

14.0 PROGRESSIVE MINE CLOSURE PLAN

In the Multi Colour Granite quarry operations the maximum depth proposed is **38.0m (1.0m Top soil +2.0m Weathered rock + 35.0m Multi Colour Granite) for the entire life of quarrying operations**, this is based on the market potential at present scenario and **28.0m depth (1.0m Topsoil +2.0m Weathered rock + 25.0m Colour Granite) during the first five year plan period**.

The waste generated during the quarrying operation is proposed to dump in the Southwestern side and proposed to construct safety barrier in the quarried out pits after the end of the life of the quarry period.

After completion of quarry operation the quarried out land will be fenced and maintained with barbed wire to prevent inherent entry of the public and cattle's. Garland drains will be constructed around the quarry to prevent the surface run off of the rain water.

Afforestation and Green belt development will be maintained in all the boundaries, till the trees attain the stabilize level.

Land use pattern

Table-14

Description	Present Area (Ha.)	Area to be required at the present Mining Plan period (Ha)	End of life of Quarrying Period (Ha.)
Area under Quarry	0.00.9	0.48.0	1.18.0
Dumps	Nil	0.31.5	Backfilling
Stockyard	Nil	Nil	Nil
Infrastructure	Nil	0.01.0	0.02.0
Roads	0.03.0	0.01.0	0.04.0
Green Belt	Nil	0.17.0	0.67.5
Unutilized area	1.87.6	0.93.0	Nil
Grand Total	**1.91.5**	**1.91.5**	**1.91.5**

15.0 MINERAL CONSERVATION AND DEVELOPMENT

The aspects of Granite Conservation and development is fully covered in this mining plan. The proposed working of the quarry to the maximum possible workable depth is focused towards the future plan. Recovery of the maximum saleable quality and quantity of Multi Colour Granite dimensional stones is ensured by proper supervision of experienced skilled technical personals. This quality control measures propagate full utilization of the consumer requirements.

By adopting systematic and scientific quarrying special care is taken to safeguard the material quarried in an efficient and economical manner.

16.0 STATUTORY PROVISIONS

The provisions of the Mines Act, Rules and Regulations and orders made there under shall be complied with, so that the safety of the mine, machinery and person will be well protected. Permission, relaxation or exemption wherever required for the safe and scientific quarrying of the deposit will be obtained from the Department of Mines Safety, Chennai. Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the department.

Certified that this Mining Plan has been Prepared in Accordance with the Mines Act, Rules and Regulations and orders made there under and also in Conformity with the Rule 19A of TNMMCR 1959 & Rule 12, 13 & 16 of Granite Conservation and Development Rules, 1999..

S.DHANASEKAR, M.Sc.,(Geo)
Qualified Person

COMMISSIONER
COMMISSIONERATE OF GEOLOGY AND MINING,
GUINDY, CHENNAI-600 032.

23/6/22

This Mining Plan is Approved
Subject to the Conditions/ Stipulation
Indicated in the Mining Plan Approval
Letter No./73/MM4/2022 Dated 25.08.22

ANNEXURE-1

Industries (MME.2) Department,
Secretariat, Chennai – 600 009.

Letter No.2666/MME.2/2022-1, Dated 04.05.2022

From
Thiru S. Krishnan, I.A.S.,
Additional Chief Secretary to Government.

To
Tvl. S.V. Granites,
No.17B/3, Vellakottai 1st cross,
Chennai Salai,
Krishnagiri – 635 001.

Sir,

Sub: Industries - Mines and Minerals – Minor Mineral – Multi Colour Granite – Krishnagiri District - Denkanikottai Taluk – Irudukottai Village - Over an extent of 1.91.50 hectares of Patta lands in S.F.Nos.1124/7(P) (0.67.0), 1130/7(P) (0.29.0), 1131/7 (0.92.0) and 1131/8 (0.03.5) – Quarry Lease Application preferred by M/s. S.V. Granites – Precise Area Communicated – Approved mining Plan and Environmental Clearance – Called for.

Ref: 1. Your Quarry Lease Application dated:Nil [received on 05.08.2021]
2. From the District Collector, Krishnagiri, File Roc.No.754/ 2021/Mines, dated 30.12.2021.
3. From the Director of Geology and Mining, File Rc. No.73/MM4/2022, dated: 02.03.2022.

I am directed to refer your quarry lease application first cited and to state that in the references second and third cited, the District Collector, Krishnagiri and the Director of Geology and Mining respectively have recommended your quarry lease application for grant of quarry lease for quarrying of Multi Colour Granite over an extent of 1.91.50 hectares of Patta lands in S.F.Nos.1124/7(P) (0.67.0), 1130/7(P) (0.29.0), 1131/7 (0.92.0) and 1131/8 (0.03.5) in Irudukottai Village, Denkanikottai Taluk, Krishnagiri District for a period of 20 years under rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959.

2. In this connection, I am directed to request you to furnish Approved Mining Plan through the Director of Geology and Mining within a period of 3 months as per sub-rule (13) of Rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959 and to produce Environmental

Clearance obtained from the competent authority for the above said area to the Government for grant of quarry lease subject to the following conditions:-

1. A safety distance of 7.5 m should be left out for the adjoining patta lands and should not cause any hindrance while quarrying and transportation.
2. A distance of 10m should be maintained to the Government land in S.F. No.1130/8 (Podugal); S.F.No.1130/6 and 1131/4 (Podugal) situated on the northern side and western side of the applied area.
3. A safety distance of 10 m shall be maintained for the Government land (Pathai) in S.F.Nos. 1172/1 and 1173/1 situated on the eastern side of the area.
4. A safety distance of 10 m shall be maintained for the state on ground village road in patta lands situated on the north and eastern side of the applied area.
5. The four boundaries of the applied area shall be fixed and the quarrying activity should be restricted within the area granted on lease.
6. If elephant / animals passes nearby quarry site, the quarry operation should be stopped until the elephant migrates from the subject area.
7. Quarry operation should be carried out by complying all the Forest Act/ rules without hindrance to the forest animals.
8. Quarrying activity should be carried out from 6.00 A.M. to 6.00 P.M. only.
9. Barbed wire fencing or Compound wall should be erected all along the boundary of the lease granted area.
10. The waste materials generated during the course of quarrying should be dumped only within the lease hold area.
11. Environment Clearance should be obtained from the competent authority in respect of the subject area as per Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 and as per the notification of the Ministry of Environment and Forest and any other clearances if any.

12 The applicant firm should fence the lease granted area with barbed wire before the execution of lease deed as follows:

- ❖ The pillar post shall be firmly grounded with concrete foundation of height not less than 2 m with a distance between two pillars shall not be more than 3 m.
- ❖ The applicant firm shall incorporate the DGPS readings for the entire boundary Pillars of the area and the same should be clearly shown in the mining plan.
- ❖ A soft copy of the digitized map with DGPS readings should be submitted in the CD form to the Deputy Director, Krishnagiri.

13 The conditions mentioned in G.O. (Ms) No.79, Industries (MMC.1) Department, dated 06.04.2015 should be complied with.

14 As per rule 12 (V) of Mineral (other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016, the applicant firm shall at his own expenses erect, maintain and keep in repair all the boundary pillars.

15 The applicant firm should comply with the additional conditions stipulated in the Government of India, Ministry of Mines order No.11/02/2020, dated 14.01.2020 issued as pass the order of Hon'ble Supreme Court of India, dated 08.01.2020 that states "The mining lease holders shall after ceasing mining operations, under take re-grassing the mining area and any other area which may have been disturbed due to this mining activities and restore the land to a condition which is fit for growth of fodder, flora and fauna etc.,"

16 The applied area should satisfy Rule 36(1-A)(d) and (e) of the Tamil Nadu Minor Mineral Concession Rules, 1959.

17 The applicant firm shall submit scheme of mining; mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.

18 The applicant firm should use mild explosives during quarrying.

B. Dhanalakshmi

19 Child labourers should not be engaged in the quarry works.

20 If any violation is found during quarrying operation, the penal provisions of the Tamil Nadu Minor Mineral Concession Rules, 1959 and other rules and act in force will attract.

21 Quarrying shall be done as per the approved Mining Plan and 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.

22 All the quarry labourers should be registered with the Labour Welfare Board of Government of Tamil Nadu and to be enrolled in the Group Insurance Scheme.

23 The District Collector, Krishnagiri shall obtain a sworn-in-affidavit from the applicant / firm containing the above conditions before execution of lease deed and also ensure that the instructions issued in Government Letter No. 12789 / MMB.2 / 2002-7, Industries Department, dated 09.01.2003 are complied with.

Yours faithfully,

4.5.2022

for Additional Chief Secretary to Government

4/5/2002

Copy to:

The Director of Geology and Mining,
Guindy, Chennai – 600 032.
The District Collector, Krishnagiri.

S.DHANASEKAR, M.Sc.,(Geo)
Qualified Person

District Krishnagiri

Taluk Denkanikottai

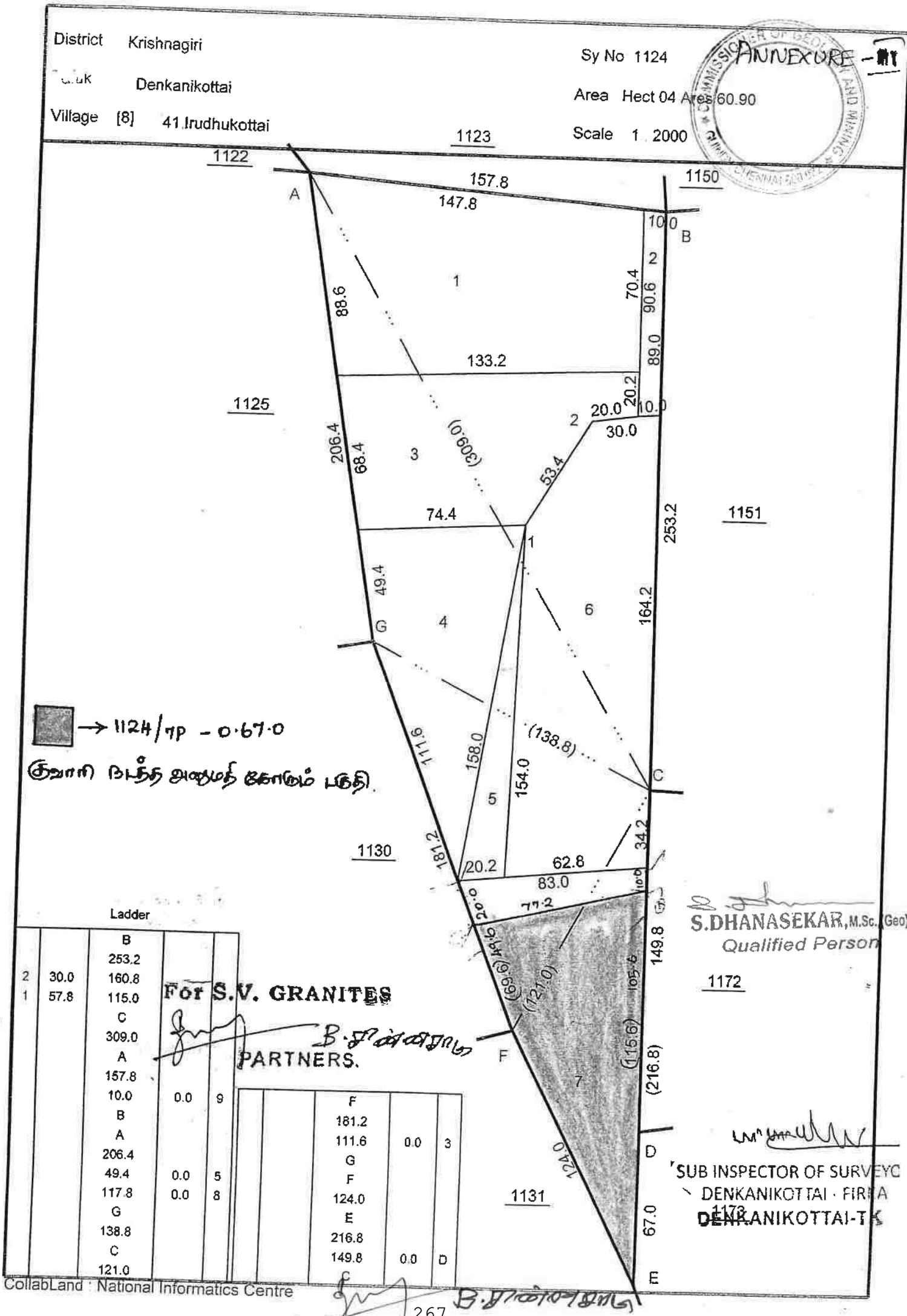
Village [8] 41.Irudhukottai

Sy No 1124

Area Hect 04 Ares 60.90

Scale 1 : 2000

ANNEXURE - III



Ladder

		B		
		253.2		
2	30.0	160.8		
1	57.8	115.0		
		C		
		309.0		
		A		
		157.8		
		10.0	0.0	9
		B		
		A		
		206.4		
		49.4	0.0	5
		117.8	0.0	8
		G		
		138.8		
		C		
		121.0		

		F		
		181.2		
		111.6	0.0	3
		G		
		F		
		124.0		
		E		
		216.8		
		149.8	0.0	D
		E		

For S.V. GRANITES

B. [illegible]

PARTNERS.

S.DHANASEKAR, M.Sc. (Geo)
Qualified Person

SUB INSPECTOR OF SURVEYS
DENKANIKOTTAI - FIRKA
DENKANIKOTTAI-TK

District Krishnagiri

Taluk Denkanikottai

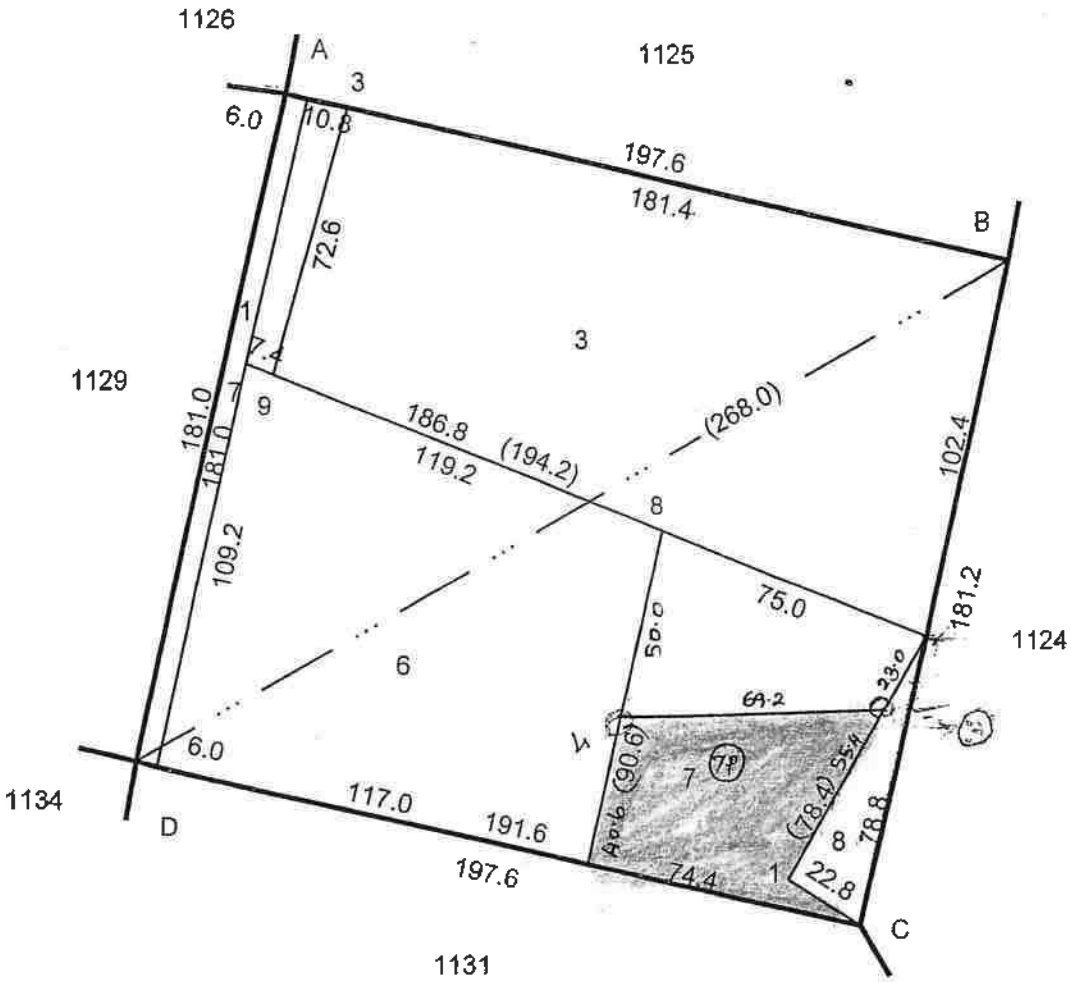
Village [8] 41.Irudhukottai

Sy.No: 1130

Area Hect 03 Ares 57.85

Scale 1 2000

COMMISSIONER OF GEOLOGY AND MINING * GUINDY CHENNAI-600 032 *



For S.V. GRANITES

B. சின்னதம்பி

PARTNERS.

S.DHANASEKAR, M.Sc.,(Geo)

Qualified Person

Ladder

		D		
		197.6		
		21.4	8.0	1
		74.4	0.0	4
		C		
		181.2		
		B		
		197.6		
		A		
		181.0		
		D		
		268.0		
		B		

→ 1130/7P - 0.29.0

குவாரி நடத்த அனுமதிக்கோரும் பகுதி.

SUB INSPECTOR OF SU... ...ER
DENKANIKOTTAI
D... ...IKOTTAI TK.

B. சின்னதம்பி

District Krishnagiri

Taluk Denkanikottai

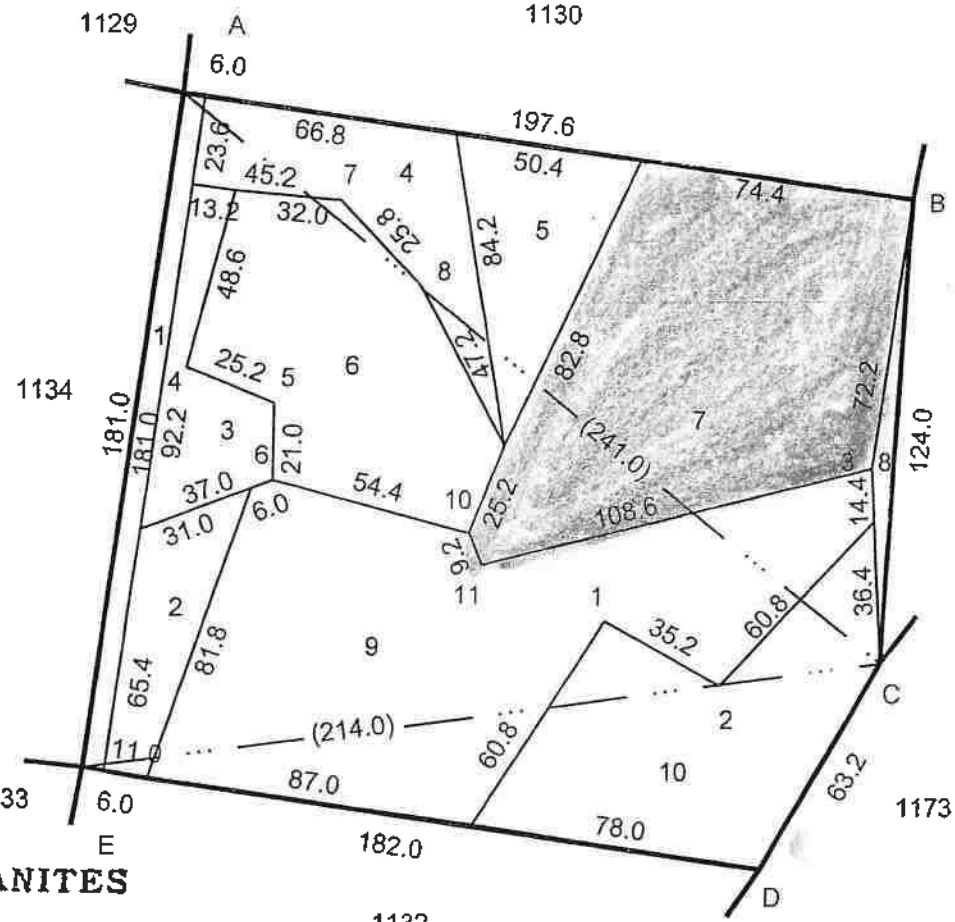
Village [8] 41.Irudhukottai

Sy No: 1131

Area Hect 03 Ares 83.22

Scale 1 2000

COMMISSIONER OF GEOLOGY AND MINING * GUINDY, CHENNAI-600 032. *



For S.V. GRANITES

B. தினகரன்

PARTNERS

Ladder

		C					C		
		241.0					214.0		
		141.2	46.6	11			170.2	0.6	2
		132.8	42.2	10	1	20.6	141.8		
		125.8	18.2	9			E		
		81.4	0.0	8			A		
7	4.4	50.4					197.6		
		A					74.4	0.0	14
		E					124.8	0.0	20
		181.0					B		
6	38.4	98.6					D		
5	36.2	77.8					182.0		
4	12.0	72.0					6.0	0.0	13
		A					104.0	0.0	15
		C					E		
		124.0					C		
		72.0	6.0	3			63.2		
		B					D		

→ 1131/7 – 0·92·0

→ 1131/8 – 0·03·5

இவர் நடித்த அனைத்து கோரும் பகுதி.

S.DHANASEKAR, M.Sc.,(Geo)

Qualified Person

SUB INSPECTOR OF SURVEYOR

DENKANIKOTTAI FIRKA

DENKANIKOTTAI-TK

B. தினகரன்

மாவட்டம்:- திருநெல்வேலி.

