

Application Form (Draft EIA Report)

For

Proposed Multi Colour Granite Quarry –
10.00.0 Ha

at

S.F.No. 884/1B, 1326, 1333/1A, 1B, 2, 1334/1(P), 2(P), 3 &
1334/4 of Thiruthangal Village, Sivakasi Taluk,
Virudhunagar District, Tamilnadu State

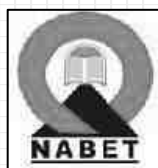
Sector No. 1(a) (Sector No. 1 as per NABET)

Category of the Project: B1 Cluster Mining

Baseline Period: December 2024 - February 2025

***Environmental Consultant
& Laboratory details:***

Ecotech Labs Pvt Ltd,



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

Proponent details:

Tvl.G.P.K Granite

Industry,

No.11, State Bank of
India Officer's Colony,
Ujjaini Street,
Ayanavaram, Chennai,
TamilNadu – 600 023

Date:

From

Tvl.G.P.K Granite Industry,
No.11, State Bank of India Officer's Colony,
Ujjaini Street, Ayanavaram,
Chennai, TamilNadu – 600 023

To

The District Environmental Engineer

Tamil Nadu Pollution Control Board,
No.23, Master Plan Area, Sathur Road,
Collectorate, Virudhunagar - 626 002.

Sir,

Sub: Request to conduct Public Hearing – Environmental Clearance for the “Tvl.G.P.K Granite Industry Multi Colour Granite Quarry over a total extent of 10.00.0 Ha in S.F. Nos: 884/1B, 1326, 1333/1A, 1B, 2, 1334/1(P), 2(P), 3 and 1334/4 of Thiruthangal Village in Sivakasi Taluk, Virudhunagar District.– Reg

Ref: Lr No. SEIAA-TN/F. No. 9888/SEAC/1(a)-ToR-1707/2024 Dated: 27.11.2024

Please find enclosed herewith the application of Draft EIA Report along with necessary enclosures towards seeking environmental clearance for the “Tvl.G.P.K Granite Industry Multi Colour Granite Quarry over a total extent of 10.00.0 Ha in Thiruthangal Village, Sivakasi Taluk, Virudhunagar District, TamilNadu State. In this regard, we had obtained the Terms of Reference from State Environmental Impact Assessment Authority (SEIAA) TamilNadu; vide reference mentioned above for conducting EIA studies. We wish to inform that the draft EIA report complying with all the conditions mentioned in the TOR has been prepared and the copies of the same are enclosed with this letter. With reference to the above, we kindly request the TNPCB to make the necessary arrangements for **Conducting the Public hearing for the Multi Colour Granite Quarry**. With the above, we request the TNPCB to accept and process our application for conducting the Public Hearing at the earliest.

Thanking you

Yours Sincerely

Authorized Signatory

Enclosures: Draft EIA report

Tvl.G.P.K Granite Industry,
No.11, State Bank of India Officer's Colony,
Ujjaini Street, Ayanavaram,
Chennai, TamilNadu – 600 023

UNDERTAKING

We, Tvl.G.P.K Granite Industry, undertaking that the Draft Environmental Impact Assessment (EIA) Report for Multi Colour Granite Quarry over an extent of 10.00.0 Ha at S.F.No. 884/1B, 1326, 1333/1A, 1B, 2, 1334/1(P), 2(P), 3 and 1334/4 in Thiruthangal Village, Sivakasi Taluk, Virudhunagar District, TamilNadu State under project category B1 and Schedule S.No.1(a)

TOR issued by the State Expert Appraisal Committee; TN vide Letter No. SEIAA-TN/F. No. 9888/SEAC/1(a) ToR-1707/2024 Dated: 27.11.2024.

We, 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: Virudhunagar

Date:

Yours faithfully

Tvl.G.P.K Granite Industry

Plot No.48A, 2nd Main Road,
Ram Nagar, South Extension,
Pallikarantal, Chennai - 600 100.
GST NO. 33AADCE6103A22H
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 Multi Colour Granite Quarry over an extent of 10.00.0 Ha at S.F.No. 884/1B, 1326, 1333/1A, 1B, 2, 1334/1(P), 2(P), 3 and 1334/4 in in Thiruthangal Village, Sivakasi Taluk, Virudhunagar District, TamilNadu State has been prepared at M/s. Ecotech Labs Pvt. Ltd., Chennai.

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

Signature:

Name: Dr. A. Dhamodharan

Designation: Managing Director

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

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

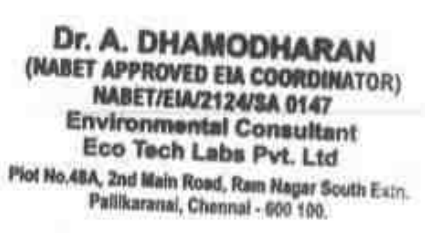
Date:

Place: Chennai

Declaration of Experts contributing to the EIA

Declaration by experts contributing to the EIA report for Multi Colour Granite Quarry (minor mineral) mining project of Tvl.G.P.K Granite Industry Multi Colour Granite Quarry over a total extent of 10.00.0 Ha in Thiruthangal Village, Sivakasi Taluk, Virudhunagar District, TamilNadu State.

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

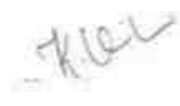
Project	New Rough Stone Quarry - 10.00.0 Ha
Type & Category	1 (a) Mining of Minerals
Project Proponent	Tvl.G.P.K. Granite Industry
Environment Consultant with their Accreditation Status	M/s. Eco Tech Labs Pvt. Ltd., QCI Accredited
NABET Certificate No.	NABET/ EIA/22-25/ SA 0222
EIA Coordinator Name Signature	Dr. A. Dhamodharan (Mining of Minerals)  
Period of Involvement	October 2023 to Till
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. <i>Period: March 2022 – Till now</i>	
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. <i>Period: March 2022 – Till now</i>	
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	

			<i>Period: March 2022 – Till now</i>	
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. <i>Period: March 2022 – Till now</i> <i>*INVOLVES PUBLIC HEARING</i>	
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. <i>Period: March 2022 – Till now</i>	
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. <i>Period: March 2022 – Till now</i>	
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. <i>Period: March 2022 – Till now</i>	

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: March 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: March 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: May 2022 – Till now	
11	LU	Dr. T. P. Natesan	1. Collection of Remote sensing satellite data to study the land use pattern. 2. Primary field survey and limited field verification for land categorization in the study area 3. Preparation of Land use map using Satellite data for 10km radius around the project site. Period: March 2022 – Till now	
12	RH	Mrs. K. Vijayalakshmi	1. Identification of the risk 2. Interpreting consequence contours 3. Suggesting risk mitigation measures Period: March 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 S.F.No. 884/1B, 1326, 1333/1A, 1B, 2, 1334/1(P), 2(P), 3 and 1334/4 in in Thiruthangal Village, Sivakasi Taluk, Virudhunagar District, TamilNadu 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/22-25/ SA 0222

<i>Project</i>	<i>Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Tvl. G.P.K Granite Industry</i>	
<i>Project Location</i>	<i>Thiruthangal Village, Sivakasi Taluk, Virudhungara District</i>	

DRAFT EIA REPORT

Project	Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry	Draft EIA Report
Project Proponent	Tvl. G.P.K Granite Industry	
Project Location	Thiruthangal Village, Sivakasi Taluk, Virudhunagar District	

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<i>Project Location</i>	<i>Thiruthangal Village, Sivakasi Taluk, Virudhunagara District</i>	

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

<i>Project</i>	<i>Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Tvl. G.P.K Granite Industry</i>	
<i>Project Location</i>	<i>Thiruthangal Village, Sivakasi Taluk, Virudhunagar District</i>	

EXECUTIVE SUMMARY

1. Project Background:

The proposed project total extent area of 10.00.0 Ha, patta land (consent registered) S.F. Nos: 884/1B, 1326, 1333/1A, 1B, 2, 1334/1(P), 2(P), 3 and 1334/4 of Thiruthangal Village in Sivakasi Taluk, Virudhunagar District. The category of the project is B1, It is a Fresh Multi Colour Granite quarry. The lease area exhibits flat terrain. The gradient is gentle towards the Eastern side.

The production of Multi Colour Granite dimension stone in this quarry involves the following method which is typical for granite stone quarrying in contrast to other major mineral mining. Splitting of rock body of considerable volume from the parent rock formation by carefully avoiding visibly seen defects such as patches veins, etc., is done by adopting the method of “diamond wire cutting” along the horizontal as well as two vertical sides on the front face of the formation.

The lessee has obtained the Precise Area Communication letter from Industries (MMB.2) Department, Secretariat, Chennai - 600 009 vide Government Letter No.5667/MMB.2/2012 19 dated 31.01.2022 for a period of Twenty Years. Mining plan was approved by The Commissioner, Dept. of Geology & Mining, Guindy, Chennai-600 032 vide letter Rc.No.12167/MM2/2010, dated 22.11.2022

The quarry operation is proposed up to depth for 32m below ground level. The Total Geological reserve is about 14,46,558m³ of Multi colour granite and 2,20,318m³ of Topsoil. The Mineable Reserves of Multi colour granite are 9,79,800m³ and Topsoil 1,24,604m³. The year wise production of multi colour granite for five years is about 2,36,196m³ and Recoverable reserves (25%) 59,049m³ and Topsoil 41,076m³. The project does not require a huge amount of water for quarry operation and total domestic water requirement is 4.0 KLD. 2.0 KLD will be used for domestic and flushing, 1.0 KLD will be used for dust suppression and 1.0 KLD will be used for green belt development. The source of water is road tank water suppliers. Drinking water source is from Thiruthangal village, which is about 1.00 km, Northeast from the proposed project site.

The total project cost is about **Rs.6,90,69,000/-** (Six Crores Ninety Lakhs and Sixty Nien Thousand Rupees only).

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2. Nature & Size of the Project

The fresh Multi colour Granite quarry located over an extent of 10.00.0 Hectares land in Thiruthangal Village of Sivakasi Taluk, Virudhunagar District. The lease granted area for mining lease is a flat terrain and dry lands in nature.

Mineral intends to quarry	: Multi Colour Granite
District	: Virudhunagar
Taluk	: Sivakasi
Village	: Thiruthangal
S. F. Nos.	: 884/1B, 1326, 1333/1A, 1B, 2, 1334/1(P), 2(P), 3 & 1334/4
Extent	: 10.00.0 Hectares

Table 1: Brief Description of the Project

S. No.	Particulars	Details
1	Latitude	09°28'22.6960" N to 09°28'32.6455" N
2	Longitude	77°47'32.7729" E to 77°47'49.5472" E
3	Site Elevation above MSL	The altitude of the area is 109m from MSL.
4	Topography	Flat terrain
5	Land use of the site	Patta land (Consent registered)
6	Extent of lease area	10.00.0 Ha
7	Nearest highway	SH 42 – Srivilliputhur - Sivakasi - Virudhunagar - Aruppukottai - Narikudi - Parthibanur Road – 0.92Km - E MDR 938 – Thiruthangal - Sengamalanachiyarpuram Road – 0.80 Km - N
8	Nearest railway station	Sivakasi Railway Station – 1.35 Km – SW
9	Nearest airport	Madurai International Airport – 51.45 Km – NE
10	Nearest town / city	Town – Sivakasi – 1.80 Km – SE City - Sivakasi– 1.80 Km - SE District - Virudhunagar – 21.00 Km - NE
11	Rivers / Canal / Dam	Arjuna River – 3.8 Km – N

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		Aanaikuttam Dam (PWD)– 4.5 Km - NE
12	Lake	• Sengulam – 1.24 Km – NE • Urinjakulam – 2.75 Km – NE • Puthukanmai – 3.71 Km – E • Periyakulam – 1.68 Km – N • Vadiyur Lake – 9.01 Km – E • Idayankulam Lake – 9.81 Km – SW • Chinnakulam Kanmai – 1.65 Km – S • Pavalakurichi Kanmai – 6.52 Km – NE
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 Srivilliputhur Grizzled Squirrel Wildlife Sanctuary – 16.12 Km - NW
16	Reserved / Protected Forests	Nil in 15 km radius
17	Seismicity	Proposed Lease area come under Seismic zone-II
18	Defense Installations	Nil in 15 Km radius

3. Need for the Project

Multi Colour Granite is specifically used for the construction, Infrastructure 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 earns foreign exchange for our country.

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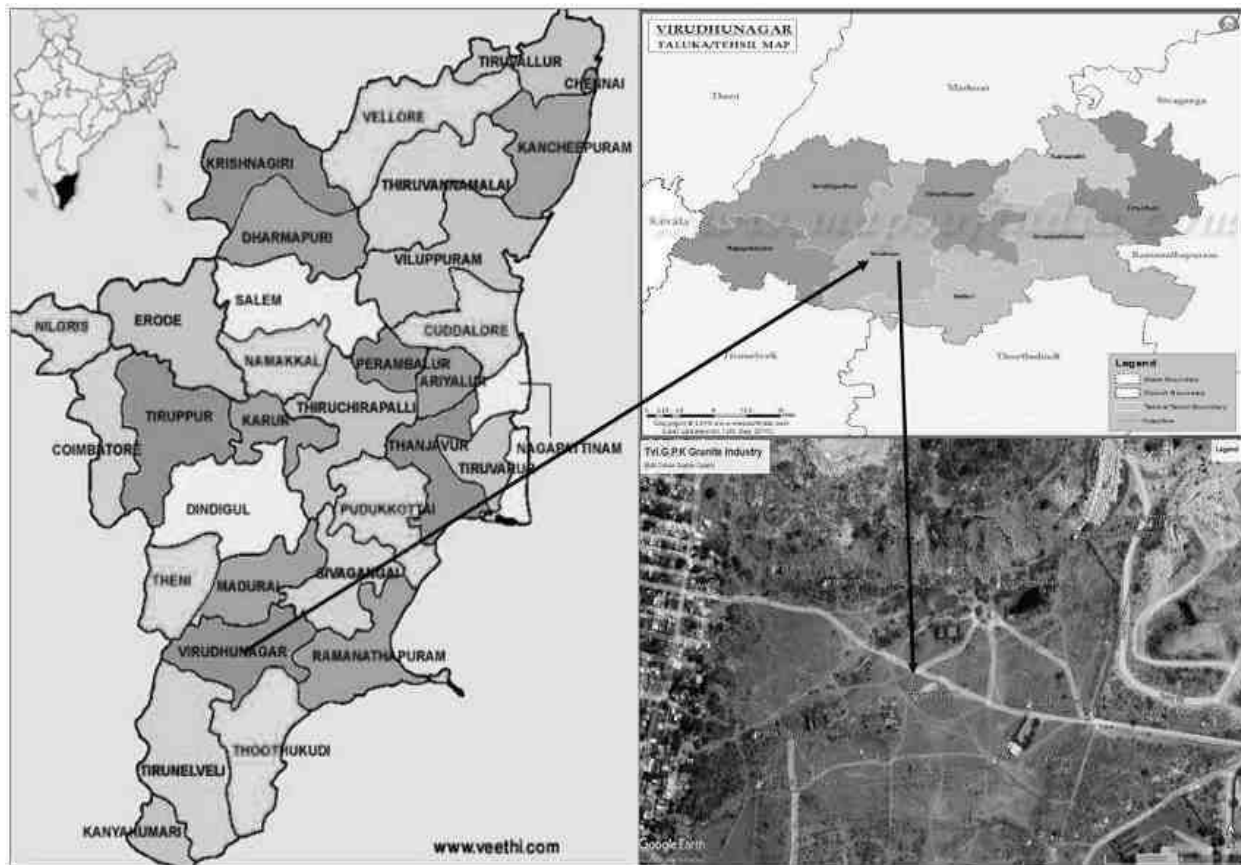


Figure 1: Location Map of the Project Site

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Figure 2: Google Image of the Project Site

4. Granite

Generally, Spected to be younger in age, pockets of homogeneous bodies occur within granitoid gneiss as well as within charnockite with undefined dimensions. Though the development of gneissosity is moderate yet the homogeneity in colour texture and composition makes the material ideally suited for dimension stone quarrying. Gneissic granite bodies trending NE-SW in areas Kuganparai and Sevalpatti are pale pink/yellow in colour, evenly medium grained, consisting mainly of feldspars (pale pink/ yellow in colour) quartz (pale grey or glassy), biotite and garnet. In quite contrast to the bodies the minor NE-SW bands occurring in Oddampatti are predominantly of grey gneissic granites. The grey gneissic granite of Minakshipuram has an entirely different orientation of NW-SE and has been emplaced within charnockite. The Feldspars herein are grey in colour, the other constituents being similar to the pink variety.

Multi Colour Granite

Polished multicolourgranite are widelyused for decorative purposes in building, monuments, Institutional,commercial and residential buildings in the for of slabs, tiles, cut to size, market etc.,

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Granite finds its application in such industries by virtue of its high compressive and tensile strength, hardness 6.5-7.5 in Moh's scale, density and attain high polishing which create an excellent aesthetic value. Because of its high polishing nature and strengthen its commercial demand is increasing steadily in the world market, particularly in Italy, Spain Switzerland etc. The multi-colour granite found in the applicants area has a yellowish to pinkish background with wave pattern. Its demand is high both in the domestic and international market even for the rough blocks.

5. Geological Resources

The Geological resources computed based on the geological cross sections upto the economically workable depth of 32m below from the existing ground profile of the area at the rate of 25% recovery yields 3,61,639m³ and 14,46,558m³ of ROM. The total geological resources are computed as 32m depth economically viable in the present market scenario

Table 2. Geological resources

Band No.	Dimensions in meters (Maximum)		
	Length	Width	Depth
Band - I	526	192 (Granite+SB)	32
Band - II	467	65 (Granite+SB)	32

GEOLOGICAL RESERVES									
Section	Bench	L (m)	W (m)	D (m)	ROM (m³)	Recovery @25% m³	Granite waste @ 75% m³	Side Burden m³	Topsoil in m³
XY-AB	I	172	192	2	-	-	-	-	66048
	II	172	50	6	51600	12900	38700	-	-
		172	142	6	-	-	-	146544	-
	III	172	50	6	51600	12900	38700	-	-
		172	142	6	-	-	-	146544	-
	IV	172	50	6	51600	12900	38700	-	-
		172	142	6	-	-	-	146544	-

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	V	172	50	6	51600	12900	38700	-	-
		172	142	6	-	-	-	146544	-
	VI	172	50	6	51600	12900	38700	-	-
		172	142	6	-	-	-	146544	-
TOTAL					258000	64500	193500	732720	66048
X1Y1-AB	I	107	65	2	-	-	-	-	13910
	II	107	50	6	32100	8025	24075	-	-
		107	15	6	-	-	-	9630	-
	III	107	50	6	32100	8025	24075	-	-
		107	15	6	-	-	-	9630	-
	IV	107	50	6	32100	8025	24075	-	-
		107	15	6	-	-	-	9630	-
	V	107	50	6	32100	8025	24075	-	-
		107	15	6	-	-	-	9630	-
	VI	107	45	6	28890	7222	21688	-	-
		107	20	6	-	-	-	12840	-
	TOTAL					157290	39322	117968	51360
XY-CD	I	100	146	2	-	-	-	-	29200
	II	100	50	6	30000	7500	22500	-	-
		100	96	6	-	-	-	57600	-
	III	100	50	6	30000	7500	22500	-	-
		100	96	6	-	-	-	57600	-
	IV	100	50	6	30000	7500	22500	-	-
		100	96	6	-	-	-	57600	-
	V	100	50	6	30000	7500	22500	-	-
		100	96	6	-	-	-	57600	-
	VI	100	50	6	30000	7500	22500	-	-
		100	96	6	-	-	-	57600	-
	Total					150000	37500	112500	288000

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<i>Project Location</i>	<i>Thiruthangal Village, Sivakasi Taluk, Virudhungara District</i>	

X1Y1- CD	I	100	100	2	-	-	-	-	20000
	II	100	50	6	30000	7500	22500	-	-
		100	50	6	-	-	-	30000	-
	III	100	50	6	30000	7500	22500	-	-
		100	50	6	-	-	-	30000	-
	IV	100	50	6	30000	7500	22500	-	-
		100	50	6	-	-	-	30000	-
	V	100	50	6	30000	7500	22500	-	-
		100	50	6	-	-	-	30000	-
	VI	100	50	6	30000	7500	22500	-	-
		100	50	6	-	-	-	30000	-
	Total				150000	37500	112500	150000	20000
XY-EF	I	100	88	2	-	-	-	-	17600
	II	100	50	6	30000	7500	22500	-	-
		100	38	6	-	-	-	22800	-
	III	100	50	6	30000	7500	22500	-	-
		100	38	6	-	-	-	22800	-
	IV	100	50	6	30000	7500	22500	-	-
		100	38	6	-	-	-	22800	-
	V	100	50	6	30000	7500	22500	-	-
		100	38	6	-	-	-	22800	-
	VI	100	50	6	30000	7500	22500	-	-
		100	38	6	-	-	-	22800	-
	Total				150000	37500	112500	114000	17600
X1Y1-EF	I	100	94	2	-	-	-	-	18800
	II	100	50	6	30000	7500	22500	-	-
		100	44	6	-	-	-	26400	-
	III	100	50	6	30000	7500	22500	-	-
		100	44	6	-	-	-	26400	-

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	IV	100	50	6	30000	7500	22500	-	-
		100	44	6	-	-	-	26400	-
	V	100	50	6	30000	7500	22500	-	-
		100	44	6	-	-	-	26400	-
	VI	100	50	6	30000	7500	22500	-	-
		100	44	6	-	-	-	26400	-
Total					150000	37500	112500	132000	18800
XY-GH	I	154	50	2	-	-	-	-	15400
	II	154	33	6	30492	7623	22689	-	-
		154	17	6	-	-	-	15708	-
	III	154	37	6	34188	8547	25641	-	-
		154	13	6	-	-	-	12012	-
	IV	154	41	6	37884	9471	28413	-	-
		154	9	6	-	-	-	8316	-
	V	154	46	6	42504	10626	37878	-	-
		154	4	6	-	-	-	3696	-
	VI	154	4	6	46200	11550	34650	-	-
Total					191268	47817	143451	39732	15400
X1Y1-GH	I	160	123	2	-	-	-	-	39360
	II	160	50	6	48000	12000	36000	-	-
		160	73	6	-	-	-	70080	-
	III	160	50	6	48000	12000	36000	-	-
		160	73	6	-	-	-	70080	-
	IV	160	50	6	48000	12000	36000	-	-
		160	73	6	-	-	-	70080	-
	V	160	50	6	48000	12000	36000	-	-
		160	73	6	-	-	-	70080	-
	VI	160	50	6	48000	12000	36000	-	-
160		73	6	-	-	-	70080	-	

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Total	240000	60000	180000	350400	39360
Grand Total	1446558	361639	1084919	1858212	220318

Table 3. Mineable Resources

Band No.	Dimensions in meter (Maximum)		
	Length	Width	Depth
Band - I	495	80 (Granite+SB)	32
Band - II	373	92 (Granite+SB)	32

MINEABLE RESERVES									
Section	Bench	L (m)	W (m)	D (m)	ROM m³	Recovery @25% m³	Granite waste @75%	Side Burden m³	Top Soil in m³
XY-AB	I	162	80	2	-	-	-	-	25920
	II	158	50	6	47400	11850	35550	-	-
		158	26	6	-	-	-	24648	-
	III	151	50	6	45300	11325	33975	-	-
		151	21	6	-	-	-	19026	-
	IV	144	50	6	43200	10800	32400	-	-
		144	15	6	-	-	-	12960	-
	V	137	50	6	41100	10275	30825	-	-
		137	9	6	-	-	-	7398	-
	VI	130	50	6	39000	9750	29250	-	-
		130	2	6	-	-	-	1560	-
Total					216000	54000	162000	65592	25920
X1Y1- AB	I	88	57	2	-	-	-	-	10032
	II	79	50	6	23700	5925	17775	-	-
		79	3	6	-	-	-	1422	-
	III	64	40	6	15360	3840	11520	-	-

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		64	7	6	-	-	-	2688	-
	IV	49	29	6	8526	2131	6395	-	-
		49	11	6	-	-	-	2688	-
	V	34	18	6	3672	918	2754	-	-
		34	15	6	-	-	-	3060	-
	VI	19	8	6	912	228	684	-	-
		19	20	6	-	-	-	2280	-
Total					52170	13042	39128	12684	10032
XY-CD	I	100	80	6	-	-	-	-	16000
	II	100	50	6	30000	7500	22500	-	-
		100	26	6	-	-	-	15600	-
	III	100	50	6	30000	7500	22500	-	-
		100	21	6	-	-	-	12600	-
	IV	100	50	6	30000	7500	22500	-	-
		100	15	6	-	-	-	9000	-
	V	100	50	6	30000	7500	22500	-	-
		100	9	6	-	-	-	5400	-
	VI	100	50	6	30000	7500	22500	-	-
100		2	6	-	-	-	1200	-	
Total					150000	37500	112500	43800	16000
X1Y1- CD	I	100	92	2	-	-	-	-	18400
	II	100	50	6	30000	7500	22500	-	-
		100	39	6	-	-	-	23400	-
	III	100	50	6	30000	7500	22500	-	-
		100	32	6	-	-	-	19200	-
	IV	100	50	6	30000	7500	22500	-	-
		100	25	6	-	-	-	15000	-
	V	100	50	6	30000	7500	22500	-	-
		100	18	6	-	-	-	10800	-

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	VI	100	43	6	25800	6450	19350	-	-
		100	20	6	-	-	-	12000	-
Total					145800	36450	109350	80400	18400
XY-EF	I	100	75	2	-	-	-	-	15000
	II	100	50	6	30000	7500	22500	-	-
		100	22	6	-	-	-	13200	-
	III	100	50	6	30000	7500	22500	-	-
		100	16	6	-	-	-	9600	-
	IV	100	50	6	30000	7500	22500	-	-
		100	10	6	-	-	-	6000	-
	V	100	49	6	29400	7350	22050	-	-
		100	5	6	-	-	-	3000	-
	VI	100	48	6	28800	7200	21600	-	-
Total					148200	37050	111150	31800	15000
X1Y1- EF	I	100	86	2	-	-	-	-	17200
	II	100	50	6	30000	7500	22500	-	-
		100	33	6	-	-	-	19800	-
	III	100	50	6	30000	7500	22500	-	-
		100	27	6	-	-	-	16200	-
	IV	100	50	6	30000	7500	22500	-	-
		100	20	6	-	-	-	12000	-
	V	100	48	6	28800	7200	21600	-	-
		100	15	6	-	-	-	9000	-
	VI	100	37	6	22200	5550	16650	-	-
100		20	6	-	-	-	12000	-	
Total					141000	35250	105750	69000	17200
XY-GH	I	133	42	2	-	-	-	-	11172
	II	123	22	6	16236	4059	12177	-	-
		123	117	6	-	-	-	12546	-

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	III	98	20	6	11760	2940	8820	-	-
		98	13	6	-	-	-	7644	-
	IV	92	18	6	9936	2484	7452	-	-
		92	9	6	-	-	-	4968	-
	V	86	16	6	8256	2064	6192	-	-
		86	5	6	-	-	-	2580	-
	VI	80	14	6	6720	1680	5040	-	-
Total					52908	13227	39681	27738	11172
X1Y1- GH	I	85	64	2	-	-	-	-	10880
	II	81	50	6	24300	6075	18225	-	-
		81	11	6	-	-	-	5346	-
	III	73	48	6	21024	5256	15768	-	-
		73	7	6	-	-	-	3066	-
	IV	65	37	6	14430	3608	10822	-	-
		65	11	6	-	-	-	4290	-
	V	56	27	6	9072	2268	6804	-	-
		56	15	6	--	-	-	5040	-
	VI	48	17	6	4896	1224	3672	-	-
		48	20	6	-	-	-	5670	-
Total					73722	18431	55291	23502	10880
Grand Total					979800	244950	734850	354516	124604

Table 4. Year wise Production Plan

YEARWISE DEVELOPMENT AND PRODUCTION										
Year	Section	Bench	L (m)	W (m)	D (m)	ROM (m³)	Recovery @ 25% (m³)	Granite waste @75% (m³)	Side Burden (m³)	Topsoil (m³)
I	XY-CD	I	79	70	2	-	-	-	-	11060
		II	75	50	6	22500	5625	16875	-	-

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			75	17	6	-	-	-	7650	-
	X1Y1- CD	I	79	56	2	-	-	-	-	8848
		II	75	50	6	22500	5625	16875	-	-
			75	3	6	-	-	-	1350	-
	Total					45000	11250	33750	9000	19908
II	XY-EF	I	84	70	2	-	-	-	-	11760
		II	81	50	6	24300	6075	18225	-	-
			81	17	6	-	-	-	8262	-
	X1Y1- EF	I	84	56	2	-	-	-	-	9408
		II	81	50	6	24300	6075	18225	-	-
			II	81	3	6	-	-	-	1458
	Total					48600	12150	36450	9720	21168
III	XY-CD	III	68	48	6	19584	4896	14688	-	-
			68	13	6	-	-	-	5304	-
	X1Y1- CD	III	68	40	6	16320	4080	12240	-	-
			68	7	6	-	-	-	2856	-
	XY-EF	III	40	48	6	11520	2880	8640	-	-
			40	13	6	-	-	-	3120	-
	Total					47424	11856	35568	11280	-
IV	XY-EF	III	35	48	6	10080	2520	7560	-	-
			35	13	6	-	-	-	2730	-
		IV	46	46	6	12696	3174	9522	-	-
			46	9	6	-	-	-	2484	-
	X1Y1- EF	III	75	40	6	18000	4500	13500	-	-
			75	7	6	-	-	-	3150	-
		IV	46	30	6	8280	2070	6210	-	-
			46	11	6	-	-	-	3036	-
	Total					49056	12264	36792	11400	-
V	XY-CD	IV	46	47	6	12972	3243	9729	-	-

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			46	9	6	-	-	-	2484	-
		V	30	45	6	8100	2025	6075	-	-
			30	5	6	-	-	-	900	-
		VI	10	10	6	600	150	450	-	-
	X1Y1- CD	IV	46	29	6	8004	2001	6003	-	-
			46	11	6	-	-	-	3036	-
		V	30	19	6	3420	855	2565	-	-
			30	15	6	-	-	-	2700	-
		VI	10	9	6	540	135	405	-	-
			10	20	6	-	-	-	1200	-
	XY-EF	V	30	44	6	7920	1980	5940	-	-
			30	4	6	-	-	-	720	-
		VI	10	10	6	600	150	450	-	-
	X1Y1- EF	V	30	19	6	3420	855	2565	-	-
			30	16	6	-	-	-	2880	-
		VI	10	9	6	540	135	405	-	-
			10	20	6	-	-	-	1200	-
	Total					46116	11529	34587	15120	-
	Grand Total					236196	59049	177147	56520	41076

6. Mining

Opencast Mining

In accordance with Regulation 106 (2) (b) of the Metalliferous Mines Regulations 1961, in all open cast working where the ore body forms a hard rock, the working faces and sides should be adequately benched and sloped; a bench height not exceeding 6m 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.

The Multi Colour Granite is specifically used for the buildings, paving, monuments, aesthetics and many other exterior projects. The quarry operation involves manual jack hammer drilling, mild explosive

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blasting, Diamond wire saw cutting and dressing the splitted blocks. The removed blocks are dressed manually using feather, wedges and chiselling by the skilled labours. If huge volume of Multi colour Granite stone accumulates the same will be loaded with the help of hired excavators.

Process Description

- The reserves and resource are arrived based upon the Geological investigation
- Removal of Topsoil by Excavators and directly Loaded into Tippers.
- Removal of granite by manual jack hammer drilling, mild explosive blasting, Diamond wire saw cutting and dressing the splitted blocks.
- Shallow Drilling With Jackhammer of 30-32 mm Dia.
- Minimum Blasting With Class 3 Explosives.
- Loading of Granites By Excavators Into Tippers.

7. Water Requirement

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

Table 5. Water Balance

Purpose	Quantity	Source
Drinking Water	2.0 KLD	Packaged Drinking water vendors are available in Thiruthangal Village which is about $\approx$ 1.00 km on NE 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	4.0 KLD	

8. Manpower

Total manpower required for the project is approximately 47 persons. The workers will be from nearby villages.

Table 6. Man Power

Project	Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry	Draft EIA Report
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1.	Mines Manager (with valid statutory qualification)	1 No.
2.	Mines foreman (with valid statutory qualification)	1 No.
3.	Machinery operators (Certified)	5 Nos.
4.	Skilled labour	8 Nos.
5.	Semi – skilled	24 Nos.
6.	Unskilled	8 Nos.
Total		47 Nos

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

9. Solid Waste Management

Table 7 Solid Waste Management

S.No	Type	Quantity	Disposal Method
1.	Organic	8.46 kg/day	Municipal bin including food waste
2.	Inorganic	12.69 kg/day	TNPCB authorized recycler

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

Table 8. 500m Radius Cluster Mine

S. No.	Quarry Details	Village & Taluk	S.F. No and Extent (in Ha)	G.O.No. and Lease Period
I	Existing Quarries:			
1.	Stanco Traders, 32 patti Street, Sivakasi	Thiruthangal, Sivakasi	1332/1, 1332/2A, etc., (4.41.0)	G.O.3(D). No.57 Industries (MMB2) Department dated: 24.11.2023. 03.12.2023-02.12.2023
2.	Stanco Traders, 32 patti Street, Sivakasi	Thiruthangal, Sivakasi	1302/2, 1323/1A (1.21.50)	G.O.3(D). No.94 Industries (MMB2) Department dated: 01.09.2004 22.09.2004 – 21.09.2024

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3.	Stanco Traders, 32 patti Street, Sivakasi	Thiruthangal, Sivakasi	1320/1A, 1320/1B1, 1320/1B2, etc., (1.93.0)	G.O.3(D). No.41 Industries (MMB2) Department dated: 27.02.2006 13.03.2006 – 12.03.2026
4.	Stanco Traders, 32 patti Street, Sivakasi	Thiruthangal, Sivakasi	1325/5A1, 1325/5A2, etc., (3.29.0)	G.O.3(D). No.41 Industries (MMB2) Department dated: 09.06.2008 08.07.2008 – 07.07.2028
5.	Standard Granites, Poothiammal Building 5-2-15C-Sattur Road, Sivakasi	Thiruthangal, Sivakasi	1325/2B1B, 1325/2B2, 1325/2B3, etc., (1.47.0)	G.O.3(D). No.45 Industries (MMB2) Department dated: 27.02.2006 13.03.2006 – 12.03.2026
6.	Standard Granites, Poothiammal Building 5-2-15C-Sattur Road, Sivakasi	Thiruthangal, Sivakasi	1325/2A, 1325/2B1A, (0.85.50)	G.O.3(D). No.56 Industries (MMB2) Department dated: 24.11.2003 24.01.2004 – 23.01.2024
II	Abandoned Quarry: NIL			
III	Proposed quarry:			
1.	Tvl.GPK Granite Industry, Ayanavaram, Chennai – 600 023	Thiruthangal, Sivakasi	884/1B, 1326 (10.00.0)	Mining plan approved vide CGM, letter No. 12167/MM2/2010, dated: 22.11.2022

Total cluster area based on the 500m radius letter is about 23.12.0 Ha

10. Land Requirement

The total area of the project is 10.00.0 Ha, Patta Land in Thiruthangal Village of Sivakasi Taluk, Virudhunagar District.

Table 9 Land Use Breakup

Project	Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry	Draft EIA Report
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Project Location	Thiruthangal Village, Sivakasi Taluk, Virudhunagar District	

S.No.	Description	Present Area (Ha.)	Area to be required during the present Mining Plan period (Ha)	Area at the end of life of quarry (Ha)
1	Area under Quarry	Nil	2.07.7	6.31.1
2	Waste Dumps	Nil	0.72.6	Backfilled
3	Infrastructure	Nil	0.03.5	0.05.0
5	Roads	Nil	0.03.0	0.10.0
6	Green Belt	Nil	0.46.2	1.75.8
7	Stocking blocks	10.00.0	6.67.0	1.78.1
Grand Total		10.00.0	10.00.0	10.00.0

11. Human Settlement

There are no habitations within 300m radius. There are villages located in this area within 15 km radius of the quarry.

Table 10 Habitation

Direction	Village	Distance in Kms	Population
South	Sivakasi	1.80	139000
Northeast	Thiruthangal	1.00	9600
Northwest	Sengamala Nachiar Puram	1.00	1400
Southwest	Anaiyur village	4.06	1364

12. Power Requirement

The proposed Multi Colour Granite quarrying does not require any power supply for the quarrying operation.

16 Litre diesel per hour for excavator for mining and loading for Multi Colour Granite needed and 10 Litre diesel per hour for excavator for mining and loading for Topsoil.

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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 : 30° C
- ii) Average Maximum Temperature : 38°C
- iii) Average Annual Rainfall of the area : 829 mm

13.2 Air Environment

Ambient air monitoring was carried out on a monthly basis in the surrounding areas of the Mine Lease area to assess the ambient air quality at the source. To know the ambient air quality at a larger distance i.e. in the study area of 5 km. radius, an 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 (41- 65 µg/m³), PM_{2.5} (16- 33 µg/m³), SO₂ (5-22 µg/m³), NO₂ (10-35 µg/m³), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from December 2024 to February 2025.

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13.3 Noise Environment

The maximum Day noise and Night noise were found to be 66 dB(A) and 56 dB(A) respectively in Govt Primary School Kallipatti. The minimum Day Noise and Night noise were 42 dB(A) and 35 dB(A) respectively which was observed in Sop Marriage Hall. The observed values are all well within the Standards prescribed by CPCB.

13.4 Water Environment

- The average pH ranges from 7.32 – 8.07.
- TDS value varied from 556 mg/l to 1613 mg/l
- Hardness varied from 322 to 964 mg/l
- Chloride varied from 104 to 394 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 7.13 to 8.02 with organic matter 0.11 to 2.3 %. The concentration of Nitrogen, Phosphorus & Potassium has been found to be in good amount in the soil samples.

13.6 Biological Environment

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

14. Rehabilitation/ Resettlement

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

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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 components of Environmental Management Plan, which will improve ecology, environment and quality of the surrounding area.
3. Local trees like Neem, Vilvam, Panai, etc., will be planted along the lease boundary and avenues as well as over non-active dumps at a rate of 1000 trees per annum with interval 5m.
4. The rate of survival expected to be 70% in this area.

Table.11 Plantation/ Afforestation Program

Name of species proposed	Survival	No of species
Neem, Vilvam, Vaagai, Eachai, Naval, Mantharai, Magizha Maram, Vila Maram, Poo Marudhu, Panai, Marudha maram, Thandri, Sengondrai, Poovarasu, Thethankottai Maram, Pungam	70%	5000
Total		5000

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.

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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 6,90,69,000/-** for deployment of machinery and creation of infrastructural facilities like approach road, mines office / Workers Shed, First Aid Room etc., including electrifications and water supply

Table .12 Project Cost details

S. No.	Description	Cost (Rs.)
1	Fixed Asset Cost	3,62,19,000/-
2	Operational Cost	3,28,50,000 /-
	Total	6,90,69,000/-

Environmental Management Cost: Rs.2,34,69,678/-

20. Corporate Environmental Responsibility

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

Table 13 CER Cost

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S.No.	CER Activity	CER Value (Rs)
1.	Panchayat Union Middle School, Sengamalanachiyarpuram, Providing facilities are: ✓ Additional buildings, Toilet facility, Books for library & Table & Panchayat Union Primary School, MGR Nagar, Kannagi colony, Thiruthangal Providing facilities are: ✓ Table, Chair, Sports equipments, Computer. And basic amenities such as, ✓ Planting trees in and around the periphery of the school campus ✓ Environmental Science books in Tamil Language for Library ✓ Hygienic Toilet Facility & RO water facility.	5,00,000
Total		5,00,000

21. Benefits of the Project

- There is a positive impact on socio-economics of people living in the villages. Mining operations in the subject area has a positive impact by providing direct and indirect jobs opportunities
- The project is environmentally compatible, financially viable and would be in the interest of the 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.

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1 Introduction

1.1 PREAMBLE

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

1.2 GENERAL INFORMATION ON MINING OF MINERALS

Virudhunagar is endowed with minor mineral resources like granite (Leptynite), blue metal, gravel, brick soil, Limekankar, Clay (others) and sand deposit and the crystalline limestone is major mineral resource in the district. As a result of developmental activities and market demand for minor minerals, mining minor minerals is vital. The mining, if not carried out systematically, will result in ill-effects and environmental degradation in project effected areas. Therefore, a sustainable development of the area involving extraction of mineral wealth vis-à-vis protection of environment is the ultimate solution for betterment of mankind.

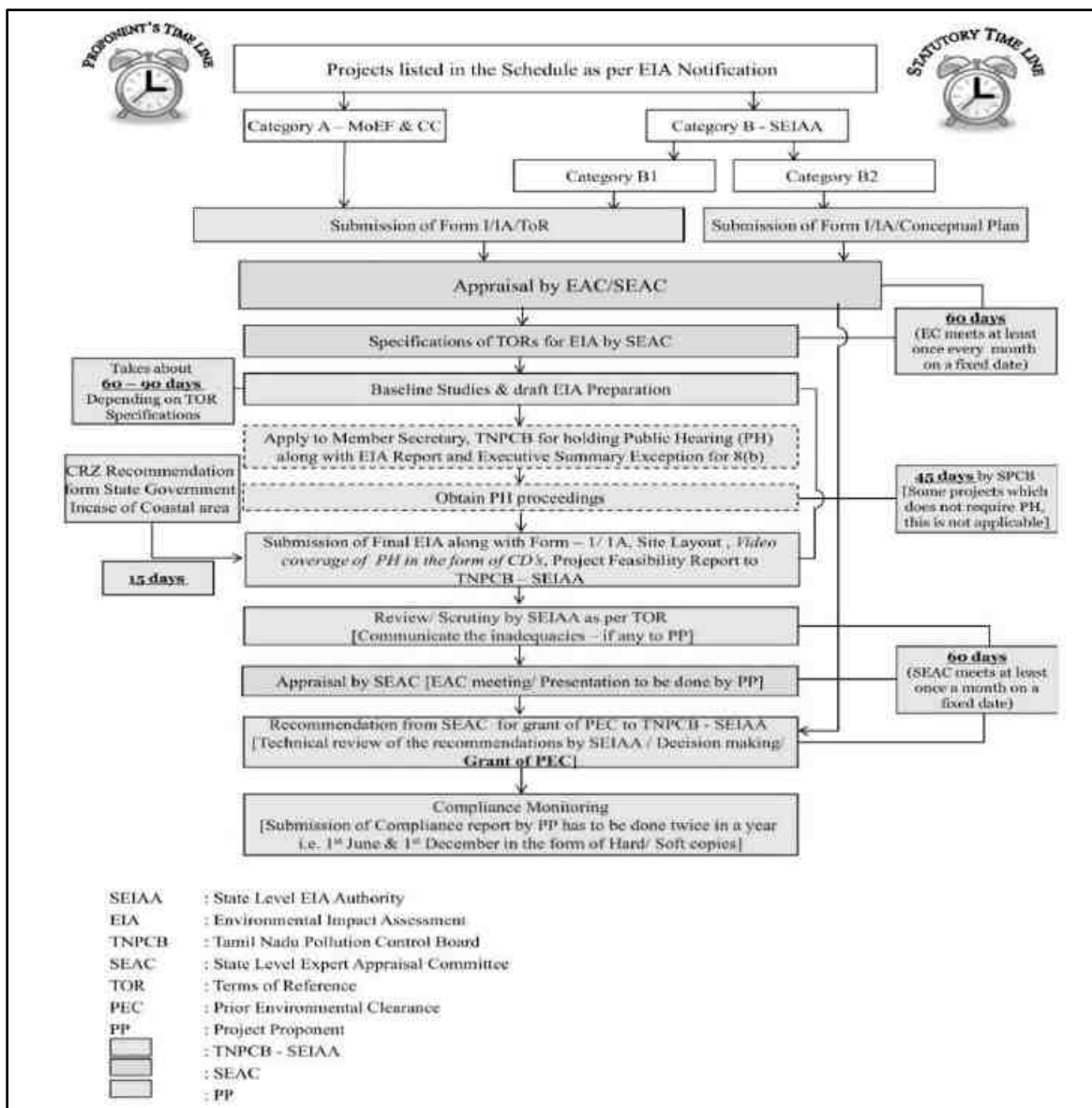
The Mining of minor minerals like Limekankar, Blue metal, Dimension stone, brick sand and Gravels are active in the district. Private companies play a major role in mining activity for minor minerals, whereas the Government agency takes part in mining dimension stones in the district. In total, 143 no's quarry for blue metal/rough stone, 34 granite (leptynite) quarry for dimension stone, 26 for limestone, 9 for gravel and 12 for brick earth quarries are available in the Virudhunagar district. As per District Survey Report For Granite Virudhunagar District 2018-2019 Prepared as per Gazette Notification S.O.3611 (E) dated 25.07.2018 of Ministry of Environment, Forest and Climatic Change, the total production of Granite in the year 2018-2019 was 42015.278 Cum

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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.



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1.4 TERMS OF REFERENCE (TOR)

The Terms of Reference have been issued by SEAC TN vide Letter No. SEIAA-TN/F. No. 9880/SEAC/1(a) ToR-1707/2024 Dated: 27.11.2024. 42 additional ToR points were recommended by SEAC TN in addition to the Standard ToR Points. The replies for the same were addressed in this report.

1.5 POST ENVIRONMENTAL CLEARANCE MONITORING

1.5.1 *Methodology adopted*

Post project monitoring will be carried out as per conditions stipulated in the 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

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i.e., land availability, utilities (power and water supply) and infrastructure facilities such as roads, railways, housing and other requirements. If the project site is near a sensitive area it is to be mentioned clearly why an alternative site could not be considered. The project implementation schedule, estimated cost of development as well as operation etc should be also included.

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

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

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

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

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

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

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

Chapter 10: Environmental Management Plan. This chapter should comprehensively present the Environmental Management Plan (EMP), which includes the administrative and technical setup, summary matrix of EMP, the cost involved to implement the EMP, both during the construction and

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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 the 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. G.P.K Granite Industry,
Status of the Proponent : Partnership firm
Proponent's Name & Address : No.11, State Bank of India Officer's Colony,
Ujjaini Street, Ayanavaram,
Chennai, TamilNadu – 600 023

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) Government of India MoEF & CC on December 12th, 2018) project comes under category B1 cluster & schedule 1(a) under item 1.

Proposed proposal pertains to Granite mining project by open cast mechanized method on allotted mine lease area at Thiruthangal Village, Sivakasi Taluk of Virudhunagar District, Tamil Nadu. It is flat terrain. The total allotted mine lease for the proposed project is 10.00.0 Ha with their maximum production capacity i.e. 236196m³ of granite and 59049m³ of Topsoil up to a restricted depth of 32m for the period of Five years only.

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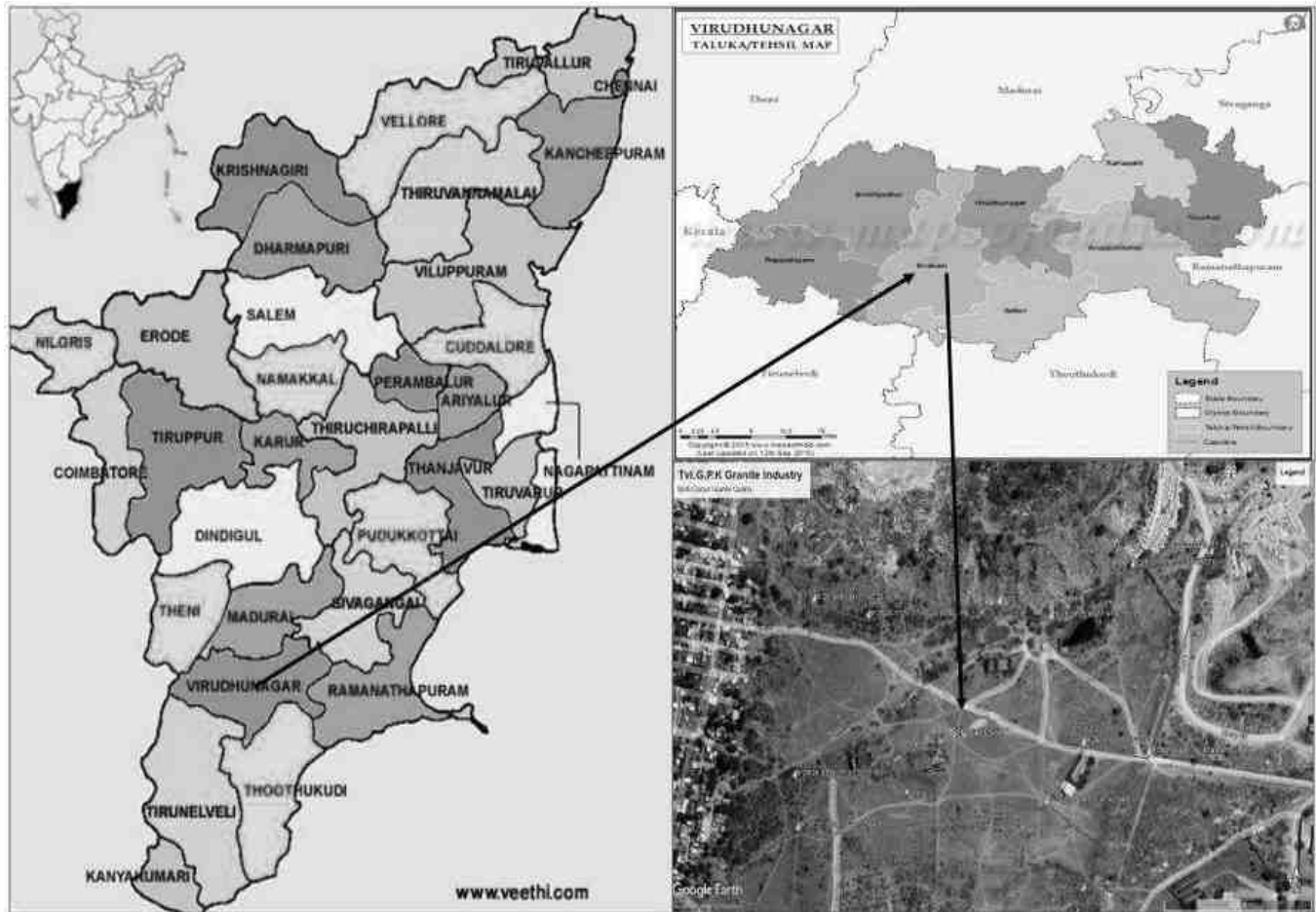


Figure 1.1: Location Map of the Project site

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2 Project Description

This chapter furnishes detailed descriptions 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 mechanized method on allotted mine lease area at Thiruthangal Village, Sivakasi Taluk of Virudhunagar District, Tamil Nadu. It is flat terrain. We have obtained fresh mining plan from 2022 to 2027 approval from Department of Geology and Mining, Chennai-32 for 10.00.0 Ha land area in the S.F.Nos. 884/1B, 1326, 1333/1A, 1B, 2, 1334/1(P), 2(P), 3 and 1334/4 for a proposed mining depth of 32 m below ground level and five years production of 236196m³ 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) Government 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 Public Consultation and the same will be conducted under SPCB (TN) in Virudhunagar District. The proceedings of the same will be incorporated in the Final EIA Report.

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

Project	Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry	Draft EIA Report
Project Proponent	Tvl. G.P.K Granite Industry	
Project Location	Thiruthangal Village, Sivakasi Taluk, Virudhungara District	

Table 2-1: Quarry within 500m Radius

S. No.	Quarry Details	Village & Taluk	S.F. No and Extent (in Ha)	G.O.No. and Lease Period
I	Existing Quarries:			
1.	Stanco Traders, 32 patti Street, Sivakasi	Thiruthangal, Sivakasi	1332/1, 1332/2A, etc., (4.41.0)	G.O.3(D). No.57 Industries (MMB2) Department dated: 24.11.2023. 03.12.2023-02.12.2023
2.	Stanco Traders, 32 patti Street, Sivakasi	Thiruthangal, Sivakasi	1302/2, 1323/1A (1.21.50)	G.O.3(D). No.94 Industries (MMB2) Department dated: 01.09.2004 22.09.2004 – 21.09.2024
3.	Stanco Traders, 32 patti Street, Sivakasi	Thiruthangal, Sivakasi	1320/1A, 1320/1B1, 1320/1B2, etc., (1.93.0)	G.O.3(D). No.41 Industries (MMB2) Department dated: 27.02.2006 13.03.2006 – 12.03.2026
4.	Stanco Traders, 32 patti Street, Sivakasi	Thiruthangal, Sivakasi	1325/5A1, 1325/5A2, etc., (3.29.0)	G.O.3(D). No.41 Industries (MMB2) Department dated: 09.06.2008 08.07.2008 – 07.07.2028
5.	Standard Granites, Poothiammal Building 5-2-15C-Sattur Road, Sivakasi	Thiruthangal, Sivakasi	1325/2B1B, 1325/2B2, 1325/2B3, etc., (1.47.0)	G.O.3(D). No.45 Industries (MMB2) Department dated: 27.02.2006 13.03.2006 – 12.03.2026
6.	Standard Granites, Poothiammal Building 5-2-15C-Sattur Road, Sivakasi	Thiruthangal, Sivakasi	1325/2A, 1325/2B1A, (0.85.50)	G.O.3(D). No.56 Industries (MMB2) Department dated: 24.11.2003 24.01.2004 – 23.01.2024
II	Abandoned Quarry: NIL			

Project	Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry	Draft EIA Report
Project Proponent	Tvl. G.P.K Granite Industry	
Project Location	Thiruthangal Village, Sivakasi Taluk, Virudhunagar District	

III	Proposed quarry:			
1.	Tvl.GPK Granite Industry, Ayanavaram, Chennai – 600 023	Thiruthangal, Sivakasi	884/1B, 1326 (10.00.0)	Mining plan approved vide CGM, letter No. 12167/MM2/2010, dated: 22.11.2022

The Total extent of the Existing / Lease expired / Proposed quarries is 23.12.0 Ha

2.1.1 Need for the project:

Multi- colour Granite

Polished multi colour granite are widely used for decorative purposes in building, monuments, Institutional, commercial and residential buildings in the form of slabs, tiles, cut to size, market etc., Granite finds its application in such industries by virtue of its high compressive and tensile strength, hardness 6.5- 7.5 in Moh's scale, density and attain high polishing which create an excellent aesthetic value. Because of its high polishing nature and strengthen its commercial demand is increasing steadily in the world market, particularly in Italy, Spain Switzerland etc. The multi colour granite found in the applicants area has a yellowish to pinkish background with wave pattern. Its demand is high both in the domestic and international market even for the rough blocks.

As a result of developmental activities and market demand for minor minerals, mining of minor mineral is vital. In addition to that, geological reserves of multi colour granite is abundant in the project area which is evident from the mine activities carried out in the nearby sites.

2.2 BRIEF DESCRIPTION OF THE PROJECT

Table 2-2 Salient Features of the Project

S. No.	Description	Details
1	Project Name	Tvl. G.P.K Granite Industry Multi Colour Granite Quarry
2	Proponent	Tvl. G.P.K Granite Industry

Project	Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry	Draft EIA Report
Project Proponent	Tvl. G.P.K Granite Industry	
Project Location	Thiruthangal Village, Sivakasi Taluk, Virudhungara District	

3	Mining Lease Area Extent	10.00.0 Ha
4	Location	884/1B, 1326, 1333/1A, 1B, 2, 1334/1(P), 2(P), 3 & 1334/4
5	Latitude	09°28'22.6960" N to 09°28'32.6455" N
6	Longitude	77°47'32.7729" E to 77°47'49.5472" E
7	Topography	Flat terrain
8	Site Elevation above MSL	Altitude of the area is 109m from MSL.
9	Topo sheet No.	58 G/15 of Survey of India
10	Minerals of Mine	Multi Colour Granite Quarry
11	Proposed production	ROM - 450260m ³ of Multi colour granite and Topsoil 41076m ³
12	Ultimate depth of Mining	32m below ground level
13	Method of Mining	Open cast mechanized mining
14	Water demand	4.0 KLD
15	Source of water	Water will be supplied through tankers supply
16	Man power	47 Nos.
17	Mining Plan Approval	Mining Plan was approved by The Commissioner, Dept. of Geology & Mining, Guindy, Chennai-600 032 vide letter Rc.No.12167/MM2/2010, dated 22.11.2022
18	Precise area communication letter	The Proponent has obtained the Precise Area Communication letter from Industries (MMB.2) Department, Secretariat, Chennai vide Government Letter No.5667/MMB.2/2012 19 dated 31.01.2022 for a period of Twenty Years.
19	Production details	Geological reserves: 1446558m ³ of Multi colour granite Proposed year wise reserves: ROM - 236196m ³ of Multi colour granite (Recoverable of 25% is about 59049m ³) and 41076m ³ of Topsoil.

<i>Project</i>	<i>Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Tvl. G.P.K Granite Industry</i>	
<i>Project Location</i>	<i>Thiruthangal Village, Sivakasi Taluk, Virudhunagar District</i>	

20	Boundary Fencing	7.5 m barrier all along the boundary for adjacent patta lands and 10 m safety distance for Govt. Lands. Barbed wire fencing will be provided.
21	Disposal of overburden	The overburden is in the form of topsoil and There is 41,076m ³ of topsoil will be generated during the mining plan period. The excavated topsoil will be preserved all along the safety zone and utilized for construction of bund and green belt development purpose.
22	Ground water	The water table in this area is about 64m as observed in nearby bore wells. Quarry operations are confined to well above the water table. If water is encountered at due to rain water and seepage, the same will be drained out by 5HP motor pumps and the drained out water will be utilized for afforestation.
23	Habitations within 300m radius of the Project Site	It is a granite. There is no drilling and blasting. The quarry operation involves manual jack hammer drilling, mild explosive blasting, Diamond wire saw cutting and dressing the splitted blocks.
24	Drinking water	Packaged Drinking water vendors available in Thiruthangal Village which is about ≈. 1.00 km on NE side of the area.

Project	Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry	Draft EIA Report
Project Proponent	Tvl. G.P.K Granite Industry	
Project Location	Thiruthangal Village, Sivakasi Taluk, Virudhunagar District	

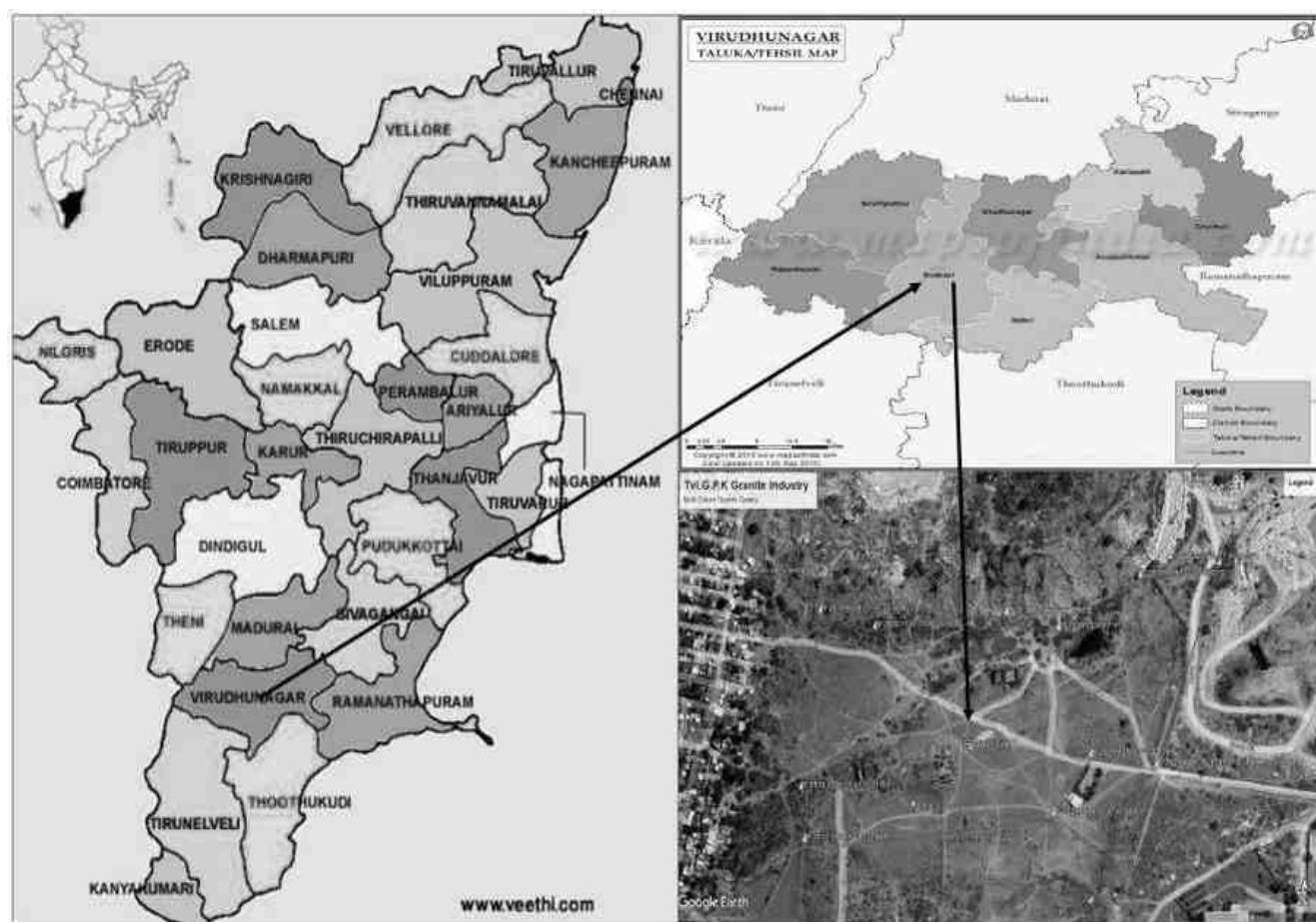


Figure 2.1: Location Map of the Project Site



Project	Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry	Draft EIA Report
Project Proponent	Tvl. G.P.K Granite Industry	
Project Location	Thiruthangal Village, Sivakasi Taluk, Virudhunagar District	

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

2.2.1 Site Connectivity:

The site is connected to the roadways as follows.

The approach road connected to Sengamala Nachiyar Puram village road 465m - W.



Figure 2.3: Site Connectivity

2.3 LOCATION DETAILS:

Table 2-3: Location Details

S. No	Particulars	Details
1.	Latitude	09°28'22.6960" N to 09°28'32.6455" N
2.	Longitude	77°47'32.7729" E to 77°47'49.5472" E
3.	Site Elevation above MSL	The altitude of the area is 109m from MSL.
4.	Topography	Flat Terrain
5.	Land use of the site	Patta land
6.	Extent of lease area	10.00.0 Ha

Project	Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry	Draft EIA Report
Project Proponent	Tvl. G.P.K Granite Industry	
Project Location	Thiruthangal Village, Sivakasi Taluk, Virudhunagara District	

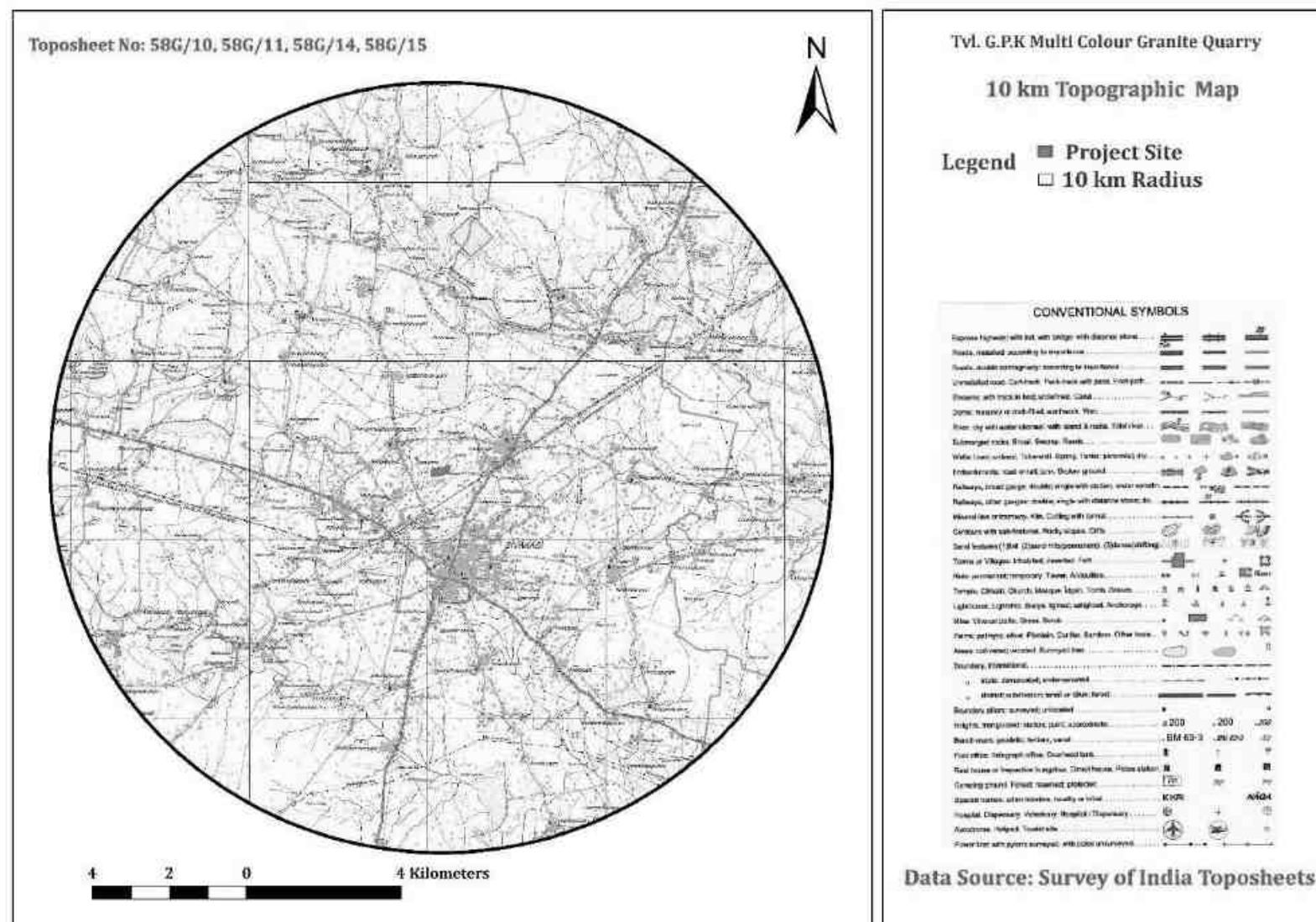


Figure 2.4: Topo Map of Project Site

Project	Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry	Draft EIA Report
Project Proponent	Tvl. G.P.K Granite Industry	
Project Location	Thiruthangal Village, Sivakasi Taluk, Virudhungara District	

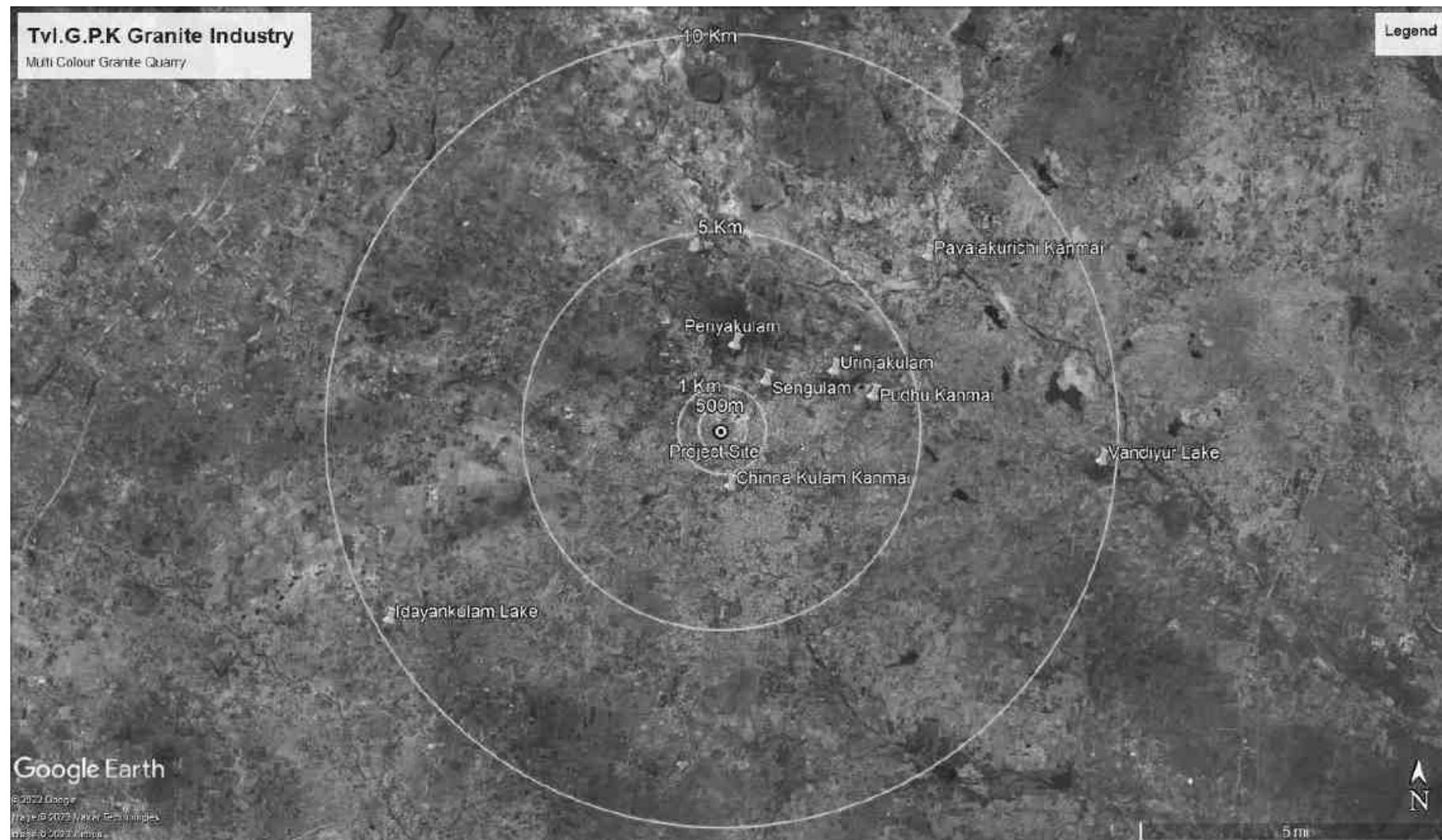


Figure 2.5: Environmental Sensitivity within 15km radius

Project	Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry	Draft EIA Report
Project Proponent	Tvl. G.P.K Granite Industry	
Project Location	Thiruthangal Village, Sivakasi Taluk, Virudhungara District	

2.3.1 Site Photographs

The site photographs of the project site are as follows



Figure 2.6: Site Photographs

2.3.2 Land Use Breakup of the Mine Lease Area

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

Table 2-4: Land use pattern

S.No.	Description	Present Area (Ha.)	Area required during the present Mining Plan period (Ha)	Area at the end of life of quarry (Ha)
1	Area under Quarry	Nil	2.07.7	6.31.1
2	Waste Dumps	Nil	0.72.6	Backfilled
3	Infrastructure	Nil	0.03.5	0.05.0

Project	Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry	Draft EIA Report
Project Proponent	Tvl. G.P.K Granite Industry	
Project Location	Thiruthangal Village, Sivakasi Taluk, Virudhunagara District	

5	Roads	Nil	0.03.0	0.10.0
6	Green Belt	Nil	0.46.2	1.75.8
7	Stocking blocks	10.00.0	6.67.0	1.78.1
Grand Total		10.00.0	10.00.0	10.00.0

2.3.3 Human Settlement

There are no habitations within the radius of 50m. The nearby habitations are as follows

Table 2-5: Habitation

Direction	Village	Distance in Kms	Population
South	Sivakasi	1.80	139000
Northeast	Thiruthangal	1.00	9600
Northwest	Sengamala Nachiar Puram	1.00	1400
Southwest	Anaiyur village	4.06	1364

2.4 LEASEHOLD AREA

The Multi Colour Granite Quarry mine of 10.00.0 Ha is a patta land. The lease area falls in S.F Nos: 884/1B, 1326, 1333/1A, 1B, 2, 1334/1(P), 2(P), 3 and 1334/4 of Thiruthangal Village in Sivakasi Taluk, Virudhunagar District. There is no reserve forest or protected forest land within the lease area. There is neither human settlement within 50m radius from the lease area.

2.5 GEOLOGY

Virudhunagar district is bordered by Western Ghats (Ridge and valley complex) in the West. Valley fill area is observed in Watrap block. A major part of the district constitutes a plain terrain with a gentle slope toward East and Southeast, except for the hilly terrain in the west. The prominent geomorphic units identified in the district through interpretation of Satellite imagery are; 1. Flood Plain, 2. Bazada, 3. Pediment, 4. Shallow & deep buried Pediments and 6. Structural Hills. (Source – CGWB).

