

# **DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

For

**Rough Stone, Jelly and Gravel Quarry - 2.23.0 Ha**

At

**S.F.No : 155/3, 155/8B, 155/11, 155/13, 155/14,  
155/15 & 155/16 of Kambaneri Puthukudi-1 Village,  
Kadayanallur Taluk,  
Tirunelveli District, Tamilnadu**

**Project Proponent  
Thiru.V. Maripandi,  
S/o. T. Velusamy Thevar,  
No. 4/66, Pillayar Koil Main Road,  
Sundaresapuram (Post), Kadayanallur,  
Tenkasi Taluk, Tirunelveli District**

**Project termed under schedule 1(a)  
Category B<sub>1</sub> (Cluster Mining)  
Baseline Period : March, April & May 2023**

***Environmental Consultant & Laboratory Details:*  
Ecotech Labs Private Limited**



**No.48, 2<sup>nd</sup> Main road,  
Ram Nagar South Extension,  
Pallikaranai, Chennai-600 100**

**September  
2023**

Date:

From  
Thiru. V. Maripandi,  
S/o. T. Velusamy Thevar,  
No. 4/66, Pillayar Koil Main Road,  
Sundaresapuram (Post), Kadayanallur,  
Tenkasi Taluk, Tirunelveli District.

To  
The District Environmental Engineer  
Tamilnadu Pollution Control Board,  
30/2, SIDCO Industrial Estate,  
Pettai, Tirunelveli – 627 010.

Sir/Madam,

Sub: Public Hearing for Thiru. V. Maripandi Rough Stone, Jelly and Gravel Quarry over a total extent of 2.23.0 Ha at S.F.No. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 & 155/16 of Kambaneri Puthukudi - 1 Village, Kadayanallur Taluk, Tirunelveli District – Request to conduct Public Hearing – Reg.

Ref: ToR issued by SEIAA vide Letter No. SEIAA-TN/F. No. 9623/SEAC/ToR-1325/2023 Dated: 10.02.2023

With Reference to the above subject, I propose to establish Thiru. V. Maripandi Rough Stone, Jelly and Gravel Quarry over a total extent of 2.23.0 Ha at S.F.No. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 & 155/16 of Kambaneri Puthukudi - 1 Village, Kadayanallur Taluk, Tirunelveli District, Tamil Nadu.

In this regard, we had obtained the Terms of Reference (ToR) from State Environmental Impact Assessment Authority (SEIAA), Tamil Nadu for conducting EIA studies vide letter cited in reference. Further, we have prepared the draft EIA report complying with all the conditions imposed in the TOR issued.

I herewith submitting hard & soft copies of Draft EIA Report, Executive Summaries (English & Tamil) along with necessary enclosures towards conducting public hearing for Thiru. V. Maripandi Rough Stone, Jelly and Gravel Quarry over a total extent of 2.23.0 Ha at S.F.No. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 & 155/16 of Kambaneri Puthukudi - 1 Village, Kadayanallur Taluk, Tirunelveli District, Tamil Nadu.

We have also enclosed a Demand Draft for Rs. \_\_\_\_\_ /- vide DD No \_\_\_\_\_ dated \_\_\_\_\_ as initial Public Hearing fee and agree to pay the difference amount in the publication cost.

We kindly request the TNPCB to make the necessary arrangements for conducting the Public hearing for the Rough stone, Jelly and Gravel Quarry.

Thanking you,  
Yours Sincerely,

Authorized Signatory



Thiru. V. Maripandi,  
S/o. T. Velusamy Thevar,  
No. 4/66, Pillayar Koil Main Road,  
Sundaresapuram (Post), Kadayanallur,  
Tenkasi Taluk, Tirunelveli District.

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## UNDERTAKING

I, Thiru. V. Maripandi, undertaking that the Draft Environmental Impact Assessment (EIA) Report for Rough Stone, Jelly and Gravel Quarry over an extent of 2.23.0 Ha at S.F.No. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 & 155/16 of Kambaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli 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. 9623/SEAC/ToR-1325/2023 Dated: 10.02.2023.

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

Place: Tirunelveli

Date:

Yours faithfully

Thiru. V. Maripandi

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 Rough Stone, Jelly and Gravel Quarry over an extent of 2.23.0 Ha at S.F.No. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 & 155/16 of Kambaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli 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/2124/SA 0147

Date:

Place: Chennai



**Declaration by Experts contributing to the EIA of Rough Stone, Jelly and Gravel Quarry- 2.23.0 Ha by Thiru. V. Maripandi at S.F.No. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 & 155/16, Kambaneri Puthukudi - 1 Village, Kadayanallur Taluk, Tirunelveli District, Tamil Nadu State**

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

**EIA Coordinator:** Dr. A. Dhamodharan







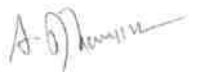
**Dr. A. DHAMODHARAN**  
(NABET APPROVED EIA COORDINATOR)  
NABET/EIA/2124/SA 0147  
Environmental Consultant  
Eco Tech Labs Pvt. Ltd  
Plot No.48A, 2nd Main Road, Ram Nagar South Extn.  
Pallikaranai, Chennai - 600 100.

**Signature:**





**Period of involvement:** 01.03.2022 to Till now

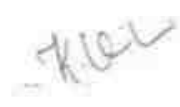

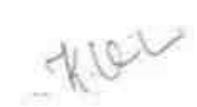
**Contact information:** M/s. Ecotech Labs Pvt Ltd.,  
No. 48, 2<sup>nd</sup> Main road, Ram Nagar South Extension,  
Pallikaranai – 600100.

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. Dhamodhara n	<p>1. Selection of baseline Monitoring Locations for Ground water analysis and also identifying nearest surface water to be studied.</p> <p>2. Interpretation of baseline data collected</p> <p>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</p> <p>4. Preparation of suitable and appropriate mitigation plan.</p> <p><b>Period: March 2022 – Till now</b></p>	
3	SHW	Dr. A. Dhamodhara n	<p>1. Identification of nature of solid waste generated</p> <p>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</p> <p>3. Suggesting suitable mitigation measures by recommending appropriate disposal method for each category of waste generated</p> <p>4. Top soil and refuse management</p> <p><b>Period: March 2022 – Till now</b></p>	
4	SE	Mr. S. Pandian	<p>1. Primary data collection through the census questionnaire</p> <p>2. Obtaining Secondary data from authenticated sources and incorporating the same in EIA report.</p> <p>3. Impact assessment &amp; proposing suitable mitigation plan</p> <p>4. CSR budget allocation by discussing with the local body and allotting the same for need based activity.</p> <p><b>Period: March 2022 – Till now</b></p> <p><b>*Involves Public Hearing</b></p>	
5	EB	Dr. A. Dhamodhara n	<p>1. Primary data collection through field survey and sheet observation for ecology and biodiversity</p> <p>2. Secondary Collection through various authenticated sources</p> <p>3. Prediction of anticipated impacts and suggesting appropriate mitigation measures.</p>	



			<b><i>Period: March 2022 – Till now</i></b>	
6	HG	Dr. T. P. Natesan	<p>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</p> <p>2. Determination of groundwater use pattern, development of rainwater harvesting program. Storm water management through garland drainage system.</p> <p><b><i>Period: March 2022 – Till now</i></b></p>	
7	GEO	Dr. T. P. Natesan	<p>1. Field survey for assessing regional and local geology, aquifer distribution, Determination of groundwater use pattern, development of rainwater harvesting program.</p> <p><b><i>Period: March 2022 – Till now</i></b></p>	
8	SC	Dr. A. Dhamodharan	<p>1. Interpretation of baseline report</p> <p>2. Identification of possible impacts on soil, prediction of soil conservation and suggesting suitable mitigation measures.</p> <p><b><i>Period: March 2022 – Till now</i></b></p>	
9	AQ	Mrs. K. Vijayalakshmi	<p>1. Collection of Meteorological data for the baseline study period</p> <p>2. Plotting wind rose plot and thereby selecting the monitoring locations based on the wind pattern</p> <p>3. Estimation of sources of air emissions and air quality modeling is done</p> <p>4. Interpretation of the results obtained</p> <p>5. Identification of the impacts and suggesting suitable mitigation measures.</p> <p><b><i>Period: March 2022 – Till now</i></b></p>	

10	NV	Mrs. K. Vijayalakshmi	<ol style="list-style-type: none"> <li>1. Selection of monitoring locations</li> <li>2. Interpretation of baseline data</li> <li>3. Prediction of impacts due to noise pollution and suggestion of appropriate mitigation measures</li> </ol> <p><b>Period: May 2022 – Till now</b></p>	
11	LU	Dr. T. P. Natesan	<ol style="list-style-type: none"> <li>1. Collection of Remote sensing satellite data to study the land use pattern.</li> <li>2. Primary field survey and limited field verification for land categorization in the study area</li> <li>3. Preparation of Land use map using Satellite data for 10km radius around the project site.</li> </ol> <p><b>Period: March 2022 – Till now</b></p>	
12	RH	Mrs. K. Vijayalakshmi	<ol style="list-style-type: none"> <li>1. Identification of the risk</li> <li>2. Interpreting consequence contours</li> <li>3. Suggesting risk mitigation measures</li> </ol> <p><b>Period: March 2022 – Till now</b></p>	

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

I, Dr. A. Dhamodharan, hereby, confirm that the above-mentioned experts prepared the EIA report of mining project at Survey Numbers. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 & 155/16 of Kambaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District. I also confirm that the consultant organization shall be fully accountable for any misleading information mentioned in this statement.

**Signature:**



**Name:** Dr. A. Dhamodharan

**Designation:** Managing Director

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

**NABET Certificate No. & Issue Date:** NABET/EIA/2124/SA 0147



<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi - I Village, Kadayanallur Taluk, Tirunelveli District</b>	

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<i>Project Location</i>	<i>Kampaneri Puthukudi - I Village, Kadayanallur Taluk, Tirunelveli District</i>	

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<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
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## **ABBREVIATION**

- LU –Land use
- AP – Air Pollution monitoring, prevention and control
- AQ- Meteorology, Air quality modeling and prediction
- WP – Water pollution monitoring, prevention and control
- EB- Ecology and Biodiversity
- NV- Noise & Vibration
- SE- Socio-economics
- HG- Hydrology, ground water and water conservation
- GEO –Geology
- RH – Risk assessment and hazards management
- SHW –Solid and Hazardous waste management
- SC- Soil conservation

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## EXECUTIVE SUMMARY

### 1. Project Background:

The Proposed project total extent area is 2.23.0 Ha, It is a Patta land in 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 & 155/16 at Kampaneri Puthukudi-I Village, Kadayanallur Taluk, Tirunelveli District. The category of project is B1, It is a Rough stone, Jelly and Gravel quarry in Kampaneri Puthukudi-I village. The area is situated on slightly undulated topography covered by Gravel formation which does not sustain any type of vegetation.

The quarry operation is proposed to carry out with open cast mechanized mining with 5.0 meter bench for Top soil & Gravel followed by 5.0 meter vertical bench with a bench width not less than the bench height. The quarry operation involves shallow jack hammer drilling, slurry blasting, Loading and transportation of Rough stone and Gravel to the needy nearby crusher units / road formation works.

The quarry operation is proposed up to depth of 22m from the below ground level. Geological Resources is estimated at 2,54,870 Cum of Rough stone and 28,084 Cum of Gravel. Mineable Reserves is estimated as 82,900 Cum of Rough stone and 19,422 Cum of Gravel after leaving necessary safety distance from the lease boundary as indicated in the precise area letter and relevant mining laws in force. Production Schedule is production of 82900 Cum of Rough Stone and 19422 Cum of Gravel for the period of Five years. Mining Plan was approved by The Deputy Director, Department of Geology & Mining, Tirunelveli vide letter Rc.No.M1/61043/2009 dated 15.12.2017. Precise area communication letter received from the District Collector, Department of Geology and Mining; Tirunelveli vide letter Roc.No.M1/61043/2009 dated 11.05.2017.

The project area does not fall in Hill Area Conservation Authority region. There is no interstate boundary, CRZ zone, Western Ghats, notified Bird sanctuaries as per Wild life protection Act 1972, within the radius of 15 Km. Nellai Wildlife Sanctuary is located at the distance of 10 km, W from the project site.

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## 2. Nature & Size of the Project

The Rough Stone, Jelly and Gravel Quarry over an extent of 2.23.0 Hectares land is located at Kampaneri Puthukudi-I Village, Kadayanallur Taluk, Tirunelveli District.

Mineral intends to quarry	: Rough stone, Jelly and Gravel Quarry
District	: Tirunelveli
Taluk	: Kadayanallur
Village	: Kampaneri Puthukudi - I
S. F. Nos.	: 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 & 155/16
Extent	: 2.23.0 Hectares

**Table 1: Brief Description of the Project**

<b>S. No</b>	<b>Particulars</b>	<b>Details</b>
1	Latitude	Latitude : 09°05'32.17"N to 09°05'38.97"N
2	Longitude	Longitude : 77°23'07.87"E to 77°23'11.87"E
3	Site Elevation above MSL	210 m MSL
4	Topography	Slightly Undulated Topography
5	Land use of the site	Patta Land
6	Extent of lease area	2.23.0 Ha
7	Nearest highway	NH- 744 : Kollam – Thirumangalam Road – 4 kms, W SH 76 : Puliyangudi – Tirunelveli Road – 10.05 kms, N SH 39 A: Tenkasi – Surandai Road – 10.40 kms, S ODR:Kadayanallur – Virasigamani Road – 0.60 kms, S
8	Nearest railway station	Kadayanallur Railway Station – 2.42 km, SW Tenkasi Junction- 16.49 km, SW
9	Nearest airport	Tuticorin Domestic Airport – 81.30 km, SE Thiruvananthapuram International Airport – 83.83 kms, SW

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<b>Project Location</b>	<b>Kampaneri Puthukudi - I Village, Kadayanallur Taluk, Tirunelveli District</b>	

10	Nearest town / city	Town - Kadayanallur - 3 km, SW City - Kadayanallur - 3 km, SW District - Tenkasi – 16 km, SW
11	Water Bodies/Lake/Dam	<ul style="list-style-type: none"> <li>❖ Chidambaramperi Small Lake – 1.12 kms, N</li> <li>❖ Shenbaganallur Lake – 1.18 Kms – W</li> <li>❖ Bala Arunachalapuram Lake – 1.48 kms, S</li> <li>❖ Kampaneri Puthukudi Lake – 2.21 kms, S</li> <li>❖ Sanganaperi Lake – 2.34 kms, NE</li> <li>❖ Chidambaramperi Lake – 2.39 kms, N</li> <li>❖ Aavarantha Kulam – 2.63 kms, NW</li> <li>❖ Tirumalapuram South Pond – 3.46 kms, SE</li> <li>❖ Silambu Kulam – 3.58 kms, N</li> <li>❖ Attakkulam – 4.12 kms, SW</li> <li>❖ Puthukulam – 4.28 kms, W</li> <li>❖ Periyakulam – 5 kms, E</li> <li>❖ Pattaikulam – 6.27 kms, SE</li> <li>❖ Chenkulam – 6.40 kms, E</li> <li>❖ Urmelazhagiyan Lake – 7.60 kms, S</li> <li>❖ Thannuthu Kulam – 7.80 kms, SE</li> <li>❖ Samuthiram – 8 kms, NE</li> <li>❖ Govindaperi – 9.30 kms, N</li> <li>❖ Naduvakurichi Lake – 9.70 kms, E</li> <li>❖ Singathukulam – 10.10 kms, E</li> </ul>



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		<ul style="list-style-type: none"> <li>❖ Naranaperi – 10.20 kms, N</li> <li>❖ Keezhakulam – 10.30 kms, SW</li> <li>❖ Kokkoorani – 10.50 kms, N</li> <li>❖ Mallarkulam – 10.60 kms, SW</li> <li>❖ Ottankulam – 10.94 kms, S</li> <li>❖ Sakkarakulam – 11.21 kms, SE</li> <li>❖ Echantha Lake – 11.66 kms, SE</li> <li>❖ Sundarapandiyapuram Tank – 11.87 kms, S</li> <li>❖ Pottakulam – 13.62 kms, S</li> <li>❖ Surandai Lake – 13.70 kms, SE</li> <li>❖ Naanaa Kulam – 13.95 kms, S</li> <li>❖ Thiruchitrabalam Kulam – 14.47 kms, S</li> </ul>
12	Rivers/Canal/Dam	<ul style="list-style-type: none"> <li>❖ Periya Aaru – 1.65 kms, SW</li> <li>❖ Kallaru River – 9.33 kms, NW</li> <li>❖ Hanuman River – 10.15 kms, SW</li> <li>❖ Kadayanallur River – 11.54 kms, W</li> <li>❖ Chittraru River – 14.76 kms, SW</li> <li>❖ Karuppanadhi Dam – 9.80 kms, NW</li> <li>❖ Sambavarvadakarai Anaicut – 9.28 kms, SW</li> </ul>
13	Hills / valleys	Nil in 15 km radius
14	Archaeologically places	Malayadikurichi Rockcut Cave Temple – 13.37 kms, NE
15	National parks / Wildlife Sanctuaries	❖ Nellai Wildlife Sanctuary – 10 kms, W
16	Reserved / Protected Forests	<ul style="list-style-type: none"> <li>❖ Krishnapuram R.F – 6.60 kms, NW</li> <li>❖ Vairavankulam R.F – 10 Kms, NW</li> <li>❖ Kadayanallur Upper Slopes R.F – 11.30 kms, W</li> </ul>