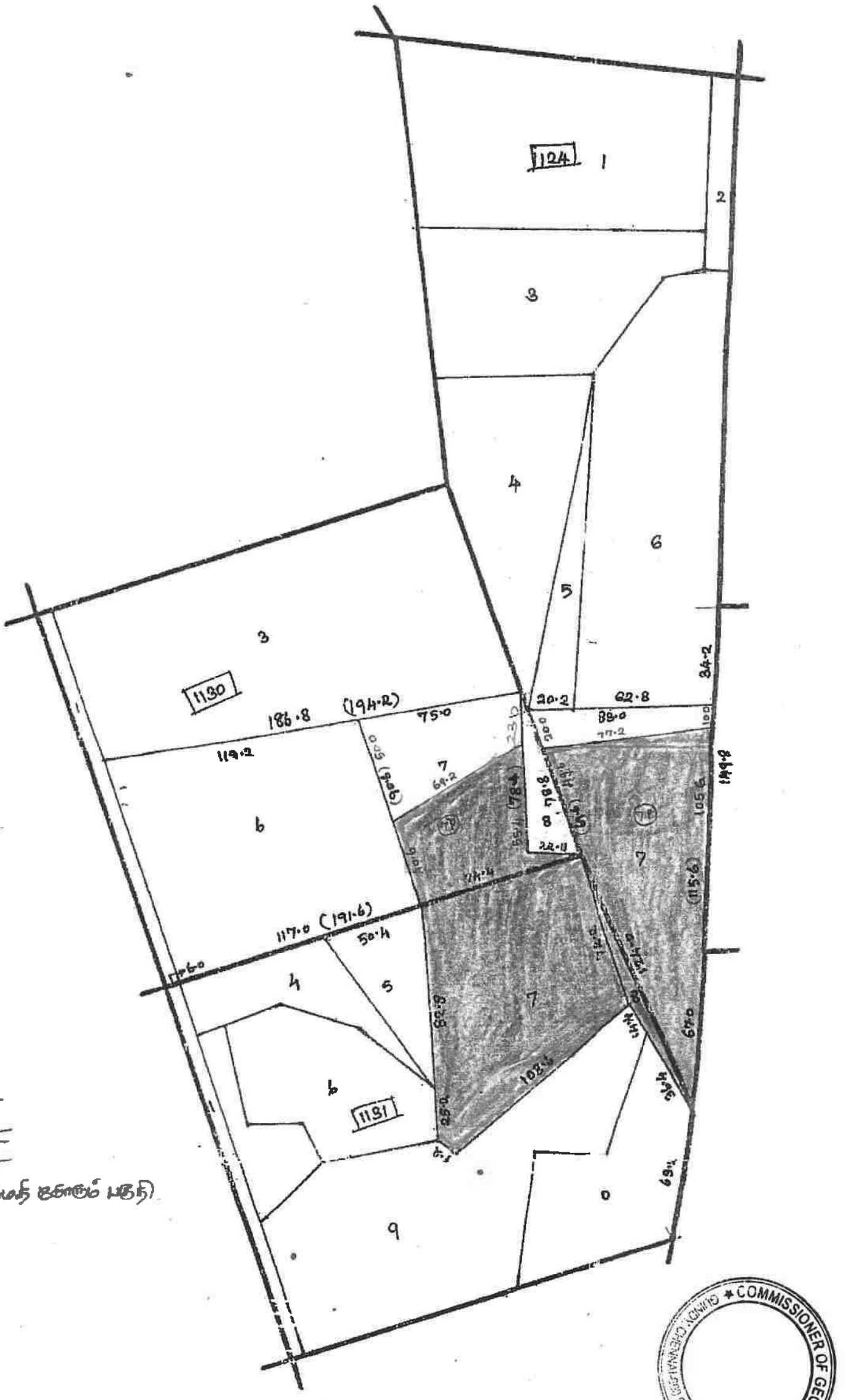
வட்டம் :- தென்காசிக் கோட்டை.

கிராமம்: எண் :- 44

யெனர் :- இந்துக்கோட்டை.

புல எண்கள்:- 1124, 1130, 1131.

ANNEXURE-III



→ 1124/7P – 0.67.0

1130/7P – 0.29.0

1131/7 – 0.92.0

1131/a – 0.03.5

1.91.5

(இவர் பெற்ற அதிகம் கோரும் பகுதி)

FOR S.V. GRANITES

B. [illegible]

PARTNERS

COMMISSIONER OF GEOLOGY AND MINING * TAMILNADU GOVT. CHENNAI

SUB INSPECTOR OF SURVEYOR

DENKANIKOTTAI - FIRKA

DENKANIKOTTAI-TK

S.DHANASEKAR, M.Sc.,(Geo)

Qualified Person

ANNEXURE – IV

COMMISSIONER OF GEOLOGY AND MINING * GUINDY CHENNAI-600 032. *

LEASE APPLIED AREA

1124/7(P) - 0.67.0
1130/7(P) - 0.29.0
1131/7 - 0.92.0
1131/8 - 0.03.5
TOTAL : 1.91.5. Hec.

4.8 km

S.DHANASEKAR, M.Sc.,(Geo)
Qualified Person

COMMISSIONER OF GEOLOGY AND MINING * GUINDY CHENNAI-600 032 * ANNEXURE-V

தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : கிருஷ்ணகிரி

வட்டம் : டெங்கனிகோட்டா

வருவாய் கிராமம் : இருதுகோட்டா

பட்டா எண் : 9241

உரிமையாளர்கள் பெயர்

1. -... S.V.க்ராணைட் உரிமையாளர்கள், B.சுதாகர், B.சின்னசாமி

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
1124	7	0 - 78.50	0.48	--	--	--	--	2021/0103/31/178652--- -- 29-07-2021
1130	7	0 - 54.00	0.59	--	--	--	--	2021/0103/31/178652--- -- 29-07-2021
1131	8	0 - 3.50	0.06	--	--	--	--	2021/0103/31/178652--- -- 29-07-2021
1131	7	0 - 92.00	1.00	--	--	--	--	2021/0103/31/178652--- -- 29-07-2021
		2 - 28.00	2.13					

குறிப்பு2 :

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **https://eservices.tn.gov.in** என்ற இணைய தளத்தில் **31/10/041/09241/100116** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 02-08-2021 அன்று 05:48:06 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின்2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

SANJAY ... - TECH
... TOWERS
... OFFICE,
... MAIN ROAD,
... - 635 107
Cell 8394161877

B-சின்னசாமி

கிராமக் கணக்கு எண் 2

1.1 – ஆம் பசலியில் கிருஷ்ணகிரி மாவட்டம் தே.கோட்டை வட்டம் 41. இருதுக்கோட்டை கிராமத்தில் வருடவாரி புலவாரி கைப்பற்று சாகுபடி அடங்கல் கணக்கு

நில வரித் திட்டத்தின்படி புலன்களின் விபரம்: நில அளவை எண் (1)	உட்பிரிவு எண் (2)	பரப்பு (3)	தீர்வை (4)	ஒரு போகம் அல்லது இரு போகம் (5)	கைப்பற்று தாரருடைய பெயரும் எண்ணும் அல்லது அனுபோக தாரருடைய பெயர் (6)	சாகுபடியாளரின் பெயர்: நிலத்தின் எந்த பகுதி யாவது சாகுபடியாளரால் பயிரிடப்பட்டுள்ளதா (7)	முதல் போகம்: எந்த மாதத்தில் பயிர் செய்யப்பட்டது எந்த மாதத்தில் அறுவடை செய்யப்பட்டது (8)	பயிரின் பெயர் (9)	பயிரான / அறுவடையான பரப்பு (10)	உண்மையான பாய்ச்சல் ஆதாரம் (11)	விளைச்சல் அளவு விழுக்காடு (12)	இரண்டாம் போகம்: எந்த மாதத்தில் பயிர் செய்யப்பட்டது எந்த மாதத்தில் அறுவடை செய்யப்பட்டது (13)	பயிரின் பெயர் (14)	பயிரான / அறுவடையான பரப்பு (15)	உண்மையான பாய்ச்சல் ஆதாரம் (16)	விளைச்சல் அளவு விழுக்காடு (17)	கிராம அலுவலரின் குறிப்புரை :- (1) புலன்களின் பகுதிகளில் மட்டும் பயிரிடப்பட்ட இனங்களில் விங்குகள் அளவில், (2) கைப்பற்றில் இல்லாத நிலங்களின் சாகுபடியின் பரப்பு (3) முந்தைய மாதத்தில் பாய்ச்சல் உதவியின்றி பயிரிடப்பட்டவை என்று பதிவாகியுள்ள நிலங்களுக்கு பிந்தைய மாதங்களில் நீர் பாய்ச்சப்பட்ட விவரங்கள். (18)	கீழ்க்கண்டவகையில் பயிரிடப்படாது உள்ள நிலத்தின் தன்மை மற்றும் பரப்பின் விவரங்கள் ஒவ்வொரு நில அளவை எண் அல்லது அதன் பகுதியில். (அ) வனம், (ஆ) பயனற்ற பயிர் செய்ய இயலாத நிலம், (இ) விவசாயம் மற்றும் இதர காரியங்களுக்கு பயன் படுத்தப் படும் நிலம், (ஈ) பயிரிடத்தக்க தரிசு (உ) நிலையான புல் தரைகளும் மற்றும் இதர மேய்ச்சல் நிலங்களும், (ஊ) விதைக்கப்பட்ட நிகர பரப்பில் சேர்க்கப்படாத மரவகைப் பயிர்களும் தோப்புகளும், (எ) நடப்புத் தரிசுகள் (ஏ) இதர தரிசு நிலங்கள். (18அ)	பயிர் பார்வையிடும் அலுவலர் குறிப்புரைகள் (19)
1124	7	0785	0.48	2110	S.V. [illegible], B. [illegible] & [illegible]														
1130	7	0540	0.59	2110	– do –														
1131	7	0920	1.00	2110	– do –														
1131	8	0015	006	2110	– do –														

உண்மை நகல்

கிராம நிர்வாக அலுவலர்
41. இருதுக்கோட்டை (கி. ...)
தேன்கனிக்கோட்டை (வட்டம்).

1	2	3	4	5	6	7	8	9	10	11	12
							ரூ. பை.	ஹெ. ஏர்ஸ்	ரூ. பை.		
3	1129-3	ர	பு	...	8-4	10	1 09	1 19·0	1 29	113 சு. கண்ணப்பா.	
4	-4	ர	பு	...	8-4	10	1 09	0 56·5	0 62	732 மு. பெருமாளு.	
5	-5	ர	பு	...	8-4	10	1 09	0 81·0	0 88	1607 ரா. சென்றாயன் (1), ரா. சுப்பிரமணி (2).	
6	-5	ர	பு	...	8-4	10	1 09	0 14·5	0 16	771 ரா. பொன்னுசாமி.	
7	-7	ர	பு	...	8-4	10	1 09	0 28·5	0 31	158 கிருஷ்ணப்பா.	
8	-8	ர	பு	...	8-4	10	1 09	0 18·5	0 20	1397 மு. வெங்கடப்பா.	
9	-9	ர	பு	...	8-4	10	1 09	0 39·5	0 43	1405 ப. ஜெயராமன்.	
								4 24·5	4 62		
20 1	1130-1	அ	புற	...	..	..	...	0 10·5	...	.....	பாதை.
2	-2	ர	பு	...	8-4	10	1 09	0 01·0	0 06	219 அ. கோவிந்தன்.	
3	-3	ர	பு	...	8-4	10	1 09	1 58·5	1 72	1026 தோ. முனியப்பா.	
4	-4	ர	பு	...	8-4	10	1 09	0 01·5	0 06	158 கிருஷ்ணப்பா.	
5	-5	ர	பு	...	8-4	10	1 09	0 03·0	0 06	255 அ. சவுத்த சவுண்டர்.	
6	-6	அ	பு	...	8-4	10	1 09	1 18·0	1 28	.....	போடுகால்.
7	-7	ர	பு	...	8-4	10	1 09	0 54·0	0 59	188 சு. குள்ளப்பா.	
8	-8	அ	பு	...	8-4	10	1 09	0 09·0	0 10	.....	போடுகால்.
								3 55·5	3 87		
31 1	1131-1	அ	புற	...	...		...	0 11·0	...	.....	பாதை.
2	2	ர	பு	...	8-4	10	1 09	0 14·0	0 15	90 ஜ. எல்லப்பன்.	
3	3	ர	பு	...	8-4	10	1 09	0 14·5	0 16	889 பெ. மாணிமுத்து.	
4	4	அ	பு	...	8-4	10	1 09	0 22·0	0 26	.....	போடுகால்.
5	5	ர	பு	...	8-4	10	1 09	0 20·0	0 22	733 பே. பெருமாளு.	
6	6	ர	பு	...	8-4	10	1 09	0 49·0	0 53	733 பே. பெருமாளு.	
7	7	ர	பு	...	8-4	10	1 09	0 92·0	1 00	188 சு. குள்ளப்பா.	

B. தினேஷ்குமார்

SUB INSPECTOR OF SURVEYOR
DENKANIKOTTAI - PIRKA
DENKANIKOTTAI-TK

1	2	3	4	5	6	7	8	9	10	11	12
							ரூ. பை.	ஹெ. ஏர்ஸ்	ரூ. பை.		
1131	8	1131 8	அ	பு	...	8-4	10 1 09	0 03·5	0 06	188 [illegible]	பொது 134 7
	9	-9	ர	பு	...	8-4	10 1 09	0 97·0	1 05	113 ச. கண்ணப்பா.	
	10	-10	ர	பு	...	8-4	10 1 09	0 40·0	0 44	733 பே. பெருமாளு.	135 1
								3 63·0	3 87		
1132	1	1132-1	அ	புற	...	...	... ...	0 09·5	...	.....	பாதை 3
	2	-2	ர	பு	...	8-4	10 1 09	0 02·5	1 03	90 ஜ. எல்லப்பன்.	
	3	-3	ர	பு	...	8-4	10 1 09	0 69·0	0 75	255 அ. கவுத்த கவுண்டர்.	
	4	-4	ர	பு	...	8-4	10 1 09	0 43·5	0 52	733 பே. பெருமாளு.	
	5	-5	ர	பு	...	8-4	10 1 09	0 84·5	0 94	885 வெ. மாரப்பா.	
	6	-6	ர	பு	...	8-4	10 1 09	0 31·0	0 34	1167 ரா. ராமக்கா.	136
								2 40·0	3 58		
1133	1	1133-1	ர	பு	...	8-4	10 1 09	0 18·5	0 20	132 எ. காளியப்பன்.	
	2	2	அ	பு	...	8-4	10 1 09	0 61·5	0 67	.....	போடு
	3	-3	ர	பு	...	8-4	10 1 09	0 03·0	0 06	1390 மு. வெங்கடப்பா.	
	4	-4	ர	பு	...	8-4	10 1 09	1 15·5	1 25	1023 வெ. முனியப்பா.	
	5	-5	ர	பு	...	8-4	10 1 09	0 73·0	0 79	90 ஜ. எல்லப்பன்.	
	6	-6	ர	பு	...	8-4	10 1 09	1 46·0	1 59	1023 வெ. முனியப்பா.	
								4 17·5	4 56		
1134	1	1134-1	ர	பு	...	8-4	10 1 09	0 11·5	0 12	1395 வெ. வெங்கடப்பா.	
	2	-2	ர	பு	...	8-4	10 1 09	0 69·0	0 75	1160 சி. ராமய்யா.	
	3	-3	ர	பு	...	8-4	10 1 09	0 48·0	0 52	132 எ. காளியப்பன்.	
	4	-4	ர	பு	...	8-4	10 1 09	2 06·5	2 25	1406 ப. ஜடியம்மா.	
	5	-5	ர	பு	...	8-4	10 1 09	0 12·5	0 14	1160 சி. ராமய்யா.	
	6	-6	ர	பு	...	8-4	10 1 09	0 93·0	1 01	889 பெ. மாரிமுத்து.	

B. தின்னாதிம்

1	2	3	4	5	6	7	8	9	10	11	12
							ரூ. பை	ஹெ. ஏர்ஸ்	ரூ. பை.		
24 5	1124-5	ர	பு	...	8-5	12	0 62	0 16·0	0 10	1027 ரா. முனிரத்தனம்மா.	
6	-6	ர	பு	...	8-5	12	0 62	1 11·0	0 68	1169 கு. ராதாகிருஷ்ணன்.	
7	-7	ர	பு	...	8-5	12	0 62	0 78·5	0 48	1027 ரா. முனிரத்தனம்மா.	
								4 57·5	2 81		
								0 11·5		.....	பாதை.
1125 1	1125-1	அ	புற	...	...	...	...				
2	-2	ர	பு	...	8-4	10	1 09	0 04·0	0 06	1405 ப. ஜெயராமன்.	
3	-3	ர	பு	...	8-4	10	1 09	0 93·0	1 01	1707 செ. செல்லப்பா (1), பெ. வேடியப்பன் (2), சி. வேடியப்பன் (3).	
4	-4	ர	பு	...	8-4	10	1 09	0 57·0	0 62	771 ரா. பொன்னுசாமி.	
5	-5	அ	பு	...	8-4	10	1 09	0 26·0	0 28	.....	போடுகால்.
6	-6	ர	பு	...	8-4	10	1 09	0 23·5	0 26	537 மு. திம்மராயப்பன்.	
7	-7	ர	பு	...	8-4	10	1 09	0 71·0	0 77	772 முனுசாமி மனைவி பொன்னம்மா.	
8	-8	ர	பு	...	8-4	10	1 09	0 30·0	0 33	219 அ. கோவிந்தப்பன்.	
9	-9	ர	பு	...	8-4	10	1 09	1 21·5	1 31	220 மு. கோவிந்தப்பன்.	
								4 37·5	4 64		
1126 1	1126-1	அ	புற	...	...	...	...	0 15·5	...	.....	பாதை.
2	-2	ர	பு	...	8-4	10	1 09	0 26·5	0 29	1405 ப. ஜெயராமன்.	
3	-3	ர	பு	...	8-4	10	1 09	1 27·0	1 38	771 ரா. பொன்னுசாமி.	
4	-4	ர	பு	...	8-4	10	1 09	0 36·5	0 39	1607 ரா. செந்தாயன் (1), ரா. சுப்பிரமணி (2).	
5	-5	ர	பு	...	8-4	10	1 09	0 33·5	0 36	732 மு. பெருமாள்.	
6	-6	ர	பு	...	8-4	10	1 09	1 27·5	1 39	255 அ. சவுத்தகவுண்டர்.	
7	-7	ர	பு	...	8-4	10	1 09	0 82·0	0 89	219 அ. கோவிந்தப்பன்.	

B. சின்னதம்பி

அ-பதிவேடு விவரங்கள்

மாவட்டம் : கிருஷ்ணகிரி

வட்டம் : டெங்கனிகோட்டா

கிராமம் : இருதுகோட்டா

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1. புல எண்	1124	9. மண் வயனமும் ரகமும்	8 - 5
2. உட்பிரிவு எண்	7	10. மண் தரம்	12
3. பழைய புல உட்பிரிவு எண்	1124	11. தீர்வை (ரூ - ஹெ)	0.62
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 78.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.48
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	9241
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.S.V.க்ரானைட் உரிமையாளர்கள், B.சுதாகர், B.சின்னசாமி

குறிப்பு 1:

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **http://eservices.tn.gov.in** என்ற இணைய தளத்தில் **20116** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

For S.V. GRANITES

B. சின்னசாமி

PARTNERS.

B. சின்னசாமி

அ-பதிவேடு விவரங்கள்

மாவட்டம் : கிருஷ்ணகிரி

வட்டம் : டெங்கனிகோட்டா

கிராமம் : இருதுகோட்டா

1. புல எண்	1130	9. மண் வயனமும் ரகமும்	8 - 4
2. உட்பிரிவு எண்	7	10. மண் தரம்	10
3. பழைய புல உட்பிரிவு எண்		11. தீர்வை (ரூ - ஹெ)	1.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 54.00
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.59
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	9241
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	0	16. பெயர்	1.S.V.க்ரானைட் உரிமையாளர்கள், B.சுதாகர், B.சின்னசாமி

குறிப்பு 1:

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **http://eservices.tn.gov.in** என்ற இணைய தளத்தில் **20116** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

For S.V. GRANITES

B சின்னசாமி

PARTNERS.

B.சின்னசாமி

அ-பதிவேடு விவரங்கள்

மாவட்டம் : கிருஷ்ணகிரி

வட்டம் : டெங்கனிகோட்டா

கிராமம் : இருதுகோட்டா

1. புல எண்	**1131**	9. மண் வயனமும் ரகமும்	**8 - 4**
2. உட்பிரிவு எண்	**7**	10. மண் தரம்	**10**
3. பழைய புல உட்பிரிவு எண்	**113176**	11. தீர்வை (ரூ - ஹெ)	**1.09**
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	**0 - 92.00**
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	**1.00**
6. நிலத்தின் வகை	**புஞ்சை**	14. பட்டா எண்	**9241**
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	**1.S.V.க்ரானைட் உரிமையாளர்கள், B.சுதாகர், B.சின்னசாமி**

குறிப்பு 1:

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **http://eservices.tn.gov.in** என்ற இணைய தளத்தில் **20116** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

For S.V. GRANITES

B.சின்னசாமி

PARTNERS.

B.சின்னசாமி

அ-பதிவேடு விவரங்கள்

மாவட்டம் : கிருஷ்ணகிரி

வட்டம் : டெங்கனிகோட்டா

கிராமம் : இருதுகோட்டா

1. புல எண்	1131	9. மண் வயனமும் ரகமும்	8 - 4
2. உட்பிரிவு எண்	8	10. மண் தரம்	10
3. பழைய புல உட்பிரிவு எண்	1131-8	11. தீர்வை (ரூ - ஹெ)	1.09
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 3.50
5. அரசு / ரயத்துவாரி	ரயத்துவாரி	13. மொத்த தீர்வை (ரூ - பை)	0.06
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	9241
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.S.V.க்ரானைட் உரிமையாளர்கள், B.சுதாகர், B.சின்னசாமி

குறிப்பு 1:

1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் **http://eservices.tn.gov.in** என்ற இணைய தளத்தில் **20116** என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

For S.V. GRANITES

B.சின்னசாமி

PARTNERS.

S.DHANASEKAR,M.Sc.,(Geo)
Qualified Person

B.சின்னசாமி

தமிழ்நாடு தமிலனாடு TAMILNADU 16-7-2021

AD 965583

S.V. Granites, Krishnagiri

S.S. Murthy

S.SIDDESWARA MURTHY
L.No.3887/B1-2000
Stamp Vendor
Denkanikotta

ABSOLUTE SALE DEED

THIS DEED OF SALE IS EXECUTED ON THIS 16th DAY OF JULY 2021 AT DENKANIKOTTA BY

Mr. B. SUDHAKAR, Aged about 52 years, (CELL NO: 9443243329, AADHAAR NO: 5612 4999 2856, PAN NO: AZMPS3897G), S/o Srinivasulu, residing at Door No. 17/B3, 1st Cross, Chennai Salai, Vellaikuttai, Krishnagiri Post, Krishnagiri Taluk, Krishnagiri Distirct, Tamil Nadu, Pin-635 001.

(hereinafter called the **"VENDOR")** which expression shall unless the context otherwise, requires include his legal heirs, successors, agents, representatives and assigns of the **ONE PART;**

VENDOR

PURCHASER

For S.V. GRANITES

B. சுதாகரன்

PARTNERS.

Document No. 5274 of 2021 of Book 1
Contains 12 Sheets 1 Sheet
SUB-REGISTRAR
DENKANIKOTTAI

B. சுதாகரன்

"IN FAVOUR OF"

S. V. GRANITES., an The Registrar of Firm, Tamil Nadu, hereby acknowledges the receipt of the statement prescribed by section 58(1) of the Indian Partnership Act 1993, The Statement has been filed and the name of the firm above mentioned S V GRANITES has been entered in the Register of Firms as No. **FR/Krishnagiri/154/2021** Dated **06/07/2021**, Station: **Krishnagiri,** Office at: Door No. 17/B3, 1st Cross, Chennai Salai, Vellaikuttai, Krishnagiri Post, Krishnagiri Taluk, and Krishnagiri District Tamil Nadu, Pin. 635 001. Represented by its Partner's,

1. **Mr. B. SUDHAKAR,** Aged about 52 years, (CELL NO: 9443243329, AADHAAR NO: 5612 4999 2856, PAN NO: AZMPS3897G), S/o Srinivasulu, residing at Door No. 17/B3, 1st Cross, Chennai Salai, Vellaikuttai, Krishnagiri Post, Krishnagiri Taluk, and Krishnagiri Distirct, Tamil Nadu, Pin-635 001.
2. **Mr. B. CHINNASAMY,** Aged about 45 years, (CELL NO: 9095164780, AADHAAR NO: 6629 0861 1267, PAN NO: APZPC8075M), S/o Mr. Beema Gounder, residing at Door No. 2/207, Errampatti, Jambukuttapatti, Pochampalli Taluk, Krishnagiri Distirct, Tamil Nadu, Pin-635 206. (hereinafter called the **PURCHASER)** which term shall unless the context otherwise, requires, mean and include his successors, executors, administrators, legal representatives assigns on the **OTHER PART.**

WITNESSETH AS HEREUNDER:

Where as the VENDOR is the absolute owner of the Land belongs **hereunder VENDOR By way of "SELF ACQUIRED PROPERTY" Registered Two Different Sale Deed Vide Document No's. 1836/2012 and 1740/2012 at S.R.O. Denkanikotta, and also Land Bearing Seperate Patta No. 2110 Still in the Name of Mr. B. SUDHAKAR** to the Schedule mentioned property and also to convey good and clear title and thus, the VENDOR are entitled to the schedule mentioned properties and they are legal and lawful possession of their respective rights.