Project	Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry	Draft EIA Report
Project Proponent	Tvl. G.P.K Granite Industry	
Project Location	Thiruthangal Village, Sivakasi Taluk, Virudhunagar District	

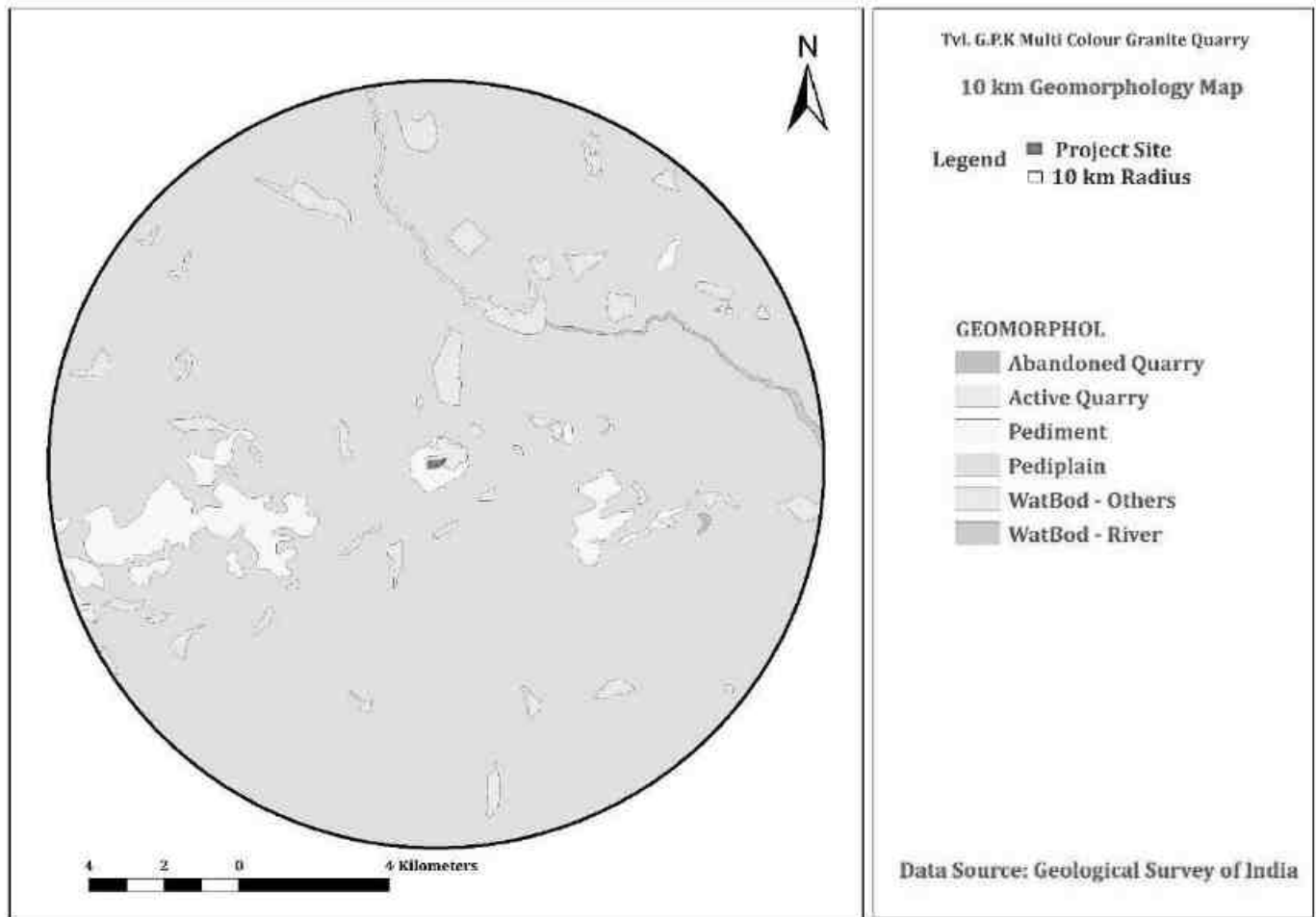


Figure 2.7: Geomorphology

Project	Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry	Draft EIA Report
Project Proponent	Tvl. G.P.K Granite Industry	
Project Location	Thiruthangal Village, Sivakasi Taluk, Virudhunagar District	

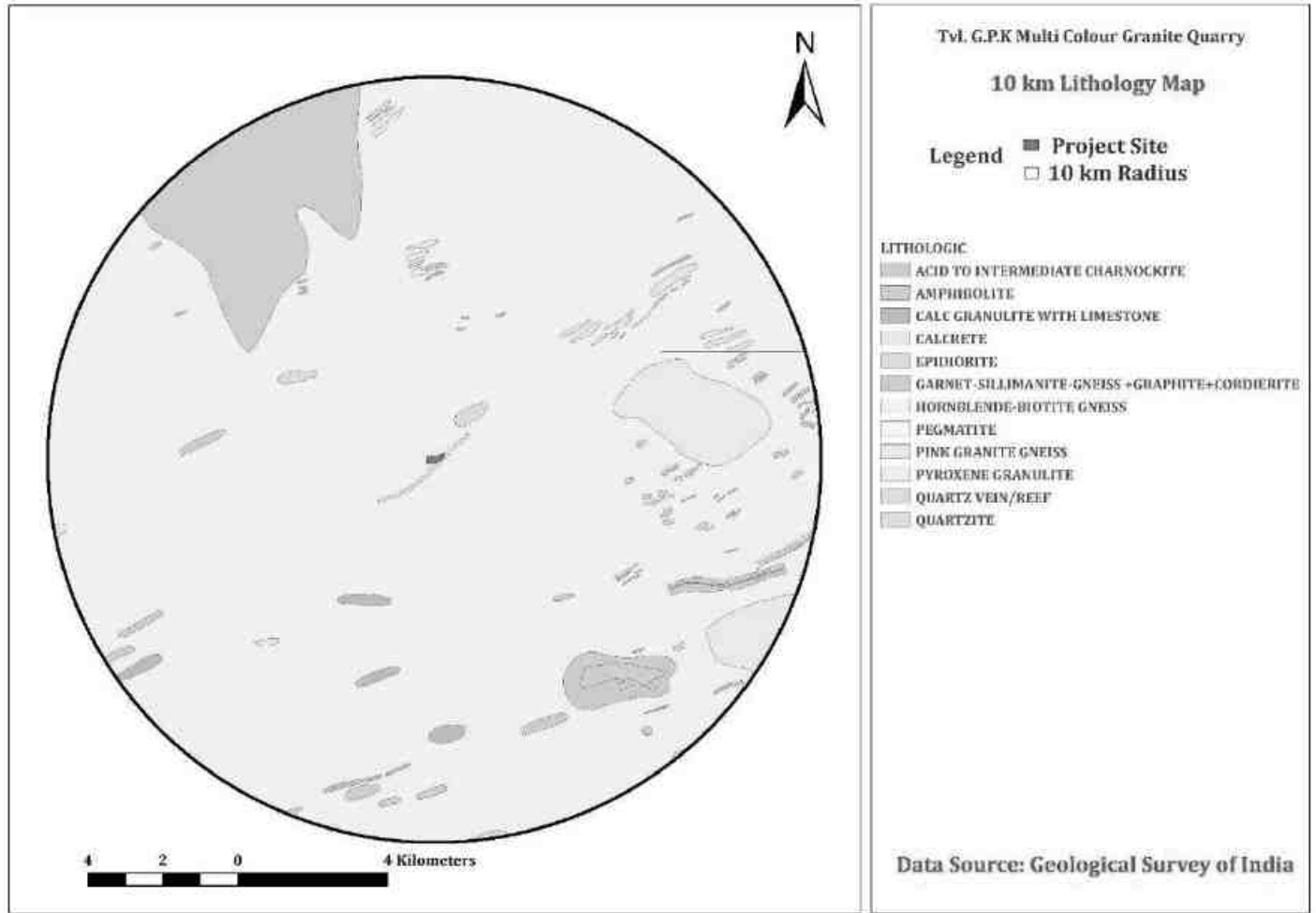


Figure 2.8 Lithology

2.6 QUALITY OF RESERVES:

The mining lease area is 10.00.0 Ha, with production capacity of ROM - 236196m³ of granite and 25% recovery of 59049m³ and 41076m³ of Topsoil. Due to significant role in the domestic as well as infrastructural market, making the mining of granite along with associated minor minerals is economically viable.

Table 2-6: Details of Mining

Project	Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry	Draft EIA Report
Project Proponent	Tvl. G.P.K Granite Industry	
Project Location	Thiruthangal Village, Sivakasi Taluk, Virudhunagar District	

S. No	Particulars	Details
1.	Method of Mining	Open cast mechanized
2.	Geological Reserves	14,46,558m ³ of Multi colour granite and 2,20,318m ³ of Topsoil
3.	Recoverable Reserves	The year wise production of multi colour granite for five years is about 2,36,196m ³
4.	Proposed Production	Recoverable reserves (25%) 59,049m ³ and Topsoil 41,076m ³
5.	Elevation Range of the Mine Site	Altitude of the area is 109m from MSL.

2.6.1 Geological Reserves

Topsoil: The total volume of topsoil will be 220318 Cum

Multi Colour Granite:

The Availability Geological Reserve is estimated as 1446558 Cum respectively upto the permissible depth. Topsoil is calculated upto a depth of 2m and granite at a depth of 30m. Total depth – 32m below ground level

Table 2-7: Geological Reserves

Band No.	Dimensions in meters (Maximum)		
	Length	Width	Depth
Band - I	526	192 (Granite+SB)	32
Band - II	467	65 (Granite+SB)	32

GEOLOGICAL RESERVES									
Section	Bench	L (m)	W (m)	D (m)	ROM (m ³)	Recover y @25% m ³	Granite waste @ 75% m ³	Side Burden m ³	Topsoil in m ³
XY-AB	I	172	192	2	-	-	-	-	66048
	II	172	50	6	51600	12900	38700	-	-

<i>Project</i>	<i>Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Tvl. G.P.K Granite Industry</i>	
<i>Project Location</i>	<i>Thiruthangal Village, Sivakasi Taluk, Virudhunagar District</i>	

		172	142	6	-	-	-	146544	-
	III	172	50	6	51600	12900	38700	-	-
		172	142	6	-	-	-	146544	-
	IV	172	50	6	51600	12900	38700	-	-
		172	142	6	-	-	-	146544	-
	V	172	50	6	51600	12900	38700	-	-
		172	142	6	-	-	-	146544	-
	VI	172	50	6	51600	12900	38700	-	-
		172	142	6	-	-	-	146544	-
TOTAL					258000	64500	193500	732720	66048
X1Y1-AB	I	107	65	2	-	-	-	-	13910
	II	107	50	6	32100	8025	24075	-	-
		107	15	6	-	-	-	9630	-
	III	107	50	6	32100	8025	24075	-	-
		107	15	6	-	-	-	9630	-
	IV	107	50	6	32100	8025	24075	-	-
		107	15	6	-	-	-	9630	-
	V	107	50	6	32100	8025	24075	-	-
		107	15	6	-	-	-	9630	-
	VI	107	45	6	28890	7222	21688	-	-
		107	20	6	-	-	-	12840	-
	TOTAL					157290	39322	117968	51360
XY-CD	I	100	146	2	-	-	-	-	29200
	II	100	50	6	30000	7500	22500	-	-
		100	96	6	-	-	-	57600	-
	III	100	50	6	30000	7500	22500	-	-
		100	96	6	-	-	-	57600	-
	IV	100	50	6	30000	7500	22500	-	-
		100	96	6	-	-	-	57600	-

<i>Project</i>	<i>Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Tvl. G.P.K Granite Industry</i>	
<i>Project Location</i>	<i>Thiruthangal Village, Sivakasi Taluk, Virudhunagar District</i>	

	V	100	50	6	30000	7500	22500	-	-
		100	96	6	-	-	-	57600	-
	VI	100	50	6	30000	7500	22500	-	-
		100	96	6	-	-	-	57600	-
Total					150000	37500	112500	288000	29200
X1Y1- CD	I	100	100	2	-	-	-	-	20000
	II	100	50	6	30000	7500	22500	-	-
		100	50	6	-	-	-	30000	-
	III	100	50	6	30000	7500	22500	-	-
		100	50	6	-	-	-	30000	-
	IV	100	50	6	30000	7500	22500	-	-
		100	50	6	-	-	-	30000	-
	V	100	50	6	30000	7500	22500	-	-
		100	50	6	-	-	-	30000	-
	VI	100	50	6	30000	7500	22500	-	-
		100	50	6	-	-	-	30000	-
	Total					150000	37500	112500	150000
XY-EF	I	100	88	2	-	-	-	-	17600
	II	100	50	6	30000	7500	22500	-	-
		100	38	6	-	-	-	22800	-
	III	100	50	6	30000	7500	22500	-	-
		100	38	6	-	-	-	22800	-
	IV	100	50	6	30000	7500	22500	-	-
		100	38	6	-	-	-	22800	-
	V	100	50	6	30000	7500	22500	-	-
		100	38	6	-	-	-	22800	-
	VI	100	50	6	30000	7500	22500	-	-
		100	38	6	-	-	-	22800	-
	Total					150000	37500	112500	114000

<i>Project</i>	<i>Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Tvl. G.P.K Granite Industry</i>	
<i>Project Location</i>	<i>Thiruthangal Village, Sivakasi Taluk, Virudhungara District</i>	

X1Y1-EF	I	100	94	2	-	-	-	-	18800
	II	100	50	6	30000	7500	22500	-	-
		100	44	6	-	-	-	26400	-
	III	100	50	6	30000	7500	22500	-	-
		100	44	6	-	-	-	26400	-
	IV	100	50	6	30000	7500	22500	-	-
		100	44	6	-	-	-	26400	-
	V	100	50	6	30000	7500	22500	-	-
		100	44	6	-	-	-	26400	-
	VI	100	50	6	30000	7500	22500	-	-
100		44	6	-	-	-	26400	-	
Total					150000	37500	112500	132000	18800
XY-GH	I	154	50	2	-	-	-	-	15400
	II	154	33	6	30492	7623	22689	-	-
		154	17	6	-	-	-	15708	-
	III	154	37	6	34188	8547	25641	-	-
		154	13	6	-	-	-	12012	-
	IV	154	41	6	37884	9471	28413	-	-
		154	9	6	-	-	-	8316	-
	V	154	46	6	42504	10626	37878	-	-
		154	4	6	-	-	-	3696	-
	VI	154	4	6	46200	11550	34650	-	-
Total					191268	47817	143451	39732	15400
X1Y1-GH	I	160	123	2	-	-	-	-	39360
	II	160	50	6	48000	12000	36000	-	-
		160	73	6	-	-	-	70080	-
	III	160	50	6	48000	12000	36000	-	-
		160	73	6	-	-	-	70080	-
	IV	160	50	6	48000	12000	36000	-	-

Project	Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry	Draft EIA Report
Project Proponent	Tvl. G.P.K Granite Industry	
Project Location	Thiruthangal Village, Sivakasi Taluk, Virudhunagar District	

		160	73	6	-	-	-	70080	-
	V	160	50	6	48000	12000	36000	-	-
		160	73	6	-	-	-	70080	-
	VI	160	50	6	48000	12000	36000	-	-
		160	73	6	-	-	-	70080	-
Total					240000	60000	180000	350400	39360
Grand Total					1446558	361639	1084919	1858212	220318

Total Geological Reserves in ROM = 14,46,558m³

Total Recoverable Resources @ 25% = 3,61,639m³

Granite waste @ 75% = 10,84,919m³

Side Burden = 18,58,212m³

Total Waste (Granite waste+ Side Burden) = 29,43,131m³

Topsoil = 2,20,318m³

Granite: waste ratio = 1:8.1

2.6.2 Mineable Reserves

The mineable reserves have been computed as 2,44,950m³ at the rate of 25% recovery and 9,79,800m³ of ROM up to a depth of 32m from the ground level. The mineable reserves are calculated by deducting the mineral locked up area under safety distance and bench loss. Hence, the remaining area is taken for calculation of mineable reserves up to 32m depth.

The Multi colour granite body occurring in this area exhibits more or less uniform colour and texture. If any variation occurs during quarrying, such as cracks, joints, patches, colour variations etc., the defective area will be removed. The formation is uniform, and no gradational change is noticed except some shears and cracks.

Table 2-8: Mineable Reserves

Project	Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry	Draft EIA Report
Project Proponent	Tvl. G.P.K Granite Industry	
Project Location	Thiruthangal Village, Sivakasi Taluk, Virudhunagar District	

Band No.	Dimensions in meter (Maximum)		
	Length	Width	Depth
Band - I	495	80 (Granite+SB)	32
Band - II	373	92 (Granite+SB)	32

MINEABLE RESERVES									
Section	Bench	L (m)	W (m)	D (m)	ROM m³	Recovery @25% m³	Granite waste @75%	Side Burden m³	Top Soil in m³
XY-AB	I	162	80	2	-	-	-	-	25920
	II	158	50	6	47400	11850	35550	-	-
		158	26	6	-	-	-	24648	-
	III	151	50	6	45300	11325	33975	-	-
		151	21	6	-	-	-	19026	-
	IV	144	50	6	43200	10800	32400	-	-
		144	15	6	-	-	-	12960	-
	V	137	50	6	41100	10275	30825	-	-
		137	9	6	-	-	-	7398	-
	VI	130	50	6	39000	9750	29250	-	-
		130	2	6	-	-	-	1560	-
Total					216000	54000	162000	65592	25920
X1Y1- AB	I	88	57	2	-	-	-	-	10032
	II	79	50	6	23700	5925	17775	-	-
		79	3	6	-	-	-	1422	-
	III	64	40	6	15360	3840	11520	-	-
		64	7	6	-	-	-	2688	-
	IV	49	29	6	8526	2131	6395	-	-
		49	11	6	-	-	-	2688	-
	V	34	18	6	3672	918	2754	-	-
		34	15	6	-	-	-	3060	-

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	VI	19	8	6	912	228	684	-	-
		19	20	6	-	-	-	2280	-
Total					52170	13042	39128	12684	10032
XY-CD	I	100	80	6	-	-	-	-	16000
	II	100	50	6	30000	7500	22500	-	-
		100	26	6	-	-	-	15600	-
	III	100	50	6	30000	7500	22500	-	-
		100	21	6	-	-	-	12600	-
	IV	100	50	6	30000	7500	22500	-	-
		100	15	6	-	-	-	9000	-
	V	100	50	6	30000	7500	22500	-	-
		100	9	6	-	-	-	5400	-
	VI	100	50	6	30000	7500	22500	-	-
100		2	6	-	-	-	1200	-	
Total					150000	37500	112500	43800	16000
X1Y1- CD	I	100	92	2	-	-	-	-	18400
	II	100	50	6	30000	7500	22500	-	-
		100	39	6	-	-	-	23400	-
	III	100	50	6	30000	7500	22500	-	-
		100	32	6	-	-	-	19200	-
	IV	100	50	6	30000	7500	22500	-	-
		100	25	6	-	-	-	15000	-
	V	100	50	6	30000	7500	22500	-	-
		100	18	6	-	-	-	10800	-
	VI	100	43	6	25800	6450	19350	-	-
100		20	6	-	-	-	12000	-	
Total					145800	36450	109350	80400	18400
XY-EF	I	100	75	2	-	-	-	-	15000
	II	100	50	6	30000	7500	22500	-	-

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		100	22	6	-	-	-	13200	-
	III	100	50	6	30000	7500	22500	-	-
		100	16	6	-	-	-	9600	-
	IV	100	50	6	30000	7500	22500	-	-
		100	10	6	-	-	-	6000	-
	V	100	49	6	29400	7350	22050	-	-
		100	5	6	-	-	-	3000	-
	VI	100	48	6	28800	7200	21600	-	-
Total					148200	37050	111150	31800	15000
X1Y1- EF	I	100	86	2	-	-	-	-	17200
	II	100	50	6	30000	7500	22500	-	-
		100	33	6	-	-	-	19800	-
	III	100	50	6	30000	7500	22500	-	-
		100	27	6	-	-	-	16200	-
	IV	100	50	6	30000	7500	22500	-	-
		100	20	6	-	-	-	12000	-
	V	100	48	6	28800	7200	21600	-	-
		100	15	6	-	-	-	9000	-
	VI	100	37	6	22200	5550	16650	-	-
100		20	6	-	-	-	12000	-	
Total					141000	35250	105750	69000	17200
XY-GH	I	133	42	2	-	-	-	-	11172
	II	123	22	6	16236	4059	12177	-	-
		123	117	6	-	-	-	12546	-
	III	98	20	6	11760	2940	8820	-	-
		98	13	6	-	-	-	7644	-
	IV	92	18	6	9936	2484	7452	-	-
		92	9	6	-	-	-	4968	-
	V	86	16	6	8256	2064	6192	-	-

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		86	5	6	-	-	-	2580	-
	VI	80	14	6	6720	1680	5040	-	-
Total					52908	13227	39681	27738	11172
X1Y1- GH	I	85	64	2	-	-	-	-	10880
	II	81	50	6	24300	6075	18225	-	-
		81	11	6	-	-	-	5346	-
	III	73	48	6	21024	5256	15768	-	-
		73	7	6	-	-	-	3066	-
	IV	65	37	6	14430	3608	10822	-	-
		65	11	6	-	-	-	4290	-
	V	56	27	6	9072	2268	6804	-	-
		56	15	6	--	-	-	5040	-
	VI	48	17	6	4896	1224	3672	-	-
		48	20	6	-	-	-	5670	-
Total					73722	18431	55291	23502	10880
Grand Total					979800	244950	734850	354516	124604

Total Mineable Reserves ROM = 9,79,800m³

Total Mineable Recoverable Reserves @ 25% = 2,44,950m³

Granite waste @ 75% = 7,34,850m³

Side Burden = 3,54,516m³

Total Waste (Granite waste + Side Burden) = 10,89,366m³

Topsoil = 1,24,604m³

Granite: Waste ratio = 1:4.5

2.6.3 Year wise Production Plan

The proposed year wise quantum of excavation and the details of estimation of production quantity and generation of waste are furnished with reference to the year wise development and production plan.

The quarrying block is shown in such a way to meet out the average annual production. The average

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annual production per year would be 11,810 m³ for the first five-year plan period considering at the rate of 25% recovery.

Total Length = 163m

Maximum width = 126m (Granite + Side burden)

Maximum depth = 32m

Table 2-9: Year wise Production Plan

YEARWISE DEVELOPMENT AND PRODUCTION										
Year	Section	Bench	L (m)	W (m)	D (m)	ROM (m³)	Recovery @25% (m³)	Granite waste @75% (m³)	Side Burden (m³)	Topsoil (m³)
I	XY-CD	i	79	70	2	-	-	-	-	11060
		ii	75	50	6	22500	5625	16875	-	-
			75	17	6	-	-	-	7650	-
	X1Y1- CD	i	79	56	2	-	-	-	-	8848
		ii	75	50	6	22500	5625	16875	-	-
			75	3	6	-	-	-	1350	-
	Total					45000	11250	33750	9000	19908
II	XY-EF	i	84	70	2	-	-	-	-	11760
		ii	81	50	6	24300	6075	18225	-	-
			81	17	6	-	-	-	8262	-
	X1Y1- EF	i	84	56	2	-	-	-	-	9408
		ii	81	50	6	24300	6075	18225	-	-
			81	3	6	-	-	-	1458	-
	Total					48600	12150	36450	9720	21168
III	XY-CD	iii	68	48	6	19584	4896	14688	-	-
			68	13	6	-	-	-	5304	-
	X1Y1- CD	iii	68	40	6	16320	4080	12240	-	-
			68	7	6	-	-	-	2856	-

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	XY-EF	iii	40	48	6	11520	2880	8640	-	-
			40	13	6	-	-	-	3120	-
	Total					47424	11856	35568	11280	-
IV	XY-EF	iii	35	48	6	10080	2520	7560	-	-
			35	13	6	-	-	-	2730	-
		iv	46	46	6	12696	3174	9522	-	-
			46	9	6	-	-	-	2484	-
	X1Y1- EF	iii	75	40	6	18000	4500	13500	-	-
			75	7	6	-	-	-	3150	-
		iv	46	30	6	8280	2070	6210	-	-
			46	11	6	-	-	-	3036	-
	Total					49056	12264	36792	11400	-
	V	XY-CD	iv	46	47	6	12972	3243	9729	-
46				9	6	-	-	-	2484	-
v			30	45	6	8100	2025	6075	-	-
			30	5	6	-	-	-	900	-
vi			10	10	6	600	150	450	-	-
X1Y1- CD		iv	46	29	6	8004	2001	6003	-	-
			46	11	6	-	-	-	3036	-
		v	30	19	6	3420	855	2565	-	-
			30	15	6	-	-	-	2700	-
		vi	10	9	6	540	135	405	-	-
			10	20	6	-	-	-	1200	-
XY-EF		v	30	44	6	7920	1980	5940	-	-
			30	4	6	-	-	-	720	-
		vi	10	10	6	600	150	450	-	-
X1Y1- EF		v	30	19	6	3420	855	2565	-	-
			30	16	6	-	-	-	2880	-
		vi	10	9	6	540	135	405	-	-

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			10	20	6	-	-	-	1200	-
	Total					46116	11529	34587	15120	-
	Grand Total					236196	59049	177147	56520	41076

Total Proposed Reserves ROM = 2,36,196m³

Total Year wise Recoverable Reserves @ 25% = 59,049m³

Granite waste @ 75% = 1,77,147m³

Side Burden = 56,520m³

Total waste (Granite waste + Side Burden) = 2,33,667m³

Topsoil = 41,076m³

Granite: waste ratio = 1:4.0

Estimated life of quarry

Total Mineable Recoverable Reserves @ 25% = 2,44,950m³

Average Production per Year @ 25% = 59,049m³/5 = 11,810m³

Estimated Life of the Quarry = 2,44,950m³/11,810m³ = 21 Years

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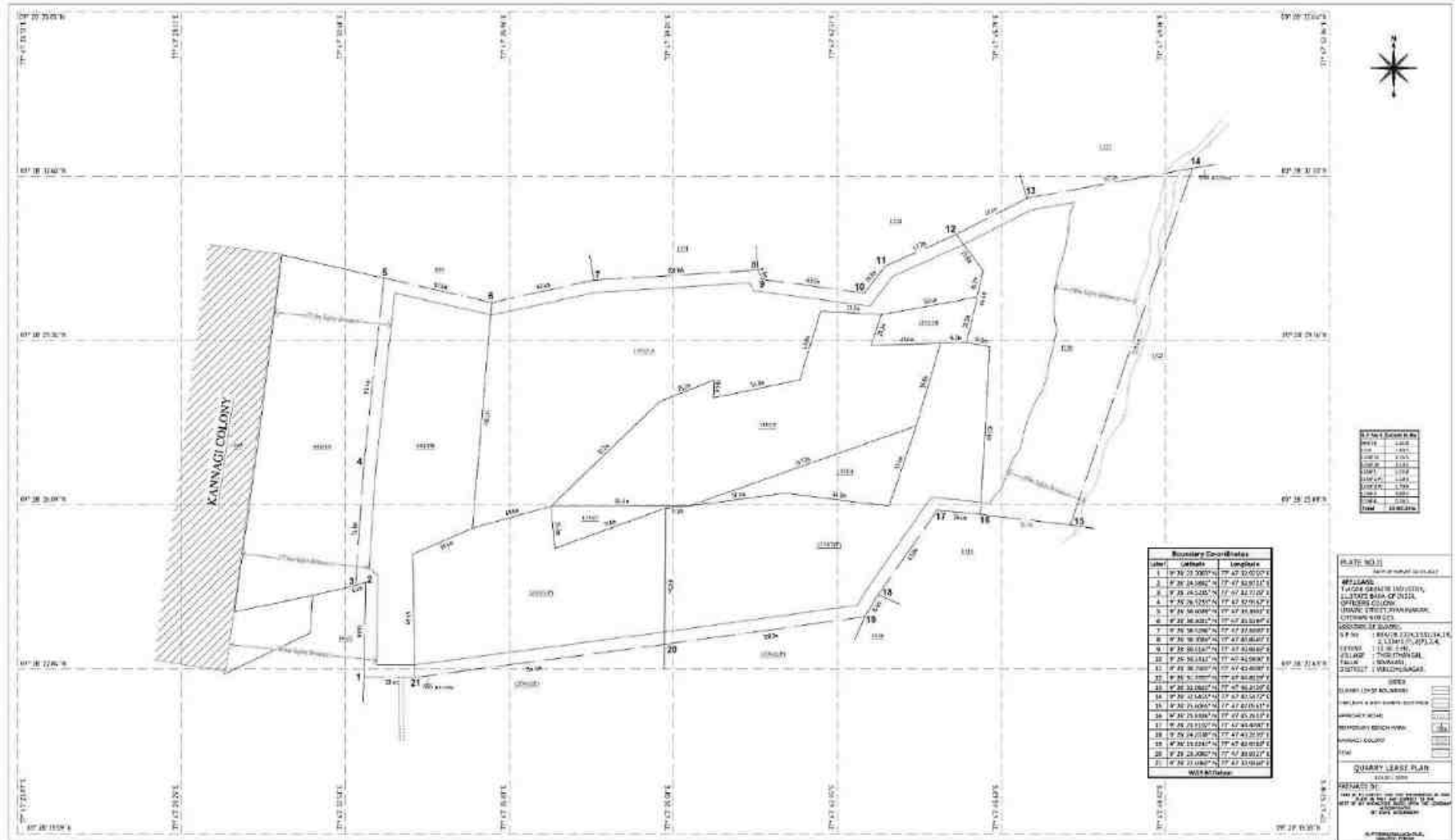


Figure 2.9 Year wise Production Plan

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2.7 TYPE OF MINING

The Multi Colour Granite is specifically used for the buildings, paving, monuments, aesthetics and many other exterior projects. The quarry operation involves manual jack hammer drilling, mild explosive blasting, Diamond wire saw cutting and dressing the splitted blocks. The removed blocks are dressed manually using feather, wedges and chiselling by the skilled labours. If huge volume of Multi colour Granite stone accumulates the same will be loaded with the help of hired excavators.

Open cast method:

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 6m 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. Recovery of the granite mineral is to be as undamaged rectangular dimensional blocks. In the attempt to form the benches and sides with the above statutory parameters haphazard blasting may be involved. In which case the commercial granite body may get spoiled inevitably due to generation of blasting cracks.
2. In the exercise of forming the benches as well as its complimentary part in the extricated block will become as mineral waste while shaping them into rectangular blocks.
3. The granite Industry need blocks as huge as a few cubic meter volumes with measurements upto 3m x 2m x 2m. Production of such huge blocks with a moving bench 6.0m height is not possible. Production of such huge blocks in turn increases the recovery and reduces the mineral waste during dressing. Blocks of smaller size of certain varieties of granite are now marketable and have a good commercial value.
4. Formation of too many benches with more height and the width equal to the height may lead to mineral lock up.

Hence, in order to avoid granite waste and to facilitate economical mining operations, it is proposed to obtain relaxation to the provisions of Regulation 106(2) upto a bench parameter of 6m height & 6m width with vertical faces. Such a provision of relaxation of the Regulation has been provided within regulation 106 (2). Further, it is to be not worthy that open cast granite quarrying operations with the above proposed bench parameters

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may not be detrimental to mines safety, since the entire terrain is made up of hard rock, compact sheet and possess high stability on slope even at higher vertical angles.

2.7.1 Method of Working:

The Granite is proposed to quarry at 6m bench height & 6m width with conventional Open cast mechanized method. The quarrying operation will be carried out in conjunction with conventional methods of mining using Jack hammer drilling and blasting for shattering effect and loosen the Multi Colour Granite.

2.7.2 Overburden

There is 41,076m³ of topsoil that will be generated during the mining plan period. The excavated topsoil will be preserved all along the safety zone and utilized for construction of bund and green belt development purposes.

2.7.3 Machineries to be used

The type of machinery proposed for quarrying operation for the entire project is listed below.

Table 2-10: List of Machineries used

Drilling and Cutting Machine

S. No	Type	Nos	Dia Hole mm	Size Capacity	Make	Motive power
1	Wagon Drill machine	1	30-35	20hp	VKTORY	Diesel drive
2	Jack hammer	8	32	1.2m to 6m	Atlas Copco	Compressed air
3	Compressor	2	-	400psi	Atlas Copco	Diesel Generator
4	Diamond wire saw	2	-	20m ³ /day	Optima	Diesel Generator
5	Diesel Generator	1	-	125kva	Kirloskar	Diesel

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Loading Equipment

S.No.	Type	Nos	Capacity	Make	Motive Power
1	Excavator	2	300	Tata Hitachi	Diesel Drive
2	Crawler Crane	1	855	Tata P&H	Diesel Drive

Haulage Within the Mine & Transport Equipment

S.No.	Type	Nos	Capacity	Make	Motive Power
1	Tippers	2	20 Tonnes	Tata	Diesel Drive

2.7.4 *Blasting:*

2.7.4.1 **Blasting Pattern:**

During future development of quarrying, removal of over burden 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 'M' type has been proposed to install in the ear marked places, and the Company is advised to get necessary licence for storing explosives in the above area after the grant of quarry lease.

The explosives that will be used are D-Cord and Gelatin sticks which are indicated below

D-Cord – 5 mg and Gelatine sticks.

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

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from the parent rock. The secondary splitting of the blocks has been done by pressure-split method with the help of feather and wedges. In view of the 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.G.P.K. Granite Industry” 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. The copy of the explosive certificate is attached as *Annexure*.

2.8 MAN POWER REQUIREMENTS

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

Table 2-11: Man Power Requirements

1.	Mines Manager (with valid statutory qualification)	1 No.
2.	Mines foreman (with valid statutory qualification)	1 No.
3.	Machinery operators (Certified)	5 Nos.
4.	Skilled labour	8 Nos.
5.	Semi – skilled	24 Nos.
6.	Unskilled	8 Nos.
	Total	47 Nos

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

2.8.1 *Water Requirement*

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

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Table 2-12: Water Requirement

Purpose	Quantity	Sources
Domestic & Flushing	2.0 KLD	Packaged Drinking water vendors are available in Thiruthangal Village which is about $\approx$ 1.00 km on NE 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	4.0 KLD	

2.9 PROJECT IMPLEMENTATION SCHEDULE

The implementation schedule of the proposed Mine Lease of Tvl.GPK Granite Industry (10.00.0 Ha) is as follows.

Table 2-15: Mining Schedule

MINING SCHEDULE					
Activity	Jan-26	Jan-27	Jan-28	Jan-29	Jan-30
Site Clearance					
Excavation – Topsoil/Overburden					
I Year Production–11250m ³ (25% - Recovery) Granite and 19908m ³ Topsoil					
II Year Production–12150m ³ (25% - Recovery) Granite and 21168m ³ Topsoil					
III Year Production–11856m ³ (25% - Recovery) Granite					
IV Year Production -12264m ³ (25% - Recovery) Granite					
V Year Production – 11529m ³ (25% - Recovery) Granite					

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2.10 SOLID WASTE MANAGEMENT

Table 2-13: Solid Waste Management

S.No	Type	Quantity	Disposal Method
1.	Organic	8.46 kg/day	Municipal bin including food waste
2.	Inorganic	12.69 kg/day	TNPSB authorized recycler

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

2.11 MINE DRAINAGE

The water table in this area is about 64m as observed in nearby bore wells. Quarry operations are confined to well above the water table. If water is encountered due to rain water and seepage, the same will be drained out by 5HP motor pumps and the drained out water will be utilized for afforestation.

2.12 POWER REQUIREMENT

The proposed Multi Colour Granite quarrying does not require any power supply for the quarrying operation.

16 Litre diesel per hour for excavator for mining and loading for Multi Colour Granite needed and 10 Litre diesel per hour for excavator for mining and loading for Topsoil.

2.13 PROJECT COST

Fixed Asset Cost:

Sl. No.	Description	Amount (Rs)
1	Land cost	3,56,69,000
2	Labour shed	4,00,000
3	Sanitary facility	1,00,000
4	First aid room and Accessories	50,000
Total		3,62,19,000

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Operational Cost:

Sl. No.	Description	Approximate Amount (Rs)
1	Excavator (2Nos)	1,12,00,000
2	Crawler Crane (1 No)	75,00,000
3	Wagon Drill Machine (1No)	50,00,000
4	Tipper (2Nos)	50,00,000
5	Diesel Generator (1No)	7,50,000
6	Wire Saw (2 Nos)	8,00,000
7	Compressor with loose tools (2 Nos)	18,00,000
8	Jack Hammer (8 Nos)	8,00,000
Total		3,28,50,000

Total Project Cost (A+B) = Rs. Rs. 6,90,69,000/- (Six Crores Ninety Lakhs and Sixty Nien Thousand Rupees only).

EMP Cost:

	Mitigation Measure	Provision for Implementation	Capital	Recurring
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	100000	100000
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	800000	50000

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	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sandbags / steel mesh / old tyres / used conveyor belts	0	0
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance	50000	5000
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	2005600
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed	10000	1000
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	200000
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0

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	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0
	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	0	0
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	0
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	25000	20000
		Installation of dust bins	5000	2000

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	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0
Mine Closure	Progressive Closure Activity - Surface Runoff Management	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	100000	5000
	Progressive Closure Activity Barbed Wire Fencing and sheet fencing on south direction quarry area will be Provisioned to control dust emission to the nearby structures	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	500000	10000
	Progressive Closure Activity Green belt development - 500 trees per one hectare - (200 Inside Lease Area & 300 Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	400000	60000
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	900000	90000
	Implementation of Final Mine Closure Activity as per Approved Mining Plan on Last Year.	For Final Closure activities 15% of the proposed closure cost will be spent during final mine closure stage - Last year	309750	0

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	Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A	The Contribution towards Green Funds @ 10% of Seigniorage fee are indicated as part of EMP Budget and not necessarily implemented in the Project Site	2355790	0
Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	10000	1000
	Air, Water, Noise and Soil Quality sampling every 6 Months for Compliance Report of EC Conditions	Submission of 2 Half Yearly Compliance - Lab Monitoring Report as per CPCB norms	0	50000
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee)	188000	47000
	Health check-up for workers will be provisioned	IME & PME Health checkup @ Rs. 1000/- per employee	0	47000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	20000
	Slope Stability Action Plan	Slope Stability action plan in the end of fourth year plan period	200000	0
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000

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No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	500000	10000
Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000
Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 st Class / 2 nd Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR, 1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	780000
Total (Rs)		3878000	3545600
Grand Total (Rs)		7423600	

EMP cost for life of mine

Year 1	Year 2	Year 3	Year 4	Year 5
7423600	3722880	3909024	4104475	4309699

Total EMP Cost: **Rs.2,34,69,678/-** (Two crore thirty four lakh sixty nine thousand and six hundred seventy eight rupees only)

2.14 GREENBELT

1. The development of greenbelt in the peripheral buffer zone of the mine area.
2. Green belt has been recommended as one of the major components of Environmental Management plan, which will improve ecology, environment and quality of the surrounding area.

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3. Local trees like, Neem, Vilvam Vaagai, Naval etc. will be planted along the lease boundary and avenues as well as over non-active dumps at a rate of 1000 trees per annum with interval 5m.

4. The rate of survival expected to be 70% in this area

Table. 2-17 Plantation/ Afforestation Program

Name of species proposed	Survival	No of species
Neem, Vilvam Vaagai, Eachai, Naval, Mantharai, Magizha Maram, Vila maram, Poo Marudhu, Panai Maram, Marudha Maram, Thandri, Sengondrai, Poovarasu, Therthag kottai , Pungam	70%	5000
Total		5000

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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 Letter No. SEIAA-TN/ F. No. 9888/SEAC/1(a) ToR-1707/2024 Dated: 27.11.2024. The baseline monitoring is carried out in

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December 2024 to February 2025 and the analysis is briefed in the EIA report. The proponent has engaged M/s. Ecotech labs Pvt. Ltd to carry out the existing baseline study.

3.1.2 Instruments Used

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

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

3.1.3 Baseline Data Collection Period:

The baseline data is collected in accordance with the CPCB Guidelines. The Baseline study is carried out from December 2024 to February 2025

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	7 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	7 locations	24 hourly Once in 7 locations
Water (Ground water)	7 locations	Once in 7 locations

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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	Sample from nearby lakes/river	One-time Sampling
Soil (Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	7 locations	Once in 7 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

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3.1.5 Secondary data Collection

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

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

3.1.6 Study area details

Table 3-2 Study area details

S. No	Description	Details	Source
1.	Project Location	S.F. Nos: 884/1B, 1326, 1333/1A, 1B, 2, 1334/1(P), 2(P), 3 and 1334/4 of Thiruthangal Village in Sivakasi Taluk, Virudhunagar District.	Field Study
2.	Latitude & Longitude	Latitude: 09°28'22.6960" N to 09°28'32.6455" N Longitude: 77°47'32.7729" E to 77°47'49.5472" E	Topo Sheet
3.	Topo Sheet No.	58-G/15	Survey of India Toposheet
4.	Mine Lease Area	10.00.0 Ha	--
Demography in the study area (as per Census 2011)			
5.	Total Population	9504	Census Survey of India
6.	Total Number of Households	2604	
7.	Maximum Temperature (°C)	38	IMD
8.	Minimum Temperature (°C)	30	

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9.	Ecological Sensitive Areas - Wetlands, watercourses or other waterbodies, coastal zone, biospheres, mountains, forests	❖ Sengulam – 1.24 Km – NE ❖ Urinjakulam – 2.75 Km – NE ❖ Puthukanmai – 3.71 Km – E ❖ Periyakulam – 1.68 Km – N ❖ Vadiyur Lake – 9.01 Km – E ❖ Idayankulam Lake – 9.81 Km – SW ❖ Chinnakulam Kanmai – 1.65 Km – S ❖ Pavalakurichi Kanmai – 6.52 Km – NE	Google Earth/Field Study																														
10.	Densely Populated area	Sivakasi – 1.80 Km – S																															
11.	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	<table border="1"> <tr> <th>S. No.</th> <th>Places</th> <th>Dist. From Project Site</th> </tr> <tr> <td colspan="3">Schools & Colleges</td> </tr> <tr> <td>1</td> <td>Government High School, Sengamala Nachiar Puram</td> <td>1.35 km, NW</td> </tr> <tr> <td>2</td> <td>SCMS Girls Higher Secondary School, Sivakasi</td> <td>1.69 km, SW</td> </tr> <tr> <td>3</td> <td>Muthumari Matric Higher Secondary School, Thiruthangal</td> <td>1.72 km, NE</td> </tr> <tr> <td>4</td> <td>Government Higher Secondary School, Thiruthangal</td> <td>2.3 Km, NE</td> </tr> <tr> <td>5</td> <td>Government Arts & Science College, Sivakasi</td> <td>3.39 km, SW</td> </tr> <tr> <td colspan="3">Hospitals</td> </tr> <tr> <td>1</td> <td>Government Hospital, Sivakasi</td> <td>1.90 Km, S</td> </tr> <tr> <td>2</td> <td>Government Primary Health Centre, Alamarathupatti</td> <td>4.61 km, E</td> </tr> </table>	S. No.	Places	Dist. From Project Site	Schools & Colleges			1	Government High School, Sengamala Nachiar Puram	1.35 km, NW	2	SCMS Girls Higher Secondary School, Sivakasi	1.69 km, SW	3	Muthumari Matric Higher Secondary School, Thiruthangal	1.72 km, NE	4	Government Higher Secondary School, Thiruthangal	2.3 Km, NE	5	Government Arts & Science College, Sivakasi	3.39 km, SW	Hospitals			1	Government Hospital, Sivakasi	1.90 Km, S	2	Government Primary Health Centre, Alamarathupatti	4.61 km, E	Google Earth/Field Study
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3.1.7 Site Connectivity:

The site is connected to the roadways as follows.

The approach road connected to Sengamala Nachiyar Puram village road 465m - W.



Figure 3.1: Site Connectivity

3.2 LAND USE ANALYSIS

3.2.1 Land Use Classification

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

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3.2.2 Methodology

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

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

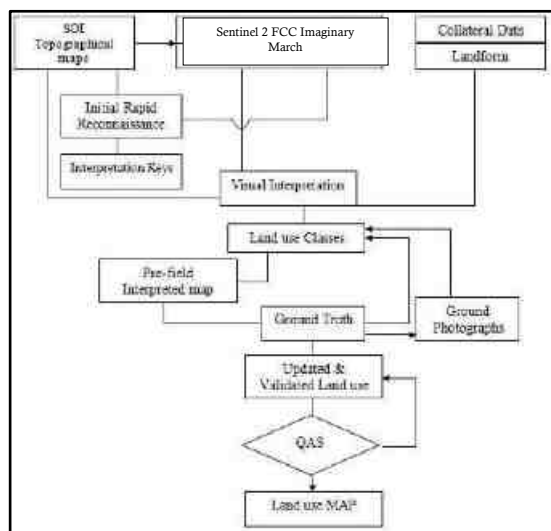


Figure 3.2 Flow Chart showing Methodology of Land use mapping

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3.2.3 *Satellite Data*

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

3.2.4 *Scale of mapping*

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

3.2.5 *Interpretation Technique*

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

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

1. Digitization of the study area (10 km radius from the proposed site) from the topo maps
2. In the present study the sentinal satellite image and SOI topo sheets of 58J/10, 58J/11, 58J/14, 58J/15 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 -I 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

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Agriculture land is divided into different classes such as cropland, Fallow, Plantation, while wastelands are broadly divided into, Land with scrub and without Scrub and Mining and Industrial wasteland. The wetlands are classified into inland wetlands, coastal wetlands and islands. The water bodies are classified further into River/stream, Canal, Tanks and bay. In the present study level II classification has been undertaken. The SOI Topo map is presented in Annexure and Satellite imagery of 10 km radius from the project site is presented Annexure

3.2.6 Field Verification

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

3.2.7 Description of the Land Use / land cover classes

3.2.7.1 Water

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

3.2.7.2 Trees

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

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3.2.7.3 Grass

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

3.2.7.4 Flooded vegetation

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

3.2.7.5 Crops

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

3.2.7.6 Scrub/Shrub

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

3.2.7.7 Built Area

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

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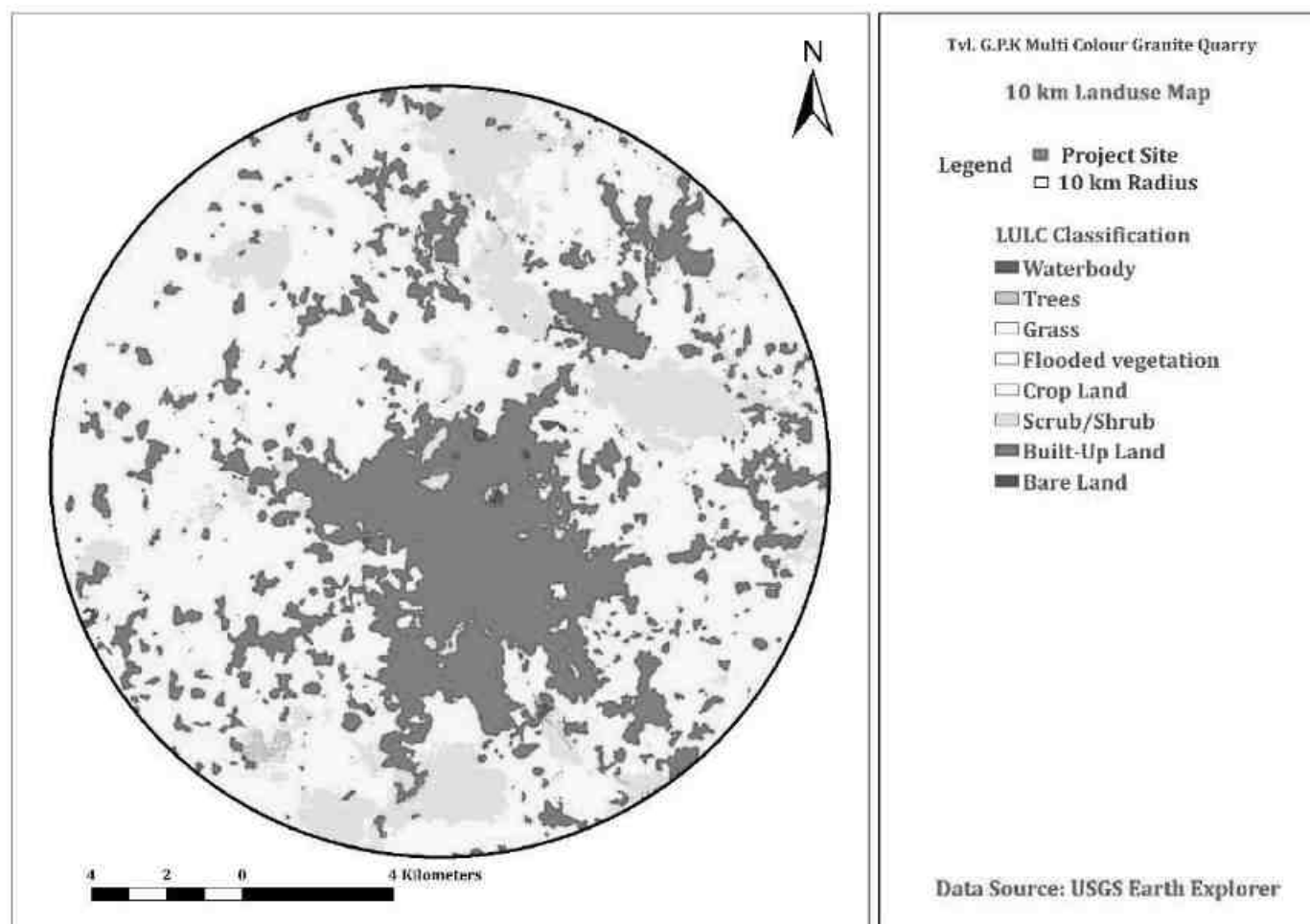


Figure 3.3 Land use classes around 10 km radius from the project site

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

Table 3-3 Land use pattern

Sl.No	Categories	Area in Sq.m
1	Water Body	0.6597
2	Trees	1.1913
3	Grass	0.2451
4	Flooded vegetation	0.036
5	Crops	201.4821
6	Scrub/Shrub	38.8896
7	Built-up Area	83.3445
8	Barren Land	0.0692

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3.3 WATER ENVIRONMENT

3.3.1 Contour & Drainage

The altitude of the area is 109m from MSL.

3.3.2 Geomorphology

Virudhunagar district is bordered by Western Ghats (Ridge and valley complex) in the West. Vally fill area is observed in Watrap block. A major part of the district constitutes a plain terrain with a gentle slope toward East and Southeast, except for the hilly terrain in the west. The prominent geomorphic units identified in the district through interpretation of Satellite imagery are; 1. Flood Plain, 2. Bazada, 3. Pediment, 4. Shallow & deep buried Pediments and 6. Structural Hills.

Soils

Soils in the area have been classified into i) Deep red Loam ii) Black soil iii) Red sandy soil. The majority of the study area is covered by Black soil. Ferruginous red soils are also seen at places. Black soils are deep to very deep and generally occurs in the depressions adjacent to hilly areas, in the western and central part of district. Alluvial soils occur along the river courses. Red sandy soil is seen all around the Sattur, Kariyapatti, Aruppukotai and Thiruchuli blocks.

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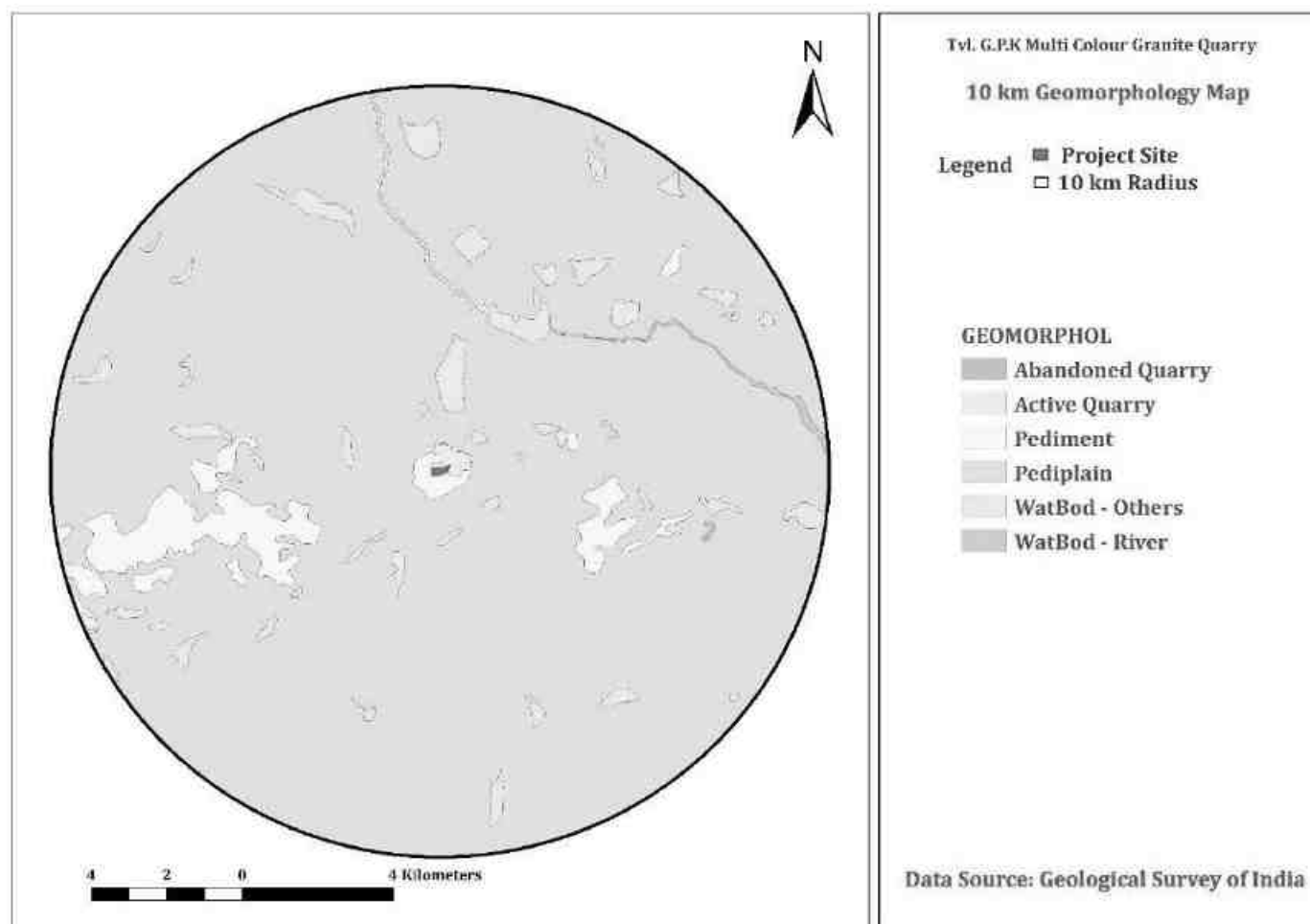


Figure 3.4 Geomorphology within 10km from the project site

3.3.3 *Geology:*

Virudhunagar district is bordered by Western Ghats (Ridge and valley complex) in the West. Valley fill area is observed in Watrap block. A major part of the district constitutes a plain terrain with a gentle slope toward East and Southeast, except for the hilly terrain in the west. The prominent geomorphic units identified in the district through interpretation of Satellite imagery are; 1. Flood Plain, 2. Bazada, 3. Pediment, 4. Shallow & deep buried Pediments and 6. Structural Hills.

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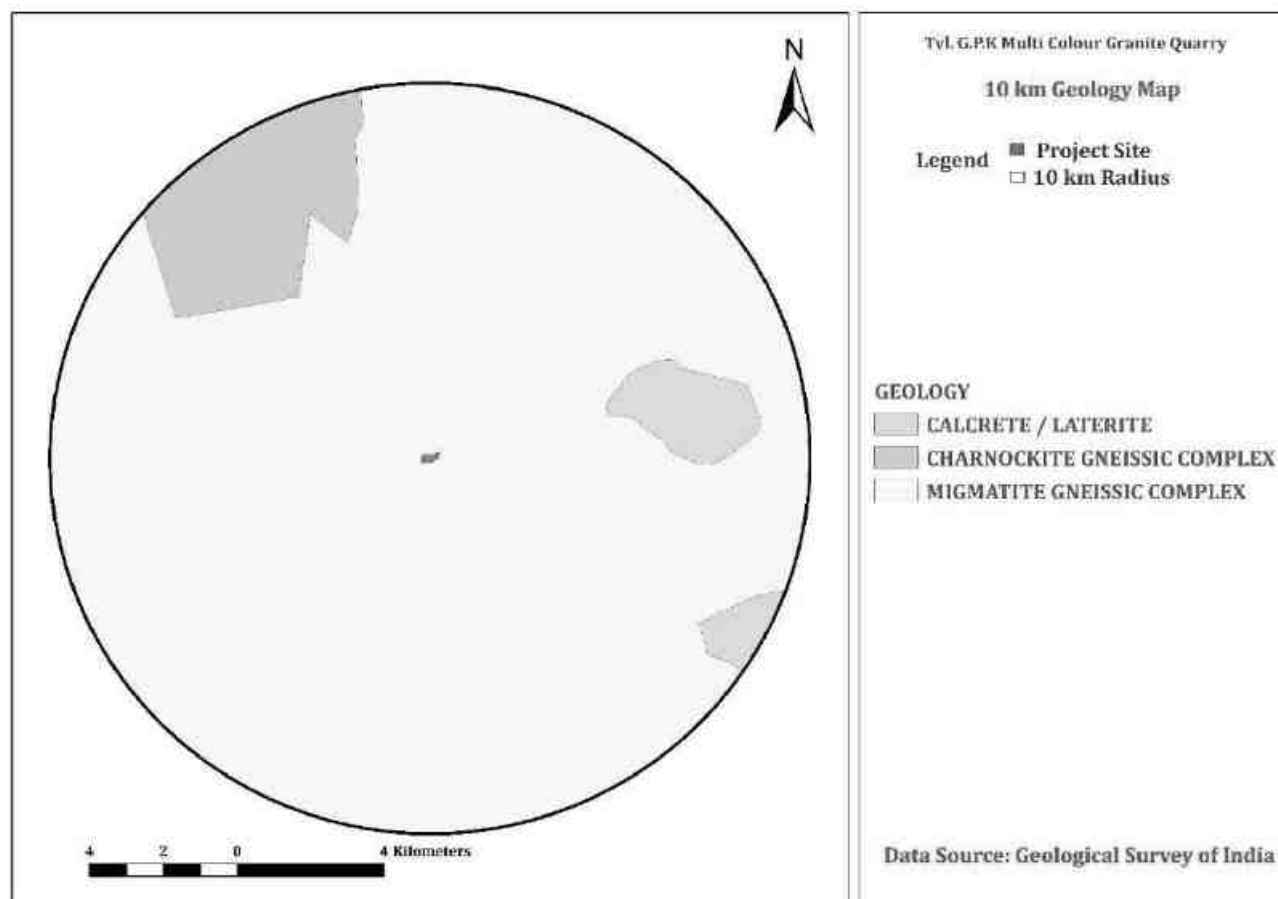


Figure 3.5 Geology within 10km from the project site

3.3.4 Hydrogeology

The district is underlain by both porous and fissured formations (Plate-II). Unconsolidated & Semi-consolidated formations and Weathered, Fissured and Fractured crystalline rocks constitute the important aquifer systems in the district.

The porous formations in the district include sandstones and clays of Recent to subrecent and Tertiary age (Quaternary). The alluvial formations comprising mainly sands, clays and gravels are confined to major drainage courses in the district. The maximum thickness of alluvium is 35.0 m. whereas the average thickness is about 25.0 m. Ground water occurs under phreatic to semi-confined conditions in these formations and is being developed by means of dug wells and filter points. Alluvium, which forms a good aquifer system along the Vaippar and Gundar river bed, which is one of the major sources of water supply to the villages.

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The water-bearing properties of crystalline formations, which lack primary porosity, depend on the extent of development of secondary intergranular porosity. The occurrence and movement of ground water in these rocks are generally confined to such spaces. These aquifers are highly heterogeneous in nature due to variation in lithology, texture and structural features even within short distances.

Ground water generally occurs under phreatic conditions in the weathered mantle and under semiconfined conditions in the fissured and fractured zones at deeper levels. The thickness of weathered zone in the district is in the range of 4 to 15 m. The depth of dug wells ranged from 10 to 15 m bgl. The yield of large diameter wells in the district, tapping the weathered mantle of crystalline rocks ranges from 40 to 110 lpm and are able to sustain pumping for 2 to 6 hours per day. The Specific capacity of large diameter wells tested in crystalline rocks ranges from 6.26 to 183.8 lpm / m. of drawdown. The yield characteristics of wells vary considerably depending on the topographic set-up, lithology and nature of weathering.

The yield of bore wells drilled down to a depth of 40 to 70 m, by various state agencies mainly for domestic purposes ranged from 10 to 250 lpm. The yield of successful bore wells ranged up to 6 lps for the drawdown varying between 5.76 and 17.56 m and drilled down to a depth of 200 m bgl during the ground water exploration program of Central Ground Water Board.

The depth to water level in the district varied between 0.67 and 12.12 m bgl during pre-monsoon (May 2006) and varied between 0.49 and 8.78 m bgl during post monsoon (Jan 2007). The seasonal fluctuation shows a rise in water level which ranges from 0.35 to 2.8 m. The piezometric head varied between 3.49 and 16.23 m bgl during pre-monsoon (May 2006) and 1.29 and 8.06 m bgl during post monsoon (Jan 2007).

Aquifer Parameters:

Formation	Transmissivity(m ² /day)	Storativity	Specific Yield(%)
Weathered Crystallines	-	-	<2
Fractured Crystallines	1-548	3.41X10 ⁻⁵ to 7.0X10 ⁻³	-

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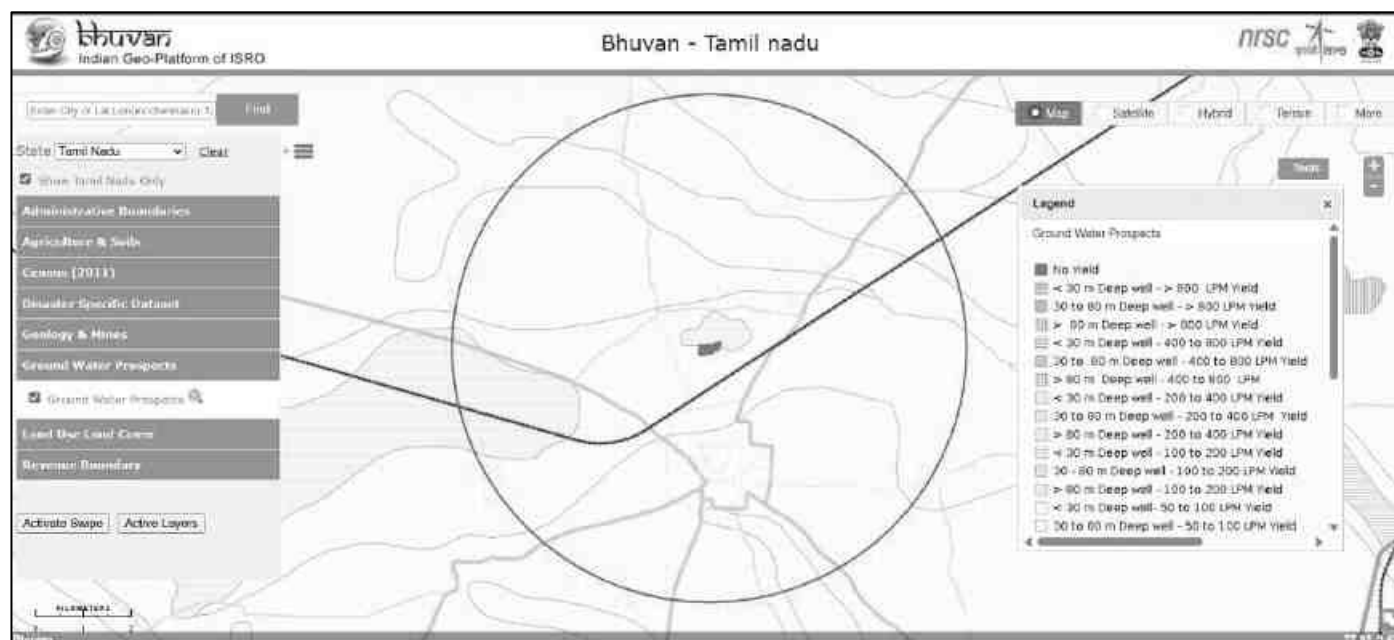


Figure 3.6 Ground water prospects within 5 km radius of the project site

3.3.5 Ground water quality monitoring

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

Table 3-4 Ground water Quality Analysis

Environmental Parameters: Ground water Quality Analysis	
Monitoring Period	December 2024 to February 2025
Design Criteria	Based on the Environmental settings in the study area
Monitoring Locations	Project Site – GW1 Siruvandiamman Kovil, Thiruthangal – GW2 Arulmigu Selva Valampuri Vinayagar Temple, kichanayackenpatti, Sivakasi, Maraneri – 626124 – GW3 Goverment primary school new building Kallipatti – GW4 Ayya Nadar Janaki Ammal Polytechnic College, Sivakasi, SH-187, Sattur Sivakasi Kalukumalai Road, Virudhunagar Virudhunagar, Tamilnadu 626141 – GW5

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	Karuppasamy, Ayyappan Temple - Sukkiravarapatti, Tamil Nadu 626130 – GW6
	SOP Marriage Hall - Parasakthi Colony, Sivakasi – GW7
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 22 nd Edn.2012-2540-C
6	Total Suspended Solids	IS:3025(P-17)-1984 RA:2012
7	Total Hardness as CaCO ₃	APHA 22 nd Edn.2012-2340-C
8	Calcium as Ca	APHA 22 nd Edn2012.3500 Ca-B
9	Magnesium as Mg	APHA 22 nd Edn.2012-3500 Mg-B
10	Chloride as Cl	IS:3025(P -32)-1988 RA: 2014
11	Sulphate as SO ₄	APHA 22 nd Edn.2012-4500 SO ₄ -E
12	Total Alkalinity as CaCO ₃	APHA 22 nd 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 22 nd 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

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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	GW 1	GW 2	GW 3	GW 4	GW 5	GW 6	GW 7
1	pH (at 25°C)	-	7.68	7.97	7.96	7.90	8.07	7.82	7.32
2	Electrical Conductivity	µS/cm	2830	1023	1296	2889	1780	2342	1010
3	Colour	Hazen Unit	BQL (LOQ:5)	BQL (LOQ:5)	BQL (LOQ:5)	BQL (LOQ:5)	BQL (LOQ:5)	BQL (LOQ:5)	BQL (LOQ:5)
4	Turbidity	NTU	BQL (LOQ:1)	BQL (LOQ:1)	BQL (LOQ:1)	BQL (LOQ:1)	BQL (LOQ:1)	BQL (LOQ:1)	BQL (LOQ:1)
5	Total Dissolved Solids	mg/L	1613	566	714	1618	1076	1288	556
6	Total Suspended Solids	mg/L	BQL (LOQ:2)	BQL (LOQ:2)	BQL (LOQ:2)	BQL (LOQ:2)	BQL (LOQ:2)	BQL (LOQ:2)	BQL (LOQ:2)
7	Total Hardness as CaCO ₃	mg/L	964	340	344	750	329	645	322
8	Calcium Hardness as CaCO ₃	mg/L	560	276	236	640	196	413	221
9	Magnesium Hardness as MgCO ₃	mg/L	404	64.1	108	110	133	232	101
10	Calcium as Ca	mg/L	225	111	94.6	257	78.9	166	88.9
11	Magnesium as Mg	mg/L	98.4	15.6	26.3	26.8	32.4	56.4	24.6
12	Chloride as Cl	mg/L	388	104	127	394	266	377	144
13	Sulphate as SO ₄	mg/L	219	53	89	256	197	122	42.1
14	Total Alkalinity as CaCO ₃	mg/L	188	181	376	284	296	280	188
15	Iron as Fe	mg/L	BQL (LOQ:0.1)	BQL (LOQ:0.1)	BQL (LOQ:0.1)	BQL (LOQ:0.1)	BQL (LOQ:0.1)	BQL (LOQ:0.1)	BQL (LOQ:0.1)
16	Silica as SiO ₂	mg/L	29.9	16.7	30.3	40.1	36.6	52.2	40.1
17	Fluoride as F	mg/L	0.24	0.22	0.27	0.23	0.26	0.31	0.29
18	Nitrate as NO ₃	mg/L	5.55	11.1	17.3	10.6	11.2	13.3	12.2
19	Potassium as K	mg/L	88.9	22.8	27.2	162	89.7	111	17.5
20	Sodium as Na	mg/L	246	62.9	66.4	249	254	265	61.2

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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): BQL(LOQ:5)

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

pH:

Value observed in the Project Site: 7.68

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

Turbidity:

Value observed in the Project Site: BQL(LOQ:1)

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 slightly turbid.

Total Dissolved Solids:

Value observed in the Project Site: 1613 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,

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Calcium:

Value observed in the Project Site: 225 mg/L.

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: 98.4 mg/L.

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

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

Chloride

Value observed in the project site: 388 mg/L.

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

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

Total Alkalinity as CaCO₃:

Value observed in the project site: 188 mg/L.

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

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

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Hardness:

Value observed in the Project Site: 964 mg/L.

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

The value of Hardness in the project site is higher than acceptable limit but within the permissible limit.

The increase in the level of hardness may cause corrosion and scaling problems, increased soap consumption and it also contributes to the salty taste of water.

3.3.7 Surface Water Analysis

Surface water samples were taken from **Sengulam – 0.94 Km – NE, Chinnakulam Kanmai – 1.55 Km - S**. The results are summarized below.

Table 3-7 Surface Water Sample Results

Parameters	Units	Sengulam	Chinna Kulam Kanmai
pH (at 25°C)	-	8.07	8.16
Electrical Conductivity	μS/cm	920	1961
Colour	Hazen Unit	10	30
Turbidity	NTU	11	18.2
Total Dissolved Solids	mg/L	522	1204
Total Suspended Solids	mg/L	12	25
Total Hardness as CaCO ₃	mg/L	194	511
Calcium Hardness as CaCO ₃	mg/L	154	319
Magnesium Hardness as MgCO ₃	mg/L	40	192
Calcium as Ca	mg/L	61.7	128
Magnesium as Mg	mg/L	9.73	46.7
Chloride as Cl	mg/L	162	349
Sulphate as SO ₄	mg/L	30.9	188
Total Alkalinity as CaCO ₃	mg/L	269	296
Iron as Fe	mg/L	0.19	0.27
Silica as SiO ₂	mg/L	22.5	43.8
Fluoride as F	mg/L	0.47	0.52
Nitrate as NO ₃	mg/L	11.1	15.5
Potassium as K	mg/L	22.3	88.9
Sodium as Na	mg/L	88.7	244
Total Kjeldahl Nitrogen as N	mg/L	22.8	26.6

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Biochemical oxygen Demand @ 27°C	mg/L	6.87	11.2
Chemical Oxygen Demand	mg/L	22.8	38.2
Dissolved Oxygen	mg/L	4.36	5.1

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

3.3.7.1 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

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

ii) Temperature

The maximum temperature is around 36°C and minimum temperature is 28°C.

iii) Rainfall

Virudhunagar district receives rainfall from both the northeast and the southwest monsoons. Monsoon season is from the months of July to November. During this time, temperature is mild and pleasant. Heavy rainfall is expected in short intervals during this period. December to February are winter months.

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This district gets maximum rainfall in November (274.7mm).

VIRUDHUNAGAR DISTRICT -NORMAL AND ACTUAL RAINFALL

Unit in mm.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F	R/F
2016	3	0.0	1.7	3.1	77.6	6.9	60.0	24.0	25.7	72.5	42.9	57.9
2017	23.2	6.2	38.1	14.2	92.4	10.0	24.1	122.5	137.0	125.7	67.6	139.0
2018	0.1	28.4	26.3	62.7	149.0	8.0	52.5	58.5	108.4	182.7	75.2	7.5
2019	8.1	3.5	6.8	0.5	6.0	29.3	12.8	89.7	178.7	203.5	111.9	62.8
2020	7.7	0.0	0.0	32.6	80.4	24.0	78.8	47.9	79.4	127.6	284.0	97.9

Source: District survey report

Meteorological Data

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

vi) Wind Rose Diagram

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

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

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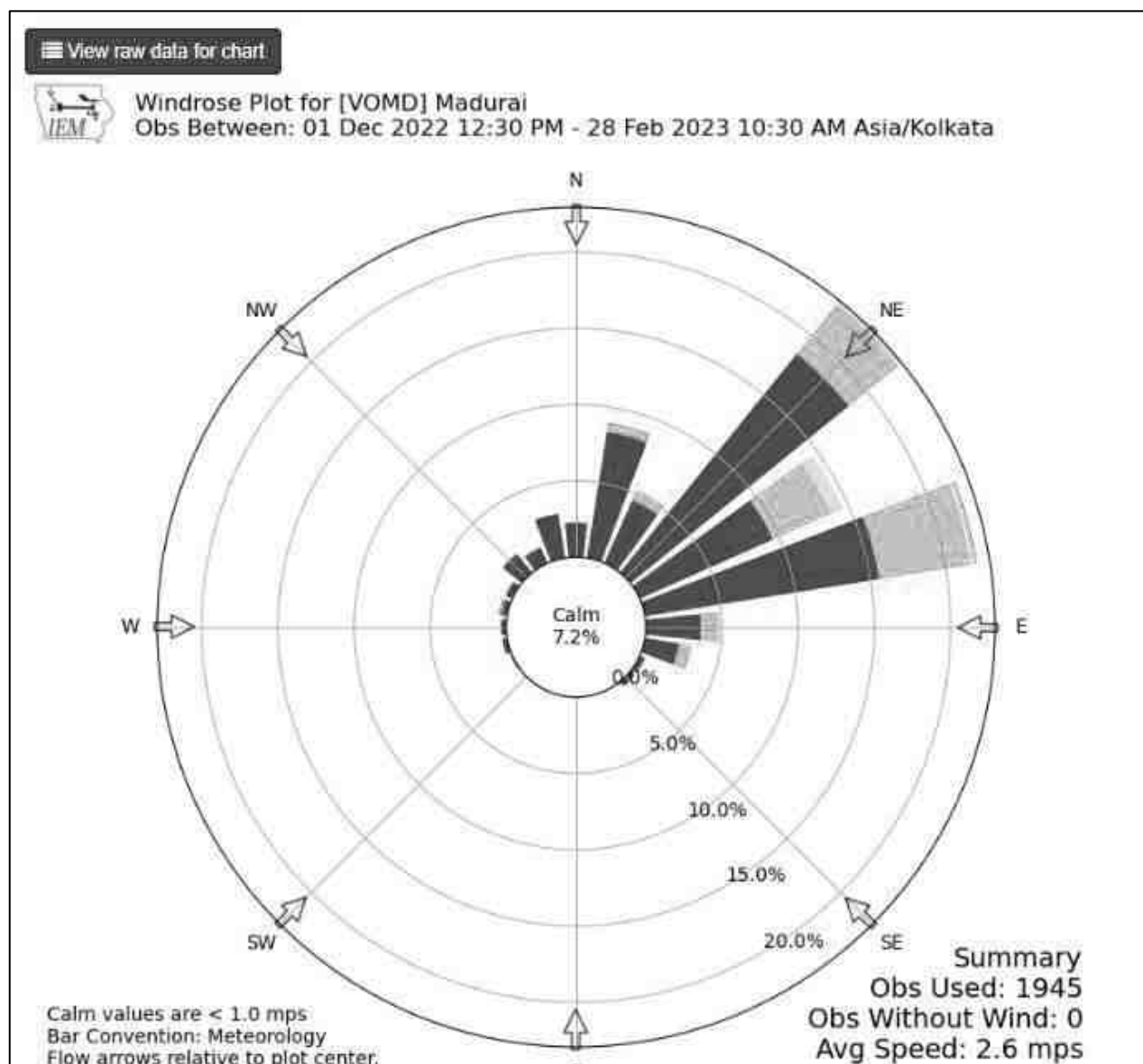


Figure 3.7 Wind rose

3.3.8 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.