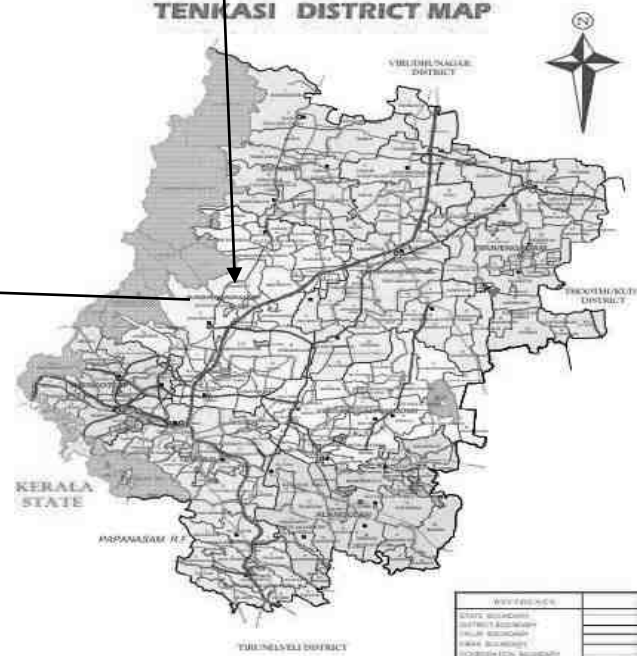
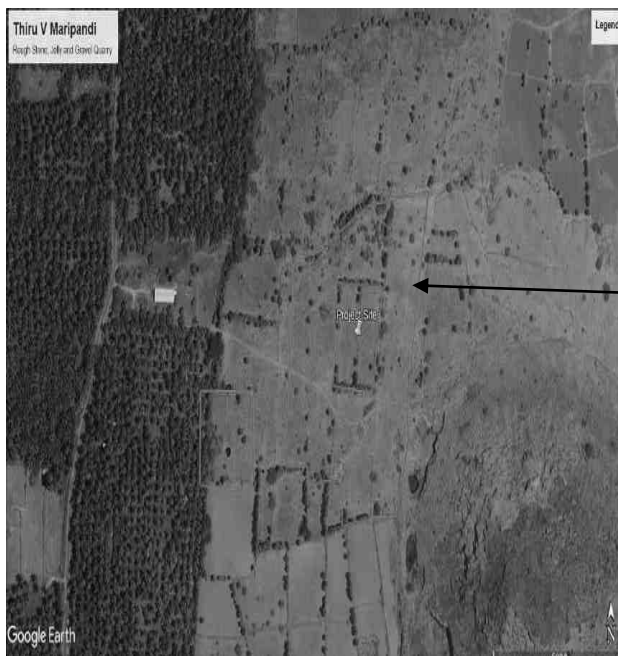
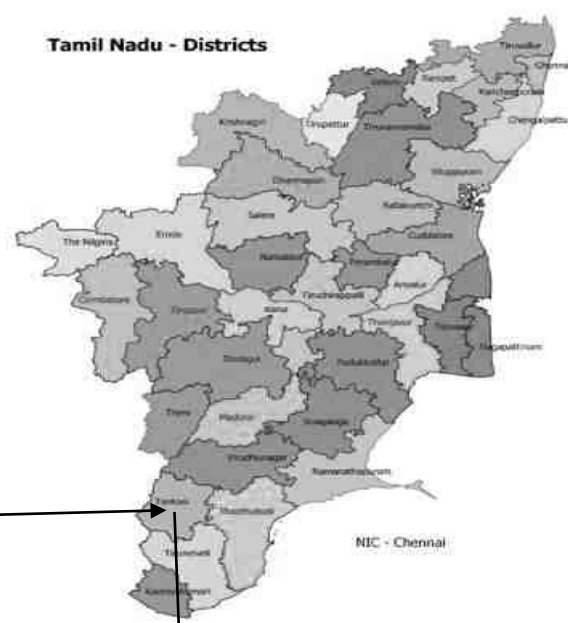
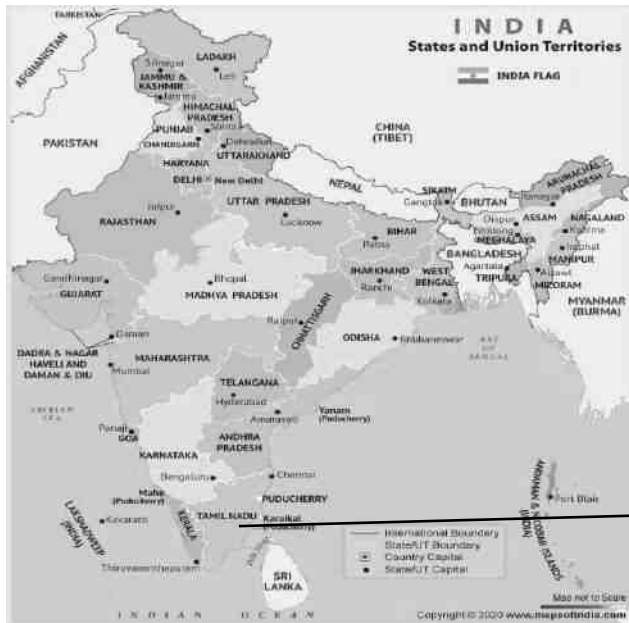
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		❖ Vellakaalthur R.F – 14 kms, W
17	Seismicity	Proposed Lease area come under Seismic zone-II(low risk area)
18	Defense Installations	Nil in 15 Km radius

### 3. Need for the Project

- ❖ The mining activities as proposed are the backbone of all construction and infrastructure projects as the raw material for construction is available only from such mining. The Rough stone and Gravel extracted will be transported to be Stone crusher of district Tirunelveli.
- ❖ The raw Rough stone as well as the crushed material of stone is in high demand in real estate, construction projects as well as in building construction projects.
- ❖ Rough stone is quarried for producing crusher aggregates to the nearby building contractors, road contractors and nearby villagers.
- ❖ After quarrying the entire reserves mined out, the area will be used as water reservoir to have an artificial recharge to the nearby wells.
- ❖ No damage to the land is caused, no reclamation or back filling is required.

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**Figure 1: Location Map of the Project Site**

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<b>Project Location</b>	<b>Kampaneri Puthukudi - I Village, Kadayanallur Taluk, Tirunelveli District</b>	



**Figure 2: Google Image of the Project Site**

#### **4. Charnockite**

Charnockite is extensively quarried as rough stone which is used as aggregates for construction of building, laying of roads and for preparation of value added products like hollow blocks, M-sand etc. Charnockite is exposed as discontinuous body in NW-SE to WNW-ESE direction from Tenkasi in the west to Gangaikondan in the east and from Tiruvenkadanathapuram in the north to Vijayapathi in the south.

An isolated Charnockite hills is exposed for a length of 5 km and 1 to 1.5 km width in Valliyur-Nanguneri-Radhapuram area and in the eastern slope of Western Ghats hills of Tirunelveli district. The nature of occurrence of charnockite is ubiquitous, often in two modes. One type of occurrence is in the form of profuse enclaves as lensoid bodies etc; within granitoid gneiss and leptynite and other as massive crystalline variety as seen in large isolated hills (Western Ghats massifs). Basic nature of the charnockite has been preserved only at few places where in it contains

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occasionally noritic/pyroxene granulite patches and calc granulite pockets. Retrogression of mafics – pyroxenes to hornblende and biotite aggregates and granitisation with intercalations of quartzofeldspathic veinations are the common features that characterise these enclaves. This retrograde hornblende biotite gneiss is also extensively quarried in Piranchery, Gangaikondan, and north of Manur and Rasta areas for road metals and earth fillings.

## 5. Geological Resources

The Geological reserves have been calculated. The available geological reserve is estimated as 2,54,870 m<sup>3</sup> of Rough Stone and 28,084 m<sup>3</sup> of Gravel respectively. Availability of Resources is given below. The quarrying is restricted up to a depth of 22m below ground level only. Availability of Resources is given below.

**Table 2. Geological resources**

SECTION	BENCH	LENGT H (M)	WIDT H (M)	HEIGH T (M)	VOLUME in M <sup>3</sup>	GRAVEL FORMATIO N in M <sup>3</sup>	GEOLOGICA L RESOURCES OF ROUGH STONE IN M <sup>3</sup>
<b>XY-AB</b>	I	49	106	2	10388	10388	
	II	49	106	20	103880		77910
		<b>Total</b>				<b>10388</b>	<b>77910</b>
<b>XY-CD</b>	I	83	49	2	8134	8134	
	II	83	49	20	81340		81340
		<b>Total</b>				<b>8134</b>	<b>81340</b>
<b>XY-EF</b>	I	27	97	2	5238	5238	
	II	27	97	20	52380		52380
		<b>Total</b>				<b>5238</b>	<b>52380</b>
<b>XY-GH</b>	I	47	46	2	4324	4324	
	II	47	46	20	43240		43240
		<b>Total</b>				<b>4324</b>	<b>43240</b>
						<b>28084</b>	<b>254870</b>

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**Table 3. Mineable Resources**

SECTION	BENCH	LENGTH IN (M)	WIDTH IN (M)	DEPTH IN (M)	VOLUME IN M <sup>3</sup>	GRAVEL IN M <sup>3</sup>	MINEABLE RESERVES OF ROUGH STONE IN M <sup>3</sup>
XY-AB	I	39	91	2	7098	7098	
	II	36	85	5	15300		15300
	III	28	72	5	10080		10080
	IV	15	59	5	4425		4425
	<b>Total</b>						<b>7098</b>
XY-CD	I	83	33	2	5478	5478	
	II	78	28	5	10920		10920
	III	83	15	5	6225		6225
	<b>Total</b>						<b>5478</b>
XY-EF	I	27	82	2	4428	4428	
	II	27	76	5	10260		10260
	III	27	69	5	9315		9315
	IV	26	56	5	7280		7280
	V	13	43	5	2795		2795
	<b>Total</b>						<b>4428</b>
XY-GH	I	39	31	2	2418	2418	
	II	36	25	5	4500		4500
	III	30	12	5	1800		1800
	<b>Total</b>						<b>2418</b>
<b>Grand Total</b>						<b>19422</b>	<b>82900</b>

The Available mineable reserve is computed as 82,900 m<sup>3</sup> of Rough stone and 19,422 m<sup>3</sup> of Gravel formation upto a depth of 22 m below ground level only.

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**Table 4. Year wise Production Plan**

The applicant has proposed to carry out 82,900 m<sup>3</sup> of Rough stone and 19,422 m<sup>3</sup> of Gravel at the rate of 100% recovery upto a depth of 22 m below ground level for the period of five years only.

<b>YEAR</b>	<b>SECTION</b>	<b>BENCH</b>	<b>LENGTH IN (M)</b>	<b>WIDTH IN (M)</b>	<b>DEPTH IN (M)</b>	<b>VOLUME IN M<sup>3</sup></b>	<b>GRAVEL IN M<sup>3</sup></b>	<b>ROUGH STONE IN M<sup>3</sup></b>
I	XY-GH	I	39	31	2	2418	2418	
		II	36	25	2	4500		4500
	XY-EF	I	27	82	2	4428	4428	
		II	27	76	5	10260		10260
	XY-CD	I	83	33	2	5478	5478	
		II	11	28	5	1540		1540
<b>Total</b>							<b>12324</b>	<b>16300</b>
II	XY-CD	II	67	28	5	9380		9380
	XY-AB	I	39	91	2	7098	7098	
		II	16	85	5	6800		6800
	<b>Total</b>							<b>7098</b>
III	XY-AB	II	20	85	5	8500		8500
	XY-CD	III	83	15	5	6225		6225
	XY-EF	III	5	69	5	1725		1725
	<b>Total</b>							
IV	XY-EF	III	22	69	5	7590		7590
		IV	26	56	5	7280		7280
	XY-GH	III	30	12	5	1800		1800
	<b>Total</b>							
III	XY-AB	III	28	72	5	10080		10080
		IV	15	59	5	4425		4425
	XY-EF	V	13	43	5	2795		2795
	<b>Total</b>							
<b>Grand Total</b>							<b>19422</b>	<b>82900</b>

## 6. Mining

### Opencast mining

Open cast Semi-Mechanized Mining with one 5.0 meter bench for Top soil & Gravel followed by 5.0 meter vertical bench with a bench width not less than the bench height.

The Quarry operation involves shallow jack hammer drilling, blasting, loading and transportation.

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## Process Description

- The reserves and resource are arrived based upon the Geological investigation
- Removal of Gravel by Excavators and directly Loaded into Tippers.
- Removal of Rough Stone by Excavators by Drilling and Blasting.
- Shallow Drilling With Jackhammer of 30-32 mm Dia.
- Minimum Blasting With Class 3 Explosives.
- Loading of Rough Stone By Excavators Into Tippers.

## 7. Water Requirement

Total water requirement for the mining project is 2.0 KLD. Domestic water will be sourced from nearby Sundaresapuram Village and other water will be source from nearby road tankers supply.

**Table 5. Water Balance**

Purpose	Quantity	Source
Drinking Water	1 KLD	Packaged Drinking water vendors available in Sundaresapuram village which is about 0.67 Km N of the area
Green belt	0.5KLD	Other domestic activities through road tankers supply
Dust suppression	0.5KLD	From road tankers supply
<b>Total</b>	<b>2.0 KLD</b>	

## 8. Manpower

Total manpower required for the project is approximately 16 persons. Workers will be from nearby villages.

**Table 6. Man Power**

1.	Skilled	Mines Manager/Mate	1 No.
		Operator	6 No.
		Mechanic	1 No.



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2.	Semi-Skilled	Driver	3 Nos
3.	Unskilled	Musdoor/Labours	6 Nos
		Total	17 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	3.06 kg/day	Municipal bin including food waste
2	Inorganic	4.59 kg/day	TNPCB authorized recyclers

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

**Table 8. 500m Radius Cluster Mine**

### 1) Existing other quarries:

S. No.	Name of the Owner	Village & Taluk	S.F.Nos.	Extent in Hect.	Lease Period
1	S. Arunachalam, S/o. Subbaiah, 295, Main Road, Krishnapuram, Kadayanallur, Tenkasi	Ariyanayagipuram	S.F.No. 729 (Pt-1) – Poramboke Land	2.00.0	Proceeding No. M3/67787/2004, dt. 19.01.2016 for a period 5 years from 08.02.2016 to 07.02.2021

<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi - I Village, Kadayanallur Taluk, Tirunelveli District</b>	

2	S. Arunachalam, S/o. Subbaiah, 295, Main Road, Krishnapuram, Kadayanallur, Tenkasi	Ariyanayagipuram	S.F.No. 729 (Pt-II) – Poramboke Land	3.00.0	Proceeding No. M3/67787/2004, dt. 19.01.2016 for a period of 5 years from 08.02.2016 to 07.02.2021
Total extent of abandoned quarries				5.00.0	

### 2) Details of abandoned /Old Quarries

S. No.	Name of the Owner	Village & Taluk	S.F.Nos.	Extent in Hect.	Lease Period
1.	K. Selvakumar, 136/46, LRD, Palayam, Tenkasi	Kadayamperumpathu – II	S.F.No. 829 (P)	2.00.0	Proceeding No. M1/11147/2013, dt. 10.06.2014 for a period of 5 years from 10.06.2014 to 09.06.2019
Total extent of abandoned quarries				2.00.0	

### 3) Details of Present Proposed quarries

S. No.	Name of the Owner	Village & Taluk	S.F.Nos.	Extent in Hect.	Lease Period
1.	V. Maripandi, S/o. Velusamy Thevar, 4/66, Pillayar Kovil Main Road, Sundaresapuram	Kampaneri Pudukudi – I village,	S.f. No. 155/3, 155/8B, 155/11,	2.23.0	Proposed Quarry

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi - I Village, Kadayanallur Taluk, Tirunelveli District</i>	

	Post, Kadayanallur Taluk, Tenkasi	Kadayanallur Taluk	155/13, 155/14, 155/15 & 155/16		
<b>Total extent of proposed quarries</b>				<b>2.23.0</b>	
<b>Grand Total extent of all quarries</b>				<b>9.23.0</b>	

## 10. Land Requirement

The total extent area of the project is 0.55.0 Ha, Patta Land in Tharuvai Village of Palayamkottai Taluk, Tirunelveli District.

**Table 9 Land Use Breakup**

Sl. No.	Land Use	Present Area (Ha)	Area in use during the quarrying period (Ha)
1.	Quarrying pit	Nil	1.32.0
2.	Infrastructure	Nil	0.01.0
3.	Roads	Nil	0.01.0
4.	Green belt	Nil	0.10.0
5.	Unutilized area	2.23.0	0.79.0
	<b>Total</b>	<b>2.23.0</b>	<b>2.23.0</b>

## 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**

S.No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population
1.	Sundaresapuram	0.67 km - N	323
2.	Meenakshipuram	2.57 km - NE	425

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi - I Village, Kadayanallur Taluk, Tirunelveli District</i>	

3.	Bala Arunachalapuram	0.67 km - S	300
4.	Shenbaganallur	1.77 km - W	350
5.	Achampatti	2.67 km - NE	450

## 12. Power Requirement

The proposed Rough stone quarrying does not require any power supply for the quarrying operation.

**16 Litre** diesel per hour for excavator for mining and loading for Rough stone needed and **10 Litre** diesel per hour for excavator for mining and loading for Top soil.

## 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 : 31° C
- ii) Average Maximum Temperature. : 34°C
- iii) Average Annual Rainfall of the area : 792 mm

### 13.2 Air Environment

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi - I Village, Kadayanallur Taluk, Tirunelveli District</i>	

Ambient air monitoring was carried out on monthly basis in the surrounding areas of the Mine Lease area to assess the ambient air quality at the source. To know the ambient air quality at a larger distance i.e. in the study area of 5 km. radius, air quality survey has been conducted at 5 locations. Major air pollutants like Particulate Matter (PM<sub>10</sub>), Sulphur Dioxide (SO<sub>2</sub>), Nitrogen Dioxide (NO<sub>2</sub>) were monitored and the results are summarized below.

The baseline levels of PM<sub>10</sub> (33-60 µg/m<sup>3</sup>), PM<sub>2.5</sub> (13-31 µg/m<sup>3</sup>), SO<sub>2</sub> (5-20 µg/m<sup>3</sup>), NO<sub>2</sub> (9-39 µg/m<sup>3</sup>), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from March 2023 to May 2023.

### **13.3 Noise Environment**

The maximum Day noise and Night noise were found to be 61 dB(A) and 50 dB(A) respectively in Sri Santhana Mariyamman Kovil, Achampatti. The minimum Day Noise and Night noise were 43 dB (A) and 38 dB(A) respectively which was observed in Project site. The observed values are all well within the Standards prescribed by CPCB.

### **13.4 Water Environment**

- The average pH ranges from 7.15 – 8.21.
- TDS value varied from 245 mg/l to 1350 mg/l
- Hardness varied from 58.2 to 651 mg/l
- Chloride varied from 90 to 557 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 5.89 to 8.24 with organic matter 0.37 to 1.96 %. 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.