VENDOR

PURCHASER

FOR S.V. GRANITES

PARTNERS

Document No. 5274 of 2021 of Book 1
Contains 14 Sheets 2 Sheet

SUB-REGISTRAR
DENKANIKOTTAI

WHEREAS the VENDOR being in need of funds in order to discharge the liabilities debts and to improve their other properties, welfare of the Family the VENDOR are decided to sell away their respective Land holding rights in the schedule property which the PURCHASER is willing to buy and whereas it agrees that the sale consideration of the property sold hereunder is **Rs.11,75,850/- (RUPEES ELEVEN LAKHS SEVENTY FIVE THOUSAND EIGHT HUNDRED AND FIFTY ONLY)** and the entire sale consideration has been paid by the PURCHASER and received by the VENDOR by way of Online Payment this day in the presence of witnesses, the receipt of which is duly acknowledged by the VENDOR and in consideration thereof the VENDOR do hereby convey, transfer and assign absolutely in favour of the PURCHASER the piece and parcel of land more fully described in the schedule with all rights, easements, privileges, appurtenances and appertaining there to and hold the same the PURCHASER absolutely for ever to be enjoyed peacefully without any interruption and free from all encumbrances as and from the date of this Sale Deed presents.

NOW THIS deed of sale witnesses that in pursuance of the VENDOR in this date received the entire sale amount **Rs.11,75,850/- (RUPEES ELEVEN LAKHS SEVENTY FIVE THOUSAND EIGHT HUNDRED AND FIFTY ONLY)** from the PURCHASER by way of Online Payment and the VENDOR do hereby thus acknowledge that the entire sale consideration has been duly received from the PURCHASER and in consideration thereof the VENDOR do hereby convey, Transfer, assigns and sell absolutely the Schedule land described in the schedule to the PURCHASER for the absolutely use of the PURCHASER together with all rights, easements, privileges and appurtenances whatsoever belonging to or enjoyed their under and reputed so to be. All the rights, title, easements, interest property claim and demand whatsoever of the VENDOR into or upon the under mentioned schedule property is hereby conveyed absolutely unto the PURCHASER free from all encumbrances, charges, liens and demand whatsoever by the VENDOR.

VENDOR

PURCHASER

FOR S.V. GRANITES

B. [illegible]
PARTNERS

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Contains 14 Sheets 3 Sheet

SUB REGISTRAR
GENGANKOTTAI

B. [illegible]

THE VENDOR do hereby covenant and agree that the VENDOR and all persons claiming under them shall and will from time to time upon the request and at the cost of the PURCHASER do and execute or cause to be done and executed all such acts deeds and things whatsoever for further and more perfectly assuring the under mentioned schedule property and every part thereof, unto the PURCHASER and placing the PURCHASER in the same position according to the true intent and meaning of these presents as shall or may be reasonably required.

IT IS HEREBY covenanted by the VENDOR that the under mentioned schedule property hereby conveyed is free from all encumbrances charges liens or demands of litigation of any sort and the VENDOR do hereby assure and covenant that he has not suppressed any material facts affecting the title to the property hereby covenant and undertake to clear any defect or encumbrances affecting the Schedule property if comes to light after the execution of the Sale Deed, at their own costs and fully protect the PURCHASER in all respects.

THE VENDOR do hereby assure and covenant that he has not entered into any agreement of sale with respect to the under mentioned schedule property or any part thereof, with any other persons or person and the VENDOR is not done anything whereby the Schedule property may be subject to any attachment of lien or any court or person or any claim whatsoever in any manner.

THE VENDOR do hereby covenant and assure that the Schedule property is not noticed or subject to any proceedings under the land acquisition Act, for any purpose and they do not hold lands in excess of ceiling under the TamilNadu Land Reforms Acts 1961 and that the sale will not be hit by any provisions of the above said Act. The Schedule property is not also hit by any provisions of the Tenancy laws or other related enactment's in any manner.

VENDOR

PURCHASER

FOR S.V. GRANITES

B. [illegible]

PARTNERS

Document No. 5224 of 2021 of Book 1
Contains 12 Sheets 4 Sheet

SUB REGISTRAR
PERAMBALUR

B. [illegible]

THE VENDOR do hereby admit and covenant that the absolute full and actual physical possession of the Schedule property is also delivered to the PURCHASER on this day itself and the PURCHASER is also absolutely entitled to apply to the Revenue Authorities for transfer of patta or change of Registry in the Revenue accounts in the name of the PURCHASER with respect to the lands sold hereunder.

The VENDOR has also paid the land Revenue to the Schedule Property without any arrears and the PURCHASER shall hereafter pay the Land Revenue cess etc., to the Government in his own right.

THE VENDOR also handed over the available original documents of title to the PURCHASER to support the title to the under mentioned schedule property.

THE VENDOR do hereby jointly and severally assure that in the event of any dispute arising among them in sharing the sale proceeds. The same shall not in any way prejudice or effect the rights, title and interest derived by the PURCHASER under this deed of sale in any manner.

THE VENDOR also severally and jointly assure covenant all obligations either express or implied imposed on them as VENDOR to this deed of sale shall be binding on the VENDOR severally and also collectively and also on all person or persons claiming under or through them in any manner at all times.

THE VENDOR do hereby covenant and assure that he agree and undertake to indemnify the PURCHASER against all claims and demands or disputes of any sort, in all respects at all times and they shall at the request and cost of the PURCHASER or his legal heirs do or execute or cause to be done or executed all such lawful acts, deeds and things whatsoever for further completion of this sale if any time requires and arises.

VENDOR

PURCHASER

FOR S.V. GRANITES

PARTNERS

Document No. 5274 of 2021 of Book 1
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SUB-REGISTRAR
PERAMBATTUR

SCHEDULE OF PROPERTY

IN **ERUDHUKOTTAI VILLAGE** of Denkanikotta Taluk attached to the Denkanikotta sub-Registration District, Krishnagiri Registration District, Denkanikotta Taluk, and also attached to the Erudhukottai Village Panchayat limits and Union council of Kelamangalam.

1. **SURVEY NUMBER. 1124/7**, Dry Land Extent Hec 0.78.5 Asst Rs. 0.48np., in **Acre 1.94 Cents** Full Land,
2. **SURVEY NUMBER. 1130/7**, Dry Land Extent Hec 0.54.0 Asst Rs. 0.59np., in **Acre 1.33 Cents** Full Land,
3. **SURVEY NUMBER. 1131/7**, Dry Land Extent Hec 0.92.0 Asst Rs. 1.00np., in **Acre 2.27 Cents** Full Land,
4. **SURVEY NUMBER. 1130/8**, Dry Land Extent Hec 0.09.0 Asst Rs. 0.10np., in **Acre 0.22 Cents** Full Land,
5. **SURVEY NUMBER. 1131/8**, Dry Land Extent Hec 0.03.5 Asst Rs. 0.06np., in **Acre 0.09 Cents** Full Land,

The Above All Survey Numbers in this Schedule mentioned Properties measuring an Extent of **Acre 5.85 Cents** Full Land Comes under this Deed of Sale.

VENDOR

PURCHASER

FOR S.V. GRANITES

PARTNERS

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Contains 4 Sheets 6 Sheet
SUB REGISTRAR
DENKANIKOTTAI

The Present Market Value of the Property **Rs. 11,75,850-/-**

IN WITNESS WHEREOF THE VENDOR AND THE PURCHASER IS SIGNED THIS DEED OF SALE ON THIS DAY, MONTH AND YEAR FIRST ABOVE WRITTEN.

VENDOR

PURCHASER

FOR S.V. GRANITES

PARTNERS

WITNESSES:

1. ,Mr. SUNIL, S/o. Mr. Narayanaswamy, Patallaman Kovil Street, Denkanikottai Town, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu.

2. Mr. MANIKANDAN, S/o. Mr. Nanjappa, High School Road, Denkanikottai Town, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu.

DOCUMENT DRAFTED BY:

S. VENKATARAJU
DOCUMENT WRITER
Government Licence No : B/26/KSG/99
DENKANIKOTTAI - 635 107, Krishnagiri Dt.
Cell : 9865685063

Document No 5274 of 2021 of Book 1
Contains 14 Sheets 7 Sheet

SUB REGISTRAR
DENKANIKOTTAI

Statement Under Rule 3(1) of the Tamil Nadu stamps (Prevention of Undervaluation of Instruments) Rule 1968

S.No.	Village	Survey No.	Extent in Acre	Nature	Value in Rs.
1	**ERUDHUKOTTAI**	1124/7	1.94	Dry	Rs. 3,89,940-/-
2	"	1130/7	1.33	Dry	Rs. 2,67,330-/-
3	"	1131/7	2.27	Dry	Rs. 4,56,270-/-
4	"	1130/8	0.22	Dry	Rs. 44,220-/-
5	"	1131/8	0.09	Dry	Rs. 18,090-/-
	Total		**5.85**		**Rs.11,75,850-/-**

VENDOR

PURCHASER

FOR S.V. GRANITES

PARTNERS

Document No. 5224 of 2021 of Book 1
Contains 14 Sheets 8 Sheet

SUB-REGISTRAR
DENKANIKOTTAI

R/Thenkanikottai/Book-1/5274/2021

CERTIFICATE UNDER SECTION 42 OF THE INDIAN STAMP ACT 1899

S.No 3597 of 2021

I hereby certify that a sum of ₹ 81,824/- (Rupees Eighty One Thousand Eight Hundred and Twenty Four only) on account of deficit stamp duty has been levied under section 41 of the Stamp Act in respect of this instrument from Mr. B SUDHAKAR residing at residing at Door No. 17/B3, 1st Cross, Chennai Salai, Vellaikuttai,, Krishnagiri, Krishnagiri, Tamil Nadu, India, 635001.

Sub Registrar: Thenkanikottai
Date: 16/07/2021

Signature of Sub Registrar and Collector under Section 41 of the Indian Stamp Act

Presented in the office of the Sub Registrar of Thenkanikottai and fee of ₹ 47,334/- paid at 11:24 AM on the 16/07/2021 by

Left Thumb

Additions as per recitals of document

Execution admitted by

Left Thumb

Additions as per recitals of document

Claim admitted by

Left Thumb

Additions as per recitals of document

Contains 14 Sheets 10 Sheets

Claim admitted by

Left Thumb

COMMISSIONER OF GEOLOGY AND MINING GUINDY CHENNAI-600 032

Additions as per recitals of document

Identified By

1. Mr. SUNIL Son of NARAYANASWAMY Pattalamman Kovil Street, DENKANIKOTTA, Denkanikottai, Krishnagiri, Tamil Nadu, India, 635107.

2. Mr. MANIKANDAN Son of NANJAPPA High School Road, DENKANIKOTTA, Denkanikottai, Krishnagiri, Tamil Nadu, India, 635107.

16th day of July 2021

BHASKAR M
Sub Registrar
Thenkanikottai

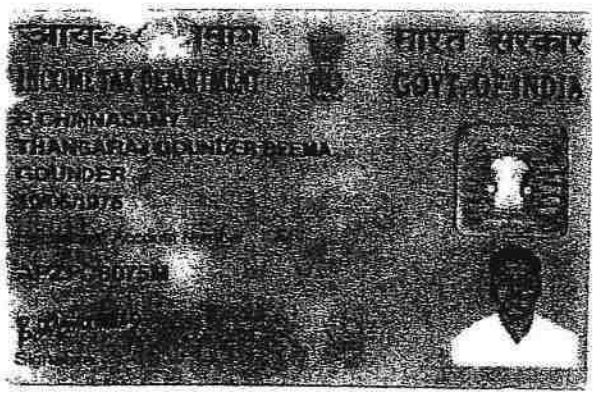
Registered as Number **R/Thenkanikottai/Book-1/5274/2021.**

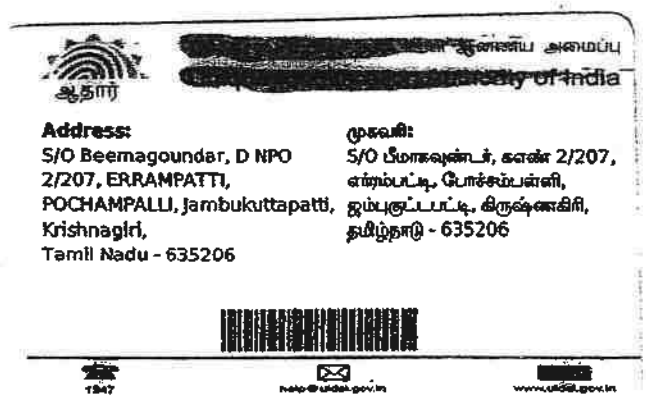
Date: 16/07/2021
Thenkanikottai

BHASKAR M
Sub Registrar

Document No. 5274 of 2021 of Book 1
Contains 14 Sheets 11 Sheet

2 / 2

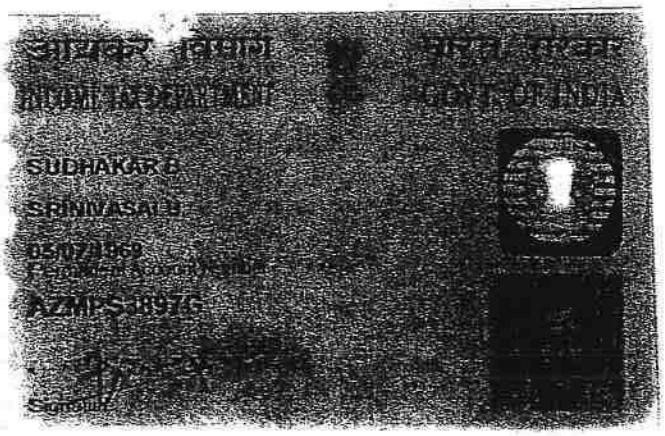


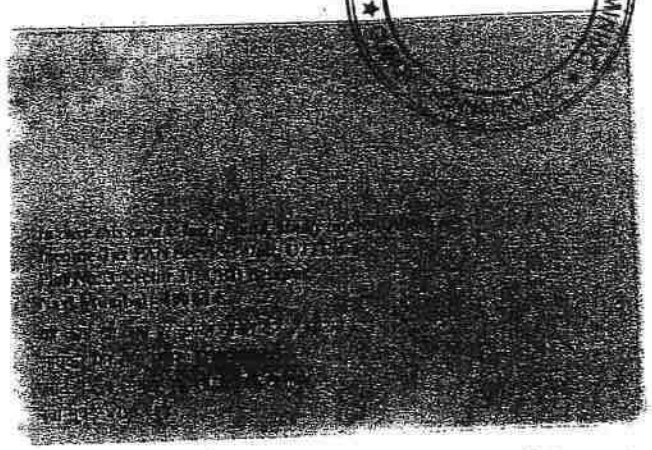


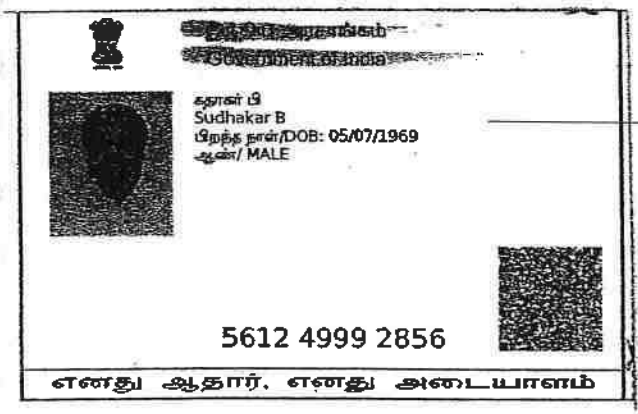
B. சின்னசாமி

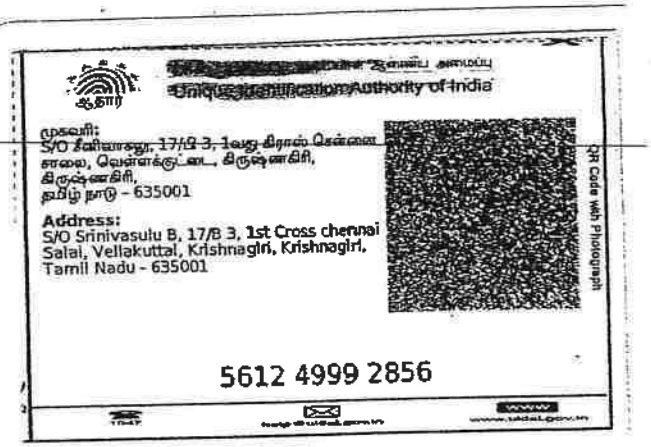
Document No 5224 of 2021 Book 1
Contains 14 Sheets 13 Sheet
REGISTRAR
HOSUR

B. சின்னசாமி









S.DHANASEKAR, M.Sc.,(Geo)
Qualified Person

Document No. 5224 of 2021 Book 1
Contains 14 Sheets 12 Sheet
SUB REGISTRAR
ULLANKOTTAI

ANNEXURE – VI

COMMISSIONER OF GEOLOGY AND MINING ★ GUINDY, CHENNAI-600 032. ★

FORM C

[See rule 9(a)]

Acknowledgement of Registration of Firms

The Registrar of Firms, TamilNadu, hereby acknowledges the receipt of the statement prescribed by Section 58(1) of the Indian Partnership Act, 1932. The statement has been filed and the name of the firm **S.V. GRANITES** has been entered in the Register of Firms as No **FR/Krishnagiri/154/2021.**

The Seal of the Registrar of Firms Krishnagiri.

Date : 06-Jul-2021

Station : Krishnagiri

Digitally Signed by Thiru/ Tmt/ Selvi SENTHILKUMAR VELMURUGAN

தொழில் நிறுவனப் பதிவாளர்

Registrar of Firms

06/7/2021

S.DHANASEKAR, M.Sc.,(Geo)
Qualified Person

Digitally signed by SENTHILKUMAR V VELMURUGAN
Date: 2021.07.06 14:03:47 IST

ANNEXURE - VIII

தமிழ்நாடு तमिलनाडु TAMILNADU

2.7.21

S.V. Granites

CE 010660

K.P MURALIKRISHNAN
S.V.L.C. 12/2008/KGI
KRISHNAGIR. TAMIL NADU.

S.V. GRANITES
DEED OF PARTNERSHIP

This deed of partnership is executed on this 2nd day of July 2021 by and between:

1. **Sri. B. SUDHAKAR**, aged about 52 years, son of Srinivasalu, residing at D. No. 17/B3, 1st Cross, Chennai Salai, Vellaikuttai, Krishnagiri Post, Tk and Dt, Pin-635 001- **herein after called 'FIRST PART'.**
(Adhaar No.5612 4999 2856)

--2

1)

2) B.

B.

தமிழ்நாடு தமிலநாடு TAMILNADU

CE 010661

2.7.021

S.V. Granites

P. MURALIKRISHNAN
S.V.L.C. 12/2008/KGI
KRISHNAGIR, TAMIL NADU.

-2-

2. **Sri. B. CHINNASAMY,** aged about 45 years, Son of Thiru. Beema Gounder, residing at D.No. 2/207 Errampatti, Jambukuttapatti, Pochampalli Taluk, Krishnagiri Dt, Pin : 635206 – **herein after called 'SECOND PART'. (Adhaar No. 6629 0861 1267).**

Whereas the parties herein have agreed to commence **"S.V. GRANITES", Krishnagiri** his instrument has been reduced into writing.

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2/B.சின்னசாமி

B.சின்னசாமி

COMMISSIONER OF GEOLOGY AND MINING

தமிழ்நாடு तमिलनाडु TAMILNADU

CE 010662

2.7.2021

S.V. Granites

K.P MURALIKRISHNAN
S.V.L.C 12/2008/KGI
KRISHNAGIRI TAMIL NADU.

NOW THIS DEED OF PARTNERSHIP WITNESS AS FOLLOWS

NAME:

The name of the firm shall be **"S.V. GRANITES"**.

ADDRESS:

The office of the firm shall be at D. No. 17/B3, 1st Cross, Chennai Salai, Vellaikuttai, Krishnagiri Post, Tk and Dt, Pin-635 001. However the firm can shift the registered office and Office to any other place or places as and when it is necessary.

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1)

2) B. தினகரன்

B. தினகரன்

BUSINESS:

The firm shall run for manufacturing and Export, Resale of Quarry Minerals, Granite Blocks, Granite Kantas, and other Quarry Material Business, and purchase of machinery and spares for quarrying activity in the following Quarry Lands :

In Krishnagiri RD, Denkanikottai SRD, Denkanikottai Taluk, Irudukottai Village , S.Nos. 1130/7, 1131/7, 1124/7, 1130/8, AND 1131/8.

The firm can do any other business or businesses in the same place or different places as agreed by above two partners.

DURATION:

The firm shall come into effect from today and the duration of the firm shall be at will.

CAPITAL:

The Capital of the partners shall be the equal amount accumulated in the capital accounts of the individual partners.

Sri. B. SUDHAKAR	-	**50%**
Sri. B. CHINNASAMY	-	**50%**

The Partners shall bring sufficient capital as and when required for the smooth and successful carrying on of the partnership business.

PROFIT AND LOSS SHARING:

Proper books of accounts shall be maintained in the ordinary course of the business with relevant vouchers, invoices etc., and the books of account shall be closed at the end of March every year and a

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B.

Profit and Loss account and Balance Sheet shall be prepared as on that date to ascertain. Profit or Loss of the firm shall be distributed among the partners in the following ratios.

Sri. B. SUDHAKAR	-	**50%**
Sri. B. CHINNASAMY	-	**50%**

BANK ACCOUNT:

The bank account of the firm shall be opened and operated jointly by both partners **Sri. B. SUDHAKAR** and **Sri. B. CHINNASAMY.**

MANAGING PARTNERS:

Both the First Part **Sri. B. SUDHAKAR,** and **Sri. B. CHINNASAMY** shall be the Managing Partners of the firm.

LOANS:

Loans may be borrowed from bank, financial institutions, private individuals etc., for the purpose of the business of the firm. Such loan/s shall be obtained in the name of the firm only and the loan agreements, paper etc., shall be signed by two partners, any loan/s borrowed in breach of this clause the partners so borrowing shall personally responsible for the discharge of such loans and he shall indemnity the other partner against any loss or damage incurred by them on account of such improper and unauthorized borrowings.

RETIREMENT OF PARTNERS:

In the event of any partner electing to retire from the partnership business with mutual consent. The accounts of the firm shall be drawn up and the share of the out going partner shall be determined and paid

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2) B.சின்னசாமி

B.சின்னசாமி

as of the retiring date. After the retirement the retired partner shall not have any business interest right or title of the firm. If any amount is due to the firm from the retired partner such amount shall be paid to the firm prior to the settlement of accounts. Any retiring partner shall give three months notice of his retirement.

DEATH OR RETIREMENT

a. That in the event of death of one of the partner her interest in the partnership shall devolve on his / her legal heirs and the heir will continue as partner in the business.

b. If the legal heir / heirs of the deceased partner do not opt to continue in partnership the surviving partner shall be entitled to continue the partnership business.

c. The outgoing partner of the legal heir / heirs of the deceased partner shall not be entitled to demand the closing of the firms business of the books of accounts as on the date of retirement or death of the deceased partner, but the share of profit or loss of the outgoing or the deceased partner shall be calculated on the basis of the results of the business for the accounting year.

DISSOLUTION:

If it is desired to dissolve the partnership firm, the property and assets of the firm shall be realized as per their contribution, the amount realized as per their contribution. The amount realized shall be applied first in paying the debts and liabilities of the partnership firm and secondly in repaying the partners amount of capital if any brought in by

-7

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B.

them with such interest if any as may be owing thereon and the surplus if any shall be divided among the partners in proportion to their respective shares of profit in the partnership.