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3.4 AMBIENT AIR QUALITY

Table 3-8: Selection of Sampling Location

Environmental Parameters: <i>Ambient Air</i>			
Monitoring Period	December 2024 to February 2025		
Design Criteria	The monitoring stations are selected based on factors like topography/terrain, prevailing meteorological conditions like predominant wind direction (December 2024 to February 2025), 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	--	--
	Siruvandiamman Kovil, Thiruthangal	1.86 km	Upwind NE
	Arulmigu Selva Valampuri Vinayagar Temple, kichanayackenpatti, Sivakasi, Maraneri - 626124	6.99 km	Downwind SW
	Goverment primary school new building Kallipatti	8.35 km	Crosswind NW
	Ayya Nadar Janaki Ammal Polytechnic College,	9.60 km	Crosswind SE
	Karuppasamy, Ayyappan Temple - Sukkiravarapatti,	4.33 km	Crosswind N
	SOP Marriage Hall - Parasakthi Colony, Sivakasi	1.09 Km	Crosswind S

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Methodology	Respirable Particulate Matter (PM10) - Gravimetric (IS 5182: Part 23:2006) Particulate Matter PM2.5 - Gravimetric (Fine particulate matter) Sulphur Dioxide - Calorimetric (West & Gaeke Method) (IS 5182: Part 02: 2001) Nitrogen Dioxide - Calorimetric (Modified Jacob & Hocheiser Method) (IS 5182: Part 06:2006)
Frequency of Monitoring	2 days in a week, 4 weeks in a month for 3 months in a season.

3.4.1 Ambient Air Quality: Results & Discussion

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

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Table 3-9 Ambient Air Quality

Location	PM 10 (µg/m ³)				PM 2.5 (µg/m ³)				SO2 (µg/m ³)				NOx (µg/m ³)			
	Max	Min	Avg	98 percentiles	Max	Min	Avg	98 percentiles	Max	Min	Avg	98 percentiles	Max	Min	Avg	98 percentiles
AAQ 1	55	40	48.2	54.5	24	15	19.9	24.0	22	5	8.5	16.5	22	10	16.3	21.5
AAQ 2	58	47	52.4	57.1	27	19	23.2	26.5	13	6	9.3	13.0	28	13	20.3	28.0
AAQ 3	65	54	58.8	64.1	33	22	26.7	32.1	20	12	15.0	19.5	35	17	26.9	34.1
AAQ 4	63	49	56.7	62.5	30	21	26.0	30.0	18	8	12.7	17.5	30	13	23.8	29.5
AAQ 5	58	47	53.3	57.5	28	19	24.0	28.0	16	6	10.2	15.1	31	13	20.8	29.6
AAQ 6	55	41	48.3	54.5	24	16	20.5	24.0	11	6	9.0	11.0	23	11	17.3	22.5
AAQ 7	52	45	48.6	51.5	25	17	21.5	24.5	16	12	13.7	16.0	27	18	22.0	26.5
NAAQ Standards Residential Area	100 (µg/m³)				60(µg/m³)				80 (µg/m³)				80 (µg/m³)			

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3.4.2 Interpretation of ambient air quality:

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

Observation:

The Maximum value of PM10 (65($\mu\text{g}/\text{m}^3$), PM 2.5 (33 ($\mu\text{g}/\text{m}^3$), SOx (20($\mu\text{g}/\text{m}^3$), NOx (35($\mu\text{g}/\text{m}^3$) is observed in Arulmigu Selva Valampuri Vinayagar Temple, kichanayackennpatti, Sivakasi, Maraneri - 626124.

Inference:

The monitoring results for PM10, PM2.5, Sox, NOx was found to be high in Arulmigu Selva Valampuri Vinayagar Temple, kichanayackennpatti, Sivakasi, Maraneri – 626124 which is due to the movement of vehicles .

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

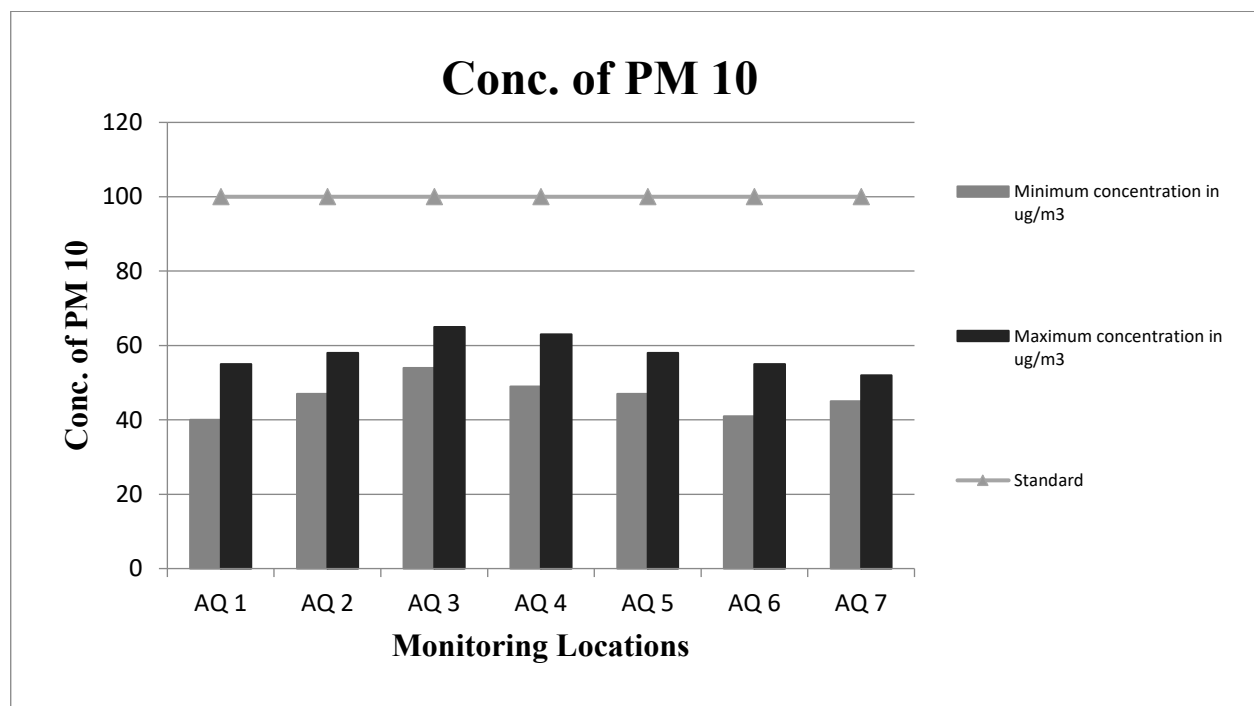


Figure 3.8 Concentration of PM10 ($\mu\text{g}/\text{m}^3$) in Study Area

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Project Proponent	Tvl. G.P.K Granite Industry	
Project Location	Thiruthangal Village, Sivakasi Taluk, Virudhunagar District	

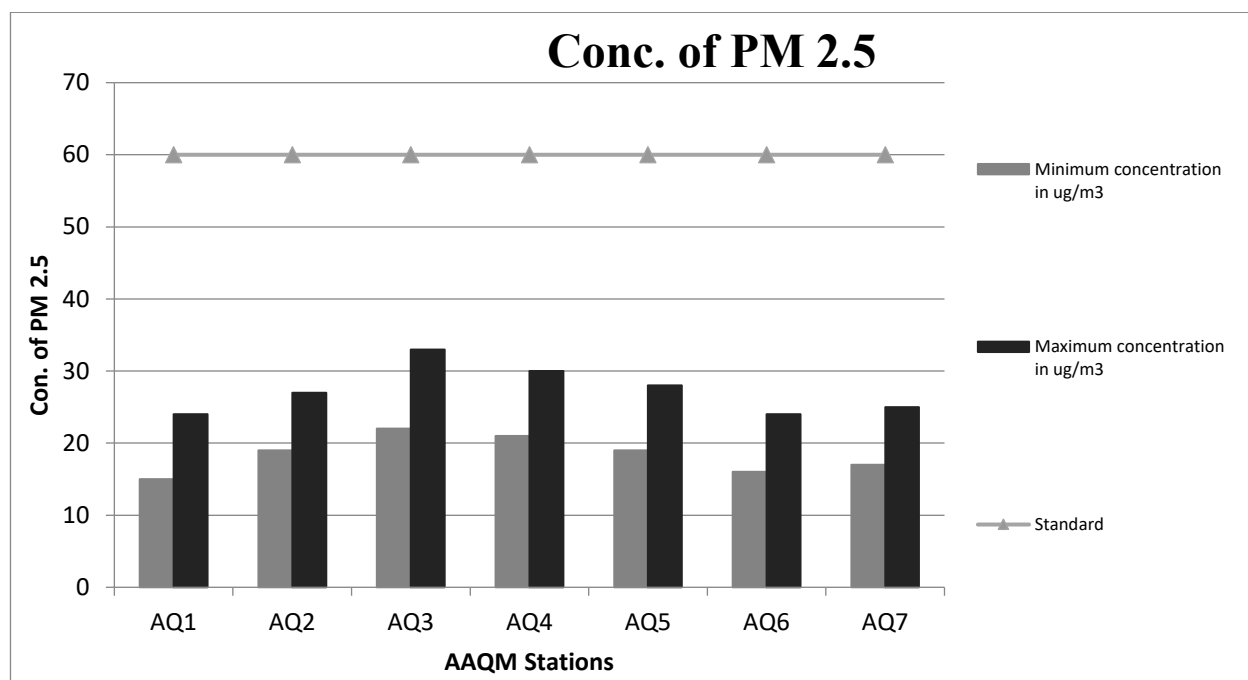


Figure 3.9 Concentration of PM2.5 ($\mu\text{g}/\text{m}^3$) in Study Area

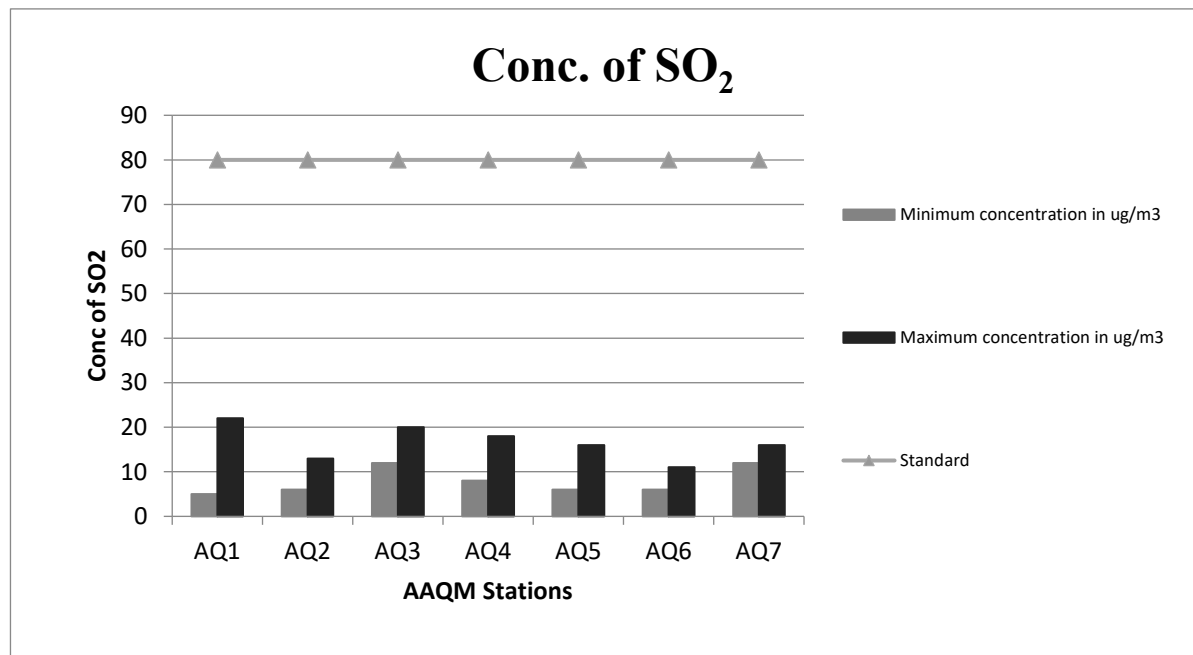


Figure 3.10 Concentration of SO_x ($\mu\text{g}/\text{m}^3$) in Study Area

Project	Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry	Draft EIA Report
Project Proponent	Tvl. G.P.K Granite Industry	
Project Location	Thiruthangal Village, Sivakasi Taluk, Virudhunagara District	

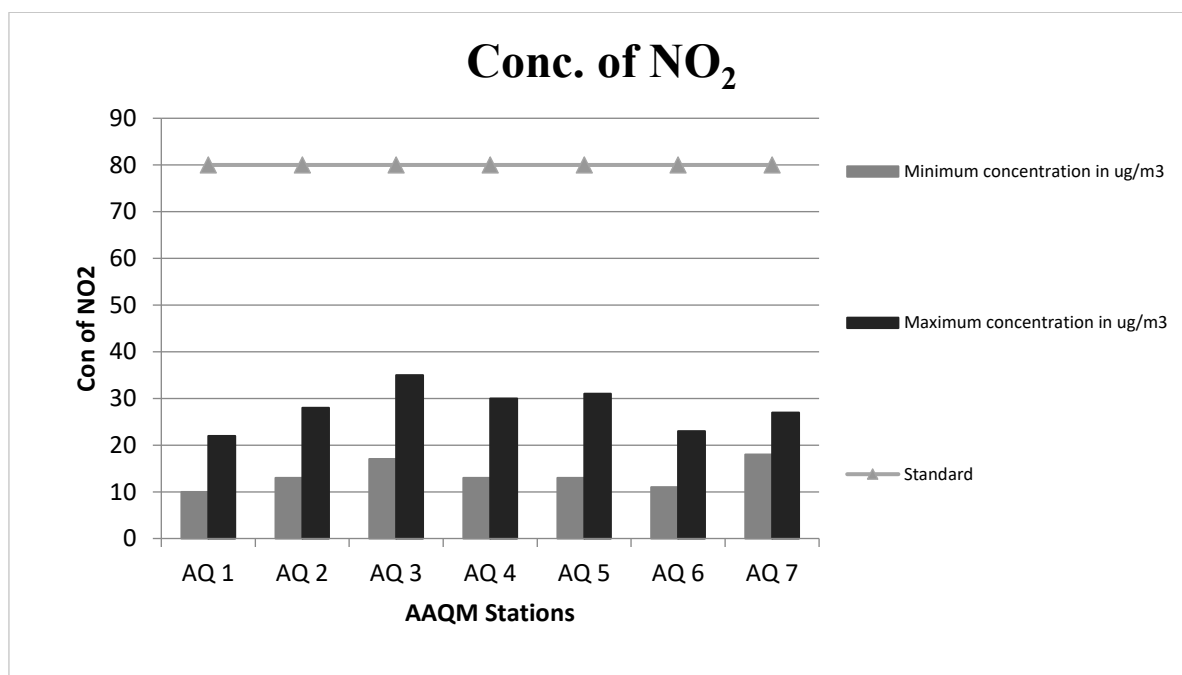


Figure 3.11 Concentration of NO_x (µg/m³) in Study Area

3.5 NOISE ENVIRONMENT:

Table 3-10 Noise Analysis

Environmental Parameters: <i>Noise Analysis</i>	
Monitoring Period	December 2024 to February 2025
Design Criteria	Based on the Sensitivity of the area
Monitoring Locations	Project Site – N1 Siruvandiamman Kovil, Thiruthangal – N2 Arulmigu Selva Valampuri Vinayagar Temple, kichanayackenpatti, Sivakasi, Maraneri – 626124 – N3 Goverment primary school new building Kallipatti – N4 Ayya Nadar Janaki Ammal Polytechnic College, Sivakasi, SH-187, Sattur Sivakasi Kalukumalai Road, Virudhunagar Virudhunagar, Tamilnadu 626141 – N5 Karuppasamy, Ayyappan Temple - Sukkiravarapatti, Tamil Nadu 626130 – N6

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	SOP Marriage Hall - Parasakthi Colony, Sivakasi – N7
Methodology	Noise level measurements were taken at the selected locations using noise level meter both during day and night time. Noise level measurements were taken continuously for 24 hours at hourly intervals
Frequency of Monitoring	Noise samples were collected from 5 locations - Once in a season

Ambient Noise Levels are monitored in the chosen 7 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
Project Site	51	41	48
Siruvandiamman Temple	57	46	53
Arulmigu Selva Valampuri Vinayagar Temple	65	55	60
Govt Primary School Kallipatti	66	56	61
Ayya Nadar Janaki Ammal College	55	45	52
Karuppusamy Ayyappan Temple	60	49	55
Sop Marriage Hall	55	43	50

3.5.2 Night Noise Level (Leq Night)

Table 3-12 Night Noise Level (Leq Night)

Location	Noise level dB(A)		
	Max	Min	Average
Project Site	43	36	39
Siruvandiamman Temple	47	39	42

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Arulmigu Selva Valampuri Vinayagar Temple	52	45	48
Govt Primary School Kallipatti	53	46	49
Ayya Nadar Janaki Ammal College	44	36	40
Karuppusamy Ayyappan Temple	46	39	42
Sop Marriage Hall	42	35	38

Observation:

The maximum Day noise and Night noise were found to be 66 dB(A) and 53 dB(A) respectively in Govt Primary School Kallipatti. The minimum Day Noise and Night noise were 41 dB (A) and 36 dB(A) respectively which was observed in Project site. The observed values are all well within the Standards prescribed by CPCB.

3.6 SOIL ENVIRONMENT

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

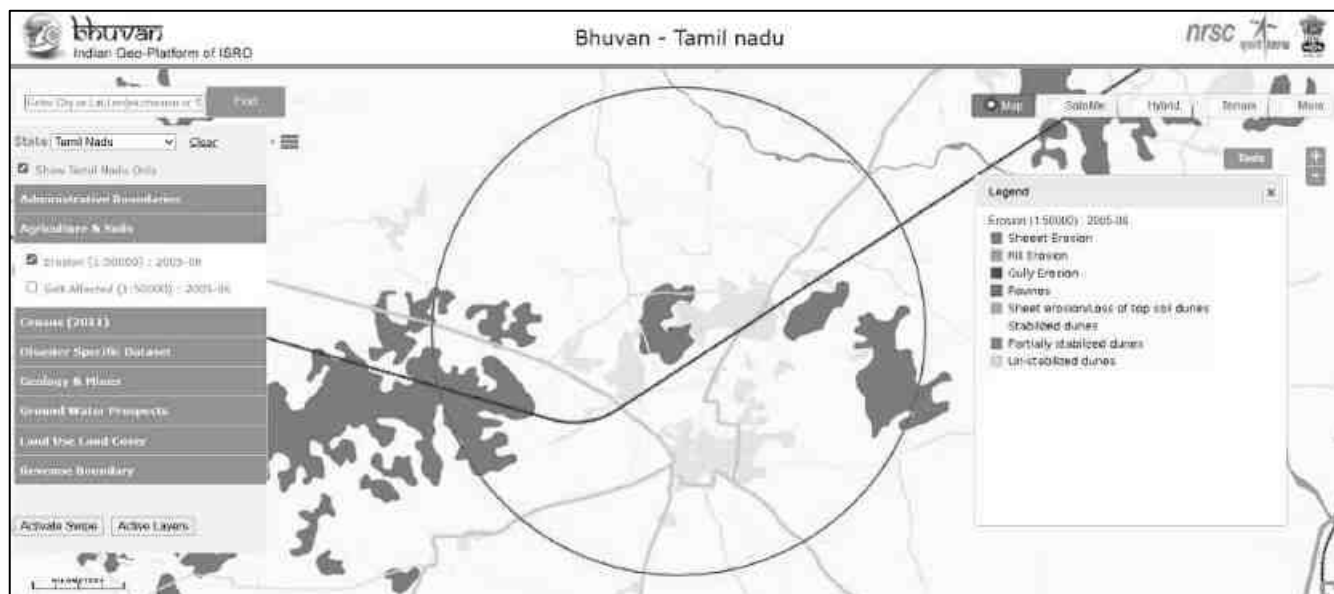


Figure 3.12 Soil Erosion pattern within 5 km radius of the project site

<i>Project</i>	<i>Multi Colour Granite Quarry – 10.00.0 Ha by Tvl. G.P.K Granite Industry</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Tvl. G.P.K Granite Industry</i>	
<i>Project Location</i>	<i>Thiruthangal Village, Sivakasi Taluk, Virudhungara District</i>	

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: <i>Soil Quality Analysis</i>	
Monitoring Period	December 2024 to February 2025
Design Criteria	Based on the environmental settings of the study area
Monitoring Locations	Project Site – SQ1 Siruvandiamman Kovil, Thiruthangal – SQ 2 Arulmigu Selva Valampuri Vinayagar Temple, kichanayackenpatti, Sivakasi, Maraneri – 626124 – SQ 3 Goverment primary school new building Kallipatti – GW4 Ayya Nadar Janaki Ammal Polytechnic College, Sivakasi, SH-187, Sattur Sivakasi Kalukumalai Road, Virudhunagar Virudhunagar, Tamilnadu 626141 – SQ 5 Karuppasamy, Ayyappan Temple - Sukkiravarapatti, Tamil Nadu 626130 – – GW 6 SOP Marriage Hall - Parasakthi Colony, Sivakasi – SQ 7
Methodology	Composite soil samples using sampling augers and field capacity apparatus
Frequency of Monitoring	Soil samples were collected from 7 locations Once in a season

To assess the soil quality of the study area, 7 monitoring stations were selected and the results are summarized below.

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Table 3-14 Soil Quality Analysis

Parameters	Units	SQ1	SQ2	SQ3	SQ4	SQ5	SQ6	SQ7
1.pH	-	7.65	8.02	7.65	7.88	7.38	7.13	7.78
2.Electrical Conductivity	ms/cm	0.656	0.321	0.621	0.282	0.736	0.35	0.19
3.water holding Capacity	ml/L	4.4	5.2	6.3	5.9	7.7	6.6	3.8
4. Chloride	mg/Kg	110	102	117	105	121	110	95.2
5.Calcium	mg/Kg	220	110	65	112	30.2	61	55.3
6. sodium	mg/Kg	712	566	510	320	260	302	411
7. Potassium	mg/Kg	688	440	385	162	110	90.6	178
8. Organic matter	%	1.1	2.3	0.44	0.65	0.69	0.44	0.11
9. Magnesium	mg/Kg	60.6	40.5	50.2	36.6	20.9	40.2	26.5
10.sulphate	mg/Kg	90	50.2	62.5	52.2	131	280	277
11. CEC	meq/100g	10.2	14.1	13.3	18.1	10.3	11.2	11.1
12. Carbonate	mg/Kg	NIL	NIL	NIL	NIL	NIL	NIL	NIL
13. BiCarbonate	mg/Kg	65.6	90.6	80.2	85	212	89	78.9
14. TKN	%	0.46	0.34	0.31	0.36	0.17	0.32	0.16
15.bulk density	g/cm ³	1.38	1.22	1.19	1.33	1.09	1.32	1.34
16.Phosphorous	mg/Kg	172	181	202	192	175	202	157
17. sand	%	71.5	80.1	55	80.1	68	55	64.3
18. clay	%	7.14	6.66	10	6.77	15	10	14.3
19.silt	%	21.4	13.3	35	13.7	17	41	21.4
20.SAR	meq/Kg	14.1	12.0	9.2	12.3	15.2	9.2	12.4
21. silicon	%	0.092	0.093	0.61	0.093	0.73	0.61	0.098

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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 1.09 to 1.38 meq/100g which indicates favorable physical condition for plant growth. The water holding capacity was found in the range of 3.8 ml/1 to 7.7 ml/1.

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 7.13 to 8.02 which 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. Organic matter varies from 0.11 to 2.3%, 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.

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- 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 quadrates 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.

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<i>Project Location</i>	<i>Thiruthangal Village, Sivakasi Taluk, Virudhunagar District</i>	

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

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Table 3-16 Tree Species in the core Zone

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Dominance	Relative Density	Relative Frequency	Relative Dominance	IVI	IUCN Conservation Status
1	Ficus Carica	Athi Maram	2	2	6	0.33	33.33	1	0.28	1.68	2.17	4.45	8.31	Least Concern
2	Cocos nucifera	Thennai	10	6	6	1.67	100.0	1.67	0.15	8.40	6.52	2.39	17.32	Not assessed
3	Azadirachta indica	Veppam	17	6	6	2.83	100.0	2.83	0.13	14.29	6.52	1.98	22.79	Not assessed
4	Tamarindus indica	Puli	10	6	6	1.67	100.0	1.66	0.20	8.40	6.52	3.09	18.02	Not assessed
5	Mangifera indica	Mamaram	7	6	6	1.17	100.0	1.16	0.07	5.88	6.52	1.11	13.52	Data insufficient
6	Morinda pubescens	Nuna	6	6	6	1.00	100.0	1	0.24	5.04	6.52	3.74	15.31	Not assessed
7	Couroupita guianensis	Nagalingam	5	3	6	0.83	50.00	1.67	0.14	4.20	3.26	2.18	9.64	Not assessed
8	Bombax ceiba	Sittan	4	4	6	0.67	66.67	1	0.08	3.36	4.35	1.27	8.98	Not assessed
9	Acacia nilotica	Karuvelai	4	4	6	0.67	66.67	1	0.28	3.36	4.35	4.45	12.16	Least Concern
10	Bambusa vulgaris	Moongil	4	4	6	0.67	66.67	1	0.50	3.36	4.35	7.92	15.63	Not assessed
11	Syzygium cumini	naval	5	1	6	0.83	16.67	5	0.11	4.20	1.09	1.79	7.07	Not assessed
12	Carica papaya	Papaya	3	3	6	0.50	50.00	1	0.09	2.52	3.26	1.43	7.21	Not assessed
13	Psidium guajava	Guava	3	3	6	0.50	50.00	1	0.23	2.52	3.26	3.61	9.39	Not assessed
14	Cassia siamea	ManjalKonrai	3	2	6	0.50	33.33	1.5	0.07	2.52	2.17	1.11	5.81	Least Concern
15	Ficus religiosa	Arasa maram	3	3	6	0.50	50.00	1	0.09	2.52	3.26	1.35	7.13	Not assessed

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

Table 3-17 Shrubs in the Core Zone

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

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

Table 3-18 Herbs & Grasses in the core zone

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

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

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

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

i. Species Diversity

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Ficus Carica	Athi Maram	2	0.018182	-4.00733	-0.07286
Cocos nucifera	Thennai	10	0.090909	-2.3979	-0.21799
Azadirachta indica	Veppam	17	0.154545	-1.86727	-0.28858
Tamarindus indica	Puli	10	0.090909	-2.3979	-0.21799

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Mangifera indica	Mamaram	7	0.063636	-2.75457	-0.17529
Morinda pubescens	Nuna	6	0.054545	-2.90872	-0.15866
Couroupita guianensis	Nagalingam	5	0.045455	-3.09104	-0.1405
Bombax ceiba	Sittan	4	0.036364	-3.31419	-0.12052
Acacia nilotica	Karuvelai	4	0.036364	-3.31419	-0.12052
Bambusa vulgaris	Moongil	4	0.036364	-3.31419	-0.12052
Syzygium cumini	naval	5	0.045455	-3.09104	-0.1405
Carica papaya	Papaya	3	0.027273	-3.60187	-0.09823
Psidium guajava	Guava	3	0.027273	-3.60187	-0.09823
Cassia siamea	ManjalKonrai	3	0.027273	-3.60187	-0.09823
Ficus religiosa	Arasa maram	3	0.027273	-3.60187	-0.09823
Musa paradise	Vaazhai	3	0.027273	-3.60187	-0.09823
Prosopis juliflora	Vaelikaruvai	3	0.027273	-3.60187	-0.09823
Tectona grandis	Thekku	3	0.027273	-3.60187	-0.09823
Thespesia populnea	Poovarasam	3	0.027273	-3.60187	-0.09823
Causuarina equisetifolia	Savukku	2	0.018182	-4.00733	-0.07286
Alstonia scholaris	Elilaipalai	2	0.018182	-4.00733	-0.07286
Anacardium occidentale	Cashew	1	0.009091	-4.70048	-0.04273
Artocarpus heterophyllus	Palaa	2	0.018182	-4.00733	-0.07286
Aegle marmelos	Vilvam	1	0.009091	-4.70048	-0.04273
Delonix elata	Perungondrai	1	0.009091	-4.70048	-0.04273
Pithecellobium dulce	Kodukapuli	1	0.009091	-4.70048	-0.04273
Citrus medica	Elumichai	2	0.018182	-4.00733	-0.07286
Total		110			-3.02215005

H (Shannon Diversity Index) =3.02

Shrubs

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Jatropagossypifolia	Kaatamanaku	32	0.183908	-1.69332	-0.31142
Calotropis gigantea	Erukam	16	0.091954	-2.38647	-0.21945
Tabernaemontanadivaricata	Crepe Jasmine	4	0.022989	-3.77276	-0.08673
Catharanthus roseus	Nithyakalyani	4	0.022989	-3.77276	-0.08673
Datura metal	Ummattangani	7	0.04023	-3.21315	-0.12926
Robiniapseudoacacia	Black locust	15	0.086207	-2.45101	-0.21129
Acalypha indica	Kuppaimeni	18	0.103448	-2.26868	-0.23469
Stachytarpheaurticifolia	Rat tail	13	0.074713	-2.59411	-0.19381

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Woodfordia fruticosa	Velakkai	4	0.022989	-3.77276	-0.08673
Hibiscus rosa sinensis	Sembaruthi	3	0.017241	-4.06044	-0.07001
Lantana camara	Unnichi	8	0.045977	-3.07961	-0.14159
Parthenium hysterophorus	Vishapoondi	45	0.258621	-1.35239	-0.34976
Euphorbia geniculata	Amman Pacharisi	5	0.028736	-3.54962	-0.102
Total		174			-2.2234

H (Shannon Diversity Index) = 2.22

Herbs

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

H (Shannon Diversity Index) = 2.51

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i. Species diversity calculation

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

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

3.7.6 *Floral study in the Buffer Zone:*

Economically important Flora of the study area

Agricultural crops: The important crops of this district are Paddy, Maize, Ragi, Banana, Sugarcane, Cotton, Tamarind, Coconut, Mango, Groundnut, Vegetables and Flowers 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), Azadirachta indica (Neem) etc.

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

3.7.7 *Faunal Communities*

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

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

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

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

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

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

Methodology Adopted:

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

Study in the core zone:

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

Mammals: No wild mammalian species was directly sighted during the field survey. Discussion with local villagers located around the study area also could not confirm presence of any wild animal in that area. Three striped 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.

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Table 3-20 List of fauna species

Scientific Name	Common Name	Schedule of wild life protection act	IUCN conservation status
Mammals			
Funambulus pennanti	Palm Squirrel	IV	Least Concern
Mus rattus	Indian rat	IV	Not listed
Bandicota bengalensis	Indian mole rat	IV	Least Concern
Funambulus palmarum	Three stripped palm squirrel	IV	Least Concern
Herestes edwardsii	Common Mongoose	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

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Alcedo atthis	Small blue kingfisher	IV	Least concern
Cuculus canorus	Common Cuckoo	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.

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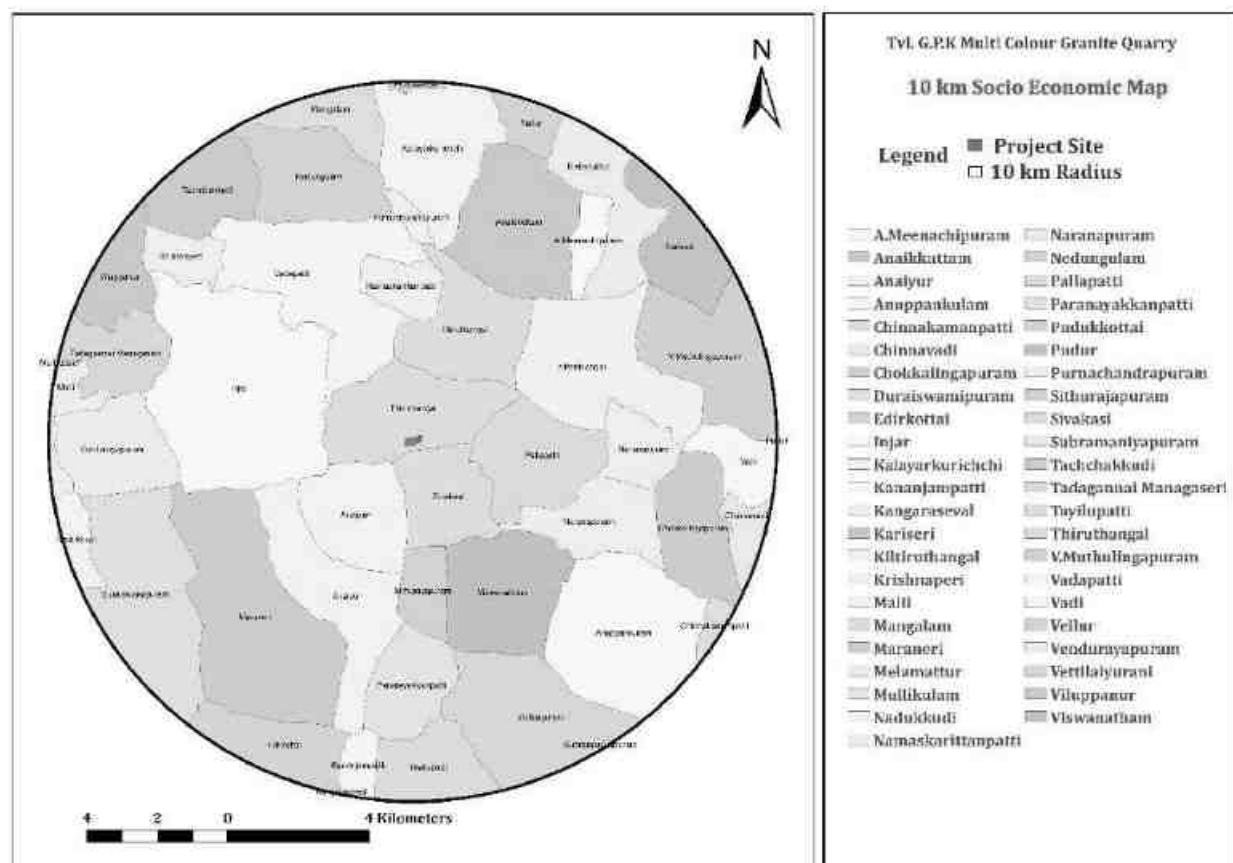


Figure 3.13 Socio Economic map surrounding the project site.

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

Table 3-21: Demography Survey Study

Source: Census of India, 2011

Villages	Household	Population	Sex Ratio		Literacy Rate		SC	ST
			Male	Female	Male	Female		
Thiruthangal	2604	9504	4743	4761	2504	2633	1505	17
Valayapatti	286	1138	578	560	434	288	8	0
Mannarkottai	380	1332	651	681	522	465	204	0
Sundaralingapuram	97	319	157	162	111	80	88	0
Appayyanayakkanpatti	354	1231	609	622	480	409	117	0
Thiruvirunthalpuram	423	1450	719	731	517	407	109	0

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Kurundamadam	398	1251	598	653	476	390	608	0
Muthulingapuram	583	2042	977	1065	736	604	390	0
Veppilaipatti	148	449	222	227	156	115	174	0
Pappakudi	617	2205	1157	1048	964	723	284	0
Athipatti	72	266	144	122	109	75	258	0

3.9 TRAFFIC IMPACT ASSESSMENT

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



Figure 3.14: Site Connectivity

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Table 3-22: No. of Vehicles per Day

S. No	Vehicles Distribution	Number of Vehicles Distribution/Day	Passenger Car Unit (PCU)	Total Number of Vehicle in PCU
		MDR-938	-	MDR-938
1	Cars	416	1	416
2	Buses	216	3	648
3	Trucks	154	3	462
4	Two wheelers	506	0.5	253
5	Three wheelers	178	1.5	267
Total		1470	-	2046

Table 3-23: Existing Traffic Scenario and LOS

Road	V (Volume in PCU/hr)	C (Capacity in PCU/hr)	Existing V/C Ratio	LOS
MDR-938	2046/24=85.25	220	0.38	B

Note: The existing level may be “Very Good” for MDR=937.

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

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4 Anticipated Environmental Impacts & Mitigation Measures

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

4.1 INTRODUCTION

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

Environmental Impacts can be group into Primary impacts & Secondary Impacts

Primary Impacts: These impacts are directly attributed by the project

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

Assessment of impacts is done for the following Environmental Parameters:

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

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4.2 LAND ENVIRONMENT:

Aspect	Impact	Mitigation Measures						
<i>Mining of Multi colour granite</i>	The proposed 10.00.0 Ha mine located in Thiruthangal Village having 2,36,196m³ of multi colour granite and 41,076m³ of Topsoil. The quarry operation is proposed to carry out with conventional open cast mechanized mining with 6.0 meter vertical bench and bench width of 6.0 meter. At the end of 5 years, mining lease area will be converted into ultimate pit. <table border="1"> <thead> <tr> <th>Length (m)</th><th>Width (m)</th><th>Depth (m)</th></tr> </thead> <tbody> <tr> <td>495</td><td>172</td><td>32.0</td></tr> </tbody> </table> 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. Impact on soil of the study area will be minimal as there are no wastewater generated, heavy metal infusion, stack emissions.	Length (m)	Width (m)	Depth (m)	495	172	32.0	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 5000 No's of local tree species (Neem, Vilvam Vaagai, Pungam, Magizha maram, Eachai, etc.) along the roads, outer periphery of the mining area which enhances the binding property of the soil. It is proposed to improve the affected land wherever possible for better land use, so as to support vegetation and creation of water reservoir in the ultimate pit after quarrying. The source of dust generation is majorly due to drilling, blasting, loading & unloading of the mined-out mineral, the impact will be mitigated by water sprinkling regularly once in 3hrs.
Length (m)	Width (m)	Depth (m)						
495	172	32.0						

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	Impact due to transformation of terrain characteristics over the large area results in soil degradation. Solid waste will be generated from the mining activity as there will be refuse also generation of domestic waste. If it is not properly managed, may cause odor and health problem to the workers.	The proposed mining activity is carried out in plain terrain. After removal of minerals, undulating portion will be created. Excavated area or ultimate pit at the end of the mine period will be converted into water reservoir. Two tier tree belts will be planted along the safety distance. The 100% recovery is achieved by extracting the entire mineable reserve. Hence there will be no refuse generation due to the mining activity. Apart from that, a very meagre quantity of domestic waste will be generated in the project, which will be handed over to the local body on daily basis.

4.3 WATER ENVIRONMENT:

Aspect	Impact	Mitigation Measures
<i>Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.</i>	The mining in the area may cause ground water contamination due to intersection of the water table and mine runoff.	The water table in this area is about 64m as observed in nearby bore wells. Quarry operations are confined to well above the water table. If water is encountered at due to rain water and seepage, the same will be drained out by 5HP motor pumps and the drained-

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	The ground water depletion may occur due to mining activity Chemicals consisting of nitrate used for blasting may pollute the surface run off. Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labours.	out water will be utilized for afforestation. 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 table is at a depth of 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. 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. 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

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4.4 AIR ENVIRONMENT:

Aspect	Impact	Mitigation Measures
<i>Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.</i>	<i>Impacts during Operation Phase</i> During mining operation, fugitive dust and other air pollutants like particulate matter (PM10 & PM 2.5) will be generated. The main source of pollutants arises due to drilling and blasting. 2 Nos of Tipper will be used for loading and unloading, 4 Nos of Wagon Drill machine 30-35mm Dia and 8 Nos Jack Hammer 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.	<i>Mitigation Measures during Operation Phase</i> It is proposed to plant 5000 Nos of local species along the haul roads, outer periphery within the lease area to prevent the impact of dust in consultation with Forest department for the plantation of trees (Neem, Magizham, Tamarind, Elandhai and Vilvam) in two tier to combat air pollution and with herbs (Nerium) in between the tree species. 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 938. 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.

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	<u><i>Effect on Human</i></u> • 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. <u><i>Effect on Plants</i></u> • Stomatal index may be minimized due to dust deposit on leaf.	The trucks will be covered by tarpaulin. Overloading will be avoided. Personal Protective Equipments (PPEs) like eye goggles, dust mask, leather gloves, safety shoes & boots will be provided to the workers engaged at dust generation points like excavation and loading points. 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)

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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. Wagon Drill machine – 30-35mm Dia 20HP Size Capacity
2. Jack Hammer 32 mm Dia
3. Tipper
4. Tractor Mounted - Compressor
5. Drilling and excavation with Accessories

Road Sources:

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

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

Other fugitive particulate emission sources:

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

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

Post Project Scenario

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

Predicted maximum ground level concentrations considering micro meteorological data of December 2024 to February 2025 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.

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Table 4-1 Emission Factors for uncontrolled mining

Activity	Emission Factor		References	
Topsoil handling	Scraper	0.029 Kg TSPM/ average time between spray application	USEPA (2008)	Jose I. Huertas & Dumar A. Camacho & Maria E. Huertas, Standardized emissions inventory methodology for open-pit mining areas, Environmental Science Pollution Research, 2012.
	Bulldozing	15.048 kg PM10/ Hr excavation	USEPA (2008)	
	Loading	2.3237E-04 kg PM10/ average time between spray application	USEPA (2006a)	
	Haulage	0.69718 kg PM10/VKT	USEPA (2006a) Cowherd (1988)	
Multi colour granite mining	Wet drilling	8.00E-5 lbs PM10/ Ton produce	EPA. August, 2004. Section 11.19.2, Crushed Stone Processing and Pulverized Mineral Processing. In: Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition, AP-42. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. Research Triangle Park, North Carolina.	
	Loading	1.00E-4 lbs PM10/ Ton produce		

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4.5 NOISE ENVIRONMENT:

Aspect	Impact	Mitigation Measures
<i>Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.</i>	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. Number of vehicles will be increased due to the proposed mining activity hence vehicle may collide 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.	• The machinery will be maintained in good running condition so that noise will be reduced to minimum possible level. • Awareness will be imparted to the workers once in six months about the permissible noise level and effect of maximum exposure to those levels. Adequate silencers will be provided in all the diesel engines of vehicles. • 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 equipment. • It is proposed to plant 5000 Nos. of local species (Neem, Mandharai, Athi, Tamarind, Ashoka,

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		Casuarinas and Villam) to reduce the impact of noise in the study area. The development of green belts around the periphery of the mine will be implemented to attenuate noise. • The trucks will be diverted on two roads viz. Sengamala Nachiyar Puram village road 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 ENVIRONMENT:

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

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		present.
Planting of trees	Development of afforestation in the mine lease area will have a positive impact as the land was initially a barren.	safety distance will be provided all along the boundary of the mine lease area and safety. Around 0.86.3 Ha of land is utilized for greenbelt development (2200 Nos – 5 years). This will attract avifauna thus enhancing the existing ecological environment.

4.7 SOCIO ECONOMIC ENVIRONMENT:

Aspect	Impact	Mitigation Measures
Proposed implementation of Mining activity	Land acquisition for the implementation of the project may result in loss of assets, which in return will make the PAP to shift, losing their normal routine and livelihood	The proposed project is a patta land of Tvl.GPK Granite Industry and the land is vacant. It is a granite quarry where there is no drilling and blasting involved. Hence the project does not involve Rehabilitation and resettlement
Drilling, Blasting, Loading and Transportation of the mined out mineral	The mining activities may cause dust emission, noise pollution thereby causing disturbance to the local habitat	No human activity is envisaged near the project site. The nearest human settlement is observed in Thiruthangal village which is 1.00 km, NE from site
Grazing and Rearing activities in the nearby villages	The Grazing and rearing of local animals like Sheep, Goat and cows is observed in the nearby villages, which may be affected due to the	It is proposed to use gravelled road and nearest paved road and preferred not to use unpaved roads. In

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	project as the movement of the vehicles may affect/injure the animals	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 for the infrastructural development in the area will be made available from the local markets at reasonably lower price.
Corporate Environmental Responsibility	The proposed project will help in natural resource augmentation & Community resource development.	As a part of CER i.e, 5 Lakhs will be allocated. Developing sports facilities, providing hygienic toilet, R.O Water facilities to Government Higher Sec. School, Thiruthangal.

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4.8 OTHER IMPACTS:

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

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5 Analysis Of Alternatives

5.1 GENERAL

Analysis of alternative is a significant aspect in planning and designing any project. Cost benefit analysis should be work out along with other parameters while choosing an alternative in such a way that the production is maximum and the mining operation is environment friendly and cost effective. The mine plan and mine closure plan Mining Plan was approved by The Assistant Director, Geology & Mining, Virudhunagar District prior to submission of the Form-1 and PFR.

ToR issued by the SEIAA-TN vide Letter No. SEIAA-TN/ F. No. 9888/ SEAC/1(a) ToR-1707/2024 Dated: 27.11.2024. The study for alternative analysis involves in-depth examination of site and technology.

5.1.1 *Analysis for Alternative Sites and Mining Technology*

5.1.1.1 **Alternative Site**

The proposed project is the mining of 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 principle by the State Government, there is no case for studying and exploring any other site as an alternative.

5.1.1.2 **Alternative Technology**

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

Table 5-1: Alternative for Technology and other Parameters

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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 MC puram 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 MC Puram village which is 0.45 km, N from site.

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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	7 locations	24 hourly twice a week 4 hourly. Twice a week, One non monsoon season	Project Site Siruvandiamman Kovil, Thiruthangal Arulmigu Selva Valampuri Vinayagar Temple, Goverment primary school

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NO _x		8 hourly, twice a week 24 hourly, twice a week	Ayya Nadar Janaki Ammal Polytechnic College, Sivakasi, Karuppasamy, Ayyappan Temple SOP Marriage Hall - Parasakthi Colony, Sivakasi
Noise	7 locations	24 hourly Once in 7 locations	Project Site Siruvandiamman Kovil, Thiruthangal Arulmigu Selva Valampuri Vinayagar Temple, Goverment primary school Ayya Nadar Janaki Ammal Polytechnic College, Sivakasi, Karuppasamy, Ayyappan Temple SOP Marriage Hall - Parasakthi Colony, Sivakasi
Water (Ground water) - pH - Temperature - Turbidity - Magnesium Hardness - Total Alkalinity - Chloride - Sulphate - Fluoride - Nitrate	7 locations	Once in 7 locations	Project Site Siruvandiamman Kovil, Thiruthangal Arulmigu Selva Valampuri Vinayagar Temple, Goverment primary school Ayya Nadar Janaki Ammal Polytechnic College, Sivakasi, Karuppasamy, Ayyappan Temple SOP Marriage Hall - Parasakthi Colony, Sivakasi

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• 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	Sample from nearby lakes/river	One time Sampling	Sengulam Chinnakulam Kanmai
Soil (Organic matter, Texture, pH, Electrical Conductivity, Permeability,	7 locations	Once in 7 locations	Project Site Siruvandiamman Kovil, Thiruthangal Arulmigu Selva Valampuri Vinayagar Temple, Goverment primary school

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Water holding capacity, Porosity)			Ayya Nadar Janaki Ammal Polytechnic College, Sivakasi, Karuppasamy, Ayyappan Temple SOP Marriage Hall - Parasakthi Colony, Sivakasi
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	

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

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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

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7 Additional Studies

7.1 GENERAL

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

7.1.1 *Public Hearing:*

As the proposed mining project falls under 1(a), Category B1 – Cluster Mining (includes **Existing Quarries** - Stanco Traders - 1332/1, 1332/2A, etc., (4.41.0 Ha), Stanco Traders - 1302/2, 1323/1A (1.21.50 Ha), Stanco Traders 1320/1A, 1320/1B1, 1320/1B2, etc., (1.93.0 Ha), Stanco Traders - 1325/5A1, 1325/5A2, etc., (3.29.0 Ha), Standard Granites - 1325/2B1B, 1325/2B2, 1325/2B3, etc., - (1.47.0 Ha) and Standard Granites - 1325/2A, 1325/2B1A, (0.85.50 Ha).

Abandoned /Old Quarries – NIL

Proposed Quarries – Tvl.GPK Granite Industry - 884/1B, 1326 (10.00.0 Ha)

The Total extent of the Existing / Lease expired / Proposed quarries is 23.12.0 Ha

Hence under 7(III) of EIA notification 2006 and its subsequent amendments, the project involves the Public Consultation and the same will be conducted under SPCB (TN) in Virudhunagar 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.

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7.1.3 Identification of Hazard

7.1.3.1 Blasting Pattern:

During future development of quarrying, removal of over burden 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 'M' type has been proposed to install in the ear marked places, and the Company is advised to get necessary licence for storing explosives in the above area after the grant of quarry lease. The explosives that will be used are D-Cord and Gelatin sticks which are indicated below D-Cord – 5 mg and Gelatine sticks.

7.1.3.2 Drilling and 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 conditions 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.

a. Types of explosives to be used:

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 the 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 has been done by pressure-split method with the help of feathers and wedges. In view of the above, there is no adverse effect on dust, noise and ground vibration by mining activities.

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

- For Mining – Wagon Drill machine 1 No, Jack Hammers (32 mm Dia) of 8 Nos.
- Loading Equipment – Excavator of 300 Capacity 2 Nos and Crawler Crane 855 Capacity 1 No.
- Transportation (includes within the mine and mine to destination) – Tipper 2 No of 20 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;

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- In case of eventuality, first aid will be given by the senior safety officer in the mine area initially to the injured person. The safety officer will give notice of accident as per Rule-23 of Mines Act-1952;
- The safety officer (common for 3 mines within 500m radius) will be responsible for coordination between management district authorities/DGMS etc. Regarding general safety as per Rule-181 of MMR 1961, “No person shall negligently or willfully do anything likely to endanger life or limb in the mine, or negligible or willfully omit to do anything necessary for the safety of the mine or of the persons employed there in”. The workers will be provided with protective foot wear and safety helmets;
- Cleaning of mine faces will be regularly done;
- Handling of explosives, charging and blasting will be carried out by highly skilled labors only;
- Regular maintenance and testing of all mining equipment as per manufacturer’s guidelines;
- Suppression of dust by sprinkling water on the haulage roads;

7.1.5 Safety Team:

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

7.1.6 Emergency Control Centre

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

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7.2 DISASTER MANAGEMENT

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

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

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

Major objectives of this onsite – offsite emergency plan are:

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

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

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

- Onsite (Within ML boundary)
- Offsite (Outside ML boundary)

7.2.1 Onsite off-site emergency Plan:

1- Emergency on account of:

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

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2- Disaster due to natural calamities like:

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

7.2.2 Emergency Plan:

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

7.2.3 Emergency Control:

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

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<i>Project Location</i>	<i>Thiruthangal Village, Sivakasi Taluk, Virudhunagar District</i>	

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 a patta land. There is no displacement of the population within the project area and adjacent nearby area and hence Rehabilitation & Resettlement is not applicable.

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8 Project Benefits

8.1 GENERAL

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

8.1.1 *Physical Benefits*

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

Market: Generating useful economic resources for construction. Due to demand supply chain, excavated mineral (Multi colour granite) will be sold in the market at the affordable price.

Infrastructure: The excavated multi colour granite will be used for *Laying Roads, Building & Construction Projects, Bridges*.

Enhancement of Green Cover & Green Belt Development: As a part of reclamation plan, native tree species will be planted along the safety boundary of the mine lease area. A suitable combination of trees that can grow fast and also have good leaf cover will be adopted to develop the green belt. It is proposed to plant 2200 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 multi colour 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, i.e., 5 Lakhs will be allocated. The detailed agenda, which is to be executed has been framed. The salient features of the programmes are as follows:

1. Panchayat Union Middle School, Sengamalanachiyarpuram,
Providing facilities are:

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✓ Additional buildings, Toilet facility, Books for library & Table &

2. Panchayat Union Primary School, MGR Nagar, Kannagi colony, Thiruthangal

Providing facilities are:

✓ Table, Chair, Sports equipments, Computer.

And basic amenities such as,

✓ Planting trees in and around the periphery of the school campus

✓ Environmental Science books in Tamil Language for Library

✓ Hygienic Toilet Facility & RO water facility.

8.3 PROJECT COST / INVESTMENT DETAILS

A. Fixed Asset Cost

Sl. No.	Description	Amount (Rs)
1	Land cost	3,56,69,000
2	Labour shed	4,00,000
3	Sanitary facility	1,00,000
4	First aid room and Accessories	50,000
Total		3,62,19,000

B. Operational Cost

Sl. No.	Description	Approximate Amount (Rs)
1	Excavator (2Nos)	1,12,00,000
2	Crawler Crane (1 No)	75,00,000
3	Wagon Drill Machine (1No)	50,00,000
4	Tipper (2Nos)	50,00,000
5	Diesel Generator (1No)	7,50,000
6	Wire Saw (2 Nos)	8,00,000

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7	Compressor with loose tools (2 Nos)	18,00,000
8	Jack Hammer (8 Nos)	8,00,000
Total		3,28,50,000

Total Project Cost (A+B) = Rs. 6,90,69,000/- (Six Crores Ninety Lakhs and Sixty Nien Thousand Rupees only).

EMP COST:

	Mitigation Measure	Provision for Implementation	Capital	Recurring
Air Environment	Compaction, gradation and drainage on both sides for Haulage Road	Rental Dozer & drainage construction on haul road @ Rs. 10,000/- per hectare; and yearly maintenance @ Rs. 10,000/- per hectare	100000	100000
	Fixed Water Sprinkling Arrangements + Water sprinkling by own water tankers	Fixed Sprinkler Installation and New Water Tanker Cost for Capital; and Water Sprinkling (thrice a day) Cost for recurring	800000	50000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sandbags / steel mesh / old tyres / used conveyor belts	0	0
	Wet drilling procedure / latest eco-friendly drill machine with separate dust extractor unit	Dust extractor @ Rs. 25,000/- per unit deployed as capital & @ Rs. 2500 per unit recurring cost for maintenance	50000	5000

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	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	2005600
	Stone carrying trucks will be covered by tarpaulin	Monitoring if trucks will be covered by tarpaulin	0	10000
	Enforcing speed limits of 20 km/hr within ML area	Installation of Speed Governors @ Rs. 5000/- per Tipper/Dumper deployed	10000	1000
	Regular monitoring of exhaust fumes as per RTO norms	Monitoring of Exhaust Fumes by Manual Labour	0	5000
	Regular sweeping and maintenance of approach roads for at least about 200 m from ML Area	Provision for 2 labours @ Rs.10,000/labour (Contractual) per Hectare	0	200000
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	50000	20000
Noise Environment	Source of noise will be during operation of transportation vehicles, HEMM for this proper maintenance will be done at regular intervals.	Provision made in Operating Cost	0	0
	Oiling & greasing of Transport vehicles and HEMM at regular interval will be done	Provision made in Operating Cost	0	0
	Adequate silencers will be provided in all the diesel engines of vehicles.	Provision made in Operating Cost	0	0

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	It will be ensured that all transportation vehicles carry a fitness certificate.	Provision made in Operating Cost	0	0
	Safety tools and implements that are required will be kept adequately near blasting site at the time of charging.	Provision made in OHS part	0	0
	Line Drilling all along the boundary to reduce the PPV from blasting activity and implementing controlled blasting.	Provision made in Operating Cost	0	0
	Proper warning system before blasting will be adopted and clearance of the area before blasting will be ensured.	Blowing Whistle by Mining Mate / Blaster / Competent Person	0	0
	Provision for Portable blaster shed	Installation of Portable blasting shelter	0	0
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	0
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	25000	20000
		Installation of dust bins	5000	2000
	Bio toilets will be made available outside mine lease on the land of owner itself	Provision made in Operating Cost	0	0

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Mine Closure	Progressive Closure Activity - Surface Runoff Management	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	100000	5000
	Progressive Closure Activity Barbed Wire Fencing and sheet fencing on south direction quarry area will be Provisioned to control dust emission to the nearby structures	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	500000	10000
	Progressive Closure Activity Green belt development - 500 trees per one hectare - (200 Inside Lease Area & 300 Outside Lease Area)	Site clearance, preparation of land, digging of pits / trenches, soil amendments, transplantation of saplings @ 200 per plant (capital) for plantation inside the lease area and @ 30 per plant maintenance (recurring)	400000	60000
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	900000	90000
	Implementation of Final Mine Closure Activity as per Approved Mining Plan on Last Year.	For Final Closure activities 15% of the proposed closure cost will be spent during final mine closure stage - Last year	309750	0

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	Contribution towards Green Fund. As per TNMMCR 1959, Rule 35 A	The Contribution towards Green Funds @ 10% of Seigniorage fee are indicated as part of EMP Budget and not necessarily implemented in the Project Site	2355790	0
Implementation of EC, Mining Plan & DGMS Condition	Size 6' X 5' with blue background and white letters as mentioned in MoM Appendix II by the SEAC TN	Fixed Display Board at the Quarry Entrance as permanent structure mentioning Environmental Conditions	10000	1000
	Air, Water, Noise and Soil Quality sampling every 6 Months for Compliance Report of EC Conditions	Submission of 2 Half Yearly Compliance - Lab Monitoring Report as per CPCB norms	0	50000
	Workers will be provided with Personal Protective Equipment's	Provision of PPE @ Rs. 4000/- per employee with recurring based on wear and tear (say, @ Rs. 1000/- per employee)	188000	47000
	Health check-up for workers will be provisioned	IME & PME Health checkup @ Rs. 1000/- per employee	0	47000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	20000
	Slope Stability Action Plan	Slope Stability action plan in the end of fourth year plan period	200000	0
	Mine will have safety precaution signages, boards.	Provision for signages and boards made	10000	2000

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No parking will be provided on the transport routes. Separate provision on the south side of the hill will be made for vehicles /HEMMs. Flaggers will be deployed for traffic management	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs. 10,000/- as maintenance cost	500000	10000
Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	30000	5000
Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1 st Class / 2 nd Class / Mine Foreman) under regulation 34 / 34 (6) of MMR, 1961 and Mining Mate under regulation 116 of MMR,1961 @ 40,000/- for Manager & @ 25,000/- for Foreman / Mate	0	780000
Total (Rs)		3878000	3545600
Grand Total (Rs)		7423600	

EMP cost for life of mine

Year 1	Year 2	Year 3	Year 4	Year 5
7423600	3722880	3909024	4104475	4309699

Total EMP Cost: **Rs.2,34,69,678/-** (Two crore thirty-four lakh sixty nine thousand and six hundred seventy eight rupees only).

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9 Environmental Management Plan

9.1 INTRODUCTION

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

9.2 SUBSIDENCE

Mining will be carried out by opencast mechanized mining method with drilling & blasting as per mining plan approved by Department of Mining and Geology, Virudhunagar. Subsidence/slope failures are not envisaged because there are no loose strata overlying the deposit (mineral to be excavated). The bench height will be 6m. The individual bench slope has been proposed to be kept at 60° from horizontal. Moreover, all safety standards/ safeguards will be implemented as per guidelines prescribed by Director General of Mines Safety.

9.3 MINE DRAINAGE

9.3.1 Storm water Management

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

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

9.3.2 Drainage

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

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

9.3.3 Administrative and Technical Setup

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

To carry out the above activities, Tvl.GPK Granite Industry will work in association with M/s. Ecotech Labs Pvt Ltd.

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Table 9-1: Impacts and mitigation measures

S. No	Impacts on Environment	Activity / Aspect	Anticipated impacts	Mitigation measures
1.	Air	Fugitive Emission	During mining operation, fugitive dust and other air pollutants like particulate matter (PM10 & PM 2.5) will be generated.	Planting of trees along the safety distance of the Mine Lease Area Water will be sprinkled in the site as dust suppression measure.
2.	Water	Wastewater Generation	Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labors	Provision of urinals/Latrines along with septic tank followed by soak pit arrangement will be provided in the Mine Lease area for the proper management of wastewater.
3.	Noise	Mining activities like drilling, blasting, loading and transportation	Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure. Apart from Mining activities like drilling, blasting may generate noise	Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas.

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4.	Land	Improper management of Storm water Runoff	Storm water Runoff may result in Soil Erosion	Garland drainage of 1m x 1m will be provided to avoid storm water run-off.
5.	Social Responsibility	Mining workers	Unhygienic site sanitation facilities may cause health damage to workers.	The objective is to ensure health and safety of the workers with effective provisions for the basic facilities of sanitation, drinking water, safety of equipments or machinery etc. The following will be done in the site ✓ By complying with the safety procedures, norms and guidelines (as applicable) as outlined in the National Building Code of India, Bureau of Indian Standards. ✓ Provide adequate number of decentralized latrines and urinals ✓ Providing Septic tank along with Soak pit arrangement

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				✓ 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
6.	Building materials resource conservation	Building Material consumption	Use of farfetched construction materials than the locally available construction materials may lead to over exploitation of natural resources & increase in carbon footprint.	• Use of locally available construction materials.

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10 Summary & Conclusion

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

10.1 INTRODUCTION

Tvl.GPK Granite Industry site is a cluster of four mining projects. Total cluster area is 23.12.0 Ha. The individual mine lease area is 10.00.0 Ha of Multi Colour Granite Quarry located at S.F.Nos. 884/1B, 1326, 1333/1A, 1B, 2, 1334/1(P), 2(P), 3 and 1334/4 of Thiruthangal Village in Sivakasi Taluk, Virudhunagar District..

10.2 PROJECT OVERVIEW

Table 10-1: Project Overview

S. No.	Description	Details
1	Project Name	Tvl. G.P.K Granite Industry Multi Colour Granite Quarry
2	Proponent	Tvl. G.P.K Granite Industry
3	Mining Lease Area Extent	10.00.0 Ha
4	Location	SF.Nos: 884/1B, 1326, 1333/1A, 1B, 2, 1334/1(P), 2(P), 3 and 1334/4 of Thiruthangal Village in Sivakasi Taluk, Virudhunagar District.
5	Latitude	Latitude: 09°28'22.6960" N to 09°28'32.6455" N
6	Longitude	Longitude: 77°47'32.7729" E to 77°47'49.5472" E
7	Topography	Flat terrain
8	Site Elevation above MSL	The altitude of the area is 109m from MSL.
9	Topo sheet No.	58 G/15
10	Minerals of Mine	Multi Colour Granite Quarry
11	Proposed production of Mine	Total Reserves ROM: 2,36,196 m ³ Granite Reserves @ 25%: 59,049 m ³ Granite Waste @75% : 1,77,147 m ³
12	Ultimate depth of Mining	32 m below ground level
13	Method of Mining	Open cast mechanized mining
14	Water demand	4.0 KLD

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15	Source of water	Water will be supplied through tankers supply
16	Man power	47 Nos.
17	Mining Plan Approval	Mining Plan was approved by The Commissioner, Dept. of Geology & Mining, Guindy, Chennai-600 032 vide letter Rc.No.12167/MM2/2010, dated 22.11.2022
18	Production details	In ROM: 14,46,558 m ³ Granite Reserves @ 25% : 3,61,639 m ³ Granite Waste @75%: 10,84,919 m ³ Total Reserves ROM: 2,36,196 m ³ Granite Reserves @ 25%: 59,049 m ³ Granite Waste @75% : 1,77,147 m ³
19	Boundary Fencing	7.5 m barrier all along the boundary for adjacent patta lands and 10 m safety distance for Govt. Lands. Fencing will be provided.
20	Disposal of overburden	There is 41,076m ³ of topsoil will be generated during the mining plan period. The excavated topsoil will be preserved all along the safety zone and utilized for construction of bund and green belt development purpose
21	Ground water	The quarry operation is proposed up to a depth of 32m below ground level. The water table in this area is about 64m as observed in nearby bore wells. Quarry operations are confined to well above the water table. If water is encountered due to rainwater and seepage, the same will be drained out by 5HP motor pumps and the drained out water will be utilized for afforestation.
22	Habitations within 300m radius of the Project Site	Kannagi Colony located 65m west direction from the proposed project site.
23	Drinking water	Water will be supplied through tankers from Thiruthangal Village which is about ≈ 1.00 km on NE side of the area.

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10.3 JUSTIFICATION OF THE PROPOSED PROJECT

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

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.

The most of the area in Virudhunagar District is covered by a vast tract of black soil with residual hills and knolls. Since the area is covered by thick pediments, the geology of the area is studied in available exposure and quarry section opened up for limestone, dimension stone and blue metals for various purposes. The area exposes Khondalite Group of rocks and migmatite gneisses of Precambrian (V.R.Sowmi Narayanan, et al.). The Khondalite Group of rocks comprises Charnockite, crystalline limestone/calc gneiss, garnetiferous quartzofeldspathic gneiss (leptynite), all these litho units probably represent a sequence of metamorphosed sedimentary units of arenaceous, calcareous and argillaceous composition with various intermixtures of different proportions (V.R.Sowmi Narayanan, et al.). Granite and quartz veins form the younger intrusive.

Table 10-2: Anticipate Impacts & Appropriate Mitigation Measures

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

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

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

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11 Disclosure of Consultant

11.1 INTRODUCTION

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

11.2 ECO TECH LABS PVT. LTD – ENVIRONMENT CONSULTANT

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

The Quality policy

- We at Eco Tech Labs Pvt. Ltd. engaged in providing Environmental consulting services and we are committed to strengthen our capabilities in all areas of our operations in line with customer requirements & expectations, applicable legal requirements & stakeholders expectations.
- We are committed to establish and maintain Quality Management System (QMS) for continual improvement in processes and Services
- We are committed to provide customized solutions in realistic, time bound and cost effective to achieve highest degree of customer satisfaction and Environmental improvement.
- We shall establish, maintain & periodically review our documented management systems, objectives and performance in consultation with our employees and prevailing best practices.
- Effective communication of organization's policy and objectives to employees and seeking feedbacks from all our employees and concerned stakeholders for continual improvement.

ANNEXURE-I

**STANDARD TOR CONDITIONS WITH
ADDITIONAL TOR POINTS**



THIRU. A.R. RAHUL NADH, I.A.S.
MEMBER SECRETARY

**STATE LEVEL ENVIRONMENT IMPACT
ASSESSMENT AUTHORITY-TAMILNADU**

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Chennai - 600 015.

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TERMS OF REFERENCE (ToR)

Lr.No.SEIAA-TN/F.No.9880/SEAC/I(a)ToR-1707/2024 Dated:27.11.2024.

To

Tvl. G.P.K. Granite Industry,
No. 11, State Bank of India Officer's Colony,
Ujjaini Street, Ayanavaram,
Chennai – 600 023.

Sir / Madam,

Sub: SEIAA, Tamil Nadu – Proposed Multi Colour Granite quarry lease (next scheme of mining) over an extent of 10.00.0 Ha in S.F. No: 884/IB, 1326, 1333/1A, 1B,2, 1334/1(P), 2(P), 3 and 1334/4 of Thiruthangal Village, Sivakasi Taluk, Virudhunagar District, Tamil Nadu by Tvl. G.P.K. Granite Industry - under project category – “B1” and Schedule S.No.1(a) “Mining of Minerals Projects” of EIA Notification, 2006, as amended – **ToR issued along with Public Hearing** - preparation of EIA report – Regarding.

Ref:

1. Online proposal No. SIA/TN/MIN/420761/2023, Dated: 03.03.2023.
2. Your application submitted for Terms of Reference dated: 08.03.2022.
3. Minutes of the 367th SEAC meeting held on 31.03.2023.
4. Minutes of the 502nd SEAC meeting held on 03.10.2024.
5. Minutes of the 765th SEIAA meeting held on 15.10.2024.
6. Minutes of the 510th SEAC meeting held on 14.11.2024.
7. Minutes of the 774th SEIAA meeting held on 27.11.2024

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

The proponent, Tvl. G.P.K. Granite Industry has submitted an application for Terms of Reference (ToR) on: 08.03.2022, for the Proposed Multi Colour Granite quarry lease (next scheme of mining) over an extent of 10.00.0 Ha in S.F. No: 884/1B, 1326, 1333/1A, 1B,2, 1334/1(P), 2(P), 3 and 1334/4 of Thiruthangal Village, Sivakasi Taluk, Virudhunagar District, Tamil Nadu. **Discussion by SEAC and the Remarks:-**

The proposal was placed in the **510th meeting of SEAC held on 14.11.2024**. The details of the project furnished by the proponent are available on the PARIVESH web portal (parivesh.nic.in).

The SEAC noted the following:

1. The project proponent, Tvl. G.P.K. Granite Industry has applied seeking **Terms of Reference** for the proposed multi colour granite quarry lease (next scheme of mining) over an extent of 10.00.0 Ha in S.F.No: 884/1B, 1326, 1333/1A, 1B, 2, 1334/1(P), 2(P), 3 and 1334/4 of Thiruthangal Village, Sivakasi Taluk, Virudhunagar District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) "Mining of Minerals Projects" of the Schedule to the EIA Notification, 2006, as amended.
3. The total production for the first 5 years not to exceed RoM: 236196m³ of Multi Colour Granite, Recoverable reserve: 59049m³ of Multi Colour Granite and Granite Waste: 177147 m³ to the proposed depth of 32m.
4. Earlier, the proposal was placed in this **502nd meeting of SEAC held on 03.10.2024**. Based on the presentation and details furnished by the project proponent, **SEAC decided to grant Terms of Reference (ToR) with Public Hearing** subject to the ToRs, stated in the minutes of the meeting.
5. Subsequently, the proposal was placed in the **765th meeting of SEIAA held on 08.10.2024**. After detailed discussions, the SEIAA decided to refer back the subject to SEAC for furnishing remarks on addressing the Commissioner of Geology and Mining and Director General of Mine Safety requesting their opinion before granting ToR for EIA study as habitation is located at a distance of 60m on the western side, a school with 1500 students at a distance of 260m and staff residential quarters located at just 10m on the south eastern side from the boundary of the mine lease area.

In view of the above, the proposal was placed in this **510th SEAC meeting held on 14.11.2024**. The following are the reply furnished by the PP.


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S.No	Conditions imposed by Commissioner of Geology and Mining	Reply
1.	A safety distance of 50 meters should be left out to the residential houses situated within a distance of 5 meters on the southern side of the applied area.	➤ We comply to provided 50m safety distance to the residential houses located southern side of the applied area. Already our approved mining plan is proposed with 50m safety distance the copy the same is enclosed.
2.	No hindrance shall be caused to the adjoining residential houses and the school while quarrying and transporting of Granite from the area applied for quarry lease.	➤ Quarry operations will comply with environmental regulations and noise pollution standards. ➤ Regular monitoring of air and noise pollution shall be conducted. ➤ Adequate safety measures shall be implemented to prevent accidents. ➤ Transportation routes and schedules will be optimized to minimize disruptions. ➤ We do not operate the movement of vehicles during school opening and closing times. ➤ Environmental impact assessment and mitigation measures will be implemented.
3.	The required 50 meters safety distance to the adjoining residential houses to be demarcated in the Approved Mining Plan.	➤ As recommended by the SEAC during ToR Presentation we will provide 20-meter Greenbelt development form outer boundary in the Western direction (The land belongs to quarry owners) for the safety distance to the adjoining residential houses located

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		and Approved mining plan will be furnished during final EIA presentation. ➤ The consent letter and affidavit will be furnished with land details, survey number and area which green belt will be developed in wester direction of site.
4.	The three damaged buildings located within the area applied for quarry lease shall be demolished before grant of quarry lease.	➤ The damaged building will be demolished before submission of final EIA report.

The Committee carefully considered the remarks of the Authority and the reply furnished by the PP during the presentation. Based on the presentation and details furnished by the project proponent, SEAC decided to re-iterate the recommendations already made in the 502nd SEAC meeting subject to the following additional ToRs:

1. All the conditions mentioned in the letter of Commissioner of Geology and Mining dated 28.05.2024 shall be strictly complied.
2. In order to safeguard the staff quarters located adjacent to the project site, the PP shall construct a **RCC wall of at least 15ft height** covering both the sides of staff quarters roughly **150 running metres**. The work should be completed before the submission of EIA Report.
3. The PP has indicated that the land outside the mine area on the western side is also owned by him and agreed to **plant 4 Rows of Trees** in order to minimize transmission of noise to the habitations located on the western side. The PP shall plant quick growing varieties like Bamboo and one row of bushes, as committed before the submission of EIA Report.

ANNEXURE – SEAC STANDARD TOR

1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:
 - (i) Original pit dimension
 - (ii) Quantity achieved Vs EC Approved Quantity
 - (iii) Balance Quantity as per Mineable Reserve calculated.
 - (iv) Mined out Depth as on date Vs EC Permitted depth
 - (v) Details of illegal/illicit mining
 - (vi) Violation in the quarry during the past working.



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- (vii) Quantity of material mined out outside the mine lease area
 - (viii) Condition of Safety zone/benches
 - (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.
2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.
 3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.
 4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.
 5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.
 6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.
 7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.
 8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.



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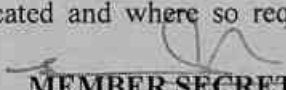
9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.
10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.
11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.
12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,
13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
14. Quantity of minerals mined out.
 - Highest production achieved in any one year
 - Detail of approved depth of mining.
 - Actual depth of the mining achieved earlier.
 - Name of the person already mined in that leases area.
 - If EC and CTO already obtained, the copy of the same shall be submitted.
 - Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,
17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the



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anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.

19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.
22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
23. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
24. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.
26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required,


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- clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.
27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
 28. Impact on local transport infrastructure due to the Project should be indicated.
 29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.
 30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.
 31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.
 32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.
 33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
 34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
 35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.
 36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific


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

37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.
42. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.

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.