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi - I Village, Kadayanallur Taluk, Tirunelveli District</i>	

#### 14. Rehabilitation/ Resettlement

The overall land of the mine is a Patta land. There are no displacement of the population within the project area and adjacent nearby area. Social development of nearby villages will be considered in this project.

The mine area does not cover any habitation. Hence the mining activity does not involve any displacement of human settlement.

#### 15. Greenbelt Development

1. The development of greenbelt in the peripheral buffer zone of the mine area.
2. Green belt has been recommended as one of the major component of Environmental Management Plan, which will improve ecology, environment and quality of the surrounding area.
3. Local trees like Neem, Vilvam, Panai, etc will be planted along the lease boundary and avenues as well as over Non-active dumps at a rate of 140 trees per annum with interval 5m.
4. The rate of survival expected to be 80% in this area

**Table.11 Plantation/ Afforestation Program**

<b>Name of species proposed</b>	<b>Survival</b>	<b>No of species</b>
Neem, Vilvam, Vaagai, Eachai, Naval, Mantharai, Magizha Maram, Vila Maram, Poo Marudhu, Panai, Marudha maram, Thandri, Sengondrai, Poovarasu, Thethankottai Maram, Pungam	80%	1115
<b>Total</b>		<b>1115</b>

#### 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.

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi - I Village, Kadayanallur Taluk, Tirunelveli District</i>	

4. To control the emissions regular preventive maintenance of equipments will be carried out.

### 16.2 Noise Environment and Mitigation Measures

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

### 17. Responsibilities for Environmental Management Cell (EMC)

The responsibilities of the EMC include the following:

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

### 18. Environmental Monitoring Program

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

### 19. Project Cost

The total project cost is **Rs 52,92,000/-** for deployment of machinery and creation of infrastructural facilities like approach road, mine office / Workers Shed, First Aid Room etc., including electrifications and water supply.

**Table .12 Project Cost details**

<b>S. No.</b>	<b>Description</b>	<b>Cost (Rs.)</b>
1	Fixed Asset Cost	11,92,000/-
2	Operational Cost	41,00,000 /-

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi - I Village, Kadayanallur Taluk, Tirunelveli District</i>	

	<b>Total</b>	<b>52,92,000/-</b>
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**Total EMP Cost – Rs. 80,89,232 (Rs. 80 Lakhs)**

## 20. Corporate Environmental Responsibility

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

**Table 13 CER Cost**

S.No.	CER Activity	CER value (Rs)
1.	Panchayat Union Middle School, Nagaram, Vasudevanallur Union, Tirunelveli Provision of <ul style="list-style-type: none"> <li>➤ R.O Water Facility</li> <li>➤ Smart Classroom facility</li> <li>➤ Soil filling</li> <li>➤ Painting of school campus</li> <li>➤ Environmental science books for library (in Tamil language),</li> <li>➤ Greenbelt facilities in and around the periphery of the school campus – 50 No's and</li> <li>➤ Hygienic Toilet facilities and maintenance upto lease period</li> </ul>	5,00,000
<b>Total</b>		<b>5,00,000</b>

## 21. Benefits of the Project

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



<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi - I Village, Kadayanallur Taluk, Tirunelveli District</i>	

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi - I Village, Kadayanallur Taluk, Tirunelveli District</i>	

# 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

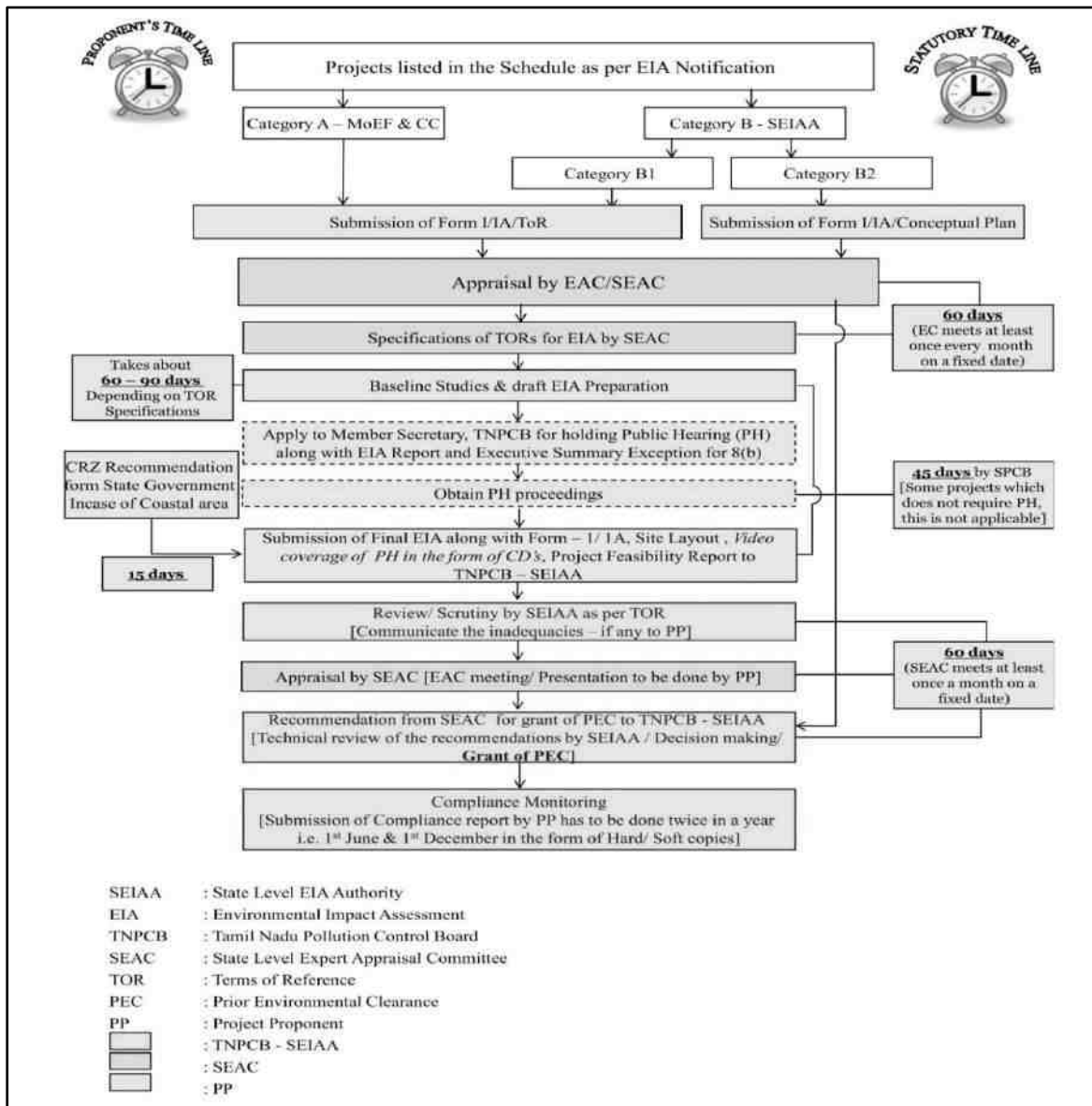
Mining activities based on rough stone (mostly charnockite) are majorly concentrated in Alangulam, Radhapuram, Nanguneri, Manur and Sankarankovil Taluks in the district under operation for production of construction materials and earth fill as gravel. Rough stone (mostly charnockite and Hblt gneiss) are majorly concentrated in Alangulam, Radhapuram, Nanguneri, Manur and Sankarankovil Taluks in the district.

## 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.

<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi - I Village, Kadayanallur Taluk, Tirunelveli District</b>	



#### 1.4 TERMS OF REFERENCE (TOR)

The Terms of Reference have been issued by SEAC TN vide Letter No. SEIAA-TN/F. No.9623/SEAC/ToR-1325/2023 Dated: 10.02.2023. 46 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.

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi - I Village, Kadayanallur Taluk, Tirunelveli District</i>	

## **1.5 POST ENVIRONMENTAL CLEARANCE MONITORING**

### ***1.5.1 Methodology adopted***

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

**Table 1-1: Post Environmental Clearance Monitoring**

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

## **1.6 GENERIC STRUCTURE OF THE EIA DOCUMENT**

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

**Chapter 2: Project Description.** In this chapter the proponent should also furnish detailed description of the proposed project, such as the type of the project, need for the project, project location, layout, project activities during construction and operational phases, capacity of the project, project operation i.e., land availability, utilities (power and water supply) and infrastructure facilities such as roads, railways, housing and other requirements. If the project site is near a sensitive area it is to be mentioned clearly why an alternative site could not be considered. The project implementation schedule, estimated cost of development as well as operation etc should be also included.

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi - I Village, Kadayanallur Taluk, Tirunelveli District</i>	

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

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

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

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

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

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

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

**Chapter 10: Environmental Management Plan.** This chapter should comprehensively present the Environmental Management Plan (EMP), which includes the administrative and technical setup, summary matrix of EMP, the cost involved to implement the EMP, both during the construction and operational phase and provisions made towards the same in the cost estimates of project construction and operation. This chapter should also describe the proposed post-monitoring scheme as well as inter-organizational arrangements for effective implementation of the mitigation measures.

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi - I Village, Kadayanallur Taluk, Tirunelveli District</i>	

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

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

## **1.7 DETAILS OF PROJECT PROPONENT**

Project Proponent : Thiru. V. Maripandi  
 Status of the Proponent : Individual  
 Proponent's Name & Address : S/o. T. Velusamy Thevar,  
 No. 4/66, Pillaiyar Koil Main Road,  
 Sundaresapuram (Post),  
 Kadayanallur, Tenkasi Taluk,  
 Tirunelveli District.

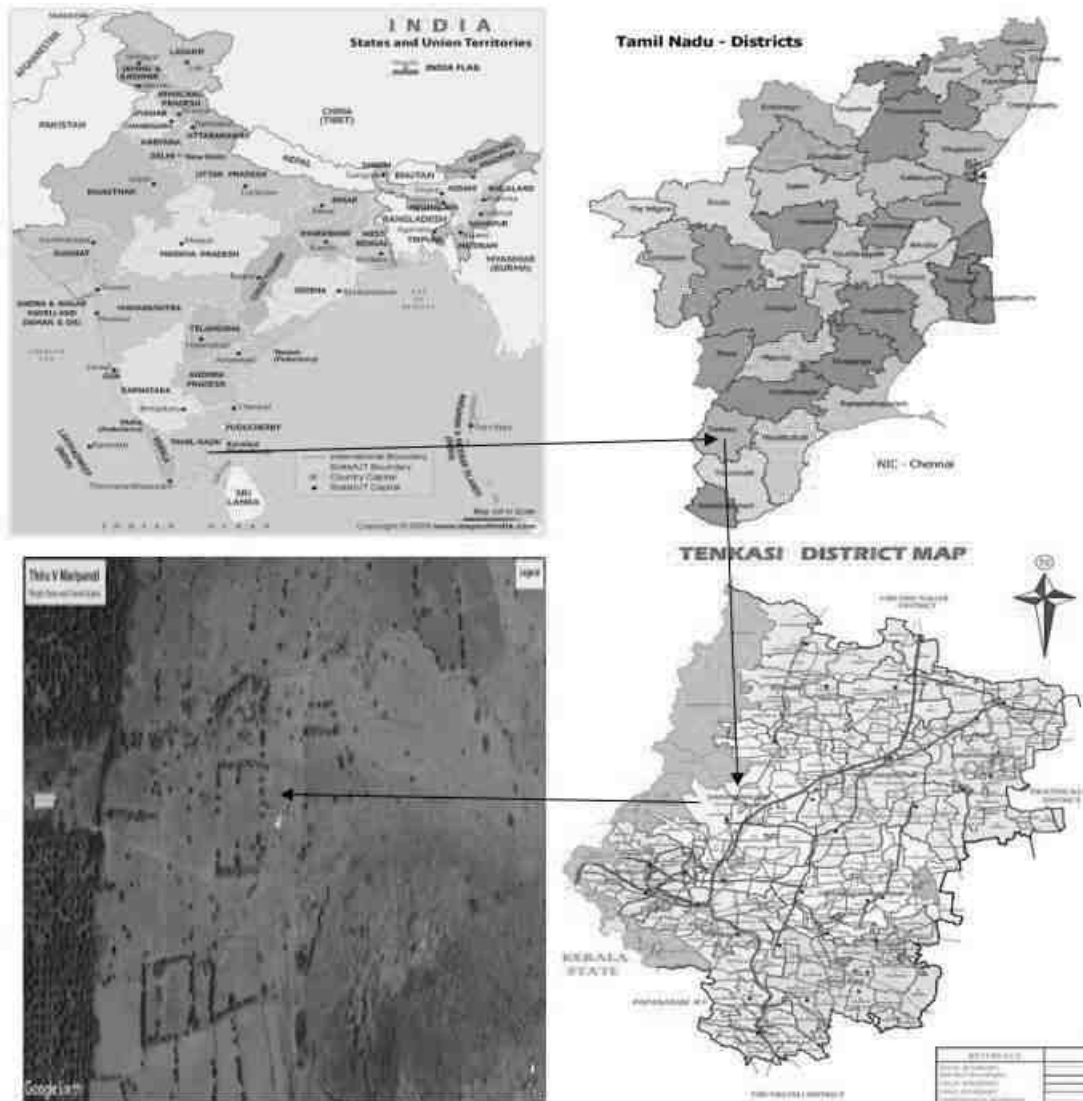
## **1.8 BRIEF DESCRIPTION OF THE PROJECT**

### **1.8.1 *Project Nature, Size & Location***

As per EIA Notification, 2006 and its subsequent amendments (O.M vide No.F.No.L-11011/175/2018-IA-II(M) 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 Rough stone and Gravel mining project by open cast mechanized method on allotted mine lease area at Kampaneri Puthukudi-1 Village, Kadayanallur Taluk of Tirunelveli District, Tamil Nadu. It is a slightly undulated topography. The total allotted mine lease for the proposed project is 2.23.0 Ha with their maximum production capacity i.e. 82,900 m<sup>3</sup> of Rough stone and 19,422 m<sup>3</sup> of Gravel for the period of Five years only.

<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi - I Village, Kadayanallur Taluk, Tirunelveli District</b>	



**Figure 1.1: Location Map of the Project site**

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi- 1 Village, Kadayanallur Taluk, Tirunelveli District</i>	

## 2 Project Description

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

### 2.1 GENERAL

Proposed proposal pertains to Rough stone, Jelly and Gravel mining project by open cast mechanized method on allotted mine lease area at Kampaneri Puthukudi – I Village, Kadayanallur Taluk of Tirunelveli District, Tamil Nadu. It is a slightly undulated topography. We have obtained fresh mining plan from 2024 to 2029 from Department of Geology and Mining, Tirunelveli District for 2.23.0 Ha land area in the S.F.Nos. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 & 155/16 for a proposed mining depth of 22 m below ground level and five years production of 82,900 m<sup>3</sup> of Rough stone and 19,422 m<sup>3</sup> of Gravel.

#### **Type of the project:**

As per EIA Notification, 2006 and its subsequent amendments (O.M vide No.F.No.L-11011/175/2018-IA-II(M) 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 draft EIA report on the basis of baseline & impact assessment study is carried out. Also, before appraisal, under 7(III) of EIA notification 2006, the project involves the Public Consultation and the same will be conducted under SPCB (TN) in Virudhunagar District. The proceedings of the same will be incorporated in the Final EIA Report.

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



<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi- 1 Village, Kadayanallur Taluk, Tirunelveli District</b>	

**Table 2-1: Quarry within 500m Radius**

**1) Existing other quarries:**

**1) Existing other quarries:**

<b>S. No.</b>	<b>Name of the Owner</b>	<b>Village</b>	<b>S.F.Nos.</b>	<b>Extent in Hect.</b>	<b>Lease Period</b>
1	S. Arunachalam, S/o. Subbaiah, 295, Main Road, Krishnapuram, Kadayanallur, Tenkasi	Ariyanayagipuram	S.F.No. 729 (Pt-1) – Poramboke Land	2.00.0	Proceedings No. M3/67787/2004, dt. 19.01.2016 for a period of 5 years from 08.02.2016 to 07.02.2021
2	S. Arunachalam, S/o. Subbaiah, 295, Main Road, Krishnapuram, Kadayanallur Taluk, Tenkasi	Ariyanayagipuram	S.F.No. 729 (Pt-II) – Poramboke Land	3.00.0	Proceedings No. M3/67787/2004, dt. 19.01.2016 for a period of 5 years from 08.02.2016 to 07.02.2021
<b>Total extent of abandoned quarries</b>				<b>5.00.0</b>	

**2) Details of abandoned /Old Quarries**

<b>S. No.</b>	<b>Name of the Owner</b>	<b>Village &amp; Taluk</b>	<b>S.F.Nos.</b>	<b>Extent in Hect.</b>	<b>Lease Period</b>
1.	K. Selvakumar, 136/46, LRS, Palayam, Tenkasi	Kadayamperumpathu-II	S.F.No. 829 (P)	2.00.0	Proceedings No. M1/11147/2013, dt. 10.06.2014 for a period of 5

<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi- 1 Village, Kadayanallur Taluk, Tirunelveli District</b>	

					years from 10.06.2014 to 09.06.2019
<b>Total extent of abandoned quarries</b>				<b>2.00.0</b>	

### 3) Details of Present Proposed quarries

<b>S. No.</b>	<b>Name of the Owner</b>	<b>Village &amp; Taluk</b>	<b>S.F.Nos.</b>	<b>Extent in Hect.</b>	<b>Lease Period</b>
1.	V. Maripandi, S/o. Velusamy Thevar, 4/66, Pillaiyar Kovil Main Road, Sundaresapuram Post, Kadayanallur Taluk, Tenkasi	Kambaneri Puthukudi – I village, Kadayanallur Taluk	S.F.No. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 & 155/16	2.23.0	Proposed Quarry

#### 2.1.1 *Need for the project:*

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

Rough stone is one of the most valuable natural building materials. Aggregates are mostly used for building roads and footpaths. Aggregates – stone used for its strong physical properties – crushed and sorted into various sizes for use in concrete, coated with bitumen to make asphalt or used 'dry' as bulk fill in construction.

Mostly used in roads, concrete and building products. Aggregates represent about 98% of quarry output, most of which is used in road construction, maintenance and repair. Much of this goes to the production of asphalt; the remainder is used 'dry' without the addition of other materials to provide a sturdy base for roads.