ALTERATION TO DEED:

Any of the terms and conditions of the partnership deed may be altered, deleted or added on by the mutual consent of all the partners.

ARBITRATION:

In the case of disputes arising between the partners whether with regard to implementation or interpretation of any of the terms of this deed the dispute shall be referred to and settled by arbitration as per the provisions of the Indian Arbitration Act or any amendments thereof.

INCAPACITY:

In case of lunacy or death of any of the parties herein shall not have the effect of dissolving the firm and the remaining partners shall carry on the business after making suitable adjustments under the same name and style admitting a substitute of the deceased or lunatic party

INDIAN PARTNERSHIP ACT 1932:

Except to the extent specifically traversed in the above paragraphs, all the other provisions of the Indian Partnership Act 1932 shall apply to the firm.

In witness whereof the parties herein have set in their hands in token of their acceptance of the above terms and conditions of this deed on the day mentioned earlier.

Sri. B. SUDHAKAR -

Sri. B. CHINNASAMY -

WITNESS:

1. (C.R.A. NARAYANAN) S/o late C. RAGHAVENDRA RAO, 490/270, Bangalore Road, U. Muthugini.
2. (S. LAKSHMIKANTHAN) S/o K. Somasundaram 3/138 Gandhi nagar Krishnagiri.

FORM No.1

THE INDIAN PARTNERSHIP ACT, 1932

Application for registration of Firm by the name	S.V. GRANITES
Presented or forwarded to the Registrar of Firms for filling by2 :	GM.NASRULLAH, C/o. D.CHENNATHAMBI, Auditor. S9/5, 1st Floor, GPS Complex, Colony West Link Road, KRISHNAGIRI-635001

We, the undersigned, being the partners of the firm : S.V. GRANITES hereby apply, for registration of the said firm and for that purpose, Supply the following particulars in pursuance of Section 58 of the Indian Partnership Act, 1932:-

i) The Firm's Name : S.V. GRANITES	
ii) Place of business. a) Principal Place : D.No 17/83, 1st CROSS CHENNAI SALAI, VELLAIKUTTAI KRISHNAGIRI –[TK] & [DT] - PIN: 635 001.	b) Other Place : ----NIL----

Sl.No	(iii) (a) Name of Partner in full	(b) Date of joining the firm	(c) Permanent address In full
01	SUDHAKAR SRINIVASALU (AADHAAR NO.: 5612 4999 2856)	02-07-2021	D.No.17/83, 1st CROSS, CHENNAI SALAI, VELLAIKUTTAI KRISHNAGIRI –[TK] & [DT] - 635 001 CELL: 9443243329
02	CHINNASAMY BEEMA GOUNDER (AADHAAR NO.: 6629 0861 7267)	02-07-2021	2/207, ERRAMPATTI , JAMBUKUTTAPATTI POCHAMPALLI – [TK], KRISHNAGIRI – [DT] PIN: 635 206 CELL:9095164780
(iv)	Duration of the firm	AT WILL	

Signature of the partners of their specially authorized agents'

1. K

2. L B

S.DHANASEKAR, M.Sc.,(Geo)
Qualified Person

B.

ANNEXURE – IX

தமிழ்நாடு तमिलनाडु TAMIL NADU 26.7.2021

92AB 654519

S.V. Granites, Krishnagiri S.S.Murthy

S.SIDDESWARA MURTHY
L.No.3887/B1-2000
Stamp Vendor
Denkanikotta

THE DISTRICT COLLECOR,
KRISHNAGIRI DISTRICT,
KRISHNAGIRI.

POWER OF ATTORNEY

I, **B.SUDHAKAR S/o.**Bhitragunta Srinivasalu, aged about 52 years, one of the partner in S.V.GRANITES, residing at D.No.17B3, Vellakuttai, Krishnagiri Post and Taluk and District, appoint as my power of attorney on behalf of **M/s. S.V.GRANITES"** and as for the Department procedures under the mineral concession rules of the respective. State and Central Government of India in the name of **B.CHINNASAMY S/o.**Beema Gounder, aged about 45 years, residing at D.No.2/207, Errampatti, Jambukuttapatti, Pochampalli Taluk, Krishnagiri District - 635 206, Tamil Nadu, one of the partner in "S.V. GRANITES" office at No.17B-3, Vellakottai, Ist Cross, Chennai Salai, Krishnagiri – 635 001, Tamilnadu.

K. PARTHIBAN, Advocate
G.O.M.S. No: 253
NOTARY
No:154/1 Taluk Office Road Hosur

K. PARTHIBAN, B.A.,B.L.
Advocate & Notary
No:154/1, Taluk Office Road,
Hosur Krishnagiri Dt-635109

B.ಶ್ರೀಧರಾಚಾರಿ

To prepare applications plans, sketches and sign and submit it to the department of Mines and Geology, to all department of Central and State and any other department and pursue the same for getting the leaser for ornamental stones and other granites stones and other minerals etc., under the minor mineral concession rules of the respective state Government and under the Mineral concession Rules of the Government of India.

1. To sign and participate in the survey of the area make and sign statements and effect remittance under challan and get demand draft for making application and for executing lease deeds and also for registering the lease deeds.
2. To file receive back the documents, files revised applications and sketches execute lease deeds for and on my behalf.
3. To nominate and appoint any supervisor for helping in conducting the survey and demarcating the area to be obtained on lease.
4. To do all general things necessary for making the quarry lease applications mining lease applications for signing any documents connection with the above lease application, executing the lease deeds, registering the lease deeds.
5. From time to time to purchase take on lease or other wise acquire possess and hold all such lands necessary for quarrying and get them registered before the registration authorities as shall be through necessary or expedient for or in relation to any of the purpose or objects aforesaid.
6. To represent the firm before any judicial authority, courts, local authority, registering authority and in the registration officers and in any other office of State Government, Central Government or officer or Electricity Board or any other authorities in all matters of the firm and sign letters, documents and file appeals, revisions instruments, deeds etc. on behalf of the company.

K. PARTHIBAN, B.A.,B.L.
Advocate & Notary
No:154/1, Taluk Office Road

7. To prepare and submit applications, statements, returns accounts and to remit the Tax or cess if any before the sales Tax Department concerned to get the registration and proper conduct of the

COMMISSIONER OF GEOLOGY AND MINING CHENNAI-600 032

And I hereby agree and undertake that all acts deeds and things lawfully done by the said Attorney Mr.B.CHINNASAMY can be construed as Acts, deeds and things done by me and I do hereby affirm and confirm whatever the said attorney shall lawfully do and caused to be done in respect of the quarry lease applications, preferred already preferred to be referred in future as lawful acts by virtue of the power hereby given.

In WITNESSES, **B.SUDHAKAR** have executed this presents and affix my signature herein, on this the.

K. PARTHIBAN, Advocate G.O.M.S. No: 253 NOTARY No:154/1 Taluk Office Road, Hosur

K. PARTHIBAN, B.A.,B.L.,
Advocate & Notary
No:154/1, Taluk Office Road,
Hosur Krishnagiri Dt-635109

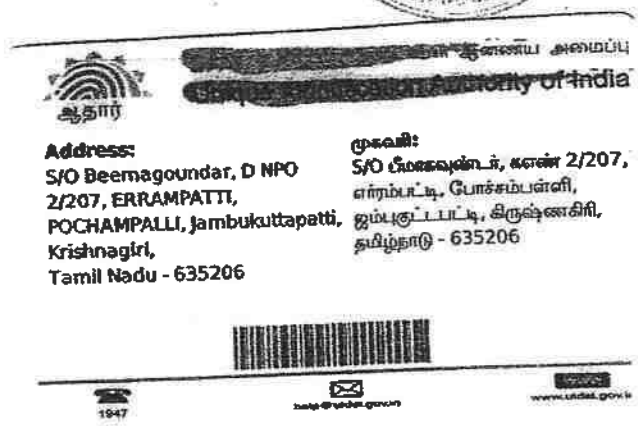
S.DHANASEKAR,M.Sc.,(Geo)
Qualified Person

B. சுதாகரன்

ANNEXTURE

COMMISSIONER OF GEOLOGY AND MINING
GUINDY CHENNAI-600 032

B. சின்னசாமி



S.DHANASEKAR, M.Sc.,(Geo)
Qualified Person

B. சின்னசாமி

ANNEXURE - XI

COMMISSIONER OF GEOLOGY AND MINING
038673
ALANDUR, CHENNAI-600 032.

Reg. No 01BBB1005
Col Code 106 / 106

பெரியார் பல்கலைக்கழகம்
Periyar University

அறிவியல் புலம்

FACULTY OF SCIENCE

பெரியார் பல்கலைக்கழக ஆட்சிக்குழு 2003 ஆம் ஆண்டு ஏப்ரல் மாதம் நடந்த பயன்பாட்டு புவியமைப்பியல் தேர்வில் **S தனசேகர்** என்பவர் முதல் வகுப்பில் தேர்ச்சி பெற்றார் என்று தக்க தேர்வாளர்கள் சான்றளித்தபடி அறிவியல் நிறைஞர் என்னும் பட்டத்தை அவருக்குப் பல்கலைக்கழக இலச்சினையுடன் வழங்குகிறது.

The Syndicate of the **Periyar University** *hereby makes known that* **DHANASEKAR S** *has been admitted to the* **DEGREE OF MASTER OF SCIENCE in APPLIED GEOLOGY**

he/she having been certified by duly appointed Examiners to be qualified to receive the same and was placed in the **FIRST CLASS** *at the Examination held in* **APRIL 2003**

Given under the seal of this University

நாள்
Dated 15-09-2004
சேலம் 636011, தமிழ்நாடு, இந்தியா.
Salem 636011, TamilNadu, India.

பதிவாளர்
Registrar

துணைவேந்தர்
Vice-Chancellor

S.DHANASEKAR, M.Sc.,(Geo)
Qualified Person

ANNEXURE XII

PRITHVI MINERALS,

✆ : 04288-262489

VARANALLAMPALAYAM,
ALATHUR POST - 637 303.
SANKARI Tk, Salem Dt. Tamil Nadu

Date : 27.12.08.

TO WHOMSOEVER IT MAY CONCERN

This is to certify that SHRI S. DHANASEKAR, S/o. Shri A. Sundaram residing at No.8/3, Kullappan Street, Omalur Taluk, Salem District - 636 455 is working in our mines for the date of 15.10.2003 to till date as Geologist. During the above tenure of service his execution of the assigned work is exemplary and worth mentioning. We wish him success in his future endeavours.

For PRITHVI MINERALS,

(T.P. THANGAVEL.)
Partner

S.DHANASEKAR, M.Sc.,(Geo)
Qualified Person

COMMISSIONERATE OF GEOLOGY AND MINING

From
Thiru.J.Jayakanthan, I.A.S.,
Commissioner,
Departmentof Geology and Mining,
Guindy, Chennai - 600 032.

To
Tvl.S.V.Granites,
No.17B/3, Vellakottai 1st Cross,
Chennai Salai,
Krishnagiri- 635001.

Rc. No.73/MM4/2022, dated: 23.07.2022

Sir,

Sub: Mines and Minerals – Minor Mineral – Multi Colour Granite – Krishnagiri District – Denkanikottai Taluk – Irudukottai Village - Patta lands -S.F.No.1124/7(P) (0.67.0), 1130/7(P) (0.29.0), 1131/7 (0.92.0) and 1131/8 (0.03.5)- over an extent 1.91.50 hects - Quarry lease application preferred by M/s. S.V.Granites– Precise area communicated by the Government – Mining Plan submitted –Approval accorded - reg.

Ref :
1. District Collector, Krishnagiri letterRc.No.754/2021/Mines, dated 30.12.2021.
2. Director of Geology and Mining letter in Rc.No.73/MM4/2022, dated:02.03.2022.
3. Government letter No.2666/MME.2/2022-1, dated:04.05.2022.
4. Mining Plan submitted by the lessee M/s. S.V.Granites, dated 16.05.2022.
5. Deputy Director,(G&M), Krishnagiriletter Rc.No.754/2021/Mines, dated 19.05.2022.

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Kind attention is invited to the references cited.

2) A proposal recommending for grant of Multi Colour Granite quarry lease over an extent of 1.91.5 hects of Patta lands in S.F.No.1124/7(P) (0.67.0), 1130/7(P) (0.29.0), 1131/7 (0.92.0) and 1131/8 (0.03.5)of Irudukottai Village, Denkanikottaitaluk, Krishnagiri district for a period of 20 years was forwarded to the Government vide reference 2nd cited. In the reference 3rd cited, the Government have communicated precise area to the applicant with a direction to submit the approved mining plan as per sub-rule (13) of Rule 19-A of Tamil Nadu Minor Mineral Concession Rules, 1959 and to produce environmental clearance from the competent authority for the said area.

3) The mining plan and the connected records are scrutinized and the following are submitted.

a) The Deputy Director(G&M), Krishnagiri has reported that the draft mining plan is prepared by the Recognized Qualified Person and the details such as geological, mineable reserves, year wise production and development program have been incorporated in the draft mining plan. Further, he reported the following:

i) Geological Reserves (ROM) = 4,97,010cbm

ii) Mineable Reserves (ROM) = 1,55,325cbm

iii) Recoverable Reserves @ 60%Recovery = 93,195cbm

iv) Proposed Production for 1st fiveyears = 22,113cbm

v) Year wise Proposed production:

Year	**Production (m^3) @ 60% Recovery**
1st year	4080
2nd year	4590
3rd year	4320
4th year	4533
5th year	4590
Total	**22,113**

b) Finally, the Deputy Director, (G&M), Krishnagiri has recommended the mining plan for approval subject to the condition that the applicant firm should obtain prior Environmental Clearance from the competent authority.

4) The mining plan submitted by M/s. S.V Granites,the report of the Deputy Director,(G&M),Krishnagiri have been examined with reference to the provisions of Rule 12, 13 and 15 of Granite Conservation and Development Rules, 1999 read with G.O.(Ms) No.87, Industries (MMC.1) Department dated 22.02.2001 and the mining plan is approved subject to

the following conditions in addition to the conditions stipulated in the precise area communication issued by the Government.

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

iii. This mining plan including progressive mine closure plan is approved without prejudice to any other order or direction from any court of competent jurisdiction.

iv. Provisions of the Mines Act, 1952 and the Rules and Regulations made there under including submission of notice of opening, appointment of manager and other statutory officials as required under Mines Act, 1952 shall be complied with.

v. Provisions made under Mines and Minerals (Development & Regulation) Act, 1957, MMDR Amendment Act, 2015 and Granite conservation and Development Rules, 1999 made there under shall be complied with.

vi. Relaxation to be obtained under Rule 106(2)(b) of Metalliferous Mines Regulations, 1961 from the Director of Mines Safety, if necessary.

vii. The applied areas should satisfy Rule 36(1-A) (d) and (e) of the Tamilnadu Minor Mineral Concession Rules, 1959 as amended vide G.O.(D) No.295, Industries (MMC1) Dept., dated 03.11.2021.

viii. The applicant should comply with the additional conditions stipulated in the Government of India, Ministry of Mines, Order No.11/02/2020, dated.14.01.2020 issued as per the Order of the Hon'ble Supreme Court of India, dated.08.01.2020 states that, "The Mining lease holders shall after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc".

Encl: 2 copies of Approved mining plan.

23/7/2022

Commissioner of Geology and Mining

Copy Submitted to:

23/7/22

The Additional Chief Secretary to Government,
Industries, Investment Promotion
and Commerce Department,
Secretariat,Chennai-600009.

Copy to:

1. The Director of Mines Safety,
   Lapis Lagoon, AA Block
   New No.05, (Old No.46),
   2nd Street, Shanthi Colony,
   Anna Nagar, Chennai-40.

2. The District Collector,
   Krishnagiri District.

From

Dr. S.Vediappan, M.Sc.,Phd.,
Deputy Director,
Dept of Geology and Mining,
Krishnagiri.

To

M/s. S.V.Granites,
No. 17B-3, 1st Cross Street,
Vellakuttai,
Krishnagiri – 635 001.

Roc.No.754/2021/Mines dated: 28.07.2022.

Sir,

Sub: Mines and Minerals – Multi Colour Granite - Krishnagiri District – Denkanikottai Taluk – Irudhukottai Village- Patta lands in S.F.No. 1124/7(P) (0.67.0), 1130/7(P) (0.29.0), 1131/7 (0.92.0) and 1131/8 (0.03.5) Over an extent of 1.91.5 Hects – Rough Stone quarry lease granted to M/s. S.V.Granites – Quarry pit dimension details – Furnished - reg.

Ref: 1 The District Collector Krishnagiri Roc.No.754/2021 Mines dated: 30.12.2021.

2. The Director of Geology and Mining letter Rc.No. 73/MM4/2022 Dated: 23.07.2022.

3 M/s. S.V.Granites, letter dated :27.07.2022 .

Kind attention is invited to the reference cited above.

2. M/s. S.V.Granites had been applied for quarry lease for the Multi Colour Granite over an extent of 1.91.5 Hect in Patta land in S.F.No. 1124/7(P) (0.67.0), 1130/7(P) (0.29.0), 1131/7 (0.92.0) and 1131/8 (0.03.5) of Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District for a period of 20 years under the provisions of Rule 19-A of Tamil Nadu Minor Mineral Concession Rule 1959.

3. The pit dimension of the subject quarry requested by the applicant to furnish the same before SEIAA in order to get Environmental Clearance. In this connection as per mining plan the pit dimension of the subject land is given as under.

Area (sq.m)	Depth (m)
90.0	5.0

28.07.22

Deputy Director,
Dept of Geology and Mining,
Krishnagiri.

28/7/22

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

From

Dr. S.Vediappan, M.Sc.,Phd.,
Deputy Director,
Dept of Geology and Mining,
Krishnagiri.

To

M/s. S.V.Granites,
No. 17B-3, 1st Cross Street,
Vellakuttai,
Krishnagiri – 635 001.

Roc.No.754/2021 /Mines dated: 28 .07.2022.

Sir,

Sub: Mines and Minerals – Krishnagiri District – Multi Colour Granite – Krishnagiri District - Denkanikottai Taluk – Irudhukottai Village in Patta land in S.F.No. 1124/7(P) (0.67.0), 1130/7(P) (0.29.0), 1131/7 (0.92.0) and 1131/8 (0.03.5) – Over an extent of 1.91.5 Hect of Multi Colour Granite quarry lease application preferred by M/s. S.V.Granites - Details of quarries situated within 500 mts radial distance – Requested by the applicant – Details furnished - reg.

Ref:
1. The District Collector, Krishnagiri letter Rc.No. 754/2021/Mines dated: 30.12.2021.
2. Government Letter No. 2666/MME.2/2022-1 dated: 04.05.2022.
3. The Director of Geology and Mining letter Rc.No. 73/MM4/2022 Dated: 23.07.2022.
4. M/s. S.V.Granites, letter dated: 27.07.2022.

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kind attention is invited to the reference cited.

2) M/s. S.V.Granites, have preferred an application for the grant of quarry lease for Multi Colour Granite over an extent of 1.91.5 Hects in patta lands in S.F.No. 1124/7(P) (0.67.0), 1130/7(P) (0.29.0), 1131/7 (0.92.0) and 1131/8 (0.03.5) in Irudhukottai Village, Denkanikottai Taluk, Krishnagiri District for a period of 20 years under the provisions of Rule 19 (A) of Tamil Nadu Minor Mineral Concession Rule 1959. The Precise area has been communicated vide the Government letter dated : 04.05.2022 and informed to the applicant to furnish the approved Mining Plan and Environmental Clearance from the competent Authority for the above said area.

3. The Mining Plan submitted by the applicant has been approved by the Director of Geology and Mining, vide letter dated: 23.07.2022.

4. In this connection, the applicant has requested to furnish the details of quarries situated within cluster category for the proposed area vide letter dated: 27.07.2022.

5. As requested by the applicant the details of quarries situated within 500m radius is furnished as follows:

I. Details of Existing quarries.

Sl No	Name of the lessee	GO.No. & Dated	Village & Taluk	S.F No.	Extent in Het	Lease period.
1	---------- Nil ----------					

II. Details of abandoned/Old quarries.

Sl. No.	Name of the lessee	GO.No. & Dated	Village & Taluk	S.F No.	Extent in Het	Lease period.
1	---------- Nil ----------					

Details of other Proposed/applied quarries

Sl. No.	Name of the lessee	GO.No. & Dated	Village & Taluk	S.F No.	Extent in Het	Lease period.
1.	M/s. S.V.Granites, No. 17B-3, 1st Cross Street, Vellakuttai, Krishnagiri	-	Denkanikottai Taluk – Irudhukottai Village	1124/7(P) 1130/7(P) 1131/7, 1131/8	1.91.5	Instant Proposal (Precise area given)
2.	M/s. K.P.R.Granites, No. 2/223, Avvai Nagar, Noolahalli, Pennagaram, Krishnagiri.	-	Denkanikottai Taluk – Irudhukottai Village	1123/4A,4B, 5A, 5B, 6A,6B, 1125/6, 1123/8(P)	2.34.3	Applied area and under process
3.	M/s. K.P.R.Granites, No. 2/223, Avvai Nagar, Noolahalli, Pennagaram, Krishnagiri.	-	Denkanikottai Taluk – Irudhukottai Village	1121/6, 1125/3	1.97.0	Applied area and under process

28.07.22

Deputy Director,
Dept of Geology and Mining,
Krishnagiri.

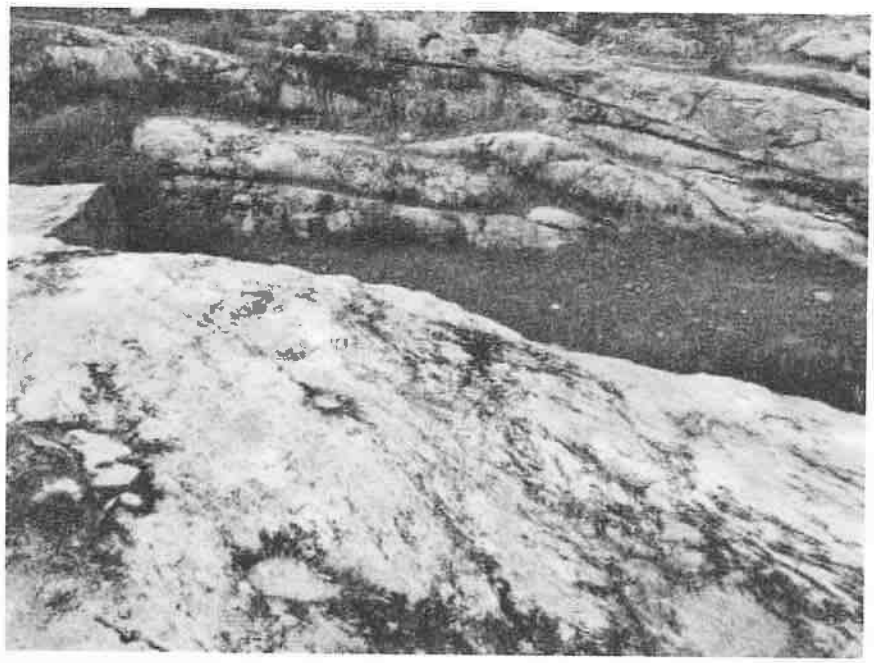
29/7/22

Copy to :-

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

Tvl. S.V. Granites, Multicolour Granite quarry in the S.F.Nos. 1124/7(P), 1130/7(P), 1131/7 & 1131/8 over an extent of 1.91.50ha. in Irudukottai Village, Denkanikottai Taluk, Krishnagiri District.