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Appendix -I
List of Native Trees Suggested for Planting

No	Scientific Name	Tamil Name	Tamil Name
1	<i>Aegle marmelos</i>	Vilvam	விஜ்வம்
2	<i>Adenanthura pavonina</i>	Manjadi	மஞ்சாடி, ஆனைக்குன்றம்
3	<i>Albizia lebbek</i>	Vaagai	வாகை
4	<i>Albizia amara</i>	Usil	உசில்
5	<i>Bauhinia purpurea</i>	Mantharai	மந்தாரை
6	<i>Bauhinia racemosa</i>	Aathi	ஆத்தி
7	<i>Bauhinia tomentosa</i>	Iruvathi	இருவாத்தி
8	<i>Buchanania axillaris</i>	Kattuma	காட்டுமா
9	<i>Borassus flabellifer</i>	Panai	பனை
10	<i>Butea monosperma</i>	Murukkamaram	முருக்கமரம்
11	<i>Bobax ceiba</i>	Ilavu, Sevvilavu	இலவு
12	<i>Calophyllum inophyllum</i>	Punnai	புன்னை
13	<i>Cassia fistula</i>	Sarakondrai	சரக்கொன்றை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கொன்றை
15	<i>Chloroxylon swietenia</i>	Purasamaram	புரசு மரம்
16	<i>Cochlospermum religiosum</i>	Kongu, Manjallavu	கோங்கு, மஞ்சள் இலவு
17	<i>Cordia dichotoma</i>	Naruvuli	நருவுளி
18	<i>Creteva adansonii</i>	Mavalingum	மாவிலங்கம்
19	<i>Dillenia indica</i>	Uva, Uzha	உசா
20	<i>Dillenia pentagyna</i>	SiruUva, Sitruzha	சீறு உசா
21	<i>Diospyro sebenum</i>	Karungali	கருங்காலி
22	<i>Diospyro schloroxylon</i>	Vaganai	வாகனை
23	<i>Ficus amplissima</i>	Kalltchi	கல் இச்சி
24	<i>Hibiscus tiliaceou</i>	Aatrupoovarasu	ஆறுறுப்புலக
25	<i>Hardwickia binata</i>	Aacha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aayili	ஆயா மரம், ஆயிலி
27	<i>Lamnea coromandelica</i>	Odhiyam	ஒதியம்
28	<i>Lagerstroemia speciosa</i>	Poo Marudhu	பூ மருது
29	<i>Lepisanthus tetraphylla</i>	Neikottaimaram	நெய் கொட்டை மரம்
30	<i>Limonia acidissima</i>	Vila maram	விலா மரம்
31	<i>Litsea glutinos</i>	Pisinpattai	அரம்பா, பிசின்பட்டை
32	<i>Madhuca longifolia</i>	Illuppai	இலுப்பை
33	<i>Manilkara hexandra</i>	UlakkaiPaalai	உலக்கை பாலை
34	<i>Mimusops elengi</i>	Magizhamaram	மகிழ்மரம்
35	<i>Mitragyna parvifolia</i>	Kadambu	கடம்பு
36	<i>Morinda pubescens</i>	Nuna	நுணா
37	<i>Morinda citrifolia</i>	Vellai Nuna	வெள்ளை நுணா
38	<i>Phoenix sylvestre</i>	Eachai	சச்சமரம்
39	<i>Pongamia pinnat</i>	Pungam	புங்கம்


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40	<i>Premna mollissima</i>	Munnai	முனை
41	<i>Premna serratifolia</i>	Narumunnai	நறு முனை
42	<i>Premna tomentosa</i>	Malaipoovarasu	மலை பூவரசு
43	<i>Prosopis cinerea</i>	Varuni maram	வள்ளி மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Vennangu, Tada	வேண்ணங்கு
46	<i>Pterospermum xylocarpum</i>	Polavu	பூவடி
47	<i>Putranjiva roxburghii</i>	Karipala	கறிபலா
48	<i>Salvadora persica</i>	Ugaa Maram	ஊகா மரம்
49	<i>Sapindus emarginatus</i>	Manipungan, Soapukai	மணிப்பங்கன் சோப்புக்காய்
50	<i>Saraca asoca</i>	Asoca	அசோகா
51	<i>Strobilus asper</i>	Piray maram	பிராய் மரம்
52	<i>Strychnos nuxvomica</i>	Yetti	எட்டி
53	<i>Strychnos potatorum</i>	Therthang Kottai	தேத்தான் கொட்டை
54	<i>Syzygium cumini</i>	Navai	நாவல்
55	<i>Terminalia belleric</i>	Thandri	தாண்டி
56	<i>Terminalia arjuna</i>	Ven marudhu	வேண் மருது
57	<i>Toona ciliata</i>	Sandhana vembu	சந்தன் வேம்பு
58	<i>Thespesia populnea</i>	Puvarasu	பூவரசு
59	<i>Walsuratrifoliata</i>	valsura	வால்கரா
60	<i>Wrightia tinctoria</i>	Veppalai	வேப்பாலை
61	<i>Pithecellobium dulce</i>	Kodukkapuli	கொடுக்காப்பூளி

Discussion by SEIAA and the Remarks:-

The subject was placed in this 774th meeting of SEIAA held on 27.11.2024. The SEIAA noted that the subject was placed in the 510th meeting of SEAC held on 14.11.2024 and the SEAC has furnished its recommendation for the grant of Terms of Reference with Public Hearing to the project subject to the conditions stated therein.

After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant Terms of Reference (ToR) along with Public Hearing for the quantity of RoM of 2,36,196 m³ of Granite which includes Granite recovery of 59,049 m³ (@ 25%) and Granite waste of 1,77,147 m³ (@ 75%) and the annual peak production of 12,264 m³ of granite for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the standard and specific conditions as recommended by SEAC, standard conditions stipulated by MoEF&CC in addition to the following conditions & the conditions mentioned in 'Annexure B' of this minutes.

1. There should be no mental, physical, psychological and social disturbances to the students studying in the nearby school, due to the Project activities.

Annexure 'B'

Cluster Management Committee

1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.

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2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,
3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.
4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.
5. The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.
6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.
7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.
8. The committee shall furnish the Emergency Management plan within the cluster.
9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.
10. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
11. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.

Impact study of mining

12. 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 & soil biological, physical land chemical features .
 - 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.

Ans


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- 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.

Agriculture & Agro-Biodiversity

- 13. Impact on surrounding agricultural fields around the proposed mining Area.
- 14. Impact on soil flora & vegetation around the project site.
- 15. 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.
- 16. 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.
- 17. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
- 18. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.

Forests

- 19. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
- 20. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
- 21. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
- 22. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.

Water Environment

- 23. 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.


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24. Erosion Control measures.
25. 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.
26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.
28. 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.
29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.

Energy

31. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.

Climate Change

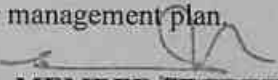
32. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.
33. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.

Mine Closure Plan

34. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.

EMP

35. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.
36. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.


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Risk Assessment

37. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.

Disaster Management Plan

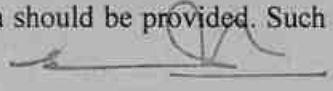
38. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.

Others

39. 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.
40. 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.
41. 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.

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


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Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).

- 5) Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
- 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
- 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
- 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. 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


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forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.

- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
- 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
- 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
- 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State 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


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

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


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- given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
- 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
- 29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
- 30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.
- 31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
- 32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
- 33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
- 34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
- 35) Occupational Health impacts of the Project should be anticipated and the proposed preventive


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- measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 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

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Ministry shall also be filled and submitted.

- g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.
- h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.
- i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
- j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

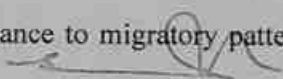
In addition to the above, the following shall be furnished:-

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

1. Project name and location (Village, District, State, Industrial Estate (if applicable).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining ~~standing that there~~

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- 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 acquisition, nearby (in 2-3 km.) water body, population, within 10km other industries, forest, eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
 18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
 19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
 20. Likely impact of the project on air, water, land, flora-fauna and nearby population
 21. Emergency preparedness plan in case of natural or in plant emergencies
 22. Issues raised during public hearing (if applicable) and response given
 23. CER plan with proposed expenditure.
 24. Occupational Health Measures
 25. Post project monitoring plan
 26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
 27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
 28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
 29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of


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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.
 - The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.


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- 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. Monitoring Cell, IA Division, Ministry of Environment, Forests & CC, Paryavaran Bhavan, CGO Complex, New Delhi 110003
5. The District Collector, Virudhunagar District.
6. Stock File.



TOR Reply of Proposed Multi Colour Granite Quarry Over an Extent of 10.00.0 Ha

COMPLIANCE OF TOR CONDITIONS

Point wise compliance of ToR points issued by SEIAA, TN vide letter No. SEIAA-TN/F. No. 9888/SEAC/1(a) ToR-1707/2024 Dated: 27.11.2024 for Mining of Minor Minerals in the Mine of “Proposed Multi Colour Granite Quarry Over an Extent of 10.00.0 Ha at S.F. Nos: 884/1B, 1326, 1333/1A, 1B, 2, 1334/1(P), 2(P), 3 and 1334/4 of Thiruthangal Village in Sivakasi Taluk, Virudhunagar District, Tamilnadu State.

ToR Ref.	Description	Response	Page Ref. in EIA Report
1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification, 1994 came into force w.r.t. the highest production achieved prior to 1994.	The Proponent has obtained the Precise Area Communication letter from Industries (MMB.2) Department, Secretariat, Chennai vide Government Letter No.5667/MMB.2/2012 19 dated 31.01.2022 for a period of Twenty Years. Mining Plan was approved by The Commissioner, Dept. of Geology & Mining, Guindy, Chennai-600 032 vide letter Rc.No.12167/MM2/2010, dated 22.11.2022 As area is being exploited for the first time hence Year-wise production details since 1994 and before 1994 are not relevant or applicable. Proposed Production of Multi colour granite for five years is proposed in the	Chapter 2 Table No.2.2 Page No.43

TOR Reply of Proposed Multi Colour Granite Quarry Over an Extent of 10.00.0 Ha

		EIA/EMP in chapter no-2. <table><tr><td>Geological Reserves</td><td>In ROM: 14,46,558 m³ Granite Reserves @ 25% : 3,61,639 m³ Granite Waste @75% : 10,84,919 m³</td></tr><tr><td>Mineable Reserves</td><td>In ROM: 9,79,800 m³ Granite Reserves @ 25%: 2,44,950 m³ Granite Waste @75% : 7,34,850 m³</td></tr><tr><td>Yearwise Development & Production Reserves</td><td>Total Reserves ROM:2,36,196 m³ Granite Reserves @ 25%: 59,049 m³ Granite Waste @75% : 1,77,147 m³</td></tr></table>	Geological Reserves	In ROM: 14,46,558 m ³ Granite Reserves @ 25% : 3,61,639 m ³ Granite Waste @75% : 10,84,919 m ³	Mineable Reserves	In ROM: 9,79,800 m ³ Granite Reserves @ 25%: 2,44,950 m ³ Granite Waste @75% : 7,34,850 m ³	Yearwise Development & Production Reserves	Total Reserves ROM:2,36,196 m ³ Granite Reserves @ 25%: 59,049 m ³ Granite Waste @75% : 1,77,147 m ³	
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Yearwise Development & Production Reserves	Total Reserves ROM:2,36,196 m ³ Granite Reserves @ 25%: 59,049 m ³ Granite Waste @75% : 1,77,147 m ³								
2.	A copy of document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	The mine lease area of 10.00.0 hectare in Thirithangal Village for Multi colour granite quarry approved by Assistant Director, Dept. of Geology & Mining, Virudhunagar vide Rc.No.12167/MM2/2010, dated 22.11.2022	Annexure-III						
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 of the project site has been submitted to The Assistant Director, Dept. of Geology & Mining, Virudhunagar	Annexure-VI Chapter- II						
4	All corner coordinates of the mine lease area, superimposed on a High-Resolution	Details of coordinates of all corners of proposed mining lease area have been incorporated in mining plan and	Chapter-2, Fig no. 2.2						

TOR Reply of Proposed Multi Colour Granite Quarry Over an Extent of 10.00.0 Ha

	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).	Chapter 2 of EIA/ EMP Report.	Page. no. 47
5	Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, important water bodies, streams and rivers and soil characteristics	Topo map as attached in Chapter-2	Chapter-2, Fig no. 2.4 Page. no. 49
6.	Details about the land proposed for mining activities should be given with information as to whether conforms to the land use policy of the state; land diversion for mining should have approval from State land use board or the concerned authority	Details about the land proposed for mining activities should be given Chapter 2.	Chapter-2 Page 47
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/	Noted.	

TOR Reply of Proposed Multi Colour Granite Quarry Over an Extent of 10.00.0 Ha

	violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non- compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large may also be detailed in the EIA report.		
8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	It is an open cast mining project. Blasting details are incorporated in chapter 2	Chapter 2, Page no.61
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	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 Page no.50

TOR Reply of Proposed Multi Colour Granite Quarry Over an Extent of 10.00.0 Ha

	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.	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-3 of EIA/ EMP Report. There is no wildlife sanctuary and national park, migratory routes of fauna in the study area.	Chapter-2, Table no. 2.4 Page no.52
11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	The overburden is in the form of topsoil and There is 41,076m³ of topsoil will be generated during the mining plan period. The excavated topsoil will be preserved all along the safety zone and utilized for construction of bund and green belt development purpose.	Chapter-2, Page no.48
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	Complied. The proposed mining lease area is not falling under forest land.	

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	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.	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	Details of flora have been discussed in Chapter-3 of the EIA/EMP Report.	Chapter-3 Pg No. 64

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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 10km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the State Wildlife Department/Chief Wildlife Warden under the Wildlife	There is no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger / Elephant Reserves / Critically Polluted areas within 10 km radius of the mining lease area.	
18	A detailed biological study of the study area [core zone and buffer zone (10 km radius of the	Details biological study (flora & fauna) within 10 km radius of the project site have been incorporated in	

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	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.	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 Pg No. 98
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 lease area is not falling under critically polluted area.	

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	the proposed mining activities could be considered.		
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	There is no Rehabilitation and resettlement is involved. Land classified as Patta land	

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	requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village located in the mine lease area will be shifted or not. The issues relating to shifting of Village including their R&R and socio-economic aspects should be discussed in the report.		
22	One season (non-monsoon) and (Summer Season), (Post monsoon) primary baseline data on ambient air quality CPCB Notification of 2009 water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in	Baseline data collected during Pre-Monsoon Season and Monsoon (December 2024 to February 2025) has been incorporated in EIA/EMP report. The key plan of monitoring station has been discussed in Chapter-4. Locations of the monitoring stations have been selected keeping in view the pre- dominant downwind direction and location of the sensitive receptors and also that they represent whole of the study area.	Chapter 3

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	view the pre- dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500m 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 modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing predominant wind direction may also be indicated	Air quality modelling & Impact of Air quality will be furnished in Final EIA report Transportation of mineral during operation of mines will be done by road & MDR-938 through dumpers and the impact of movement of vehicles are incorporated in EIA/EMP report. Air quality modelling & Impact of Air quality will be furnished in Final EIA report	Chapter 4 Page No.116

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	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.	Total water requirement: 4.0 KLD Dust Suppression: 1.0 KLD Domestic Purpose: 2.0 KLD Plantation :1.0 KLD Domestic Water will be sourced from nearby Thiruthangal which is about 1.0 Km-NE of the area.	Chapter 2 Page no.63
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 Page No.117
28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this	The water table in this area is about 64m as observed in nearby bore wells. Quarry operations are confined to well above the water table. If water is encountered at due to rainwater and seepage, the	Chapter 2 Page no. 72

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	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.	same will be drained out by 5HP motor pumps and the drained-out water will be utilized for afforestation.	
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.	The altitude of the area is 109m from MSL.	Chapter-2 Table no. 2.2 Page no. 44
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	Green Belt Development plan is proved given in Chapter 2.	Chapter-2

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	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		
	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	Impact on local transport infrastructure due to the project has been assessed. There shall not be much impact on local transport. Traffic density from the proposed mining activity has been incorporated in EIA/EMP report.	Chapter-3 Page No.118

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	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.	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 Mining Plan followed by Scheme of mining.	Mining plates Annexure VII
35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre- placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project in the mining area may be detailed	Suitable measure will be adopted to minimize occupational health impacts of the project. The project shall have positive impact on local environment. Details are given in chapter-9 of EIA/EMP.	Chapter-9 Pg No. 155

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36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Suitable measure will be adopted to minimize occupational health impacts of the project.	Chapter-9 Pg No. 148
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.	Suitable measures has been discussed in Chapter 4	Chapter 4 Pg No. 121
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 9 of the EIA/EMP Report.	Chapter 9 Pg No. 150
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	Public Hearing proceedings will be furnished in Final EIA report	

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	provided and 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.	Not applicable No. litigation is pending against the project in any court.													
41	The cost of the project (capital cost and recurring cost) as well as the cost towards implementation of EMP should clearly be spelt out.	<table><tr><th>S. No</th><th>Description</th><th>Cost</th></tr><tr><td>1</td><td>Fixed Asset Cost</td><td>3,62,19,000</td></tr><tr><td>2</td><td>Operational Cost</td><td>3,28,50,000</td></tr><tr><td></td><td>Total</td><td>6,90,69,000/-</td></tr></table> EMP Cost: Rs.2,34,69,678/-	S. No	Description	Cost	1	Fixed Asset Cost	3,62,19,000	2	Operational Cost	3,28,50,000		Total	6,90,69,000/-	Chapter-8 Pg No. 160
S. No	Description	Cost													
1	Fixed Asset Cost	3,62,19,000													
2	Operational Cost	3,28,50,000													
	Total	6,90,69,000/-													
42	Disaster Management Plan	Disaster Management and Risk Assessment has been incorporated in Chapter-7	Chapter-7 Pg No. 142												
43	Benefits of the project if the project is implemented should be spelt out. The benefits of the project shall clearly indicate environmental, social economic, employment potential etc.	Benefits of the project has incorporated	Chapter-8 Pg No. 149												
44	Besides the above, the below mentioned general points are also to be followed:														
(a)	Executive Summary of the	Executive Summary of EIA Report													

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	EIA/EMP report	is given from page No.11-34	
(b)	All documents to be properly referenced with index and continuous page numbering.	Complied	
(c)	Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.	Complied	
(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.	Complied	
(e)	Where the documents provided are in a language other than English, an English translation should be provided.	Complied	
(f)	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.	The complete questionnaire has been prepared	
(g)	While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF vide O.M. No.	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.	

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	J- 11013/41/2006-IA. II(I) dated 4th August 2009, which are available on the website of this Ministry, should also 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 with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation	There are no changes in prepared EIA as per submitted Form-1 & PFR	
(i)	As per the circular no. J- 11011/618/2010-IA. II(I) dated 30.5.2012, report on the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project by the Regional Office of Ministry of Environment &	Will be complied after grant environment clearance from SEIAA, Tamilnadu	

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	Forests, if 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 (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.	

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Additional TOR by SEAC

S.No.	Condition	Compliance
1.	All the conditions mentioned in the letter of Commissioner of Geology and Mining dated 28.05.2024 shall be strictly followed.	Noted and agree to comply.
2.	In order to safeguard the staff quarters located adjacent to the project site, the PP shall construct a RCC wall of at least 15ft height covering both the sides of the staff quarters roughly 150 running meters. The work should be completed before the submission of EIA report.	Noted. We will construct the RCC wall and submit the photographic evidence during Final EIA submission.
3.	The PP has indicated that the land outside the mine area on the western side is also owned by him and agreed to plant 4 rows of Trees in order to minimise transmission of noise to the habitations located on the western side. The PP shall plant quick growing varieties like Bamboo and one row of bushes, as committed before the submission of EIA	Noted and agree to comply.

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ToR Ref.	Description	Response
1	In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: (i) Original pit dimension (ii) Quantity achieved Vs EC Approved Quantity (iii) Balance Quantity as per Mineable Reserve calculated. (iv) Mined out Depth as on date Vs EC Permitted depth (v) Details of illegal/illicit mining (vi) Violation in the quarry during the past working. (vii) Quantity of material mined out outside the mine lease area (viii) Condition of Safety zone/benches (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.	It is a fresh Quarry.
2.	Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.	We have obtained certificate from VAO, Thiruthangal Village, Sivakasi Vattam, attached the same as Annexure VII
3	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of	Complied. Enumeration study has conducted and submitted the report to SEIAA with minutes reply.

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	residents, their profession and income, etc.,	
4	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.	Hydrological Report will be submitted along with Final EIA Appraisal Presentation.
5	The Proponent shall carry out Biodiversity study through reputed Institution and the same shall be included in EIA Report.	Biodiversity study has been conducted and detailed study is discussed in chapter 3
6	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.	We have obtained DFO NOC attached the same as Annexure X
7.	In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions -CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.	Scientific Slope study will be carryout in the end of fourth year plan period.
8	However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while	Ultimate Depth of Project is 32m BGL and we will conduct Slope Stability action plan in the end of

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	obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.	fourth year plan period
9	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.	We have enclosed blasting agreement along with EIA Report.
10	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.	There is no drilling and blasting.
11	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.	It is a fresh Quarry and newly operated by PP.
12	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,	It is a fresh quarry.
13	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	It is a fresh quarry hence Not applicable

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14	Quantity of minerals mined out Highest production achieved in any one year ➤ Detail of approved depth of mining. ➤ Actual depth of the mining achieved earlier. ➤ Name of the person already mined in that leases area. ➤ If EC and CTO already obtained, the copy of the same shall be submitted. ➤ Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.	It is a Fresh Quarry
15	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the	All corner coordinates of the lease area, Toposheet, Geomorphology, Lithology are incorporated in Chapter 3 of EIA Report.
16	The PP shall carry out Drone video survey covering the cluster, green belt, fencing, Etc.,	Drone video survey has conducted stored in Pendrive and the same has already submitted to SEIAA with minutes reply documents.
17	The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.	Complied.

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18	The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.	We have discussed the Quantity of Geological, Mineable and Yearwise reserve along with Methodology in EIA Report
19	The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	Complied. Manpower requirements table attached in EIA Report Chapter 2
20	The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.	Hydro Geological study report will be submitted during final EIA Presentation.
21	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.	The proponent has furnished the baseline data for the Environmental and ecological parameters with regard to surface water/ Ground water quantity,

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		air quantity, soil quantity & Flora/fauna including traffic / vehicular movement study datils attached in EIA report chapter 3.
22	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	Noted. Agree to Comply.
23	Rainwater harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.	Noted. Agree to Comply.
24	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.	Current land use of the study area has attached in EIA report chapter 3. Operational and post operational land use will be submitted.
25	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.	The overburden is in the form of topsoil formation. It will be quarried for filling purposes to nearby end users and part of soil will be preserved all along the boundary as barrier for afforestation.

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26	Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	Noted.
27	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	The ultimate pit at the end of the mining operation will be used for rainwater storage, the stored water will be used for green belt development and further the stored water will be used for domestic purposes (other than drinking) after proper treatment.
28	Impact on local transport infrastructure due to the Project should be indicated.	Traffic impact assessment has given in EIA report chapter 3.
29	A tree survey study shall be carried out (nos., name of the species, age, diameter etc.) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	No tree species were found inside the project site. only few shrubs and thorny bushes were present. Tree survey study details given in EIA report chapter 3.
30	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	Noted. The mine plan and mine closure plan has been approved by the Assistant Director, Department of Mining and Geology, Virudhunagar District.
31	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall	Noted. Agree to Comply.

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	strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	
32	The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.	Noted. Agree to comply.
33	Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner	The Green belt plan enclosed with mining plates in Annexure VII
34	A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	Disaster management plan has prepared and enclosed in Chapter 7.
34	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 has prepared and enclosed in chapter 7.
36	Occupational Health impacts of the Project should be	Occupational Health impacts of

TOR Reply of Proposed Multi Colour Granite Quarry Over an Extent of 10.00.0 Ha

	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.	the project has prepared and incorporated in Environmental management plan.
37	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Suitable measure will be adopted to minimize occupational health impacts of the project.
38	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	The socio-economic study has been discussed in chapter 3.
39	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	No. litigation is pending against the project in any court.
40	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.,	Benefits of the project has incorporated in EIA report chapter 8
41	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified	Agree to comply.

TOR Reply of Proposed Multi Colour Granite Quarry Over an Extent of 10.00.0 Ha

	by MoEF&CC, Regional Office, Chennai (or) the concerned DEE/TNPCB.	
42	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	The PP will prepare the EMP for the entire life/lease of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.
43	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.	Noted.

TOR Reply of Proposed Multi Colour Granite Quarry Over an Extent of 10.00.0 Ha

Additional TOR by SEIAA

1	There should be no mental, physical, psychological and social disturbance to the students studying in the nearby school, due to the Project activities.	Noted and agree to comply.
Cluster management committee:		
2	Cluster Management Committee, which must include all the proponents in the cluster as members including the existing as well as proposed quarry.	Noted All the proponents in the cluster is discussed in Chapter-2, Page number-39
3	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,	Green belt development, water sprinkling, tree plantation is discussed in chapter-2, Page number-58
4	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.	Agreed to comply.
5	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 to comply. It will be furnished in final EIA report.
6	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	Risk management plan is discussed in Chapter-7, page number-135

TOR Reply of Proposed Multi Colour Granite Quarry Over an Extent of 10.00.0 Ha

7	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.	Agreed to comply. It will be furnished in final EIA report.
8	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	Agreed to comply. It will be furnished in final EIA report.
9	The committee shall furnish the Emergency Management plan within the cluster.	Emergency management plan is discussed in Chapter-7, page number-139
10	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	Health of workers and staff is discussed in Chapter 9 Page number 153
11	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	Agreed to comply. It will be furnished in final EIA report.
12	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents	Fire safety and evacuation plan is discussed in chapter-7
Impact study of Mining		
13	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 & soil biological, physical land chemical featured b) Climate change leading to Droughts,	The biodiversity has been studied and discussed in chapter 3. The soil erosion map 5km surrounding the project site has been given in chapter 3. The detailed study will be carried out and will be enclosed in the Draft EIA Report.

TOR Reply of Proposed Multi Colour Granite Quarry Over an Extent of 10.00.0 Ha

	Floods etc., c) Pollution leading to release Greenhouse gases (GHG), rise in Temperature & Livelihood of the local people. d) Possibilities of water containment and impact on aquatic ecosystem health. e) Agriculture, Forestry & Traditional practices. f) Hydrothermal/Geothermal effects due to destruction in the Environment. g) Bio-geochemical processes and its foot prints including environmental stress h) Sediment geochemistry in the surface streams.	
Agriculture & Agro-Biodiversity		
14	Impact on surrounding agricultural fields around the proposed mining area.	There is no agricultural fields around the proposed mining area
15	Impact on soil flora & vegetation around the project site	Impact on soil flora & vegetation around the project site discussed in Chapter 4 page number-110
16	Details of type of vegetation 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.	Type of vegetation no.of trees & shrubs is discussed in Chapter-3 page number-100
17	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.	The biodiversity has been studied and discussed in chapter 3 – Pg No. 113.

TOR Reply of Proposed Multi Colour Granite Quarry Over an Extent of 10.00.0 Ha

18	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	Noted. Agree to comply.
19	The PP shall study and furnish the impact on plantations in adjoining Patta lands, Horticulture, Agriculture and livestock.	There is no plantation surrounding 500m from project site. Hence there won't be any impact in adjoining patta lands, Horticulture, Agriculture and livestock.
Forests		
20	The PP shall detailed study on impact of mining on Reserve forests free ranging wildlife.	There is no Reserve Forest within 1 km radius of the Project Site. Hence our project will not cause any damage to reserve forest. Also, we have received letter from DFO indicating the nearest reserve forest and attached with Annexures.
21	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	The biological environment impacts, and its mitigation measures has been given in Chapter 4
22	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	There is no existing trees in the project site and surrounding the project site. Only thorny shrubs were present.
23	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.	The water environment impacts and its mitigation measures has been given in Chapter 4
Water Environment		
24	Hydro-geological study considering the contour	The EMP details has been given in

TOR Reply of Proposed Multi Colour Granite Quarry Over an Extent of 10.00.0 Ha

	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.	Chapter 8
25	Erosional Control Measures.	Noted and will be complied in Final EIA report.
26	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.	There is no Reserve Forest within 1 km radius of the Project Site. Hence our project will not cause any damage to reserve forest. Also, we have received letter from DFO indicating the nearest reserve forest and attached with Annexures. There is no protected areas, National Parks, Corridors and Wildlife pathways near project site.
27	The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.	Noted and will be complied in Final EIA report.
28	The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.	Noted. Agree to comply.
29	The PP shall study and furnish the impact on	Noted.

TOR Reply of Proposed Multi Colour Granite Quarry Over an Extent of 10.00.0 Ha

	aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site and archaeological sites possible landform changes visual and aesthetic impacts	Agree to comply.
30	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	Noted. Agree to comply.
31	The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites	Environmental Impact Assessment study is detailed in Chapter 3.
Energy		
32	The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.	Noted. Agree to comply.
Climate Change		
33	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	Agreed to comply
34	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	A Risk Assessment and management Plan will be prepared and included in the final EIA/EMP Report.
Mine Closure Plan		
35	Detailed Mine Closure Plan covering the entire mine lease period as per precise area	Mine closure plan has been attached along with mining plates as Annexure.

TOR Reply of Proposed Multi Colour Granite Quarry Over an Extent of 10.00.0 Ha

	communication order issued	
EMP		
36	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 has been described in detail in Chapter-10 of the Draft EIA/EMP Report.
37	The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.	
Risk Assessment		
38	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	A Risk Assessment and management Plan will be prepared and included in the final EIA/EMP Report.
Disaster Management Plan		
39	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.	A disaster management Plan will be prepared and included in the final EIA/EMP Report.
Others		
40	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, odal, vaari, canal,	VAO certificate is enclosed as Annexure.

TOR Reply of Proposed Multi Colour Granite Quarry Over an Extent of 10.00.0 Ha

	channel, river, lake pond, tank etc.	
41	As per the MoEF& CC office memorandum F.No 12-65/2017-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 to comply
42	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 freshwater systems due to activities, contemplated during mining may be investigated and reported.	Agreed to comply

ANNEXURE-II

PRECISE AREA COMMUNICATION LETTER

ANNEXURE 1



Industries (MMB.2) Department,
Secretariat,
Chennai-600 009



E mail: indusmmb@tn.gov.in

Letter No.5667/MMB.2/2012-19 Dated 31.01.2022

From

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

✓ To

Tvl.G.P.K. Granite Industry,
No.11, State Bank of India Officers Colony,
Ujjaini Street,
Ayanavaram,
Chennai-600 023.

Sir,

Sub: Mines and Minerals – Minor Mineral – Multicoloured Granite – Virudhunagar District – Sivakasi Taluk – Thiruthangal Village – Over an extent of 10.03.00 hectares of patta land in S.F. Nos.884/1B (1.32.0 hectares), 1326 (1.83.5 hectares), 1333/1A (2.25.5 hectares), 1333/1B (0.13.5 hectare), 1333/2 (1.22.0 hectares), 1334/1 (Part) (1.19.5 hectares), 1334/2 (Part) (1.70.0 hectares), 1334/3 (0.09.5 hectares) and 1334/4 (0.24.5 hectares) – Quarry lease application of Tvl.G.P.K. Granite Industry – Revised Precise area communicated – Approved Mining Plan and Environmental Clearance – Called for.

- Ref:
1. Your Quarry Lease Application dated 25.08.2010.
 2. From the District Collector, Virudhunagar Letter Roc.KV2/1390/2010 dated 16.11.2010.
 3. From the Commissioner of Geology and Mining, Chennai, File Rc.No.12167/MM2/2010, Dated 03.04.2012.
 4. Government Letter No.5667/MMB.2/2012-3, dated 19.05.2014.
 5. Hon'ble Division Bench of the Madras High Court, order dated 08.04.2015 in Writ Petition (MD) No.5212 of 2015.
 6. Government Letter No.5667/MMB.2/2012-16, dated 15.10.2020.
 7. From the Advocate General of Tamil Nadu OPN.No.158/AGVN/2020, dated 05.11.2020.

P.T.O



8. Government Letter No.5667/MMB.2/2012-17, dated 23.11.2020
 From the District Collector, Virudhunagar, Letter Rc.KV1/3990/2010, Dated 15.04.2021
 10. From the Director of Geology and Mining, Chennai Letter Rc.No.12167/MM2/2010, dated 29.10.2021.

I am directed to invite your attention to the references cited and to state that in the reference 4th cited Precise Area has been communicated to Tvl.G.P.K. Granite Industry with certain conditions for quarrying of Multicoloured granite over an extent of 10.00.0 Hectares of Patta land in S.F.Nos.884/1B (1.32.0 hectares), 1326 (1.83.5 hectares), 1333/1A (2.25.5 hectares), 1333/1B (0.13.5 hectare), 1333/2 (1.22.0 hectares), 1334/1 (Part) (1.19.5 hectares), 1334/2 (Part) (1.70.0 hectares), 1334/3 (0.09.5 hectares) and 1334/4 (0.24.5 hectares) in Thiruthangal Village, Sivakasi Taluk, Virudhunagar District under rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959.

2. In the meantime, Thiru L Murali, Principal, YRTV School, Sivakasi has preferred a representation dated 23.03.2015 and 25.03.2015 stating that the proposed quarrying in the nearby area would affect the school and the quarry lease application should not be considered for grant. Further, he has also filed W.P. (MD) No.5212 of 2015 before the Hon'ble Madurai Bench of Madras High Court. The Hon'ble Court in its order dated 08.04.2015 has appointed an Advocate Commissioner with the direction to inspect the place and ascertain whether the norms laid down for granting of quarry lease is fulfilled including the distance and file a report to court on or before 29.04.2015. The Advocate Commissioner has inspected the area and submitted his report.

3. The Hon'ble Court in its order dated 19.07.2017 has directed the competent authority concerned to conduct spot inspection in the subject area, in the presence of the petitioner (The Principal, YRTV School) as well as the sixth respondent (Tvl.GPK Granite Industry) and consider his claim for grant of granite quarry lease license strictly in accordance with the provisions of the Tamil Nadu Minor Mineral Concession Rules, 1959. As per the order of the Hon'ble, the Director of Geology and Mining has arranged a spot inspection and submitted a report to Government.

4. As the report submitted by the Advocate Commissioner to the High Court was contradiction to the recommendation of the District Collector, Virudhunagar and the Commissioner of Geology and Mining, the learned Advocate General of Tamil Nadu has been requested to offer opinion in this regard. The Advocate General has offered his considered opinion in the reference 7th cited.

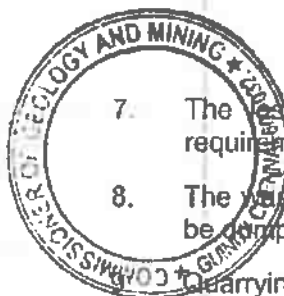
5. The Director of Geology and Mining was requested to examine the quarry lease application in the light of the opinion of the learned Advocate General of Tamil Nadu and to send specific remarks / recommendation in the reference 8th cited. The Director of Geology and Mining has submitted a report



with the recommendation to modify the conditions prescribed in the precise area communication pertaining to water bodies and requested to issue revised precise area to the applicant firm. The Government examined their recommendations of the Director of Geology and Mining and accepted the same. Accordingly, the revised precise area with the additional conditions is communicated to you now in supersession of the precise area already communicated vide Government Letter 4th cited for quarrying of Multi-coloured granite over an extent of 10.00.0 Hectares of Patta land in S.F.Nos.884/1B (1.32.0 hectares), 1326 (1.83.5 hectares), 1333/1A (2.25.5 hectares), 1333/1B (0.13.5 hectare), 1333/2 (1.22.0 hectares), 1334/1 (Part) (1.19.5 hectares), 1334/2 (Part) (1.70.0 hectares), 1334/3 (0.09.5 hectares) and 1334/4 (0.24.5 hectares) in Thiruthangal Village, Sivakasi Taluk, Virudhunagar District under rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959.

6. I am, therefore, directed to request you to furnish the Approved Mining Plan for the revised Precise Area stated above 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 by incorporating the following conditions to the Government:-

1. Quarrying should be done without any hindrance to the adjacent pattadars.
2. Quarrying should be done 7.5 meters away from the boundaries of the area granted for quarry lease.
3. Quarrying operation shall be carried out without causing any damage to the Public and to the habitations.
4. All the partners of the applicant company should furnish valid Mining Dues Clearance Certificate issued by the District Collectors of Coimbatore, Dindigul, Dharmapuri, Krishnagiri, Madurai, Namakkal, Salem, Sivagangai, Vellore, Tiruvannamalai, Kancheepuram, Karur, Pudukottai and Villupuram for the quarry lease held by them individually as well as for the companies / firms in which they are partners before execution of lease deed.
5. A safety distance of 7.5 meters shall be allowed and maintained to the adjacent patta lands.
6. The applicant company should maintain 65 metres safety distance to the Kannagi colony throughout the lease period as agreed by the company and as per the letter from Deputy Director, Virudhunagar vide Letter No.KV.1/723/ 2011 lease deed as follows:-
 - ❖ Barbed wire fencing shall be done.
 - ❖ The pillar post shall be firmly surrounded with concrete foundation of height not less than 2 meters and the distance between two pillars shall not be more than 3 meters.



7. The lessee shall strictly adhere to the statutory and safety requirements.
8. The waste materials generated during quarrying operation shall be dumped only in the area granted under lease.
9. 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.
10. The lease grantee shall submit scheme of mining; mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.
11. The applicant company should obtain environment clearance from the State Level Environment Impact Assessment Authority over the precise area communicated before the grant of quarry lease.
12. The District Collector, Virudhunagar 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.12782/MMB.2/2002-7, Industries Department, dated 09.01.2003 are complied with.
13. 50 meters safety distance to be maintained from the odai passing on the eastern side situated in S.F.No.1326.
14. The applicant should comply with the 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 Hon'ble Supreme Court of India dated 08.01.2020 that "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.,".
15. 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.

Yours faithfully,

for Additional Chief Secretary to Government.

01/02/2022
C1 02 2022

Copy to:

The Director of Geology and Mining,
Guindy, Chennai-600 032.
The District Collector, Virudhunagar District.



Industries, Investment Promotion and
Commerce (MMB.2/24) Department
Secretariat, Chennai-600 009

E.mail: indusmmb@tn.gov.in

Letter No.5667/MMB.2/2012-21 Dated 15.09.2022

From

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

To

Tvl.G.P.K. Granite Industry,
No.11, State Bank of India Officers Colony,
Ujjaini Street, Ayanavaram,
Chennai-600 023.

Sir,

Sub: Mines and Minerals – Minor Mineral – Multicoloured Granite – Virudhunagar District – Sivakasi Taluk - Thiruthangal Village - Over an extent of 10.03.00 hectares of patta land in S.F. Nos.884/1B (1.32.0 hectares), 1326 (1.83.5 hectares), 1333/1A (2.25.5 hectares), 1333/1B (0.13.5 hectare), 1333/2 (1.22.0 hectares), 1334/1 (Part) (1.19.5 hectares), 1334/2 (1.70.0 hectares), 1334/3 (0.09.5 hectares) and 1334/4 (0.24.5 hectares) - Quarry lease application of Tvl.G.P.K. Granite Industry – Revised Precise area communicated – Mining Plan not submitted within the stipulated time – Approval of Mining Plan – Extension of time limit requested – Permission granted – Regarding.

- Ref:
1. Government Letter No.5667/MMB.2/2012-19, dated 31.01.2022.
 2. From Tvl.G.P.K. Granite Industry, Chennai letter dated 29.04.2022 and 09.05.2022.
 3. From the Commissioner of Geology and Mining, Chennai, letter Rc.No.12167/MM2/ 2010, Dated 08.07.2022.

I am directed to invite your attention to the references cited.

2. Based on the recommendations of the District Collector, Virudhunagar and Director of Geology and Mining, a revised precise area has

PTO



been communicated to you for quarrying of Multi-coloured granite to an extent of 10.00.0 Hectares of Patta land in S.F. Nos.884/1B (1.32.0 hectares), 1326 (1.83.5 hectares), 1333/1A (2.25.5 hectares), 1333/1B (0.13.5 hectare), 1333/2 (1.22.0 hectares), 1334/1 (Part) (1.19.5 hectares), 1334/2 (1.70.0 hectares), 1334/3 (0.09.5 hectares) and 1334/4 (0.24.5 hectares) in Thiruthangal Village, Sivakasi Taluk, Virudhunagar District under rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959 and you have also requested to furnish the approved mining plan for the subject area 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 by incorporating the certain conditions to the Government. The period of ninety days as provided under the said rule has ended on 03.05.2022.

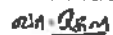
3. In the reference second cited, you have submitted a representation stating that one of your partners was seriously ill for the last few months and still under medical supervision. Due to his severe health condition, you are unable to communicate or meet him in person. Further, you have informed that the date of submission of Mining plan after the receipt of precise area communication expires on 03.05.2022. Hence, you have requested the Government for extension of one month time to submit the mining plan.

4. The Government after careful examination of the request, the related rule provisions and the remarks of the Commissioner of Geology and Mining has decided to consider your request and grant one month extension of time for submission of approved mining plan from the date of receipt of letter by relaxing sub-rule (13) of rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959.

Yours faithfully,


15-9-2022

for Additional Chief Secretary to Government.


15-9-22

Copy to:

The Commissioner of Geology and Mining,
Guindy, Chennai-600 032.
The District Collector, Virudhunagar District.



ANNEXURE-III
MINING PLAN APPROVED LETTER

COMMISSIONERATE OF GEOLOGY AND MINING

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

To
Tvl. G.P.K Granite Industry,
No.11, State Bank of India Officers
Colony, Ujjaini Street,
Ayanavaram,
Chennai-600023

Rc.No. 12167/MM2/2010, dated: 22.11.2022

Sir,

Sub: Mines and Minerals - Minor Mineral - Multi-coloured Granite - Virudhunagar district - Sivakasi Taluk - Thiruthangal Village - Over an extent of 10.00.00 Hects. of patta lands - S.F.Nos. 884/1B (1.32.0), 1326 (1.83.50), 1333/1A (2.25.50), 1333/1B (0.13.50), 1333/2 (1.22.0), 1334/1(P) (1.19.50), 1334/2(P) (1.70.0), 1334/3 (0.09.50) and 1334/4 (0.24.50) - Granite quarry lease application preferred by Tvl.GPK Granite Industry, Chennai - Precise area communicated by the Government - Mining Plan submitted - Recommended and forwarded by Assistant Director (G&M), Virudhunagar - Approval accorded - Regarding.

- Ref: 1) The Additional Chief Secretary to Government, Industries (MMB.2) Department Letter No.5667/MMB.2/2012-19, dated: 31.01.2022.
2) The Additional Chief Secretary to Government, Industries (MMB.2) Department Letter No.5667/MMB.2/2012-21, dated: 15.09.2022.
3) Assistant Director(G&M), Virudhunagar letter Rc.No. KV1/3990/2010, dated: 10.10.2022.
4) RQP letter no. nil dated 08.11.2022

Kind attention is invited to the references cited above.

2) In the reference 2nd cited, the Government has communicated precise area to the applicant with a direction to submit the approved mining plan and environmental clearance on the proposal recommending for grant of multi-coloured quarry lease over an extent of 10.00.00 Hects. of Patta lands in S.F.Nos. 884/1B (1.32.0), 1326 (1.83.50), 1333/1A (2.25.50), 1333/1B (0.13.50), 1333/2 (1.22.0), 1334/1(P) (1.19.50), 1334/2(P) (1.70.0), 1334/3 (0.09.50) and 1334/4 (0.24.50) of Thiruthangal Village, Sivakasi Taluk, Virudhunagar District.

officials as required under Mines Act, 1952 shall be complied with.

- vi) 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.
- vii) Relaxation to be obtained under Rule 106(2) (a) and (b) of Metalliferous Mines Regulations, 1961 from the Director of Mines Safety, if necessary.
- viii) Quarrying should be done without any hindrance to the adjacent pattadars. 7.5 meters safety distance has to be provided to adjacent patta land.
- ix) Quarrying operation shall be carried out without causing any damage to the Public and to the habitations.
- x) All the partners of the applicant company should furnish valid Mining Dues Clearance Certificate issued by the District Collectors of Coimbatore, Dindigul, Dharmapuri, Krishnagiri, Madurai, Namakkal, Salem, Sivagangai, Vellore, Tiruvannamalai, Kancheepuram, Karur, Pudukottai and Villupuram for the quarry lease held by them individually as well as for the companies/firms in which they are partners before execution of lease deed.
- xi) A safety distance of 7.5 meters shall be allowed and maintained to the adjacent patta lands.
- xii) 50 meters safety distance to be maintained from the odai passing on the eastern side situated in S.F.No.1326.
- xiii) The applicant company should maintain 65 metres safety distance to the Kannagi colony throughout the lease period as agreed by the company and as per the letter from Deputy Director, Virudhunagar vide Letter No.KV.1/723/ 2011 lease deed as follows:
 - Barbed wire fencing shall be done.
 - The pillar post shall be firmly surrounded with concrete foundation of height not less than 2 meters and the distance between two pillars shall not be more than 3 meters.
- xiv) The lessee shall strictly adhere to the statutory and safety requirements.
- xv) The waste materials generated during quarrying operation shall be dumped only in the area granted under lease.
- xvi) 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.

- xvii) The applicant shall submit scheme of mining; mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.
- xviii) The applicant company should obtain environment clearance from the State Level Environment Impact Assessment Authority over the precise area communicated before the grant of quarry lease.
- xix) The District Collector, Virudhunagar 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.12782/MMB.2/ 2002-7, Industries Department, dated 09.01.2003 are complied with.
- xx) The applicant should comply with the 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 Hon'ble Supreme Court of India dated 08.01.2020 that "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.."
- xxi) 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.
- xxii) Child labour should not be engaged

Approved Mining Plan is sent herewith for further necessary action.

Encl: Approved Mining Plan.

Sd/- J.Jayakanthan,
Commissioner of Geology and Mining

Forwarded / By Order

A. Appadurai
Additional Director

Copy Submitted to:

[Signature]
23/1/22
Additional Chief Secretary to Government,
Industries, Investment Promotion and
Commerce Department,
Secretariat, Chennai-9.

Copy to

1. The Director of Mines Safety,
Lapis Lagoon, AA Block,
Shanthi Colony, Anna Nagar,
Chennai-40. (with AMP)
2. The District Collector,
Virudhunagar.
3. Assistant Director,
Geology and Mining,
Virudhunagar (with AMP).

ANNEXURE-IV
500M Radius letter

From

Thiru.T.Selvasekar, M.Sc.,
Assistant Director,
Geology and Mining,
Virudhunagar.

To

Tvl.GPK Granite Industry,
No.11, State Bank of India Officer's
Colony, Ujjaini Street, Ayanavaram,
Chennai-600 023

Roc.No: KV1/3990/2010, Dated: 02.01.2023

Sir,

Sub: Mines and Minerals - Minor Mineral -
Virudhunagar district - Sivakasi Taluk -
Thiruthangal Village - Over an extent of
10.00.00 Hects. of patta lands - S.F.Nos.
884/1B (1.32.0), 1326 (1.83.50), 1333/1A
(2.25.50), 1333/1B (0.13.50), 1333/2 (1.22.0),
1334/1(P) (1.19.50), 1334/2(P) (1.70.0), 1334/3
(0.09.50) and 1334/4 (0.24.50) - Quarry lease
application of Tvl.GPK Granites, Chennai for
quarrying Multicoloured Granite - Details of
quarries in 500 meter radius - Regarding.

Ref: 1. Quarrying lease application preferred by
Tvl.GPK Granites, Chennai dated:
25.08.2010.

2. Tvl.GPK Granites, Chennai letter, dated:
30.12.2022.

In the reference 1st cited, Tvl.GPK Granites, Chennai has preferred an application for the grant of quarrying lease to Multi Colored Granites over an extent of 10.00.0 Hectares of patta lands in SF.Nos: 884/1B (1.32.0), 1326 (1.83.50), 1333/1A (2.25.50), 1333/1B (0.13.50), 1333/2 (1.22.0), 1334/1(P) (1.19.50), 1334/2(P) (1.70.0), 1334/3 (0.09.50) and 1334/4 (0.24.50) of Thiruthangal Village, Sivakasi Taluk for a period of 20 (Twenty) Years Under Rule 19-A of Tamil Nadu Minor Mineral Concession Rules 1959.

In the reference 2nd cited, Tvl.GPK Granites has requested to furnish the details of all mines / quarry located within 500mts., radius from the applied area for obtaining Environmental Clearance from SEIAA.

The details of quarries lying within 500m radius from the area applied for granting lease as follows:

Details of quarry within 500m radius from the applied area

S.No	Quarry detail	Village & Taluk	S.F. No and Extent (in Hectrs.)	G.O.No. and Lease Period
I	Existing Quarries :			
1	Stanco Traders, 32 patti Street, Sivakasi	Thiruthangal, Sivakasi	1332/1, 1332/2A, etc., (4.41.0)	G.O.3(D).No.57 Industries (MMB2) Department, dated: 24.11.2003. 03.12.2003 – 02.12.2023
2	Stanco Traders, 32 patti Street, Sivakasi	Thiruthangal, Sivakasi	1302/2, 1323/1A (1.21.50)	G.O.3(D).No.94 Industries (MMB2) Department, dated: 01.09.2004. 22.09.2004-21.09.2024
3	Stanco Traders, 32 patti Street, Sivakasi	Thiruthangal, Sivakasi	1320/1A, 1320/1B1, 1320/1B2, etc., (1.93.0)	G.O.3(D).No.41 Industries (MMB2) Department, dated: 27.02.2006. 13.03.2006-12.03.2026
4	Stanco Traders, 32 patti Street, Sivakasi	Thiruthangal, Sivakasi	1325/5A1, 1325/5A2, etc., (3.29.0)	G.O.3(D).No.33 Industries (MMB2) Department, dated: 09.06.2008. 08.07.2008-07.07.2028
5	Standard Granites, Poothiammal Building 5-2-15C-Sattur Road, Sivakasi	Thiruthangal, Sivakasi	1325/2B1B, 1325/2B2, 1325/2B3, etc., (1.47.0)	G.O.3(D).No.45 Industries (MMB2) Department, dated: 27.02.2006. 13.03.2006-12.03.2026
6	Standard Granites, Poothiammal Building 5-2-15C-Sattur Road, Sivakasi	Thiruthangal, Sivakasi	1325/2A, 1325/2B1A (0.80.50)	G.O.3(D).No.56 Industries (MMB2) Department, dated: 24.11.2003. 24.01.2004-23.01.2024
II	Abandoned Quarry : NIL			
III	Proposed quarry :			
1.	Tvl.GPK Granite Industry, Ayanavaram, Chennai-600 023.	Thiruthangal, Sivakasi	884/1B, 1326, etc., (10.00.0)	Mining Plan approved vide CGM, letter No.12167/MM2/2010, dated: 22.11.2022.

[Signature]
21/11/2023
Assistant Director,
Geology and Mining,
Virudhunagar.

[Signature]
21/11/2023

ANNEXURE-V
DFO LETTER

ந.க.எண். 4138/2023/வ

துணை இயக்குநர் அலுவலகம்,
திருவில்லிபுத்தூர் மேகமலை புலிகள்
காப்பகம், திருவில்லிபுத்தூர்.

நாள்: 28.07.2023.

பொருள் : கனிமங்களும் குவாரிகளும் - விருதுநகர் மாவட்டம் - சிவகாசி வட்டம்
- திருத்தங்கல் கிராமம் - புல எண்கள்.884/1B, 1326, 1333/1A மற்றும்
சில மொத்தம் 10.00.00 ஹெக்டேர் பரப்பு - பல வண்ண கிராணைட்
குவாரி உரிமம் வழங்கிடக்கோரியது - 25 கி.மீ சுற்றளவிலுள்ள
பாதுகாக்கப்பட்ட வனப்பகுதிகள் மற்றும் விலங்குகள் சரணாலயம்
அமைந்திருக்கும் கிராமத்தின் பெயர், கிராமம் அமைந்துள்ள தூரம்
மற்றும் GPS அளவீடுகள் உள்ள வரைபடம் வழங்க கேட்டல் - விபரம்
தெரிவித்தல் - தொடர்பாக.

பார்வை : 1. உதவி இயக்குநர், புவியியல் மற்றும் சுரங்கத்துறை, விருதுநகர்
மாவட்டம், விருதுநகர். ந.க.எண். கேவி 1 /3990/ 2010, நாள்:
07.06.2023.

2. வனச்சரக அலுவலர், சிவகாசி வனஉயிரினச்சரகம், ந.க.எண்.
133/2023, நாள்: 21.07.2023.

மேற்காண் பொருள் தொடர்பாக, பார்வை (1)ல் காணும் உதவி இயக்குநர், புவியியல்
மற்றும் சுரங்கத்துறை, விருதுநகரின் கடிதத்துடன் இணைத்து வரப்பெற்ற
திருவாளர்கள்.G.P.K.கிராணைட் இன்டஸ்ட்ரி என்பவர்கள், விருதுநகர் மாவட்டம், சிவகாசி
வட்டம், திருத்தங்கல் கிராமம் புல எண்கள்.884/1B, 1326, 1333/1A மற்றும் சில மொத்தம்
10.00.00 ஹெக்டேர் பரப்பளவில் பல வண்ண கிராணைட் குவாரி உரிமம் வழங்கிட மேற்படி
குவாரி உரிமம் வழங்க கோரியுள்ள புலத்திலிருந்து 25 கி.மீ தொலைவில் காப்புக்காடுகள்,
வனவிலங்கு சரணாலயங்கள் அமைந்திருக்கும் கிராமத்தின் பெயர், தூரம் விபரம்
தெரிவித்திட கோரி கடிதம் வரப்பெற்றுள்ளது.

விருதுநகர் மாவட்டம், சிவகாசி வட்டம், திருத்தங்கல் கிராமம் புல எண்கள்.884/1B,
1326, 1333/1A மற்றும் சில மொத்தம் 10.00.00 ஹெக்டேர் பரப்பளவு கொண்ட பட்டா
நிலத்தினை சிவகாசி வனஉயிரின வனச்சரக அலுவலரால் 06.07.2023-ம் தேதி
களத்தணிக்கை செய்யப்பட்டுள்ளது. மனுதாரரால் குறிப்பிடப்பட்டுள்ள மேற்படி பட்டா
நிலத்தின் புவிநிலைநிறுத்தமாணி அளவீடுகள் N-09.473205 E-77.79289 ஆகும். மேற்படி
இடமானது திருவில்லிபுத்தூர் காப்புக்காடு, புதுப்பட்டி பிரிவு, குன்னூர் பீட பகுதி மற்றும்
திருவில்லிபுத்தூர் மேகமலை புலிகள் காப்பக பகுதியிலிருந்து சுமார் 15.86 கி.மீ தொலைவில்
அமைந்துள்ளது. மேலும் இவ்விடத்தில் யானை வழித்தடங்கள் ஏதுமில்லை. மேலும்
திருவில்லிபுத்தூர் மேகமலை புலிகள் காப்பக சுற்றுச்சூழல் புணர்வு மண்டல பகுதிக்கு

வெளியே சுமார் 15.60 கி.மீ தொலைவில் அமைந்துள்ளது. மேற்படி இடத்திலிருந்து 25 கி.மீ சுற்றளவிற்குள் திருவில்லிபுத்தூர் - மேகமலை புலிகள் காப்பகம் (இதற்கு முன் சாம்பல் நிற அணில் வன உயிரினச் சரணாயலம், திருவில்லிபுத்தூர்) மற்றும் சாம்பல் நிற அணில் வன உயிரினச் சரணாயல சுற்றுச்சூழல் புணர்வு மண்டல பகுதியும் அமைந்துள்ளது என்ற விபரம் இதன் மூலம் தெரிவித்துக் கொள்ளப்படுகிறது.

ஓம்/- ஹ. திலீப் குமார்,
துணை இயக்குநர்
திருவில்லிபுத்தூர் கோட்டம்.

பெறுநர்

உதவி இயக்குநர்,
புவியியல் மற்றும் சுரங்கத்துறை,
விருதுநகர் மாவட்டம்.

//உ.ந.உ.ப //

மாணிக்கவேள்
கண்காணிப்புாளர்
28.7.2013

ANNEXURE-VI
MINING PLAN REPORT & PLATES

**MINING PLAN ALONG WITH
PROGRESSIVE QUARRY CLOSURE PLAN FOR
THIRUTHANGAL MULTI COLOUR GRANITE**

(Under Rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959 and
Rule 12, 13 & 16 of Granite Conservation and Development Rules, 1999)
Patta Land/ Lease Period: 20 Years

IN

LOCATION OF THE QUARRY LEASE APPLIED AREA

EXTENT	:	10.00.0 HECTARES
S.F.Nos.	:	884/1B, 1326, 1333/1A, 1B, 2, 1334/1(P), 2(P), 3 and 1334/4
VILLAGE	:	THIRUTHANGAL
TALUK	:	SIVAKASI
DISTRICT	:	VIRUDHUNAGAR
STATE	:	TAMIL NADU

FOR

APPLICANT/LESSEE

TVL. GPK GRANITE INDUSTRY

No. 11, State Bank of India Officer's Colony,
Ujjaini Street, Ayanavaram,
Chennai,
Tamil Nadu State - 600 023.

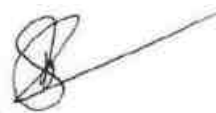
PREPARED BY

Dr. P. THANGARAJU, M.Sc., Ph.D.,

Qualified Person
No.17, Advaita Ashram Road,
Alagapuram,
Salem District,
Tamil Nadu - 636 004.

+91 94422 78601 & 94433 56539.

E-mail: infogeoexploration@gmail.com



TVL. GPK GRANITE INDUSTRY,

No. 11, State Bank of India Officer's Colony,
Ujjaini Street, Ayanavaram,
Chennai,
Tamil Nadu State - 600 023.



CONSENT LETTER FROM APPLICANT

The Mining Plan in respect of Thiruthangal Multi Colour Granite over an extent of 10.00.0 Hectares of Patta lands in S.F.Nos. 884/1B, 1326, 1333/1A, 1333/1B, 1333/2, 1334/1(Part), 1334/2(Part), 1334/3 and 1334/4 of Thiruthangal Village, Sivakasi Taluk, Virudhunagar District, Tamil Nadu State has been prepared by

Dr. P. THANGARAJU, M.Sc., Ph.D.,
Qualified Person,

I request the Commissioner, Department of Geology and Mining, Chennai to make further correspondence regarding the modification of the Mining Plan with the said Qualified Person at his following address.

Dr. P. THANGARAJU, M.Sc., Ph.D.,
No.17, Advaltha Ashram Road,
Alagapuram,
Salem - 636 004.
+91 94422 78601 & 94433 56539.

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

Signature of the applicant
For Tvl. GPK Granite Industry,

(Kodavaluru Sandesh)
Partner

Place: Chennai
Date: 28.02.2022

TVL. GPK GRANITE INDUSTRY,
No. 11, State Bank of India Officer's Colony,
Ujjaini Street, Ayanavaram,
Chennai,
Tamil Nadu State - 600 023.



DECLARATION OF APPLICANT

The Mining Plan in respect of Thiruthangal Multi Colour Granite over an extent of 10.00.0 Hectares of Patta lands in S.F.Nos. 884/1B, 1326, 1333/1A, 1333/1B, 1333/2, 1334/1(Part), 1334/2(Part), 1334/3 and 1334/4 of Thiruthangal Village, Sivakasi Taluk, Virudhunagar District, Tamil Nadu State has been prepared in full consultation with me by

Dr. P. THANGARAJU, M.Sc., Ph.D.,
Qualified Person,

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

Signature of the applicant
For Tvl. GPK Granite Industry,

(Kodavaluru Sandesh)
Partner

Place: Chennai
Date: 28.02.2022

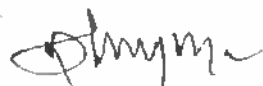
CERTIFICATE FROM THE QUALIFIED PERSON

Certified that I, **Dr. P. THANGARAJU, M.Sc., Ph.D.**, having an office at Regd.off.No.17, Advaita Ashram Road, Alagapuram, Salem District, Tamil Nadu – 636 004, am a Post Graduate in Geology (M.Sc. Geology) from Madras University, Chennai and I worked in the field of Geology in a role of Geologist.

Rule 15(I)(a) and (b) of Minerals (Other than Atomic, Hydro Carbons Energy Minerals) Concession Rules 2016 stipulates the eligibility for preparing Mining plans as "(I)(a) a post graduate degree in Geology granted by a university established" and (I)(b) "Professional experience of five years of working in a supervisory capacity in the field of mining after obtaining the degree". Since my qualification and experience are satisfied the Rule (I)(a) and (I)(b) of 15 of the said Rules, I am eligible to prepare Mining Plans for both Major and Minor Minerals.

Accordingly, I prepare this Mining Plan along with Progressive Quarry Closure Plan in respect of Thiruthangal Multi Colour Granite over an extent of 10.00.0 Hectares of Patta lands in S.F.Nos. 884/1B, 1326, 1333/1A, 1333/1B, 1333/2, 1334/1(Part), 1334/2(Part), 1334/3 and 1334/4 of Thiruthangal Village, Sivakasi Taluk, Virudhunagar District, Tamil Nadu State for **Tvl. GPK Granite Industry**, having an office at No. 11, State Bank of India Officer's Colony, Ujjaini Street, Ayanavaram, Chennai, Tamil Nadu State – 600 023. Since the Mining Plan is prepared as per the provisions contained in Rule 15(I)(a) and (I)(b) of Minerals (Other than Atomic, Hydro Carbons Energy Minerals) Concession Rules, 2016.

Signature of the Qualified Person



Dr. P. THANGARAJU, M.Sc., Ph.D.,

Place : Salem

Date : 07.10.2022



Dr. P. THANGARAJU, M.Sc., Ph.D.,

No.17, Advaita Ashram Road,

Alagapuram,

Salem – 636 004.

+91 94422 78601 & 94433 56539.



CERTIFICATE FROM THE QUALIFIED PERSON

This is to certify that the Provisions of Granite Conservation and Development Rules, 1999 as amended in Tamil Nadu Minor Mineral Concession Rules, 1959 have been observed in the preparation of Mining Plan for Thiruthangal Multi Colour Granite over an extent of 10.00.0 Hectares of Patta lands in S.F.Nos. 884/1B, 1326, 1333/1A, 1333/1B, 1333/2, 1334/1(Part), 1334/2(Part), 1334/3 and 1334/4 of Thiruthangal Village, Sivakasi Taluk, Virudhunagar District, Tamil Nadu State has been prepared for

TVL. GPK GRANITE INDUSTRY,

No. 11, State Bank of India Officer's Colony,

Ujjaini Street, Ayanavaram,

Chennai,

Tamil Nadu State – 600 023.

Whenever specific permissions/exemptions/ relaxations and approvals are required, the applicant will approach the concerned authorities of Commissioner of Geology and Mining, Government of Tamil Nadu, 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.

Signature of the Qualified Person

Dr. P. THANGARAJU, M.Sc., Ph.D.,

Place: Salem

Date: 07.10.2022

Dr. P. THANGARAJU, M.Sc., Ph.D.,
No.17, Advaita Ashram Road,
Alagapuram,
Salem – 636 004.
+91 94422 78601 & 94433 56539.



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 Thiruthangal Multi Colour Granite over an extent of 10.00.0 Hectares of Patta lands in S.F.Nos. 884/1B, 1326, 1333/1A, 1333/1B, 1333/2, 1334/1(Part), 1334/2(Part), 1334/3 and 1334/4 of Thiruthangal Village, Sivakasi Taluk, Virudhunagar District, Tamil Nadu State has been prepared for

TVL. GPK GRANITE INDUSTRY,
No. 11, State Bank of India Officer's Colony,
Ujjaini Street, Ayanavaram,
Chennai,
Tamil Nadu State – 600 023.

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

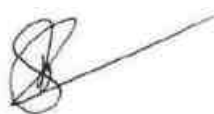
It is also certified that information furnished in the mining plan are true and correct to the best of my knowledge.

Signature of the Qualified Person


Dr. P. THANGARAJU, M.Sc., Ph.D.,

Place: Salem

Date: 07.10.2022.





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7.	Copy of 'A' Register	VI
8.	Copy of lease agreement and Extension of lease from the Pattadar	VII and VII-A
9.	Copy of High Court Order for issue of revised Precise area letter	VIII
10.	Copy of Partnership deed	IX
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MINING PLAN ALONG WITH PROGRESSIVE QUARRY CLOSURE PLAN FOR THIRUTHANGAL MULTI COLOUR GRANITE

(Under Rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959 and 12, 13 and 16 of Granite Conservation and Development Rules, 1999)

1.0 INTRODUCTION

The present Mining Plan is prepared for quarry Multi Colour Granite belonging to **Tvl. GPK Granite Industry**, having an office at No. 11, State Bank of India Officer's Colony, Ujjaini Street, Ayanavaram, Chennai, Tamil Nadu State - 600 023 for which precise area communication has been granted as per Govt. letter No. **5667/MMB.2/2012-19**, **dated: 31.01.2022** with the conditions to provide (Please refer Annexure -I):-

1. Quarrying should be done without any hindrance to the adjacent Pattadars.
2. Quarrying should be done 7.5 mts. away from the boundaries of the area granted for quarry lease.
3. Quarrying operation shall be carried out without causing any damage to the Public and to the habitations.
4. All the partners of the applicant Company should furnish valid Mining Dues Clearance Certificate issued by the District Collectors of Coimbatore, Dindigul, Dharmapuri, Krishnagiri, Madurai, Namakkal, Salem, Sivagangai, Vellore, Tiruvannamalai, Kancheepuram, Karur, Pudukkottai and Villupuram for the quarry lease held by them individually as well as for the companies / firms in which they are partners before execution of lease deed.
5. A safety distance of 7.5 meters shall be allowed and maintained to the adjacent patta lands.
6. The applicant company should maintain 65 meters safety distance to the Kannagi colony throughout the lease period as agreed by the company and as per the letter from Deputy Director, Virudhunagar vide letter No.KV.1/723/2011 lease deed as follows:-
 - ❖ Barbed wire fencing shall be done.
 - ❖ The pillar post shall be firmly grounded with concrete foundation of height not less than 2 meters and the distance between two pillars shall not be more than 3 meters.
7. The lessee shall strictly adhere to the statutory and safety requirements.
8. The waste materials generated during quarrying operation shall be dumped only in the area granted under lease.
9. 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.



10. The lease grantee shall submit Scheme of mining: mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.
11. The applicant company should obtain environmental clearance from the State Level Environmental Impact Assessment Authority over the precise area communicated before the grant of quarry lease.
12. The District Collector, Virudhunagar 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/MMB2/2002-7, Industries Department, dated : 09.01.2003 are complied with.
13. 50 meters safety distance to be maintained from the odai passing on the eastern side situated in S.F.No. 1326.
14. The applicant should comply with the 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 Hon'ble Supreme Court of India dated 08.01.2020 that "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.,"
15. 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.

The company ensures to comply all the condition stipulated by the Government before the execution of lease deed and during the course of quarrying operations.

"The company has not submitted the mining plan within stipulated time (3 months) in the precise area communication letter due to one of the partner of the company has seroious illness for last few months. Since, the company has requested the Government for one month time extension to submit the mining plan. As per request of the applicant the Government is grant one month extension for submission of mining plan vide letter No. 5667/MMB.2/2012-21, dated: 15.09.2022 (Refer Annexure No. 1A)".

This mining plan has been prepared by keeping and considering all the parameters stipulated by the Government of Tamil Nadu before and during the course of quarry operations.

The area applied for Multi Colour granite quarry lease is over an extent of **10.00.0 Hectares** of Patta lands in **S.F.Nos. 884/1B (1.32.0 hecets), 1326 (1.83.5 Ha), 1333/1A (2.25.5 Ha), 1333/1B (0.13.5 Ha), 1333/2 (1.22.0 Ha), 1334/1(Part) (1.19.5 Ha), 1334/2(Part) (1.70.0 Ha), 1334/3 (0.09.5 Ha) and 1334/4 (0.24.5 Ha) of Thiruthangal Village, Sivakasi Taluk, Virudhunagar District.** It is patta lands, registered in the name of "The National Fire Works Factory" Vide Patta Nos.721 and 722 (Please refer Annexure No. IV to VI). The company has obtained consent from the partners of the pattadhar's company for the period of 22 years from 18.06.2010 to 17.06.2032 and the lease has extended for another 5 years from 18.06.2032 to 17.06.2037 (Please refer Annexure No. VII and VII-A). Hence, the company has got surface rights over the area applied for quarry lease.

The lease applied area is situated in flat terrain, the Multi Colour granite is clearly visible right from the surface outcrops and other areas concealed under Reddish gravelly soil having an average thickness of 2m and followed by fresh Multi Colour granite. Slender pegmatite veins, Joints, Cracks, segregation and color variation are common in this formation.

Diamond wire saw cutting method is being proposed to liberate granite dimensional stones from the parent granite body. Cutting into required size, removal of defective portions are done manually using feather and wedges. The dressing of blocks into the required rectangular shaped dimensional stones are done manually by chiseling with experienced chisel men for the maximum recovery of defect free salable material. Marketing of these stones blocks to customers is being ensured by strict quality control measures adopted by the Company's marketing personnel.

2.0 GENERAL

2.1 NAME OF THE APPLICANT WITH ADDRESS

Name : **Tvl. GPK Granite Industry**
 Address : No. 11, State Bank of India Officer's Colony,
 Ujjaini Street, Ayanavaram
 Chennai
 State : Tamil Nadu
 Pin code : 600 023
 Phone : +91 94428 95762 and 99941 82015
 E-mail ID : yaseenyf@gmail.com.
 Aadhaar No. : 3025 6069 3984 (Refer annexure Nos. X).

2.2 STATUS OF THE APPLICANT

The applicant is a Partnership firm. The partnership deed has executed on 18.06.2010 with six partners. All partners are retired from the firm on 08.04.2022 and the Partnership deed reconstituted on 25.04.2022 under the Indian Partnership Act, 1932 with six partners. The details of partners are given table below (Refer annexure No. IX and IX-A).

Table - 1

S.No.	Name	Designation
1	Ms. Archana, D/o. R. Veeramani .	Partner
2	Mr. Kodavaluru Sandesh, S/o. K. Subbareddy.	Partner
3	Mrs. Y. Famitha, D/o. K. Yusuff Basha.	Partner
4	Mr. Arjun Asaithambi, S/o. S.R. Asaithambi.	Partner
5	Mr. Damegunta Saikartik, S/o. Subburami Reddy.	Partner
6	Mrs. Y. Farzana, D/o. K. Yusuff Basha.	Partner

All the partners having powers to individually sign in the official documents on behalf of the firm, but **Mr. Kodavaluru Sandesh** (Partner) is signing to this quarry lease related documents on behalf of the firm (Refer annexure Nos. IX and X).

2.3 MINERAL WHICH THE APPLICANT INTENDS TO MINE

The applicant intends to quarry **Multi Colour Granite** dimensional stone commercially known as "**Sivakasi Yellow / Sivakasi Gold Granite**" and Petrologically called as **Leptynite** (Garnetiferous Quartzofeldspathic Granulite).

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

Name : Dr. P. Thangaraju, M.Sc., Ph.D.,
Qualified Person (As per Rule 15(I)(a) and (b) of MCR 2016)

Address : No.17, Advaita Ashram Road
Alagapuram,
Salem District
Tamil Nadu - 636 004

Mobile : +91 94433 56539 & 94422 78601

Telephone : 0427- 2431989 (Office)

E-mail ID : infogeoexploration@gmail.com

(Refer Annexure No. XI and XII)

2.5 NAME AND ADDRESS OF THE PROSPECTING AGENCY

State Geology and Mining Department, Govt. of Tamil Nadu, has carried out the Regional prospecting and exploration in these areas during 1992 to 1993.

Geological Survey of India has carried out detailed mapping of the commercial granite deposits of Tamil Nadu. Besides, the RQP and his team members made a detailed geological study of the area and demarcated clearly the Multi Colour granite deposit with a mine surveyor. The granite formation is clearly visible right from the surface outcrops. No detailed prospecting carried out by any agencies.

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.

2.6 DETAILS OF THE AREA

- a. The area is marked in the Survey of India, Topo Sheet No. 58-G/15.
- b. The details of the land covered by the area is given below.

Table - 2

District and State	Taluk	Village	S.F.No.	Area in Ha.	Patta No.	Classification
Virudhunagar and Tamilnadu	Sivakasi	Thiruthangal	884/1B	1.32.0	721	It is Patta Lands (Refer Annexure Nos. IV - VI). The company Has Obtained Consent From the pattadar for the period of 27 years from 18.06.2010 to 17.06.2037 (Refer Annexure Nos. VII and VII-A).
			1326	1.83.5	722	
			1333/1A	2.25.5		
			1333/1B	0.13.5		
			1333/2	1.22.0		
			1334/1(P)	1.19.5		
			1334/2(P)	1.70.0		
			1334/3	0.09.5		
			1334/4	0.24.5		
Total				10.00.0		

The area lies between the Latitudes of 09°28'22.6960"N to 09°28'32.6455"N and Longitudes of 77°47'32.7729"E to 77°47'49.5472"E on WGS datum-1984. (Plate No. I & II).

**2.7 WHETHER THE AREA RECORDED TO BE IN FOREST DEPARTMENT:**

The area does not falls under forest land of any category. It is a patta land.

2.8 PERIOD FOR WHICH THE MINING AREA IS REQUIRED

Twenty years only.

2.9 INFRASTRUCTURE

The lease applied area is situated about 1km Southwest side of Thiruthangal hamlet and 2km Northern side of Sivakasi town (Please refer plate No- I and IA).

The nearest town is Sivakasi which is located about 2km Southern side of the area, where all basic facilities like Hospital, Communication centre, Schools, Police Station and Bus terminus are available. The District head quarters and District Administrative Office are available in Virudhunagar located at 21km on the Northeast side of the area.

There is good approach road is already existence on the Southern side of the area, which is leads to Sivakasi – Erichanatham Major District road located at 500m on the Western side of the area. There is no other patta lands are encountered for the haulage of Multi Colour Granite (Please refer Plate No.I to ID).

Table - 3

Particulars	Location	Approximate aerial Distance and Direction from the lease applied area.
Nearest Post Office	Thiruthangal	1km – NE
Nearest Dispensary	Thiruthangal	1km – NE
Nearest School	Thiruthangal	1km – NE
Nearest Police Station	Thiruthangal	1km – NE
Nearest Hospital	Sivakasi	2km – South
Nearest Town	Sivakasi	2km – South
Nearest D.S.P.Office	Sivakasi	2km – South
Nearest State Highway	Sivakasi – Virudhunagar (SH-42)	1km – East
Nearest National Highway	Kanniyakumari – Bengaluru(NH-44)	15km – East
Nearest Railway Line	Sivakasi – Virudhunagar	1km – South
Nearest Railway Station	Sivakasi	1km – SW
Nearest Airport	Madurai	52km – NE
Nearest Seaport	Thoothukudi	88km – SE
District Head Quarters	Virudhunagar	21km – NE

There is no National Monuments, Places of Worship, Public Interest and Permanent structures situated around 300m radius from the lease applied area.

WATER:

Packaged drinking water is available from the nearby water vendors in Sivakasi located at 2km on the Southern side of the area, the ground water also potable without adverse any health effects. The water table is found 64m in summer and 59m in rainy season below from ground level this is observed from the nearby borewells.

RIVER HEAD:

There is odai passing on the eastern side in S.F.No. 1326, a safety distance of 50 meters has been provided to the Odai. There is no major water body like River, Reservoir, Lake and Canal located within 50m radius of the area.

3.0 GEOLOGY AND RESERVES**3.1 PHYSIOGRAPHY**

The area is situated in flat terrain. The gradient is gentle towards Eastern side and altitude of the area is 109m above from MSL. The Multi Colour granite is clearly visible right from the surface outcrops and other places are concealed under Reddish gravelly soil having an average thickness of 2m. The Multi Colour Granite is medium to fine grained with quartz and feldspar as major constituents, Garnet, Pyroxene, Mica, and other mafic minerals are accessories.

**Topographical view of the Thiruthangal Multi Colour Granite
quarry lease applied area**





A handwritten signature or mark, possibly a stylized 'S' or a similar character, located at the bottom of the page.

The area receives average rainfall about 820mm per annum and the rainy season is mainly from Oct – Jan during North East monsoon. The summer is hot with maximum temperature of 42°C and winter records a minimum temperature of 22°C. The water level is found to occur at a depth of 64m in summer and 59m during rainy season below from the ground level.

3.2 REGIONAL GEOLOGY & GEOLOGICAL SUCCESSION

Granites were formed from molten rock referred to as "Magma" formed at great depths within the crust of the earth. Such rocks that were formed at great depths during the Archaean age are now exposed at the surface of the earth as a result of the combined actions of wind, air, sun and water and weathering and denudation over the past several million years.