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi- 1 Village, Kadayanallur Taluk, Tirunelveli District</i>	

## 2.2 BRIEF DESCRIPTION OF THE PROJECT

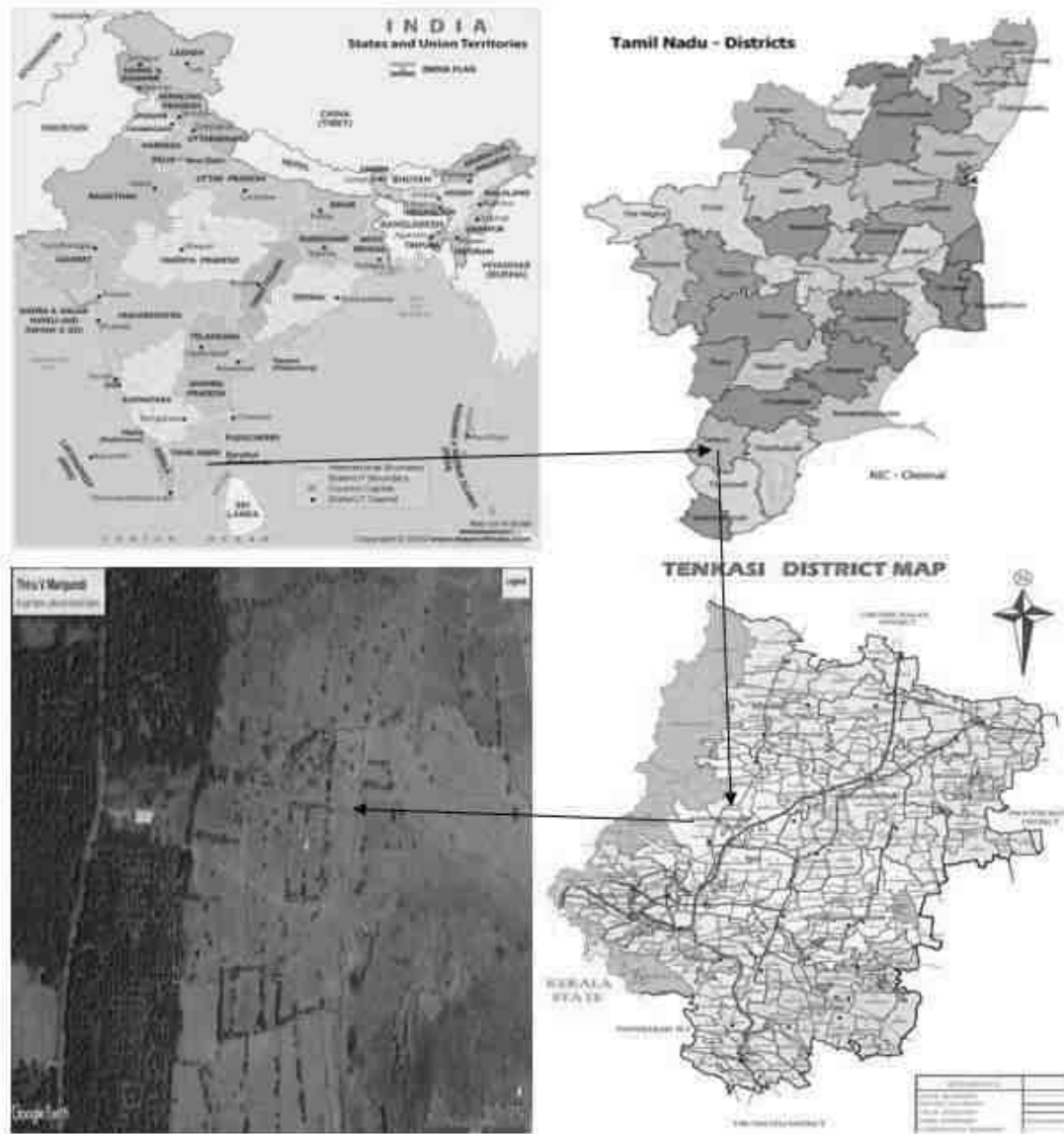
**Table 2-2 Salient Features of the Project**

<b>S. No.</b>	<b>Description</b>	<b>Details</b>
1	Project Name	Thiru. V. Maripandi Rough Stone, Jelly and Gravel Quarry
2	Proponent	Thiru. V. Maripandi
3	Mining Lease Area Extent	2.23.0 Ha
4	Location	Kampaneri Puthukudi – I village, Kadayanallur Taluk, Tirunelveli District
5	Latitude	Latitude : 09°05'32.17"N to 09°05'38.97"N
6	Longitude	Longitude : 77°23'07.87"E to 77°23'11.87"E
7	Topography	Slightly Undulated Terrain
8	Site Elevation above MSL	210 m from MSL
9	Topo sheet No.	58 G/08 of Survey of India
10	Minerals of Mine	Rough Stone, Jelly and Gravel Quarry
11	Proposed production of Mine	82,900 m <sup>3</sup> of Rough stone
12	Ultimate depth of Mining	22 m below ground level
13	Method of Mining	Open cast mechanized mining
14	Water demand	2.0 KLD
15	Source of water	Water will be supplied through tankers supply
16	Man power	17 Nos.
17	Mining Plan Approval	Mining Plan was approved by The Deputy Director, Department of Geology & Mining, Tirunelveli vide letter Rc.No.M1/61043/2009 dated 15.12.2017
18	Precise area communication letter	Precise area communication letter received by the District Collector, Department of Geology and Mining, Tirunelveli vide letter Roc.No.M1/61043/2009 dated 11.05.2017

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi- 1 Village, Kadayanallur Taluk, Tirunelveli District</i>	

19	Production details	Geological reserves: 2,54,870 m <sup>3</sup> of Rough stone and 28,084 m <sup>3</sup> of Gravel Proposed year wise reserves: 82,900 m <sup>3</sup> of Rough stone and 19422 m <sup>3</sup> of Gravel
20	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.
21	Disposal of overburden	The overburden is in the form of Gravel formation, it has been removed earlier quarry operation. The excavated rough stone will be directly loaded into tipper to the needy crushers/ other buyers for road project and construction works for filling and levelling of low lying areas.
22	Ground water	Ground water table in this area is below 48 mts below ground level. The quarrying is up to a maximum depth of 22m below the ground level. Hence the quarry operation will not be affected by the ground water.
23	Habitations within 300m radius of the Project Site	There is no Habitation within 300m radius of the project site.
24	Drinking water	Water will be supplied through tankers from Sundaresapuram village which is 0.67 Km N of the area

<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi- 1 Village, Kadayanallur Taluk, Tirunelveli District</b>	



**Figure 2.1: Location Map of the Project Site**

<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi- 1 Village, Kadayanallur Taluk, Tirunelveli District</b>	



**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.

ODR – Kadayanallur to Virasigamani Road – 0.54 kms, SE

<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi- 1 Village, Kadayanallur Taluk, Tirunelveli District</b>	



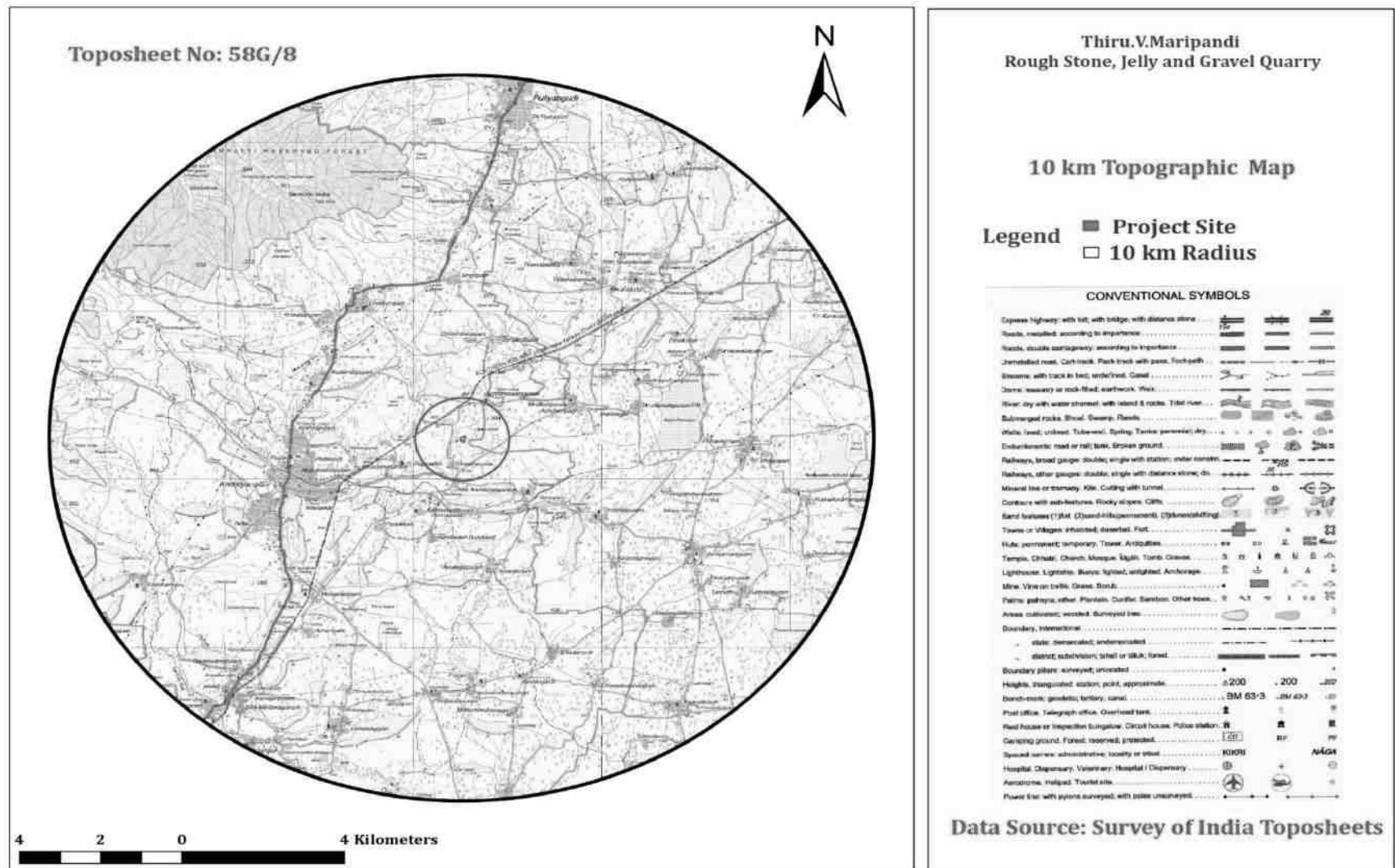
**Figure 2.3: Site Connectivity**

**2.3 LOCATION DETAILS:**

**Table 2-3: Location Details**

<b>S. No</b>	<b>Particulars</b>	<b>Details</b>
1.	Latitude	Latitude : 09°05'32.17"N to 09°05'38.97"N
2.	Longitude	Longitude : 77°23'07.87"E to 77°23'11.87"E
3.	Site Elevation above MSL	210 m MSL
4.	Topography	Slightly Undulated Topography
5.	Land use of the site	Patta land
6.	Extent of lease area	2.23.0 Ha

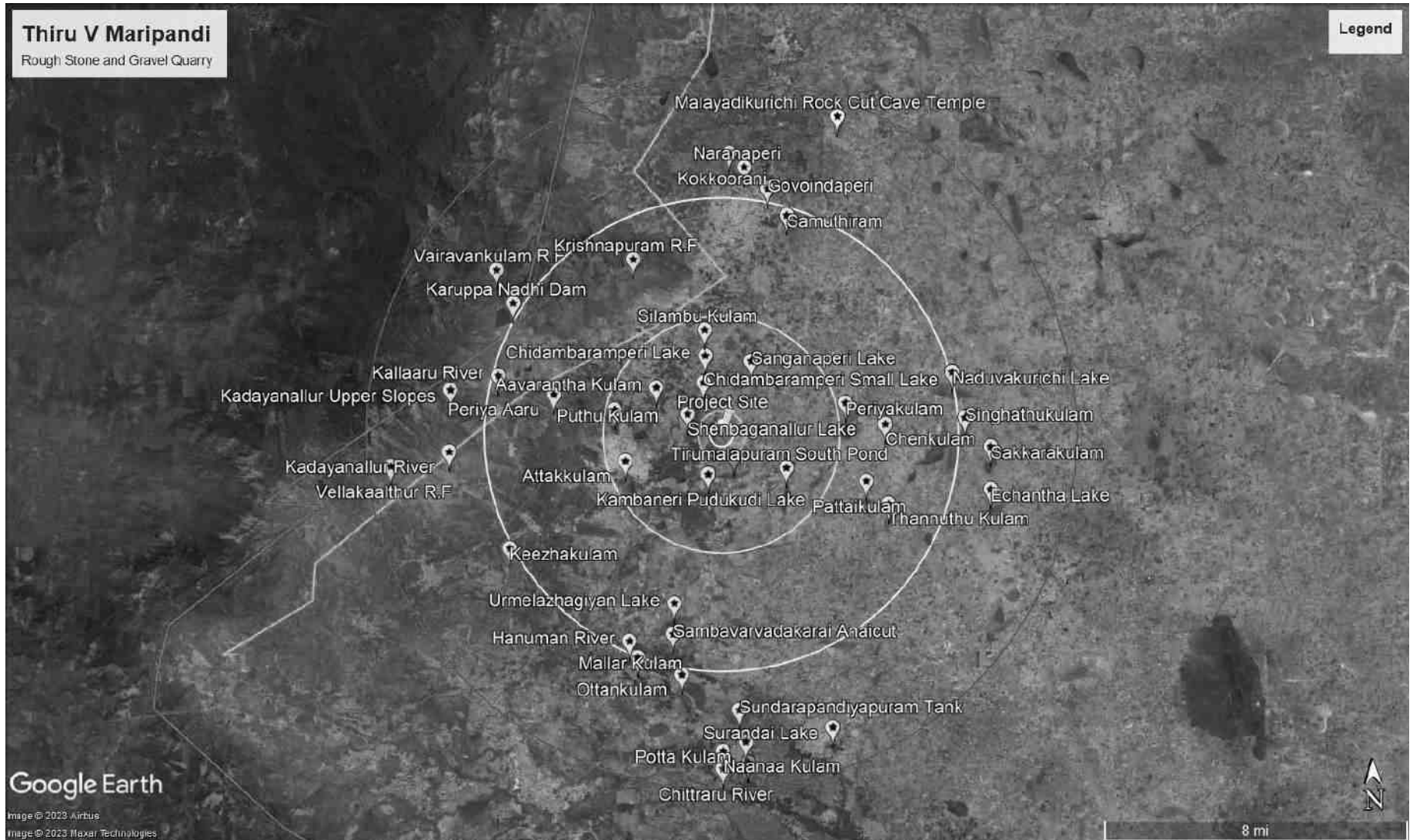
<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi- 1 Village, Kadayannallur Taluk, Tirunelveli District</b>	



**Figure 2.4: Topo Map of Project Site**



<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<b>Draft EIA Report</b>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi- 1 Village, Kadayanallur Taluk, Tirunelveli District</b>	



**Figure 2.5: Environmental Sensitivity within 15km radius**

<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi- 1 Village, Kadayanallur Taluk, Tirunelveli District</b>	

### 2.3.1 Land Use Breakup of the Mine Lease Area

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

**Table 2-4: Land use pattern**

<b>Sl. No.</b>	<b>Land Use</b>	<b>Present Area (Ha)</b>	<b>Area in use during the quarrying period (Hect)</b>
1.	Quarrying pit	Nil	1.32.0
2.	Infrastructure	Nil	0.01.0
3.	Roads	Nil	0.01.0
4.	Green belt	Nil	0.10.0
5.	Unutilized area	2.23.0	0.79.0
	<b>Total</b>	<b>2.23.0</b>	<b>2.23.0</b>

### 2.3.2 Human Settlement

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

**Table 2-5: Habitation**

<b>S.No</b>	<b>Name of the Village</b>	<b>Approximate distance &amp; Direction from lease applied area</b>	<b>Approximate population</b>
1.	Sundaresapuram	0.67 km - N	323
2.	Meenakshipuram	2.57 km - NE	425
3.	Bala Arunachalapuram	0.67 km - S	300
4.	Shenbaganallur	1.77 km - W	350
5.	Achampatti	2.67 km - NE	450

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi- 1 Village, Kadayanallur Taluk, Tirunelveli District</i>	

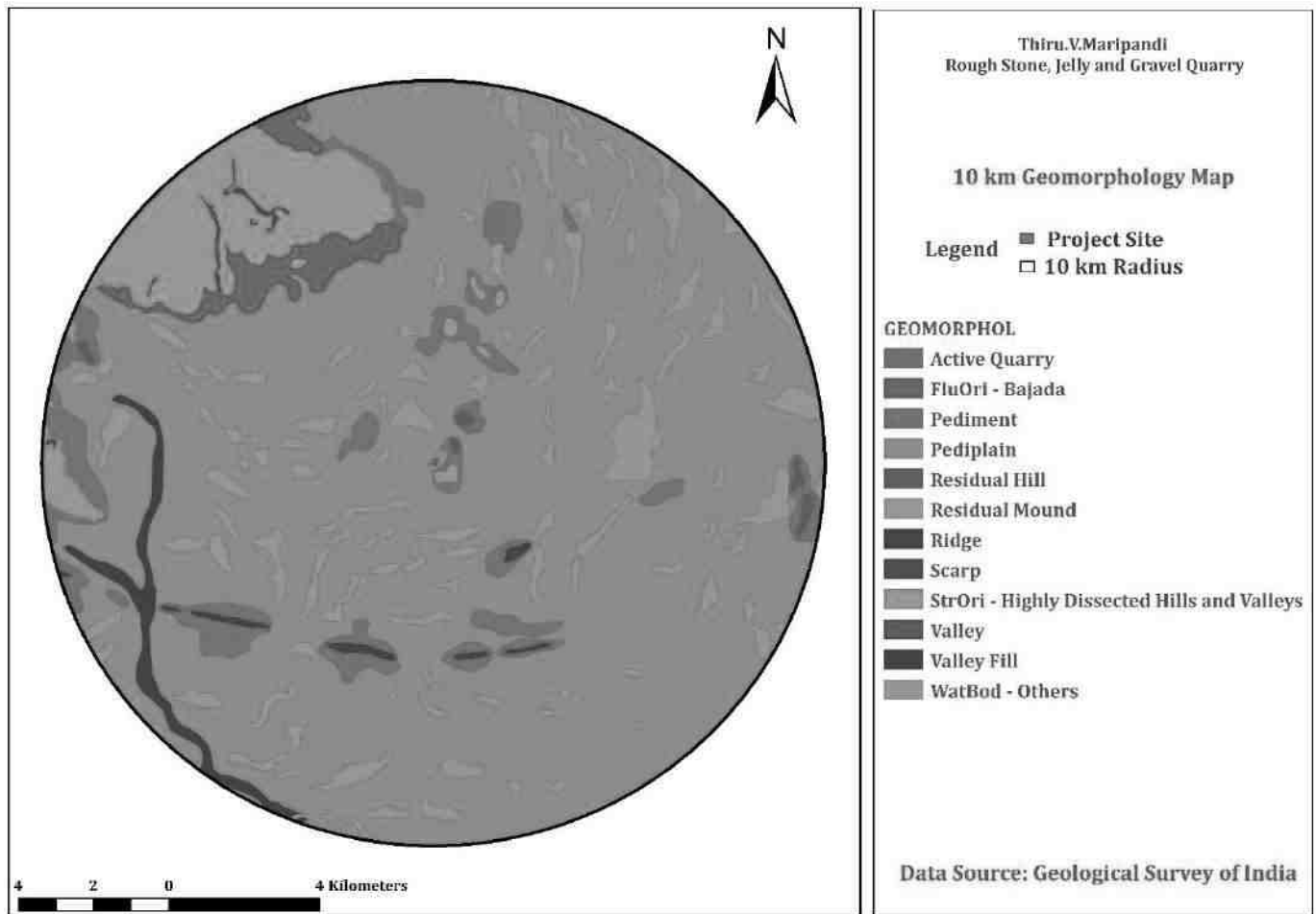
## 2.4 LEASEHOLD AREA

The Rough Stone and Gravel Quarry mine of 2.23.0 Ha is a patta land. The lease area falls in S.F No: 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 & 155/16 of Kampaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District. There is no reserve forest or protected forest land within the lease area. There is neither human settlement within 300m radius from the lease area.