GENERAL VIEW OF THE APPLIED LEASE AREA



For **Tvl. S.V. Granites,**

(Deponent)

சான்று

கிருஷ்ணகிரி மாவட்டம் தேன்கனிக்கோட்டை வட்டம் 41. இருதுகோட்டை கிராமம் புல எண்கள் 1124/7(P), 1130/7(P), 1131/7, 1131/8 மொத்த விஸ்தீரணம் 1.91.5 ஹெக்டேர் பரப்பு கொண்ட நிலத்தில் புல வண்ண கற்கள் வெட்டி எடுக்க அனுமதி கோரும் நிலத்தை சுற்றி 500 மீட்டர் சுற்றளவில் கிராமத்தமோ, வீடோ, தேவாலயமோ, வழிபாட்டு தலமோ, பள்ளிக்கூடமோ அரசு கட்டிடங்களோ இல்லை என்பது புல-தணிக்கை செய்து இந்த சான்று வழங்கப்படுகிறது.

கிராம நிர்வாக அலுவலர்.
41, இருதுக்கோட்டை (கிராமம்)
தேன்கனிக்கோட்டை (வட்டம்)

தமிழ்நாடு तमिलनाडु TAMILNADU 5.8.2022/₹.50 BE 946609

M/s. S.V. Granites
Krishnagiri

M. கோபாலன்
முத்திரைத்தாள் விற்பனையாளர்
உரிமம் எண். 1/2003
சுப்ரமணிய நகர் விரிவாக்கம்,
ஓமலூர்கலம். சேலம்-5. தமிழ்நாடு

AFFIDAVIT TO SEIAA, TAMIL NADU

We, **M/s. S.V. Granites,** office at D.No.17B/3, Vellakottai 1st Cross Street, Chennai Salai, Krishnagiri District-635 001, do hereby solemnly declare and sincerely affirm that, We have applied for getting environment clearance to SEIAA, Tamil Nadu for quarry lease for Multi Colour Granite quarry at Survey No.1124/7(P), 1130/7(P), 1131/7 & 1131/8 over an area of 1.91.50 Ha in Irudukottai village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu.

1. We swear to state and confirm that within 10km area of the quarry site, we have applied for environmental clearance, none of 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.
   c. Eco sensitive area as notified.
   d. Interstate boundaries and international boundaries within 10km radius from the boundary of the proposed site.

பதிவாளர்

2. We will complete the following Corporate Environment Responsibility (CER) activities before commencement of the quarrying activities.

CER Activity	Project cost (Rs)	CER cost (Rs)
Carrying out various developmental works in the nearby region based on the need of the locals.	Rs.1,28,95,000/-	Rs.6,00,000/-
Total cost Allocation	**Rs.1,28,95,000/-**	**Rs.6,00,000/-**

3. **Details of quarry within 500m radius from the applied area:**

Existing Quarries						
S.No	**Name and address of the lessee**	**Village & Taluk**	**SF.No.**	**Extent in Hectare**	**G.O. No. & date**	**Lease Period**
-Nil-						

Details of Abandoned / Old Quarries						
S.No	**Name and address of the lessee**	**Village & Taluk**	**SF.No.**	**Extent in Hectare**	**G.O. No. & date**	**Lease Period**
-Nil-						

Details of Proposed Quarries						
S.No	**Name and address of the lessee**	**Village & Taluk**	**SF.No.**	**Extent in Hectare**	**G.O. No. & date**	**Lease Period**
1	M/S. S.V. Granite, No.17B/3, Vellakottai 1st Cross Street, Chennai Salai, Krishnagiri -635 001	Irudukottai village, Denkanikottai Taluk,	1124/7(P), 1130/7(P), 1131/7 & 1131/8	1.91.5 Ha.	-	Instant Proposal (Precise area given)
2	M/S. K.P. R Granites, No.2/223, Avvai Nagar, Noolahalli, Pennagaram, Krishnagiri.	Irudukottai village, Denkanikottai Taluk,	1123/4A, 4B, 5A, 5B, 6A, 6B, 1125/6 & 1123/8(P)	2.34.3 Ha.	-	Applied area and under process

B சிவராசன்

3	M/S. K.P.R Granites, No.2/223, Avvai Nagar, Noolahalli, Pennagaram, Krishnagiri.	Irudukottai village, Denkanikottai Taluk,	1221/6, 1125/3	1.97.0 Ha.	-	Applied area and under process

4. There will not be hindrance or disturb to the people living no enrooted/ 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 applied quarry.
6. We 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 Multi colour Granite.
9. We will not engage any child labor in our quarry site and we 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.

    We ensure to do the social and Environment commitment as mentioned in the Mining plan to the best of our knowledge.

For **M/s. S.V. Granites,**

B. சிவராசன்

(Deponent)

12° 25' 41.1003"N

77° 49' 57.9786"E

77° 50' 03.8947"E

12° 25' 36.5229"N

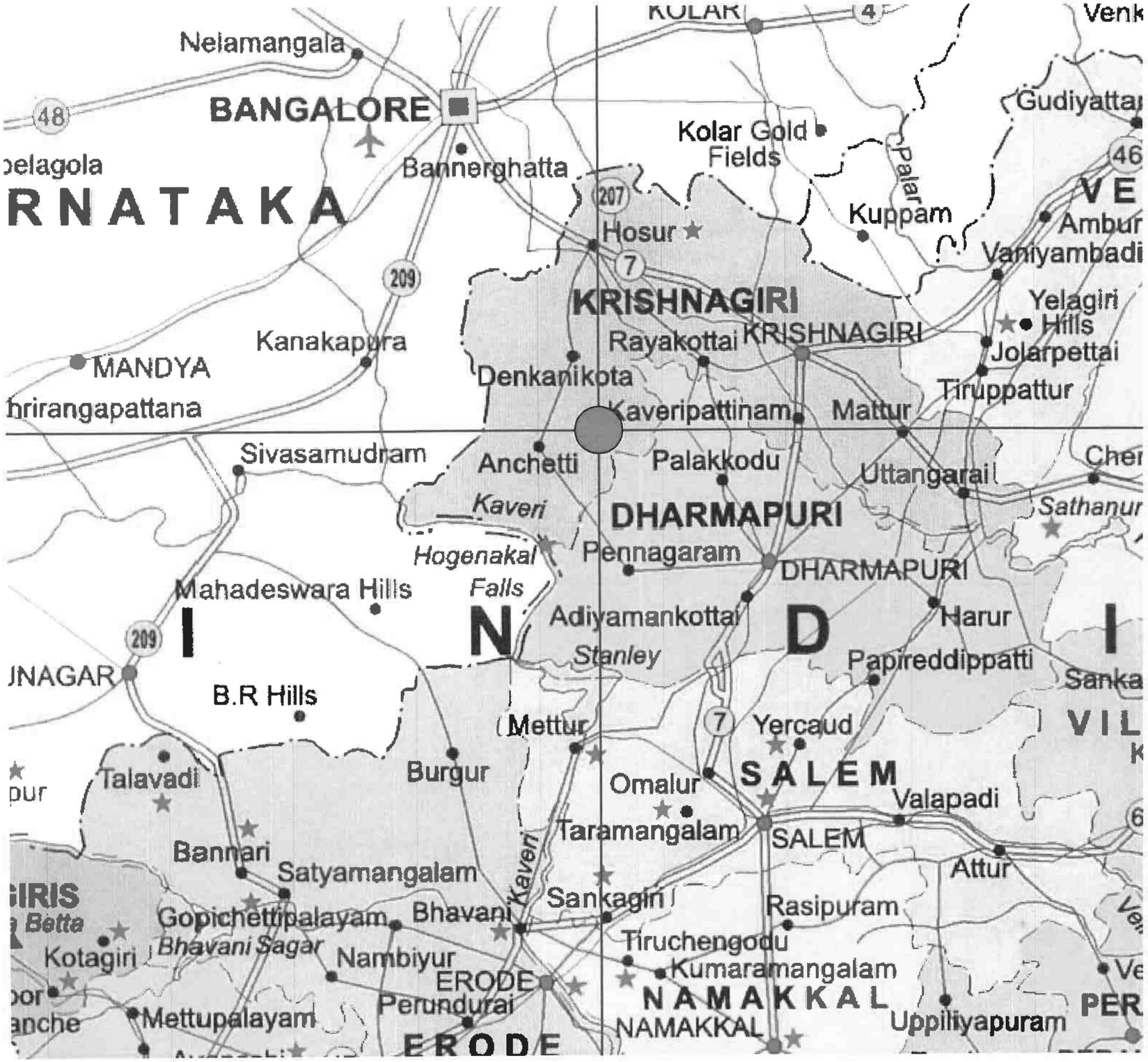


PLATE NO.I

DATE OF SURVEY:06-05-2022

LESSEE ADDRESS:

TVL.S.V. GRANITES,
No.17B/3, VELLAKOTTAI 1st CROSS,
CHENNAI SALAI,
KRISHNAGIRI DISTRICT-635 001.

INDEX

QUARRY LEASE AREA :

TOPO SHEET NO : 57-H/15

LATITUDE : 12° 25' 41.1003"N to 12° 25' 36.5229"N

LONGITUDE: 77° 50' 03.8947"E to 77° 49' 57.9786"E

LOCATION OF QUARRY:

EXTENT	: 1.91.5 Ha,
S.F.NOs	: 1124/7(P),1130/7(P), 1131/7 & 1131/8,
VILLAGE	: IRUDUKOTTAI,
TALUK	: DENKANIKOTTAI,
DISTRICT	: KRISHNAGIRI.

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.,
QUALIFIED PERSON

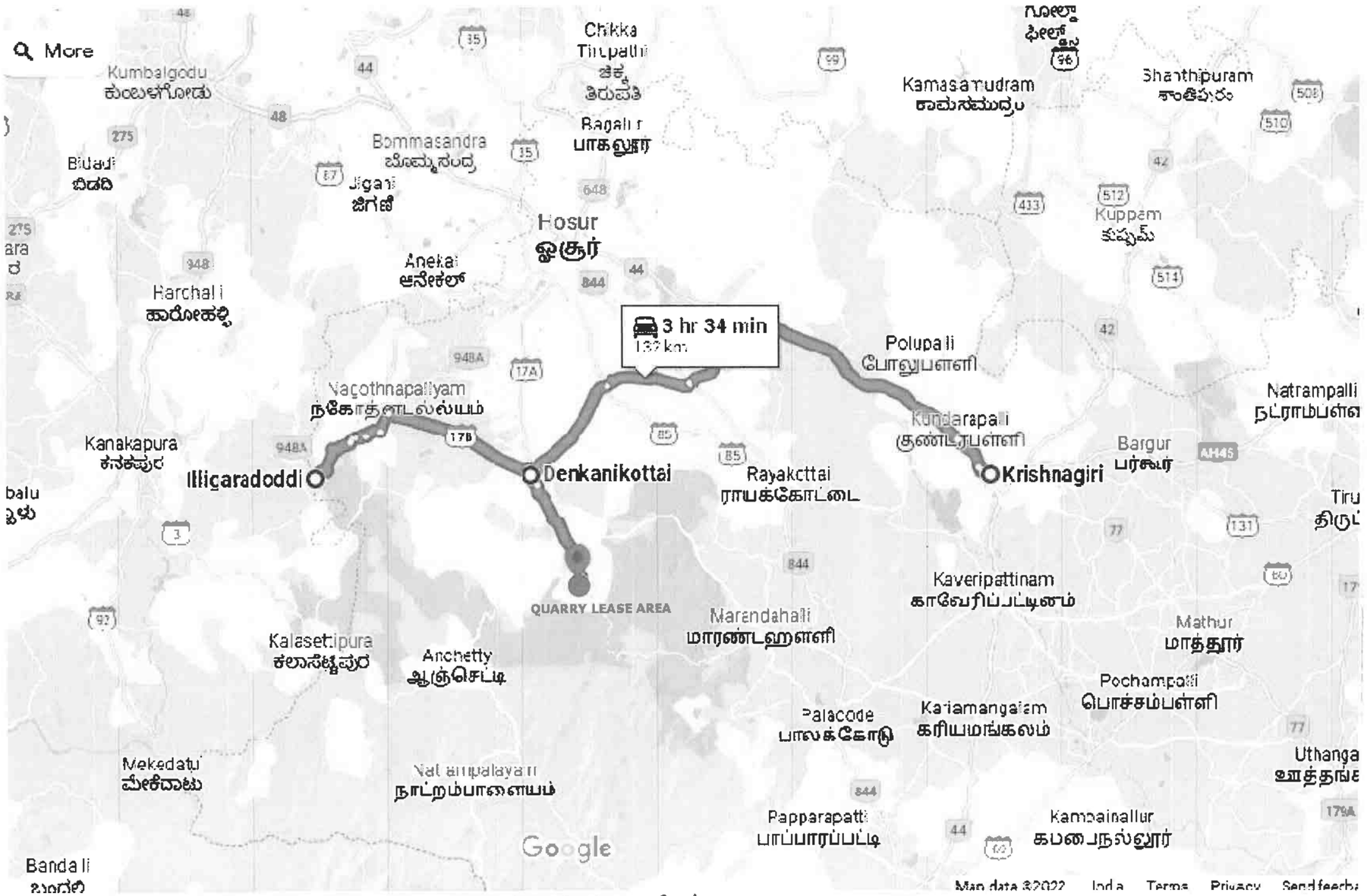


PLATE NO.1A

DATE OF SURVEY:06-05-2022

LESSEE ADDRESS:

TVL.S.V. GRANITES,
No.17B/3, VELLAKOTTAI 1st CROSS,
CHENNAI SALAI,
KRISHNAGIRI DISTRICT-635 001.

INDEX

QUARRY LEASE AREA

ROAD

LOCATION OF QUARRY:

EXTENT	: 1.91.5 Ha,
S.F.NOs	: 1124/7(P),1130/7(P), 1131/7 & 1131/8,
VILLAGE	: IRUDUKOTTAI,
TALUK	: DENKANIKOTTAI,
DISTRICT	: KRISHNAGIRI.

KEY MAP/ROUTE MAP

NOT TO SCALE

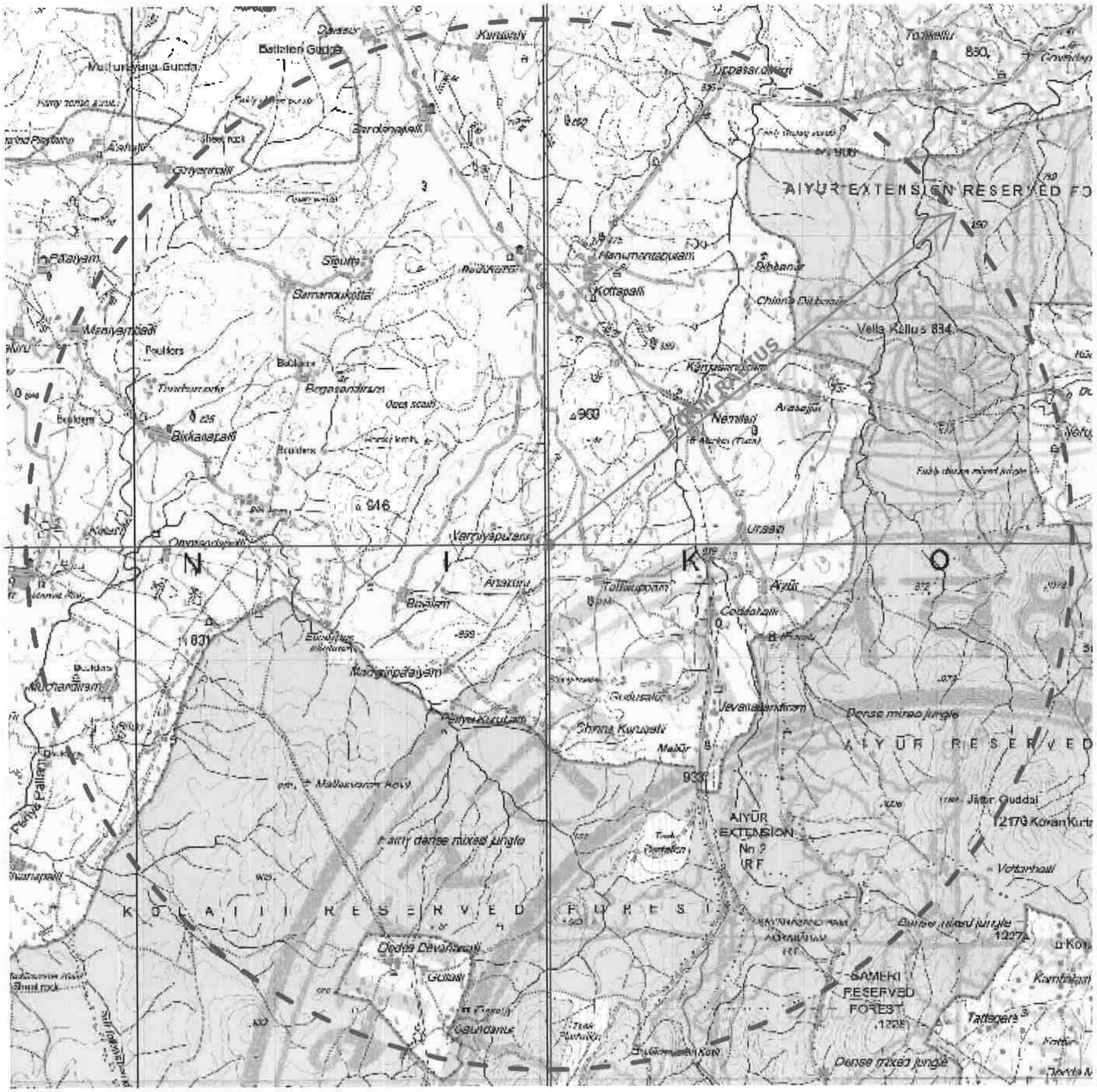
PREPARED BY:

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

S.DHANASEKAR,M.Sc.,
QUALIFIED PERSON

12° 25' 41.1003"N

77° 49' 57.9786"E



12° 25' 36.5229"N

77° 50' 03.8947"E

PLATE NO.IB

DATE OF SURVEY:06-05-2022

LESSEE ADDRESS:

TVL.S.V. GRANITES,
No.17B/3, VELLAKOTTAI 1st CROSS,
CHENNAI SALAI,
KRISHNAGIRI DISTRICT-635 001

INDEX

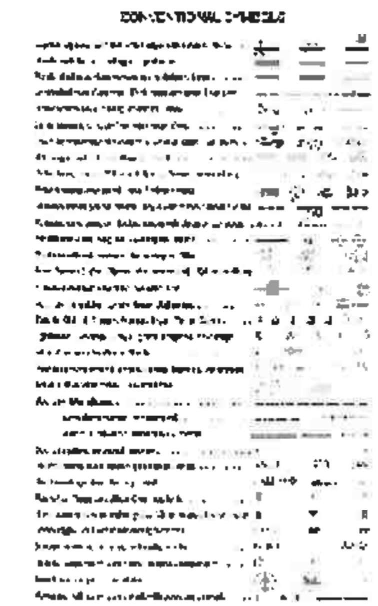
QUARRY LEASE AREA

5.0KM RADIUS

TOPO SHEET NO : 57-H/15

LATITUDE : 12° 25' 41.1003"N to 12° 25' 36.5229"N

LONGITUDE: 77° 50' 03.8947"E to 77° 49' 57.9786"E



LOCATION OF QUARRY:

EXTENT : 1.91.5 Ha,
S.F.NOs : 1124/7(P),1130/7(P), 1131/7 & 1131/8,
VILLAGE : IRUDUKOTTAI,
TALUK : DENKANIKOTTAI,
DISTRICT : KRISHNAGIRI.

TOPOSHEET 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.,
QUALIFIED PERSON

BOUNDARY CO-ORDINATES

Sl. No	Boundary Pillars	Latitude	Longitude	Easting (X)	Northing (Y)	Pillar Details
1	BP-01	12° 25' 41.2039" N	77° 49' 58.9258" E	808021.050	1375534.055	Corner
2	BP-1A	12° 25' 41.5999" N	77° 50' 0.5302" E	808069.412	1375546.750	Intermediate
3	BP-02	12° 25' 41.7543" N	77° 50' 1.1558" E	808088.269	1375551.699	Corner
4	BP-2A	12° 25' 40.1905" N	77° 50' 0.7032" E	808075.101	1375503.464	Intermediate
5	BP-03	12° 25' 40.0216" N	77° 50' 0.6543" E	808073.679	1375498.255	Corner
6	BP-04	12° 25' 39.9131" N	77° 50' 1.4005" E	808096.268	1375495.159	Corner
7	BP-05	12° 25' 41.5258" N	77° 50' 1.3775" E	808095.045	1375544.744	Corner
8	BP-5A	12° 25' 41.2502" N	77° 50' 3.0078" E	808144.409	1375536.795	Intermediate
9	BP-06	12° 25' 41.1003" N	77° 50' 3.8947" E	808171.263	1375532.471	Corner
10	BP-6A	12° 25' 39.5956" N	77° 50' 3.2681" E	808152.817	1375485.997	Intermediate
11	BP-6B	12° 25' 38.0909" N	77° 50' 2.6415" E	808134.372	1375439.524	Intermediate
12	BP-07	12° 25' 37.9223" N	77° 50' 2.5713" E	808132.305	1375434.316	Corner
13	BP-7A	12° 25' 36.4103" N	77° 50' 1.9632" E	808114.422	1375387.624	Intermediate
14	BP-08	12° 25' 35.8962" N	77° 50' 1.7564" E	808108.342	1375371.748	Corner
15	BP-09	12° 25' 37.0602" N	77° 50' 1.5378" E	808101.353	1375407.471	Corner
16	BP-10	12° 25' 37.5656" N	77° 50' 1.4429" E	808098.318	1375422.988	Corner
17	BP-10A	12° 25' 36.9609" N	77° 49' 59.9074" E	808052.108	1375403.894	Intermediate
18	BP-10B	12° 25' 36.3561" N	77° 49' 58.3719" E	808005.897	1375384.800	Intermediate
19	BP-11	12° 25' 36.2520" N	77° 49' 58.1078" E	807997.949	1375381.516	Corner
20	BP-12	12° 25' 36.5229" N	77° 49' 57.9786" E	807993.954	1375389.803	Corner
21	BP-13	12° 25' 37.3073" N	77° 49' 58.2197" E	808000.985	1375414.002	Corner
22	BP-13A	12° 25' 38.8752" N	77° 49' 58.6575" E	808013.704	1375462.357	Intermediate
23	BP-14	12° 25' 39.8839" N	77° 49' 58.9392" E	808021.887	1375493.469	Corner

WGS 84 Datum

COMMISSIONER OF GEOLOGY AND MINING * GUINDY, CHENNAI-600 032. *

PLATE NO-IC

DATE OF SURVEY:06-05-2022

LESSEE ADDRESS:

TVL.S.V. GRANITES,
No.17B/3, VELLAKOTTAI 1st CROSS,
CHENNAI SALAI,
KRISHNAGIRI DISTRICT-635 001.

LOCATION OF QUARRY:

EXTENT : 1.91.5 Ha,
S.F.NOs : 1124/7(P),1130/7(P), 1131/7 & 1131/8,
VILLAGE : IRUDUKOTTAI,
TALUK : DENKANIKOTTAI,
DISTRICT : KRISHNAGIRI.

INDEX

QUARRY LEASE AREA :

SATELLITE IMAGE (LEASE AREA)

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.,
QUALIFIED PERSON

12° 25' 41.7543"N
77° 50' 01.1558"E

12° 25' 36.5229"N
77° 49' 57.9786"E

12° 25' 41.1003"N
77° 50' 03.8947"E

12° 25' 35.8962"N
77° 50' 01.7564"E

COMMISSIONER OF GEOLOGY AND MINING * GUINDY, CHENNAI-600 032. *

PLATE NO-ID

DATE OF SURVEY:06-05-2022

LESSEE ADDRESS:

TVL.S.V. GRANITES,
No.17B/3, VELLAKOTTAI 1st CROSS,
CHENNAI SALAI,
KRISHNAGIRI DISTRICT-635 001.