The area forms a part of peninsular gneiss the most wide spread group of rocks in many parts of Tamil Nadu. The southern domain of Tamil Nadu is characterized by the khondalite group of rocks (with subordinate amounts of Charnockite) and marked by the absence of BMQ and dolerite dyke systems. The most common varieties of granite are pink, grey and Multi Colour ones. This type occurs in the form of large massive bodies (Batholiths, laccoliths) spreading over hundreds of square kilometers exhibiting variation in colour and texture. Other types occur as lenses and bands within the gneisses and other metamorphic rocks. In these cases, the molten magma of granite has been emplaced into the earlier rocks as narrow, small bodies and partly interacting. The rock formation is popularly known as Garnet sillimanite gneiss essentially made up of a supra crustal assemblages of Quartz, Orthoclase and Plagioclase Feldspar as major constituents ($\pm$ Sillimanite $\pm$ graphite $\pm$ garnet $\pm$ magnetite), closely inter banded with calc - silicate rocks and dolomite, as well as Garnetiferous gneiss or schist, occurring within a vast area of biotite gneiss ($\pm$ garnet).

Anorthosites, syenites and porphyries and like that generally considered along with the Multi Colour granites. In these rocks quartz is nearly absent when hornblende or biotite abundant, the rock may be dark green or almost black.

3.2.1. Geology of the lease applied area

The Multi Colour granite deposit is clearly visible right from the surface outcrops and other places are concealed under Reddish gravelly soil having an average thickness of 2m and followed by fresh Multi Colour granite. The rock formation is popularly known as Garnetiferous quartzo feldspathic Granulite (Leptynite) In which Garnet is embedded in sequence Patten in the entire formation essentially made up of a supra crustal assemblages of Quartz, Orthoclase and Plagioclase feldspar as major constituents, Garnet, sillimanite and other mafic minerals are accessories closely inter banded with calc - silicate rocks and dolomite, as well as Garnetiferous gneiss or schist, occurring within a vast area of biotite gneiss ($\pm$ garnet). The lease applied area comprises **Garnetiferous quartzo feldspathic Granulite** popularly termed as "**Sivakasi Yellow / Sivakasi Gold Granite**".

The Biotite gneiss forms the country rock of the area with trending of N25°E - S25°W with dipping towards SE60° and **Multi colour Granite** intruded between the batholithic formation of pre-existing country rock of Biotite gneiss discordantly with **two bands** with trending of **N55°E - S55°W with dipping towards SE55° with an average width of 50m.**

The Multi colour Granite is leucocratic, euhedral, medium to coarse grained, equigranular and well developed gneissic banding of alternate layers of light and dark colour minerals are the specialty of this area which denotes the indicative of flow pattern of the rock mass in N55°E - S55°W (i.e., the cutting direction of the Multi Colour granite). The colour of the rock is pale pink - pale yellow as observed on the surface level, the pink colour may decreased in deep seated condition. This pale pink and yellow colour which may find a good market for granite dimensional stones.

Some slender pegmatite veins are intruded in a crisscross fashion and well developed strike and dip joints and xenoliths observed at the surface level which is likely to decrease in deep seated condition. Taking in to consideration of the above geological factors, over burden, inter burden wastage during quarrying, other flaw and flower patches etc, an average recovery of 25% upto 32m (2m Topsoil + 30m Multi Colour granite) depth has been computed as economically safe and systematic quarrying. This mining plan is discussed based on 25% recovery factor. If there is any considerable increase or decrease in the recovery factor a modified mining plan will be prepared and will be submitted to relevant authorities for subsequent clearance and approval.

STRUCTURAL SETTINGS OF OF THE AREA:

The General Geological sequence of the rocks in the area is:-

ROCK TYPE	GROUP	PERIOD	ERA
Reddish Soil	Pleistocene to Recent	Quaternary	Cenozoic
Garnetiferous Quartzo Feldspathic Complex Granulite (Leptynite)	Migmatite	}	Archaean
Calc-Granulite	Khondalite Group		
Quartzite			
Garnet- Sillimanite Gneiss			

The Physical attitude of the Multi Colour Granite deposit of this area is given below:-

Band I

Strike Direction	-	N55°E - S55°W
Dip amount and direction	-	SE55°.
Strike length	-	526m
Band Width	-	50m

Band II

Strike Direction	-	N55°E - S55°W
Dip amount and direction	-	SE55°.
Strike length	-	467m
Band Width	-	50m.

**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 and delineation of commercial Multi Colour Granite bodies within the field and careful evaluation of body luster, physical properties, engineering properties, commercial aspects etc.

Such an exploration study has already been conducted regionally in this area by the Geological Survey of India (GSI) in the year 1966 and Department of Geology and Mining of Tamil Nadu in year 1992 to 1993.

Based on the valuable geological information and by the field experience, the estimation of geological resources, mineable reserve is arrived at considering to waste and market potential.

3.3.2 PROPOSED STUDY TO BE CARRIED OUT

Even though the depth persistence of the Multi Colour Granite stone may be beyond 32m from the Petrogenetic character of the rock, only 32m (2m Topsoil + 30m Multi Colour Granite) depth persistent has been taken as economically viable (at present scenario considering for the entire lease Period) to calculate categories of proved, probable, and possible reserves.

The recovery of saleable Multi Colour Granite stones has been taken as 25% and if the recovery percentage is good or bad, it may enhance or decrease respectively.

No definite programs for future exploration have been drawn. The quarrying activities for the next five years with deep cut as envisaged in the mining plan may render additional data as may be required for future planning. The total depth persistence and recovery percentage of commercial granite deposit will be discussed in the ensuing scheme period.

3.4 METHOD OF ESTIMATION OF RESERVES

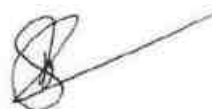
The Geological plan demarcating the commercially marketable granite body has been prepared in 1:1000 Scale, totally six sections have been drawn, two along the strike direction as (X-Y and X1-Y1) length wise and other four cross sections are drawn perpendicular to strike as (A-B, C-D, E-F and G-H) width wise, Which are suitably chosen to cover the maximum area, in the scale of 1:1000 (Refer Plate No. IV).

The cross sectional area for the proved depth persistence of 32m has been worked out for each section. The cross sectional area multiplied by its length x breadth x Depth gives the volume (insitu) in the area wise. The sum total of the insitu reserves available within the block gives the geological resources of the quarry lease applied area.

From the total geological insitu resources, the quantity of saleable granite stones, quantity of rejects and waste generation are computed by applying recovery factor as 25% by its volume. High efficient technology machineries, quarry masters, Market demand significantly determine the recovery percentage of granite quarries. The estimated recovery is based on today market scenario and the same recovery has been considered as normative recovery. When the market demands, the applicant may take necessary steps to deploy a quarry masters with latest innovative machineries technology. So the recovery enhancement may raise to the peak production resulting in 80%. During the operation the method of quarry, deployment of men and machineries will not have any negative impact on the Environment. It is worthening the recovery anticipate the normative production has been scientifically converted into commercial production resulting in the decrease dump of waste inside the quarry. Due to the micro fractures, flaws, patches, xenoliths, required dimension, dressing, etc., the recovery in the granite could not be 100% of the R.O.M

As the sale of Multi Colour Granite stone are in terms of cubic metres (Volume) only and not in terms of tonnage as in the case of major industrial mineral, 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 sections and conceptual plan and sections as shown in Plate No. IV and IX respectively has been furnished.



3.5 GEOLOGICAL RESOURCES AND GRADE:

Table - 4

Band No.	Dimension in meters (Maximum)		
	Length	Width	Depth
Band - I	526	192 (Granite + SB)	32
Band - II	467	65 (Granite + SB)	32

Table - 4A

Section	Bench	Length (m)	Width (m)	Depth (m)	ROM (m ³)	Recovery @ 25% (m ³)	Granite Waste @ 75% (m ³)	Side Burden (m ³)	Topsoil (m ³)
XY-AB	i	172	192	2	-	-	-	-	66048
	ii	172	50	6	51600	12900	38700	-	-
		172	142	6	-	-	-	146544	-
	iii	172	50	6	51600	12900	38700	-	-
		172	142	6	-	-	-	146544	-
	iv	172	50	6	51600	12900	38700	-	-
		172	142	6	-	-	-	146544	-
	v	172	50	6	51600	12900	38700	-	-
		172	142	6	-	-	-	146544	-
	vi	172	50	6	51600	12900	38700	-	-
		172	142	6	-	-	-	146544	-
	Total				258000	64500	193500	732720	66048
X1Y1-AB	i	107	65	2	-	-	-	-	13910
	ii	107	50	6	32100	8025	24075	-	-
		107	15	6	-	-	-	9630	-
	iii	107	50	6	32100	8025	24075	-	-
		107	15	6	-	-	-	9630	-
	iv	107	50	6	32100	8025	24075	-	-
		107	15	6	-	-	-	9630	-
	v	107	50	6	32100	8025	24075	-	-
		107	15	6	-	-	-	9630	-
	vi	107	45	6	28890	7222	21668	-	-
		107	20	6	-	-	-	12840	-
	Total				157290	39322	117968	51360	13910
XY-CD	i	100	146	2	-	-	-	-	29200
	ii	100	50	6	30000	7500	22500	-	-
		100	96	6	-	-	-	57600	-
	iii	100	50	6	30000	7500	22500	-	-
		100	96	6	-	-	-	57600	-
	iv	100	50	6	30000	7500	22500	-	-
		100	96	6	-	-	-	57600	-
	v	100	50	6	30000	7500	22500	-	-
		100	96	6	-	-	-	57600	-
	vi	100	50	6	30000	7500	22500	-	-
		100	96	6	-	-	-	57600	-
	Total				150000	37500	112500	288000	29200

Mining Plan and PQCP

Thiruthangal Multi Colony

X1Y1- CD	i	100	100	2	-	-	-	20000	-
	ii	100	50	6	30000	7500	22500	-	-
		100	50	6	-	-	-	30000	-
	iii	100	50	6	30000	7500	22500	-	-
		100	50	6	-	-	-	30000	-
	iv	100	50	6	30000	7500	22500	-	-
		100	50	6	-	-	-	30000	-
	v	100	50	6	30000	7500	22500	-	-
		100	50	6	-	-	-	30000	-
	vi	100	50	6	30000	7500	22500	-	-
100		50	6	-	-	-	30000	-	
Total					150000	37500	112500	150000	20000
XY-EF	i	100	88	2	-	-	-	-	17600
	ii	100	50	6	30000	7500	22500	-	-
		100	38	6	-	-	-	22800	-
	iii	100	50	6	30000	7500	22500	-	-
		100	38	6	-	-	-	22800	-
	iv	100	50	6	30000	7500	22500	-	-
		100	38	6	-	-	-	22800	-
	v	100	50	6	30000	7500	22500	-	-
		100	38	6	-	-	-	22800	-
	vi	100	50	6	30000	7500	22500	-	-
100		38	6	-	-	-	22800	-	
Total					150000	37500	112500	114000	17600
X1Y1- EF	i	100	94	2	-	-	-	-	18800
	ii	100	50	6	30000	7500	22500	-	-
		100	44	6	-	-	-	26400	-
	iii	100	50	6	30000	7500	22500	-	-
		100	44	6	-	-	-	26400	-
	iv	100	50	6	30000	7500	22500	-	-
		100	44	6	-	-	-	26400	-
	v	100	50	6	30000	7500	22500	-	-
		100	44	6	-	-	-	26400	-
	vi	100	50	6	30000	7500	22500	-	-
100		44	6	-	-	-	26400	-	
Total					150000	37500	112500	132000	18800

Mining Plan and PQCP

Thiruthangal Multi Colour Granite

XY-GH	i	154	50	2	-	-	-		15400	
	ii	154	33	6	30492	7623	22869		-	-
		154	17	6	-	-	-		15708	-
	iii	154	37	6	34188	8547	25641		-	-
		154	13	6	-	-	-		2012	-
	iv	154	41	6	37884	9471	28413		-	-
		154	9	6	-	-	-		8316	-
	v	154	46	6	42504	10626	31878		-	-
		154	4	6	-	-	-		3696	-
	vi	154	50	6	46200	11550	34650		-	-
Total				191268	47817	143451	39732	15400		
X1Y1-GH	i	160	123	2	-	-	-	-	39360	
	ii	160	50	6	48000	12000	36000	-	-	
		160	73	6	-	-	-	70080	-	
	iii	160	50	6	48000	12000	36000	-	-	
		160	73	6	-	-	-	70080	-	
	iv	160	50	6	48000	12000	36000	-	-	
		160	73	6	-	-	-	70080	-	
	v	160	50	6	48000	12000	36000	-	-	
		160	73	6	-	-	-	70080	-	
	vi	160	50	6	48000	12000	36000	-	-	
Total				240000	60000	180000	350400	39360		
Total				1446558	361639	1084919	1858212	220318		

Total Geological Resources in ROM	=	14,46,558m ³
Total Recoverable Resources @ 25%	=	3,61,639m ³
Granite waste @ 75%	=	10,84,919m ³
Side Burden	=	18,58,212m ³
Total Waste (Granite waste + Side Burden)	=	29,43,131m ³
Topsoil	=	2,20,318m ³
Granite : waste ratio	=	1:8.1

The Geological resources computed based on the geological cross sections up to the economically workable depth of 32m below from the existing ground profile of the area at the rate of 25% recovery yields 3,61,639m³ and 14,46,558m³ of ROM. The total geological resources are computed as 32m depth for economically viable at present market scenario.

3.6 MINEABLE RESERVES AND GRADE:

Table - 5

Band No.	Dimension in meters (Maximum)		
	Length	Width	Depth
Band - I	495	80 (Granite + SB)	32
Band - II	373	92 (Granite + SB)	32

Table - 5A

Section	Bench	Length (m)	Width (m)	Depth (m)	ROM (m ³)	Recovery @ 25% (m ³)	Granite Waste @ 75% (m ³)	Side Burden (m ³)	Topsoil (m ³)
XY-AB	i	162	80	2	-	-	-	-	25920
	ii	158	50	6	47400	11850	35550	-	-
		158	26	6	-	-	-	24648	-
	iii	151	50	6	45300	11325	33975	-	-
		151	21	6	-	-	-	19026	-
	iv	144	50	6	43200	10800	32400	-	-
		144	15	6	-	-	-	12960	-
	v	137	50	6	41100	10275	30825	-	-
		137	9	6	-	-	-	7398	-
	vi	130	50	6	39000	9750	29250	-	-
		130	2	6	-	-	-	1560	-
	Total				216000	54000	162000	65592	25920
X1Y1-AB	i	88	57	2	-	-	-	-	10032
	ii	79	50	6	23700	5925	17775	-	-
		79	3	6	-	-	-	1422	-
	iii	64	40	6	15360	3840	11520	-	-
		64	7	6	-	-	-	2688	-
	iv	49	29	6	8526	2131	6395	-	-
		49	11	6	-	-	-	3234	-
	v	34	18	6	3672	918	2754	-	-
		34	15	6	-	-	-	3060	-
	vi	19	8	6	912	228	684	-	-
		19	20	6	-	-	-	2280	-
	Total				52170	13042	39128	12684	10032
XY-CD	i	100	80	2	-	-	-	-	16000
	ii	100	50	6	30000	7500	22500	-	-
		100	26	6	-	-	-	15600	-
	iii	100	50	6	30000	7500	22500	-	-
		100	21	6	-	-	-	12600	-
	iv	100	50	6	30000	7500	22500	-	-
		100	15	6	-	-	-	9000	-
	v	100	50	6	30000	7500	22500	-	-
		100	9	6	-	-	-	5400	-
	vi	100	50	6	30000	7500	22500	-	-
		100	2	6	-	-	-	1200	-
	Total				150000	37500	112500	43800	16000

Mining Plan and PQCP

Thiruthangal Multi-Category

X1Y1-CD	i	100	92	2	-	-	-	-	18400
	ii	100	50	6	30000	7500	22500	-	-
		100	39	6	-	-	-	23400	-
	iii	100	50	6	30000	7500	22500	-	-
		100	32	6	-	-	-	19200	-
	iv	100	50	6	30000	7500	22500	-	-
		100	25	6	-	-	-	15000	-
	v	100	50	6	30000	7500	22500	-	-
		100	18	6	-	-	-	10800	-
	vi	100	43	6	25800	6450	19350	-	-
100		20	6	-	-	-	12000	-	
Total					145800	36450	109350	80400	18400
XY-EF	i	100	75	2	-	-	-	-	15000
	ii	100	50	6	30000	7500	22500	-	-
		100	22	6	-	-	-	13200	-
	iii	100	50	6	30000	7500	22500	-	-
		100	16	6	-	-	-	9600	-
	iv	100	50	6	30000	7500	22500	-	-
		100	10	6	-	-	-	6000	-
	v	100	49	6	29400	7350	22050	-	-
		100	5	6	-	-	-	3000	-
	vi	100	48	6	28800	7200	21600	-	-
Total					148200	37050	111150	31800	15000
X1Y1-EF	i	100	86	2	-	-	-	-	17200
	ii	100	50	6	30000	7500	22500	-	-
		100	33	6	-	-	-	19800	-
	iii	100	50	6	30000	7500	22500	-	-
		100	27	6	-	-	-	16200	-
	iv	100	50	6	30000	7500	22500	-	-
		100	20	6	-	-	-	12000	-
	v	100	48	6	28800	7200	21600	-	-
		100	15	6	-	-	-	9000	-
	vi	100	37	6	22200	5550	16650	-	-
	100	20	6	-	-	-	12000	-	
Total					141000	35250	105750	69000	17200

Mining Plan and PQCP

Thiruthangal Multi Colour Granite

XY-GH	i	133	42	2	-	-	-	-	11172
	ii	123	22	6	16236	4059	12177	-	-
		123	17	6	-	-	-	-	-
	iii	98	20	6	11760	2940	8820	-	-
		98	13	6	-	-	-	7644	-
	iv	92	18	6	9936	2484	7452	-	-
		92	9	6	-	-	-	4968	-
	v	86	16	6	8256	2064	6192	-	-
		86	5	6	-	-	-	2580	-
	vi	80	14	6	6720	1680	5040	-	-
Total					52908	13227	39681	27738	11172
X1Y1-GH	i	85	64	2	-	-	-	-	10880
	ii	81	50	6	24300	6075	18225	-	-
		81	11	6	-	-	-	5346	-
	iii	73	48	6	21024	5256	15768	-	-
		73	7	6	-	-	-	3066	-
	iv	65	37	6	14430	3608	10822	-	-
		65	11	6	-	-	-	4290	-
	v	56	27	6	9072	2268	6804	-	-
		56	15	6	-	-	-	5040	-
	vi	48	17	6	4896	1224	3672	-	-
48		20	6	-	-	-	5760	-	
Total					73722	18431	55291	23502	10880
Total					979800	244950	734850	354516	124604

Total Mineable Reserves ROM = 9,79,800m³

Total Mineable Recoverable Reserves @ 25% = 2,44,950m³

Granite waste @ 75% = 7,34,850m³

Side Burden = 3,54,516m³

Total Waste (Granite waste + Side Burden) = 10,89,366m³

Topsoil = 1,24,604m³

Granite : waste ratio = 1:4.5

Mineable reserves have been computed as 2,44,950m³ at the rate of 25% recovery and 9,79,800m³ of ROM upto a depth of 32m from the ground level. The mineable reserves are calculated by deducting the mineral locked up area under safety distance and bench loss. Hence, the remaining area is taken for calculation of mineable reserves upto 32m depth.

The Multi Colour Granite body occurring in this area exhibits more or less uniform colour and texture. If any variation occurs during quarrying, such as cracks, joints, patches, colour variations etc, the defective area will be removed. The formation is uniform and no gradational change is noticed except some shears and cracks.

4.0 MINING

Open cast semi mechanized mining with 6.0 meter vertical bench with a bench width of 6.0 meter is being proposed.

Under the regulation 106 (2) (b) of the Metallurgical Mines Regulation 1961, in all open cast mining, the bench height should not exceed, 5.0 meter and bench width should not be less than bench height of the vertically cut face.

But as far as the mining of granite dimension stones are concerned, observance of the provisions of Regulation 106 (2) (b) as above is seldom possible due to various inherent Petrogenetic 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, Chennai for which necessary provision is available with the Regulation 106 (2) (b).

The production of Multi Colour Granite dimension stone in this quarry involves the following method which is typical for granite stone quarrying in contrast to other major mineral mining. Splitting of rock body of considerable volume from the parent rock formation by carefully avoiding visibly seen defects such as patches veins, etc., is done by adopting the method of "diamond wire cutting" along the horizontal as well as two vertical sides on the front face of the formation.

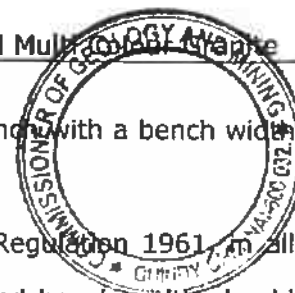
This liberation of huge volume of granite body from the parent sheet rock is called "primary cutting". This huge portion is further split in to several blocks of desirable dimensions. The blocks thus splitted are removed from the pit to the dressing yard, by using Crawler crane, for further dressing.

Removing the defective portions and dressing them in to the dimension blocks are done manually using feather and wedges and chiseling respectively by the experienced skilled labours or by innovative machineries.

The defect free, dimensional stone of different sizes as approved in the market are thus produced by the method as described above, and the process is continuously monitored by applicant's experienced quality control personnel.

The waste material generated during quarrying activity includes rock fragments of different sizes, and also during dressing of the blocks. As and when there is accumulation of waste, the same is loaded into the tipper by loading machines and dumped in the respective places ear-marked for the purpose (Plate. No. VI).

The quarried out topsoil will be preserved all along the safety zone and utilized for construction of bund and afforestation purpose.



4.1 YEAR WISE DEVELOPMENT AND PRODUCTION FOR THE FIRST FIVE YEARS:

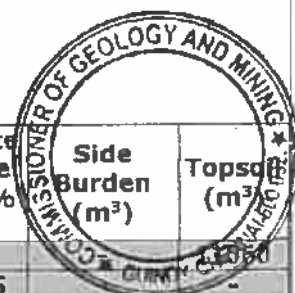
Total Length = 163m

Maximum Width = 126m (Granite + Side burden)

Maximum Depth = 32m

Table - 6

Year	Section	Bench	Length (m)	Width (m)	Depth (m)	ROM (m³)	Recovery @ 25% (m³)	Granite Waste @ 75% (m³)	Side Burden (m³)	Topsoil (m³)
I	XY-CD	i	79	70	2	-	-	-	-	-
		ii	75	50	6	22500	5625	16875	-	-
	X1Y1-CD	i	75	17	6	-	-	-	7650	-
		i	79	56	2	-	-	-	-	8848
		ii	75	50	6	22500	5625	16875	-	-
		ii	75	3	6	-	-	-	1350	-
	Total					45000	11250	33750	9000	19908
II	XY-EF	i	84	70	2	-	-	-	-	11760
		ii	81	50	6	24300	6075	18225	-	-
			81	17	6	-	-	-	8262	-
	X1Y1-EF	i	84	56	2	-	-	-	-	9408
		ii	81	50	6	24300	6075	18225	-	-
			81	3	6	-	-	-	1458	-
	Total					48600	12150	36450	9720	21168
III	XY-CD	iii	68	48	6	19584	4896	14688	-	-
			68	13	6	-	-	-	5304	-
	X1Y1-CD	iii	68	40	6	16320	4080	12240	-	-
			68	7	6	-	-	-	2856	-
	XY-EF	iii	40	48	6	11520	2880	8640	-	-
			40	13	6	-	-	-	3120	-
	Total					47424	11856	35568	11280	-
IV	XY-EF	iii	35	48	6	10080	2520	7560	-	-
			35	13	6	-	-	-	2730	-
		iv	46	46	6	12696	3174	9522	-	-
			46	9	6	-	-	-	2484	-
	X1Y1-EF	iii	75	40	6	18000	4500	13500	-	-
			75	7	6	-	-	-	3150	-
		iv	46	30	6	8280	2070	6210	-	-
Total					49056	12264	36792	11400	-	
V	XY-CD	iv	46	47	6	12972	3243	9729	-	-
			46	9	6	-	-	-	2484	-
		v	30	45	6	8100	2025	6075	-	-
			30	5	6	-	-	-	900	-
		vi	10	10	6	600	150	450	-	-
	X1Y1-CD	iv	46	29	6	8004	2001	6003	-	-
			46	11	6	-	-	-	3036	-
		v	30	19	6	3420	855	2565	-	-
			30	15	6	-	-	-	2700	-
		vi	10	9	6	540	135	405	-	-
			10	20	6	-	-	-	1200	-
		XY-EF	v	30	44	6	7920	1980	5940	-
	v		30	4	6	-	-	-	720	-
	vi		10	10	6	600	150	450	-	-
	X1Y1-EF	v	30	19	6	3420	855	2565	-	-
			30	16	6	-	-	-	2880	-
		vi	10	9	6	540	135	405	-	-
			10	20	6	-	-	-	1200	-
	Total					46116	11529	34587	15120	-
Grand Total						236196	59049	177147	56520	41076



Total Proposed Reserves ROM	=	2,36,196m ³
Total Year wise Recoverable Reserves @ 25%	=	59,049m ³
Granite waste @ 75%	=	1,77,147m ³
Side Burden	=	56,520m ³
Total Waste (Granite waste + Side Burden)	=	2,33,667m ³
Topsoil	=	41,076m ³
Granite : waste ratio	=	1:4.0

Estimated Life of Quarry

Total Mineable Recoverable Reserves @ 25%	=	2,44,950m ³
Average Production per Year @ 25%	=	59,049m ³ /5 = 11,810m ³
Estimated Life of the Quarry	=	2,44,950m ³ /11,810m ³ = 21 Years.

The proposed year wise quantum of excavation and the details of estimation of production quantity and generation of waste are furnished with reference to the year wise development and production plan (Plate No.V).

The quarrying block is shown in such a way to meet out the average annual production. The average annual production per year would be 11,810m³ for the first five year plan period considering at the rate of 25% recovery. More details of the year wise production parameters are explained with bench length, width and height in Plate No. V.

4.2 PROPOSED RATE OF PRODUCTION WHEN THE MINE IS FULLY DEVELOPED.

The proposed rate of production where the quarry is fully developed is 11,810m³ per annum @ 25% recovery. The production schedule in the subsequent five years are drawn mainly in consideration of reserves position, market demand and the cost of production.

4.3 MINEABLE RESERVES AND ANTICIPATED LIFE OF QUARRY

The depth persistence of the formation will be beyond the economically workable depth. The method of extraction from the sheet rock is highly expensive affair at greater depths.

An optimum depth of 32m depth has been proposed as economically viable depth. Eventually this depth is the optimum for safe and scientific quarrying.

The mineable reserves are calculated by excluding the quarry loss due to formation of benches with suitable height & width upto ultimate depth of quarry and the mineral reserve held up within the safety distance all along the area boundary.

The Mineable Reserves for this Multi Colour Granite quarry is thus arrived as **2,44,950m³ @ 25% recovery** and **9,79,800m³ of ROM** for an assumed depth of 32m below from the existing ground profile. The details of estimation of five years development Production plan (Plate no.V) is furnished.

The average rate of production of Multi Colour Granite from this quarry is **11,810m³ per year** and Mineable Reserves **2,44,950m³** considering 25% recovery for the entire life of the quarry.



Based on the above, and taking into consideration of the available marketable reserves, **the life of quarry will be about 21 years** (considering all the safety factors) at 25% recovery, if the quarry is being worked continuously with an average annual production of 11,810m³. This calculation is based on the plan approved by Director of Mines Safety leaving Benches and Safety barriers. If the annual production increases considerably and consistently a modified mining plan will be prepared under Granite Conservation and Development Rules 1999 the same will be submitted to the relevant authorities for subsequent clearance and approval.

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 quarrying 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 quarrying, safety zones, permissible area, etc.,

The ultimate pit dimension of the quarry is given below.

ULTIMATE PIT DIMENSIONS

Table - 7

Maximum Dimensions in meters		
Length	Width	Depth
495	172	32

However, during extraction of blocks each bench will be of 6m height with vertical slope for proper dimension cutting. The quantum of excavation is estimated to be 14,58,920m³ (Rom 9,79,800m³ + Topsoil 1,24,604m³ + Side burden 3,54,516m³) to a depth of 32m. The generation of total waste is estimated about 10,89,366m³ (Granite Waste 7,34,850m³ + Side burden 3,54,516m³) and marketable Multi Colour Granite as 2,44,950m³.

During the first five years the excavated waste (2,33,667m³) will be proposed to dump on the Western side with maximum dimension of (L)110m x (W)66m x (H)32.18m. After expiry of the lease period, if the mineral reserves available and Market persist, the applicant may apply a renewal of quarry lease as to develop and conserve mineral reserves. If permission is granted for removal of waste, the waste material will be supplied to needy crusher for building and road construction from concerned authorities after paying the seniorage fee and obtained necessary clearance and approval from concerned department for handling the waste. When the entire mineral reserves will be completely exhausted if permission not obtained for handling the waste, backfilling will be carried out nearly existing ground profile and spread out the preserved topsoil to facilitate afforestation in the backfilled area.

The quarry area will be fenced with barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle (Refer plate No. VII and IX).

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 quarrying is seldom possible due to the field difficulties and technical reasons as below:

1. Recovery of the granite mineral is to be as undamaged rectangular dimensional blocks. In the attempt to form the benches and sides with the above statutory parameters haphazard blasting may be involved. In which case the commercial granite body may get spoiled inevitably due to generation of blasting cracks.
2. In the exercise of forming the benches with 60° slope within the granite deposit, the portion confined within the 60° as well as its complimentary part in the extricated block will become as mineral waste while shaping them into rectangular blocks.
3. The granite industry need blocks as huge as a few cubic meter volumes with measurements up to 3m x 2m x 2m. Production of such huge blocks with a moving bench of 5.0m height is not possible. Production of such huge blocks in turn increases the recovery and reduces the mineral waste during dressing. Blocks of smaller size of certain varieties of granite are now marketable and have a good commercial value.
4. Formation of too many benches with more height and the width equal to the height may lead to mineral lock up.

Hence, In order to avoid granite waste and to facilitate economical mining operations, it is proposed to obtain relaxation to the provisions of Regulation 106 (2) (b) upto a bench parameter of 6m height & 6m width with vertical faces. Such a provision of relaxation of the Regulation has been provided within the regulation 106 (2) (b). Further, it is to be note worthy that open cast granite quarrying operations with the above proposed bench parameters may not be detrimental to mines safety, since the entire terrain is made up of hard rock, compact sheet and possess high stability on slope even at higher vertical angles.

4.4.2 EXTENT OF MECHANIZATION

The following machineries are proposed to utilize for the development and production work at this quarry.

Table - 8

I. DRILLING AND CUTTING MACHINE

S.No.	Type	No.	Dia Hole mm	Size Capacity	Make	Motive power
1	Wagon Drill machine	1	30-35	20hp	VKTORY	Diesel drive
2	Jack hammer	8	32	1.2m to 6m	Atlas Copco	Compressed air
3	compressor	2	-	400psi	Atlas Copco	Diesel drive
4	Diamond Wire saw	2	-	20m ³ /day	Optima	Diesel Generator
5	Diesel Generator	1	-	125kva	Kirloskar	Diesel

Table - 9

II. LOADING EQUIPMENT

S.No.	Type	Nos	Capacity	Make
1	Crawler Crane	1	855	Tata P&H
2	Excavator	2	300	Tata Hitachi



III. HAULAGE WITHIN THE QUARRY & TRANSPORT EQUIPMENT

Table - 10

S.No.	Type	Nos	Capacity	Make	Motive Power
1	Tipper	2	20 tons	Tata	Diesel Drive

IV. TRANSPORT FROM THE QUARRY HEAD TO DESTINATION

Transportation from quarry head to customer destination is done by truck or by trailers.

V. MISCELLANEOUS:

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

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 rods - 0.3m, 0.5m, 0.75m, 1.65m, 2.25m, 3m, 3.6m, 5m upto 9m.
2. Steel Alloy chains of sufficient length of 10m, 12m, 16m, 18m etc., sizes.
3. 'D' shackles 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 mother 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.
15. Explosive as per the licensed quantity
16. Besides diamond wire saw equipment and new innovative machine specifically for granite with accessories are required to liberate the rock from to parent body to minimize damage and to obtain good recovery.

Splitting the sheet rock by Diamond wire sawing which increases substantial recovery potential. Hence it is proposed to adopt "Diamond wire saw cutting" for best recovery.

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

5.0 BLASTING

During future development of quarrying, removal of rock mass will be done by mine blasting with explosives in holes drilled by Jack hammer of 32mm dia. specially. No deep hole blasting is proposed.

Portable magazine 'M' type has been proposed to install in the ear marked places, and the Company is advised to get necessary license for storing explosives in the above area after the grant of quarry lease.

The explosive that will be used are D-Cord and Gelatin sticks which are indicated below.

D Cord - 5mg
Gelatin Sticks.

6.0 MINE DRAINAGE

The water table in this area is about 64m as observed in nearby bore wells. Quarry operations are confined to well above the water table. If water is encountered at due to rain water and seepage, the same will be drained out by 5HP motor pumps and the drained out water will be utilized for afforestation.

7.0 STACKING OF MINERAL WASTE AND DISPOSAL OF WASTE**a) Topsoil:**

There is 41,076m³ of topsoil will be generated during the mining plan period. The excavated topsoil will be preserved all along the safety zone and utilized for construction of bund and green belt development purpose.

b) Granite waste and Land chosen for disposal of waste:

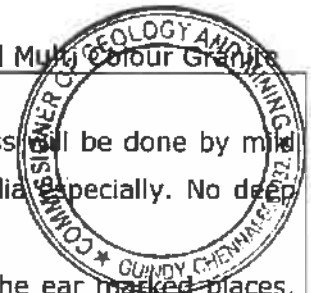
The total waste to be produced during the first five years is around 2,33,667m³ (Granite Waste 1,77,147m³ + Side burden 56,520m³) the same will be proposed to dump on the Western side with maximum dimension of (L)110m x (W)66m x (H)32.18m.

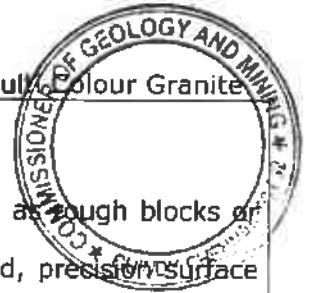
c) Manner of disposal of waste:

As and when there is accumulation of waste, the same is loaded into the tipper by loading machines and dumped in the respective places ear-marked for the purpose.

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

There is no slurry anticipated in the quarry operation. Besides the granite waste does not produce any toxic effluent in the form of solid, liquid or gas.





8.0 USE OF THE GRANITE

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

The export markets for the rock under discussion are for European Countries, North America, Middle East & Far East besides catering domestic demand.

9.0 QUALITY CONTROL

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

The exploited blocks are carefully examined for any natural defects such as joints, cracks, xenoliths, secondary Pegmatitic growth etc and such defects is 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 Thoothukudi Port to various countries and if required the blocks may be shifted from Chennai Port which depend upon the exporter's destination from time to time.

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 workshop facilities. The quarrying work is restricted to one general shift during day time only. Major Machinery repair works are attended at Sivakasi town (2km-South) and minor repairs are carried out by the Company's personnel at the quarry site itself.

Packaged drinking water is available from the water vender in Sivakasi also from nearby Company's borewell can be transported to the work site in tippers if neccassary, it will be supply after treatment through the water purifier. Quarry office, store room, toilet, first-aid room and, magazine will be provided on semi - permanent structures within the lease applied area (Refer Plate No VI).

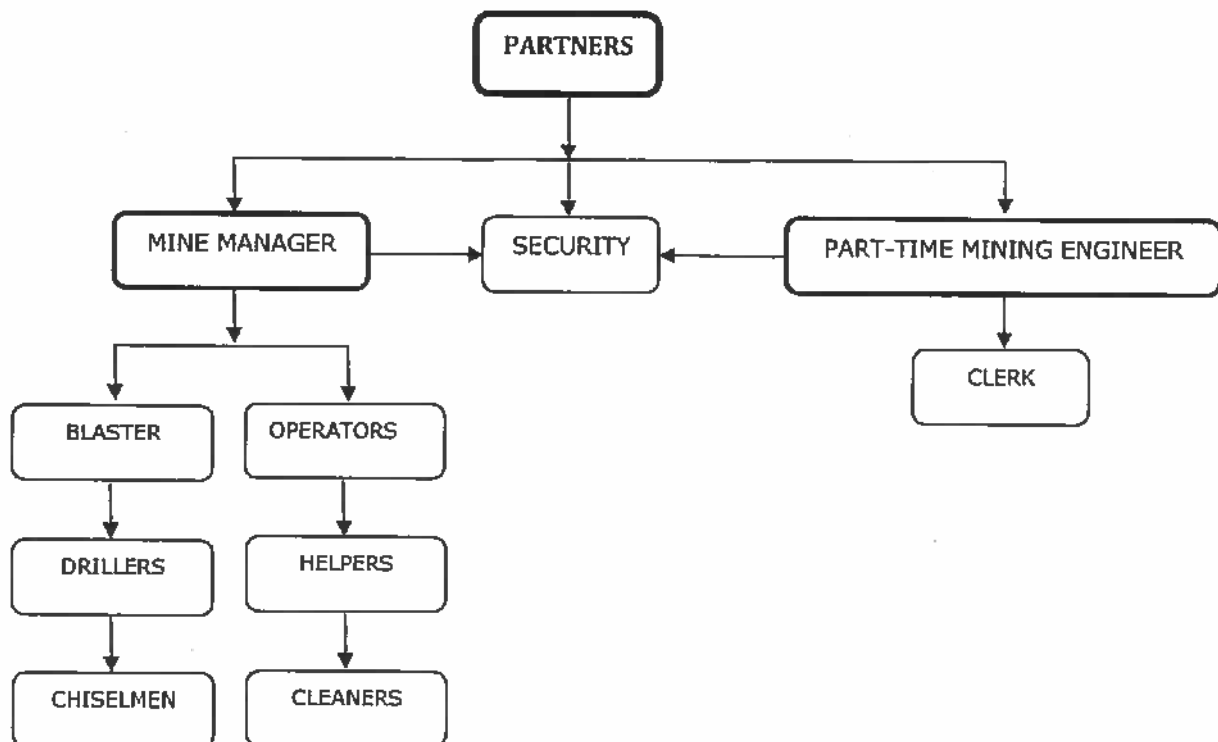
12. EMPLOYMENT POTENTIAL

The following manpower for machineries as well as for operational activities are proposed to carry out the day-to-day quarrying activities aimed at the proposed production target and also to comply with the statutory provisions of the metalliferous mines regulations, 1961.

1. Mines manager (with valid statutory qualification) : 1
2. Mines foreman (with valid statutory qualification) : 1
3. Machinery operators (Certified) : 5

WORKERS:

a.	Skilled labour	: 8
b.	Semi-skilled	: 24
c.	Unskilled	: 8
Total		: 47

ORGANIZATION CHART

The above manpower is adequate to meet out the production schedule and the machinery strength envisaged in the mining plan and to comply with the statutory provisions of the Mines Safety Regulations.



13.0 ENVIRONMENTAL MANAGEMENT PLAN:

13.1 BASELINE INFORMATION

The following observations are made for environmental management plan.

I. EXISTING LAND USE PATTERNS:

The area is situated in flat terrain. The gradient is gentle towards Eastern side and altitude of the area is 109m above from MSL. The area is a dry barren land and part of the area covered by rocky outcrops hence, the area didn't used for any purpose. The region experiences semi - humid climate and there is scanty growth of vegetation around the area (seasonal cultivation is mostly practiced). At present the area is virgin.

Existing Land use pattern

Table - 11

Description	Area at present (ha)	Utilized (%)
Area under quarry	Nil	-
Waste dump	Nil	-
Infrastructure	Nil	-
Roads	Nil	-
Green Belt	Nil	-
Stocking blocks	10.00.0	100
Grand Total	10.00.0	100

II. WATER REGIME:

Ground water occurrence in this area is 64m depth below ground level. The quarry operation will be restricted to 32m below from the existing ground level, which is well above the water table; hence the quarry operation will not be affected by the ground water in any manner. There is an odai passing on the eastern side in S.F.No. 1326, a safety distance of 50m has been provided to the odai. Except odai, there is no major water body like lake, river or reservoir located within 50m radius of the area.

III. FLORA AND FAUNA:

The main floras of Neem, Palm, Amla, Manjanathi, Cocos nucifera, Pappaya, Cactus, Calatropis, Shrub and thorny bushes are found around the area and Rat, Rabbit, Squirrel, Cow, Goat and Crow faunas are found around the area. No plants of botanical interest or animals of zoological interest are recorded within 500m radius.

IV. CLIMATIC CONDITIONS:

The area receives an average rainfall of about 820mm/per annum and the rainy season is mainly from Oct - Jan during North East, monsoon. The summer is hot with maximum temperature of 42°C and winter encounters a minimum temperature of 22°C.

V. HUMAN SETTLEMENT:

There is Kannagi Colony situated at 65m on the Western side of the area. A safety distance of 65m has been provided to the colony. There are few villages located within 5km radius of the area, approximate distance with direction & population are furnished below.

Table - 12

S.No.	Name of the Village	Direction	Approximate Distance	Approximate population
1.	Thiruthangal	NE	1km	9,600
2.	Sengamalanachiyarpatti	NW	1km	14,000
3.	Sivakasi	South	2km	1,39,000
4.	Sakshiyapuram	SW	3km	7,100

Basic human welfare amenities such as Health Center, Schools, Communication Facilities, and Commercial Centers etc are available at Sivakasi which is located at a distance of 2km Southern side of the area.

VI. PUBLIC BUILDINGS, MONUMENTS AND PLACES OF WORSHIPS:

There is no Public Building, Historical or National Monument situated within 500m radius of the area and no Place of Worship situated within 300m radius of the area.

VII. WHEATHER THE AREA FALLS UNDER NOTIFIED AREA UNDER WATER ACT, 1974.:

The area falls under notified area under water Act, 1974.

13.2 ENVIRONMENT IMPACT ASSESSMENT STATEMENT

The mining plan is proposed for very small production of granite dimensional stone without Involving deep hole drilling and heavy blasting. Such limited quarrying activity is not likely to cause any impact adversely on environment as far as pollution of air, water and noise is concerned.

Table - 13

S. No.	Salient Features at Presently bounded the quarry site	Prescribed safety distance	If any present within prescribed distance its actual distance and direction from the site			
1.	Railways, Highways, Tank, Lake, Odai, Canal, Stream, River and Reservoir	50m	There is an odai passing on the eastern side in S.F.No. 1326, a safety distance of 50m has been provided to the odai. Except odai None of the above features located within 50m radius of the area (Please refer Plate No. II).			
2.	Village Road	10m	There is No village road located within 10m radius (Please refer Plate No. II).			
3.	Habitation / Village	300m	There is Kannagi Colony situated at 65m on the Western side of the area, a safety distance of 65m has been provided to the colony (Please refer Plate No. II).			
4.	Adjacent Land – Patta / Govt.	7.5m / 10m	Direction	S.F.No.	Classification	Safety Distance
			North	894, 1331, 1332 and 1327	Patta land	7.5m
			East	1325	Patta land	50m to the Odai
			South	1318, 1319, 1334/1(P) and 1334/2(P)	Patta land	7.5m
			West	884/1A and 884/2	Patta land	50m to the Kannagi Colony
(Please refer Plate No. II).						
5.	Housing area, EB line (HT & LT Line)	50m	There is no EB (LT/HT) line or Housing area located within 50m radius (Please refer Plate No. IC and VIII).			
6.	Boundaries of the permitted area	7.5m	North – S.F.Nos. 894, 1331, 1332 and 1327. East – S.F.No. 1325. South – S.F.Nos. 1318, 1319, 1334/1(P) and 1334/2(P). West – S.F.Nos. 884/1A and 884/2. (Please refer Plate No. II).			
7.	Public Building, Historical or National Monument	500m	There is no Public Building, Historical or National Monument situated within 500m radius of the area.			
8.	Reserve forest	1Km	There is no Resreved Forest situated within 1km radius of the area.			
9.	Protected area / ECO sensitive area/State or National border		There is no Wildlife sanctuary/ Eco sensitive zone/ State border/ HACA/ CRZ/ Critically polluted area situated within 10km radius of the applied area (Please refer Plate No. IA).			

Proposed Financial Estimate for Quarry and Environment Management (EMP).

Table - 14

A. Project Cost

A. Project Cost					
S.No.	Description		Approximate Cost (Rs.)		
1.	Land Cost (As per Govt. Guideline value).		3,56,69,000		
	S.F.No.	Area in Ha.		Cost/Ha.(Rs.)	Cost of the area (Rs.)
	884/1B	1.32.0		3972000	5243040
	1326	1.83.5		3972000	7288620
	1333/1A	2.25.5		3972000	8956860
	1333/1B	0.13.5		3972000	536220
	1333/2	1.22.0		3972000	4845840
	1334/1(P)	1.19.5		3972000	4746540
	1334/2(P)	1.70.0		1986000	3376200
	1334/3	0.09.5		1986000	188670
1334/4	0.24.5	1986000	486570		
Total	10.00.0		35668560		
(source : https://tnreginet.gov.in/portal/)					
2.	Labour Shed		4,00,000		
3.	Sanitary Facility		1,00,000		
4.	First aid Room and Accessories		50,000		
5.	Excavator (2 Nos.)		1,12,00,000		
6.	Crawler Crane (1 No.)		75,00,000		
7.	Wagon Drill machine (1 No.)		50,00,000		
8.	Tipper (2 Nos.)		50,00,000		
9.	Diesel Generator (1 No.)		7,50,000		
10.	Wire Saw (2 Nos.)		8,00,000		
11.	Compressor with loose tools (2 Nos.)		18,00,000		
12.	Jack Hammer (8 Nos.)		8,00,000		
13.	Drinking Water Facility		1,00,000		
14.	Safety Kits		50,000		
15.	Fencing Cost (1450m length x Rs. 300/- per meter)		4,35,000		
16.	Garland drain (600m length x Rs. 300/- per meter)		1,80,000		
17.	Green belt development under safety zone during this scheme period (500m sapling x Rs. 100/- per sapling)		50,000		
18.	Water sprinkling		1,00,000		
Total Cost			6,99,84,000		

B. Proposed financial estimate / budget for (EMP) Environmental Management Plan:

Budget Provision for the 5 year mining plan period

S. No.	Monitory and Analysis Description	Rate per location	No. of location	Total Charges/ six months	Total Charges/ year	Total Charges For Mining plan period
1	Ambient air quality monitoring	6500	4	26000	52000	2,60,000
2	Noise level monitoring	250	4	1000	2000	10,000
3	Ground vibration monitoring	1000	2	2000	4000	20,000
4	Water sampling and analysis	9000	1	9000	18000	90,000
Total EMP Cost/ year					76,000	3,80,000

The EMP cost for the 5 year mining plan period would be around Rs. 3,80,000/-

Total Cost of the Project including EMP Cost	
Description	Amount (Rs.)
A. Project Cost	99,84,000
B. EMP Cost	5,80,000
Total Project Cost (A+B)	7,03,64,000
C. The applicant Indents to involve corporate Environment responsibilities (CER) activity like Water purifier, Cot, Bed and Sanitary facilities to the Thiruthangal Dispensary and Water purifier and Sanitary facilities to the Govt. School at 2.0% from the total project cost. The cost would be around Rs. 14,08,000/.	14,08,000
Total Cost (A+B+C)	7,17,72,000

(Total project cost including EMP cost is about rupees seven crore seventeen lakh and seventy two thousand only).

13.3.0 ENVIRONMENT MANAGEMENT PLAN

13.3.1 PROPOSAL FOR WASTE MANAGEMENT

The mine waste in the mine includes, rock fragments, rock chips, rubbles generated as mineral waste during production work.

The total waste to be produced during the mining plan (first five year) period will be around 2,33,667m³. The excavated waste will be proposed to temporarily dump on the Western side with maximum dimensions of (L) 110mx(W) 66m x (H) 32.18m.

The quarried out topsoil 41,076m³ will be preserved all along the safety zone and utilized for construction of bund and afforestation purpose.

The waste management plan with reference to the quantum of waste generated is shown in quarry layout plan (Please refer Plate No.VI).

13.3.2 PROPOSAL FOR RECLAMATION OF LAND AFFECTED BY MINING ACTIVITIES DURING & AT THE END OF MINING

Due to nature of occurrence of sheet rocks, the depth persistence of the Multi Colour Granite in this quarry is beyond the workable limits. In the proposed mining plan only 32m depth has been envisaged as workable depth for safe & economic quarrying for the entire lease period. After expiry of the lease period, if the mineral reserves available and Market persist, the applicant may apply a renewal of quarry lease as to develop and conserve mineral reserves. If permission is granted for removal of waste, the waste material will be supplied to needy crusher for building and road construction from concerned authorities after paying the seniorage fee and obtained necessary clearance and approval from concerned department for handling the waste. When the entire mineral reserves will be completely exhausted if permission not obtained for handling the waste, backfilling will be carried out nearly existing ground profile and spread out the preserved topsoil to facilitate afforestation in the backfilled area. The quarry area will be fenced with barbed wire fencing also safety bund constructed around the quarry to prevent inadvertent entry of public and cattle (Please refer plate No. VII and IX).

13.3.3 PHASED PROGRAMME OF PLANTING TREES

It is proposed to plan 100 sapplings during every year an expected survival at the rate of 80% which will work out 80-85 plants. The applicant ensure to maintaining the plantations not less than 1600 plants at the end of life of quarry. The safety zone along the North and Western side lease boundary has been utilized for green belt development. Appropriate species of Neem, Manjanathi, Pongamia pinnata, Casuarina, Thespesia populnea, etc., trees will be planted in a phased manner as described below.

Table - 15

Year	No. of trees proposed to be planted	Area to be covered in m ²	Name of the species	Survival rate expected in %	No. of trees expected to be grown
I	100	924	Neem, Manjanathi,	80	40
II	100	924	Pongamia pinnata,	80	40
III	100	924	Casuarina,	80	40
IV	100	924	Thespesia	80	40
V	100	924	populnea, etc.,	80	40

Nearly 4,620m² area is proposed for afforestation by planting 100 Nos. of tree sapling during every year and expected growth is minimum 80 Nos. of trees at a survival rate of 80%. The afforestation plan is shown in Plate No.VI.

13.3.4 MEASURES FOR DUST SUPPRESSION:

As the granite stones are quarried as undamaged dimensional stones without involving deep hole drilling and heavy blasting, fragmentation and generation of lumps, fines or dust is negligible. This quantum of quarrying activity will not cause the dust detrimental to the health of the persons employed. Nevertheless, Mist water spray will be sprinkled for the suppression air borne dust from quarry approach roads waste dumps on regular intervals using water tankers. Drilling of blast holes of 32mm 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 Safety Regulations.

13.3.5 MEASURES TO MINIMIZE GROUND VIBRATION DUE TO BLASTING AND CHECK NOISE POLLUTION

Shallow holes of 32 mm diameter will be drilled and conventional low explosives such as D-Cord and Gelatin sticks will be used for removal of over 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 under the advice of qualified and competent personals. The noise produced by diamond wire saw cutting will be negligible.

13.3.6 STABILIZATION AND VEGETATION OF DUMPS

As the waste generation in the mine includes hard rock fragments of considerable size of irregular shape with varying angularity, the waste dump will be stable on its own even at higher slopes of the sides, besides excavated topsoil will be spread out also plantation will be carried out over and sides of the in-active waste dump for increasing the stability and to prevent erosion during rainy season.



14.0 PROGRESSIVE QUARRY CLOSURE PLAN:

14.1 Introduction

The Progressive Quarry Closure Plan for Multi Colour Granite quarry lease applied area over an extent of 10.00.0 Hectares of Patta lands in S.F.Nos. 884/1B, 1326, 1333/1A, 1333/1B, 1333/2, 1334/1(Part), 1334/2(Part), 1334/3 and 1334/4 of Thiruthangal Village, Sivakasi Taluk, Virudhunagar District, Tamil Nadu State has been prepared for **Tvl. GPK Granite Industry**, having an office at No. 11, State Bank of India Officer's Colony, Ujjaini Street, Ayanavaram, Chennai, Tamil Nadu State – 600 023.

14.2 Present Land use pattern:

Land Use Table – 16

Description	Present area in (Ha)
Area under Quarry	Nil
Dump	Nil
Infrastructure	Nil
Roads	Nil
Green Belt	Nil
Stocking Blocks	10.00.0
Grand Total	10.00.0

14.3 Mineral Processing Operations:

The quarried out Rough granite blocks are marketed 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 Thoothukudi Port to various countries and if required the blocks may be shifted from Chennai Port which depend upon the exporter's destination from time to time. No Mineral processing is involved within the applied area.

14.4 Reasons for closure:

The mineral is not going to be exhausted during the proposed Mining Plan period hence, immediate closure is not planned due to sufficient reserves are available for the entire life of quarry. Hence, the reason for closure will be discussed in Final Mine Closure Plan.

14.5 Statutory obligations:

All the conditions stipulated in the Precise area communication letter was fulfilled and maintained during the course of quarry operations.

**14.6 Progressive quarry closure plan preparation:**

Name and address of the Qualified Person who prepared the progressive closure plan and name and address of the executing agency who is involved in the Preparation of progressive quarry closure plan.

Dr. P. THANGARAJU, M.Sc., Ph.D.,

Qualified Person

No.17, Advaita Ashram Road,

Alagapuram, Salem-636 004.

Cell: +91 94422 78601 and 94433 56539.

The applicant will himself implement the closure plan; no outside agency will be involved.

14.7 Review of Implementation of Mining Plan including Progressive Closure Plan upto the Final Closure Plan:

The Mining Plan and Progressive quarry closure plan are being submitted for the first time. In the mining plan is discussed for Reclamation and Rehabilitation will be carried out only at the end of life of quarry. The Multi Colour granite mineral reserves are available for the entire life of quarry. Hence, review of implementation of progressive quarry closure does not arise at present. However, if any work done for progressive quarry closure during this Mining Plan period, it will be discuss an ensuing Scheme period.

14.8 Closure Plan:**(i) Mined Out Land:**

At the end of mining plan period the quarry operation carried out only 2.07.7Ha area out of 6.31.1 Ha of total mineable area. When the remaining reserves will be completely exhausted, the mine closure plan will be prepared and submitted to the competent authority to obtain approval and the same will be implemented. Land use at various stages is given in the table below. At present the area is virgin.

Land use patternTable - 17

Description	Present area (Ha)	Area to be required during the present Mining Plan period(ha)	Area at the end of life of quarry (Ha)
Area under quarry	Nil	2.07.7	6.31.1
Waste dump	Nil	0.72.6	Backfilled
Infrastructure	Nil	0.03.5	0.05.0
Roads	Nil	0.03.0	0.10.0
Green Belt	Nil	0.46.2	1.75.8
Stocking blocks	10.00.0	6.67.0	1.78.1
Grand Total	10.00.0	10.00.0	10.00.0

**(ii) Water quality management:**

Following control measures will be adopted for controlling water pollution.

- Garland drain will be Constructed around the quarry to prevent surface run-off rain water entering in to the quarry pit.
- Construction of check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- Collection of surface run-off from broken up area in mine pits for settling and only properly settled excess water from mine pit will be discharged to nearby users. The storm water/ mine water will be used for dust suppression, greenbelt development, etc.
- Periodic analysis of mine pit water and ground water quality in nearby villages.
- Domestic sewage from site office & urinals/latrines provided in QL is discharged in septic tank followed by soak pits.

(iii) Air Quality Management:

The proposed mining method is not likely to produce much of dust and fugitive emissions to cause damage to ambient air quality of the area. All personnel protective equipment like Nose-mask, earplug/ muffs will be provided to the Workers. For air pollution management at the progressive quarry closure plan, greenbelt will be developed to prevent and control air pollution.

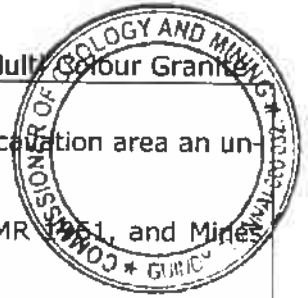
(iv) Top Soil and Waste Management:

There is 41,076m³ of topsoil will be generated during the Mining Plan period. It will be preserved all along the safety barrier and utilized for construction of bund and green belt development purpose.

Total waste produced during the Mining Plan period will be around 2,33,667m³ (Granite Waste 1,77,147m³ + Side burden 56,520m³). The total waste material will be proposed to dump on the Western side with dimension of (L)110m x (W)66m x (H)32.18m. When the dump becomes inactive separately preserved topsoil will be spread out over and sides of the inactive waste dump and plantation will be carried out for increasing the stability also to prevent erosion during rainy season. When the quarry reaches its ultimate pit limit or at the end of life of quarry, quarried out waste will be utilized for backfilling.

(v) Disposal of mining machinery:

All the Machineries will be purchased by fresh condition and the same has been maintained in good condition during entire life of quarry. After completion of quarry operation all machineries will be utilized at another quarry area or sold out to the second hand. Hence, disposal or decommissioning of mining machinery does not arise.

**(vi) Safety & Security:**

Safety measures will be implemented to prevent access in the excavation area an unauthorized persons as per Mine Act 1952, MMR 1961.

- Safety measures will be implemented as per Mine Act 1952, MMR 1961, and Mines Rules 1955.
- Provisions of MMR 1961 shall be strictly followed and all roads shall be wider than the height of the bench or equal to the height of the bench and have a gradient of not more than 1 in 16.
- The bench height will be 6.0m.
- Width of working bench will be kept about 6.0m for ease of operations and provide sufficient room for the movement of equipments.
- Protective equipment like dust masks, ear-plugs/ muffs and other equipments shall be provided for use by the working personnel.
- Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries. Sufficient caution and sign boards will be kept in and around the quarry to induct public for awareness.
- Blasting will be carried out in a specific time after giving sufficient caution to the public such as danger signs shall be displayed near the excavations and siren alarm signal will be provide before small amount of blasting time for precautionary action of accident (blasting is carried out only for secondary fragments and not to liberate the Granite body from the parent rock mass).
- Security guards will be posted to prevent inadvertent entry of public.
- In the event of temporary closer, approaches will be fenced off and notice displayed.

(vii) Disaster Management and Risk Assessment:

This should deal with action plan for high risk accidents like landslides, subsidence, flood, fire, seismic activities, tailing dam failures etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of applicant to meet such eventualities and the assistance to be required from the local authorities should be described.

- The mechanized mining activities in the area may involve any high risk accident due to side falls/collapse.
- The complete mining operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.
- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, TNMMCR 1959 and other laws applicable to mine will be strictly complied with.
- During heavy rainfall the mining activities will be suspended.
- All persons in supervisory capacity will be provided with proper communication facilities.
- Competent persons will be provided FIRST AID kits which they will always carry.

(viii) Care and Maintenance during Temporary Discontinuance:

In case of any temporary discontinuance due to court order or due to statutory requirement or any other unforeseen circumstance following measures shall be taken for care, maintenance and monitoring of conditions.

- Notice of temporary discontinuance of work in mine shall be given to the DGMS as per the MMR 1961.
- All the mining machinery shall be shifted to a safe place.
- Entrance to the mine or part of the mine, to be discontinued shall be fenced off. Fencing shall be as per the circular 11/1959 from DGMS.
- Security Guards shall be posted for the safety and to prevent any unauthorized entry to the area.
- Carry out regular maintenance of the facilities/area detailed below in such a way as would have been done as if the mines were operation:

Mine roads and approach roads,

Fencing on approach roads,

Checking and maintenance of machines and equipment,

Drinking water arrangements,

Mine office, first aid stations etc.

- Competent persons shall inspect the area regularly.
- Air, water and other environmental monitoring shall be carried out as per CPCB Guideline.
- Care and upkeep of plantation shall be carried out on regular basis.
- Status of the working and status monitoring for re-opening of the mines shall be discussed daily.

In case of discontinuance due to any natural calamities/abnormal conditions, mining operation will be restarted as early as possible after completing rescue work, restoring safety and security, repairs of roads etc.

(ix) Economic Repercussion of Closure of Quarry and manpower Retrenchments:

The quarry Lease is granted for a period of twenty years only. As per the production Programme envisaged, there will be no effect on the man power as the majority of persons belong to nearby villages and will have an option either to be available for employment for the next contract/ lease or do the agriculture in their fields.

(x) Time Scheduling For Abandonment:

The lease applied area has enormous potential for continuance of operations even after expiry of the lease period. The details of time schedule of all abandonment will be given at the time of final closure plan.

(xi) Abandonment Cost:

As at present mining is not going to be closed so abandonment cost could not be assessed. However based on the progressive quarry closure activities during the plan period, cost is assessed as given below:

Table – 18

ACTIVITY	YEAR					RATE	AMOUNT (Rs.)
	I	II	III	IV	V		
Plantation (In Nos.)	100	100	100	100	100	@100 Rs Per sapling	50,000
Plantation (Safety zone) Cost	10,000	10,000	10,000	10,000	10,000		
Barbed wire fencing (In Mtrs) 1450 Mtrs	4,35,000	-	-	-	-	@300 Rs Per Meter	4,35,000
Garland drain (In Mtrs) 600 Mtrs	1,80,000	-	-	-	-	@300 Rs Per Meter	1,80,000
TOTAL							6,65,000

15.0 MINERAL CONSERVATION AND DEVELOPMENT:

The mining plan proposed has fully covered all the aspects of Granite Conservation and development rules 1999, with a future plan to extend the proposed working of the quarry to the maximum possible workable depth of the deposit. Extreme care is taken to ensure proper supervision of quality control of the Granite dimensional stone aimed at the recovery of the maximum saleable quality and quantity of granite dimensional stones suitable for full utilization of the consumers.

Care is been taken for each process just to safeguard the material quarried in an economical and efficient manner by adopting systematic and scientific quarrying with the consultation and supervision of well experienced quarry persons.

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 Provisions Sub Rule (13) of Rule 19A of Tamil Nadu Minor Mineral Concession Rules, 1959, Rule 12,13,16 of Granite Conservation and Development rules 1999 and 13, 14 & 15 of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.

Prepared by


Dr. P. THANGARAJU, M.Sc., Ph.D.,
Qualified Person

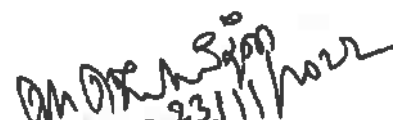
Place: Salem

Date: 07.10.2022

DONATE RED

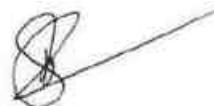
SPREAD GREEN

SAVE BLUE


COMMISSIONER
GEOLOGY AND MINING,
CHENNAI-600 002


23/11/22

This Mining Plan is Approved
Subject to the Conditions/ Stipulation
Indicated in the Mining Plan Approval
Letter No./12167/MM2/2010 Dated 22.11.22



ANNEXURE 1



Industries (MMB.2) Department,
Secretariat,
Chennai-600 009



E mail: indusmmb@tn.gov.in

Letter No.5667/MMB.2/2012-19 Dated 31.01.2022

From

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

✓ To

Tvl.G.P.K. Granite Industry,
No.11, State Bank of India Officers Colony,
Ujjaini Street,
Ayanavaram,
Chennai-600 023.

Sir,

Sub: Mines and Minerals – Minor Mineral – Multicoloured Granite – Virudhunagar District – Sivakasi Taluk – Thiruthangal Village – Over an extent of 10.03.00 hectares of patta land in S.F. Nos.884/1B (1.32.0 hectares), 1326 (1.83.5 hectares), 1333/1A (2.25.5 hectares), 1333/1B (0.13.5 hectare), 1333/2 (1.22.0 hectares), 1334/1 (Part) (1.19.5 hectares), 1334/2 (Part) (1.70.0 hectares), 1334/3 (0.09.5 hectares) and 1334/4 (0.24.5 hectares) – Quarry lease application of Tvl.G.P.K. Granite Industry – Revised Precise area communicated – Approved Mining Plan and Environmental Clearance – Called for.

- Ref:
1. Your Quarry Lease Application dated 25.08.2010.
 2. From the District Collector, Virudhunagar Letter Roc.KV2/1390/2010 dated 16.11.2010.
 3. From the Commissioner of Geology and Mining, Chennai, File Rc.No.12167/MM2/2010, Dated 03.04.2012.
 4. Government Letter No.5667/MMB.2/2012-3, dated 19.05.2014.
 5. Hon'ble Division Bench of the Madras High Court, order dated 08.04.2015 in Writ Petition (MD) No.5212 of 2015.
 6. Government Letter No.5667/MMB.2/2012-16, dated 15.10.2020.
 7. From the Advocate General of Tamil Nadu OPN.No.158/AGVN/2020, dated 05.11.2020.

P.T.O



8. Government Letter No.5667/MMB.2/2012-17, dated 23.11.2020
 From the District Collector, Virudhunagar, Letter Rc.KV1/3990/2010, Dated 15.04.2021
 10. From the Director of Geology and Mining, Chennai Letter Rc.No.12167/MM2/2010, dated 29.10.2021.

I am directed to invite your attention to the references cited and to state that in the reference 4th cited Precise Area has been communicated to Tvl.G.P.K. Granite Industry with certain conditions for quarrying of Multicoloured granite over an extent of 10.00.0 Hectares of Patta land in S.F.Nos.884/1B (1.32.0 hectares), 1326 (1.83.5 hectares), 1333/1A (2.25.5 hectares), 1333/1B (0.13.5 hectare), 1333/2 (1.22.0 hectares), 1334/1 (Part) (1.19.5 hectares), 1334/2 (Part) (1.70.0 hectares), 1334/3 (0.09.5 hectares) and 1334/4 (0.24.5 hectares) in Thiruthangal Village, Sivakasi Taluk, Virudhunagar District under rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959.

2. In the meantime, Thiru L Murali, Principal, YRTV School, Sivakasi has preferred a representation dated 23.03.2015 and 25.03.2015 stating that the proposed quarrying in the nearby area would affect the school and the quarry lease application should not be considered for grant. Further, he has also filed W.P. (MD) No.5212 of 2015 before the Hon'ble Madurai Bench of Madras High Court. The Hon'ble Court in its order dated 08.04.2015 has appointed an Advocate Commissioner with the direction to inspect the place and ascertain whether the norms laid down for granting of quarry lease is fulfilled including the distance and file a report to court on or before 29.04.2015. The Advocate Commissioner has inspected the area and submitted his report.

3. The Hon'ble Court in its order dated 19.07.2017 has directed the competent authority concerned to conduct spot inspection in the subject area, in the presence of the petitioner (The Principal, YRTV School) as well as the sixth respondent (Tvl.GPK Granite Industry) and consider his claim for grant of granite quarry lease license strictly in accordance with the provisions of the Tamil Nadu Minor Mineral Concession Rules, 1959. As per the order of the Hon'ble, the Director of Geology and Mining has arranged a spot inspection and submitted a report to Government.

4. As the report submitted by the Advocate Commissioner to the High Court was contradiction to the recommendation of the District Collector, Virudhunagar and the Commissioner of Geology and Mining, the learned Advocate General of Tamil Nadu has been requested to offer opinion in this regard. The Advocate General has offered his considered opinion in the reference 7th cited.

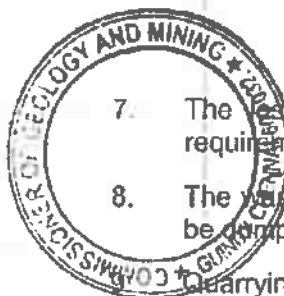
5. The Director of Geology and Mining was requested to examine the quarry lease application in the light of the opinion of the learned Advocate General of Tamil Nadu and to send specific remarks / recommendation in the reference 8th cited. The Director of Geology and Mining has submitted a report



with the recommendation to modify the conditions prescribed in the precise area communication pertaining to water bodies and requested to issue revised precise area to the applicant firm. The Government examined their recommendations of the Director of Geology and Mining and accepted the same. Accordingly, the revised precise area with the additional conditions is communicated to you now in supersession of the precise area already communicated vide Government Letter 4th cited for quarrying of Multi-coloured granite over an extent of 10.00.0 Hectares of Patta land in S.F.Nos.884/1B (1.32.0 hectares), 1326 (1.83.5 hectares), 1333/1A (2.25.5 hectares), 1333/1B (0.13.5 hectare), 1333/2 (1.22.0 hectares), 1334/1 (Part) (1.19.5 hectares), 1334/2 (Part) (1.70.0 hectares), 1334/3 (0.09.5 hectares) and 1334/4 (0.24.5 hectares) in Thiruthangal Village, Sivakasi Taluk, Virudhunagar District under rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959.

6. I am, therefore, directed to request you to furnish the Approved Mining Plan for the revised Precise Area stated above 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 by incorporating the following conditions to the Government:-

1. Quarrying should be done without any hindrance to the adjacent pattadars.
2. Quarrying should be done 7.5 meters away from the boundaries of the area granted for quarry lease.
3. Quarrying operation shall be carried out without causing any damage to the Public and to the habitations.
4. All the partners of the applicant company should furnish valid Mining Dues Clearance Certificate issued by the District Collectors of Coimbatore, Dindigul, Dharmapuri, Krishnagiri, Madurai, Namakkal, Salem, Sivagangai, Vellore, Tiruvannamalai, Kancheepuram, Karur, Pudukottai and Villupuram for the quarry lease held by them individually as well as for the companies / firms in which they are partners before execution of lease deed.
5. A safety distance of 7.5 meters shall be allowed and maintained to the adjacent patta lands.
6. The applicant company should maintain 65 metres safety distance to the Kannagi colony throughout the lease period as agreed by the company and as per the letter from Deputy Director, Virudhunagar vide Letter No.KV.1/723/ 2011 lease deed as follows:-
 - ❖ Barbed wire fencing shall be done.
 - ❖ The pillar post shall be firmly surrounded with concrete foundation of height not less than 2 meters and the distance between two pillars shall not be more than 3 meters.



7. The lessee shall strictly adhere to the statutory and safety requirements.
8. The waste materials generated during quarrying operation shall be dumped only in the area granted under lease.
9. 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.
10. The lease grantee shall submit scheme of mining; mine closure plan and other statutory requirements within the time stipulated for submission of the above, as per rules.
11. The applicant company should obtain environment clearance from the State Level Environment Impact Assessment Authority over the precise area communicated before the grant of quarry lease.
12. The District Collector, Virudhunagar 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.12782/MMB.2/2002-7, Industries Department, dated 09.01.2003 are complied with.
13. 50 meters safety distance to be maintained from the odai passing on the eastern side situated in S.F.No.1326.
14. The applicant should comply with the 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 Hon'ble Supreme Court of India dated 08.01.2020 that "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.,".
15. 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.

Yours faithfully,

for Additional Chief Secretary to Government.

01/02/2022
Ct 02 2022

Copy to:

The Director of Geology and Mining,
Guindy, Chennai-600 032.
The District Collector, Virudhunagar District.



Industries, Investment Promotion and
Commerce (MMB.2/24) Department
Secretariat, Chennai-600 009

E.mail: indusmmb@tn.gov.in

Letter No.5667/MMB.2/2012-21 Dated 15.09.2022

From

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

To

Tvl.G.P.K. Granite Industry,
No.11, State Bank of India Officers Colony,
Ujjaini Street, Ayanavaram,
Chennai-600 023.

Sir,

Sub: Mines and Minerals – Minor Mineral – Multicoloured Granite – Virudhunagar District – Sivakasi Taluk - Thiruthangal Village - Over an extent of 10.03.00 hectares of patta land in S.F. Nos.884/1B (1.32.0 hectares), 1326 (1.83.5 hectares), 1333/1A (2.25.5 hectares), 1333/1B (0.13.5 hectare), 1333/2 (1.22.0 hectares), 1334/1 (Part) (1.19.5 hectares), 1334/2 (1.70.0 hectares), 1334/3 (0.09.5 hectares) and 1334/4 (0.24.5 hectares) - Quarry lease application of Tvl.G.P.K. Granite Industry – Revised Precise area communicated – Mining Plan not submitted within the stipulated time – Approval of Mining Plan – Extension of time limit requested – Permission granted – Regarding.

- Ref:
1. Government Letter No.5667/MMB.2/2012-19, dated 31.01.2022.
 2. From Tvl.G.P.K. Granite Industry, Chennai letter dated 29.04.2022 and 09.05.2022.
 3. From the Commissioner of Geology and Mining, Chennai, letter Rc.No.12167/MM2/ 2010, Dated 08.07.2022.

I am directed to invite your attention to the references cited.

2. Based on the recommendations of the District Collector, Virudhunagar and Director of Geology and Mining, a revised precise area has

PTO



been communicated to you for quarrying of Multi-coloured granite of extent of 10.00.0 Hectares of Patta land in S.F. Nos.884/1B (1.32.0 hectares), 1326 (1.83.5 hectares), 1333/1A (2.25.5 hectares), 1333/1B (0.13.5 hectare), 1333/2 (1.22.0 hectares), 1334/1 (Part) (1.19.5 hectares), 1334/2 (1.70.0 hectares), 1334/3 (0.09.5 hectares) and 1334/4 (0.24.5 hectares) in Thiruthangal Village, Sivakasi Taluk, Virudhunagar District under rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959 and you have also requested to furnish the approved mining plan for the subject area 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 by incorporating the certain conditions to the Government. The period of ninety days as provided under the said rule has ended on 03.05.2022.

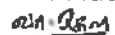
3. In the reference second cited, you have submitted a representation stating that one of your partners was seriously ill for the last few months and still under medical supervision. Due to his severe health condition, you are unable to communicate or meet him in person. Further, you have informed that the date of submission of Mining plan after the receipt of precise area communication expires on 03.05.2022. Hence, you have requested the Government for extension of one month time to submit the mining plan.

4. The Government after careful examination of the request, the related rule provisions and the remarks of the Commissioner of Geology and Mining has decided to consider your request and grant one month extension of time for submission of approved mining plan from the date of receipt of letter by relaxing sub-rule (13) of rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959.

Yours faithfully,


15-9-2022

for Additional Chief Secretary to Government.


15-9-22

Copy to:

The Commissioner of Geology and Mining,
Guindy, Chennai-600 032.
The District Collector, Virudhunagar District.