## 2.5 GEOLOGY

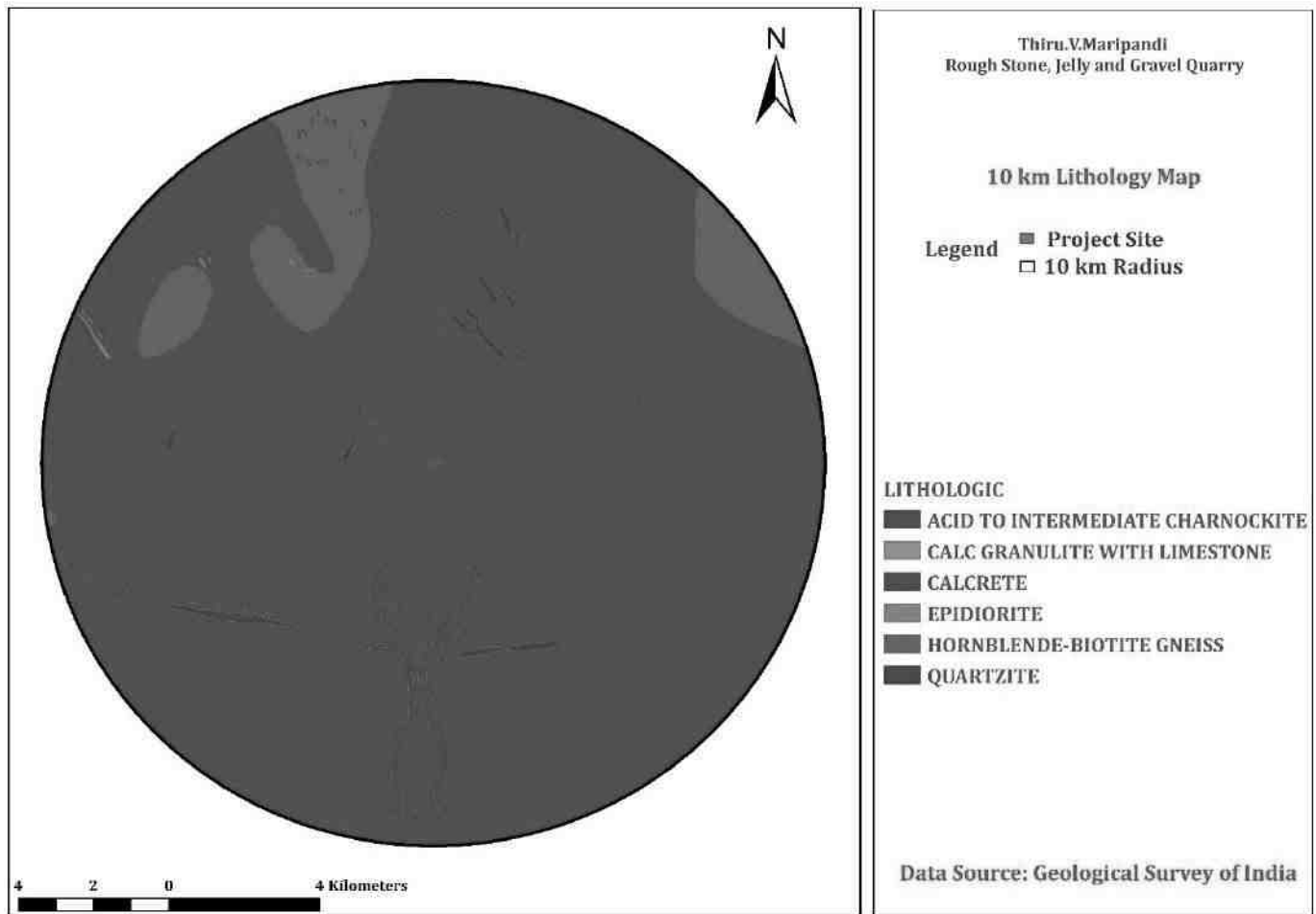
Southern Granulite Terrain (SGT) of Tamil Nadu lying south of Palaghat-Cauvery shear zone has been divided into two major tectonic blocks by the Madurai block and Nagercoil-Trivandrum Block in the south. It is separated by WNW-ESE trending Achankovil-Tambaraparani Lineament. Tirunelveli and Thothukudi are significantly the only districts in the state to witness the geology and structure of both the blocks. Tirunelveli district represents a well-developed lithopackage of meta-sedimentary sequence inter banded with charnockite Group of rocks. The rock types exposed are of quartzite, calc-granulite, garnet-biotite-sillimanite gneiss, garnet quartzo-feldspathic gneiss and garnetbiotite-cordierite gneiss belonging to Khondalite Group of rock. Charnockite and pyroxene granulite are the Charnockite Group. Hornblende-biotite gneiss belongs to Migmatitic Complex. Besides, basic intrusive (pyroxenite) and acid intrusive (granite) are noticed. The younger intrusive are represented by pegmatite and quartz veins. Evidence of development of incipient / patchy charnockite along the shear plane is noticed in the district along the Western Ghat high hills.

<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi- 1 Village, Kadayanallur Taluk, Tirunelveli District</b>	



**Figure 2.6: Geomorphology**

<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi- 1 Village, Kadayanallur Taluk, Tirunelveli District</b>	



**Figure 2.7 Lithology**

## 2.6 QUALITY OF RESERVES:

The mining lease area is of 2.23.0 Ha, with production capacity of 82,900 m<sup>3</sup> of Rough Stone and 19,422 m<sup>3</sup> of Gravel. Due to significant role in the domestic as well as infrastructural market, making the mining of Stone and gravel along with associated minor minerals is economically viable.

**Table 2-6: Details of Mining**

<b>S. No</b>	<b>Particulars</b>	<b>Details</b>
1	Method of Mining	Open Cast mechanized

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi- 1 Village, Kadayanallur Taluk, Tirunelveli District</i>	

2	Geological Reserves	2,54,870 m <sup>3</sup> of Rough stone and 28,084 m <sup>3</sup> of Gravel
3	Recoverable Reserves	82,900 m <sup>3</sup> of Rough stone and 19,422 m <sup>3</sup> of Gravel
4	Proposed Production	82,900 m <sup>3</sup> of Rough stone and 19,422 m <sup>3</sup> of Gravel
5	Elevation Range of the Mine Site	210 m MSL

### 2.6.1 Geological Reserves

The Geological reserves have been calculated. The available geological reserve is estimated as 2,54,870 m<sup>3</sup> of Rough Stone and 28,084 m<sup>3</sup> of Gravel respectively. Availability of Resources is given below. The quarrying is restricted up to a depth of 22 m below ground level only. Availability of Resources is given below.

**Table 2-7: Geological Reserves**

SECTION	BENCH	LENGT H (M)	WIDT H (M)	HEIGH T (M)	VOLUME in M <sup>3</sup>	GRAVEL FORMATIO N in M <sup>3</sup>	GEOLOGIC AL RESOURCES OF ROUGH STONE IN M <sup>3</sup>
<b>XY-AB</b>	I	49	106	2	10388	10388	
	II	49	106	20	103880		77910
	<b>Total</b>					<b>10388</b>	<b>77910</b>
<b>XY-CD</b>	I	83	49	2	8134	8134	
	II	83	49	20	81340		81340
	<b>Total</b>					<b>8134</b>	<b>81340</b>
<b>XY-EF</b>	I	27	97	2	5238	5238	
	II	27	97	20	52380		52380
	<b>Total</b>					<b>5238</b>	<b>52380</b>
<b>XY-GH</b>	I	47	46	2	4324	4324	
	II	47	46	20	43240		43240
	<b>Total</b>					<b>4324</b>	<b>43240</b>
						<b>28084</b>	<b>254870</b>

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi- 1 Village, Kadayanallur Taluk, Tirunelveli District</i>	

## 2.6.2 Mineable Reserves

**Table 2-8: Mineable Reserves**

SECTION	BENCH	LENGTH IN (M)	WIDTH IN (M)	DEPTH IN (M)	VOLUME IN M <sup>3</sup>	GRAVEL IN M <sup>3</sup>	MINEABLE RESERVES OF ROUGH STONE IN M <sup>3</sup>
XY-AB	I	39	91	2	7098	7098	
	II	36	85	5	15300		15300
	III	28	72	5	10080		10080
	IV	15	59	5	4425		4425
	<b>Total</b>						<b>7098</b>
XY-CD	I	83	33	2	5478	5478	
	II	78	28	5	10920		10920
	III	83	15	5	6225		6225
	<b>Total</b>						<b>5478</b>
XY-EF	I	27	82	2	4428	4428	
	II	27	76	5	10260		10260
	III	27	69	5	9315		9315
	IV	26	56	5	7280		7280
	V	13	43	5	2795		2795
	<b>Total</b>						<b>4428</b>
XY-GH	I	39	31	2	2418	2418	
	II	36	25	5	4500		4500
	III	30	12	5	1800		1800
	<b>Total</b>						<b>2418</b>
<b>Grand Total</b>						<b>19422</b>	<b>82900</b>

The Available mineable reserve is computed as 82,900 m<sup>3</sup> of Rough stone and 19,422 m<sup>3</sup> of Gravel upto a depth of 22 m below ground level only.

## 2.6.3 Year wise Production Plan

The applicant has proposed to carry out 82,900 m<sup>3</sup> of Rough stone and 19,422 m<sup>3</sup> of Gravel at the rate of 100% recovery upto a depth of 22 m below ground level for the period of five years only.

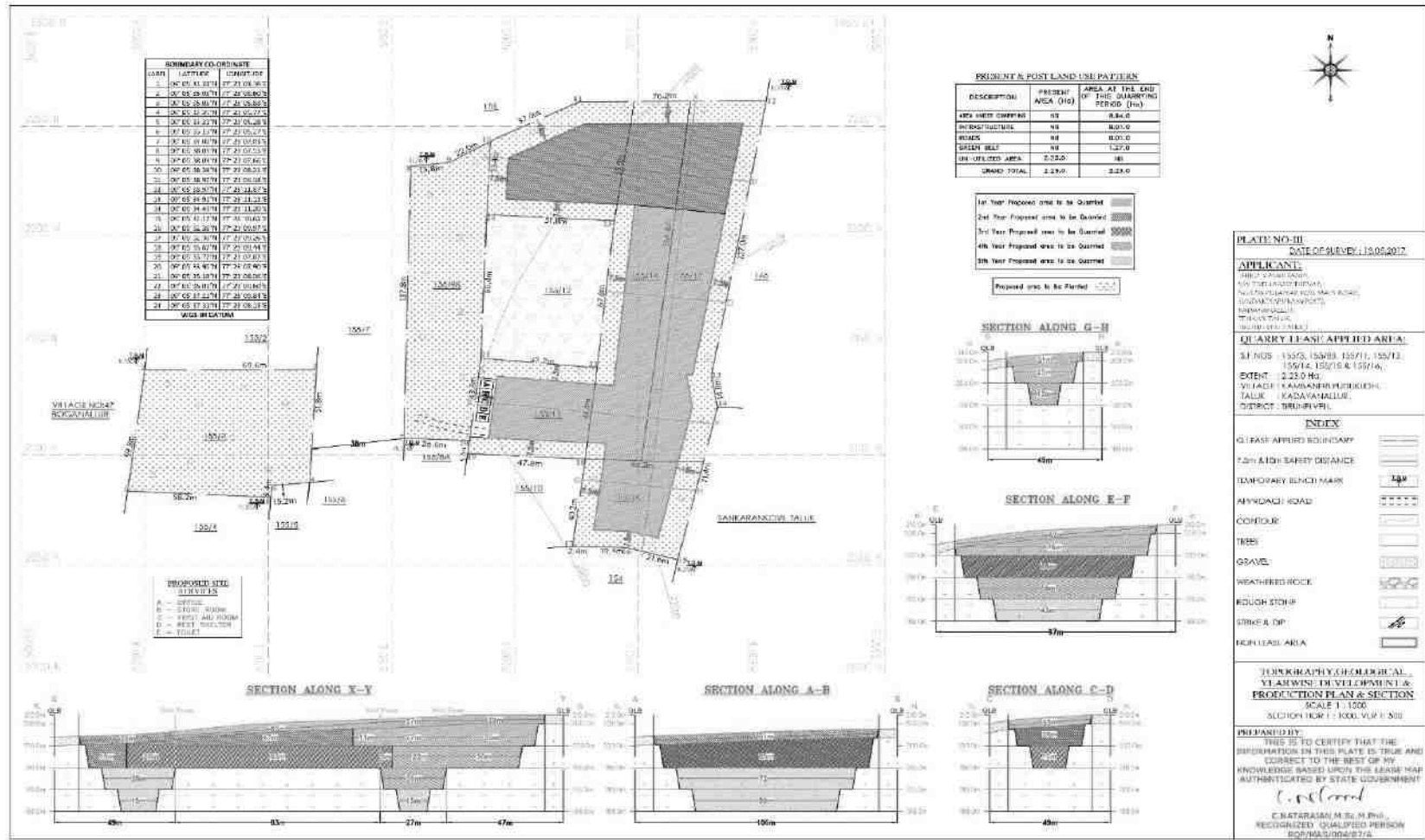
<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi- 1 Village, Kadayanallur Taluk, Tirunelveli District</i>	

**Table 2-9: Year wise Production Plan**

<b>YE A R</b>	<b>SECTIO N</b>	<b>BENC H</b>	<b>LENGTH IN (M)</b>	<b>WIDTH IN (M)</b>	<b>DEPTH IN (M)</b>	<b>VOLUM E IN M<sup>3</sup></b>	<b>GRAVEL IN M<sup>3</sup></b>	<b>ROUGH STONE IN M<sup>3</sup></b>
I	XY-GH	I	39	31	2	2418	2418	
		II	36	25	2	4500		4500
	XY-EF	I	27	82	2	4428	4428	
		II	27	76	5	10260		10260
	XY-CD	I	83	33	2	5478	5478	
		II	11	28	5	1540		1540
<b>Total</b>							<b>12324</b>	<b>16300</b>
II	XY-CD	II	67	28	5	9380		9380
	XY-AB	I	39	91	2	7098	7098	
		II	16	85	5	6800		6800
<b>Total</b>							<b>7098</b>	<b>16180</b>
III	XY-AB	II	20	85	5	8500		8500
	XY-CD	III	83	15	5	6225		6225
	XY-EF	III	5	69	5	1725		1725
<b>Total</b>								<b>16450</b>
IV	XY-EF	III	22	69	5	7590		7590
		IV	26	56	5	7280		7280
	XY-GH	III	30	12	5	1800		1800
<b>Total</b>								<b>16670</b>
III	XY-AB	III	28	72	5	10080		10080
		IV	15	59	5	4425		4425
	XY-EF	V	13	43	5	2795		2795
<b>Total</b>								<b>17300</b>
<b>Grand Total</b>							<b>19422</b>	<b>82900</b>



<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi-1 Village, Kadayannallur Taluk, Tirunelveli District</b>	



**Figure 2.8 Year wise Production Plan**

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi-1 Village, Kadayanallur taluk, Tirunelveli District</i>	

## 2.7 TYPE OF MINING

The proposed project is an open cast mechanized mining with one with 5.0 meter vertical bench with a bench width of 5.0 meter. However, as far as the quarrying of Rough Stone is concerned, observance of the provisions of regulations 106(2) (b) as above is seldom possible due to various inherent petro genetic factors coupled with mining difficulties. Hence, it is proposed to obtain relaxation to the provisions of the above regulation from the Director of Mines Safety for which necessary provision is available with the Regulation 106(2) (b) of MMR-1961, under Mines Act- 1952.

### 2.7.1 *Method of Working:*

The Rough stone, Jelly and Gravel Quarry is proposed to quarry at 5m bench height & 5m width with conventional Open cast mechanized method. The quarrying operation will be carried out in conjunction with conventional method of mining using Jack hammer drilling and blasting for shattering effect and loosen the Rough stone and Gravel Quarry.