LOCATION OF QUARRY:

EXTENT : 1.91.5 Ha,
S.F.NOs : 1124/7(P),1130/7(P),
1131/7 & 1131/8,
VILLAGE : IRUDUKOTTAI,
TALUK : DENKANIKOTTAI,
DISTRICT : KRISHNAGIRI.

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QUARRY LEASE AREA

500M RADIUS

300M RADIUS

SATELLITE IMAGE
(500m RADIUS)

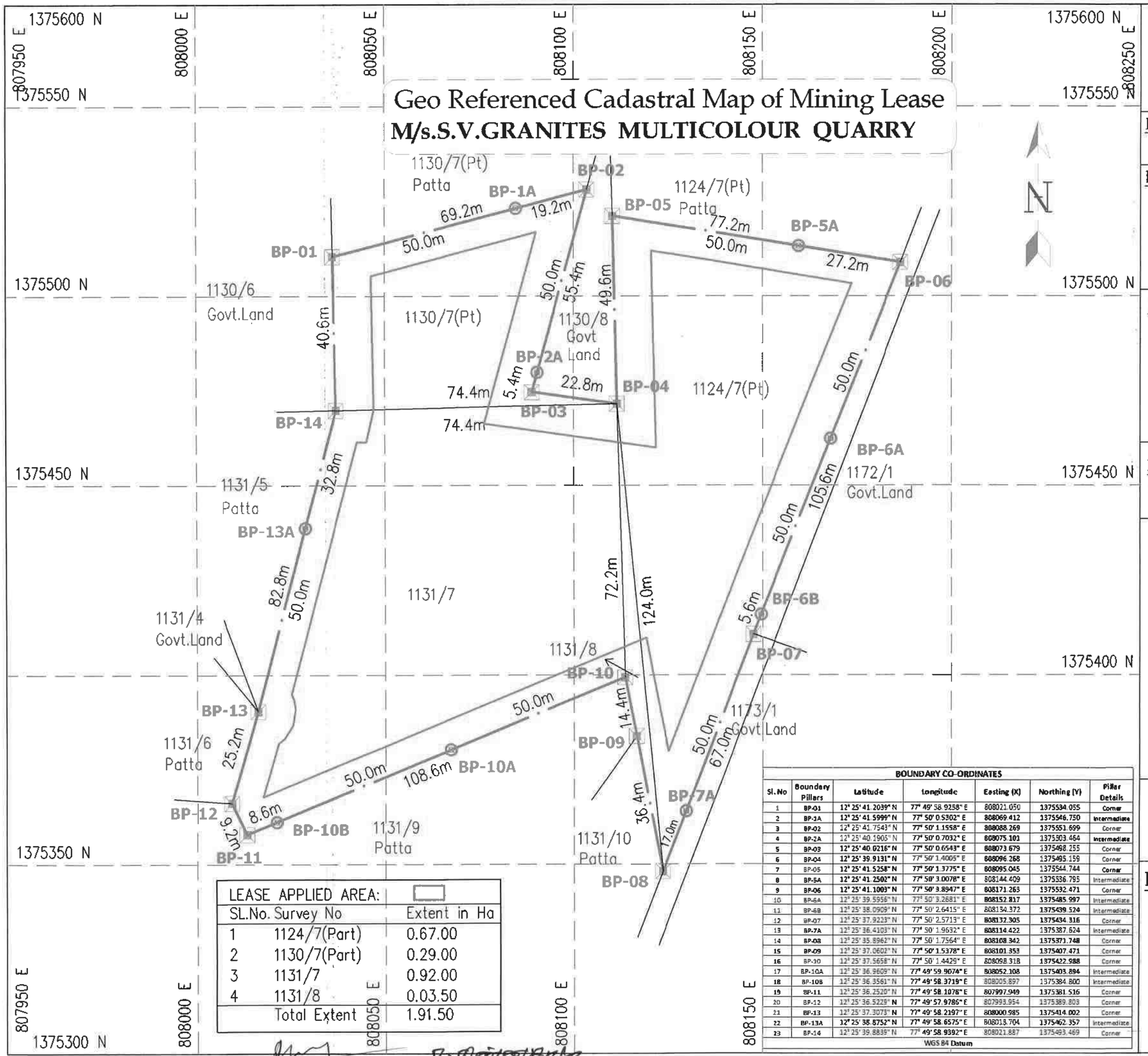
SCALE 1 : 5000

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.,
QUALIFIED PERSON

Geo Referenced Cadastral Map of Mining Lease
M/s.S.V.GRANITES MULTICOLOUR QUARRY



LEASE APPLIED AREA:		
SL.No.	Survey No	Extent in Ha
1	1124/7(Part)	0.67.00
2	1130/7(Part)	0.29.00
3	1131/7	0.92.00
4	1131/8	0.03.50
	Total Extent	1.91.50

BOUNDARY CO-ORDINATES

Sl.No	Boundary Pillars	Latitude	Longitude	Easting (X)	Northing (Y)	Pillar Details
1	BP-01	12° 25' 41.2039" N	77° 49' 58.9258" E	808021.050	1375534.055	Corner
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8	BP-5A	12° 25' 41.2502" N	77° 50' 3.0078" E	808144.409	1375536.795	Intermediate
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10	BP-6A	12° 25' 39.5956" N	77° 50' 3.2681" E	808152.817	1375485.997	Intermediate
11	BP-6B	12° 25' 38.0909" N	77° 50' 2.6415" E	808134.372	1375439.524	Intermediate
12	BP-07	12° 25' 37.9223" N	77° 50' 2.5713" E	808132.305	1375434.316	Corner
13	BP-7A	12° 25' 36.4103" N	77° 50' 1.9632" E	808114.422	1375387.624	Intermediate
14	BP-08	12° 25' 35.8962" N	77° 50' 1.7564" E	808108.342	1375371.748	Corner
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17	BP-10A	12° 25' 36.9609" N	77° 49' 59.9074" E	808052.108	1375403.894	Intermediate
18	BP-10B	12° 25' 36.3561" N	77° 49' 58.3719" E	808005.897	1375384.800	Intermediate
19	BP-11	12° 25' 36.2520" N	77° 49' 58.1078" E	807997.949	1375381.516	Corner
20	BP-12	12° 25' 36.5229" N	77° 49' 57.9786" E	807993.954	1375389.803	Corner
21	BP-13	12° 25' 37.3073" N	77° 49' 58.2197" E	808000.985	1375414.002	Corner
22	BP-13A	12° 25' 38.8752" N	77° 49' 58.6575" E	808013.704	1375462.357	Intermediate
23	BP-14	12° 25' 39.8839" N	77° 49' 58.9392" E	808021.887	1375493.469	Corner

WGS 84 Datum

PLATE NO.II

DATE OF SURVEY:06-05-2022

COMMISSIONER OF GEOLOGY AND MINING * GUINDY, CHENNAI-600 032 *

LESSEE ADDRESS:

TVL.S.V. GRANITES,
No.17B/3, VELLAKOTTAI 1st CROSS,
CHENNAI SALAI,
KRISHNAGIRI DISTRICT-635 001.

LOCATION OF QUARRY:

EXTENT	: 1.91.5 Ha,
S.F.NOs	: 1124/7(P),1130/7(P), 1131/7 & 1131/8,
VILLAGE	: IRUDUKOTTAI,
TALUK	: DENKANIKOTTAI,
DISTRICT	: KRISHNAGIRI.

Precise Area Communicated Latter No:

2666/MME.2/2022-1, Dated 04.05.2022

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- Quarry Lease Boundary
- 7.5m & 10m Safety Distance
- MSL:945.770 — Bench Mark(GCP)
- 1131/7 — Survey No.s
- BP-01 — Boundary Corner Pillars
- BP-1A — Boundary Intermediate Pillars
- UTM Grid

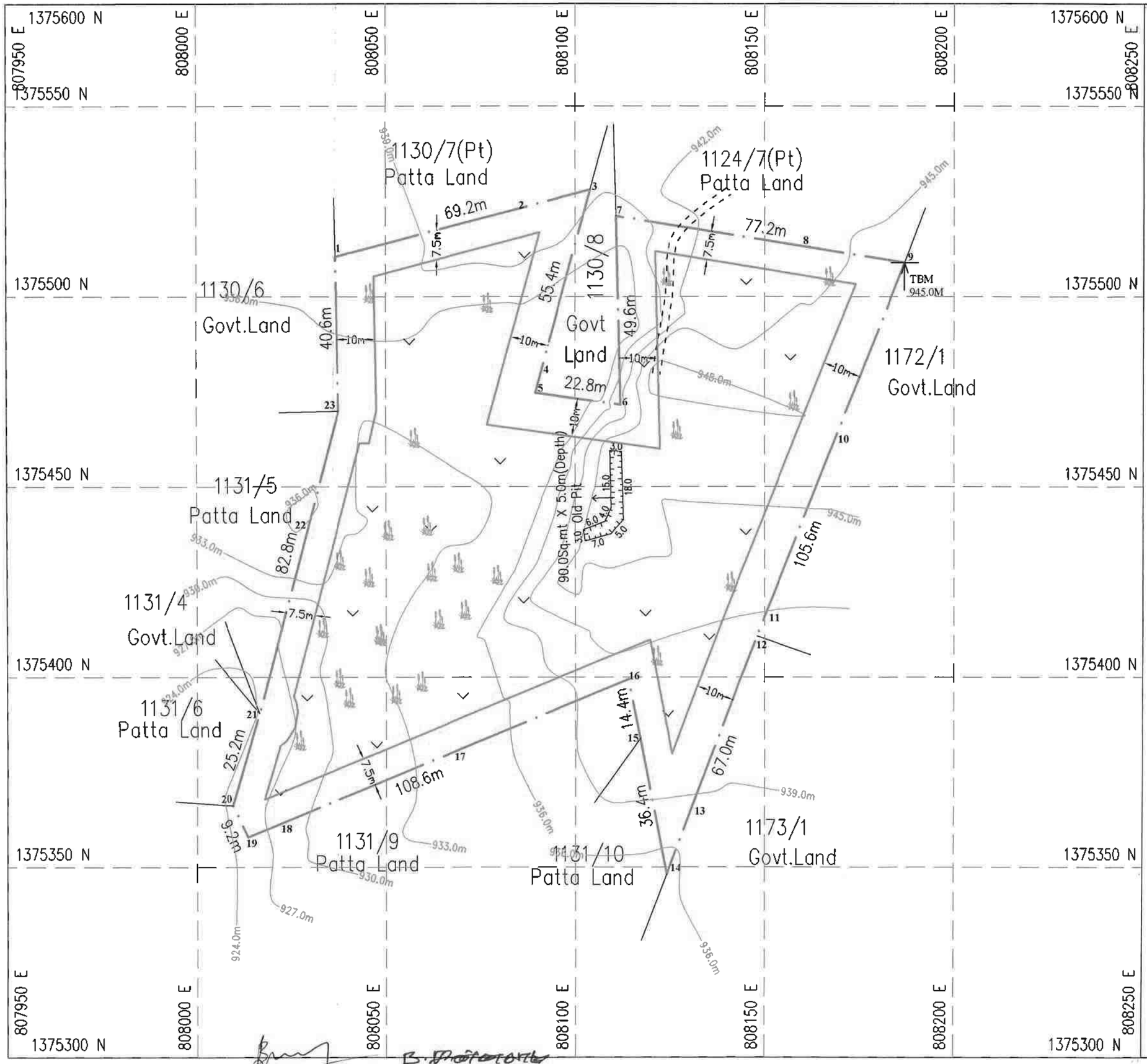
MINE LEASE PLAN

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.,
QUALIFIED PERSON



N

PLATE NO.III

DATE OF SURVEY:06-05-2022

LESSEE ADDRESS:

TVL.S.V. GRANITES,
No.17B/3, VELLAKOTTAI 1st CROSS,
CHENNAI SALAI,
KRISHNAGIRI DISTRICT-635 001.

LOCATION OF QUARRY:

EXTENT : 1.91.5 Ha,
S.F.NOs : 1124/7(P),1130/7(P), 1131/7 & 1131/8,
VILLAGE : IRUDUKOTTAI,
TALUK : DENKANIKOTTAI,
DISTRICT : KRISHNAGIRI.

INDEX

- QUARRY LEASE BOUNDARY
- 7.5m & 10.0m SAFETY DISTANCE
- TEMPORARY BENCH MARK (TBM 945M)
- TOP SOIL
- MULTI COLOUR GRANITE
- QUARRY PIT
- CONTOUR LINE (936.0m)
- QUARRY ROAD
- SHRUB

SURFACE 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.,
QUALIFIED PERSON

1130/7(Pt)
Patta Land

1124/7(Pt)
Patta Land

1130/6
Govt.Land

1130/8
Govt
Land
22.8m

1131/5
Patta Land

1131/4
Govt.Land

1131/6
Patta Land

1131/9
Patta Land

1131/10
Patta Land

1172/1
Govt.Land

1173/1
Govt.Land

69.2m
77.2m
55.4m
49.6m
40.6m
82.8m
90.0Sq.mt X 5.0m(Depth) Old Pit
105.6m
25.2m
108.6m
14.4m
67.0m
36.4m
9.2m
TBM 945.0M

1375600 N
1375550 N
1375500 N
1375450 N
1375400 N
1375350 N
1375300 N
807950 E
808000 E
808050 E
808100 E
808150 E
808200 E
808250 E

OLD PIT DIMENSIONS
90.0Sq.mt X 5.0m(Depth)

PLATE NO.IV

DATE OF SURVEY:06-05-2022

LESSEE ADDRESS:

TVL.S.V. GRANITES,
No.17B/3, VELLAKOTTAI 1st CROSS,
CHENNAI SALAI,
KRISHNAGIRI DISTRICT-635 001.

LOCATION OF QUARRY:

EXTENT : 1.91.5 Ha,
S.F.NOs : 1124/7(P),1130/7(P), 1131/7 & 1131/8,
VILLAGE : IRUDUKOTTAI,
TALUK : DENKANIKOTTAI,
DISTRICT : KRISHNAGIRI.

INDEX

- QUARRY LEASE BOUNDARY
- 7.5m & 10.0m SAFETY DISTANCE
- TEMPORARY BENCH MARK (TBM 945M)
- TOP SOIL
- MULTI COLOUR GRANITE
- QUARRY PIT
- CONTOUR LINE (936.0m)
- QUARRY ROAD
- SHRUB
- STRIKE AND DIP (80°)

GEOLOGICAL PLAN

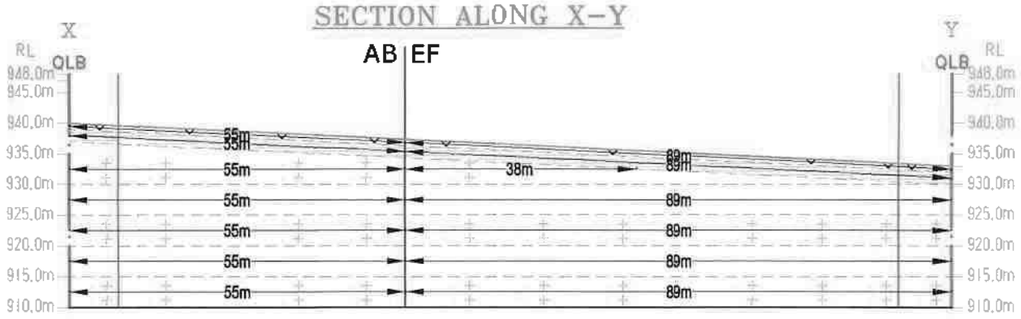
SCALE 1:1000

PREPARED BY:

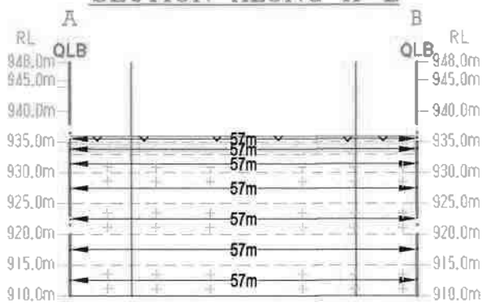
I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,
QUALIFIED PERSON

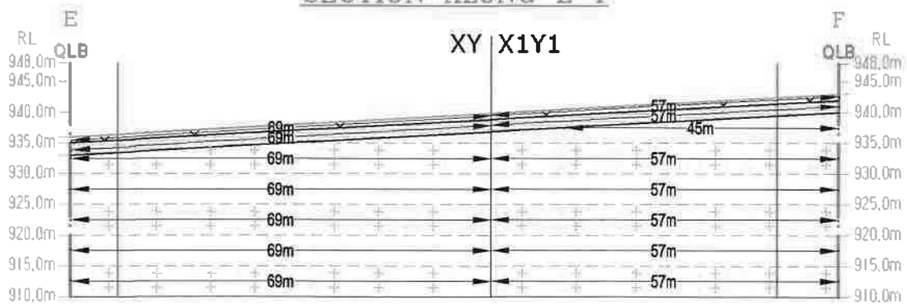
SECTION ALONG X-Y



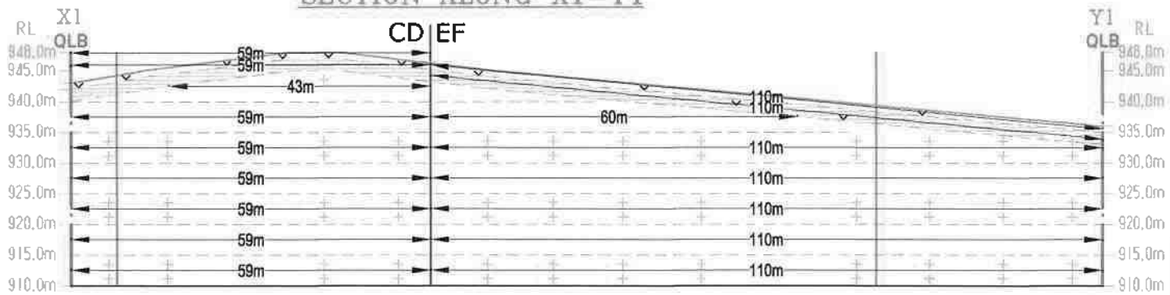
SECTION ALONG A-B



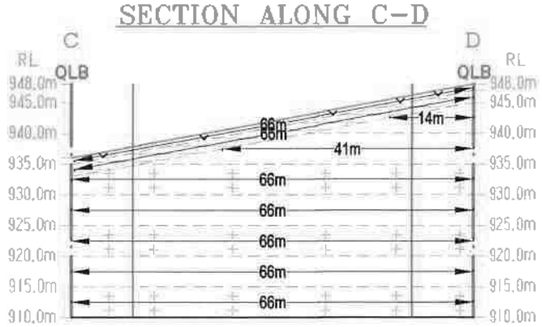
SECTION ALONG E-F



SECTION ALONG X1-Y1



SECTION ALONG C-D



B. தனசேகரன்

GRANITE GEOLOGICAL RESERVES										
Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in M3	Total Reserve in M3	Granite Waste @ 40%	Colour Granite Recoverable Reserve @ 60%	Weathered Granite	Topsoil
XY-AB	I	55	57	1						3135
	II	55	57	2					6270	
	III	55	57	5	15675	15675	6270	9405		
	IV	55	57	5	15675	15675	6270	9405		
	V	55	57	5	15675	15675	6270	9405		
	VI	55	57	5	15675	15675	6270	9405		
	VII	55	57	5	15675	15675	6270	9405		
	TOTAL				78375	78375	31350	47025	6270	3135
XY-EF	I	89	69	1						6141
	II	89	69	2					12282	
	III	38	69	5	13110	13110	5244	7866		
	IV	89	69	5	30705	30705	12282	18423		
	V	89	69	5	30705	30705	12282	18423		
	VI	89	69	5	30705	30705	12282	18423		
	VII	89	69	5	30705	30705	12282	18423		
	TOTAL				135930	135930	54372	81558	12282	6141
X1Y1-CD	I	59	65	1						3894
	II	59	65	2					7788	
	III	43	14	5	3010	3010	1204	1806		
	IV	59	41	5	12095	12095	4838	7257		
	V	59	66	5	19470	19470	7788	11682		
	VI	59	66	5	19470	19470	7788	11682		
	VII	59	66	5	19470	19470	7788	11682		
	VIII	59	66	5	19470	19470	7788	11682		
	IX	59	66	5	19470	19470	7788	11682		
	TOTAL				112455	112455	44982	67473	7788	3894
X1Y1-EF	I	110	57	1						6270
	II	110	57	2					12540	
	III	60	45	5	13500	13500	5400	8100		
	IV	110	57	5	31350	31350	12540	18810		
	V	110	57	5	31350	31350	12540	18810		
	VI	110	57	5	31350	31350	12540	18810		
	VII	110	57	5	31350	31350	12540	18810		
	VIII	110	57	5	31350	31350	12540	18810		
	TOTAL				170250	170250	68100	102150	12540	6270
GRAND TOTAL					497010	497010	198804	298206	38880	19440

TOTAL DEPTH-38M

PLATE NO.IV-A

DATE OF SURVEY:06-05-2022

LESSEE ADDRESS:

TVL.S.V. GRANITES,
No.17B/3, VELLAKOTTAI 1st CROSS,
CHENNAI SALAI,
KRISHNAGIRI DISTRICT-635 001.

LOCATION OF QUARRY:

EXTENT : 1.91.5 Ha,
S.F.NOs : 1124/7(P),1130/7(P), 1131/7 & 1131/8,
VILLAGE : IRUDUKOTTAI,
TALUK : DENKANIKOTTAI,
DISTRICT : KRISHNAGIRI.