அனுமதிபெற்ற எண் 23

எண். 23 13

கிராமம்

பெயர் திருத்தம்

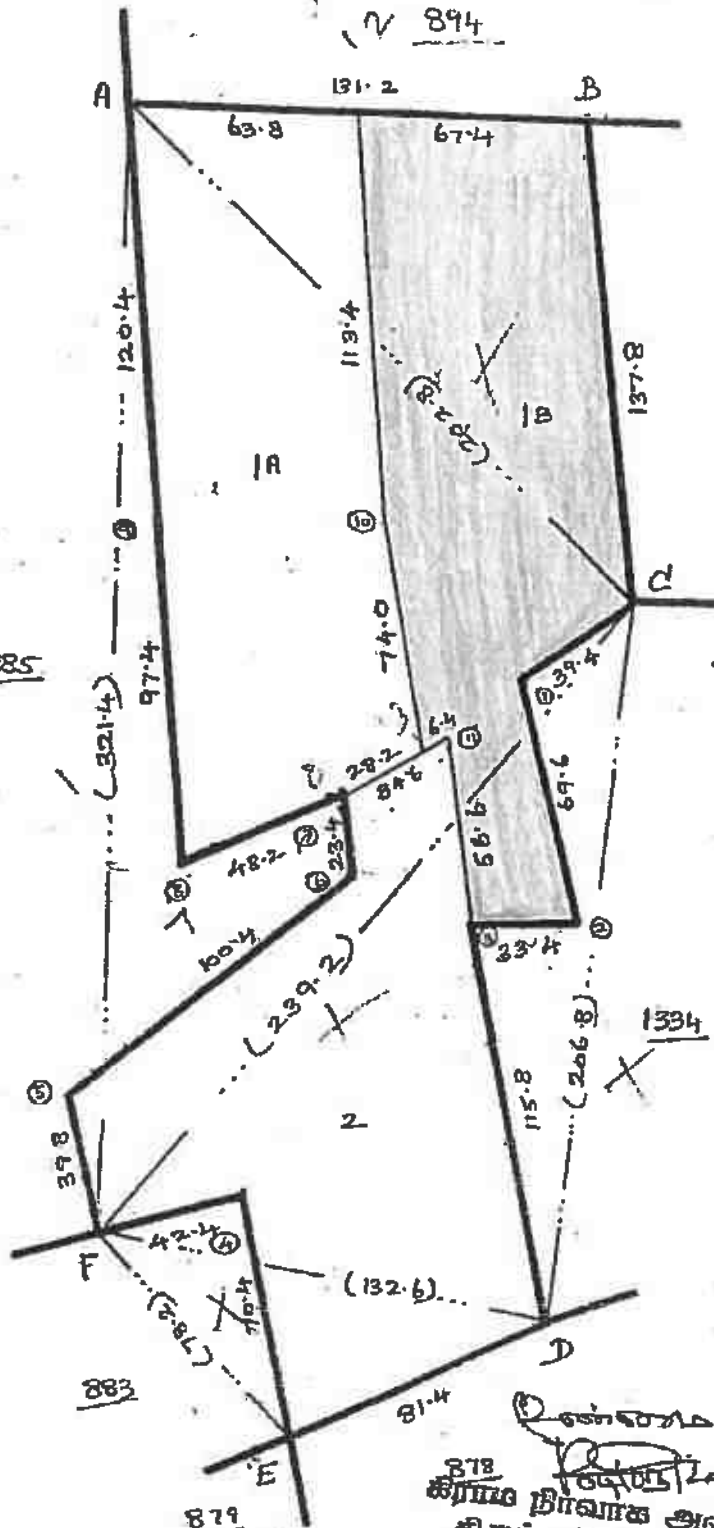
பெயர் திருத்தம் விருதுநகர்

பெயர் திருத்தம்

புல எண். 884

பரப்பு: ஹெக்டேர்

4 ஏர். 10.6



F	(239.2)	71.6	14.0	11
C				
A	(202.8)	69.8		
C				
A	(321.4)	201.4	12.2	9
		122.2	(52)	8
		103.2	21.0	7
		101.2	69.0	6
		38.4		
F	(78.2)	59.2	38.2	4
E				
D	(206.8)	107.0	32.8	3
		97.2	4.2	2
		26.6	29.4	1
C				

கிராம நிர்வாக அலுவலர் திருத்தங்கள் கிராமம் சிவசபை

பெயர் திருத்தம் விருதுநகர் அலுவலர் 19.10.2000

LEASE APPLIED AREA

பெயர் திருத்தம் 16-10-00

பாடலிடம்: ~~கிராமம்~~ வாழ்வு

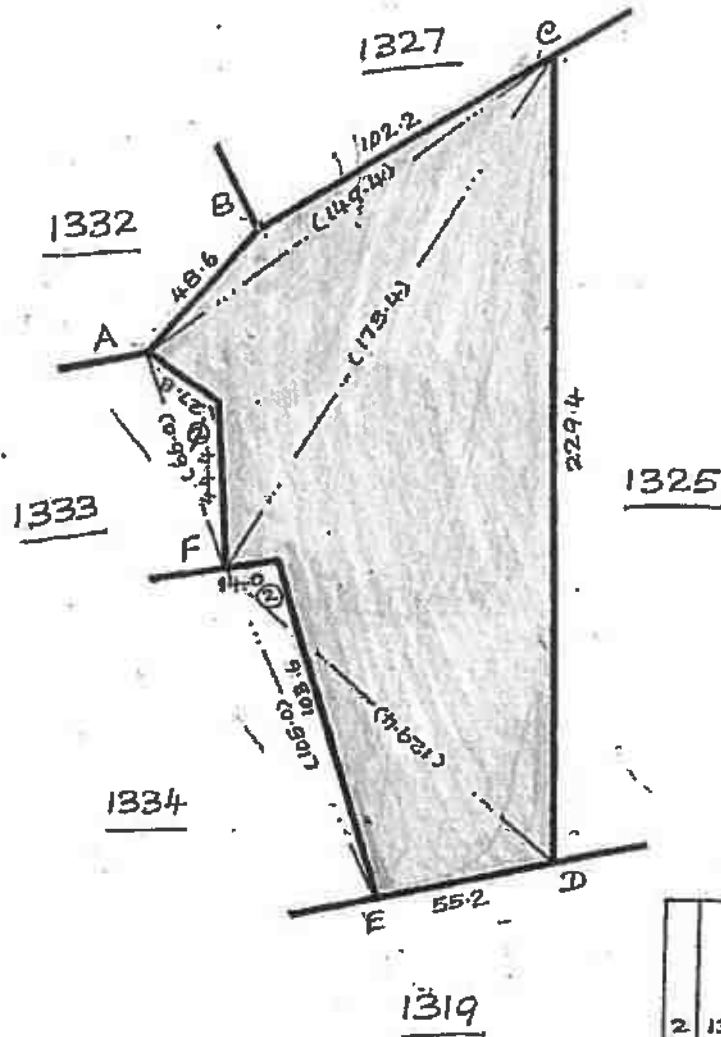
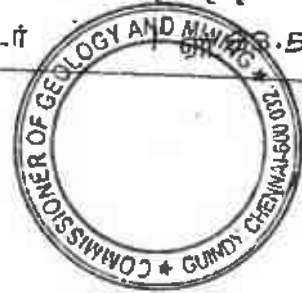
வட்டம்: ~~கிராமம்~~ சிவகாசி

புல எண்: 1326.

கிராமம் { எண் 22/13

பெயர்: திருத்தாங்கல்.

பரப்பு: ஹெக்டேர்



(2000 மீட்டர்)

கிராம நிர்வாக அலுவலர்
திருத்தாங்கல் கிராமம்
சிவகாசி வட்டம்

ப.கமலா
5-9-85.

அளவு: 1 கி.மீ: 2000 மி.மீ. காட்டில்

LEASE APPLIED AREA

		E		
2	13.6	(1050)		
		38		
		F		
		C		
		(149.4)		
3	9.6	47.6		
		A		
		(660)		
		42.4	14.2	1.6
		F		

16.4

4.2

7.4

1.6

மாண்புமிகு வனத்துறை

வட்டம்: திருவாரூர்

கிராமம்

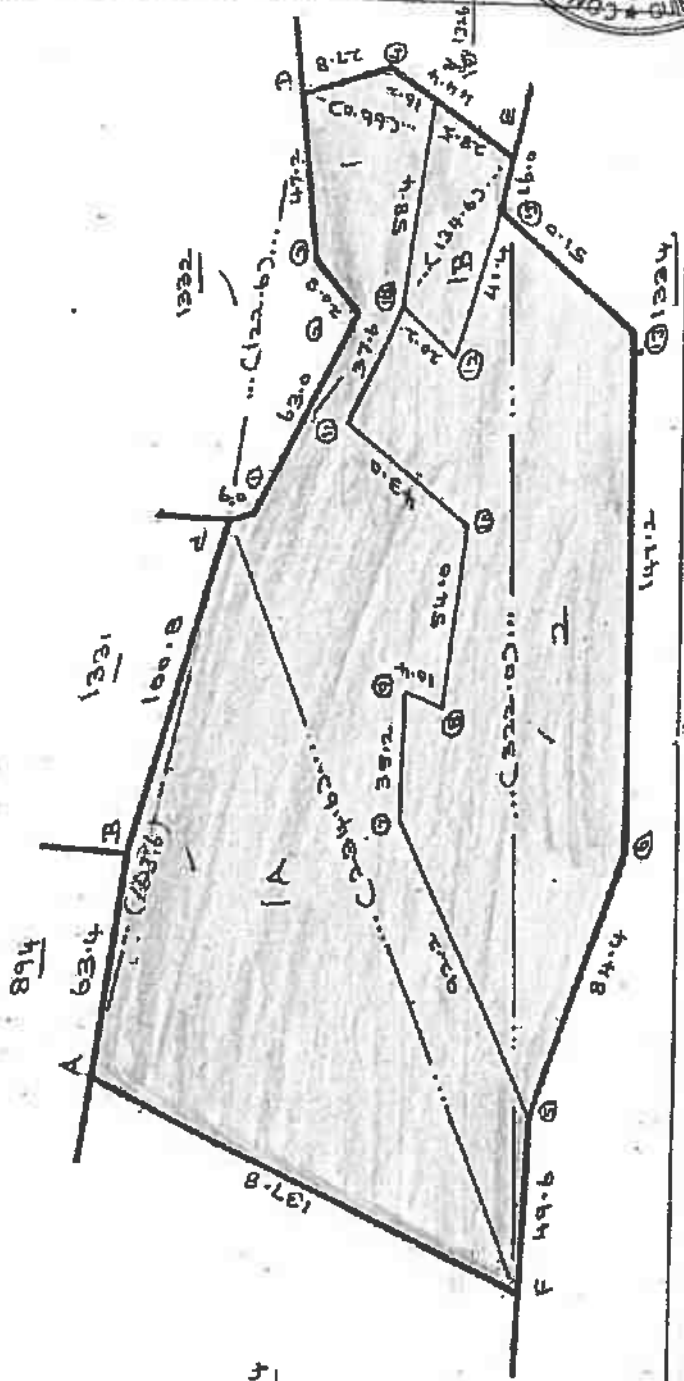
பெயர்



புல எண்: 1333

பரப்பு: சென்டீமீட்டர்

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12	18.8		266.4		
11	49.0		245.2		
10	14.4		218.6		
9	32.6		169.6		
8	22.6		165.4		
7	32.0		124.0		
			128.8	33.8	6
			49.6	4.4	5
		F			
		D	(66.0)		
			42.4	14.2	4
		E			
		D	(122.6)		
			76.6	11.4	3
			61.2	25.2	2
			1.2	6.0	1
		A			
		A	(163.6)		
			100.2	6.0	B
		C			



சுண்ணாம்பு நிலம்

கிராம நிர்வாக அலுவலர்
திருத்தாங்கு கிராமம்
அளவுகோல் படிவம்

வாரியம்
திருவாரூர்

செய்தியம்
பயிர் பயிற்சி

LEASE APPLIED AREA

16.10

விருதுநகர்

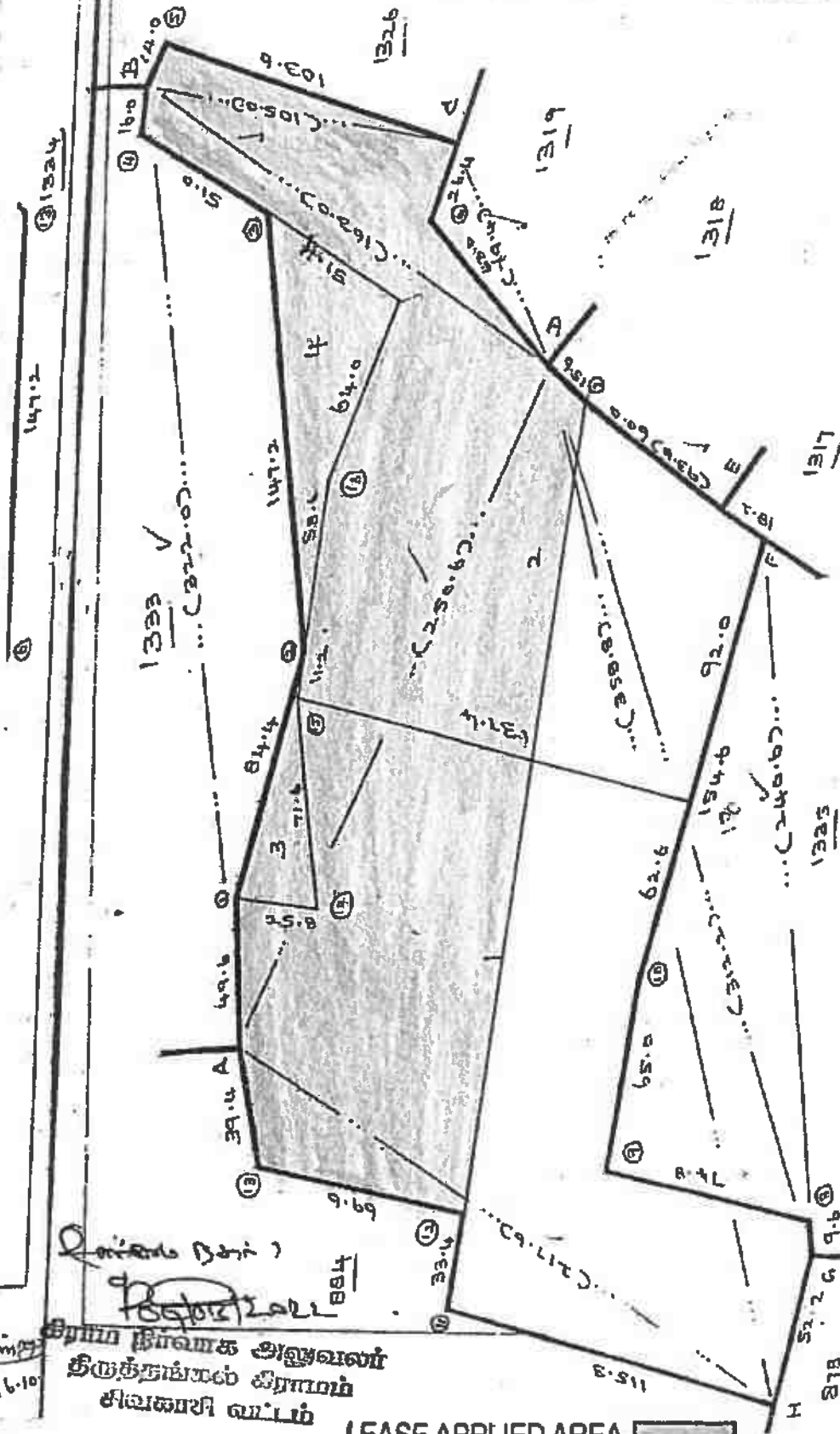
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புல எண். 1334

பரப்பு. ஹெக்டேர்

அளவைப்படிவ. எண்

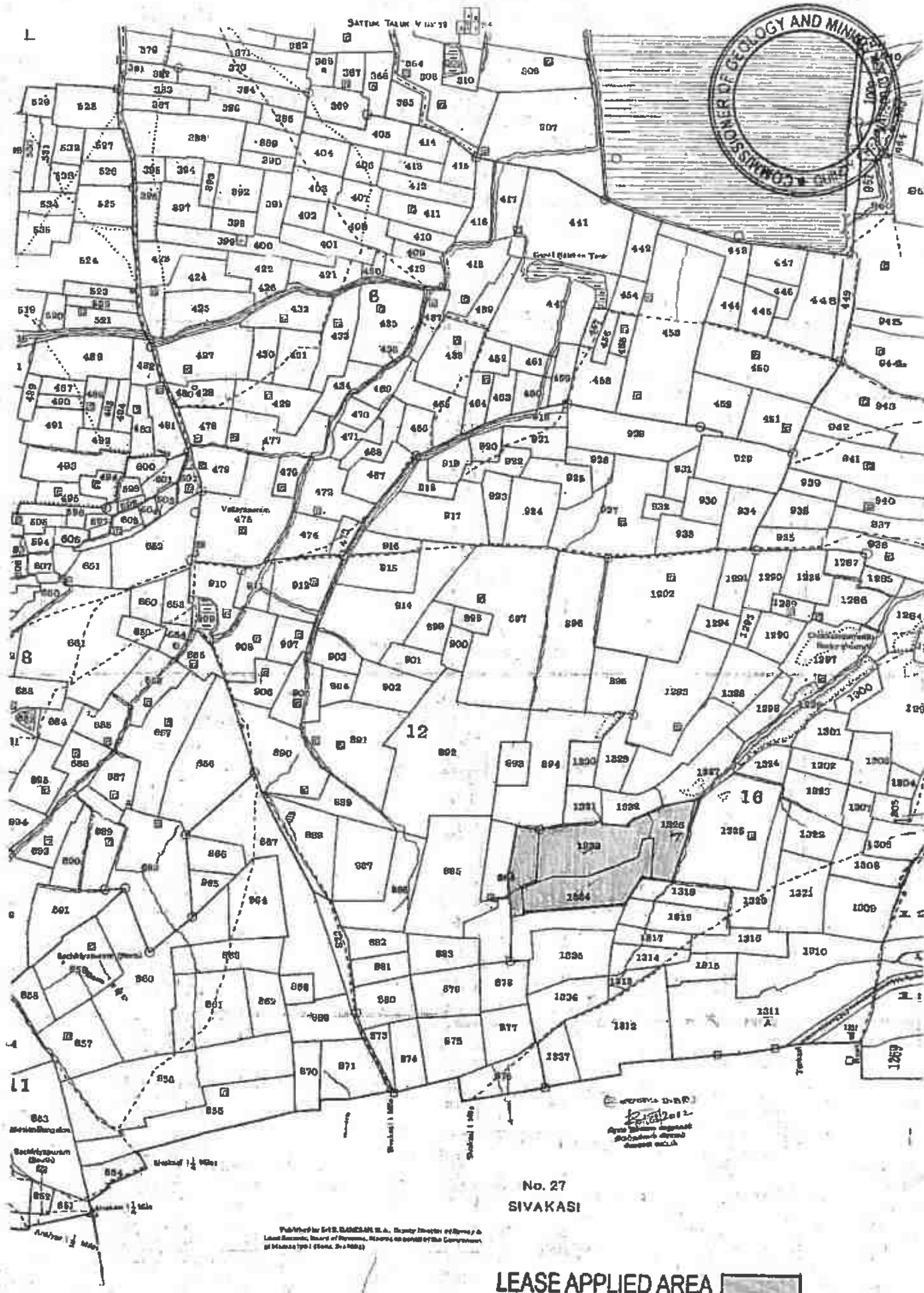
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கிராமம்
பெயர்



		D	
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15	31.2	114.4	
		81.6	4.8
		A	
		(217.6)	
13	29.4	192.4	
12	4.2	126.4	
11	33.8	111.2	
		H	
		F	
		(244.6)	
10	52.4	94.8	
9	69.2	31.0	
		G	
		F	
		(244.6)	
		9.2	2.2
		G	
		F	
		(244.6)	
		75.6	1.6
		15.6	1.8
		D	
		(79.4)	
		19.2	18.2
		C	
		(165.0)	
		13.6	7.8
		B	
		(322.1)	
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		275.1	36.9
		124.1	73.1
		49.1	4.4
		A	

LEASE APPLIED AREA

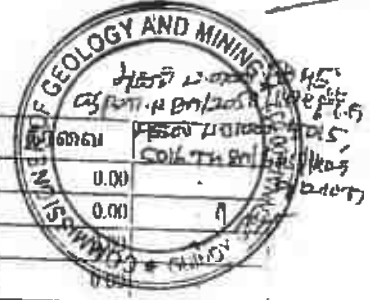
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ANNEXURE IV

FINAL CHITTA
District: Virudhunagar Taluk: SIVAKASI Village: TIRUTTANGAI.

		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
1	837 - 1B2A1	0 - 0.00	0.00	0 - 0.00	0.00	0 - 0.00	0.00
2	844 - 1A3	0 - 0.00	0.00	0 - 16.00	0.32	0 - 0.00	0.00
3	849 - 13A1	0 - 0.00	0.00	0 - 25.00	0.50	0 - 0.00	0.00
	மொத்தம்	0 - 0.00	0.00	0 - 41.00	0.82	0 - 0.00	0.00



பட்டா எண்: 718

வ.எண்	உ.எண்	உறவினர் பெயர்		உறவு		உரிமையாளர் பெயர்		
1	1	-		..		திலகரிதி		
வ.எண்	புல எண் உட்கிரவு எண்	நன்செய்		புன்செய்		மற்றவை		குறிப்பு
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
1	847 - 27	0 - 0.00	0.00	0 - 2.00	0.06	0 - 0.00	0.00	
	மொத்தம்	0 - 0.00	0.00	0 - 2.00	0.06	0 - 0.00	0.00	

பட்டா எண்: 719

வ.எண்	உ.எண்	உறவினர் பெயர்		உறவு		உரிமையாளர் பெயர்		
1	1	வேலாயுத நாடார்		மகன்		திலகமணி		
வ.எண்	புல எண் உட்கிரவு எண்	நன்செய்		புன்செய்		மற்றவை		குறிப்பு
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
	மொத்தம்	0 - 0.00	0.00	0 - 0.00	0.00	0 - 0.00	0.00	

பட்டா எண்: 720

வ.எண்	உ.எண்	உறவினர் பெயர்		உறவு		உரிமையாளர் பெயர்		
1	1	சங்கர்லிங்கம் பிள்ளை		மகன்		திருமலை முத்துச்சாமி		
வ.எண்	புல எண் உட்கிரவு எண்	நன்செய்		புன்செய்		மற்றவை		குறிப்பு
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
1	887 - 57A	0 - 0.00	0.00	0 - 1.00	0.10	0 - 0.00	0.00	
	மொத்தம்	0 - 0.00	0.00	0 - 1.00	0.10	0 - 0.00	0.00	

பட்டா எண்: 721

வ.எண்	உ.எண்	உறவினர் பெயர்		உறவு		உரிமையாளர் பெயர்		
1	1					தி.நேசனல் பாயர் ஓர்க்ஸ் பாக்டரி திருத்தங்கல்		
வ.எண்	புல எண் உட்கிரவு எண்	நன்செய்		புன்செய்		மற்றவை		குறிப்பு
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
1	877 - 1	0 - 0.00	0.00	0 - 73.50	1.47	0 - 0.00	0.00	
2	877 - 2B	0 - 0.00	0.00	0 - 76.50	1.59	0 - 0.00	0.00	
3	878 - -	0 - 0.00	0.00	1 - 54.00	3.08	0 - 0.00	0.00	
4	879 - 1	0 - 0.00	0.00	0 - 77.50	1.55	0 - 0.00	0.00	
5	879 - 2	0 - 0.00	0.00	0 - 75.00	1.55	0 - 0.00	0.00	
6	879 - 3	0 - 0.00	0.00	0 - 66.00	1.32	0 - 0.00	0.00	
7	880 - 2	0 - 0.00	0.00	1 - 74.50	1.49	0 - 0.00	0.00	
8	881 - 1	0 - 0.00	0.00	0 - 65.00	1.30	0 - 0.00	0.00	
9	881 - 2	0 - 0.00	0.00	0 - 39.50	0.79	0 - 0.00	0.00	
10	882 - -	0 - 0.00	0.00	1 - 13.50	2.27	0 - 0.00	0.00	
11	883 - -	0 - 0.00	0.00	1 - 66.50	3.33	0 - 0.00	0.00	
12	884 - 1A	0 - 0.00	0.00	1 - 37.50	1.94	0 - 0.00	0.00	
13	884 - 1B	0 - 0.00	0.00	1 - 32.00	1.81	0 - 0.00	0.00	

(உண்மை சான்று) 2012
சிராமம் நிர்வாக அலுவலன்
திருத்தங்கல் சிராமம்
சிவகாசி ரா'7 ம்

FINAL CHITTA
District: Vinudimangar Taluk: SIYAKASI Village: TIRUTTANGAI



14	886 --	0 - 0.00	0.00	2 - 85.30	5.71	0 - 0.00	0.00
	மொத்தம்	0 - 0.00	0.00	16 - 36.50	31.11	0 - 0.00	0.00

பட்டா எண்: 722

வ.எண்	உ.எண்	உறவினர் பெயர்		உறவு		உரிமையாளர் பெயர்	
1	1					நேசனல் பயர்ஓர்க்ஸ் பாக்க்டரி	
வ.எண்	புல எண் உட்பிரிவு எண்	நன்செய்		புன்செய்		மற்றவை	
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
1	1311 - 2A	0 - 0.00	0.00	0 - 67.50	1.35	0 - 0.00	0.00
2	1312 - 2	0 - 0.00	0.00	1 - 52.00	3.04	0 - 0.00	0.00
3	1312 - 3	0 - 0.00	0.00	0 - 39.50	0.79	0 - 0.00	0.00
4	1313 - 1	0 - 0.00	0.00	0 - 24.50	0.49	0 - 0.00	0.00
5	1313 - 2	0 - 0.00	0.00	0 - 23.50	0.47	0 - 0.00	0.00
6	1314 - 1	0 - 0.00	0.00	0 - 12.50	0.25	0 - 0.00	0.00
7	1314 - 2	0 - 0.00	0.00	1 - 9.50	2.19	0 - 0.00	0.00
8	1317 --	0 - 0.00	0.00	0 - 91.00	1.82	0 - 0.00	0.00
9	1326 --	0 - 0.00	0.00	1 - 83.50	3.67	0 - 0.00	0.00
10	1333 - 1A	0 - 0.00	0.00	2 - 25.50	4.51	0 - 0.00	0.00
11	1333 - 1B	0 - 0.00	0.00	0 - 13.50	0.27	0 - 0.00	0.00
12	1333 - 2	0 - 0.00	0.00	1 - 22.00	2.44	0 - 0.00	0.00
13	1334 - 1	0 - 0.00	0.00	2 - 57.50	5.15	0 - 0.00	0.00
14	1334 - 2	0 - 0.00	0.00	2 - 27.50	4.55	0 - 0.00	0.00
15	1334 - 3	0 - 0.00	0.00	0 - 9.50	0.19	0 - 0.00	0.00
16	1334 - 4	0 - 0.00	0.00	0 - 24.50	0.47	0 - 0.00	0.00
17	1335 - 1	0 - 0.00	0.00	0 - 96.00	1.92	0 - 0.00	0.00
18	1335 - 2	0 - 0.00	0.00	0 - 42.50	2.85	0 - 0.00	0.00
19	1335 - 3	0 - 0.00	0.00	0 - 66.00	1.32	0 - 0.00	0.00
20	1336 - 1	0 - 0.00	0.00	0 - 94.50	1.90	0 - 0.00	0.00
21	1336 - 2	0 - 0.00	0.00	0 - 51.00	1.02	0 - 0.00	0.00
22	1336 - 3	0 - 0.00	0.00	0 - 66.00	1.32	0 - 0.00	0.00
	மொத்தம்	0 - 0.00	0.00	19 - 99.50	41.98	0 - 0.00	0.00

பட்டா எண்: 723

வ.எண்	உ.எண்	உறவினர் பெயர்		உறவு		உரிமையாளர் பெயர்	
1	1					அச்சுதசுடகோளத்திராஜ்வரவரமுனிகளின் சாரிட்டி	
வ.எண்	புல எண் உட்பிரிவு எண்	நன்செய்		புன்செய்		மற்றவை	
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
1	581 --	0 - 55.00	8.16	0 - 0.00	0.00	0 - 0.00	0.00
2	583 --	0 - 37.50	5.58	0 - 0.00	0.00	0 - 0.00	0.00
3	613 - 2	0 - 42.50	6.30	0 - 0.00	0.00	0 - 0.00	0.00
	மொத்தம்	1 - 35.00	20.04	0 - 0.00	0.00	0 - 0.00	0.00

பட்டா எண்: 724

வ.எண்	உ.எண்	உறவினர் பெயர்		உறவு		உரிமையாளர் பெயர்	
1	1	நஞ்சுர நாயக்கர்		மனைவி		திருவேங்கடம்மாள்	
வ.எண்	புல எண் உட்பிரிவு எண்	நன்செய்		புன்செய்		மற்றவை	
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
1	651 - 12	0 - 0.00	0.00	0 - 1.50	0.06	0 - 0.00	0.00

சிராம திருவிடுதி அலுவலர்
திருத்தங்கல் சிராமம்
சிவகாசி மட்டம்

[illegible]

இந்த ஆராய்ச்சி

4420

பெரியகோட்டை

ஆன் பத பத

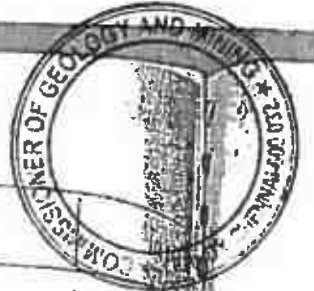
11

[illegible]

பி. எஸ். 22. திருத்தங்கள்.



கிராம-நிர்வாக அலுவலர்
திருத்தங்கல் கிராமம்



1	2	3	4	5	6	7	8	9	10	11	
1325	SA1	1325-SA1	ர	4	...	8-2	4	2 00	0 30 5	1 01	406 ஆ. சண்முகக் கவி.
	SA2	-SA1	ர	4	...	8-2	4	2 00	0 31 5	0 63	2028 க. சண்முகப்பா.
	SA3	-SA1	ர	4	...	8-2	4	2 00	0 26 0	0 52	2030 கா. சுப்பையா நாடார்.
	SA4	-SA1	ர	4	...	8-2	4	2 00	0 25 0	0 50	2029 செ. தெய்வக் கவி.
	SA5	-SA1	ர	4	...	8-2	4	2 00	0 23 0	0 46	1403 இளவல் கிருஷ்ணர் கிருஷ்ண ரத்தினம் காப்பாளர் N.H.K.R. ரஸ்திதர்.
	SA6	-SA1	ர	4	...	8-2	4	2 00	0 01 5	0 06	2876 N.R.K. ரஸ்திதர் மறும் தாங்கு பேர்களும்.
	SB1	-SB1	ர	4	...	8-2	4	2 00	0 53 5	1 97	1079 N.R.K.R. ரஸ்திதர் என்னார் K.ராஜ ரத்தினம் தலையம்.
	SB2	-SB1	ர	4	...	8-2	4	2 00	0 01 5	0 06	2076 N.R.K. ரஸ்திதர் மறும் தாங்கு பேர்களும்.
								5 99-0	13 07		
1326	...	1326	ர	4	...	8-2	4	2 00	1 87 5	3 67	772 தி தேவனல் பயர் ஓர் கல் பக்கமி திருத்தங்கள்.
1327	1	1327-1	ர	4	...	8-2	4	2 00	0 97 0	1 94	1763 அ. சுப்பையா நாடார் (1), அ. கோபால் சாமி நாடார் (2), க. செந்தி நாடார் (3).
2A	-2A		ர	4	...	8-2	4	2 00	0 72 5	1 45	2033 செ. வள்ளியம் மாள் மறும் தாங்கு பேர்களும்.

(2 அக்டோபர் 1927)
 திருத்தங்கள் பிரசுரம்.



1	2	3	4	5	6	7	8	9	10	11	
1333	1A	1333-1A	ர	4	...	8-2	4	2 00	2 25.5	4 51	722 தி நேஷனல் பயர் ஓர்க்ஸ் பெக்டரி திருத்தங்கள்.
	1B	-1B	ர	4	...	8-2	4	2 00	0 13.5	0 27	722 தி நேஷனல் பயர் ஓர்க்ஸ் பெக்டரி திருத்தங்கள்.
	2	-2	ர	4	...	8-2	4	2 00	2 72.0	2 44	722 தி நேஷனல் பயர் ஓர்க்ஸ் பெக்டரி திருத்தங்கள்.
									3 61.0	7 22	
1334	1	1334-1	ர	4	...	8-2	4	2 00	2 57.5	5 15	722 தி நேஷனல் பயர் ஓர்க்ஸ் பெக்டரி திருத்தங்கள்.
	2	-2	ர	4	...	8-2	4	2 00	2 27.5	4 55	722 தி நேஷனல் பயர் ஓர்க்ஸ் பெக்டரி திருத்தங்கள்.
	3	-3	ர	4	...	8-2	4	2 00	0 09.5	0 19	722 தி நேஷனல் பயர் ஓர்க்ஸ் பெக்டரி திருத்தங்கள்.
	4	-4	ர	4	...	8-2	4	2 00	0 14.5	0 47	722 தி நேஷனல் பயர் ஓர்க்ஸ் பெக்டரி திருத்தங்கள்.
									6 19.8	10 36	
1335	1	1335-1	ர	4	...	8-2	4	2 00	0 96.0	2 92	722 தி நேஷனல் பயர் ஓர்க்ஸ் பெக்டரி திருத்தங்கள்.
	2	-2	ர	4	...	8-2	4	2 00	0 42.5	2 85	722 தி நேஷனல் பயர் ஓர்க்ஸ் பெக்டரி திருத்தங்கள்.
	3	-3	ர	4	...	8-2	4	2 00	0 66.8	1 32	722 தி நேஷனல் பயர் ஓர்க்ஸ் பெக்டரி திருத்தங்கள்.
									3 04.5	6 09	


 கிராம நிர்வாக அலுவலர்
 திருத்தங்கள் பிரபலம்
 சிவகாசி வட்டம்

சிராம நிர்வாக அலுவலர்
திருத்தங்கள் சிராமம்
சிவகாசி வட்டம்



தமிழ்நாடு தமிழ்நாடு TAMILNADU

தமிழ்நாடு எண். 35407
நாள் : 18.6.2010
மதிப்பு : ரூ. 5000/-

C 837816

ச. சிவசுந்தரம்
த. இராமகிருஷ்ணன்
முத்திரைத்தாள் விற்பனையாளர்
சிவகாசி
உரிமம் எண் : 3193/A1/2000-B

M/s. GPK Granite Industry
Chennai.
LEASE DEED

This DEED OF LEASE entered into at SIVAKASI on this 18th day of June 2010.

BETWEEN

1. Mr. G.ATHIPATHY, son of Late A.Grahadurai. Hindu, aged about 46 years, residing at No. 109A, Velayutham Road, Sivakasi, Virudunagar District. (PAN:ABUPA3377R)

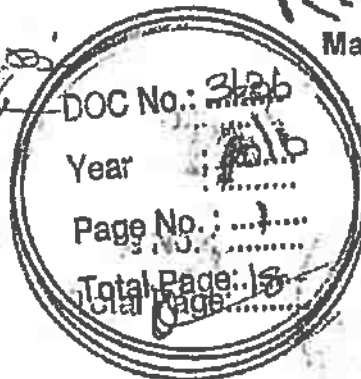
LESSOR

LESSEE

- 1.
- 2.
- 3.
- 4.
- 5.

For GPK GRANITE INDUSTRY

Managing Partner / Partner



DOC No.: 3636
Year : 2010
Page No. : 17
Total Page: 18

CERTIFICATE UNDER SECTION 42 OF STAMP ACT

S.No. 1904 of 2010

I hereby certify that a sum of Rs 42874.00 (Rupees Four Lakh Two thousand Eight hundred and seventy four only) has been duly disbursed under Section 2 of the Tamil Nadu Land Revenue Act in respect of this instrument, from Thiru. K. Subba Reddy, residing at Chennai-18.

Sub-Registry Office
Tisbury, Wiltshire

15-4510

Signature of Sub-Registrar on _____
Under Section 41 of the _____ Act

Presented in the office of the
Sub-Registrar of Thiruthangal and
Fee of Rs. 5000/- paid between
the hours of 4-5 and 1-2 on
the 27th June 2004
by.

LEFT THUMB

Execution admitted by

LEFT THUMB

Execution admitted by

LEFT THUMB

Execution admitted by

LEFT HUMB

~~Signature~~
Student: A. Giripadurai

D.No: 109 A

Velayutham Road,

Sivakasi

Virudhunagar District

PAN No. ABUPA3377R.

தரத்தான் 200000.

Document No 3.64 of 2000 of B6

Contains.....16.....Sheets
.....1.....Sheet

Sub-Region

5/0. (Late) Grahadurai. A.

Door No: 82A Kumbhari Road

1. Sivakasi Ulundurpet District

PANNO ACIP A12-03 H

S/o. Late) P. Ayya Nadar.

Door no: 82 B Meenakshi Illam

Kamran's Road, Sivakasi

Vitroddhangan District



தமிழ்நாடு தமிழ்நாடு TAMILNADU

தமிழ்நாடு எண் . 25408
நாள் : 18.6.2010
மதிப்பு : ரூ.5000/-

C 837817

ச. இராமகிருஷ்ணன்
முத்திரைத்தாள் விற்பனையாளர்
சிவகாசி
உரிமம் எண் : 3193/A/2000-8

Ms. GPK Granite Industry
Chennai

.. 2 ..

2. Mr.G.ABIRUBEN, son of Late A.Grahadurai, Hindu, aged about 42 years, residing at No. 82A, Kamaraj Road, Sivakasi, Virudunagar District. (PAN:ACIPA1203H)

LESSOR

LESSEE

- 1.
- 2.
- 3.
- 4.
- 5.

For GPK GRANITE INDUSTRY

Managing Partner / Partner

DOC No.: 3636
Year : 2010
Page No. : ...2...
Total Page: ...18...







தமிழ்நாடு தாமலநாடு TAMIL NADU

தமிழ்நாடு எண் .35401.

நாள் : 18.6.2010

மதிப்பு : ரூ. 20/-

M/s. G.P.K. Granite Industry.
Chennai.

57AA 500555

த.கிராமகிருஷ்ணன்

மு.கதினரத்தான் விற்பனையாளர்

சிவகாசி

உரிமம் எண் : 3193/A1/2000-8

.. 3 ..

3. Mr. A. VAIRAPRAKASAM, S/o. Late P.Ayya Nadar, Hindu, aged about 72 years, residing at No. 82B, "Meenakshi Illam" Kamaraj Road, Sivakasi Virudunagar District. (PAN:AAJPV8360P)

4. Mr. A. SUBASH CHANDRA BOSE, , S/o. Late P.Ayya Nadar, Hindu, aged about 70 years, residing at No.98, " Dream Castle", Shield Road, Sivakasi, Virudunagar District. (PAN:AAXPB0130F)

LESSOR

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For GPK GRANITE INDUSTRY

Managing Partner / Partner

Doc No.: 3636

Year : 2010

Page No. : 3

Total Page: 18





தமிழ்நாடு தாமலநாடு TAMIL NADU

M/S Gpk Granite Industry.

Chennai.

57AA 500556

தமிழ்நாடு எண். 35410.

நாள் : 12.6.2010

மதிப்பு : 20 ரூபாய்.

த. இராமகிருஷ்ணன்
முத்திரைத்தாள் விற்பனையாளர்
சிவகாசி
உரிமம் எண் : 3193/A1/2000.

.. 4 ..

5. Mr. A. RAMAMURTHY, S/o. Late P. Ayya Nadar, Hindu, aged about 66 years, residing at No.107 Kamaraj Road, Sivakasi, Virudunagar District. (PAN:AAPPR9860E) hereinafter collectively called as LESSOR, the parties of the FIRST PART which expression shall wherever the context so admits shall mean and include themselves, their respective heirs, executors, administrators, legal representatives and assigns of the ONE PART ;

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Doc No.: 3636
Year : 2010
Page No.: 4..
Total Page: 18.

For GPK GRANITE INDUSTRY

Managing Partner / Partner



தமிழ்நாடு தாமிலநாடு TAMIL NADU

தமிழ்நாடு எண் .35411.

நாள் : 18.6.2010

மதிப்பு : ௨.௨௦.

M/S. GPK Granite Industry.

Chennai.

57AA 500557

ச. இராமகிருஷ்ணன்

சுதந்திரத்தாள் விற்பனையாளர்

சிவகாசி

உரிமம் எண் : 3193/A1/2000-8

.. 5 ..

AND

M/S. GPK GRANITE INDUSTRY a Partnership Firm evidenced by its deed dated 18/06/2010 having its Business at No.5, Sixth Street, Gopalapuram , Chennai - 600 086 duly authorized and hereby represented by its Partner namely Dr. K. SUBBA REDDY, son of Late Radhakrishna Reddy, Hindu, aged about 57 years, residing at

LESSOR

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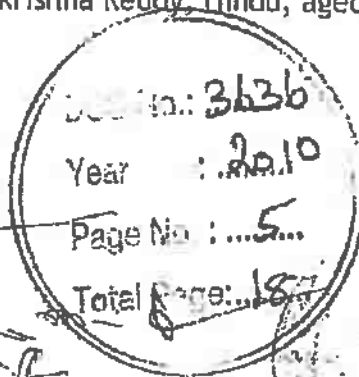
4. *[Signature]*

5. *[Signature]*

LESSEE

For GPK GRANITE INDUSTRY

Managing Partner / Partner





தமிழ்நாடு தாமலநாடு TAMIL NADU

M/s. Gpk Granite Industry.

Chennai.

57AA 500558

தமிழ்நாடு எண். 25413.

நாள் : 18.6.2010

மதிப்பு : 20 ரூபாய்.

ச. இராமகிருஷ்ணன்
முதலிரத்தான் விற்பனையாளர்
சிவகாசி
உரிமம் எண் : 3193/A1/2000-

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No.74, First Main Road, Raja Annamalaipuram, Chennai - 600 018 (PAN: ALGPK0406K hereinafter called as the LESSEE, the party of the SECOND PART, which expression shall wherever the context so admits shall mean and includes all its partners, its successors, their respective legal heirs, representatives, administrators and assigns of the OTHER PART.

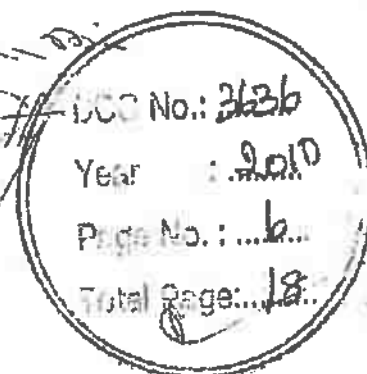
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For GPK GRANITE INDUSTRY

Managing Partner / Partner





தமிழ்நாடு தாமலநாடு TAMIL NADU

தமிழ்நாடு எண். 35413.

நாள் : 18.6.2010

மதிப்பு : 6.20/-

M/s. GPK Granite Industry,
Chennai.

57AA 500559

த.கிராமகிருஷ்ணன்

முத்திரைத்தாள் விற்பனையாளர்

சிவகாசி

உரிமம் எண் : 3193/A1/2000-P

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1 WHEREAS the schedule hereunder mentioned properties, together with an larger extent was originally purchased in the name of the firm namely M/s.The National Fire Works Factory" at Sivakasi.

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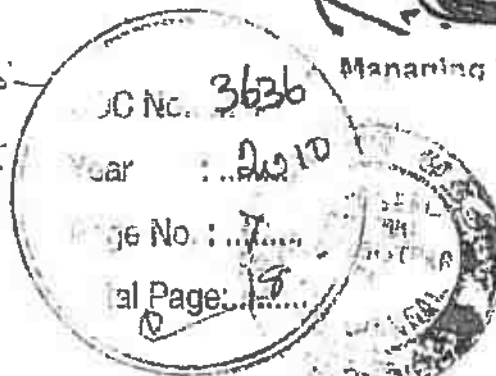
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LESSEE

For GPK GRANITE INDUSTRY

Managing Partner / Partner





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2 WHEREAS one Late A.Grahadurai, Mr.A. Vairaprakasam, Mr. A. Subash Chandra Bose, Mr. A. Ramamoorthy, Mr. V.A. Kodiswaran and Mr. A.S. Athiban K.Bose has constituted a partnership firm and business in manufacture and sale of fire works under the name and style The National Fire Works Factory at Sivakasi and the partners are having their respective shares in the assets of the firm in the ratio as given below.

Mr. A.Grahadurai	:	25%
Mr. A.Vairaprakasam	:	1%
Mr. A.Subash Chandra Bose	:	1%
Mr.A. Ramamoorthy	:	25%
Mr. V.A.Kodiswaran	:	24%
Mr. A.S. Athiban K.Bose	:	24%

3 WHEREAS in the year 1986 the above said Mr. A. Subash Chandra Bose and his son namely the above said Mr. A.S. Athiban K. Bose have jointly filed a suit for declaration that the partnership firm M/s. The National Fire Works factory stands dissolved with effect from 4.8.1986 and the sub court. Srivilliputtur has passed a preliminary decree on 13.11.1988 in O.S. No. 103/1986, dissolving the firm with effect from 4.8.1986 and the said suit is pending on the file of the Sub-court at Sivakasi.

4 WHEREAS on 16.4.2009 the above said Mr. V.A. Kodiswaran has settled his 24% share in the firm's properties to his father namely Mr.A.Vairaprakasam by way of settlement deed dated 16.4.2009, registered as doct. No. 2210 / 2009, SRD at Thiruthangal and as such on 16.4.2009 the above said Mr. A.S. Athiban K. Bose have also settled his 24% share in the firm's properties to his father namely Mr. A. Subash Chandra Bose by way of settlement deed dated 16.4.2009, Registered as Doct. No. 2175/2009, SRO at Thiruthangal.

5 WHEREAS the said Mr.A. Grahadurai had executed a "WILL" which is registered as Doc.No. 28/2008 S.R.O. at Thiruthangal and subsequently died on 11.5.2009, bequeathing his above 1/4th share in the above firm's properties in favour of his two sons namely Mr. G.Athipathy and Mr. G.Abiruben.

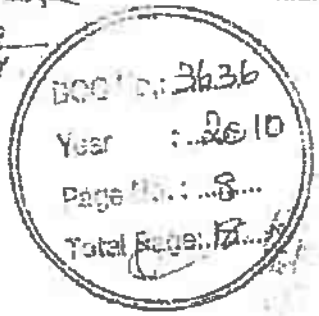
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For GPK GRANITE INDUSTRY

Managing Partner / Partner





6 WHEREAS the family members who are the constituted partners of the firm have already partitioned all the family properties except some of the properties acquired in the name of the firm as evidenced by the deed of partition dated 22-04-2009 registered as document NO. 2301 of 2009, SRO at Thiruthangai.

7 The Lessor hereby declare that the arrears of Income tax has been already cleared and the attachment on the said properties were lifted under order dt 24.02.2010 vide TRNO. 24020 to 24025/TRO/VNR and there are no outstanding debts payable by the firm, but if any genuine claim is made by any third party, the Lessor hereby collectively agree and undertake to share the same according to their share from the rest of the firm's assets and hereby assure and undertake that the same shall not in any manner affect the execution of this lease deed.

8 WHEREAS the Lessor hereby assure and declare that the schedule mentioned properties are not covered by panjani land dealt under with any State or Central Laws and they are the absolute joint owners having clear marketable title over the same and hereby further assure that no other person shall have any manner of right or title on the same.

9 WHEREAS the above mentioned Lessor have collectively have offered to lease out their properties which are all in the name of the Firm to an extent of 56 acres and 93 cents comprised in Survey Nos. 884/1A, 884/1B, 1333/1A, 1333/1B, 1333/2, 1326, 1334/3, 1334/1, 1334/2, 1334/4, 1335/1, 1335/2, 1335/3, 1336/1, 1336/2, 1336/3, 1312/2, 1313/1, 1313/2, 1314/2, 1314/1, 1317 and 1312/3 situated at Thiruthangal Village, Sivakasi Taluk, Virudhunagar District, more fully described in the schedule hereunder free from all encumbrances for the quarrying purpose on an annual lease consideration amount of Rs.1,70,000/- (One Lakh Seventy thousand only) and for another consideration of an interest free refundable deposit of Rs.4,01,07,000/- (Rupees Four Crores One Lakh and Seven Thousand only) for a period of 22 years and the Lessee having vast experience and knowledge in the field of quarrying and marketing of granite has agreed for the same, free from all encumbrances on the following terms and conditions set out here under.

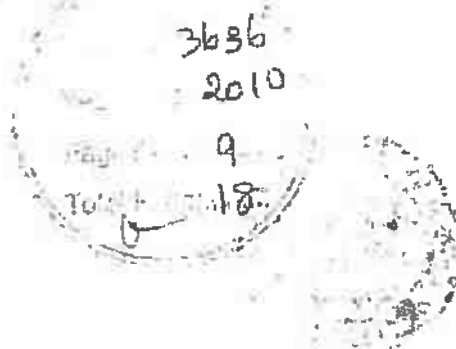
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LESSEE

For GPK GRANITE INDUSTRY

Managing Partner / Partner





NOW THIS LEASE DEED WITNESSETH AS FOLLOWS

In pursuance of the understanding, in consideration of the annual lease amount of Rs.1.70.000/- (Rupees One Lakh Seventy Thousand only) payable by the LESSEE to the Lessor herein for a period of 22 years and also in consideration of the interest free refundable deposit of Rs.4.01.07.000/- (Rupees Four crores one lakh and seven thousand only) paid by the LESSEE to the LESSOR herein in the manner as follows :

- a) The sum of Rs. 25.00,000/- (Rupees Twenty five lakhs only) paid by way of cheque bearing No. 638970 dated 11.12.2009, drawn on Indian Overseas Bank, Chennai, on 12.12.2009 an another sum of Rs.26,750/- (Rupees Twenty six thousand seven hundred and fifty only) paid by way of cash and further the balance sum of Rs.75.00,000/- (Rupees Seventy five lakhs only) paid jointly to Mr.G.Athipathy and G. Abiruben by way of Cheque no.967935, dated 02.02.2010, drawn on IOB, Chennai.
- b) The sum of Rs. 25.00,000/- (Rupees Twenty five lakhs only) paid by way of cheque bearing No. 638971 dated 11.12.2009, drawn on Indian Overseas Bank, Chennai, on 12.12.2009 an another sum of Rs.26,750/- (Rupees Twenty six thousand seven hundred and fifty only) paid by way of cash and a further balance sum of Rs.75.00,000/- (Rupees Seventy five lakhs only) paid to Mr.A.Vairaprakasam by way of Cheque no.967936, dated 02.02.2010, drawn on IOB, Chennai.
- c) The sum of Rs. 25.00,000/- (Rupees Twenty five lakhs only) paid by way of cheque bearing No. 638972 dated 11.12.2009, drawn on Indian Overseas Bank, Chennai, on 12.12.2009 an another sum of Rs.26,750/- (Rupees Twenty six thousand seven hundred and fifty only) paid by way of cash and a further balance sum of Rs.75.00,000/- (Rupees Seventy five lakhs only) paid to Mr. A. Subash Chandra Bose by way of Cheque no.967937, dated 02.02.2010, drawn on IOB, Chennai.

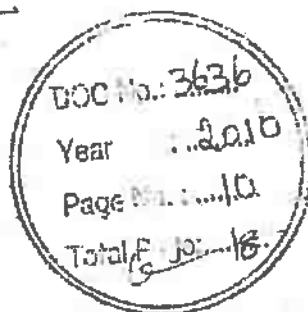
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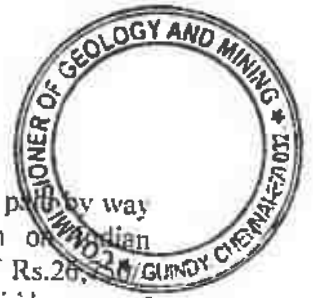
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For GPK GRANITE INDUSTRY

Managing Partner / Partner





- (d) The sum of Rs. 25,00,000/- (Rupees Twenty five lakhs only) paid by way of cheque bearing No. 638973 dated 11.12.2009, drawn on Indian Overseas Bank, Chennai, on 12.12.2009 and another sum of Rs. 26,00,000/- (Rupees Twenty six thousand seven hundred and fifty only) paid by way of cash and a further balance sum of Rs. 75,00,000/- (Rupees Seventy five lakhs only) paid to Mr. A. Ramamurthy, by way of Cheque no. 967938, dated 02.02.2010, drawn on IOB, Chennai aggregating in all to a total sum of Rs. 4,01,07,000/- (Rupees Four Crores One Lakh and Seven Thousand only).

The receipt of which sums the LESSOR doth hereby admits and acknowledge and hereby GRANT and DEMISE unto the LESSEE all the quarrying rights, of and in the said properties or every part thereof for purpose of quarrying Granite stones and to HOLD the said properties or every part thereof unto the LESSEE free from all encumbrances and shall lawfully be entitled to enjoy and possess the same unto the LESSEE for a period of 22 years.

THE LESSOR AND THE LESSEE COVENANTS AS FOLLOWS

1. With liberty and power of the LESSEE to search for - to dig or sink or drive and make pits, make shafts, water ways, to bring on the land or to erect and install all kinds of necessary machineries, develop any infrastructure like a make shift factory setup, etc., make roads and passages and all means of communications and with liberty to put the land over and below to such use as may be necessary to carry out the purposes of the lease subject to Government rules and regulations in force.
2. The LESSEE shall apply and obtain necessary prospecting and mining lease for quarrying of granite from the Government of Tamil Nadu with Lessee's own expenses in the name of the lessee.
3. The LESSOR shall execute and issue letters, affidavit and sign a joint lease agreement for quarrying and carrying away minor minerals to the authorities concerned as is required and stipulated in Appendix V (Rules 19A and 33) of Tamil Nadu Minor Mineral Concession Rules 1939.

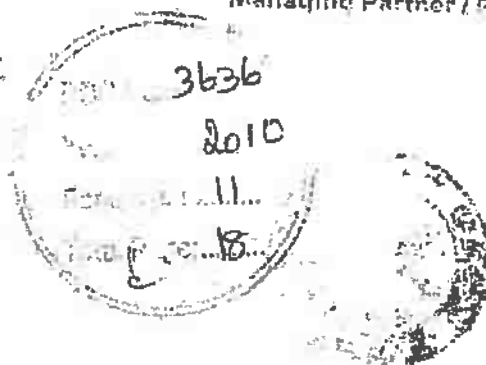
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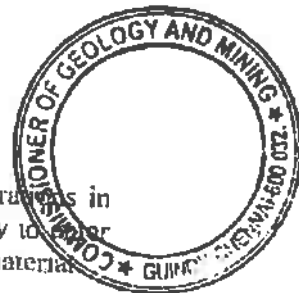
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LESSEE

For GPK GRANITE INDUSTRY

Managing Partner / Partner





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4. The LESSEE is at liberty to carry on quarrying and selling operations in the property either directly or through agent and also is at liberty to enter into agreement with third parties for raising contract to raise the material.
5. The LESSEE has agreed to pay an uniform sum of Rs 1,70,000/- (Rupees One lakh seventy thousand only) per annum in exact proportions to the advance so paid earlier to the Lessor towards the lease amount for a period of 22 years.
6. The LESSEE has paid a sum of Rs.4,01,07,000/- (Rupees Four crore one lakh and seven thousand only) towards an interest free refundable deposit amount which shall not carry any interest and shall be repayable by the Lessor herein as per exact proportions to the advance so paid earlier either on the expiry of the lease period or on its determination of lease if any. However the handover of the possession of the schedule properties by the lessee is subject to the refund of the above entire advance of Rs.4,01,07,000/- (Rupees Four crores one lakh and seven thousand only) by the lessor on the expiry of the lease.
7. The LESSEE shall not sub-lease or Part with possession of the property during the currency of the lease.
8. The LESSEE shall carry on quarry operations strictly by adopting scientific methods and shall not encroach upon the non-leased area and shall not dump waste in the non-leased area.
9. The LESSEE shall pay the dead rent, cess and all other statutory liabilities in respect of the quarry lease and the Lessor is not liable for the same. The LESSOR shall agree and undertake to pay the property tax and other charges in relation to the ownership of the subject property applicable as per law from time to time.
10. The LESSEE shall not at any time carry on any other business other than the purpose for which this scheduled property is leased-out and shall carry on only quarrying and related operations.

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LESSEE

For GPK GRANITE INDUSTRY

Managing Partner / Partner

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11. To permit the LESSEE to exhibit such signs, advertisement boardings, and publicity materials for the purpose of quarrying and selling the granite as they may desire.
12. The LESSEE is at liberty to engage Excavators, Cranes, Compressors and other quarry machineries over the property and can also put up temporary sheds or rest houses etc..
13. The LESSOR hereby permit the LESSEE to peacefully enjoy the schedule properties free from hindrance, obstruction etc. by the LESSOR or any person or persons claiming through or under the LESSOR and shall not interfere in the day-to-day quarrying operations of the Lessee but are entitled to inspect the quarry site.
14. The LESSEE shall strictly follow the Tamilnadu Minor Mineral Concession Rules, Explosives Act, Labour Laws and other Central and State Government Acts, rules and regulations in force and should not do anything detrimental to the interest of the Lessor. The lessee is solely responsible for any consequences or liabilities arising from quarrying or related activity including any third party claims.
15. Both the parties shall not either mortgage or encumber the leasehold rights and shall keep the leasehold quarry free from all encumbrances.
16. If the LESSOR is put to bear any loss or damage solely due to the acts of the Lessee, the Lessee shall indemnify the Lessor for the same and vice versa.
17. It is agreed between the parties that on the expiry of the lease period of 22 years the lease can be renewed for a further specified period on the terms and conditions then mutually agreed between the parties subject to 12 month prior notice. If there is no agreement on the extension of lease, the lease shall expire and the lessee shall hand over the property to the lessor without any delay for any reason whatsoever subject to the repayment of interest free refundable deposits of Rs.4,01,07,000/- (Rupees Four Crores one lakh and seven thousand only) to the lessee.

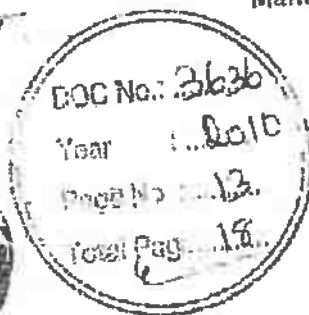
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For GPK GRANITE INDUSTRY

Managing Partner / Partner





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18. Both parties hereby further agree that by an act of God and /or hindrance caused by any natural calamity and or due to any local social problems or any untoward incident occurring beyond the control of the LESSEE and / or changes in the Government policies and / or invoking of any court orders and / or any other statutory, regulatory or administrative activities causing heavy damages and loss to the LESSEE, whereby the lessee shall exercise the right to stop the quarry work and close down the operations with removal of the resources permanently thereby exercise a further right to terminate the lease as deemed appropriate by the LESSEE and in such event both the parties hereby agree to mutually and amicably resolve the matter of refund of interest free deposit and such other relevant matter as would be necessary and appropriate, in a fair and lawful manner.
19. It is agreed that though 56 acres and 93 cents have been taken on lease, the Lessee shall apply for quarrying lease and carry out quarrying operations only on those land suitable for exploitation of granite and an around 11 acres of leased land comprising Survey Nos. 1317, 1314/2, 1314/1, 1313/1, 1313/2, 1312/3, 1312/2 shall be used for the dumping of waste for an initial period of 2 years. After the initial period of 2 years the lessee shall not dump overburden or waste on any of the leased lands and the lessee shall acquire their own lands for all dumping purposes.
20. If any disputes or difference of opinion do arise between the parties herein touching the conditions of this lease, the same shall be referred to an arbitrator to be appointed mutually and the said arbitrator decision shall be final and binding. If an arbitrator is not appointed within the specified period as granted by the Arbitration Act, then the parties are free to move the courts for relief.
21. The LESSEE hereby agrees to carry out changes to the constitution of the lessee's firm only with the written consent of the lessor. This clause shall not be applicable to the family members of the existing partners of the firm and every such changes shall be communicated in writing to the lessor.
22. The LESSEE hereby accords respect, sentiments and the business sense of the lessors and accordingly the Lessee will select any agency which shall not be detrimental to the business sentiments of the lessor.

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LESSEE

For GPK GRANITE INDUSTRY

Managing Partner / Partner

DOC NO 3636

Year 2010

Page 14

Total Page 18



23. If the lessee stops quarrying activities for a period of more than 90 days on reasons of malafide intention to create revenue loss to Lessor or fails to pay the royalty for the period of three months, the lessor has right to initiate termination proceedings of the lease.

24. The LEASE DEED shall be executed in quintuplicate. The original shall be retained by the LESSEE and the copies by the LESSOR

SCHEDULE

All that piece and parcel of purja lands measuring to an total extent of 56 acres 93 cents situated at Thiruthangal Village, Sivakasi Taluk, Virudunagar District, bearing patta Nos. 721 and 722, comprised in survey Nos.

1.	884/1A	:	Extent 3 acre and 40 cents
2.	884/1B	:	Extent 3 acre and 26 cents
3.	1333/1A	:	Extent 5 acre and 57 cents
4.	1333/1B	:	Extent 33 cents
5.	1333/2	:	Extent 3 acre and 01 cents
6.	1326	:	Extent 4 acre and 53 cent
7.	1334/3	:	Extent 23 cent
8.	1334/1	:	Extent 6 acre and 36 cent
9.	1334/2	:	Extent 5 acre and 62 cents
10.	1334/4	:	Extent 61 cent
11.	1335/1	:	Extent 2 acre and 37 cent
12.	1335/2	:	Extent 3 acre and 52 cent
13.	1335/3	:	Extent 1 acre and 63 cents
14.	1336/1	:	Extent 2 acre and 34 cents
15.	1336/2	:	Extent 1 acre and 33 cents
16.	1336/3	:	Extent 1 acre and 63 cents

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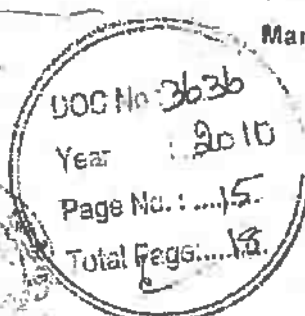
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LESSEE

For GPK GRANITE INDUSTRY

Managing Partner / Partner





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17.	1312/2	:	Extent 5 acre and 76 cents
18.	1313/1	:	Extent 60 cents
19.	1313/2	:	Extent 58 cents
20.	1314/2	:	Extent 2 acre and 71 cents
21.	1314/1	:	Extent 31 cents
22.	1317	:	Extent 2 acre and 25 cents
23.	1312/3	:	Extent 98 cents

and within the registration district of Sivakasi and sub-registration district of Thiruthangal.

IN WITNESS WHERE OF THE LESSOR and the LESSEE herein have set their respective hands and sign on the day, month and year first above written

LESSOR

LESSEE

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For GPK GRANITE INDUSTRY

Managing Partner / Partner

WITNESSES:

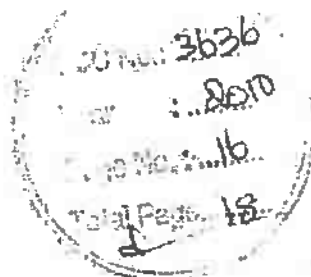
1. (K.T. RATAMOHAN)
S/o. P. Thekkaram
No. 11, FBI office to Colony, Thiruvananthapuram,
Thiruvananthapuram, Chennai - 600 023
2. R.M. KAMARAJ, S/o. K. Madanagani Nandan,
36 A KP South Street, Sivakasi.

Drafted by:

A. Vijayakumar, Advocate (105/86)

21, Venkatraman Street, T. Nagar,

Chennai - 600 017.





தமிழ்நாடு தமில்நாடு TAMILNADU

GPK GRANITE
INDUSTRIE

AV 536937

A-1c
A. P. சிவசுந்தரம்
சென்னை
800, B-1/2008
625 100

EXTENSION OF LEASE AGREEMENT

THIS DEED OF EXTENSION OF LEASE made on the 23rd day of July 2014 at Sivakasi:

BETWEEN

1. Mr.G.ATHIPATHY, son of Late A.Grahadurai, Hindu Aged about 50 years, residing at No.109A, Velayutham Road, Sivakasi, Virudhunagar District. (PAN: ABUPA3377R)
2. Mr.G.ABIRUBEN, son of Late A.Grahadurai, Hindu Aged about 46 years, residing at No.82A, Kamaraj Road, Sivakasi, Virudhunagar District. (PAN: ACIPA1203H)
3. Mr.A.VAIRAPRAKASAM, son of Late P.Ayya Nadar, Hindu Aged about 76 years, residing at No.82B, "Meerakshi Illam" Kamaraj Road, Sivakasi, Virudhunagar District. (PAN: AAJFV8360P)

LESSOR

LESSEE

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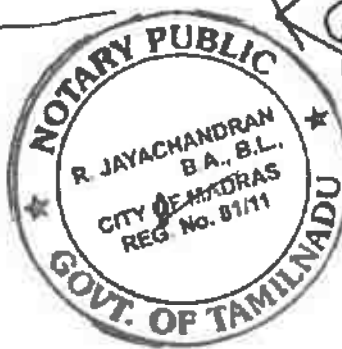
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For GPK GRANITE INDUSTRY

Managing Partner / Partner





भारतीय गैर न्यायिक

एक सौ रुपये

Rs. 100

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सत्यमेव जयते

ONE HUNDRED RUPEES

भारत INDIA
INDIA NON JUDICIAL

தமிழ்நாடு தமிழ்நாடு TAMILNADU

AV 536938

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GPK GRANITE

A. C. ...
A. ...
5800 B-1/2008
625 108

8.3.07.14

INDUSTRE

1. Mr.A.SUBASH CHANDRA BOSE, son of Late P.Ayya Nadar, Hindu Aged about 74 years, residing at No.98, "Dream Castle" Shield Road, Sivakasi, Virudhunagar District. (PAN: AAXPB0130F)
2. Mr.A.RAMAMURTHY, son of Late P.Ayya Nadar, Hindu Aged about 70 years, residing at No.107, Kamaraj Road, Sivakasi, Virudhunagar District. (PAN: AAPP9860E) herein after collectively called as LESSOR, the parties of the FIRST PART which expression shall wherever the context so admits shall mean and include themselves, their respective heirs, executors, administration, legal representatives and assigns of the ONE PART;

AND

M/s.GPK GRANITE INDUSTRY a Partnership Firm evidenced by its deed dated 18/06/2010 having its Business at No.5, Sixth Street, Gopalapuram, Chennai - 600 086 duly authorized and hereby represented by its Partner namely Dr.K.SUBBAA REDDY, son of Late Radhakrishna Reddy, Hindu, aged about 61 years, residing at No.74, First Main Road, Raja Annamalaipuram, Chennai - 600 018 (PAN: ALGPK0406K) herein after called as the LESSEE, the party of the SECOND PART; which expression shall wherever the context so admits shall mean and includes all its partners, its successors, their respective legal heirs, representatives, administrators and assigns of the OTHER PART.

LESSOR

LESSEE

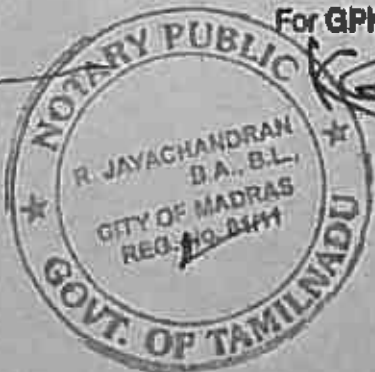
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For GPK GRANITE INDUSTRY

Managing Partner / Partner

WHEREAS the LESSOR herein have executed a Lease Deed in favour of the LESSEE herein with regard to the lands measuring to an extent of 56 acres situated at Thiruthangal Village, Sivakasi Taluk, Virudhunagar District which are more fully described in the Schedule hereunder for a period of 22 years by way of Lease Deed dated 18.06.2010, registered as No.3636/2010, at sub registers of 106 Thiruthangal and the said lease is in force.



WHEREAS there is no change in the other clauses of the lease agreement dated 18.06.2010 excepting clause 17 of the registered lease agreement dated 18.06.2010. This extension of lease agreement should be read in conjunction with the registered lease agreement dated 18.06.2010 and to be treated as part and parcel of the same.

WHEREAS due to practical difficulties the Lessee could not obtain the necessary prospecting and mining lease for quarrying of granite lease in time, from the authorities concerned and as such to carry on quarrying and selling operations, the LESSEE herein have approached the LESSOR for an extension of Lease period of 5 years from 18th June 2032 till 17th June 2037, And whereas the Lessor herein on considering the same have also agreed to extend the period for 5 years subject to the lease amount in the same manner as that reserved by the aforesaid lease deed on the terms and conditions set out hereunder and both the parties want to induce the same in to writing. Now THIS DEED OF EXTENSION OF LEASE AGREEMENT WITNESSETH;

In pursuance of the agreement dated 18.06.2010 and in consideration of the payment for the extension period in the same manner as that reserved by the aforesaid lease, the Lessor hereby grant full right for the quarrying of granite unto the lease all the piece and parcel of lands more fully described in the schedule hereunder for a further period of 5 years from 18th June 2032, till 17th June 2037 to hold the same or every part thereof UNTO the lessee free from all encumbrances and shall lawfully be entitled to enjoy and possess the same unto the lessee till 17th June 2037.

Save as hereinbefore entered the aforesaid lease shall continue in full force and effect.

LESSOR

LESSEE

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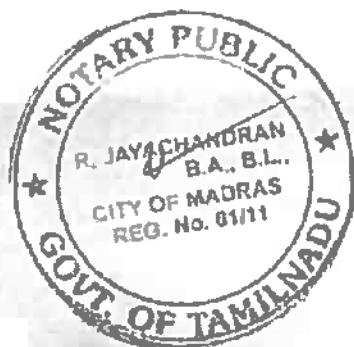
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For GPK GRANITE INDUSTRY

Managing Partner / Partner

Page 3





SCHEDULE

All that piece and parcel of punja lands measuring to an extent of 56 acres 93 cents situated at Thirubagal Village, Sivakasi Taluk, Virudhunagar District, bearing patla Nos. 721 and 722, comprised in survey Nos.

1. 884/1A	:	Extent 3 acre and 40 cents
2. 884/1B	:	Extent 3 acre and 26 cents
3. 1333/1A	:	Extent 5 acre and 57 cents
4. 1333/1B	:	Extent 33 cents
5. 1333/2	:	Extent 3 acre and 01 cents
6. 1326	:	Extent 4 acre and 53 cents
7. 1334/3	:	Extent 23 cents
8. 1334/1	:	Extent 6 acre and 36 cents
9. 1334/2	:	Extent 5 acre and 62 cents
10. 1334/4	:	Extent 61 cents
11. 1335/1	:	Extent 2 acre and 37 cents
12. 1335/2	:	Extent 3 acre and 52 cents
13. 1335/3	:	Extent 1 acre and 63 cents
14. 1336/1	:	Extent 2 acre and 34 cents
15. 1336/2	:	Extent 1 acre and 33 cents
16. 1336/3	:	Extent 1 acre and 63 cents
17. 1312/2	:	Extent 3 acre and 76 cents
18. 1313/1	:	Extent 60 cents
19. 1313/2	:	Extent 58 cents
20. 1314/2	:	Extent 2 acre and 71 cents
21. 1314/1	:	Extent 31 cents
22. 1317	:	Extent 2 acre and 25 cents
23. 1312/3	:	Extent 98 cents

LESSOR

LESSEE

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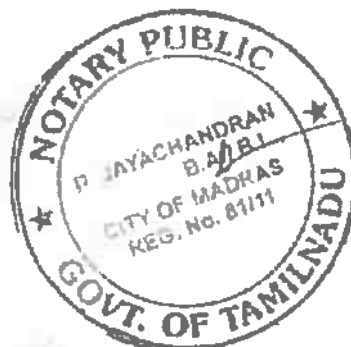
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For GPK GRANITE INDUSTRY

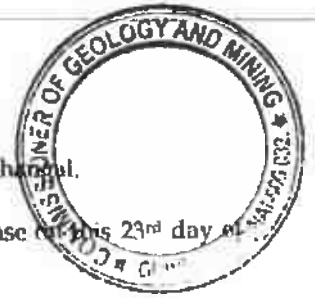
Managing Partner / Partner

Page 4



and within the registration district of Sivakasi and sub-registration district of Thiruthangal.

In Witness whereof the parties herinto have signed this deed of extension of lease on this 23rd day of July, 2014.



LESSOR

LESSEE

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5.

For GPK GRANITE INDUSTRY

Managing Partner / Partner

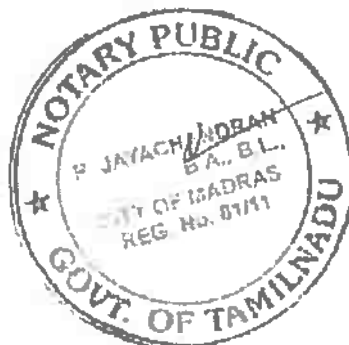
WITNESS

1. D. Senkathir Selvan S/o A.S. Thiagarajan
2/1680 Sasi Nagar Sivakasi.

2.

K. T. RAJAMOHAN S/o P. THUKKARAM
No. 11, SBI Officers Colony Myravanuram
Chennai 600023

Page 5



23.7.14

Office :
R. JAYACHANDRAN
ADVOCATE & NOTARY PUBLIC
Saidapet Bar Association
Saidapet, Chennai - 600015.



1

BEFORE THE MADURAI BENCH OF MADRAS HIGH COURT

DELIVERED ON : 19.07.2017

CORAM

THE HONOURABLE MR.JUSTICE R.MAHADEVAN

W.P(MD)No.5212 of 2015

and

M.P(MD)No.1 of 2015

Yennarkay R.Ravindran Thilagavathy Vidhyasala
Matriculation Higher Secondary School,
represented by
The Principal,
L.Murali

Petitioner

Vs.

- 1.The Government of Tamil Nadu,
represented by its
Secretary,
Industrial Department,
Fort St. George,
Chennai - 9.
- 2.The Director of Geology and Mining,
Guindy,
Chennai.
- 3.The District Collector,
Virudhunagar District,
Virudhunagar.
- 4.The Deputy Director of Geology and Mining,
Virudhunagar,
Virudhunagar District.
- 5.A.Ramamurthy

(
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.5 is impleaded vide order of this Court dated
09.06.2015 passed in

M.P(MD)No.2 of 2015 in W.P(MD)No.5212 of 2015.)

<http://www.judis.hc.in>



6.M/s.G.P.K.Granites Industry,
represented by its
Power of Attorney,
K.Rajmohan

... Respondents

(
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.6 is Impleaded vide order of this Court dated
06.07.2017 passed in W.M.P(MD)No.9030 of 2017 in
W.P(MD)No.5212 of 2015.)

Prayer: Petition filed under Article 226 of the Constitution of India praying for the issuance of a writ of Mandamus to forbear the respondents herein from granting of any quarry licence for the Survey Nos.884/1A, 884/1B, 1333/1A, 1333/1B, 1333/2, 1326, 1334/3, 1334/1, 1334/2, 1334/4, 1335/2, 1335/3, 1336/1, 1336/2, 1336/3, 1312/2, 1313/1, 1313/2, 1314/1, 1314/2, 1317 and 1312/3 in Thiruthangal Village, Sivakasi Taluk, Virudhunagar District, without disposing of the petitioner's representation dated 23.03.2015 and 25.03.2015.

For Petitioner : Mr.AR.L.Sundaresan,
Senior Counsel for Mr.K.Vamanan

For Respondents : Mr.B.Pugalendhi,
Additional Advocate General
assisted by Mr.S.Kumar,
Additional Government Pleader for R.1 to R.4

Mr.K.K.Senthil for R.5 & R.6

ORDER

Seeking a writ of Mandamus to forbear the respondents herein from granting of any quarry licence for the Survey Nos.884/1A, 884/1B, 1333/1A, 1333/1B, 1333/2, 1326, 1334/3, 1334/1, 1334/2, 1334/4, 1335/2, 1335/3, 1336/1, 1336/2, 1336/3, 1312/2, 1313/1, 1313/2, 1314/1, 1314/2, 1317 and 1312/3 in Thiruthangal Village, Sivakasi Taluk,



Virudhunagar District, until the petitioner's representations dated 23.03.2015 and 25.03.2015, are disposed of, the petitioner has filed this writ petition.