### 2.7.2 *Overburden*

The overburden is in the form of Gravel formation, it has been removed earlier quarry operation. The excavated rough stone will be directly loaded into tipper to the needy crushers/ other buyers for road project and construction works for filling and levelling of low lying areas.

### 2.7.3 *Machineries to be used*

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

**Table 2-10: List of Machineries used**

For Mining operation	Excavator of 0.90 Cu.m bucket capacity Jack Hammer (30-32 mm dia) Tractor mounted compressor
Loading Equipment	Excavator of 0.9 Cu.m bucket capacity
Transportation	Tipper 3 No. of 5/10 Ts capacity

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi-1 Village, Kadayanallur taluk, Tirunelveli District</i>	

#### 2.7.4 *Blasting:*

##### 2.7.4.1 **Blasting Pattern:**

The quarrying operation will be carried out in conjunction with conventional method of mining using Jack hammer drilling and blasting for shattering effect and loosen the Rough stone.

##### 2.7.4.2 **Drilling & Blasting:**

Drilling and Blasting Parameters are as follows

**Table 2-11: Drilling and Blasting Parameters**

<b>Parameters</b>	<b>Details</b>
Depth of each hole	1 m to 1.5m
Diameter of hole	32-36 mm
Spacing between holes	0.6 m
Pattern of hole	Zigzag
Inclination of holes	70° from horizontal
Use of delay detonators	25 milli seconds delays
Detonating fuse	“Detonating” Cord

##### 2.7.4.3 **Types of Explosives to be used:**

Slurry Class 3 explosives, type of nitro compound are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling or primary blasting is proposed. Detonators of Class 3 and Safety fuse of Class 6 are used.

##### 2.7.4.4 **Measures to minimize ground vibration due to blasting:**

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

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi-1 Village, Kadayanallur taluk, Tirunelveli District</i>	

**Table 2-12: Blasting Details**

<b>Parameters</b>	<b>Details</b>
Diameter of holes	32-36mm
Spacing between holes	0.6 m
Depth	1 to 1.5 m
Charge/Hole	0.6kg
Pattern of hole	Zig Zag
Inclination of Hole	70° from the horizontal
Blasting time	4.30 P.M to 5.30 P.M

**2.7.4.5 Storage & Safety measures taken during blasting:**

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

**2.8 MAN POWER REQUIREMENTS**

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

**Table 2-13: Man Power Requirements**

1.	Skilled	Mines Manager/Mat	1 No.
		Operator	6 No.
		Mechanic	1 No.
2.	Semi-Skilled	Driver	3 Nos
3.	Unskilled	Musdoor/Labour	6 Nos
		Total	17 Nos

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

<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<b>Draft EIA Report</b>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi-1 Village, Kadayanallur taluk, Tirunelveli District</b>	

### 2.8.1 Water Requirement

Total water requirement for the mining project is 2.0 KLD. Domestic water will be sourced from nearby Sundaresapuram village and other water will be source from nearby road tankers supply.

**Table 2-14: Water Requirement**

Purpose	Quantity	Sources
Drinking Water	1.0 KLD	Packaged Drinking water vendors available in Sundaresapuram village which is about 0.75 km N of
Green belt	0.5KLD	Other domestic activities through road tankers supply
Dust suppression	0.5KLD	From road tankers supply
<b>Total</b>	<b>2.0 KLD</b>	

### 2.9 PROJECT IMPLEMENTATION SCHEDULE

The implementation schedule of the proposed Mine Lease of Thiru V. Maripandi (2.23.0 ha) is as follows.

**Table 2-15: Mining Schedule**

<b>MINING SCHEDULE</b>					
Activity	Jan -24	Jan-25	Jan-26	Jan-27	Jan-28
Site Clearance					
Excavation – Rough stone & Gravel					
I Year Production – Cum – 16300 m <sup>3</sup> Rough Stone & 12324 m <sup>3</sup> Gravel					
II Year Production – Cum – 16180 m <sup>3</sup> Rough Stone & 7098 m <sup>3</sup> Gravel					
III Year Production – Cum – 16450 m <sup>3</sup> Rough Stone					
IV Year Production - Cum – 16670 m <sup>3</sup> Rough Stone					
V Year Production – Cum – 17300 m <sup>3</sup> Rough Stone					

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<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi-1 Village, Kadayanallur taluk, Tirunelveli District</i>	

## 2.10 SOLID WASTE MANAGEMENT

**Table 2-15: Solid Waste Management**

<b>S. No</b>	<b>Type</b>	<b>Quantity</b>	<b>Disposal Method</b>
1	Organic	3.06 kg/day	Municipal bin including food waste
2	Inorganic	4.59 kg/day	TNPCB authorized recyclers

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

## 2.11 MINE DRAINAGE

The quarry operation is proposed up to a depth of 22 m below ground level. The water table is below 48 m from the ground level which is observed from the nearby bore wells and bore wells of this area. Hence the ground water will not be affected in any manner due to the quarrying operation during the entire lease period.

## 2.12 POWER REQUIREMENT

This Rough stone quarry project does not require huge water and electricity for the project.

**16 Litre** diesel per hour for excavator for mining and loading for Rough Stone needed and **10 Litre** diesel per hour for excavation of Top soil needed.

## 2.13 PROJECT COST

1	<b>A. Fixed Asset Cost:</b>	
	1. Land Cost	: Rs. 8,92 000
	2. Labour shed	: Rs.1,00,000
	3. Sanitary Facility	: Rs. 1,00,000
	4. First Aid Room and Accessories	: Rs.1,00,000
		: <b>Rs. 11,92,000/-</b>

<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<b>Draft EIA Report</b>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi-1 Village, Kadayanallur taluk, Tirunelveli District</b>	

	<b>Total=</b>		
2	<b>B. Operational Cost:</b>		
	1.Machineries	:	Rs.40,00,000/-
	2. Fencing Cost	:	Rs. 1,00,000/-
	<b>Total</b>		<b>Rs. 41,00,000/-</b>
	<b>Total Project Cost(A+B)</b>	:	<b>Rs. 52,92,000/-</b>

### I. EMP Cost :

Categories	Mitigation Measure	Provision for Implementation	Capital Cost	Recurring Cost
			(Rs)	
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	22300	22300
	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	100000	25000
	Air Quality will be regularly monitored as per norms within ML area & Ambient Area	Yearly Compliance as per CPCB norms	0	40000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / 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	25000	2500

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
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<i>Project Location</i>	<i>Kampaneri Puthukudi-1 Village, Kadayanallur taluk, Tirunelveli District</i>	

	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	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	15000	0
	Regular monitoring of exhaust fumes as per RTO norms		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	10000
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	40000	10000
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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<b>Project Location</b>	<b>Kampaneri Puthukudi-1 Village, Kadayanallur taluk, Tirunelveli District</b>	

Noise Environment	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
	Ambient Noise will be regularly monitored as per norms within ML area and near Reserve Forest with necessary permission	Yearly compliance as per CPCB Norms	0	20000
	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	40000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	200000
Water Environment	Water Environment	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	22300	5000
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	3000	2000

<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<b>Draft EIA Report</b>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi-1 Village, Kadayanallur taluk, Tirunelveli District</b>	

		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
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	2000
	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)	68000	17000
Implementation of EC, Mining Plan & DGMS Condition	Health checkup for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	17000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	4460
	Mine will have safety precaution measures, signages, boards.	Provision for signages and boards made	10000	2000
	Barbed Wire Fencing to quarry area will be provisioned.	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	446000	10000
Implementation of EC, Mining Plan & DGMS Condition	No parking will be provided on the transport routes. Separate provision on the south side of the hill will be	Parking area with shelter and flags @ Rs. 50,000/- per hectare project and Rs.	111500	10000

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<b>Project Location</b>	<b>Kampaneri Puthukudi-1 Village, Kadayanallur taluk, Tirunelveli District</b>	

	made for vehicles /HEMMs. Flaggers will be deployed for traffic management	10,000/- as maintenance cost		
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	20000	5000
	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1st Class / 2nd 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
Greenbelt development	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)	89200	13380
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	200700	20070
Total			1228000	1241710
Total Cost			2469710	

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<b>Project Location</b>	<b>Kampaneri Puthukudi-1 Village, Kadayanallur taluk, Tirunelveli District</b>	

Year	Cost (@ 5% per year inflation adjustment)
1 <sup>st</sup> Year	2469710
2 <sup>nd</sup> Year	1303796
3 <sup>rd</sup> Year	1368985
4 <sup>th</sup> Year	1437435
5 <sup>th</sup> Year	1509306
Total	80,89,232

**Total EMP Cost – Rs. 80,89,232 (Rs. 80 Lakhs)**

#### 2.14 GREENBELT

1. The development of greenbelt in the peripheral buffer zone of the mine area.
2. Green belt has been recommended as one of the major components of Environmental Management plan, which will improve ecology, environment and quality of the surrounding area.
3. Local trees like, Neem, Vilvam Vaagai, Naval etc will be planted along the lease boundary and avenues as well as over non-active dumps at a rate of 223 trees per annum with interval 5m.
4. The rate of survival expected to be 80% in this area

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**Table. 2-17 Plantation/ Afforestation Program**

<b>Name of species proposed</b>	<b>Survival</b>	<b>No of species</b>
Neem, Vilvam Vaagai, Eachai, Naval, Mantharai, Magizha Maram, Vila maram, Poo Marudhu, Panai Maram, Marudha Maram, Thandri, Sengondrai, Poovarasu, Therthag kottai , Pungam	80%	1115
<b>Total</b>		<b>1115</b>

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<i>Project Location</i>	<i>Kampaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District</i>	

### 3 Description of the Environment

#### 3.1 GENERAL:

The method of mining for extracting rough stone quarry and gravel 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.9623/SEAC/ToR-1325/2023 Dated: 10.02.2023. The baseline monitoring is carried out in March

<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry-2.23.0 Ha</b>	<i>Draft EIA Report</i>
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<b>Project Location</b>	<b>Kampaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District</b>	

2023 to May 2023 and the analysis is briefed in the EIA report. The proponent has engaged M/s. Ecotech labs Pvt. Ltd for carrying out the existing baseline study.

### 3.1.2 *Instruments Used*

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

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

### 3.1.3 *Baseline Data Collection Period:*

The baseline data is collected in accordance with the CPCB Guidelines. The Baseline study is carried out from March 2023 to May 2023.

### 3.1.4 *Frequency of Monitoring*

**Table 3-1: Frequency of Sampling and Analysis**

<b>Attributes</b>	<b>Sampling</b>	<b>Frequency</b>
Air environment – Meteorological (wind speed, wind direction, rainfall, humidity, temperature)	Project site	1 hourly continuous
Air environment – Pollutants PM 10 PM 2.5 SO <sub>2</sub> NO <sub>x</sub> Lead in PM	5 locations	24 hourly twice a week 4 hourly. Twice a week, One non-monsoon season 8 hourly, twice a week 24 hourly, twice a week
Noise	5 locations	24 hourly Once in 5 locations
Water (Ground water)	5 locations	Once in 5 locations

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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)	5 locations	Once in 5 locations
Ecology and biodiversity Study	Study area covering 10 km radius	One-time Sampling
Socio- Economic study (Population, Literacy Level, employment, Infrastructure like school, hospitals & commercial establishments)	Villages around 10 km radius	One-time Sampling



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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.No. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 & 155/16 – 1.40.5 Ha, Kampaneri Puthukudi – 1 Village, Kadayanallur Taluk, Tirunelveli District, Tamil Nadu State	Field Study
2.	Latitude & Longitude	Latitude : 09°05'32.17"N to 09°05'38.97"N Longitude : 77°23'07.87"E to 77°23'11.87"E	Topo Sheet
3.	Topo Sheet No.	58 G/08	Survey of India Toposheet
4.	Mine Lease Area	2.23.0 Ha	--
Demography in the study area (as per Census 2011)			
5.	Total Population	8242	Census Survey of India
6.	Total Number of Households	2272	
7.	Maximum Temperature (°C)	34	IMD
8.	Minimum Temperature (°C)	31	

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9.	<p>Ecological Sensitive Areas - Wetlands, watercourses or other waterbodies, coastal zone, biospheres, mountains, forests</p>	<ul style="list-style-type: none"> <li>❖ Chidambaramperi Small Lake – 1.12 kms, N</li> <li>❖ Shenbaganallur Lake – 1.18 Kms – W</li> <li>❖ Bala Arunachalapuram Lake – 1.48 kms, S</li> <li>❖ Kambaneri Puthukudi Lake – 2.21 kms, S</li> <li>❖ Sanganaperi Lake – 2.34 kms, NE</li> <li>❖ Chidambaramperi Lake – 2.39 kms, N</li> <li>❖ Aavarantha Kulam – 2.63 kms, NW</li> <li>❖ Tirumalapuram South Pond – 3.46 kms, SE</li> <li>❖ Silambu Kulam – 3.58 kms, N</li> <li>❖ Attakkulam – 4.12 kms, SW</li> <li>❖ Puthukulam – 4.28 kms, W</li> <li>❖ Periyakulam – 5 kms, E</li> <li>❖ Pattaikulam – 6.27 kms, SE</li> <li>❖ Chenkulam – 6.40 kms, E</li> <li>❖ Urmelazhagiyan Lake – 7.60 kms, S</li> <li>❖ Thannuthu Kulam – 7.80 kms, SE</li> <li>❖ Samuthiram – 8 kms, NE</li> <li>❖ Govindaperi – 9.30 kms, N</li> </ul>	<p>Google Earth/Field Study</p>
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		<ul style="list-style-type: none"> <li>❖ Naduvakurichi Lake – 9.70 kms, E</li> <li>❖ Singathukulam – 10.10 kms, E</li> <li>❖ Naranaperi – 10.20 kms, N</li> <li>❖ Keezhakulam – 10.30 kms, SW</li> <li>❖ Kokkoorani – 10.50 kms, N</li> <li>❖ Mallarkulam – 10.60 kms, SW</li> <li>❖ Ottankulam – 10.94 kms, S</li> <li>❖ Sakkarakulam – 11.21 kms, SE</li> <li>❖ Echantha Lake – 11.66 kms, SE</li> <li>❖ Sundarapandiyapuram Tank – 11.87 kms, S</li> <li>❖ Pottakulam – 13.62 kms, S</li> <li>❖ Surandai Lake – 13.70 kms, SE</li> <li>❖ Naanaa Kulam – 13.95 kms, S</li> <li>❖ Thiruchitrambalam Kulam – 14.47 kms, S</li> <li>❖ Periya Aaru – 1.65 kms, SW</li> <li>❖ Kallaru River – 9.33 kms, NW</li> <li>❖ Hanuman River – 10.15 kms, SW</li> <li>❖ Kadayanallur River – 11.54 kms, W</li> <li>❖ Chittraru River – 14.76 kms, SW</li> <li>❖ Karuppanadhi Dam – 9.80 kms, NW</li> <li>❖ Sambavarvadakarai Anaicut – 9.28 kms, SW</li> </ul>	
10.	Densely Populated area	Kadayanallur - 3 Km - SW	

<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry-2.23.0 Ha</b>	<i>Draft EIA Report</i>
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11.	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	<table border="1"> <thead> <tr> <th>S. No.</th> <th>Places</th> <th>Dist. From Project Site</th> </tr> </thead> <tbody> <tr> <td colspan="3" style="text-align: center;"><b>Schools</b></td> </tr> <tr> <td>1</td> <td>Success Matriculation Higher Secondary School, Tirumalapuram</td> <td>2.67 kms, SE</td> </tr> <tr> <td>2</td> <td>Government Boys Higher Secondary School, Kadayanallur</td> <td>4.13 kms, W</td> </tr> <tr> <td>3</td> <td>Government Higher Secondary School, Sendamaram</td> <td>6.77 kms, SE</td> </tr> <tr> <td>4</td> <td>Wisdom Higher Secondary School, Kadayanallur</td> <td>6.80 km, SW</td> </tr> <tr> <td>5</td> <td>Government Higher Secondary School, Kasidharmam</td> <td>7.60 kms, SW</td> </tr> <tr> <td colspan="3" style="text-align: center;"><b>Colleges</b></td> </tr> <tr> <td>1</td> <td>VKP Polytechnic College, Chockampatti</td> <td>4.60 kms, NW</td> </tr> </tbody> </table>	S. No.	Places	Dist. From Project Site	<b>Schools</b>			1	Success Matriculation Higher Secondary School, Tirumalapuram	2.67 kms, SE	2	Government Boys Higher Secondary School, Kadayanallur	4.13 kms, W	3	Government Higher Secondary School, Sendamaram	6.77 kms, SE	4	Wisdom Higher Secondary School, Kadayanallur	6.80 km, SW	5	Government Higher Secondary School, Kasidharmam	7.60 kms, SW	<b>Colleges</b>			1	VKP Polytechnic College, Chockampatti	4.60 kms, NW	Google Earth/ Field Study
		S. No.	Places	Dist. From Project Site																										
		<b>Schools</b>																												
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			2	Rukmani College of Education, Mangalapuram	5.81 kms, SW				
			3	Government Arts and Science College, Kadayanallur	7.26 kms, SW				
			4	S Veerasamy Chettiar College of Engineering & Technology, Puliyangudi	10 kms, NE				
			5	Kamarajar Govt Arts & Science College, Surandai	12.61 kms, SE				
			<b>Hospitals</b>						
			1	Government Primary Health Centre, Sundaresapuram	1.08 kms, N				
			2	Government Hospital, Kadayanallur	4.16 kms, SW				
			3	Government Hospital, Puliyankudi	8.39 kms, N				
			4	Upgraded Government Primary Health Centre, Elathur	14.21 kms, SW				

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### 3.1.7 Site Connectivity:

The site is connected to ODR – Kadayanallur to Virasigamani Road – 0.54 kms, SE



**Figure 3.1: Site Connectivity**

## 3.2 LAND USE ANALYSIS

### 3.2.1 *Land Use Classification*

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

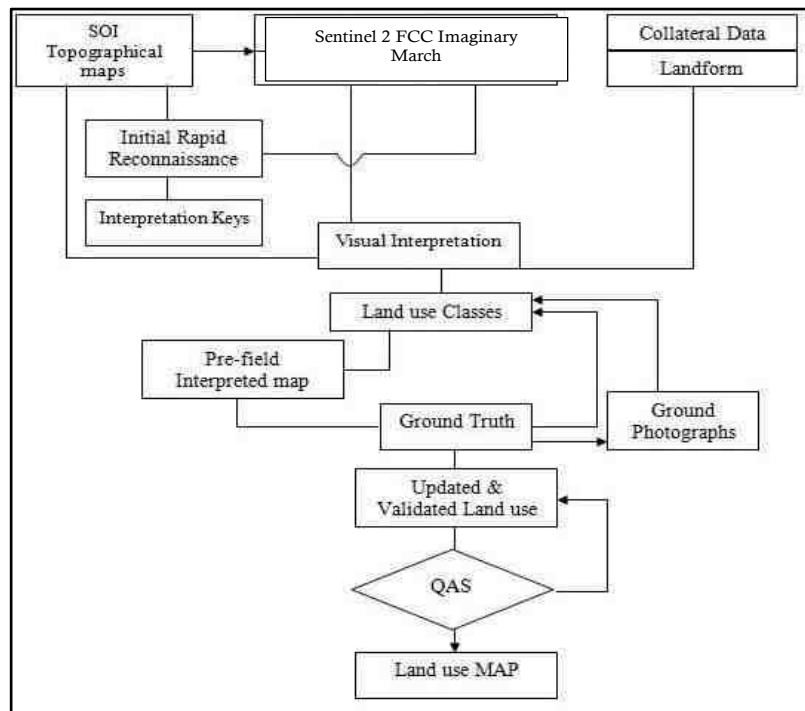
### 3.2.2 *Methodology*

Information of land use and land cover is important for many planning and management activities concerning the surface of the earth (Agarwal and Garg, 2000). Land use refers to man's activities on

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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 on to bring the digital data on the earth coordinate system by means of ground control point (GCP) assignments/SOI topo sheets.