INDEX

- QUARRY LEASE BOUNDARY
- 7.5m & 10.0m SAFETY DISTANCE
- TOP SOIL
- WEATHERED GRANITE
- MULTI COLOUR GRANITE
- QUARRY PIT

GEOLOGICAL SECTIONS

SCALE 1:1000

PREPARED BY:

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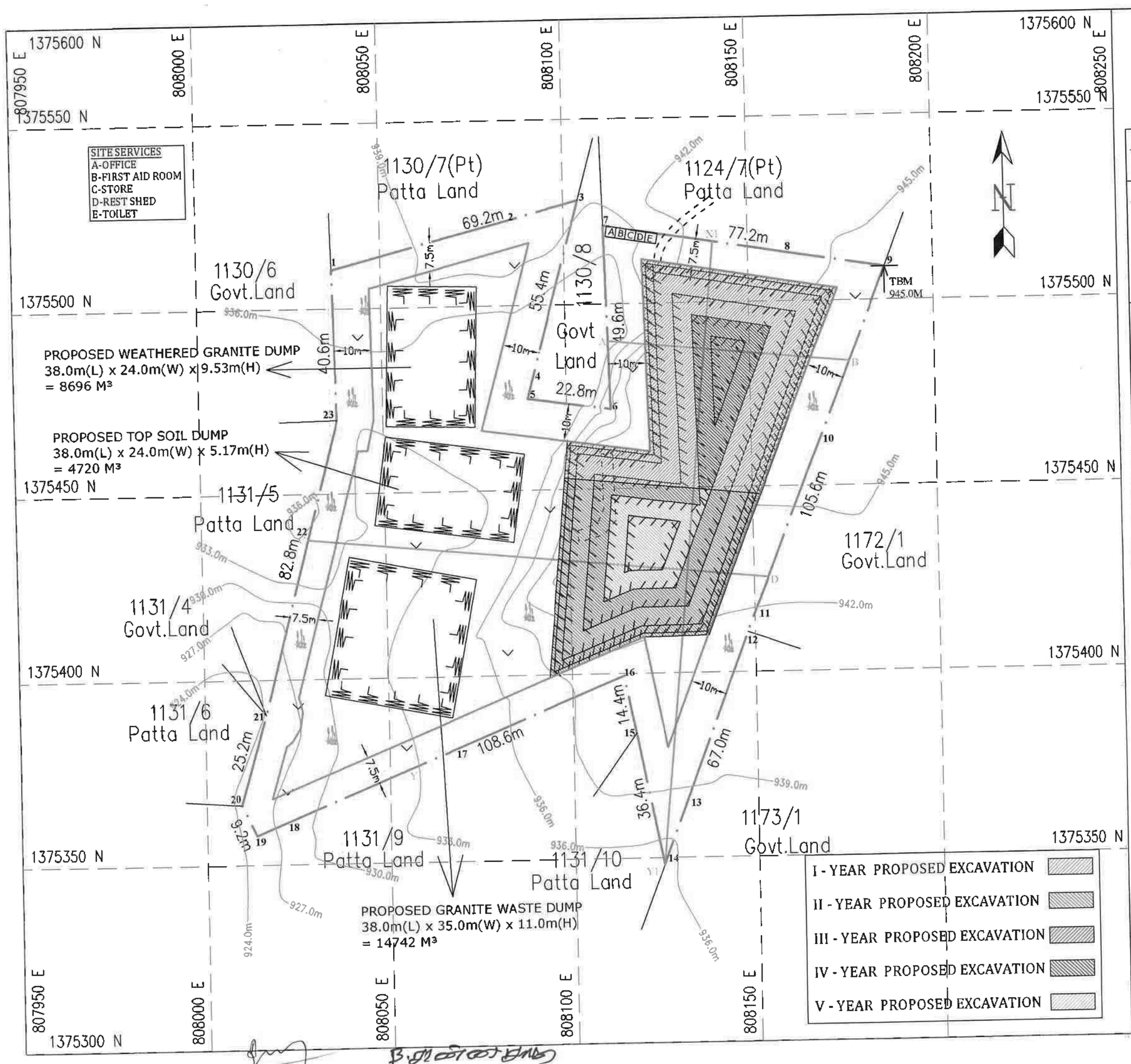
S.DHANASEKAR,M.Sc.,
QUALIFIED PERSON



COMMISSIONER OF GEOLOGY AND MINING GUINDY CHENNAI-600 032

PLATE NO.V

DATE OF SURVEY: 06-05-2022

LESSEE ADDRESS:

TVL.S.V. GRANITES,
No.17B/3, VELLAKOTTAI 1st CROSS,
CHENNAI SALAI,
KRISHNAGIRI DISTRICT-635 001.

LOCATION OF QUARRY:

EXTENT : 1.91.5 Ha,
S.F.NOs : 1124/7(P),1130/7(P), 1131/7 & 1131/8,
VILLAGE : IRUDUKOTTAI,
TALUK : DENKANIKOTTAI,
DISTRICT : KRISHNAGIRI.

INDEX

- QUARRY LEASE BOUNDARY
- 7.5m & 10.0m SAFETY DISTANCE
- TEMPORARY BENCH MARK (TBM 945M)
- TOP SOIL
- MULTI COLOUR GRANITE
- QUARRY PIT
- CONTOUR LINE (936.0m)
- QUARRY ROAD
- SHRUB
- PROPOSED DUMP

YEARWISE DEVELOPMENT AND PRODUCTION PLAN

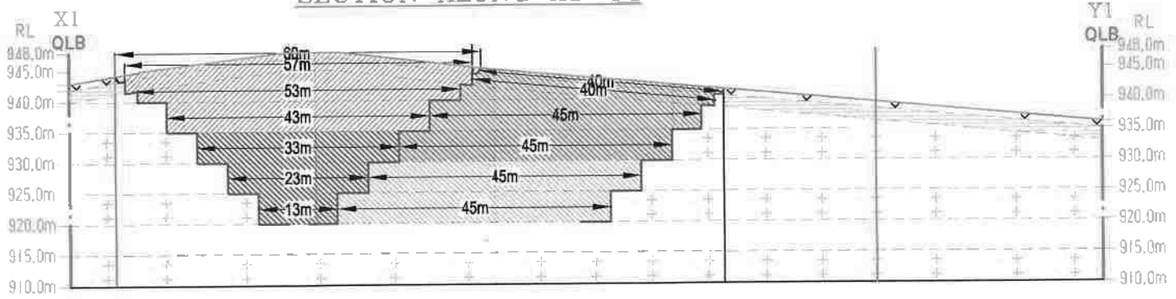
SCALE 1:1000

PREPARED BY:

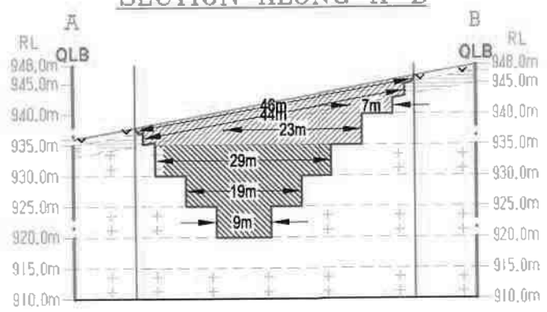
I DO HEREBY CERTIFY THAT THE PLATE HAS BEEN CHECKED BY ME AND IS CORRECT TO THE BEST OF MY KNOWLEDGE

S.DHANASEKAR,M.Sc.,
QUALIFIED PERSON

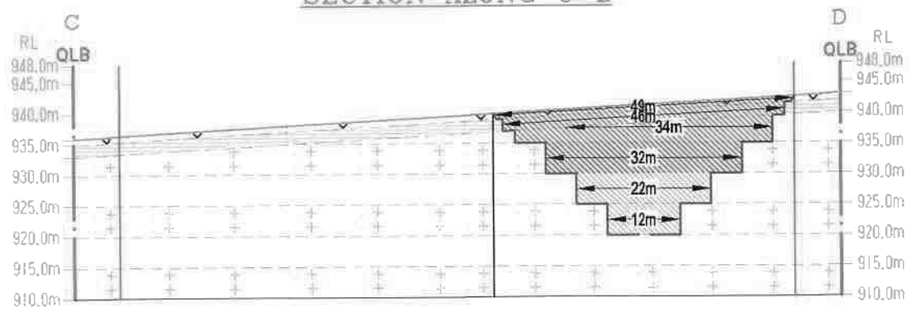
SECTION ALONG X1–Y1



SECTION ALONG A–B



SECTION ALONG C–D



I - Year PROPOSED EXCAVATION

II - Year PROPOSED EXCAVATION

III - Year PROPOSED EXCAVATION

IV - Year PROPOSED EXCAVATION

V - Year PROPOSED EXCAVATION

TOTAL DEPTH-28M

COMMISSIONER OF GEOLOGY AND MINING * GUINDY CHENNAI-600 032 *

PLATE NO.V-A

DATE OF SURVEY:06-05-2022

LESSEE ADDRESS:

TVL.S.V. GRANITES,
No.17B/3, VELLAKOTTAI 1st CROSS,
CHENNAI SALAI,
KRISHNAGIRI DISTRICT-635 001.

LOCATION OF QUARRY:

EXTENT : 1.91.5 Ha,
S.F.NOs : 1124/7(P),1130/7(P), 1131/7 & 1131/8,
VILLAGE : IRUDUKOTTAI,
TALUK : DENKANIKOTTAI,
DISTRICT : KRISHNAGIRI.

INDEX

QUARRY LEASE BOUNDARY

7.5m & 10.0m SAFETY DISTANCE

TOP SOIL

WEATHERED GRANITE

MULTI COLOUR GRANITE

QUARRY PIT

YEARWISE DEVELOPMENT AND PRODUCTION SECTIONS

SCALE 1:1000

PREPARED BY:

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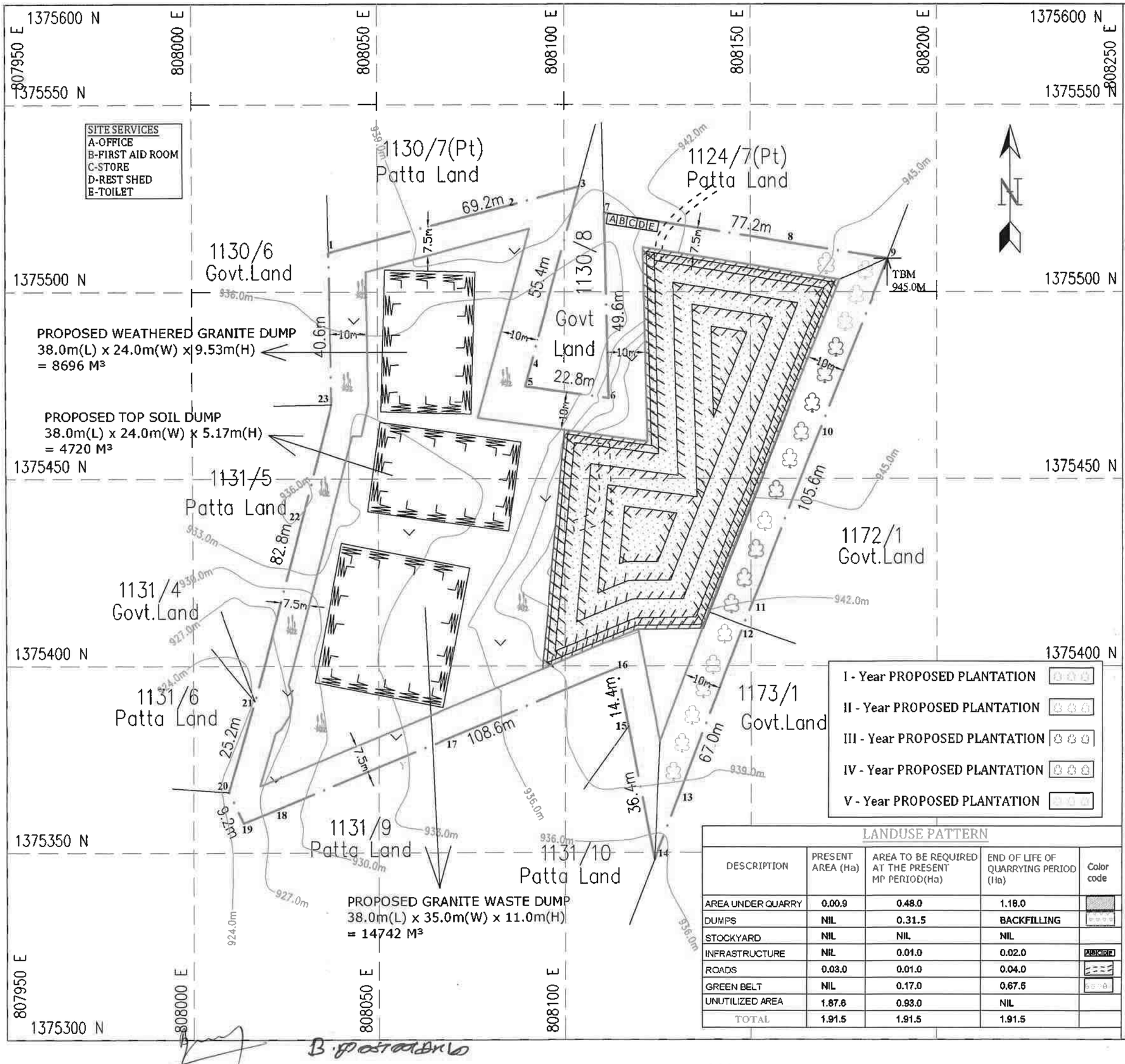
S.DHANASEKAR,M.Sc.,
QUALIFIED PERSON

GRANITE YEARWISE DEVELOPMENT AND PRODUCTION RESERVES

Year	Section	Bench	Length In (m)	Width in (m)	Depth In (m)	Volume in M3	Total Reserve in M3	Granite Waste @ 40%	Colour Granite Recoverable Reserve @ 60%	Weathered Granite	Topsoil
I YEAR	X1Y1-AB	I	60	46	1						2760
		II	57	44	2					5016	
		III	53	7	5	1855	1855	742	1113		
		IV	43	23	5	4945	4945	1978	2967		
		TOTAL				6800	6800	2720	4080	5016	2760
II YEAR	X1Y1-CD	I	40	49	1						1960
		II	40	46	2					3680	
		IV	45	34	5	7650	7650	3060	4590		
		TOTAL				7650	7650	3060	4590	3680	1960
III YEAR	X1Y1-CD	V	45	32	5	7200	7200	2880	4320		
		TOTAL				7200	7200	2880	4320		
IV YEAR	X1Y1-AB	V	33	29	5	4785	4785	1914	2871		
		VI	23	19	5	2185	2185	874	1311		
		VII	13	9	5	585	585	234	351		
		TOTAL				7555	7555	3022	4533		
V YEAR	X1Y1-CD	VI	45	22	5	4950	4950	1980	2970		
		VII	45	12	5	2700	2700	1080	1620		
		TOTAL				7650	7650	3060	4590		
		GRAND TOTAL				36855	36855	14742	22113	8696	4720



I - Year PROPOSED PLANTATION

II - Year PROPOSED PLANTATION

III - Year PROPOSED PLANTATION

IV - Year PROPOSED PLANTATION

V - Year PROPOSED PLANTATION

LANDUSE PATTERN

DESCRIPTION	PRESENT AREA (Ha)	AREA TO BE REQUIRED AT THE PRESENT MP PERIOD(Ha)	END OF LIFE OF QUARRYING PERIOD (Ha)	Color code
AREA UNDER QUARRY	0.00.9	0.48.0	1.18.0	
DUMPS	NIL	0.31.5	BACKFILLING	
STOCKYARD	NIL	NIL	NIL	
INFRASTRUCTURE	NIL	0.01.0	0.02.0	
ROADS	0.03.0	0.01.0	0.04.0	
GREEN BELT	NIL	0.17.0	0.67.5	
UNUTILIZED AREA	1.87.6	0.93.0	NIL	
TOTAL	1.91.5	1.91.5	1.91.5	

PLATE NO.VI

DATE OF SURVEY:06-05-2022

LESSEE ADDRESS:

TVL.S.V. GRANITES,
No.17B/3, VELLAKOTTAI 1st CROSS,
CHENNAI SALAI,
KRISHNAGIRI DISTRICT-635 001.

LOCATION OF QUARRY:

EXTENT : 1.91.5 Ha,
S.F.NOs : 1124/7(P),1130/7(P), 1131/7 & 1131/8,
VILLAGE : IRUDUKOTTAI,
TALUK : DENKANIKOTTAI,
DISTRICT : KRISHNAGIRI.

INDEX

- QUARRY LEASE BOUNDARY
- 7.5m & 10.0m SAFETY DISTANCE
- TEMPORARY BENCH MARK (TBM 945M)
- TOP SOIL
- MULTI COLOUR GRANITE
- QUARRY PIT
- CONTOUR LINE (936.0m)
- QUARRY ROAD
- SHRUB
- PROPOSED DUMP
- MINE LAYOUT

MINE LAYOUT, LAND USE & AFFORESTATION PLAN

SCALE 1:1000

PREPARED BY:

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S.DHANASEKAR,M.Sc.,
QUALIFIED PERSON

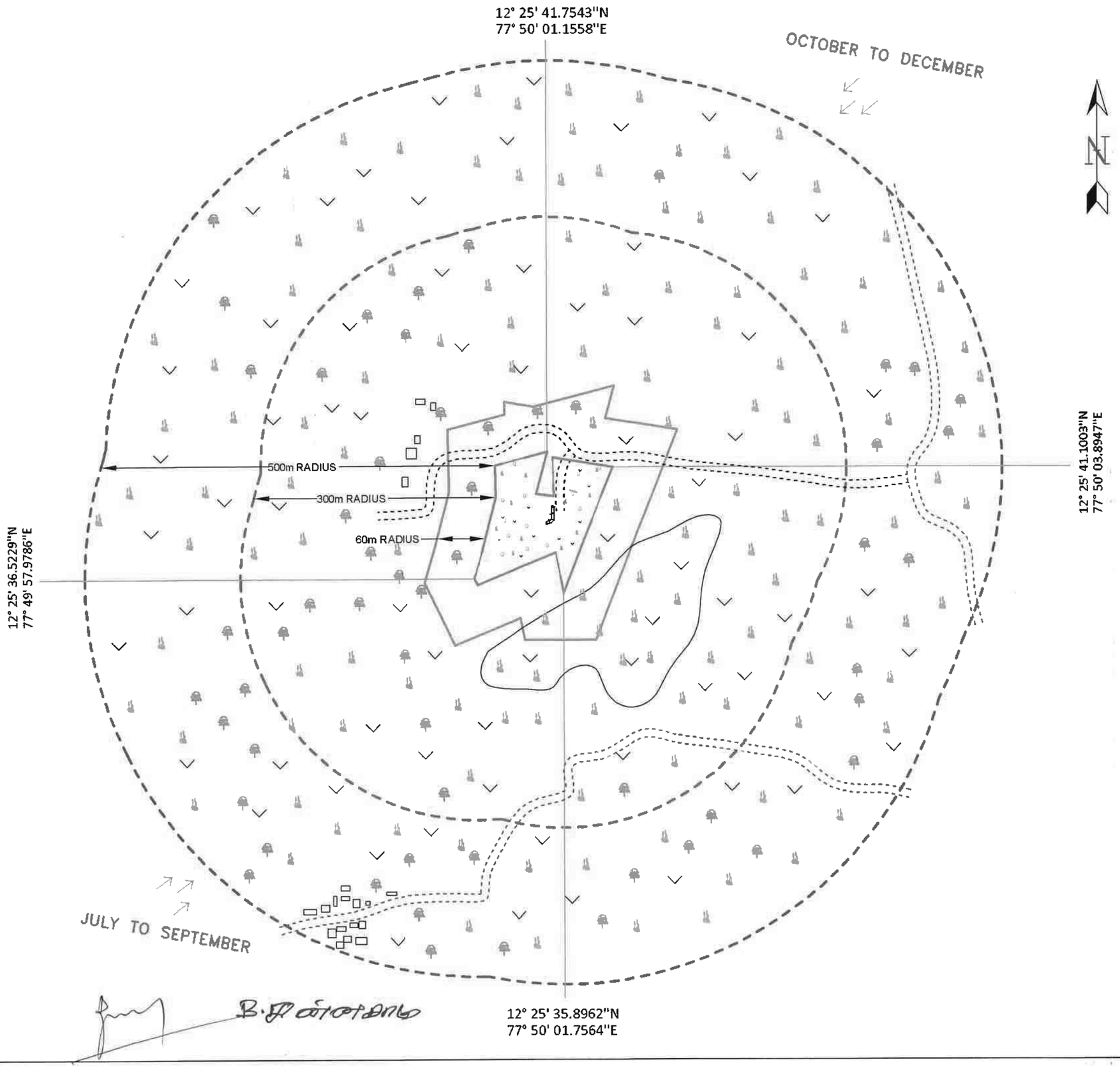

PLATE NO-VII

DATE OF SURVEY: 06-05-2022

LESSEE ADDRESS:

TVL.S.V. GRANITES,
No.17B/3, VELLAKOTTAI 1st CROSS,
CHENNAI SALAI,
KRISHNAGIRI DISTRICT-635 001.

LOCATION OF QUARRY:

EXTENT	: 1.91.5 Ha,
S.F.NOs	: 1124/7(P),1130/7(P), 1131/7 & 1131/8,
VILLAGE	: IRUDUKOTTAI,
TALUK	: DENKANIKOTTAI,
DISTRICT	: KRISHNAGIRI.

INDEX

- Q.L.BOUNDARY
- 500m RADIUS
- 300m RADIUS
- 60m RADIUS
- APPROACH ROAD
- QUARRY ROAD
- ADJACENT QUARRY
- WIND DIRECTION
- TREES
- DRY AGRI LAND
- INFRASTRUCTURE
- SHRUB

ENVIRONMENT PLAN

SCALE 1 : 5000

PREPARED BY:

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S.DHANASEKAR,M.Sc.,
QUALIFIED PERSON

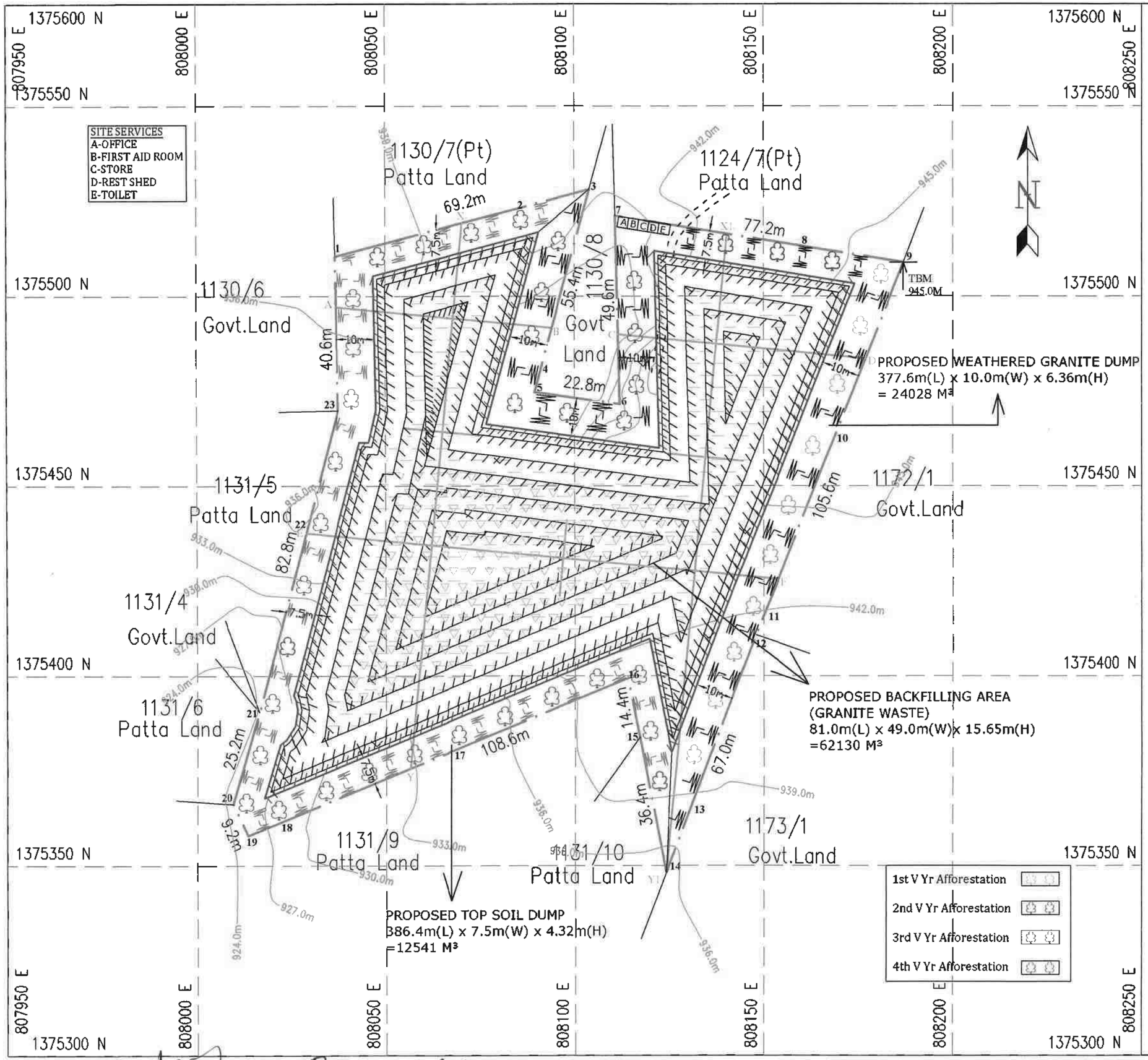


PLATE NO.VIII

DATE OF SURVEY:06-05-2022

COMMISSIONER OF GEOLOGY AND MINING ★ GUINDY, CHENNAI-600 032 ★

LESSEE ADDRESS:

TVL.S.V. GRANITES,
No.17B/3, VELLAKOTTAI 1st CROSS,
CHENNAI SALAI,
KRISHNAGIRI DISTRICT-635 001.