2. Facts in brief, leading to the filing of this writ petition, are as follows:

2.1. The petitioner school is situated in R.S.Nos.1711, 1712, 1312/1, 1312/2, 1312/4, 1311/1, 1311/2A and 1311/2B in Thiruthangal Village, Sivakasi Taluk, Virudhunagar District. According to the petitioner, the vacant lands situated in S.Nos.884/1A, 884/1B, 1333/1A, 1333/1B, 1333/2, 1326, 1334/3, 1334/1, 1334/2, 1334/4, 1335/2, 1335/3, 1336/1, 1336/2, 1336/3, 1312/2, 1313/1, 1313/2, 1314/1, 1314/2, 1317 and 1312/3 in Thiruthangal Village, Sivakasi Taluk, Virudhunagar District, are adjacent to the school premises and the sixth respondent applied for quarry lease licence in 2010 to the first respondent through the third respondent in respect of those vacant lands.

2.2. Apprehending that in the event of granting quarry lease licence to the sixth respondent, the safety of the school children would be in peril, the petitioner school made a representation dated 04.07.2012 to the respondents. In the meanwhile, the petitioner school also filed W.P(MD)No.15753 of 2012 seeking a direction not to grant quarry lease to the sixth respondent and the said writ petition was dismissed as withdrawn on 07.12.2012. Thereafter, the petitioner school submitted



another representation on 21.12.2012, for which, the fourth respondent sent a reply dated 19.09.2013 stating that no quarry lease licence would be granted with regard to the survey numbers in question.

2.3. However, the respondents 2 and 4 conducted a survey in the aforesaid survey numbers on 23.03.2015 and hence, the petitioner gave a representation on that day itself, followed by reminders dated 24.03.2015 and 25.03.2015, but the survey works had been continued even thereafter also. Since the representations submitted by the petitioner did not evoke any positive response, the petitioner is before this Court.

3. The fourth respondent – Deputy Director of Geology and Mining, Virudhunagar, Virudhunagar District, filed a counter affidavit on behalf of all the respondents, *inter alia*, contending as under:

3.1. The petitioner school is run by the Standard Fire Works Group of companies and it also engaged in granite quarrying operations in the lands adjacent to the lands in question. The petitioner is the partner of the school as well as granite quarry leases in S.F.Nos.1322, 1324 and 1325 abetting the lands in which the sixth respondent applied for quarry lease licence. The conditions specified in Rule 36 of the Tamil Nadu Minor Mineral Concession Rules, 1959 have been taken into consideration at the time of recommending for grant of granite quarry lease licence to the sixth respondent, to the Government for appropriate orders.

3.2. The Revenue Divisional Officer, Sivakasi, conducted an



inspection on 28.09.2010 and submitted his report vide No.Na.Ka.B4/5351/2010, dated 29.09.2010, recommending for grant of granite quarry lease licence to the sixth respondent to an extent of 24.70 acres in Thiruthangal Village, Sivakasi Taluk, Virudhunagar District, for a period of 20 years.

3.3. The quarrying operation would not cause any hindrance or damage to the school and the play ground as the applied area is a granite quarry zone, wherein several granite quarries are functioning in the vicinity and taking into all those facts, the fourth respondent recommended for grant of granite quarry lease for 20 years under Rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959, subject to certain conditions.

3.4. The third respondent - District Collector, Virudhunagar, after personal inspection of the area on 11.11.2010 and having satisfied with the location of the area, recommended for grant of quarry lease licence by his letter in Roc.No.KV2/1390/2010, dated 16.11.2010 to the Government through the Commissioner of Geology and Mining, Chennai.

3.5. On careful consideration of the quarry lease application submitted by the sixth respondent, the Government directed the sixth respondent to submit the approved mining plan. Meanwhile, the Government directed the Commissioner of Geology and Mining to depute officers to re-inspect the area in question and to submit a comprehensive report. Thereafter, the Joint Director of Geology and Mining inspected the



site in question and submitted a report on 23.03.2015 stating that 50 metres safety distance to be maintained for the odais and 7.5 metres safety distance to be maintained for the adjacent patta lands.

3.6. Considering the allegation of the petitioner that if the request of the sixth respondent for grant of quarry lease licence is considered, then it will endanger the safety of the students and the school premises, this Court, by order dated 08.04.2015, appointed an Advocate Commissioner to inspect the site in question and ascertain whether the norms laid down for grant of lease is fulfilled including the distance and to file a report. However, the respondents refuted the report of the Advocate Commissioner as the same had not reflected the actual field conditions. It is further stated that there are 12 granite quarries in existence, out of which, 6 granite quarries are run by the petitioner group of companies and so far, no huge water scarcity has been reported. Therefore, the respondents prayed for the dismissal of the writ petition.

4. A reply affidavit has been filed by the petitioner contending that the fourth respondent is not competent to file the counter affidavit on behalf of all the respondents and the first respondent is the competent authority to decide the issue and further the first respondent cannot delegate his powers to the fourth respondent. Further, it is averred that the quarry leases cited by the fourth respondent are situated beyond 500 metres from the school.



5. Mr.AR.L.Sundaresan, learned Senior Counsel appearing on behalf of Mr.K.Vamanan, learned Counsel for the petitioner made the following submissions:

5.1. The prime contention of the petitioner is that if the Government grants quarry lease licence to the sixth respondent in the site in question, then the safety and interest of the school children and the people living in and around that area would definitely get affected.

5.2. Despite the petitioner made several representations to reconsider the claim of the sixth respondent for grant of quarry lease licence, all ended in vain.

5.3. Though there are 12 granite quarries situated in the site in question, they are actually situated beyond 500 metres from the vicinity of the school, but, the sixth respondent is now trying to start quarrying operations nearby the school premises and it causes pollution, besides endangerment to the safety of the school children.

5.4. The first respondent being the competent authority, is not entitled to authorise the fourth respondent to file the counter affidavit on his behalf and the averments in the counter affidavit are against the reality.

5.5. The Advocate Commissioner has filed his report clearly stating that there are violations in considering the claim of the sixth respondent for grant of quarry lease licence as no licence for quarrying can be



granted within 300 metres from the inhabited area and the sixth respondent violated that criteria.

5.6. Therefore, the claim of the sixth respondent cannot be accepted and thus, prayed for a direction to forbear the respondents 1 to 4 from granting quarry lease licence to the sixth respondent in the aforesaid survey numbers, taking into consideration the violation of the Rules governing the quarrying operations.

6. Per contra, Mr.B.Pugalendhi, learned Additional Advocate General assisted by Mr.S.Kumar, learned Additional Government Pleader appearing for the respondents 1 to 4, while refuting the case of the petitioner, contended thus:

6.1. The petitioner school is run by Standard Fireworks group of companies and they are also engaged in granite quarrying operations in the lands adjacent to the site in question.

6.2. The sixth respondent applied for grant of granite quarry lease on 25.08.2010 to an extent of 24.70 acres of patta lands comprised in S.Nos.884/1B, 1326, 1333/1A, 1333/1B, 1333/2, 1334/1, 1334/2, 1334/3 and 1334/4 of Thiruthangal Village, Sivakasi Taluk, Virudhunagar District, for 20 years under Rule 19-A of the Tamil Nadu Minor Mineral Concession Rules, 1959.

6.3. The conditions stipulated under Rule 36 of the above Rules have been strictly adhered to by the authorities while recommending the



claim of the sixth respondent to the Government for grant of granite quarry lease licence for 20 years.

6.4. The petitioner objected to the claim of the sixth respondent for quarrying operations, based on which, several spot inspections have been conducted and reports have also been received from the authorities concerned.

6.5. It is pertinent to note that the petitioner group of companies is also running several granite quarries in that vicinity and it is alleged that there is a business rivalry among the lessees of the granite quarries.

6.6. In any event, the claim of the sixth respondent for grant of granite quarry lease licence would be considered in the light of the objections raised by the petitioner as well as in accordance with the relevant rules governing grant of quarry lease licence.

7. Mr.M.Ajmal Khan, learned Senior Counsel appearing on behalf of Mr.K.K.Senthil, learned Counsel for the respondents 5 and 6 submitted that the sixth respondent applied for grant of quarry lease licence with the Government and the same is pending for appropriate orders and that the authorities concerned conducted many spot inspections at the site in question and a comprehensive report has already been sent to the Government for passing necessary orders and that the objections of the petitioner have already been considered at the time of inspection by the authorities concerned and moreover, the recommendations have been



made by the authorities concerned for grant of granite quarry lease licence in accordance with Rule 36(1) and (1-A) of the Tamil Nadu Minor Mineral Concession Rules, 1959 and there is no violation of any provisions of the said Rules and therefore, prayed for the dismissal of this writ petition.

8. I have carefully considered the rival submissions and meticulously perused the materials available on record.

9. A deep scrutiny of the materials in the form of affidavit, counter affidavit, reply affidavit and the typed set of papers, would make it crystal clear the following facts:

9.1. The sixth respondent applied for grant of quarry lease licence in respect of S.Nos.884/1A, 884/1B, 1333/1A, 1333/1B, 1333/2, 1326, 1334/3, 1334/1, 1334/2, 1334/4, 1335/2, 1335/3, 1336/1, 1336/2, 1336/3, 1312/2, 1313/1, 1313/2, 1314/1, 1314/2, 1317 and 1312/3 in Thiruthangal Village, Sivakasi Taluk, Virudhunagar District and the same is pending.

9.2. The petitioner school raised objections by way of several representations against the claim of the sixth respondent for grant of quarry lease licence stating that if the Government grants quarry lease licence to the sixth respondent, the safety of the school children would be defeated.



9.3. The petitioner also alleged that there would be noise pollution while the sixth respondent is quarrying the granite stones.

9.4. The authorities concerned conducted spot inspections at the site in question and submitted their reports to the Government after considering the objections raised by the petitioner.

9.5. This Court, by order dated 08.04.2015, appointed an Advocate Commissioner to inspect the site in question and ascertain whether the norms laid down for granting of quarry licence are fulfilled including the distance and file a report before this Court within the stipulated time.

9.6. The Advocate Commissioner inspected the site in question and submitted his report dated 28.04.2015, *inter alia*, stating that Rule 36 (1-A)(a) of the Tamil Nadu Minor Mineral Concession Rules, 1959 has not been complied with as no licence for quarrying stone can be granted within 300 metres from any inhabited site.

9.7. It is also alleged that due to business rivalry, the petitioner objected to the grant of granite quarry lease licence to the sixth respondent, however, the disputed questions of facts cannot be gone into by this Court.

10. It is relevant to extract hereunder Rule 36(1) and (1-A)(a) of the Tamil Nadu Minor Mineral Concession Rules, 1959:

"36. General restrictions in respect of quarrying

**operations.-**

(1) The quarrying permit holder or the Lessee or their men shall not work or carry on or allow to be worked or carried on any mining operations at or to any point within a distance of 50 metres from any railway line except with the previous written permission of the Railway administration concerned or under or beneath any ropeway or any ropeway trestle or station except under and in accordance with the written permission of the authority owning the ropeway or from any reservoir, canal or other public works such as public roads and buildings except with the previous written permission of the Collector of the district or any other officer authorised by the State Government in this behalf and otherwise than in accordance with such instructions, restrictions and conditions, either general or special, which may be attached to such permissions. The said distance of 50 metres shall be measured in the case of railway, reservoir or canal horizontally from the outer toe of the bank or the outer edge of the cutting, as the case may be, and in case of building horizontally from the plinth thereof. In the case of village roads, no working shall be carried out within a distance of 10 metres and except with the previous permission of the Collector of the district or any other officer duly authorised by the State Government in this behalf and otherwise than in accordance with such directions, restrictions and additions, either general or special, which may be attached to such permission:

Provided that notwithstanding anything contained in any law for the time being in force or any provision in any lease deed or agreement already executed under these



Rules, there shall be no quarrying of sand in any river bed or adjoining area or any other area which is located within 500 metres radial distances from the location of any bridge, water supply system, infiltration well or pumping installation of any of the local bodies or Central or State Government Department or the Tamil Nadu Water Supply and Drainage Board head works or any area identified for locating water supply schemes by any of the above-mentioned Government Departments or other bodies.

(1-A)(a) No lease shall be granted for quarrying stone within 300 metres (three hundred metres) from any inhabited site:

Provided that the existing quarries which are subsisting under current leases shall be entitled for continuance till the expiry of the lease period. The Lessees whose quarries lie within a radius of 300 metres from the inhabited site shall undertake blasting operations only after getting permission of the Director of Mines Safety, Gorgaum:

Provided further that the new and existing units of quarries shall also be required to comply with the pollution control measures [i.e., dust control measures] besides complying with the other conditions in regard to Pollution Control Measures."

11. From the above, it is clear that Rule 36(1) of the Tamil Nadu Minor Mineral Concession Rules, 1959, mandates that the quarrying permit holder or the Lessee or their men shall not work or carry on or allow to be worked or carried on any mining operations at or to any point within a distance of 50 metres from any railway line except with the

of the Collector of the district or any other officer of the State Government in this behalf. Similarly, Rule 36(1) clearly states that no lease shall be granted for quarrying stone within a distance of 300 (three hundred metres) from any inhabited site.

It is seen that the sixth respondent applied for grant of lease in the vicinity, wherein the petitioner school is located. The respondent has not raised objections to the same, on the ground of disturbance to the children.

It is seen that the sixth respondent applied for grant in the vicinity, wherein the petitioner school is located. The respondent raised objections to the same, on the ground of children.

to doubt, any quarrying operations can be permitted only on compliance of relevant Rules governing the licence and any deviance would lead to irreparable

in the case on hand, It is alleged that there are 12
located in that area, out of which 6 examples are in



to go into that aspect.

15. Considering the issue involved in this matter, it is for the Government to consider any claim for grant of granite quarry lease licence strictly in accordance with the provisions of the Tamil Nadu Minor Mineral Concession Rules, 1959, after considering the objections, if any, raised by the residents of the inhabited area concerned.

16. In such view of the matter, this Court, without going into the merits of the contentions raised by the rival parties, observes that the competent authority concerned shall conduct spot inspection in S.Nos. 884/1A, 884/1B, 1333/1A, 1333/1B, 1333/2, 1326, 1334/3, 1334/1, 1334/2, 1334/4, 1335/2, 1335/3, 1336/1, 1336/2, 1336/3, 1312/2, 1313/1, 1313/2, 1314/1, 1314/2, 1317 and 1312/3 in Thiruthangal Village, Sivakasi Taluk, Virudhunagar District, in the presence of the petitioner as well as the sixth respondent, after issuing due notice well in advance, within a period of two weeks from the date of receipt of a copy of this order and thereafter, consider the claim of the sixth respondent for grant of granite quarry lease licence in the aforesaid survey numbers strictly in accordance with the provisions of the Tamil Nadu Minor Mineral Concession Rules, 1959, in the light of the objections raised by the petitioner as well as any other persons, if any, and pass appropriate orders within a period of four weeks thereafter.



17. With the above observations, this writ petition is disposed of. No costs. Consequently, the connected miscellaneous petition is closed.

Index : Yes/No
Internet : Yes/No
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19.07.2017

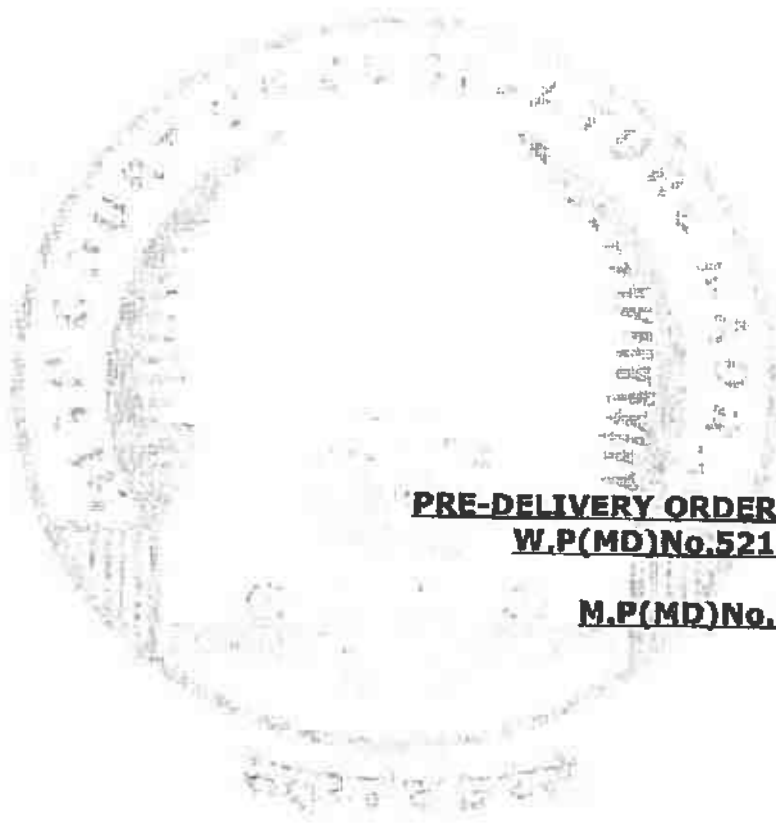
To:

1. The Secretary,
Government of Tamil Nadu,
Industrial Department,
Fort St. George,
Chennai - 9.
2. The Director of Geology and Mining,
Guindy,
Chennai.
3. The District Collector,
Virudhunagar District,
Virudhunagar.
4. The Deputy Director of Geology and Mining,
Virudhunagar,
Virudhunagar District.

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PRE-DELIVERY ORDER MADE IN
W.P(MD)No.5212 of 2015
and
M.P(MD)No.1 of 2015

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19.07.2017



तमिलनाडु TAMILNADU

5383
25.4.2022

GPK Granite Industry

CN 987216
S. Mangalam
S. MANGALAM
STAMP VENDOR,
18/2 MURTHY STREET,
CHENNAI - 600 033
LICENCE No: 9842/39
PHONE : 23710764

THIS Deed of Partnership made on 25th April 2022, by and between

1. **Ms Archana** Daughter of Sri. R Veeramani aged about 44 years residing at No.164, Avvai Shanmugam Salai, Royapettai, Chennai 600014 having PAN number AEUPA2144P hereinafter referred to as party of the First
2. **Mr.Kodavaluru Sandesh** Son of Sri. K SubbaReddy aged about 37 residing at Flat No. 1, Swarnamukhi Apartments, No.104/185, St. Marys Road, Alwarpet, Chennai-600018 having PAN number BIOPS6494K hereinafter referred to as party of the Second

1. Archana

2. Sandesh

3. Y. Prath

4. 18

5. Prath

6. Prath

Prath



5384
25.4.2022

GPK Granite Industry

CN 987217

S. Mangalam
S. MANGALAM
STAMP VENDOR,
18/2, MURTHY STREET,
CHENNAI - 600 033.
LICENCE No: 9942/89
PHONE : 23710754

3. Mrs.Y.Famitha Daughter of Sri. K F Yusuff Basha aged about 39 years residing at No.115/60D, Thiru Nagar, Hasthampatti, Salem-636007 having PAN number AANPF5888Q hereinafter referred to as party of the Third
4. Mr.Arjun Asaithambi, Son of Sri. S.R.Asaithambi, Hindu aged about 31 years having office at 28, Venkatraman Street, T.Nagar, Chennai 600 017 having PAN number AJBPA4995L hereinafter referred to as party of the Fourth

1. Asaithambi

2. [Signature]

3. Y. Joth.

4. [Signature]

5. [Signature]

6. [Signature]



தமிழ்நாடு தமில்நாடு TAMILNADU

5385
25.4.2022

GPK Granite Industry

CN 987218

S. Mangalam
S. MANGALAM
STAMP VENDOR,
18/2, MURTHY STREET,
CHENNAI - 600 033
LICENCE No: 9842/89
PHONE : 23710754

4. Mr.Damegunta Saikartik Son of Sri.Subburami Reddy aged about 44 residing at Plot No. 74, 1st Main Road, Raja Annamalaipuram, Chennai 600028 having Pan Number AIDPD7202N hereinafter referred to as party of the Fifth
6. Mrs.Y.Farzana Daughter of Sri. K F Yusuff Basha aged about 32 years residing at No. 92/318, Triplicane High Road, Inside Big Mosque Compound, Tiruvallikeni, Chennai-600005 having PAN number ABCPF3499H hereinafter referred to as party of the Sixth

1. Ana.V

4. 12

2. [Signature]

5. [Signature]

3. Y. Juth

6. [Signature]

[Signature]

The Party of the First, Second, Third, Fourth, Fifth and Sixth Part hereafter shall be collectively known as Continuing Partners.

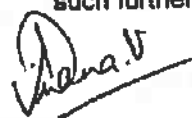
Whereas by a Deed of Partnership dated 09th March 2022, wherein the parties of the First, Second, third, Fourth, fifth and Sixth Part hereto have been carrying on an Partnership, along with Mr.R.Veeramani, Dr.K.Subba Reddy ,Mr.K.Yusuff Basha, Mr.S.R.Asaithambi, Mr.K.Saran Teja ,Mr.K.Shoukath Ali

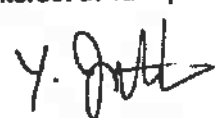
Whereas, Mr.R.Veeramani, Dr.K.Subba Reddy , Mr.K.Yusuff Basha, Mr.S.R.Asaithambi, Mr.K.Saran Teja ,Mr.K.Shoukath Ali as per the terms of Partnership deed dated 08th April 2022 have expressed to retire from the Firm with the close of business on 08th April 2022 and have given Notice of Retirement, which was accepted by the Parties of the First, Second, third, Fourth, Fifth and Sixth Part, the "Continuing Partners";

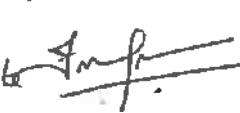
Whereas the Continuing Partners have decided to continue to carry on the Business of the Firm under the name and style "GPK Granite Industry" and therefore it has become expedient and necessary for the Continuing Partners to enter a fresh Deed of Partnership to record the terms and conditions of the reconstituted Partnership.

NOW THIS DEED OF PARTNERSHIP WITNESSETH AS FOLLOWS:-

1. That this Partnership business shall be carried on under the name and style of **M/s.GPK GRANITE INDSTRY** and the place of business shall be located at No.5, Sixth Street, Gopalapuram, Chennai 600 086, until otherwise decided by the parties hereto. This partnership is at liberty to have any number of branches as and when decided by the parties hereto.
2. That this Partnership duration of the partnership shall be determinable AT WILL.
3. From the date hereof, the said new partners shall be partners with the Existing partners subject to the terms and conditions of this partnership deed.
4. The capital of the partnership shall be Rs 6,00,000/- contributed by the parties hereto and the partners shall be entitled to share the profits and bear the losses of the partnership in proportion in the following manner.
5. That the capital of the firm shall be Rs.6.00 lakhs (Rupees Six Lakhs Only) and further capital shall be contributed by the parties hereto as and when needed and such further capital shall carry interest at 12% p.a.

1. 
2. 

3. 
4. 

5. 
6. 



6. The business of the firm shall be that of Quarrying, Sale and Export of Granites mainly from the Survey No.884/1A, 884/1B, 1333/1A, 1333/1B, 1334/1, 1334/2, 1334/4, 1326, 1334/3, 1335/1, 1335/2, 1335/3, 1336/1, 1336/2, 1336/3, 1312/2, 1313/1, 1313/2, 1314/2, 1314/1, 1317, 1312/3 to the extent of 56.83 acres at Thiruthangal Village, Sivakasi Taluk, Virudhunagar District and such other business or businesses as may be mutually decided upon by the partners from time to time. Kodavaluru Sandesh is authorized to enter into agreement with land owners including registration of lease deed of the patta lands in the name of the firm and as also to deal with the land owners in connection with the payments including Royalty and any other transactions thereof.

7. That the partners shall arrive at any business decision on mutual consent.

8. That the business of the Partnership shall be managed by all the Partners. The active partners shall have the power to enter any contracts to deal and/or to take on lease any property for quarrying and to carry on the business, to sign all bills, vouchers, letters of correspondence, and all kinds of negotiable and transferable instruments jointly together, to appoint staff, to remove, suspend, dismiss and to fix their remuneration, bonus, or allowances if any jointly.

Any of the Active / Working partner individually shall have powers to make applications in the name of the Firm, to appear, sign, and execute documents in connection with the quarrying lease / mining lease / prospecting licence for granite and / or any other minor or major minerals / ores in different state of India.

Any one of the Active / Working partner individually shall be eligible to attend, give statements, produce documents and do such necessary acts before the revenue officials, District Collectors, District Mining Departments, Director of Mines and Geology officials and any other State and Central Governments officials and to make Affidavit / Sign documents in connection with the obtaining of quarrying leases / mining leases / prospecting licenses etc. for both major minerals / mineral ores etc. on behalf of the firm.

However, the Active / Working partners shall authorize any other partner to do necessary things as may be required and appropriate in the ordinary course of business including the registration of the Lease Deed in favour of the firm for the purpose of the quarrying.

1. *Dona.V*

2. *[Signature]*

3. *Y. Juthu* - 5 *[Signature]*

4. *[Signature]*

[Signature]

9. All the Six are active partners are working partners of the firm and shall attend to the day to day business of the firm and shall be entitled to remuneration. The said partners are entitled to salary and other perks and allowances. Always the overall salary payable to them shall be within the limits prescribed under section 40(b) of the Income Tax Act, 1961. The amount drawn by the partners shall be debited to their capital/current account. A separate Supplementary Deed shall be entered into with regard to the quantum of salaries/perks and allowances payable to the active partners.

10. That if at any time, any further amounts are needed for the advancement of the business, the promissory note, bond or any other instrument executed in this regard in favor of the creditors whether an individual, bank or any other institution shall be signed by the parties of the first part, second part and the third part hereto jointly.

11. The Firm shall open a current account with any one of the Scheduled Bank or Bank and the same be operated by the Working Partners jointly. The said working partners shall have full powers to sign cheques, draw cash through signed cheques, overdraw from bank or banks, take loan from banks, secure credits from banks and sign bills of exchange and any other legal instrument or instruments, endorse hundies, appoint attorneys for and on behalf of the partnership business and discharge all or any of them or any legal proceedings against the said partnership.

In case of personal guarantee, collateral securities offered / given by a partner on behalf of the firm and the business to any bank / financial institutions or any authority the same shall be binding on all partners as per their respective shares as mentioned in Clause No.13 of the deed.

None of the partners shall borrow money in the name of or on behalf of the partnership without written consent of the other partners except obtaining credits and loans from scheduled bank or banks and financial institutions in the usual course of the business activities.

12. That proper books of accounts shall be maintained or caused to be maintained in the day-to-day course of the business by all the parties hereto and they shall be just and faithful to each other and render true and correct accounts to each other.

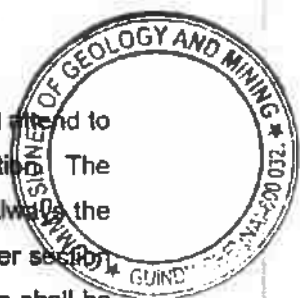
1. *[Signature]*

2. *[Signature]*

3. *[Signature]* : 5 *[Signature]*

4. *[Signature]*

6. *[Signature]*



13. That the capital investment, net profits or losses shall be in the ratio of and shared or borne by the Partners as shown hereunder:

✓ Ms. Archana Veeramani	- 27%
Mr. Kodavaluru Sandesh	- 18%
Mrs. Y. Famitha	- 18%
Mr. Arjun Asaithambi	- 18%
Mr. Damegunta Saikartik	- 9.5%
Ms. Y. Farzana	- 9.5%



The Partners shall be entitled to their share of produced materials as per the ratio above. The partners hereby mutually agree to decide on the matter of raising contract in favour of any individual or agency or firm or company.

14. The marketing of the material is suitably done in accordance with global trends and demands and with the vast experience of the Partners herein, they shall mutually discuss and authorize any of the partner to take lead in negotiating and fixing the price.

15. That in case death of any partner, the firm shall not be dissolved but shall be continued to be carried on by the surviving partner in partnership along with the legal heir or the representative of the deceased partner under same terms and conditions.

16. That this partnership firm shall not be liable for the individual debts or liabilities if any of the parties hereto.

17. That if any partner wants to retire from the partnership, he/she shall give 3 months notice of his/her desire to retire from this partnership. Upon such an event, the account of such retiring partner shall be made after adjusting the profit or loss up to the date of retirement and the same shall be paid within 3 months from the date of retirement without interest. Such retiring partner shall not have any claim over the goodwill of the Partnership business.

18. The financial year of the firm shall be that from APRIL to MARCH and at the close of every financial year of the firm during the continuance of the partnership or at such intervals as the partners may agree upon an account shall be taken of all assets and liabilities for the time being of the firm and a profit and loss account incorporating all adjustments that are usually to be made out for the outstanding receivable and payable, depreciation on assets etc., stocks held and the Balance Sheet shall be prepared.

1 *[Signature]*
2 *[Signature]*

3 *[Signature]*
4 *[Signature]*

5 *[Signature]*
6 *[Signature]*



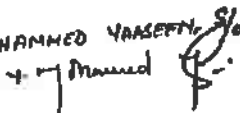
19. The roles and responsibilities of partners for the business operations will be assigned before commencement of quarry production after getting the mining lease in a joint meeting among the partners.

20. That any dispute with regard to this Partnership shall be referred to an arbitrator or arbitrators for settlement as per the Arbitration Act 1940.

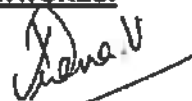
21. That in all other respect the business of the partnership shall be carried on in accordance with the provisions of the India Partnership Act, 1932, wherever necessary as amended up to date as if they have incorporated in this document to form part and parcel thereof.

IN WITNESS WHEREOF the parties hereto have set their hands and signatures on the day, month and year first above written in presence of witness:

WITNESSES :

1. NAME : Y. MOHAMMED YASERU, S/o K. YUSUF BAKAR.
SIGNATURE 
ADDRESS :
13 D, KHB Street
Srinagaruni 5-Roads
Salem- A, Tamil Nadu.

SIGNATURES:

1. 
FIRST PARTY

2. 

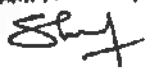
SECOND PARTY

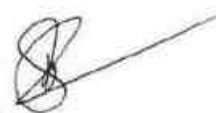
3. 
THIRD PARTY

4. 
FOURTH PARTY

5. 
FIFTH PARTY

6. 
SIXTH PARTY

2. NAME : Smt. IBRAHIM AMAN, S/o G.M. SULTMAN
SIGNATURE 
ADDRESS :
130/1, Sri Vaya Nagar
1st Cross, Pongapattam
Salem- 16, Tamil Nadu.





தமிழ்நாடு திருச்சி மாவட்டம் TAMILNADU

2727
1.3.2022

GPK Granite Industry

CK 612899

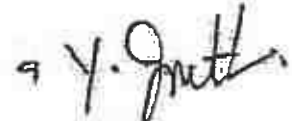
S. MANGALAM
STAMP VENDOR,
18/2, MURTHY STREET,
CHENNAI - 600 033.
LICENCE No: 9942/89
PHONE : 23710754

RECONSTITUTED PARTNERSHIP DEED

THIS DEED OF PARTNERSHIP EXECUTED AT CHENNAI ON THIS 09th March 2022
BETWEEN;

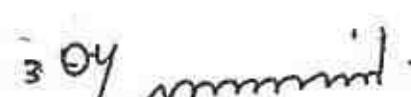
MR.R.VEERAMANI, (PARTY OF THE FIRST PART).DR.K.SUBBA REDDY, (PARTY OF THE SECOND PART).MR.K.YUSUFF BASHA, (PARTY OF THE THIRD PART) MR.S.R.ASAITHAMBI, (PARTY OF THE FOURTH PART).MR.K.SARAN TEJA, (PARTY OF THE FIFTH PART).MR.K.SHOUKATH ALI, (PARTY OF THE SIXTH PART). hereinafter referred to as party of the First Part, Second, Third, Fourth, Fifth, Sixth Part respectively and collectively known as Existing Partners

1.  K. Subba Reddy

9.  Y. Jutha

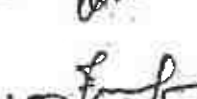
2.  K. Yusuff Basha

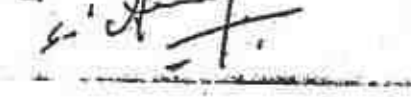
10.  S. R. Asaithambi

3.  K. Saran Teja

11.  K. Shoukath Ali

4.  R. Veeramani

12.  K. Subba Reddy

5.  K. Yusuff Basha

13.  S. R. Asaithambi



3047
9.3.2022

GPK Granite Industry

CK 612897

S. M. Mangalam
S. MANGALAM
STAMP VENDOR,
18/2, MURTHY STREET,
CHENNAI - 600 033.
LICENCE No: 9942/89
PHONE: 23710754

Ms Archana Daughter of R Veeramani aged about 44 years residing at No. 164, Alwar Shanmugam Salai, Royapettai, Chennai-600014 having PAN number AEUPA2144P one of the new joining partner hereinafter referred to as party of the Seventh

Mr. Kodavaluru Sandesh Son of K Subbareddy aged about 37 residing at Flat No. 1, Swarnamukhi Apartments, No. 104/185, St. Marys Road, Alwarpet, Chennai-600018 having PAN number B10PS494K one of the new joining partner hereinafter referred to as party of the Eighth

1. P. K. 5 K. S. S. S.

2. K. S. S. S. 6 S. S. S. S.

3. O. Y. S. S. S. 7 S. S. S. S.

4. S. S. S. S. 8 S. S. S. S.

9 Y. S. S. S.

10 S. S. S. S.

11 S. S. S. S.

12 S. S. S. S.

S. S. S. S.



तमिलनाडु TAMILNADU

3048
9.3.2022

GPK Granite Industry

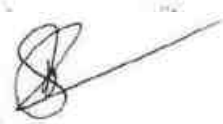
CK 612898

S. Mangalam
STAMP VENDOR,
18/2, MURTHY STREET,
CHENNAI - 600 033.
LICENCE No: 8942/89
PHONE - 23710754

Mrs.Y.Famitha Daughter of K F Yusuff Basha aged about 39 years residing at No.115/60D, Thiru Nagar, Hasthampatti, Salem-636007 having PAN number AANPF5888Q one of the new joining partner hereinafter referred to as party of the Ninth

Mr Arjun Asalthambi Son of S.R.Salthambi aged about 31 years residing at 28, Venkatraman Street, T.Nagar, Chennai 600017 having PAN number AJBPA4995L one of the new joining partner hereinafter referred to as party of the Tenth

1 	5 K Sathya	9 Y. J. J.
2 	6 S. Sathya	10 J. S.
3 S. Sathya	7 S. Sathya	11 S. Sathya
4 S. Sathya	8 S. Sathya	12 S. Sathya



The Party of Seventh, Eighth, Ninth, Tenth, Eleventh and Twelfth Part hereinafter shall be collectively known as New Partners.

Whereas by a Deed of Partnership dated 18th June 2010 the parties of the First, Second, Third, Fourth, Fifth and Sixth Part hereto have been carrying on Partnership, The business of the firm shall be that of Quarrying, Sale and Export of Granites mainly from the Survey No.884/1A, 884/1B, 1333/1A, 1333/1B, 1333/2, 1334/1, 1334/2, 1334/4, 1326, 1334/3, 1335/1, 1335/2, 1335/3, 1338/1, 1336/2, 1336/3, 1312/2, 1313/1, 1313/2, 1314/2, 1314/1, 1317, 1312/3 to the extent of 55.93 acres at Thiruthangal Village, Sivakasi Taluk, Virudhunagar District and such other business or businesses as may be mutually decided upon by the partners from time to time, under the Firm name and style of "M/s.GPK GRANITE INDUSTRY" on the terms and conditions agreed to by them and set out in the said Deed of Partnership;

AND WHEREAS on the request of the New Partners, (Parties of the Seventh, Eighth, Ninth, Tenth, Eleventh and Twelfth Part) the existing Partners have agreed to admit them as partners in the partnership and in consideration of the new partners contributing the sum of Rs1,00,000/- respectively each towards the capital of the partnership firm:-

NOW THIS DEED OF PARTNERSHIP WITNESSETH AS FOLLOWS:

1. That this Partnership business shall be carried on under the name and style of M/s.GPK GRANITE INDUSTRY and the place of business shall be located at No.5, Sixth Street, Gopalapuram, Chennai 600 086, until otherwise decided by the parties hereto. This partnership is at liberty to have any number of branches as and when decided by the parties hereto.

[illegible]

9 Y. Judd
10 f B
11 Rattle
12 F. P.



2. That this Partnership duration of the partnership shall be determinable At will.
3. From the date hereof, the said new partners shall be partners with the Existing partners subject to the terms and conditions of this partnership deed.
4. The capital of the partnership shall be Rs 16,00,000/- contributed by the parties hereto and the partners shall be entitled to share the profits and bear the losses of the partnership in proportion in the following manner.
5. That the capital of the firm shall be Rs.16.00 lakhs (Rupees Sixteen Lakhs Only) and further capital shall be contributed by the parties hereto as and when needed and such further capital shall carry interest at 12% p.a.
6. The business of the firm shall be that of Quarrying, Sale and Export of Granites mainly from the Survey No.884/1A, 884/1B, 1333/1A, 1333/1B, 1333/2, 1334/1, 1334/2, 1334/4, 1328, 1334/3, 1335/1, 1335/2, 1335/3, 1336/1, 1336/2, 1336/3, 1312/2, 1313/1, 1313/2, 1314/2, 1314/1, 1317, 1312/3 to the extent of 58.93 acres at Thiruthangal Village, Sivakasi Taluk, Virudhunagar District and such other business or businesses as may be mutually decided upon by the partners from time to time. Dr.K.Subba Reddy is authorized to enter into agreement with land owners including registration of lease deed of the patta lands in the name of the firm and as also to deal with the land owners in connection with the payments including Royalty and any other transactions thereof.
7. That the partners shall arrive at any business decision on mutual consent.
8. That the business of the Partnership shall be managed by the parties of the first part, second part and the third part hereto and they shall be active Partners. The active partners shall have the power to enter into any contracts to deal and/or to take on lease any property for quarrying and to carry on the business, to sign all bills, vouchers, letters of correspondence, and all kinds of negotiable and transferable instruments jointly together, to appoint staff, to remove, suspend, dismiss and to fix their remuneration, bonus, or allowances if any jointly.

1 [Signature] 5 K. S. S. 9 Y. J. J.

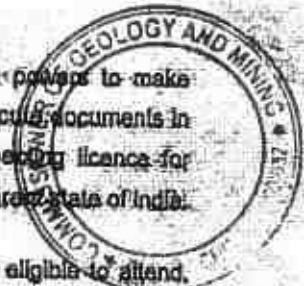
2 [Signature] 6 [Signature] 10 [Signature]

3 [Signature] 7 [Signature] 11 [Signature]

4 [Signature] 8 [Signature] 12

[Signature]

Any of the Active / Working partner individually shall have power to make applications in the name of the Firm, to appear, sign, and execute documents in connection with the quarrying lease / mining lease / prospecting licence for granite and / or any other minor or major minerals / ores in different state of India.



Any one of the Active / Working partner individually shall be eligible to attend, give statements, produce documents and do such necessary acts before the revenue officials, District Collectors, District Mining Departments, Director of Mines and Geology officials and any other State and Central Government officials and to make Affidavit / Sign documents in connection with the obtaining of quarrying leases / mining leases / prospecting licences etc. for both major minerals / mineral ores etc on behalf of the firm.

However, the Active / Working partners shall authorize any other partner to do necessary things as may be required and appropriate in the ordinary course of business including the registration of the Lease Deed in favour of the firm for the purpose of the quarrying.

9. All the twelve are active partners are working partners of the firm and shall attend to the day-to-day business of the firm and shall be entitled to remuneration. The said partners are entitled to salary and other perks and allowances. Always the overall salary payable to them shall be within the limits prescribed under section 40(b) of the Income Tax Act, 1961. The amount drawn by the partners shall be debited to their capital/current account. A separate Supplementary Deed shall be entered into with regard to the quantum of salaries/perks and allowances payable to the active partners.

10. That if at any time, any further amounts are needed for the advancement of the business, the promissory note, bond, or any other instrument executed in this regard in favor of the creditors whether an individual, bank or any other institution shall be signed by the parties of the first part, second part and the third part hereto jointly.

1 <u>[Signature]</u>	5 K S. Jy	9 Y. Jy
2 <u>[Signature]</u>	6 <u>[Signature]</u>	10 <u>[Signature]</u>
3 <u>[Signature]</u>	7 <u>[Signature]</u>	11 <u>[Signature]</u>
4 <u>[Signature]</u>	8 <u>[Signature]</u>	12 <u>[Signature]</u>

[Signature]



11. The Firm shall open a current account with any one of the Scheduled Bank or Bank and the same be operated by the Working Partners jointly. The said working partners shall have full powers to sign cheques, draw cash through signed cheques, overdraw from bank or banks, take loan from banks, secure credits from banks and sign bills of exchange and any other legal instrument or instruments, endorse hundies, appoint attorneys for and on behalf of the partnership business and discharge all or any of them or any legal proceedings against the said partnership.

In case of personal guarantee, collateral securities offered / given by a partner on behalf of the firm and the business to any bank / financial institutions or any authority the same shall be binding on all partners as per their respective shares as mentioned in Clause No.13 of the deed.

None of the partners shall borrow money in the name of or on behalf of the partnership without written consent of the other partners except obtaining credits and loans from scheduled bank or banks and financial institutions in the usual course of the business activities.

12. That proper books of accounts shall be maintained or caused to be maintained in the day-to-day course of the business by all the parties hereto and they shall be just and faithful to each other and render true and correct accounts to each other.

13. That the capital investment, net profits, or losses shall be in the ratio of and shared or borne by the Partners as shown hereunder:

Mr.R.Veeramani	- 13.50%
Dr.K.Subba Reddy	- 9.00%
Mr.K.Yusuff Basha	- 9.00%
Mr.S.R.Asalthambi	- 9.00%
Mr.K.Saran Teja	- 4.75%
Mr.K.Shoukath Ali	- 4.75%
Ms. Archana	- 13.50%
Mr.Kodavaluru Sandesh	- 9.00%
Mrs.Y.Familha	- 9.00%
Mr.Arjun Asalthambi	- 9.00%
Mr.Damegunia Saikantik	- 4.75%
Ms.Y.Farzana	- 4.75%

1 OR 5 K. S. Teja

2 K. S. Teja 6 Arjun Asalthambi

3 Y. Familha 7 Arjun Asalthambi

4 Arjun Asalthambi 8 Arjun Asalthambi

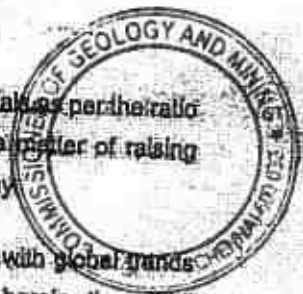
9 Y. Familha

10 Arjun Asalthambi

11 Arjun Asalthambi

12 Arjun Asalthambi

The Partners shall be entitled to their share of produced materials as per the ratio above. The partners hereby mutually agree to decide on the matter of raising contract in favour of any individual or agency or firm or company.



14. The marketing of the material is suitably done in accordance with global trends and demands and with the vast experience of the Partners herein, they shall mutually discuss and authorize any of the partner to take lead in negotiating and fixing the price.
15. That in case death of any partner, the firm shall not be dissolved but shall be continued to be carried on by the surviving partner in partnership along with the legal heir or the representative of the deceased partner under same terms and conditions.
16. That this partnership firm shall not be liable for the individual debts or liabilities of any of the parties herein.
17. That if any partner wants to retire from the partnership, he/she shall give 3 months notice of his/her desire to retire from this partnership. Upon such an event, the account of such retiring partner shall be made after adjusting the profit or loss up to the date of retirement and the same shall be paid within 3 months from the date of retirement without interest. Such retiring partner shall not have any claim over the goodwill of the Partnership business.
18. The financial year of the firm shall be that from APRIL to MARCH and at the close of every financial year of the firm during the continuance of the partnership or at such intervals as the partners may agree upon an account shall be taken of all assets and liabilities for the time being of the firm and a profit and loss account incorporating all adjustments that are usually to be made out for the outstanding receivable and payable, depreciation on assets etc., stocks held and the Balance Sheet shall be prepared.
19. That any dispute with regard to this Partnership shall be referred to an arbitrator or arbitrators for settlement as per the Arbitration Act 1940.
20. That in all other respect the business of the partnership shall be carried on in accordance with the provisions of the India Partnership Act, 1932, wherever necessary as amended up to date as if they have incorporated in this document to form part and parcel thereof.

1  K. Sita 9 Y. J. [Signature]
2  6 [Signature] 10 1 [Signature]
3 O. [Signature] 7 [Signature] 11 [Signature]
4 [Signature] 8 [Signature] 12 [Signature]

IN WITNESS WHEREOF the parties hereto have set their hands and signatures on this day, month and year first above written in presence of witness:



WITNESSES:

1. NAME:
SIGNATURE
ADDRESS:

2. NAME:
SIGNATURE
ADDRESS:

SIGNATURES:

1.

FIRST PARTY

2.

SECOND PARTY

3.

THIRD PARTY

4.

FOURTH PARTY

5. K. Setzer

FIFTH PARTY

6.

SIXTH PARTY

7.

SEVENTH PARTY

8.

EIGHT PART

9.

NINTH PART

10.

TENTH PART

11.

ELEVENTH PART

12.

TWELVEH PART



தமிழ்நாடு தமில்நாடு TAMILNADU

CN 485042



4381

6.4.2022

GPK Granite Industry

S. Mangala
S. MANGALAI
STAMP VENDOR
18/2, MURTHY STREET
CHENNAI - 600 033.
LICENCE No: 9942/89
PHONE - 2371075.

NOTICE OF RETIREMENT FROM PARTNERSHIP

1. We, MR.R.VEERAMANI, Son of Late S.P.Rangaswami, Hindu aged about 79 years residing at 164, Lloyds Road, Chennai 600 014 and will be known as the Managing Partner (PARTY OF THE FIRST PART).
2. DR.K.SUBBA REDDY, Son of Late K.Radhakrishna Reddy, Hindu aged about 71 years, residing at 74, 1st Main Road, Raja Annamalaipuram, Chennai 600 028 (PARTY OF THE SECOND PART).
3. MR.K.YUSUFF BASHA, Son of Late S.P.Kadhar Mohideen, Muslim, aged about 64 years, residing at 13-D, Sathyanarayana Street, Swarnapuri, Salem 636 004 (PARTY OF THE THIRD PART).
4. MR.S.R.ASAITHAMBI, Son of Late S.P.Rangaswami, Hindu aged about 73 years having office at 78, Cathedral Road, Chennai 600 086 (PARTY OF THE FOURTH PART).

[Signature]

[Signature]

[Signature]

[Signature]

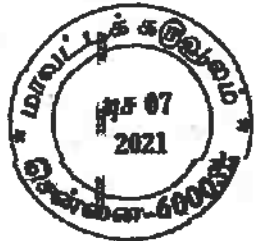
S. K. Sathya

[Signature]



தமிழ்நாடு தமில்நாடு TAMILNADU

CN 485040



4382
6.4.2022

GPK Granite Industry

S. Mangala
S. MANGALA
STAMP VENDOR
18/2, MURTHY STREET
CHENNAI - 600 033.
LICENCE No: 9942/8
PHONE: 2371075

5. MR.K.SARAN TEJA, Son of Dr.K.Subba Reddy aged about 39 years residing at 74, Main Road, Raja Annamalaipuram, Chennai 600 028 represented by his power agent Dr.K.Subba Reddy (PARTY OF THE FIFTH PART).
6. MR.K.SHOUKATH ALI, Son of Late S.P.Kadhar Mohideen, Muslim aged about 57 years, residing at 13-B, Sathyanarayana Street, Swarnapuri, Salem 636 004 (PARTY OF THE SIXTH PART).

partners of the Partnership Firm, M/s.GPK GRANITE INDUSTRY, having its registered office at No.5, Sixth Street, Gopalapuram, Chennai 600086, do hereby serve this retirement Notice to the remaining partners of the said firm, namely

Ms.Archana Daughter of R Veeramani aged about 44 years residing at No.164, Avvai Shanmugam Salai, Royapettai, Chennai 600014

[Handwritten signatures and initials]
R. Veeramani
K. Saranya
K. Saranya
304
5 K. Saranya
6



தமிழ்நாடு தமில்நாடு TAMILNADU

CN 485041



4383

6.4.2022

GPK Granite Industry

S. Mangala

S. MANGALA

STAMP VENDO

18/2, MURTHY STRE

CHENNAI - 600 033

LICENCE No: 9942/R

Mr. Kodavaluru Sandesh Son of K Subbareddy aged about 37 residing at PHONE: 1237107

Swarnamukhi Apartments, No.104/185, St. Marys Road, Alwarpet, Chennai-600018

Mrs. Y. Famitha Daughter of K F Yusuff Basha aged about 39 years residing at No. 115/60D, Thiru Nagar, Hasthampatti, Salem-636007

Mr. Arjun Asaithambi, Son of Sri. S.R. Asaithambi, Hindu aged about 31 years having office at 28, Venkatraman Street, T. Nagar, Chennai 600 017

Mr. Damegunta Saikartik Son of Subburami Reddy aged about 44 residing at Plot No. 74, 1st Main Road, Raja Annamalaipuram, Chennai 600028

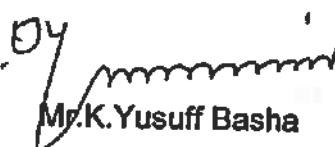
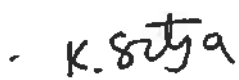
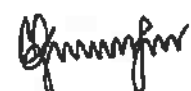
Mrs. Y. Farzana Daughter of K F Yusuff Basha aged about 32 years residing at No. 91/318, Triplicane High Road, Inside Big Mosque Compound, Tiruvallikeni, Chennai-600005

[Handwritten signatures and marks]

S. K. S. 4 *[Signature]* S. K. S. 5 *[Signature]* S. K. S. 6 *[Signature]*

As we are unable to concentrate on the affairs of the said firm M/s GPK GRANITE INDUSTRY, we feel it is just and proper to retire from the partnership with the close of business on 08th April 2022 and to allow the other six partners, namely, Ms.Archana, Mr.Kodavaluru Sandesh, Mrs.Y.Famitha, Mr.Arjun Asaithambi, Mr.Damegunta Salkartik, Ms.Y.Farzana to continue the business in accordance with their expediency, with effect from 09th April 2022.

Signed and delivered at Chennai on the 09th day of April 2022. By the following Retiring Partners

1	 Mr.R.Veeramani	2	 Dr.K.Subba Reddy
3	 Mr.K.Yusuff Basha	4	 Mr.S.R.Asaithambi
5	 Mr.K.Saran Teja	6	 Mr.K.Shoukath Ali





இந்திய அரசாங்கம்
Unique Identification Authority of India
Government of India

பதிவு அடையாளம் / Enrollment No. : 2017/49498/00396

12/12/2015
To
Sandesh Reddy
சந்தேஷ் ரெட்டி
S/O: Subba Reddy
FLAT NO 1 SWARNAMUKHI APTS
104/185 ST MARYS ROAD
ALWARPET
Teynampet, Chennai
Tamil Nadu - 600018
9840772639



KH603587216FT

60358721



உங்கள் ஆதார் எண் / Your Aadhaar No. :

3025 6069 3984

ஆதார் - சாதாரண மனிதனின் அதிகாரம்



இந்திய அரசாங்கம்
Government of India



சந்தேஷ் ரெட்டி
Sandesh Reddy

பிறப்பு தேதி : DOB 20/04/1985
ஆண் / Male



3025 6069 3984

ஆதார் - சாதாரண மனிதனின் அதிகாரம்

ANNEXURE



Government of India



தகவல்

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

INFORMATION

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

- ஆதார் நாடு முழுவதிலும் செல்லுபடியாகும்.
- வருங்காலத்தில் அரசு மற்றும் அரசு சாரா சேவைகளை பயன்படுத்திக் கொள்ள ஆதார் உதவிகரமாக இருக்கும்.

- Aadhaar is valid throughout the country.
- Aadhaar will be helpful in availing Government and Non-Government services in future.



இந்திய அரசாங்கம்
Unique Identification Authority of India

முகவரி : தந்தை / தாய் பெயர்
கல்பா ரெட்டி
பிள்ளை : மகன் / மகளின் பெயர்
அடையாளம்
பெயர் செய்வதீபன் ரெட்டி அடையாளம்
தேவனம்பேட்டை, தேவனம்பேட்டை, சென்னை
தமிழ் நாடு : இந்தியா

Address: S/O: Subba Reddy,
FLAT NO 1 SWARNAMUKHI
APTS, 104/185 ST MARYS
ROAD, ALWARPET,
Teynampet, Chennai,
Teynampet, Tamil Nadu,
600018

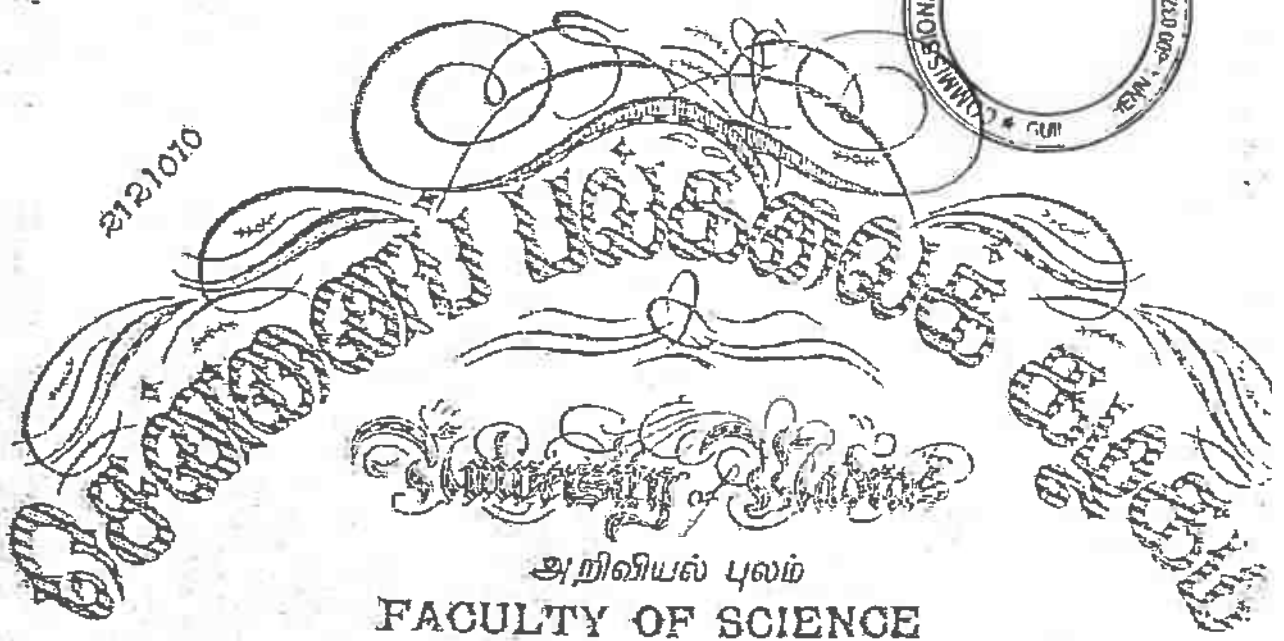
3025 6069 3984



1847
1847 302 1847

help@uidai.gov.in

www.uidai.gov.in



சென்னைப் பல்கலைக் கழகப் பேரவை..... 1994

ஆண்டு..... ஏப்ரல்..... மாதம் நடந்த..... கூடுதலியல்..... தேர்வுகள்.....

..... விப. தங்குபாள்..... என்பவர்..... முதல்..... வகுப்பில்

இதர சி. இயற்றா என்று தக்க தேர்வாளர்கள் சான்றுத்ததன் அறிவியல் நிறைஞர்

என்னும் பட்டத்தை அவருக்குப் பல்கலைக் கழக இயக்கவையின் வழங்கியது.

The Senate of the UNIVERSITY OF MADRAS hereby makes known that..... *P. Thangaraju*.....

has been admitted to the Degree of Master of Science, he/she

having been certified by duly appointed Examiners to be qualified

to receive the same in..... *Geology*..... and was placed in the

..... *First*..... Class, at the Examination held in April 1994



Given under the seal of the University

செயலகம், Chepauk
சென்னை, Madras
25-01-1994

பதிவு
75

P. T. Thangaraju
தலைவர்
சென்னை



GOVERNMENT OF TAMIL NADU
MINISTRY OF LABOUR AND EMPLOYMENT
OFFICE OF THE DIRECTOR GENERAL OF MINES

Certificate of Practical experience granted by the Manager to a Manager's
Surveyor's / Foreman's / Overman's / Sirdar's / Mate's / Shot-firer's / Blower's Certificate of
competency (Restricted) examination under the Mineral Mines Regulation 1947.

I, T. VENKATARAJAGOPALAN being the Mines Agent of M/S. LIMINAPH
CHEMICALS, RAJAPALAYAM OF LIMESTONE PRODUCTS (Thenmalai
Limestone Mine) do hereby certify that Thiru P. THANGARAJU, son of
S. PERIASAMY (whose signature is appended) worked as a Geologist in the above mine
from 02.05.1994 to 30.12.1999. During his term of work aforesaid, he has obtained practical
experience as detailed overleaf. The duties connected with his work have involved continuous
attendance at the mine and have been efficiently performed by him.

I believe him to be of good character and a fit and proper candidate to be examined for
Certificate of Competency.

(Signature with date and official Seal)
T. VENKATARAJAGOPALAN

Mines Agent:

F.O. : ARUKANGULAM

District : TIRUNELVELI

State : TAMIL NADU

(Signature of Candidate)

(State name of Mineral) : LIMESTONE



S.No	Particulars of practical Experience (a)	Place of Experience (b)	Period of practical experience(c)		Total Experience (c)		
			From	To	Yr.	Month	Day
01	As a Trainee in Drilling Operation	Sri S. Mechanised Opencast working	02.05.1994	15.07.1995	01	02	14
02	As a Trainee in Blasting Operation		16.07.1995	10.12.1996	01	04	25
03	Exploration		11.12.1996	31.01.1998	01	01	20
04	Surveying		11.02.1998	25.06.1998	00	04	25
05	Sampling Quality control and		20.06.1998	20.07.1998	00	01	24
06	Supervision in HEMM Operation		21.07.1999	30.12.1999	00	05	10
GRAND TOTAL					02	07	28
{Five Years Seven Months Twenty Eight Days Only}							

AVERAGE MONTHLY OUTPUT (D) / AVERAGE DAILY EMPLOYMENT (E) DURING THE ABOVE PERIOD IS GIVEN BELOW.

In below ground working	In open - cast working	In all
Nil	35	35
Nil		

OF TREMULAI LIME STONE MINES

[Signature]
Signature of Candidate

[Signature]
Signature of Manager with (FAC-136-005)
[T.VENKATARAJA GOPALAN]

Name of the Mine

Instructions :-

01. State clearly the nature of duties.
02. State whether on surface in open cast workings or below ground.
03. State specifically the period spent by the applicant in different mining operations, or surveying operations, as the case may be. If the employment has not been such as to involve continuous attendance of the applicant at the mine, it must be stated how many days a week he was employed at the mine, whether underground or above ground and in what capacity.
04. Delete if the mine is a Metalliferous mine.
05. Delete if the mine is a Coal mine.

09° 28' 32.6455''N

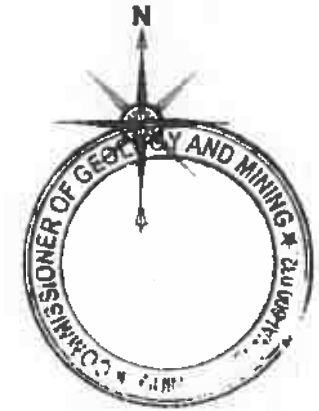


PLATE NO: I

DATE OF SURVEY : 02.03.2022

APPLICANT:

Tvl.GPK GRANITE INDUSTRY,
11, STATE BANK OF INDIA,
OFFICERS COLONY,
UJAINI STREET, AYANAVARAM,
CHENNAI-600 023.

LOCATION OF QUARRY:

S.F.No : 884/1B, 1326, 1333/1A, 1B,
2, 1334/1(P), 2(P), 3, 4,
EXTENT : 10.00.0 Ha,
VILLAGE : THIRUTHANGAL,
TALUK : SIVAKASI,
DISTRICT : VIRUDHUNAGAR.

INDEX

Q. L.A. AREA : ●

TOPO SHEET NO. : 58 G/15

LATITUDE : 09° 28' 22.6960''N to 09° 28' 32.6455''N

LONGITUDE : 77° 47' 32.7729''E to 77° 47' 49.5472''E

LOCATION PLAN

SCALE 1:24,00,000

PREPARED BY:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE BEST OF MY
KNOWLEDGE BASED UPON THE LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT


Dr. P. THANGARAJU, M.Sc., Ph.D.,
QUALIFIED PERSON

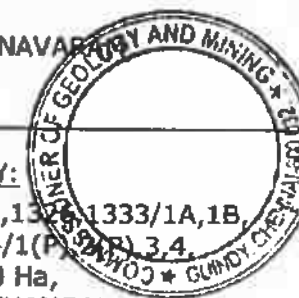
09° 28' 22.6960''N

PLATE NO:I-A

DATE OF SURVEY : 02.03.2022

APPLICANT:

Tvi.GPK GRANITE INDUSTRY,
11,STATE BANK OF INDIA,
OFFICERS COLONY,
UJIAINI STREET,AYANAVAR
CHENNAI-600 023.



LOCATION OF QUARRY:

S.F.No : 884/1B,1333/1A,1B,
2,1334/1(P),3,4,
EXTENT : 10.00.0 Ha,
VILLAGE : THIRUTHANGAL,
TALUK : SIVAKASI,
DISTRICT : VIRUDHUNAGAR.

INDEX

CONVENTIONAL SYMBOLS	
Express highway, with toll with bridge, with detour signs	
Roads, metalled, according to importance	
Moors, double cartway, according to importance	
Unmetalled road, Cart track, Foot-track, wide path, Foot-path	
Streams, with bank in bed, unconfined, Canal	
Dam, reservoir or sea-loch, permanent, Vast	
River dry with water channel, with island & rocks, Total river	
Submerged rocks, Shoal, Swamps, Marshes	
Wells, hand, unwell, Tube-well, Boring, Tanks, permanent, dry	
Embankments, road or rail, bank, Brown ground	
Railways, broad gauge, double, single with station, under canopy	
Railways, other gauges, double, single with station, in	
Telegraph line or wireway, H.R. Cables with tower	
Contours with spot-heights, Muddy slopes, Cliffs	
Sand dunes, (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13) (14) (15) (16) (17) (18) (19) (20)	
Towns or Villages, inhabited, detached, Fort	
Fort, permanent, temporary, Tower, Antiquities	
Temples, Chhatra, Church, Mosque, Idgah, Tomb, Graves	
Lighthouses, Lightships, Buoys, beacons, unlighted, firebeacon	
Lake, Vast, on bank, Grass, Scrub	
Palms, palms, other, Forest, Canebrake, Bamboo, Other trees	
Areas, cultivated, wooded, Surveyed, non	
Boundary, international	
State, unmetalled, unmetalled	
State, unmetalled, unmetalled	
Boundary, surveyed, unmetalled	
Height, in, unmetalled, station, point, approximate	
Sanctuary, zoological, botanical, canal	
Post, office, Telegraph office, Overhead line	
Rail, house of inspection, longhouse, Cross, house, Police station, W	
Camping ground, Forest, reserved, protected	
Spaced, names, administrative, locality or town	
Hospital, Dispensary, Veterinary, Hospital, Dispensary	
Airplane, Helipad, Tourist, etc	
Power line, with pylons, surveyed, with pylon, unsurveyed	

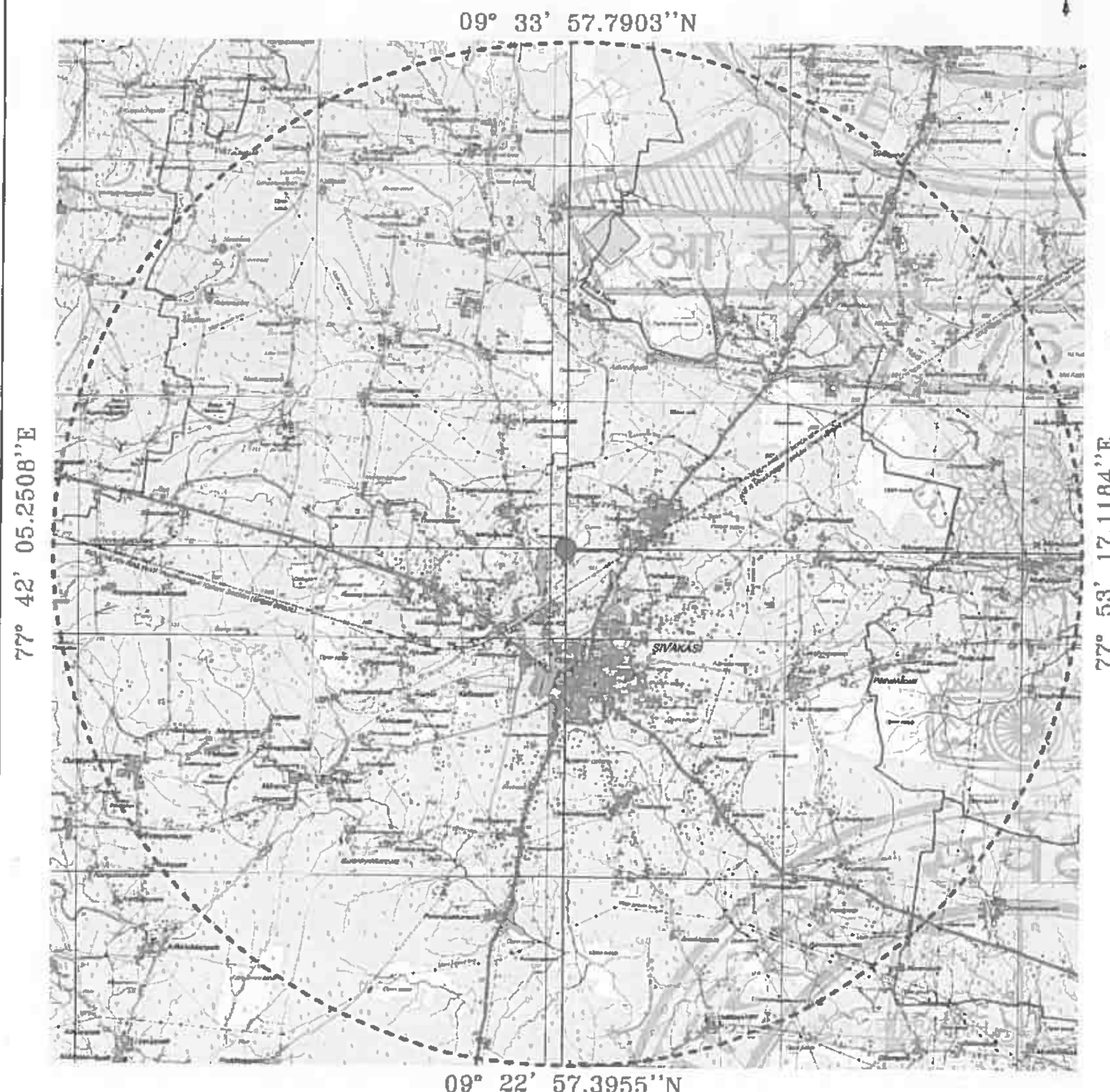
**TOPO SKETCH OF QUARRY
LEASE APPLIED AREA FOR
10KM RADIUS**

SCALE- 1:100000

PREPARED BY:

THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE BEST OF MY
KNOWLEDGE BASED UPON THE LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT

Dr.P.Thangaraju
Dr.P.THANGARAJU, M.Sc., Ph.D.,
QUALIFIED PERSON



TOPO SHEET NO. : 58 G/15

LATITUDE : 09° 28' 22.6960''N to 09° 28' 32.6455''N

LONGITUDE : 77° 47' 32.7729''E to 77° 47' 49.5472''E

10KM RADIUS :

Q.L.APPLIED AREA :

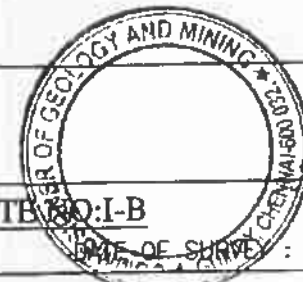


PLATE NO: I-B

DATE OF SURVEY : 02.03.2022

APPLICANT:
Tvi.GPK GRANITE INDUSTRY,
11, STATE BANK OF INDIA,
OFFICERS COLONY,
UJIAINI STREET, AYANAVARAM,
CHENNAI-600 023.

LOCATION OF QUARRY:

S.F.No : 884/1B, 1326, 1333/1A, 1B,
2, 1334/1(P), 2(P), 3, 4,
EXTENT : 10.00.0 Ha,
VILLAGE : THIRUTHANGAL,
TALUK : SIVAKASI,
DISTRICT : VIRUDHUNAGAR.

INDEX

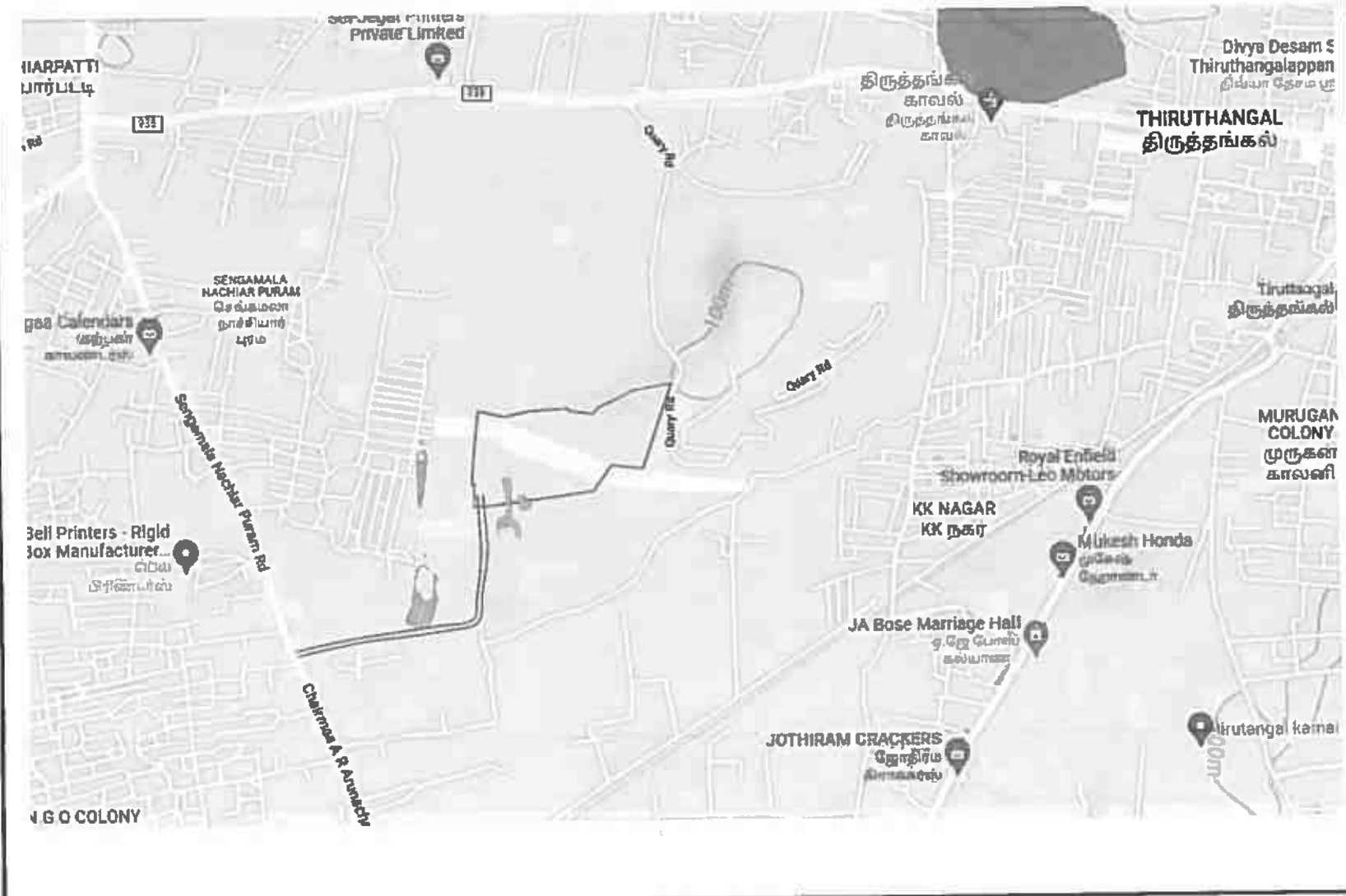
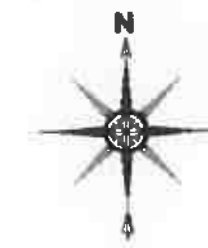
Q.L.APPLIED AREA	
MAJOR ROAD	
VILLAGE ROAD	
APPROACH ROAD	

ROUTE MAP

Not To Scale

PREPARED BY :
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE BEST OF MY
KNOWLEDGE BASED UPON THE LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT

Dr. P. THANGARAJ, M.Sc, Ph.D.,
QUALIFIED PERSON



LANDUSE PATTERN	
DESCRIPTION	PERCENTAGE
ROADS	(05%)
HABITATION\INFRASTRUCTURE	(65%)
TREES	(10%)
BARREN LAND	(10%)
QUARRY PIT\DUMP	(10%)



1Km Radius : 

500m Radius : 

Q.L.Applied Area : 

TOPO SHEET NO. : 58 G/15

LATITUDE : 09° 28' 22.6960"N to 09° 28' 32.6455"N

LONGITUDE : 77° 47' 32.7729"E to 77° 47' 49.5472"E

APPLICANT:
Tvl.GPK GRANITE INDUSTRY,
11,STATE BANK OF INDIA,
OFFICERS COLONY,
UJIAINI STREET,AYANAVARAM,
CHENNAI-600 023.

LOCATION OF QUARRY:
S.F.No : 884/1B,1326,1333/1A,1B,
2,1334/1(P),2(P),3,4,
EXTENT : 10.00.0 Ha,
VILLAGE : THIRUTHANGAL,
TALUK : SIVAKASI,
DISTRICT : VIRUDHUNAGAR.