### 3.2.4 *Scale of mapping*

Considering the user defined scale of mapping, 1:50000 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 -1 being the broad classification about the land covers that is Built-up land, agriculture land, waste land, wet lands, and water bodies. These are followed by level –II where built-up land is divided into towns/cities as well villages. The



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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

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underneath).

### **3.2.7.3 Grass**

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

### **3.2.7.4 Flooded vegetation**

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

### **3.2.7.5 Crops**

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

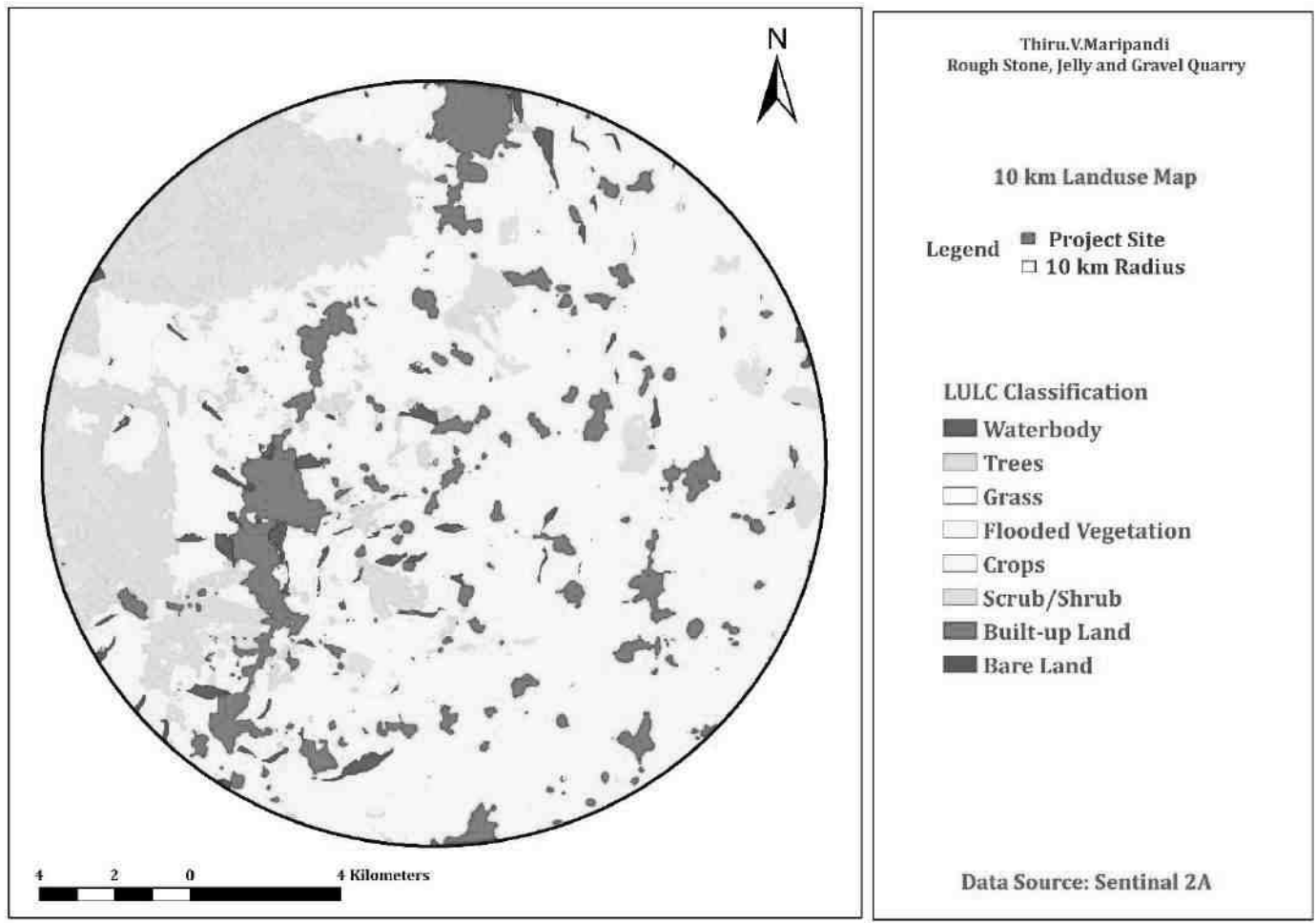
### **3.2.7.6 Scrub/Shrub**

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	6.15
2	Trees	32.46
3	Grass	0.05
4	Flooded vegetation	0.06
5	Crops	226.33
6	Scrub/Shrub	31.72
7	Built-up Area	29.14
8	Barren Land	0.008

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### 3.3 WATER ENVIRONMENT

#### 3.3.1 *Contour & Drainage*

The project site is 210 m MSL.

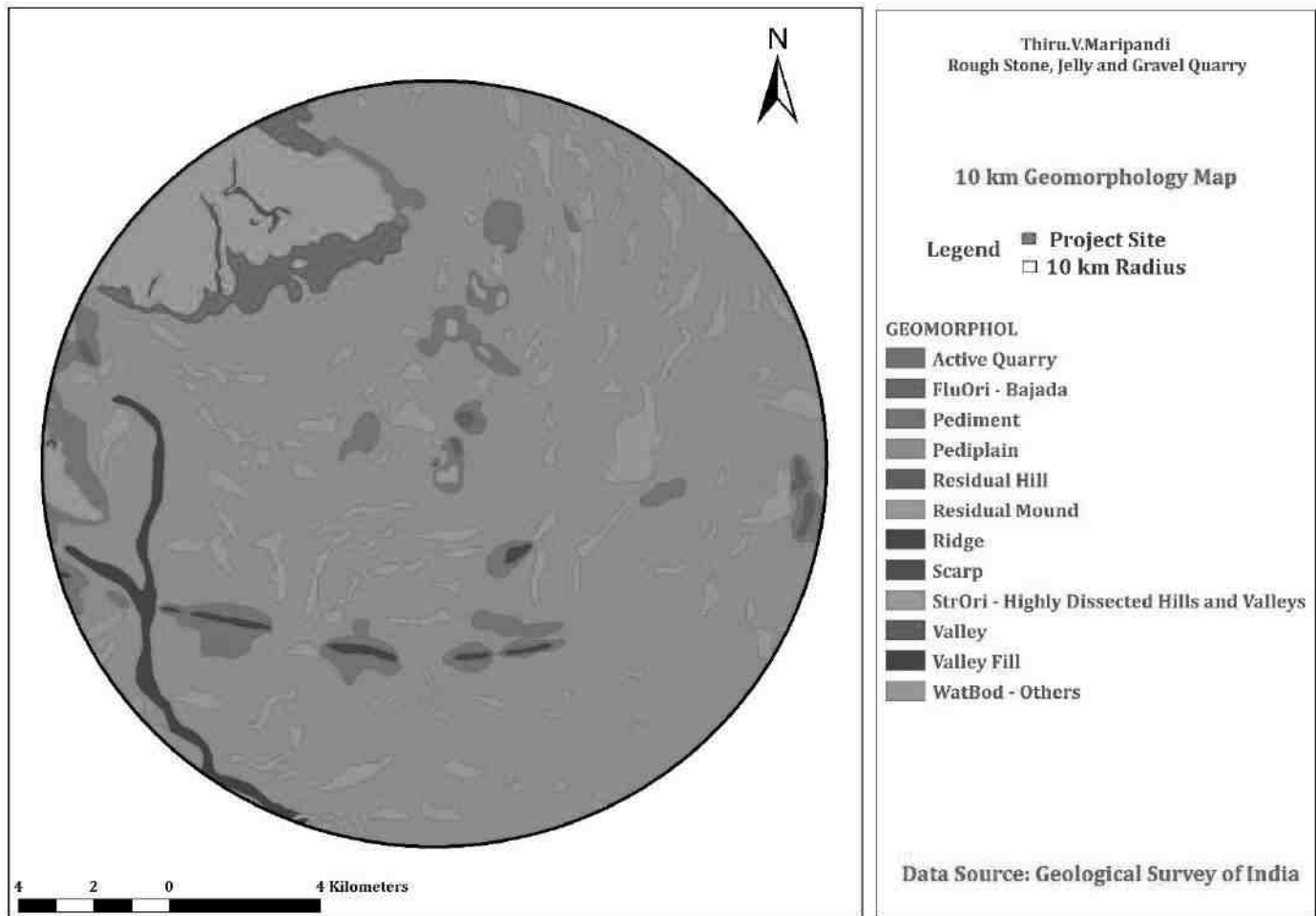
#### 3.3.2 *Geomorphology*

Tirunelveli district is bordered by Western Ghats (Ridge and valley complex) in the West. 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 general elevation of the area varies from less than 10 to 1408 m amsl (Tulukkarparai hill range). The prominent geomorphic units identified in the district through interpretation of Satellite imagery are Structural Hill, Bazada Zone, Valley Fill, Flood Plain, Pediment, Shallow buried pediment, Deep buried pediment and Coastal Plain.

#### **Soils**

Soils in the area have been classified into i) Deep Red soil ii). Red Sandy Soil. iii) Block Cotton Soil. iv) Saline Coastal Alluvium, and v) River Alluvium. Major parts of the area are covered by Deep Red soil and are found in Sivakasi, Tenkasi, Senkottai and Sankarankoil blocks and it is suitable for cultivating coconut and palmyrah trees. Red sandy soil also in reddish yellow in colour and are found in Nanguneri, Ambasamudram, and Radhapuram blocks and it is suitable for cultivating groundnut, millets and pulses etc., The Block Cotton Soil is found in Tirunelveli, Palayankottai and Sankarankoil blocks, and it is suitable for cultivating Paddy, Ragi, and Cholam etc., The Saline Coastal Alluvium are dark grey to deep brown in colour and spread over the Nanguneri and Radhapuram blocks. The River alluvial soils occur along the river courses of Tamrabarani and Chittar river covering in the blocks Tirunelveli and Palayankottai and it is suitable for cultivating Groundnut, Chillies and Cumbu.

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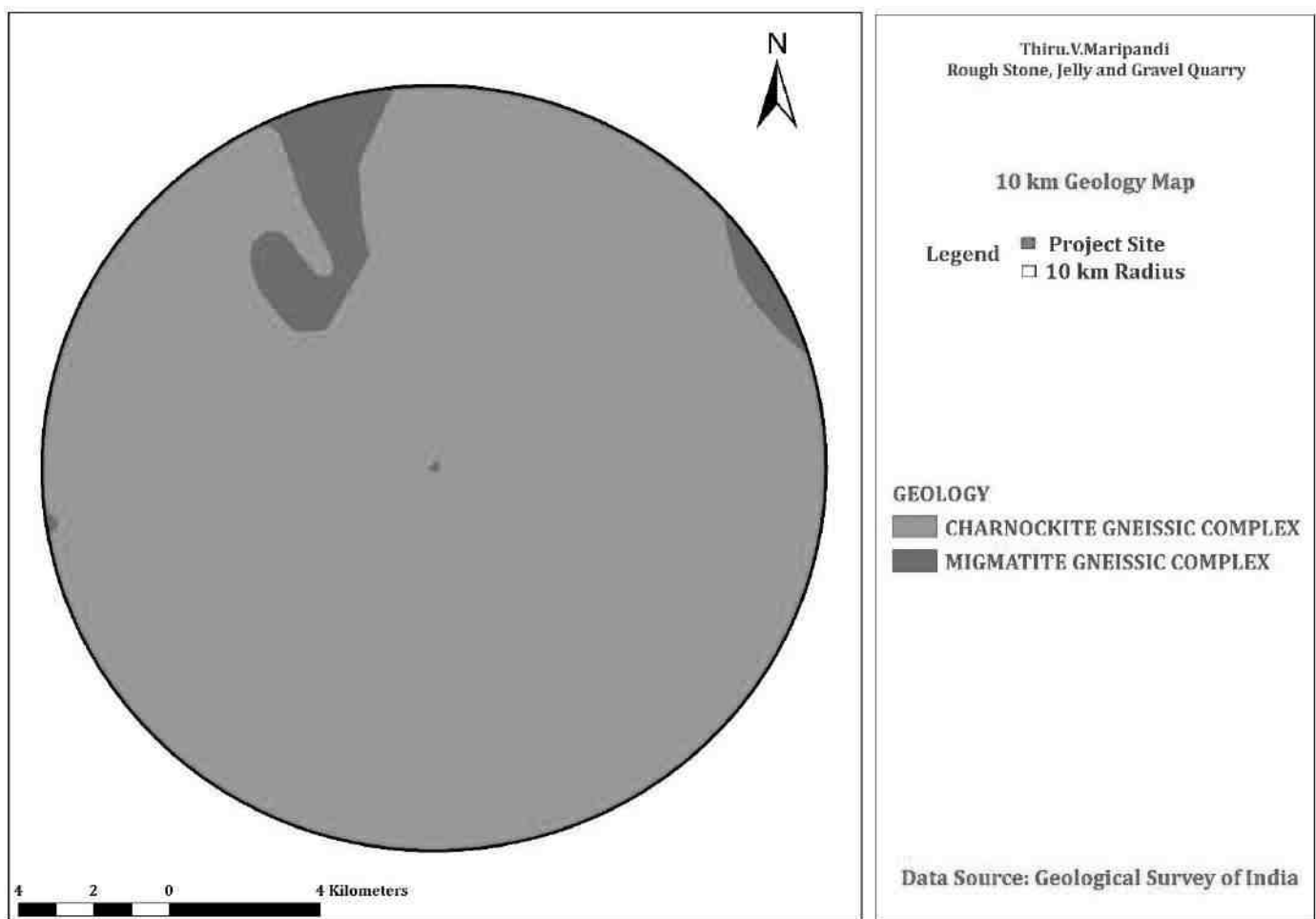
**Figure 3.4 Geomorphology within 10km from the project site**

### 3.3.3 *Geology:*

Southern Granulite Terrain (SGT) of Tamil Nadu lying south of Palaghat-Cauvery shear zone has been divided into two major tectonic blocks by the Madurai block and Nagercoil-Trivandrum Block in the south. It is separated by WNW-ESE trending Achankovil-Tambaraparani Lineament. Tirunelveli and Thothukudi are significantly the only districts in the state to witness the geology and structure of both the blocks. Tirunelveli district represents a well-developed lithopackage of meta-sedimentary sequence inter banded with charnockite Group of rocks. The rock types exposed are of quartzite, calc-granulite, garnet-biotite-sillimanite gneiss, garnet quartzo-feldspathic gneiss and garnetbiotite-cordierite gneiss

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belonging to Khondalite Group of rock. Charnockite and pyroxene granulite are the Charnockite Group. Hornblende-biotite gneiss belongs to Migmatitic Complex. Besides, basic intrusive (pyroxenite) and acid intrusive (granite) are noticed. The younger intrusive are represented by pegmatite and quartz veins. Evidence of development of incipient / patchy charnockite along the shear plane is noticed in the district along the Western Ghat high hills.



**Figure 3.5 Geology within 10km from the project site**

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### 3.3.4 Hydrogeology

The district is underlain by both porous and fissured formations. The important aquifer systems in the district are constituted by i) Weathered and fractured hard rock formations of Archaean age. ii) Porous sedimentary formations ranging in age from Tertiary and Recent. The porous formations are found as small patch in the southeastern part of the district and include sandstones, Limestones, Laterite and Clays from Tertiary to Quaternary. Isolated occurrence of calcareous sandstone and fossiliferous limestone are seen in coastal area on the southeastern side. The fossiliferous limestone is found south west of Kudankulam covering an area of 3 sq.km. Laterites are exposed as patches along Radhapuram-Edakkadu, Vijayanarayanam-Kumarapuram, Ittamoli, Nanguneri and Uramozi area. Beach sand occurs as a patch along the coast with a width varying from 50-250m in Idindakarai-Ovari Belt. The river alluvium is found along the river courses and the thickness of alluvium is restricted to 5-6m. The exploration in sedimentary tract has revealed that the depth to basement occurs at a depth of 120m bgl and granular zones are encountered between the depths of 20 to 92 m bgl. The yield of bore wells varies from 1-4.5 lps. The aquifer at the shallow depth is under unconfined condition and aquifer at depth is under semi-confined to confined condition. The shallow aquifer is developed through dug wells and deeper aquifer through tube wells. The dug well can sustain a pumping of 4 to 6 hours while the tube wells can sustain a pumping of 6-8 hours. The water-bearing properties of crystalline formations, which lack primary porosity, depend on the extent of development of secondary intergranular porosity. 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 semi-confined conditions in the fissured and fractured zones at deeper levels. The thickness of weathered zone in the district is in the ranges up to 30m bgl.