LOCATION OF QUARRY:

EXTENT : 1.91.5 Ha,
S.F.NOs : 1124/7(P),1130/7(P), 1131/7 & 1131/8,
VILLAGE : IRUDUKOTTAI,
TALUK : DENKANIKOTTAI,
DISTRICT : KRISHNAGIRI.

INDEX

- QUARRY LEASE BOUNDARY
- 7.5m & 10.0m SAFETY DISTANCE
- TEMPORARY BENCH MARK (TBM 945M)
- TOP SOIL
- MULTI COLOUR GRANITE
- QUARRY PIT
- CONTOUR LINE (936.0m)
- QUARRY ROAD
- FENCING
- PARAPET WALL
- ULTIMATE PIT LIMIT
- PROPOSED TOP SOIL DUMP
- PROPOSED WEATHERED GRANITE DUMP
- PROPOSED BACKFILLING AREA
- PROPOSED WATER STORAGE

CONCEPTUAL/ FINAL MINE CLOSURE PLAN

SCALE 1:1000

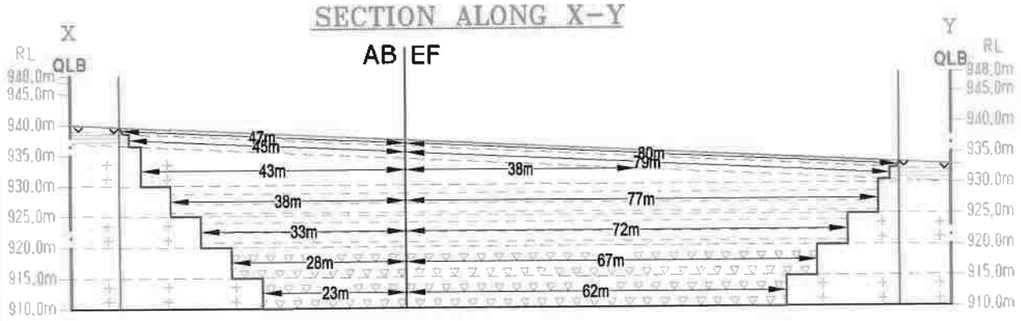
PREPARED BY:

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

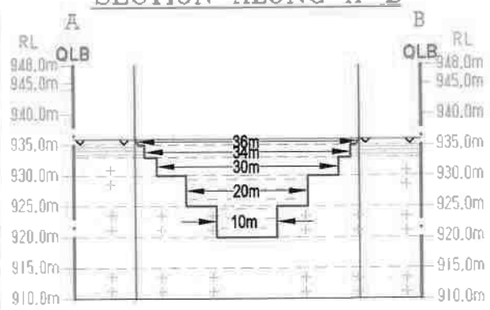
S.DHANASEKAR,M.Sc.,
QUALIFIED PERSON

B. Prasanth

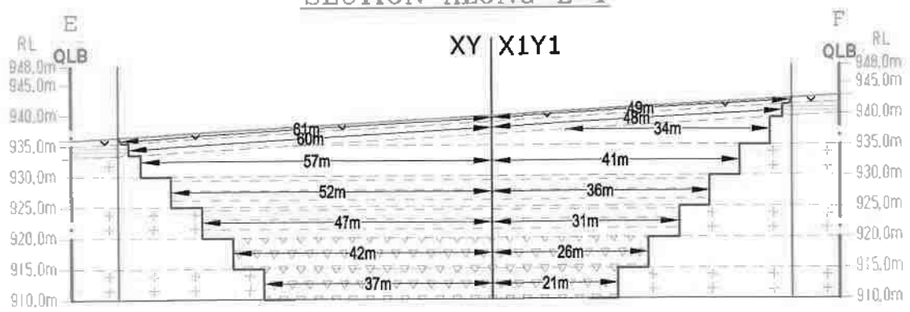
SECTION ALONG X-Y



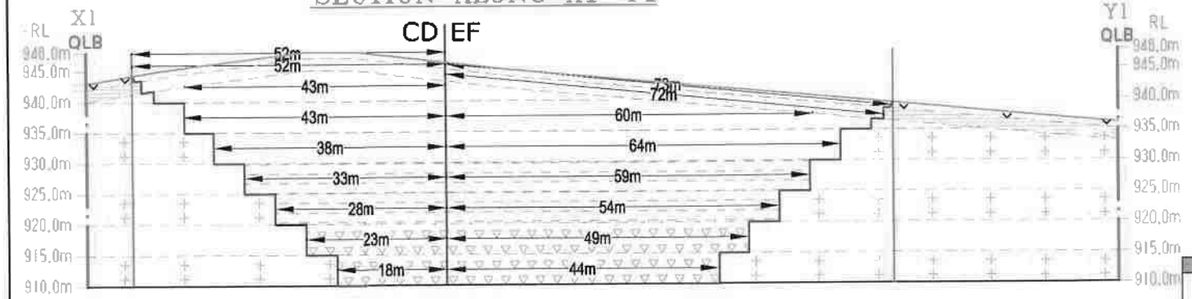
SECTION ALONG A-B



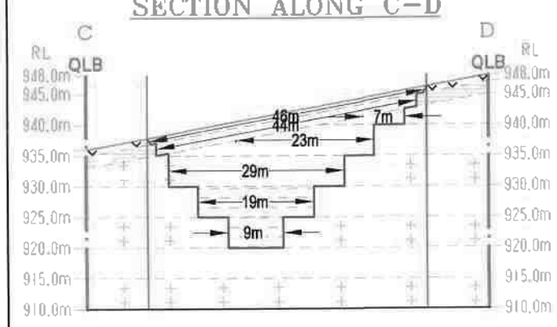
SECTION ALONG E-F



SECTION ALONG X1-Y1



SECTION ALONG C-D



ULTIMATE PIT DIMENSION
125.0m(L)Avg X 64.0m(W)Avg X 38m(D)

B.தினகரன்

GRANITE MINEABLE RESERVES

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in M3	Total Reserve in M3	Granite Waste @ 40%	Colour Granite Recoverable Reserve @ 60%	Weathered Granite	Topsoil
XY-AB	I	47	36	1						1692
	II	45	34	2					3060	
	III	43	30	5	6450	6450	2580	3870		
	IV	38	20	5	3800	3800	1520	2280		
	V	33	10	5	1650	1650	660	990		
	VI	28	1	5	140	140	56	84		
	VII	23	1	5	115	115	46	69		
	TOTAL				12155	12355	4862	7293	3060	1692
XY-EF	I	80	61	1						4880
	II	79	60	2					9480	
	III	38	57	5	10830	10830	4332	6498		
	IV	77	52	5	20020	20020	8008	12012		
	V	72	47	5	16920	16920	6768	10152		
	VI	67	42	5	14070	14070	5628	8442		
	VII	62	37	5	11470	11470	4588	6882		
	TOTAL				73310	73310	29324	43986	9480	4880
X1Y1-CD	I	52	46	1						2392
	II	52	44	2					4576	
	III	43	7	5	1505	1505	602	903		
	IV	43	23	5	4945	4945	1978	2967		
	V	38	29	5	5510	5510	2204	3306		
	VI	33	19	5	3135	3135	1254	1881		
	VII	28	9	5	1260	1260	504	756		
	VIII	23	1	5	115	115	46	69		
	IX	18	1	5	90	90	36	54		
	TOTAL				16560	16560	6624	9936	4576	2392
X1Y1-EF	I	73	49	1						3577
	II	72	48	2					6912	
	III	50	34	5	10200	10200	4080	6120		
	IV	64	41	5	13120	13120	5248	7872		
	V	59	36	5	10620	10620	4248	6372		
	VI	54	31	5	8370	8370	3348	5022		
	VII	49	26	5	6370	6370	2548	3822		
	VIII	44	21	5	4620	4620	1848	2772		
	TOTAL				53300	53300	21320	31980	6912	3577
GRAND TOTAL					155325	155325	62130	93195	24028	12541

COMMISSIONER OF GEOLOGY AND MINING ★ GUINDY, CHENNAI-600 032. ★

TOTAL DEPTH-38M

PLATE NO.VIII-A

DATE OF SURVEY:06-05-2022

LESSEE ADDRESS:

TVL.S.V. GRANITES,
No.17B/3, VELLAKOTTAI 1st CROSS,
CHENNAI SALAI,
KRISHNAGIRI DISTRICT-635 001.

LOCATION OF QUARRY:

EXTENT : 1.91.5 Ha,
S.F.NOs : 1124/7(P),1130/7(P), 1131/7 & 1131/8,
VILLAGE : IRUDUKOTTAI,
TALUK : DENKANIKOTTAI,
DISTRICT : KRISHNAGIRI.

INDEX

- QUARRY LEASE BOUNDARY
- 7.5m & 10.0m SAFETY DISTANCE
- TOP SOIL
- MULTI COLOUR GRANITE
- QUARRY PIT
- ULTIMATE PIT SLOPE
- PROPOSED BACKFILLING AREA
- PROPOSED WATER STORAGE

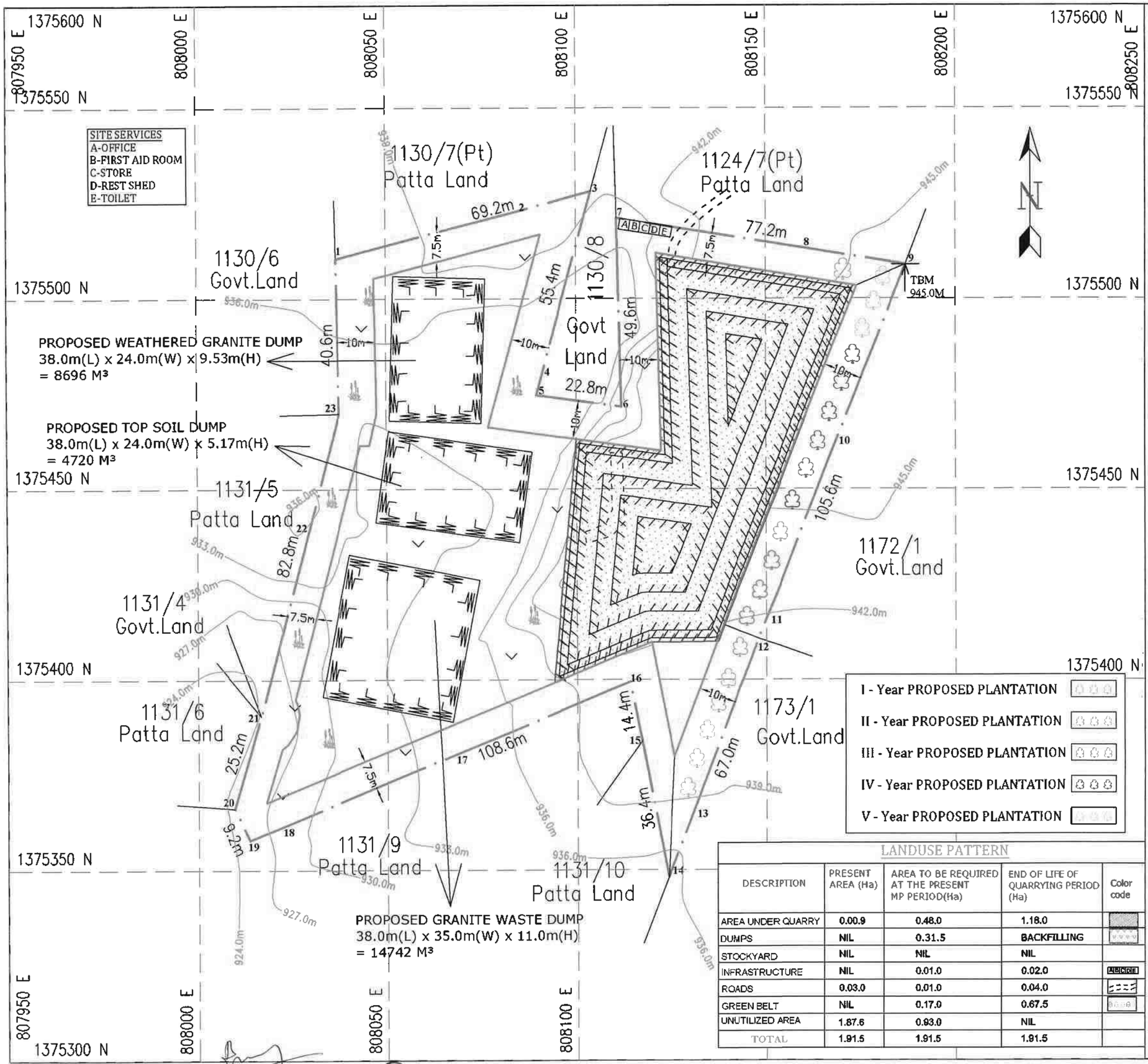
CONCEPTUAL/ FINAL MINE CLOSURE SECTIONS

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.,
QUALIFIED PERSON



LANDUSE PATTERN

DESCRIPTION	PRESENT AREA (Ha)	AREA TO BE REQUIRED AT THE PRESENT MP PERIOD(Ha)	END OF LIFE OF QUARRYING PERIOD (Ha)	Color code
AREA UNDER QUARRY	0.00.9	0.48.0	1.18.0	
DUMPS	NIL	0.31.5	BACKFILLING	
STOCKYARD	NIL	NIL	NIL	
INFRASTRUCTURE	NIL	0.01.0	0.02.0	A,B,C,D,E
ROADS	0.03.0	0.01.0	0.04.0	
GREEN BELT	NIL	0.17.0	0.67.5	
UNUTILIZED AREA	1.87.6	0.93.0	NIL	
TOTAL	1.91.5	1.91.5	1.91.5	

COMMISSIONER OF GEOLOGY AND MINING * GUINDY, CHENNAI-600 032. *

PLATE NO.IX

DATE OF SURVEY:06-05-2022

LESSEE ADDRESS:

TVL.S.V. GRANITES,
No.17B/3, VELLAKOTTAI 1st CROSS,
CHENNAI SALAI,
KRISHNAGIRI DISTRICT-635 001.

LOCATION OF QUARRY:

EXTENT : 1.91.5 Ha,
S.F.NOs : 1124/7(P),1130/7(P), 1131/7 & 1131/8,
VILLAGE : IRUDUKOTTAI,
TALUK : DENKANIKOTTAI,
DISTRICT : KRISHNAGIRI.

INDEX

- QUARRY LEASE BOUNDARY
- 7.5m & 10.0m SAFETY DISTANCE
- TEMPORARY BENCH MARK (TBM 945M)
- TOP SOIL
- MULTI COLOUR GRANITE
- QUARRY PIT
- CONTOUR LINE (936.0m)
- QUARRY ROAD
- SHRUB
- PROPOSED DUMP
- MINE LAYOUT

PROGRESSIVE 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

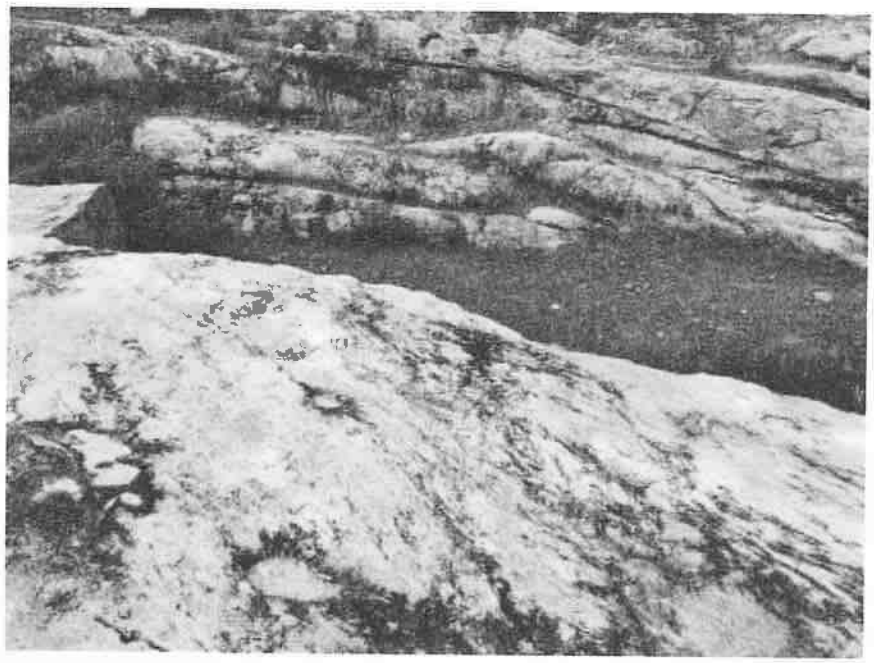
S.DHANASEKAR,M.Sc.,
QUALIFIED PERSON

ANNEXURE-VI

VAO CERTIFICATE

Tvl. S.V. Granites, Multicolour Granite quarry in the S.F.Nos. 1124/7(P), 1130/7(P), 1131/7 & 1131/8 over an extent of 1.91.50ha. in Irudukottai Village, Denkanikottai Taluk, Krishnagiri District.

GENERAL VIEW OF THE APPLIED LEASE AREA



For **Tvl. S.V. Granites,**

(Deponent)

சான்று

இருத்தணி மாவட்டம் தென்கிழக்கோட்டை வட்டம் 41. இருதுகோட்டை கிராமம் புல எண்கள் 1124/7(P), 1130/7(P), 1131/7, 1131/8 மொத்த விஸ்தீர்ணம் 1.91.5 ஹெக்டர் பரப்பு கொண்ட இனத்தில் பல வண்ண கற்கள்வெட்டி எடுக்க அனுமதி கொடுக்க இனத்தை சார்ந்த 500 மீட்டர் சுற்றளவில் கிராமத்திலோ, வீடோ, தேவாலயமோ, வழிபாட்டு தலமோ, பள்ளிக்கூடமோ அரசு கட்டிடங்களோ இல்லை என்பது புல-தணிக்கை செய்து இதற்கு சான்று வழங்கப்படுகிறது.

கிராம நிர்வாக அலுவலர்
41, இருதுக்கோட்டை (கிராமம்)
தேன்கனிக்கோட்டை (வட்டம்)

ANNEXURE-VII

AFFIDAVIT AND CER DETAILS

தமிழ்நாடு तमिलनाडु TAMILNADU S.8.2022/C.50 BE 946609

M/s. S.V. Granites
Krishnagiri

M.சரவணன்
முத்திரைத்தாள் விற்பனையாளர்
உரிமம் எண். 1/2003
சுப்ரமணிய நகர் விரிவாக்கம்,
சோமங்கலம், சேலம்-5, தமிழ்நாடு

AFFIDAVIT TO SEIAA, TAMIL NADU

I/We, **M/s. S.V. Granites,** office at D.No.17B/3, Vellakottai 1st Cross Street, Chennai Salai, Krishnagiri District-635 001, do hereby solemnly declare and sincerely affirm that, We have applied for getting environment clearance to SEIAA, Tamil Nadu for quarry lease for Multi Colour Granite quarry at Survey No.1124/7(P), 1130/7(P), 1131/7 & 1131/8 over an area of 1.91.50 Ha in Irudukottai village, Denkanikottai Taluk, Krishnagiri District, Tamil Nadu.

1. We swear to state and confirm that within 10km area of the quarry site, we have applied for environmental clearance, none of 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.
   c. Eco sensitive area as notified.
   d. Interstate boundaries and international boundaries within 10km radius from the boundary of the proposed site.

NOTARY
M.SARAVANAN, B.Sc., BL.,
CHENNAI
Reg. No.6307/2008
GOVERNMENT OF INDIA

பி.சின்னசாமி

2. We will complete the following Corporate Environment Responsibility (CER) activities before commencement of the quarrying activities.

CER Activity	Project cost (Rs)	CER cost (Rs)
Carrying out various developmental works in the nearby region based on the need of the locals.	Rs.1,28,95,000/-	Rs.6,00,000/-
Total cost Allocation	**Rs.1,28,95,000/-**	**Rs.6,00,000/-**

3. Details of quarry within 500m radius from the applied area:

Existing Quarries						
S.No	**Name and address of the lessee**	**Village & Taluk**	**SF.No.**	**Extent in Hectare**	**G.O. No. & date**	**Lease Period**
-Nil-						

Details of Abandoned / Old Quarries						
S.No	**Name and address of the lessee**	**Village & Taluk**	**SF.No.**	**Extent in Hectare**	**G.O. No. & date**	**Lease Period**
-Nil-						

Details of Proposed Quarries						
S.No	**Name and address of the lessee**	**Village & Taluk**	**SF.No.**	**Extent in Hectare**	**G.O. No. & date**	**Lease Period**
1	M/S. S.V. Granite, No.17B/3, Vellakottai 1st Cross Street, Chennai Salai, Krishnagiri -635 001	Irudukottai village, Denkanikottai Taluk,	1124/7(P), 1130/7(P), 1131/7 & 1131/8	1.91.5 Ha.	-	Instant Proposal (Precise area given)
2	M/S. K.P. R Granites, No.2/223, Avvai Nagar, Noolahalli, Pennagaram, Krishnagiri.	Irudukottai village, Denkanikottai Taluk,	1123/4A, 4B, 5A, 5B, 6A, 6B, 1125/6 & 1123/8(P)	2.34.3 Ha.	-	Applied area and under process

NOTARY M.SARAVANAN B.Sc., B.L. CHENNAI Reg. No.5307/2008 GOVERNMENT OF INDIA

B சிவராமன்

3	M/S. K.P.R Granites, No.2/223, Avvai Nagar, Noolahalli, Pennagaram, Krishnagiri.	Irudukottai village, Denkanikottai Taluk,	1221/6, 1125/3	1.97.0 Ha.	-	Applied area and under process

4. There will not be hindrance or disturb to the people living no enrooted/ 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 applied quarry.
6. We 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 Multi colour Granite.
9. We will not engage any child labor in our quarry site and we 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.

We ensure to do the social and Environment commitment as mentioned in the Mining plan to the best of our knowledge.

For **M/s. S.V. Granites,**

B. சிவசாமி

(Deponent)

NOTARY ... GOVERNMENT OF INDIA

M. SARAVANAN, B.Sc., BL.,
ADVOCATE & NOTARY PUBLIC
No.29, 2nd Cross Street, Sankar Nagar,
Pammal, Chennai - 600 075.
Cell : 9841081607

ANNEXURE-VIII

NABET CERTIFICATE

QUALITY COUNCIL® OF INDIA
Creating an Ecosystem for Quality

National Accreditation Board for Education and Training

Certificate of Accreditation

Eco Tech Labs Pvt Ltd.,

48, 2nd Main Road, Ram Nagar South Extension, Pallikaranai, Chennai- 600100, T.N.

*The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –*

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals - including Open cast only	1	1 (a) (i)	B
2	Thermal power plants	4	1(d)	A
3	Coal washeries	6	2 (a)	B
4	Metallurgical industries - Ferrous only	8	3 (a)	B
5	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
6	Airports	29	7 (a)	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 SAAC minutes dated Apr. 20, 2021 and supplementary minutes dated Oct.19, 2021 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/22/2217 dated Jan. 19, 2022. 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: Jan. 19, 2022

Certificate No.
NABET/EIA/2124/SA 0147

Valid up to
Sep. 15, 2023

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