INDEX

APPROACH ROAD	
WIND DIRECTION	
TREES	
HOUSE	
QUARRY PIT	
BARREN LAND	
STOCKING BLOCKS	
DUMP	
INFRASTRUCTURE	
ROAD	
ODAI	
RAILWAY TRACK	
TANK	

**ENVIRONMENTAL AND
LANDUSE PLAN FOR 1Km RADIUS**

SCALE- 1:10,000

PREPARED BY :
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE BEST OF MY
KNOWLEDGE BASED UPON THE LEASE MAP
AUTHENTICATED BY STATE GOVERNMENT

Dr.P.THANGARAJU,M.Sc,Ph.D.,
QUALIFIED PERSON

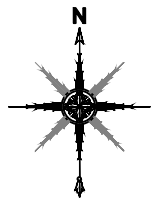


PLATE NO.I-D

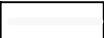
DATE OF SURVEY:02.03.2022

APPLICANT:
Tvi.GPK GRANITE INDUSTRY,
11,STATE BANK OF INDIA,
OFFICERS COLONY,
UJIAINI STREET,AYANAVARAM,
CHENNAI-600 023.

LOCATION OF QUARRY:
S.F.No : 884/1B,1326,1333/1A,1B,
2,1334/1(P),2(P),3,4,
EXTENT : 10.00.0 Ha,
VILLAGE : THIRUTHANGAL,
TALUK : SIVAKASI,
DISTRICT : VIRUDHUNAGAR.

INDEX

Q.L.APPLIED BOUNDARY 

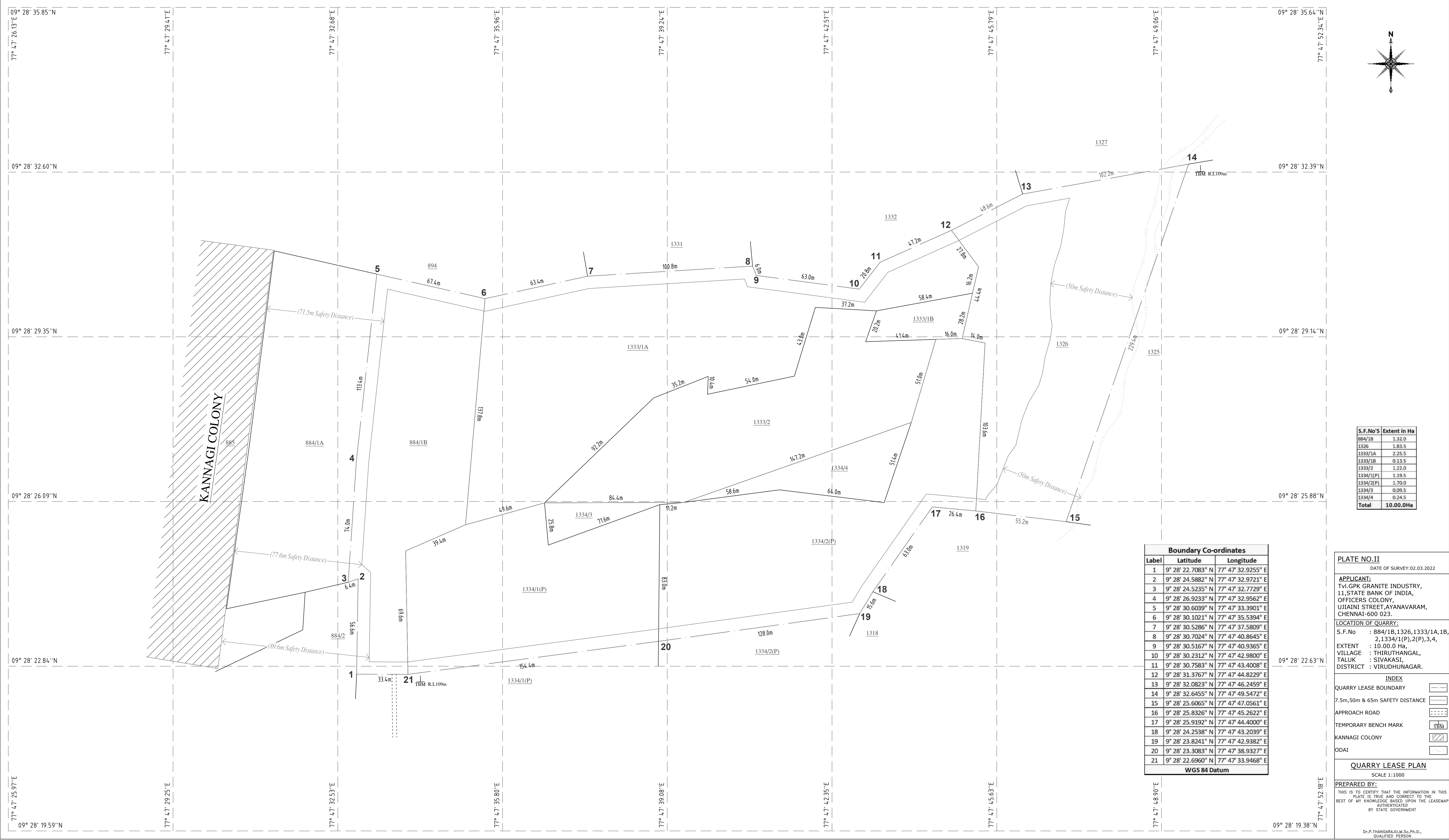
500m RADIUS 

500m RADIUS SATELLITE IMAGE

SCALE 1:5000

PREPARED BY:
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
PLATE IS TRUE AND CORRECT TO THE
BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP
AUTHENTICATED
BY STATE GOVERNMENT

Dr.P.THANGARAJU,M.Sc,Ph.D.,
QUALIFIED PERSON



S.F.No's	Extent in Ha
884/1B	1.32.0
1326	1.83.5
1333/1A	2.25.5
1333/1B	0.13.5
1333/2	1.22.0
1334/1(P)	1.19.5
1334/2(P)	1.70.0
1334/3	0.09.5
1334/4	0.24.5
Total	10.00.0Ha

Boundary Co-ordinates		
Label	Latitude	Longitude
1	9° 28' 22.7083" N	77° 47' 32.9255" E
2	9° 28' 24.5882" N	77° 47' 32.9721" E
3	9° 28' 24.5235" N	77° 47' 32.7729" E
4	9° 28' 26.9233" N	77° 47' 32.9562" E
5	9° 28' 30.6039" N	77° 47' 33.3901" E
6	9° 28' 30.1021" N	77° 47' 35.5394" E
7	9° 28' 30.5286" N	77° 47' 37.5809" E
8	9° 28' 30.7024" N	77° 47' 40.8645" E
9	9° 28' 30.5167" N	77° 47' 40.9365" E
10	9° 28' 30.2312" N	77° 47' 42.9800" E
11	9° 28' 30.7583" N	77° 47' 43.4008" E
12	9° 28' 31.3767" N	77° 47' 44.8229" E
13	9° 28' 32.0823" N	77° 47' 46.2459" E
14	9° 28' 32.6455" N	77° 47' 49.5472" E
15	9° 28' 25.6065" N	77° 47' 47.0561" E
16	9° 28' 25.8326" N	77° 47' 45.2622" E
17	9° 28' 25.9192" N	77° 47' 44.4000" E
18	9° 28' 24.2538" N	77° 47' 43.2039" E
19	9° 28' 23.8241" N	77° 47' 42.9382" E
20	9° 28' 23.3083" N	77° 47' 38.9327" E
21	9° 28' 22.6960" N	77° 47' 33.9468" E
WGS 84 Datum		

PLATE NO.II

DATE OF SURVEY:02.03.2022

APPLICANT:
TVI.GPK GRANITE INDUSTRY,
11, STATE BANK OF INDIA,
OFFICERS COLONY,
UJAINI STREET, AYANAVARAM,
CHENNAI-600 023.

LOCATION OF QUARRY:
S.F.No : 884/1B,1326,1333/1A,1B,
2,1334/1(P),2(P),3,4,
EXTENT : 10.00.0 Ha,
VILLAGE : THIRUTHANGAL,
TALUK : SIVAKASI,
DISTRICT : VIRUDHUNAGAR.

INDEX
QUARRY LEASE BOUNDARY
7.5m,50m & 65m SAFETY DISTANCE
APPROACH ROAD
TEMPORARY BENCH MARK
KANNAGI COLONY
ODAI

QUARRY LEASE PLAN
SCALE 1:1000

PREPARED BY:
THIS IS TO CERTIFY THAT THE INFORMATION IN THIS
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BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP
AUTHENTICATED
BY STATE GOVERNMENT

Dr.P.THANGARAJU,M.Sc,Ph.D.,
QUALIFIED PERSON

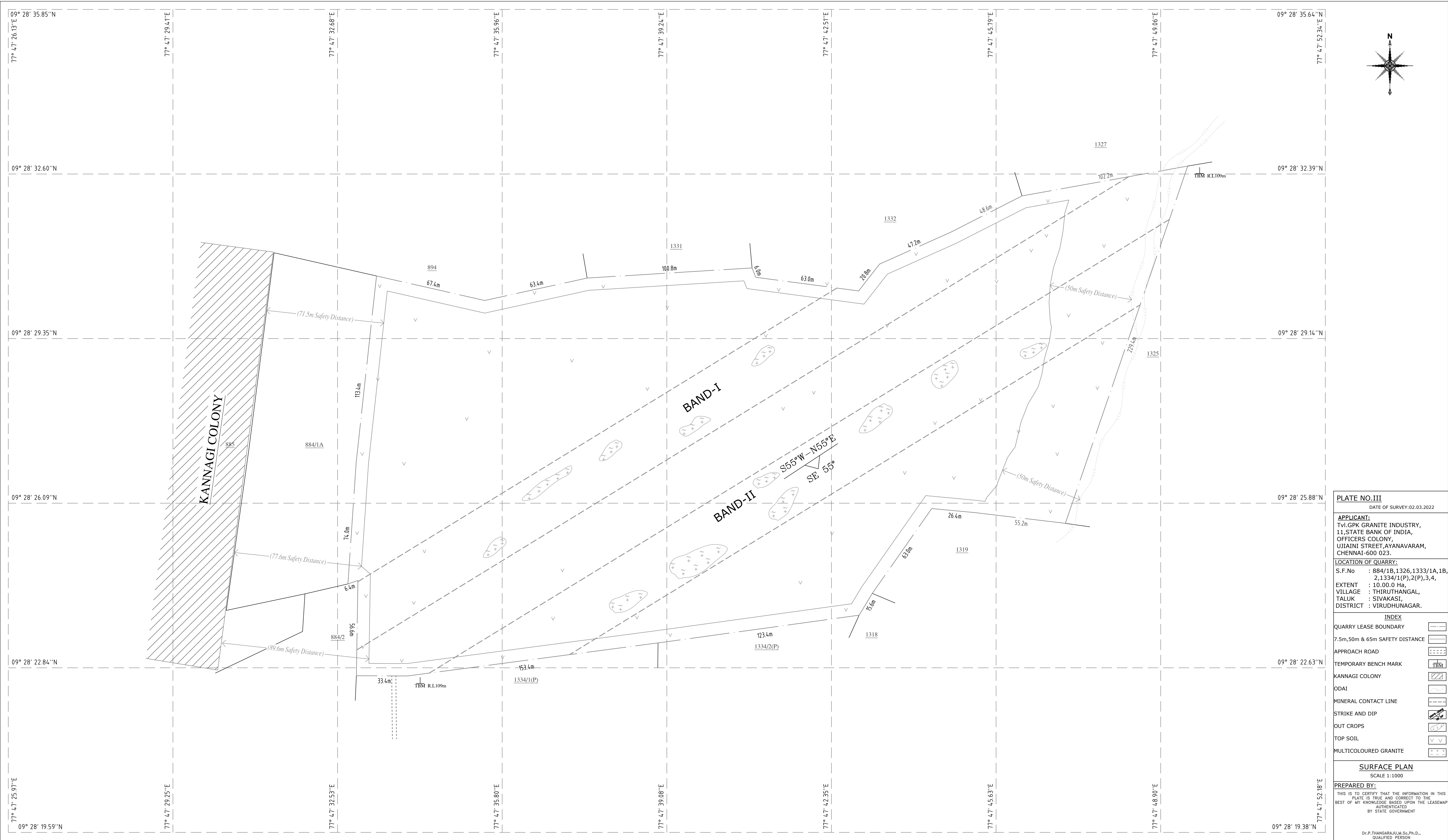


PLATE NO.III

DATE OF SURVEY:02.03.2022

APPLICANT:
TVI.GPK GRANITE INDUSTRY,
11,STATE BANK OF INDIA,
OFFICERS COLONY,
UJAINI STREET,AYANAVARAM,
CHENNAI-600 023.

LOCATION OF QUARRY:
S.F.No : 884/1B,1326,1333/1A,1B,
2,1334/1(P),2(P),3,4,
EXTENT : 10,00.0 Ha,
VILLAGE : THIRUTHANGAL,
TALUK : SIVAKASI,
DISTRICT : VIRUDHUNAGAR.

INDEX

QUARRY LEASE BOUNDARY

7.5m,50m & 65m SAFETY DISTANCE

APPROACH ROAD

TEMPORARY BENCH MARK

KANNAGI COLONY

ODAI

MINERAL CONTACT LINE

STRIKE AND DIP

OUT CROPS

TOP SOIL

MULTICOLOURED GRANITE

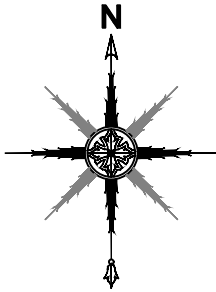
SURFACE PLAN

SCALE 1:1000

PREPARED BY:

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BY STATE GOVERNMENT

Dr.P.THANGARAJU,M.Sc,Ph.D.,
QUALIFIED PERSON



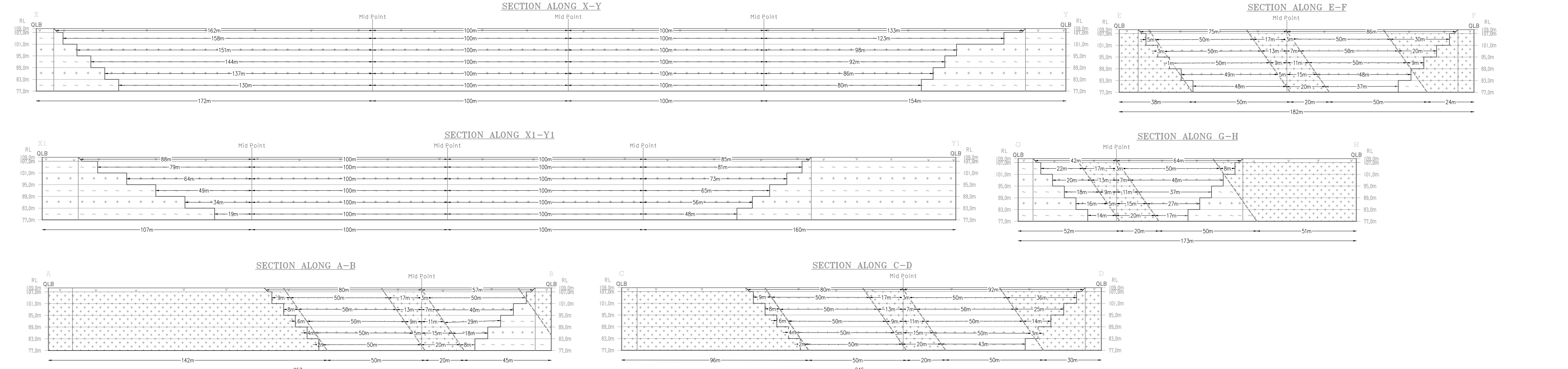
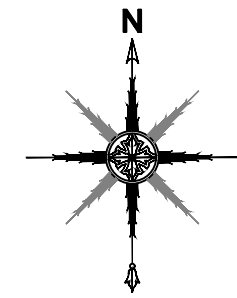
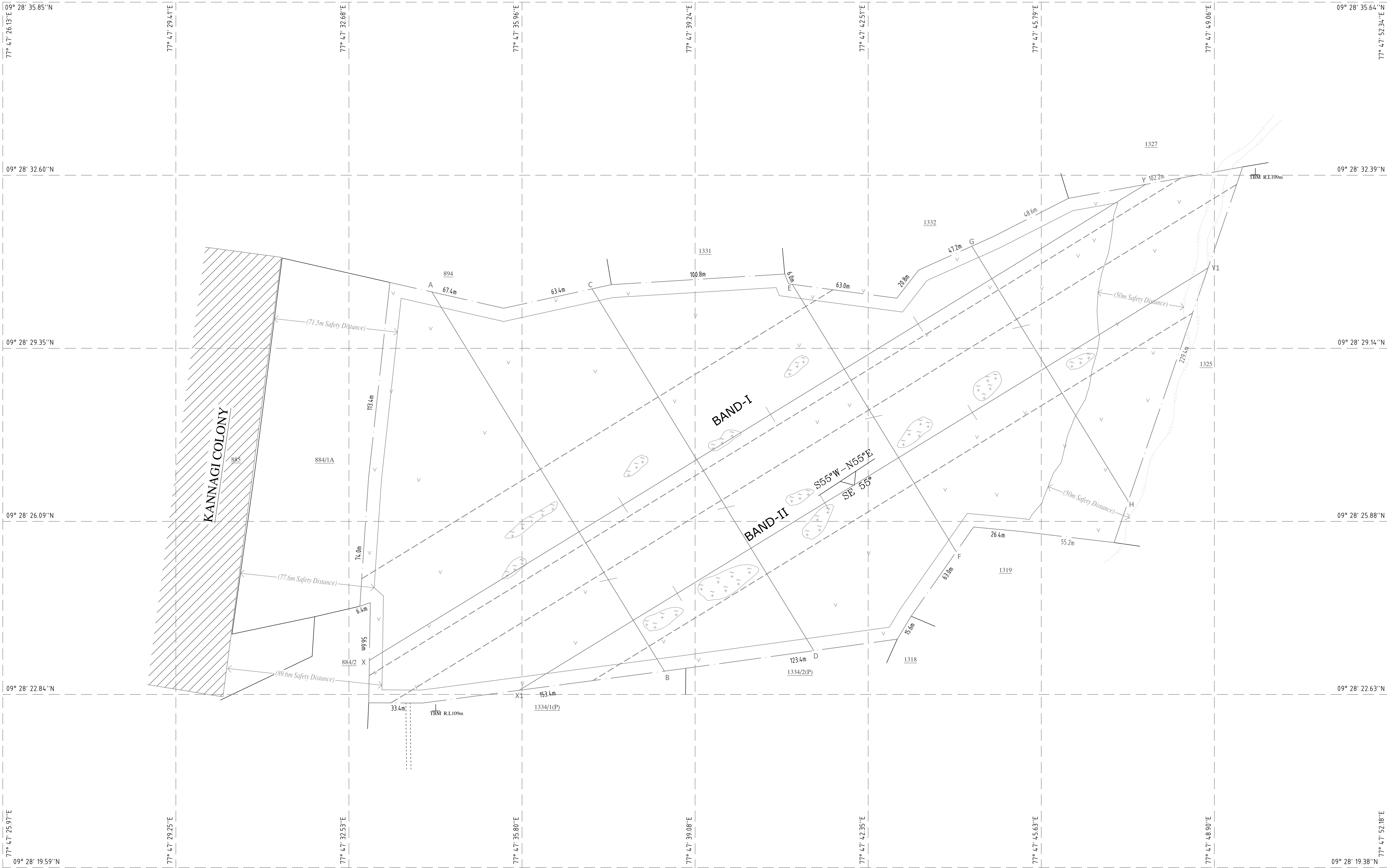


PLATE NO.IV

DATE OF SURVEY:02.03.2022

APPLICANT:

Tvi.GPK GRANITE INDUSTRY,
11, STATE BANK OF INDIA,
OFFICERS COLONY,
UJAINI STREET,AYANAVARAM,
CHENNAI-600 023.

LOCATION OF QUARRY:

S.F.No : 884/1B,1326,1333/1A,1B,
2,1334/1(P),2(P),3,4,
EXTENT : 10.00.0 Ha,
VILLAGE : THIRUTHANGAL,
TALUK : SIVAKASI,
DISTRICT : VIRUDHUNAGAR.

INDEX

QUARRY LEASE APPLIED BOUNDARY

7.5m,50m & 65m SAFETY DISTANCE

APPROACH ROAD

TEMPORARY BENCH MARK

KANNAGI COLONY

ODAI

MINERAL CONTACT LINE

STRIKE AND DIP

OUT CROPS

TOP SOIL

MULTICOLOURED GRANITE

BIOTITE GNEISS

GEOLOGICAL PLAN
AND SECTIONS

SCALE 1:1000

PREPARED BY:

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PLATE IS TRUE AND CORRECT TO THE
BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP
AUTHENTICATED
BY STATE GOVERNMENT

Dr.P.THANGARAJU,M.Sc.Ph.D.,
QUALIFIED PERSON

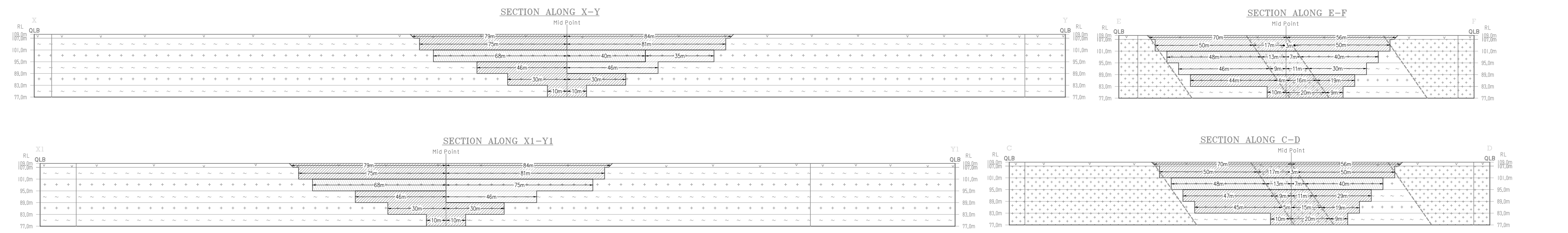
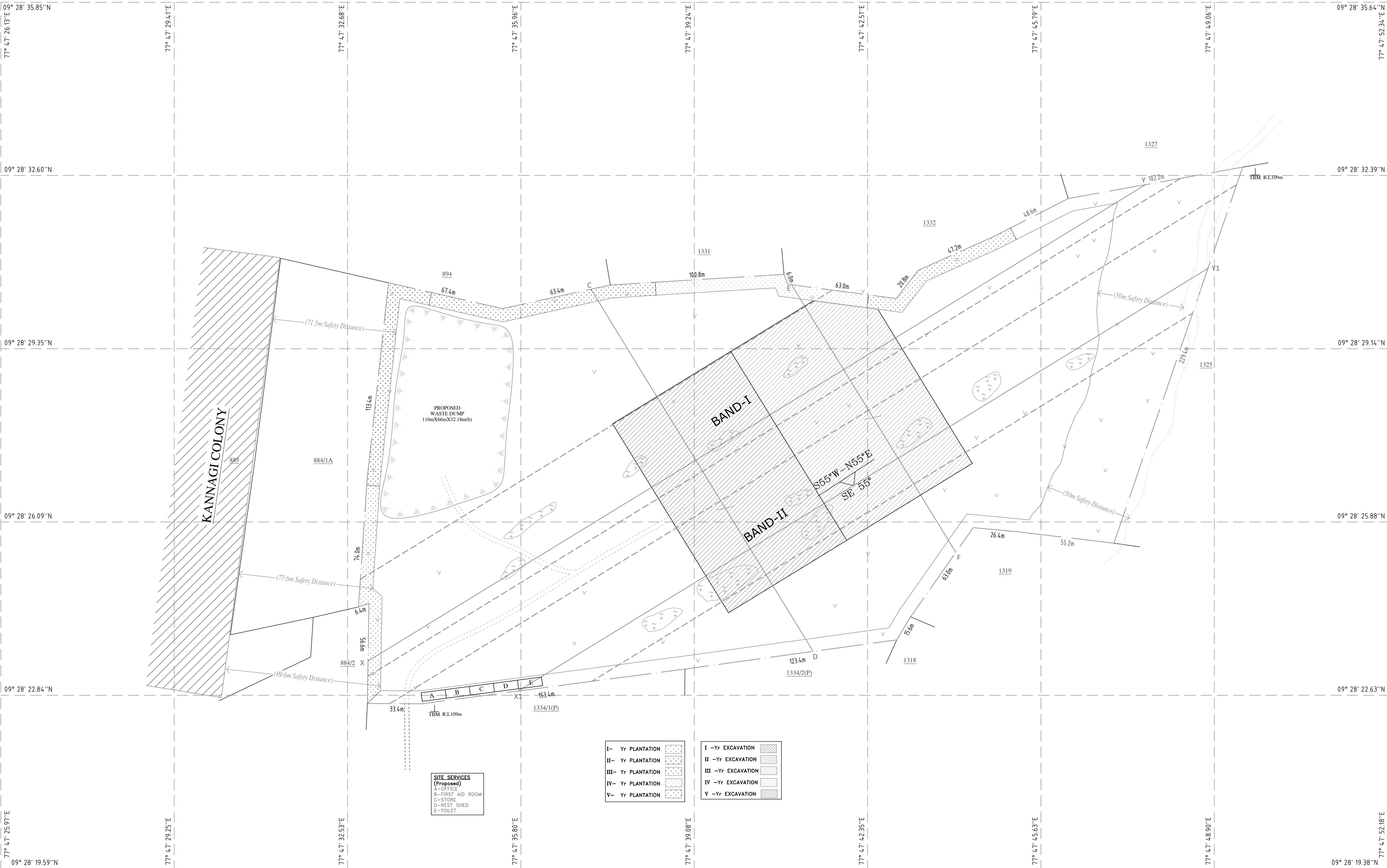
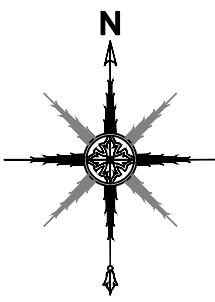


PLATE NO.V

DATE OF SURVEY:02.03.2022

APPLICANT:

Tvi.GPK GRANITE INDUSTRY,
11,STATE BANK OF INDIA,
OFFICERS COLONY,
UJJAINI STREET,AYANAVARAM,
CHENNAI-600 023.

LOCATION OF QUARRY:

S.F.No : 884/1B,1326,1333/1A,1B,
2,1334/1(P),2(P),3,4,
EXTENT : 10.00.0 Ha,
VILLAGE : THIRUTHANGAL,
TALUK : SIVAKASI,
DISTRICT : VIRUDHUNAGAR.

INDEX

QUARRY LEASE APPLIED BOUNDARY

7.5m,50m & 65m SAFETY DISTANCE

APPROACH ROAD

TEMPORARY BENCH MARK

KANNAGI COLONY

ODAI

MINERAL CONTACT LINE

STRIKE AND DIP

OUT CROPS

TOP SOIL

MULTICOLOURED GRANITE

BIOTITE GNEISS

DUMP

QUARRY ROAD

YEARWISE DEVELOPMENT
AND PRODUCTION PLAN
AND SECTIONS

SCALE 1:1000

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BEST OF MY KNOWLEDGE BASED UPON THE LEASEMAP
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BY STATE GOVERNMENT

Dr.P.THANGARAJU,M.Sc,Ph.D.,
QUALIFIED PERSON

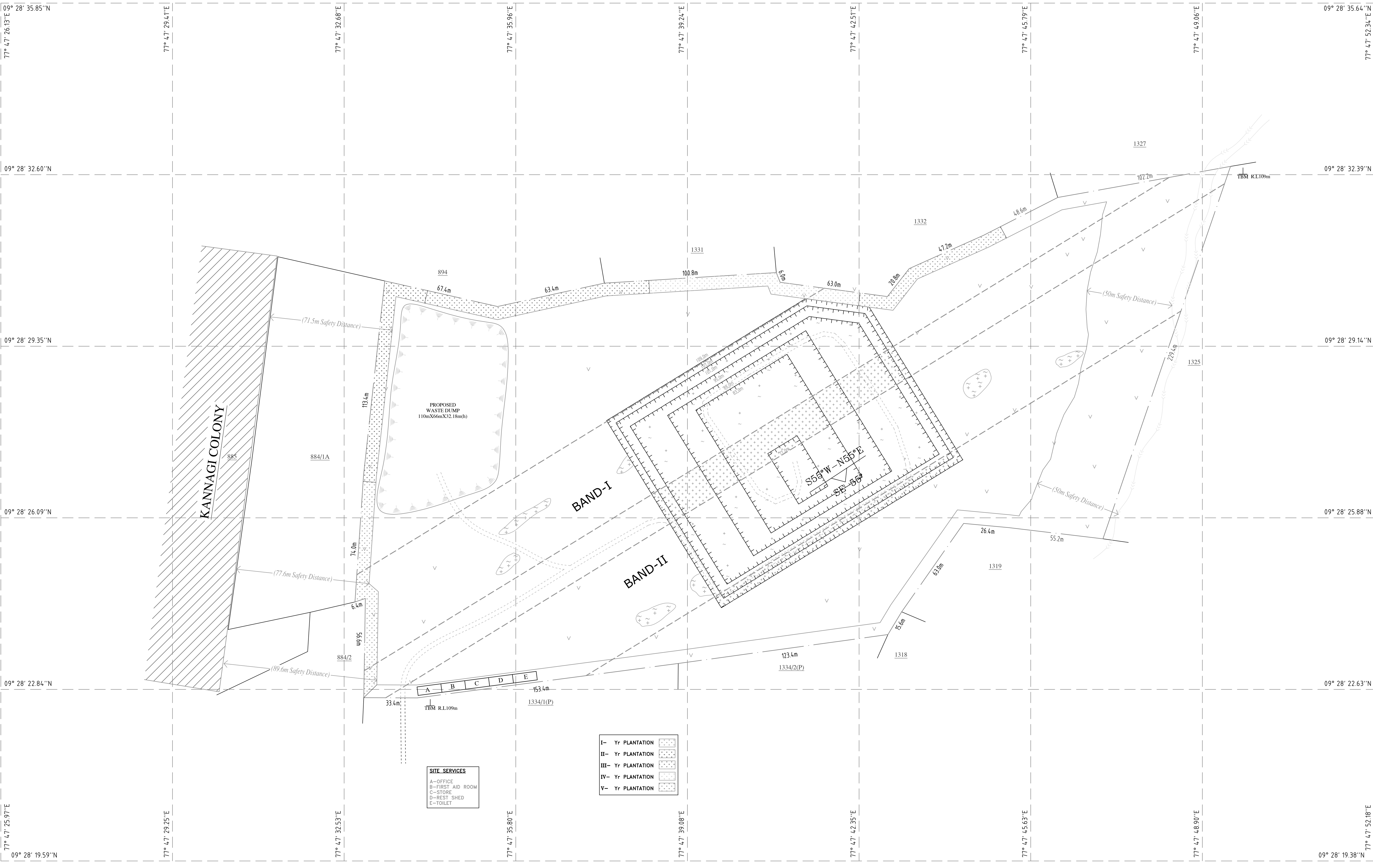
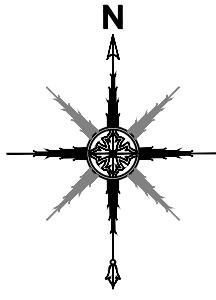


PLATE NO.VI

DATE OF SURVEY:02.03.2022

APPLICANT:
TVI.GPK GRANITE INDUSTRY,
11,STATE BANK OF INDIA,
OFFICERS COLONY,
UJAINI STREET,AYANAVARAM,
CHENNAI-600 023.

LOCATION OF QUARRY:
S.F.No : 884/1B,1326,1333/1A,1B,
2,1334/1(P),2(P),3,4,
EXTENT : 10.00.0 Ha,
VILLAGE : THIRUTHANGAL,
TALUK : SIVAKASI,
DISTRICT : VIRUDHUNAGAR.

INDEX

QUARRY LEASE APPLIED BOUNDARY
7.5m,50m & 65m SAFETY DISTANCE
APPROACH ROAD
TEMPORARY BENCH MARK
KANNAGI COLONY
ODAI
MINERAL CONTACT LINE
STRIKE AND DIP
OUT CROPS
TOP SOIL
MULTICOLOURED GRANITE
BIOTITE GNEISS
DUMP
QUARRY ROAD
QUARRY PIT

QUARRY LAYOUT AND
AFFORESTATION
PLAN
SCALE 1:1000

PREPARED BY:
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BY STATE GOVERNMENT

Dr.P.THANGARAJU,M.Sc,Ph.D.,
QUALIFIED PERSON

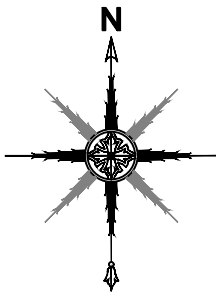
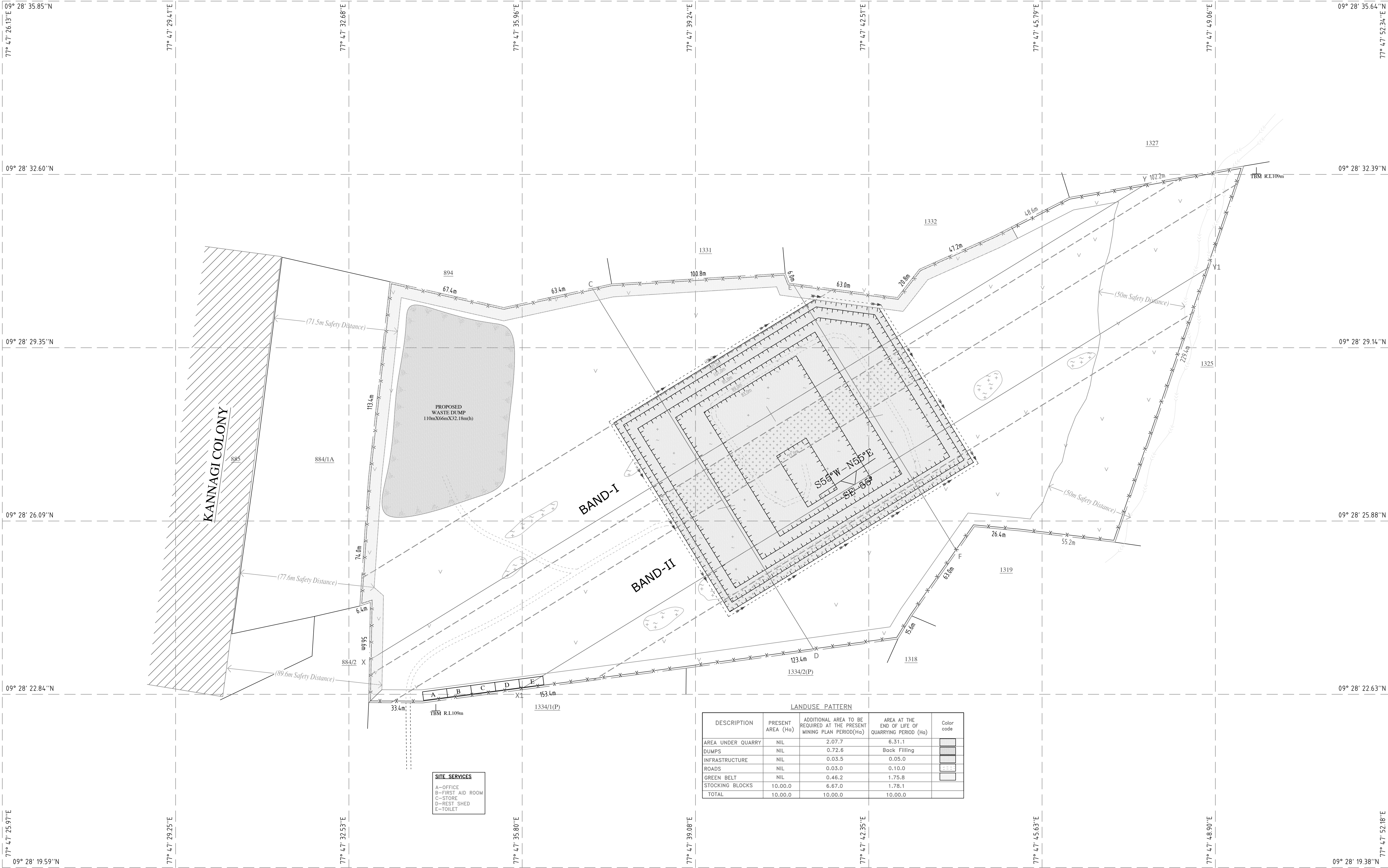


PLATE NO.VII

DATE OF SURVEY:02.03.2022

APPLICANT:
Tvi.GPK GRANITE INDUSTRY,
11,STATE BANK OF INDIA,
OFFICERS COLONY,
UJAINI STREET,AYANAVARAM,
CHENNAI-600 023.

LOCATION OF QUARRY:
S.F.No : 884/1B,1326,1333/1A,1B,
2,1334/1(P),2(P),3,4,
EXTENT : 10.00.0 Ha,
VILLAGE : THIRUTHANGAL,
TALUK : SIVAKASI,
DISTRICT : VIRUDHUNAGAR.

INDEX

- QUARRY LEASE APPLIED BOUNDARY
- 7.5m,50m & 65m SAFETY DISTANCE
- APPROACH ROAD
- TEMPORARY BENCH MARK
- KANNAGI COLONY
- ODAI
- MINERAL CONTACT LINE
- STRIKE AND DIP
- OUT CROPS
- TOP SOIL
- MULTICOLOURED GRANITE
- BIOTITE GNEISS
- DUMP
- QUARRY ROAD
- QUARRY PIT
- BUND/FENCING
- PROPOSED GARLAND DRAIN

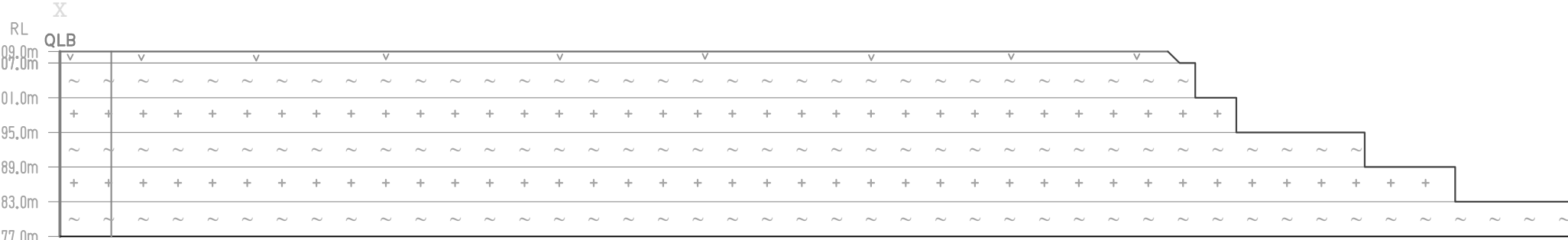
PROGRESSIVE QUARRY
CLOSURE PLAN
AND SECTIONS
SCALE 1:1000

PREPARED BY:
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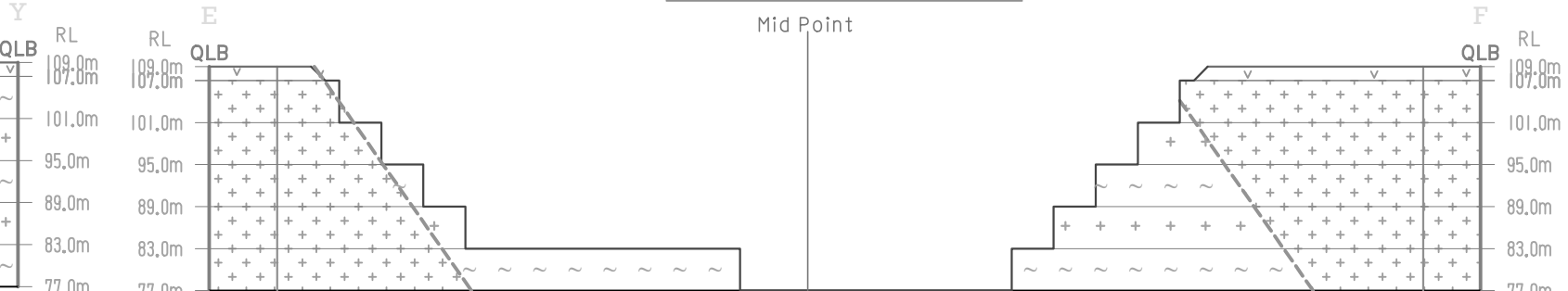
Dr.P.THANGARAJU M.Sc.Ph.D.,
QUALIFIED PERSON

LANDUSE PATTERN				
DESCRIPTION	PRESENT AREA (Ha)	ADDITIONAL AREA TO BE REQUIRED AT THE PRESENT MINING PLAN PERIOD(Ha)	AREA AT THE END OF LIFE OF QUARRYING PERIOD (Ha)	Color code
AREA UNDER QUARRY	NIL	2.07.7	6.31.1	
DUMPS	NIL	0.72.6	Back Filling	
INFRASTRUCTURE	NIL	0.03.5	0.05.0	
ROADS	NIL	0.03.0	0.10.0	
GREEN BELT	NIL	0.46.2	1.75.8	
STOCKING BLOCKS	10.00.0	6.67.0	1.78.1	
TOTAL	10.00.0	10.00.0	10.00.0	

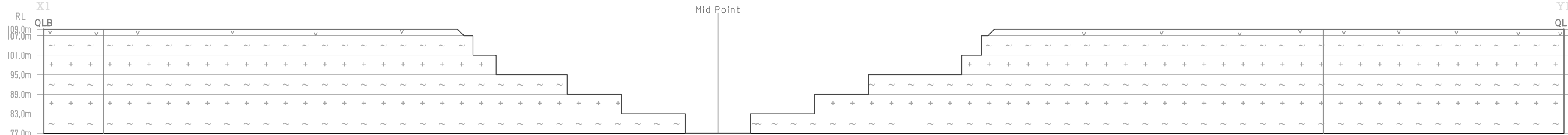
SECTION ALONG X-Y



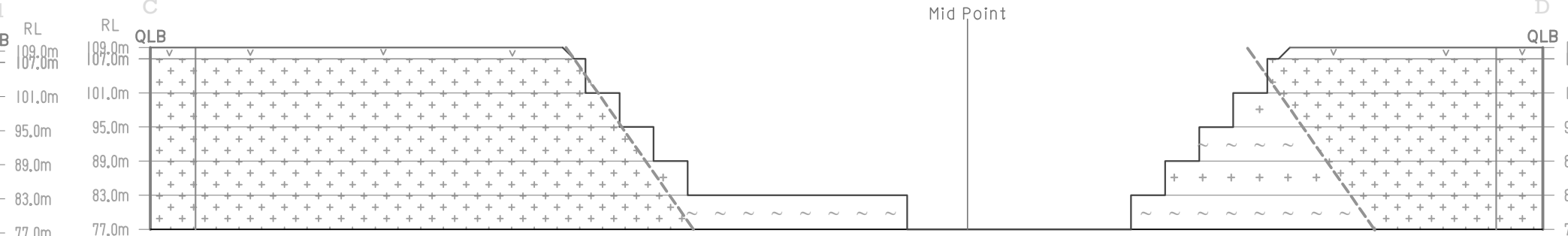
SECTION ALONG E-F



SECTION ALONG X1-Y1



SECTION ALONG C-D



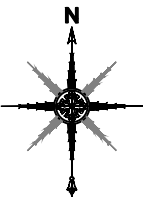
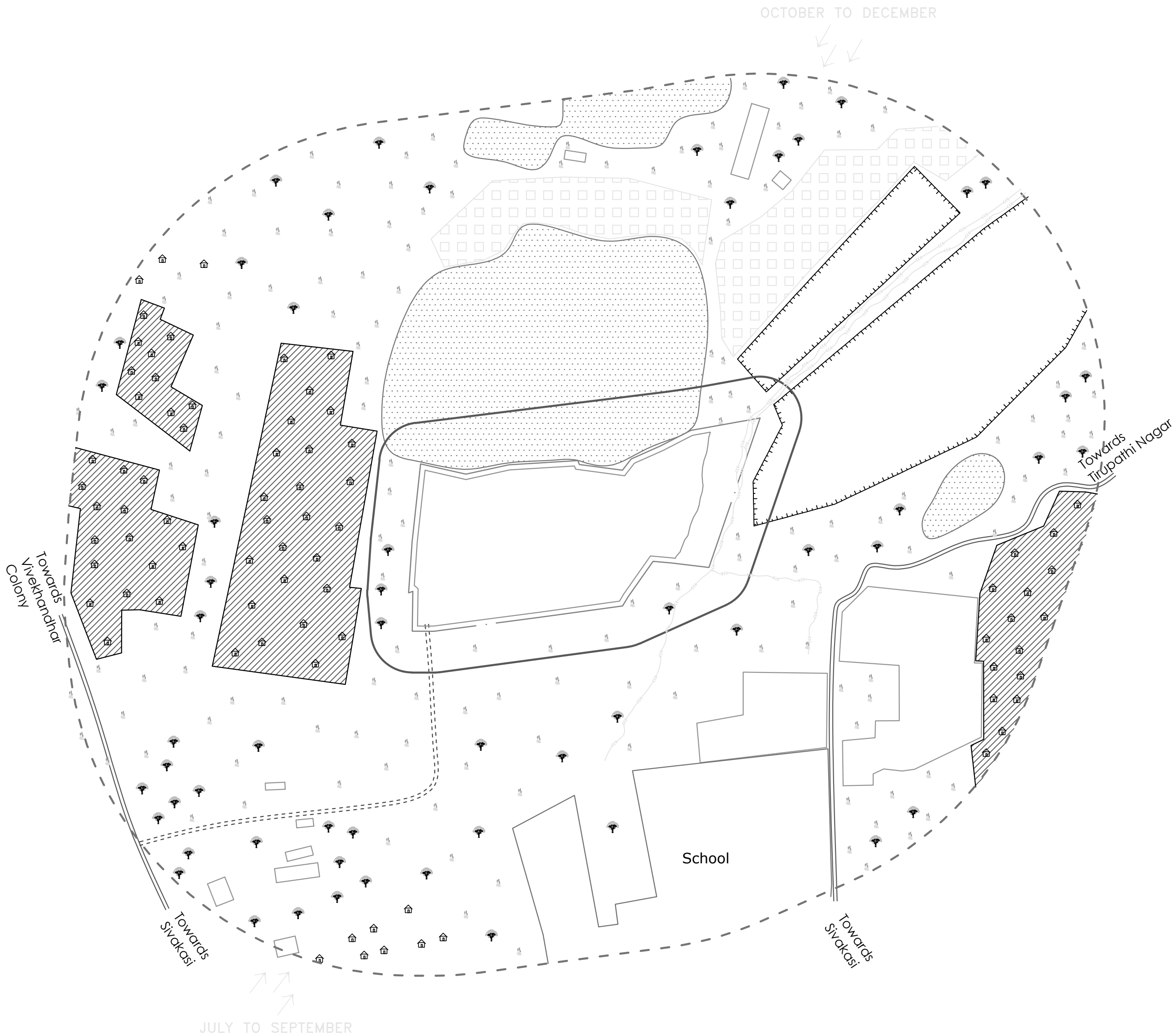


PLATE NO.VIII
DATE OF SURVEY:02.03.2022

APPLICANT:
Tvl.GPK GRANITE INDUSTRY,
11,STATE BANK OF INDIA,
OFFICERS COLONY,
UJIAINI STREET,AYANAVARAM,
CHENNAI-600 023.

LOCATION OF QUARRY:
S.F.No : 884/1B,1326,1333/1A,1B,
2,1334/1(P),2(P),3,4,
EXTENT : 10.00.0 Ha,
VILLAGE : THIRUTHANGAL,
TALUK : SIVAKASI,
DISTRICT : VIRUDHUNAGAR.

INDEX

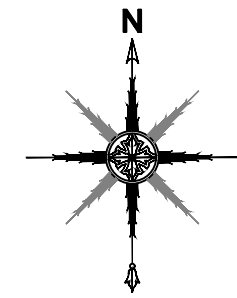
- Q.L BOUNDARY
- SAFETY DISTANCE
- MAJOR ROAD
- 500m RADIUS
- 60m RADIUS
- APPROACH ROAD
- WIND DIRECTION
- TREES
- HOUSE
- QUARRY PIT
- BARREN LAND
- STOCKING BLOCKS
- DUMP
- INFRASTRUCTURE
- ODAI

ENVIRONMENTAL PLAN

SCALE 1:5000

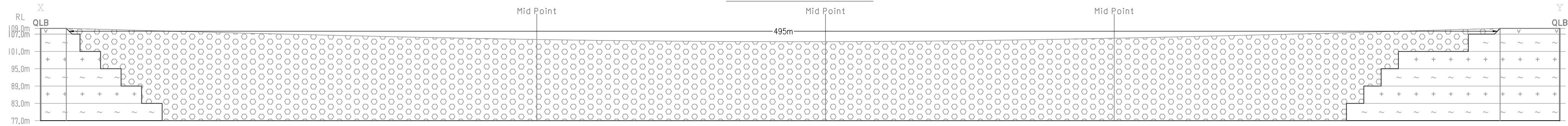
PREPARED BY:
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Dr.P.THANGARAJU,M.Sc,Ph.D.,
QUALIFIED PERSON

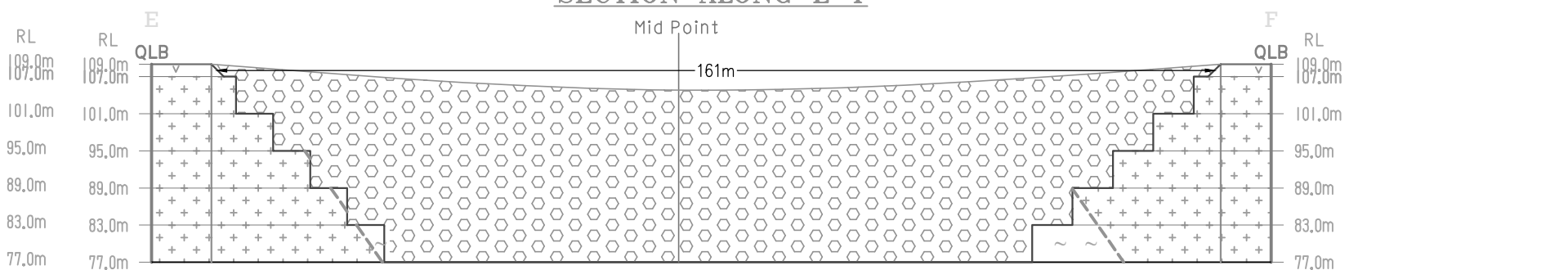


SITE SERVICES
A-OFFICE
B-FIRST AID ROOM
C-STORE
D-REST SHED
E-TOILET

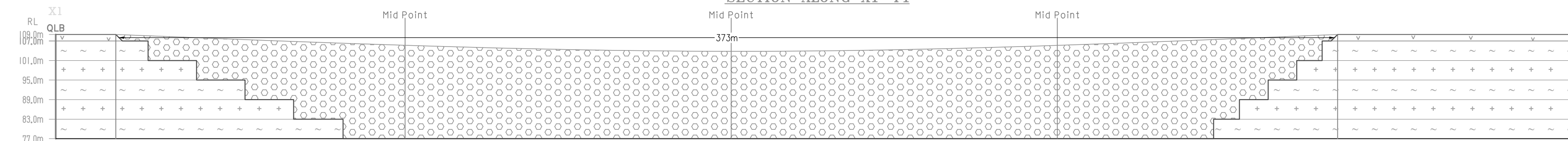
SECTION ALONG X-Y



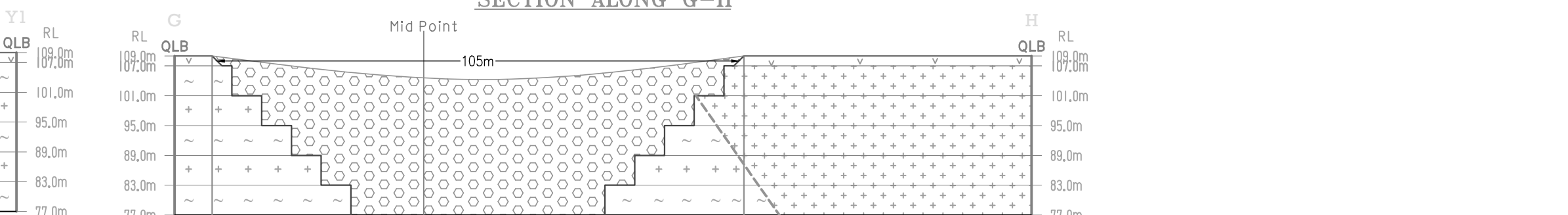
SECTION ALONG E-F



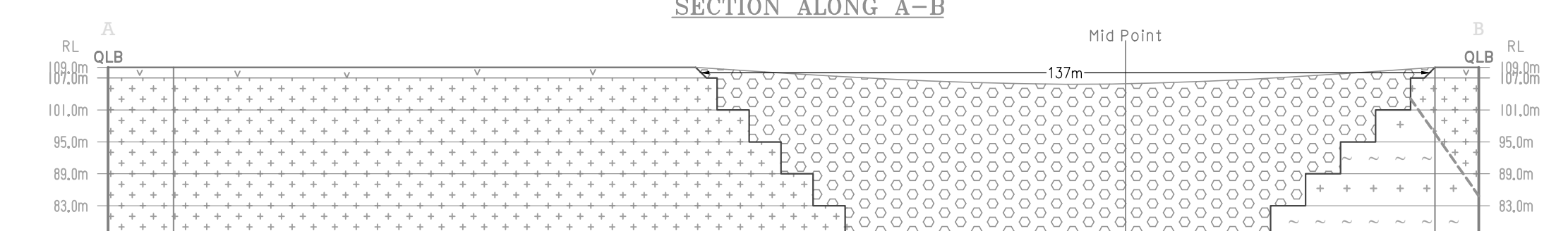
SECTION ALONG X1-Y1



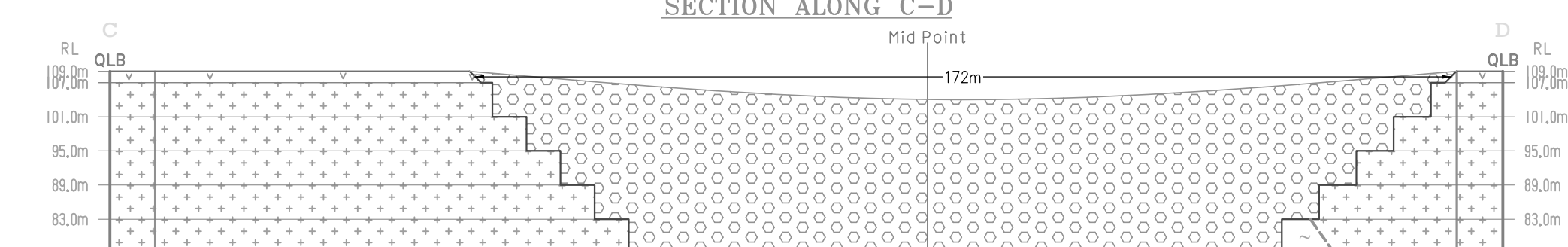
SECTION ALONG G-H



SECTION ALONG A-B



SECTION ALONG C-D



- I-Vyr PLANTATION
- II-Vyr PLANTATION
- III-Vyr PLANTATION
- IV-Vyr PLANTATION

ULTIMATE PIT LIMIT
496x172m(33m(4))

PLATE NO.IX

DATE OF SURVEY:02.03.2022

APPLICANT:

Tvi.GPK GRANITE INDUSTRY,
11,STATE BANK OF INDIA,
OFFICERS COLONY,
UJAINI STREET,AYANAVARAM,
CHENNAI-600 023.

LOCATION OF QUARRY:

S.F.No : 884/1B,1326,1333/1A,1B,
2,1334/1(P),2(P),3,4,
EXTENT : 10.00.0 Ha,
VILLAGE : THIRUTHANGAL,
TALUK : SIVAKASI,
DISTRICT : VIRUDHUNAGAR.

INDEX

QUARRY LEASE APPLIED BOUNDARY

7.5m,50m & 65m SAFETY DISTANCE

APPROACH ROAD

TEMPORARY BENCH MARK

KANNAGI COLONY

ODAI

MINERAL CONTACT LINE

STRIKE AND DIP

OUT CROPS

MULTICOLOURED GRANITE

BIOTITE GNEISS

PROPOSED BACK FILLING

QUARRY ROAD

QUARRY PIT

BUND/FENCING

CONCEPTUAL PLAN AND SECTIONS

SCALE 1:1000

PREPARED BY:

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BY STATE GOVERNMENT

Dr.P.THANGARAJU,M.Sc,Ph.D.,
QUALIFIED PERSON

ANNEXURE-VII
VAO CERTIFICATE

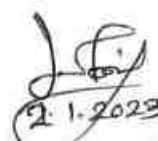
Tvl. GPK GRANITE INDUSTRY, Multicolour Granite quarry in the S.F.Nos. 884/1B, 1326, 1333/1A, 1333/1B, 1333/2, 1334/1(P), 1334/2(P), 1334/3 & 1334/4 over an extent of 10.00.0ha. in Thiruthangal Village, Sivakasi Taluk, Virudhunagar District.

GENERAL VIEW OF THE APPLIED LEASE AREA



For Tvl. GPK GRANITE INDUSTRY,


(Deponent)


2.1.2023
கிராம நிர்வாக அலுவலர் (VAO) அலுவலன்
திருத்தாங்கல் கிராமம்
சிவகாசி வட்டம்

செய்த

உருத்தரன் லாபம். அந்தரன் உருத்தரன் 16 சித்திரம்
சித்திரம். லாபம் 721 - அந்தரன் 884 - 18 1.32.0 லாபம்
லாபம் 722 அந்தரன் 1326 - 1.835, 1333-1A
2-25.5, 1333-18 0.135, 1333-2 1.22.0, 1334-1
2.57.5, 1334-2 2.27.5. அந்தரன் லாபம் அந்தரன்
சித்திரம் காந்தரன் லாபம் அந்தரன், லாபம் அந்தரன்
அந்தரன் லாபம். லாபம் அந்தரன் 500 லாபம் அந்தரன்
அந்தரன் லாபம். அந்தரன் லாபம். 80 லாபம் அந்தரன்
அந்தரன் லாபம் அந்தரன் லாபம். அந்தரன் லாபம் அந்தரன்


2.1.2023
சித்திரம் அந்தரன் அந்தரன்
சித்திரம் அந்தரன் அந்தரன்
சித்திரம் அந்தரன் அந்தரன்

ANNEXURE-VIII
ENUMERATION STUDY REPORT

ENUMERATION STUDY REPORT OF M/s. GPK GRANITE INDUSTRY

**OVER AN EXTENT OF 10.00.0 Ha IN
S.F.No.884/1B,1326,1333/1A,1B,2,1334/1(P),2(P),3,4 THIRUTHANGAL
VILLAGE, SIVAKASI TALUK, VIRUDHUNAGAR DISTRICT.**

S.NO	TYPE OF STRUCTURE	AGE OF BUILDING	PURPOSES OF BUILDING	NO OF OCCUPANTS	SOURCE OF WORK	OWNERSHIP OF THE BUILDING	RADIUS
1	TILED ROOF	15	RESIDENTIAL BUILDING	3	NEAR BY QUARRY	351 KALIAMMAL W/O SARAVANAN	100M RADIUS
2	TILED ROOF	12	RESIDENTIAL BUILDING	5	NEAR BY COMPANY	350 PDOCHAMMAL W/O VIJAYAN	
3	TILED ROOF	13	RESIDENTIAL BUILDING	5	NEAR BY COMPANY	338 JAKKAMMAL W/O DURAI	
4	TILED ROOF	10	RESIDENTIAL BUILDING	6	NEAR BY COMPANY	349 PANDI W/O SUBBUTHAI	
5	TILED ROOF	12	RESIDENTIAL BUILDING	4	NEAR BY COMPANY	331 MANIYAMMAL W/O KALIAPPAN	
6	TILED ROOF	12	RESIDENTIAL BUILDING	4	NEAR BY QUARRY	320 SUNDARAM W/O KALIYAMMAL	
7	TERRACE BUILDING	11	RESIDENTIAL BUILDING	5	NEAR BY QUARRY	354 CHINNADURAI W/O THILAGAVATHI	
8	TILED ROOF	8	COW SHED	-			
9	TILED ROOF	10	RESIDENTIAL BUILDING	3	NEAR BY COMPANY	VALLI MEENAKCHI	
10	TILED ROOF	12	RESIDENTIAL BUILDING	3	NEAR BY COMPANY	360 MANIAMMAL W/O AYIRATHTHAN	
11	TILED ROOF	9	RESIDENTIAL BUILDING	3	NEAR BY COMPANY	359 AYYAMMAL W/O VENGAIAN	
12	TERRACE BUILDING	8	RESIDENTIAL BUILDING	5	NEAR BY COMPANY	152 ESAKKIAMMAL W/O SIVA	
13	TERRACE BUILDING	10	RESIDENTIAL BUILDING	6	NEAR BY COMPANY	215 MARIYAPPAN W/O LAKSHMI	
14	TILED ROOF	12	RESIDENTIAL BUILDING	4	NEAR BY COMPANY	232 SATHYA W/O ANTHONY	
15	TILED ROOF	8	RESIDENTIAL BUILDING	4	NEAR BY QUARRY	PARVATHY W/O MUTHU	
16	TILED ROOF	10	COW SHED	-			
17	TILED ROOF	12	RESIDENTIAL BUILDING	3	NEAR BY COMPANY	352 USHA W/O MANIKANDAN	
18	TILED ROOF	8	RESIDENTIAL BUILDING	4	NEAR BY COMPANY	272 SELVAM W/O JEYAMANI	200M RADIUS
19	TILED ROOF	7	RESIDENTIAL BUILDING	2	NEAR BY COMPANY	274 SRINIVASAN W/O ANDAL	
20	TILED ROOF	9	RESIDENTIAL BUILDING	5	NEAR BY COMPANY	275 PALANI W/O KARPAGAVALLI	
21	TILED ROOF	6	RESIDENTIAL BUILDING	4	NEAR BY COMPANY	276 GOPAL W/O MUNIYAMMAL	
22	TILED ROOF	6	RESIDENTIAL BUILDING	2	NEAR BY QUARRY	277 ALAGARSAMY W/O MARIAMMAL	
23	TILED ROOF	5	RESIDENTIAL BUILDING	6	NEAR BY QUARRY	283 KRISHNAN W/O LAKSHMI	
24	TILED ROOF	8	RESIDENTIAL BUILDING	3	NEAR BY COMPANY	284 RAMAKRIHNNAN W/O SUBBULAKSHMI	
25	TILED ROOF	10	RESIDENTIAL BUILDING	4	NEAR BY COMPANY	285 PALPANDI W/O CHITRA	
26	TILED ROOF	8	RESIDENTIAL BUILDING	5	NEAR BY COMPANY	286 PERUMAL W/O SHANMUGATHAI	
27	TILED ROOF	7	RESIDENTIAL BUILDING	3	NEAR BY COMPANY	265 SUNDARAIAH	
28	TILED ROOF	9	RESIDENTIAL BUILDING	2	NEAR BY QUARRY	266 MUNIYASAMY W/O VEERASELVI	
29	TILED ROOF	9	RESIDENTIAL BUILDING	4	NEAR BY QUARRY	267 RAMAR W/O PANDIYAMMAL	
30	TILED ROOF	8	RESIDENTIAL BUILDING	4	NEAR BY QUARRY	268 VEERAN W/O MUNIYAMMAL	
31	TILED ROOF	7	RESIDENTIAL BUILDING	3	NEAR BY COMPANY	269 OORKAVALAN W/O SUBBAMMAL	
32	TILED ROOF	10	RESIDENTIAL BUILDING	3	NEAR BY COMPANY	260 MARIAPUSHPAM W/O PAULMARY	300M RADIUS
33	TILED ROOF	10	RESIDENTIAL BUILDING	2	NEAR BY COMPANY	261 DURAIVEERAM W/O ALAGAMMAL	
34	TILED ROOF	10	COW SHED	-			
35	TILED ROOF	8	RESIDENTIAL BUILDING	3	NEAR BY QUARRY	262 VEERAMURUGAN W/O SARATHA	
36	TILED ROOF	8	RESIDENTIAL BUILDING	4	NEAR BY QUARRY	MANIKANDAN W/O RADHA	

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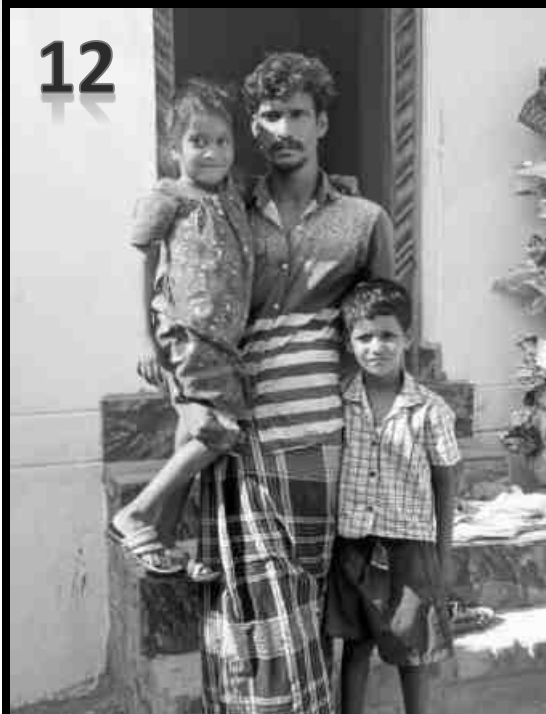


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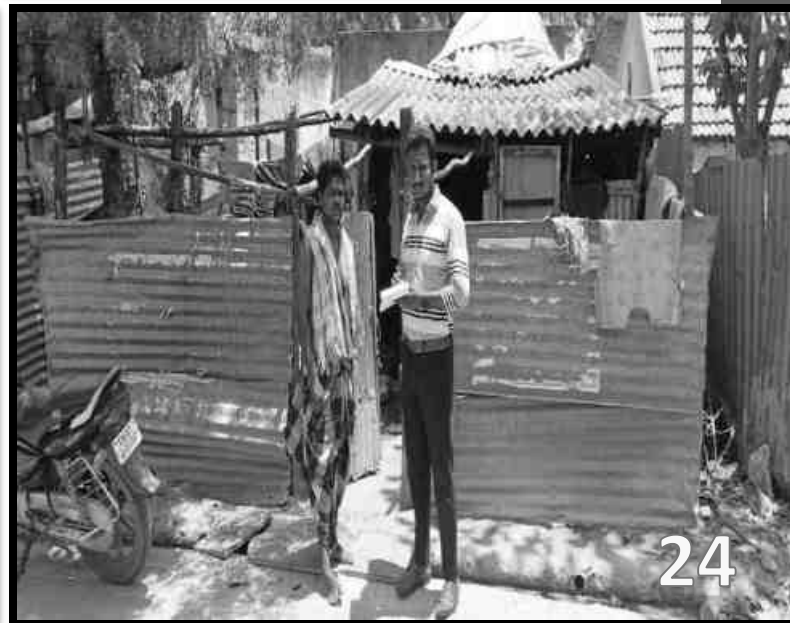
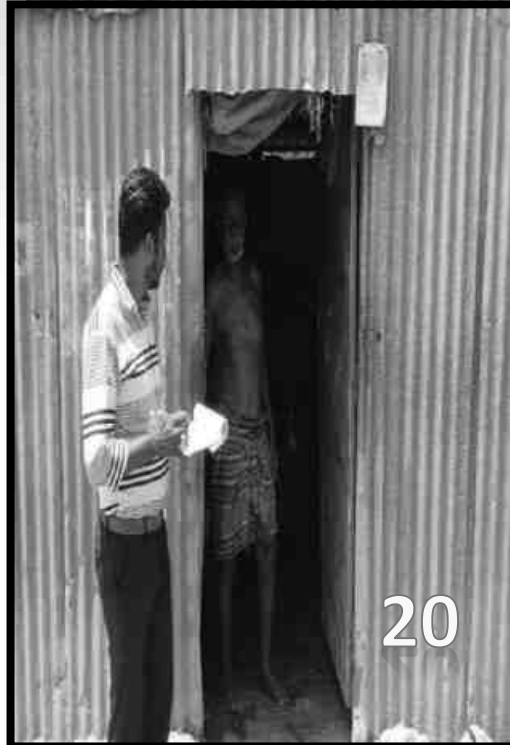
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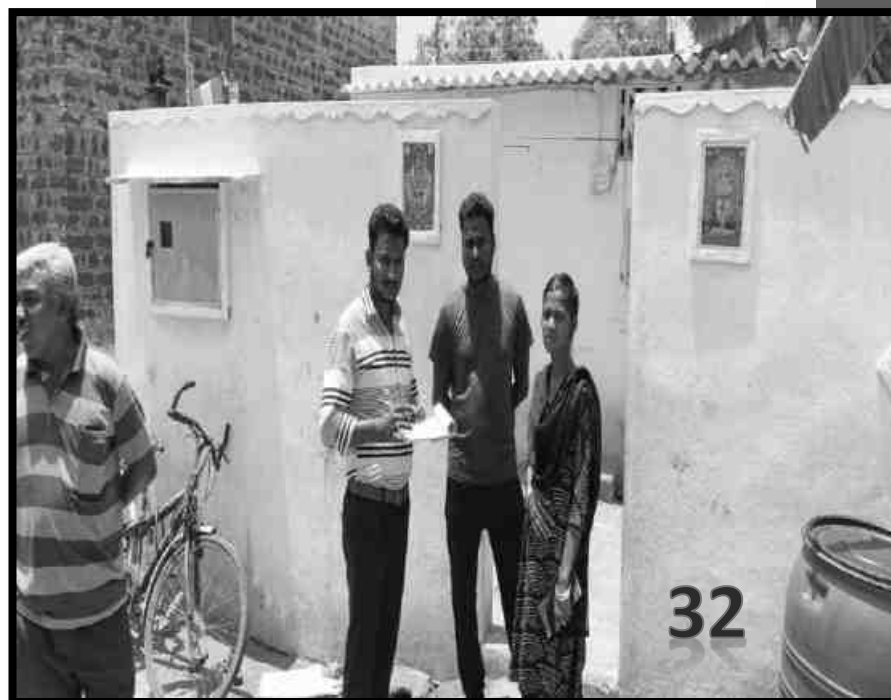


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ANNEXURE-IX

AFFIDAVIT AND CER DETAILS

2. The following Corporate Environment Responsibility (CER) activities will be completed 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.7,03,64,000/-	Rs.14,07,280/-
Total cost Allocation	Rs.7,03,64,000/-	Rs.14,07,280/-

3. Details of quarry within 500m radius from the applied area:

a. Existing Quarries

S.No	Name and address of the lessee	Village & Taluk	SF.Nos.	Extent in Hectare	G.O. No. & date	Lease Period
1	Stanco Traders, 32 patti Street, Sivakasi.	Thiruthangal village Sivakasi Taluk	1332/1, 1332/2A, etc.,	4.41.0	G.O.3(D). No.57 Industries (MMB2) Department, dated: 24.11.2003.	03.12.2003 To 02.12.2023
2	Stanco Traders, 32 patti Street, Sivakasi.	Thiruthangal village Sivakasi Taluk	1302/2, 1323/1A, etc.,	1.21.50	G.O.3(D). No.94 Industries (MMB2) Department, dated: 01.09.2004.	22.09.2004 To 21.09.2024
3	Stanco Traders, 32 patti Street, Sivakasi.	Thiruthangal village Sivakasi Taluk	1320/1A, 1320/1B1, 1320/1B2 etc.,	1.93.0	G.O.3(D). No.41 Industries (MMB2) Department, dated: 27.02.2006.	13.03.2006 To 12.03.2026
4	Stanco Traders, 32 patti Street, Sivakasi.	Thiruthangal village Sivakasi Taluk	1325/5A1, 1325/5A2, etc.,	3.29.0	G.O.3(D). No.33 Industries (MMB2) Department, dated: 09.06.2008.	08.07.2008 To 07.07.2028
5	Standard Granites, Poothiammal Building, 5-2-15C- Sattur Road, Sivakasi.	Thiruthangal village Sivakasi Taluk	1325/2B1B, 1325/2B2, 1325/2B3 etc.,	1.47.0	G.O.3(D). No.45 Industries (MMB2) Department, dated: 27.02.2006.	13.03.2006 To 12.03.2026
6	Standard Granites, Poothiammal Building, 5-2-15C- Sattur Road, Sivakasi.	Thiruthangal village Sivakasi Taluk	1325/2A, 1325/2B1A, etc.,	0.80.50	G.O.3(D). No.56 Industries (MMB2) Department, dated: 24.11.2003.	24.11.2004 To 23.01.2024



[Signature]
27.1.2023
R. RAMESH, B.A., B.L., P.G.D.P.M.
Advocate & Notary
2/48, V.M.R. Nagar, Meyyanoor,
SALEM - 636004. ☎ 9443694543
G.O.M.S. 396/22 Dt.16.8.22
Valid upto 26.7.2027

b. 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-						

c. Details of Proposed Quarries					
S.No	Name and address of the lessee	Village & Taluk	SF.Nos.	Extent in Hectare	G.O. No. & date
1	Tvl. GPK Granite Industry, Ayanavaram, Chennai- 600 023.	Thiruthangal village Sivakasi Taluk	884/1B, 1326, etc.,	10.00.00	Mining Plan approved vide CGM, Letter No.12167/MM2/2010, dated: 22.11.2022.

4. There will not be hindrance or disturbance to the people living on enrooted/ nearby my 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. Insurance coverage will be arranged for 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 and used by 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 Tvl. GPK Granite Industry

(Deponent)

Deven
27.1.2023
R. RAMESH, B.A., B.L., P.G.D.P.M
Advocate & Notary,
2/48, V.M.R. Nagar, Meyyanoor,
SALEM - 636004. ☎ 9443694543
G.O.M.S. 396/22 Dt.16.8.22
Valid upto 26.7.2027



ANNEXURE-X
NABET CERTIFICATE

National Accreditation Board for Education and Training

Certificate of Accreditation

Eco Tech Labs Pvt. Ltd., Chennai

No.48, 2nd Main Road, Ram Nagar, South Extension, Pallikaranai, Chennai – 600100

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 opencast mining only	1	1 (a) (i)	A
2.	Thermal power plants	4	1 (d)	A
3.	Metallurgical industries	8	3 (a)	B
4.	Synthetic organic chemicals industry	21	5 (f)	A
5.	Airports	29	7 (a)	A
6.	Industrial estates/ parks/ complexes/ Areas, export processing zones (EPZs), Special economic zones (SEZs), Biotech parks, Leather complexes	31	7 (c)	A
7.	Building and construction projects	38	8 (a)	B
8.	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated May 09, 2025 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/25/3622 dated May 19, 2025. The accreditation needs to be renewed before the expiry date by Eco Tech Labs Pvt. Ltd., Chennai following due process of assessment.

Valid up to
April 10, 2028

Issue Date
May 19, 2025



Certificate No.
NABET/EIA/25-28/RA 0400

Prof (Dr) Varinder S Kanwar
(CEO – NABET)

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.