The yield of large diameter wells in the district, tapping the weathered mantle of crystalline rocks ranges from 50 to 250 lpm and are able to sustain pumping for 3 to 5 hours per day. The Specific capacity of large diameter wells tested in crystalline rocks ranges from 25 to 300 lpm / m. of drawdown. The yield characteristics of wells vary considerably depending on the topographic set-up, lithology and nature of weathering. The groundwater exploration in the district down to a depth of 200m bgl has revealed that in the western part of the district potential fractures are encountered beyond 100m bgl while in the rest of the area, potential fractures are restricted to 100m bgl. The yield of the wells varies from 1 to 3.6 lps. In general, the wells drilled by various State agencies mainly for domestic purposes have yield in the

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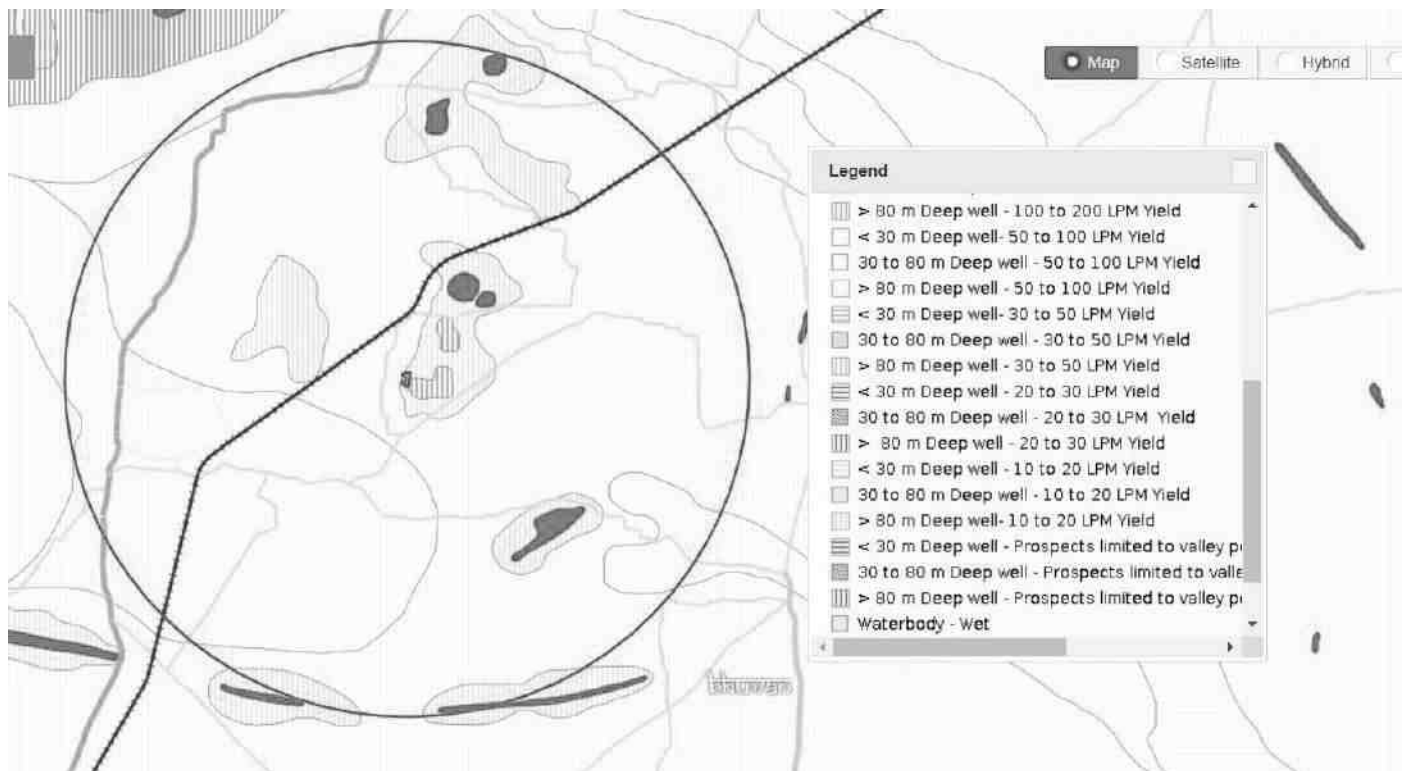
range of 63 to 270 lpm. The depth to water level in the district varied between 1.19 to 13.35 m bgl during premonsoon depth to water level (May 2006) and varied between 0.18 to 7.97 m bgl during post monsoon depth to water level (Jan 2007). The seasonal fluctuation shows a fall in water level, which ranges from -0.12 to -2.14 m bgl, and rise in water level, which ranges from 0.33 to 11.24 m bgl. The piezometric head varied between 1.72 to 13.65 m bgl (May 2006) during pre monsoon and 0.47 to 13.25 m bgl during post monsoon.

#### **Aquifer Parameters:**

<b>Formation</b>	<b>Yield of wells (lps)</b>	<b>Transmissivity (m<sup>2</sup> / day)</b>	<b>Hydraulic Conductivity (m/day)</b>	<b>Specific Yield (%)</b>	<b>Storativity</b>
Porous Formation	1.0-4.5	50-250	20-65	3-6	1.98X10 <sup>-4</sup>
Weathered Rock	<1-4.0	25-150	<1-15	1.5	-
Fractured Rock	1.0-3.6	25-250	<1-25	-	1.87X10 <sup>-5</sup> to 4.8X10 <sup>-3</sup>



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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	March 2023 to May 2023
Design Criteria	Based on the Environmental settings in the study area
Monitoring Locations	Project Site -GW 1 Sri Santhana Mariyamman Kovil, Achampatti – GW 2 Arulmigu Poigai Ootrudaiyar Sastha Temple, Kampaneri Puthukudi – GW 3 Arulmigu Sri Abayahastha Anjaneyar Temple, Kadayanallur – GW 4 Government School, Chidambaramperi – GW 5

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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 <sup>nd</sup> Edn.2012-2540-C
6	Total Suspended Solids	IS:3025(P-17)-1984 RA:2012
7	Total Hardness as CaCO <sub>3</sub>	APHA 22 <sup>nd</sup> Edn.2012-2340-C
8	Calcium as Ca	APHA 22 <sup>nd</sup> Edn2012.3500 Ca-B
9	Magnesium as Mg	APHA 22 <sup>nd</sup> Edn.2012-3500 Mg-B
10	Chloride as Cl	IS:3025(P -32)-1988 RA: 2014
11	Sulphate as SO <sub>4</sub>	APHA 22 <sup>nd</sup> Edn.2012-4500 SO <sub>4</sub> <sup>-2</sup> -E
12	Total Alkalinity as CaCO <sub>3</sub>	APHA 22 <sup>nd</sup> Edn.2012-2320-B
13	Iron as Fe	IS:3025(P -53):2003 RA: 2014
14	Silica as SiO <sub>2</sub>	IS:3025(P -35)1988 RA: 2014
15	Fluoride as F	APHA 22 <sup>nd</sup> Edn.2012-4500-F-D
16	Nitrate as NO <sub>3</sub>	IS:3025(P -34):1988 RA: 2014
17	Sodium as Na	IS:3025(P -45):1993 RA: 2014
18	Potassium as K	IS:3025(P -45):1993 RA: 2014
19	Coliform	IS:1622:1981:RA:2014
20	E.coli	IS:1622:1981:RA:2014

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**Table 3-6 Ground water sampling results**

<b>S. No</b>	<b>Parameters</b>	<b>Units</b>	<b>Project Site – GW 1</b>	<b>Sri Santhana Mariyamman Kovil, Achampatti – GW 2</b>	<b>Arulmigu Poigai Ootrudaiyar Sastha Temple, Kambaneri Puthukudi – GW 3</b>	<b>Arulmigu Sri Abayahastha Anjaneyar Temple, Kadayanallur – GW 4</b>	<b>Government School, Chidambaramperi – GW 5</b>
1	pH (at 25°C)	-	7.62	7.93	7.67	8.21	7.15
2	Electrical Conductivity	µS/cm	445	988	569	1550	2272
3	Colour	Hazen Unit	3	2	3	5	3
4	Turbidity	NTU	BQL(LOQ: 1)	BQL(LOQ:1 )	BQL(LOQ :1)	4.2	BQL(LOQ: 1)
5	Total Dissolved Solids	mg/L	245	595	362	853	1350
6	Total Suspended Solids	mg/L	BQL(LOQ: 2)	BQL(LOQ:2 )	BQL(LOQ :2)	5.4	BQL(LOQ: 2)
7	Total Hardness as CaCO <sub>3</sub>	mg/L	58.2	394	262	651	563
8	Calcium Hardness as CaCO <sub>3</sub>	mg/L	38.8	229	146	310	301
9	Magnesium Hardness as MgCO <sub>3</sub>	mg/L	19.4	165	116	341	262
10	Calcium as Ca	mg/L	15.5	91.7	58.3	124	121
11	Magnesium as Mg	mg/L	4.72	40.1	28.3	82.8	63.6
12	Chloride as Cl	mg/L	90.6	130	90	273	557
13	Sulphate as SO <sub>4</sub>	mg/L	36.8	121	45.1	92.2	97
14	Total Alkalinity as CaCO <sub>3</sub>	mg/L	193	335	263	172	250
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)

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16	Silica as SiO <sub>2</sub>	mg/L	11.5	23.8	26.9	36.1	47.3
17	Fluoride as F	mg/L	12.9	0.78	1.06	0.49	44.1
18	Nitrate as NO <sub>3</sub>	mg/L	0.359	61.1	28.6	8.82	0.861
19	Potassium as K	mg/L	2.9	7.63	3.39	32.6	67.2
20	Sodium as Na	mg/L	85.3	118	78.4	197.4	410

### 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): 3 Hazen unit.

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

##### **pH:**

Value observed in the Project Site: 7.62

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: <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: 245 mg/L.

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

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<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District</i>	

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

### **3.3.6.2 Chemical parameters of water:**

The chemical parameters of the drinking water include,

#### **Calcium:**

Value observed in the Project Site: 15.5 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: 4.72 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: 90.6 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.

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<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District</i>	

### **Total Alkalinity as CaCO<sub>3</sub>:**

Value observed in the project site: 193 mg/L.

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

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

### **Hardness:**

Value observed in the Project Site: 58.2 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 **Periyakulam**. The results are summarized below.

**Table 3-7 Surface Water Sample Results**

<b>S. No</b>	<b>Parameters</b>	<b>Units</b>	<b>Periyakulam</b>
1	pH (at 25°C)	-	8.32
2	Electrical Conductivity	μS/cm	579
3	Colour	Hazen Unit	greenish
4	Turbidity	NTU	65.8
5	Total Dissolved Solids	mg/L	318
6	Total Suspended Solids	mg/L	120
7	Total Hardness as CaCO <sub>3</sub>	mg/L	23.2
8	Calcium Hardness as CaCO <sub>3</sub>	mg/L	11.6
9	Magnesium Hardness as CaCO <sub>3</sub>	mg/L	11.6
10	Calcium as Ca	mg/L	4.66
11	Magnesium as Mg	mg/L	2.83
12	Chloride as Cl	mg/L	113
13	Sulphate as SO <sub>4</sub>	mg/L	33.8
14	Total Alkalinity as CaCO <sub>3</sub>	mg/L	145

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry-2.23.0 Ha</i>	<i>Draft EIA Report</i>
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15	Iron as Fe	mg/L	0.844
16	Silica as SiO <sub>2</sub>	mg/L	24.3
17	Fluoride as F	mg/L	0.25
18	Nitrate as NO <sub>3</sub>	mg/L	12.5
19	Potassium as K	mg/L	6.59
20	Sodium as Na	mg/L	108
21	Total Kjeldahl Nitrogen as N	mg/L	10.2
22	BOD @ 27°C	mg/L	56.6
23	COD	mg/L	203
24	DO	mg/L	5.92

**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 34°C and minimum temperature is 31°C.

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<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District</i>	

### iii) Rainfall

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

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

#### TIRUNELVELI 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
<b>2016</b>	3	0.0	1.7	3.1	77.6	6.9	60.0	24.0	25.7	72.5	42.9	57.9
<b>2017</b>	23.2	6.2	38.1	14.2	92.4	10.0	24.1	122.5	137.0	125.7	67.6	139.0
<b>2018</b>	0.1	28.4	26.3	62.7	149.0	8.0	52.5	58.5	108.4	182.7	75.2	7.5
<b>2019</b>	8.1	3.5	6.8	0.5	6.0	29.3	12.8	89.7	178.7	203.5	111.9	62.8
<b>2020</b>	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.

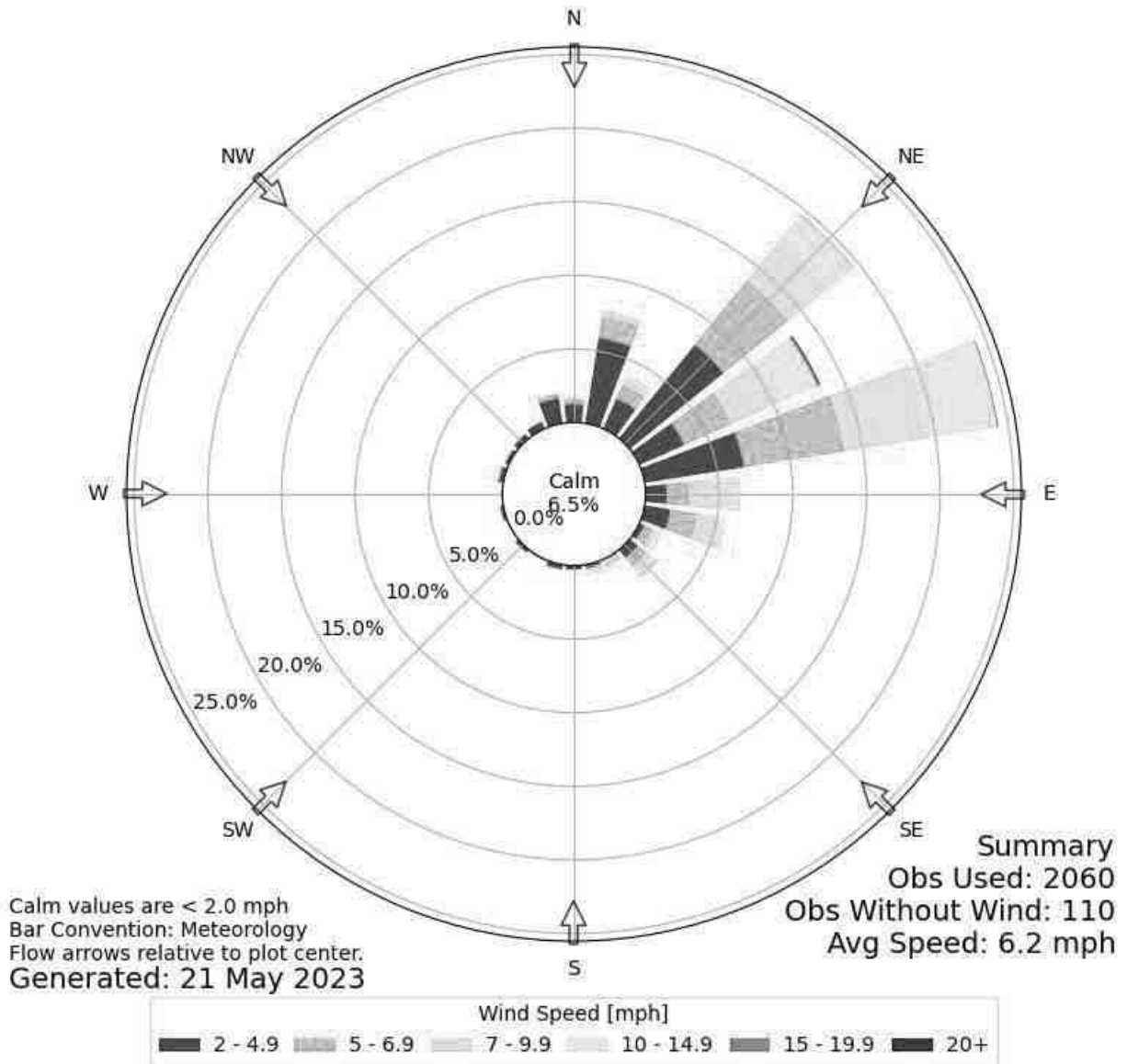
The wind speed & wind direction data are taken and wind rose is plotted for March 2023 to May 2023.



<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry-2.23.0 Ha</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi-1 Village, Kadayannallur Taluk, Tirunelveli District</b>	



Windrose Plot for [VOMD] Madurai  
 Obs Between: 01 Jan 2023 12:30 AM - 30 Mar 2023 11:30 PM Asia/Kolkata



**Figure 3.7 Wind rose**

<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry-2.23.0 Ha</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District</b>	

### 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.

## 3.4 AMBIENT AIR QUALITY

**Table 3-8: Selection of Sampling Location**

Environmental Parameters: <i>Ambient Air</i>			
Monitoring Period	March 2023 to May 2023		
Design Criteria	The monitoring stations are selected based on factors like topography/terrain, prevailing meteorological conditions like predominant wind direction (March 2023 to May 2023), etc, play a vital role in the selection of air sampling stations. Based on these criteria, 5 air sampling station were selected in the area as shown below.		
Monitoring Locations	<b>Location &amp; Code</b>	<b>Distance (km)</b>	<b>Direction</b>
	Project Site	--	--
	Govt. School, Chidambaramperi	2.67 Km	Crosswind N
	Arulmigu Sri Abayahastha Anjaneyar Temple, Kadayanallur	3.07 Km	Downwind W
	Arulmigu Poigai Ootrudaiyar Sastha Temple, Kambaneri Puthukudi	5.07 Km	Crosswind S
	Sri Santhana Mariyamman Kovil, Achampatti	2.81 Km	Upwind E
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.		

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry-2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District</i>	

#### 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.

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District</i>	

**Table 3-9 Ambient Air Quality**

Code	Location	PM 10 ( $\mu\text{g}/\text{m}^3$ )				PM 2.5 ( $\mu\text{g}/\text{m}^3$ )				SO2 ( $\mu\text{g}/\text{m}^3$ )				NOx ( $\mu\text{g}/\text{m}^3$ )			
		Min	Max	Avg	98 percentile	Min	Max	Avg	98 percentile	Min	Max	Avg	98 percentile	Min	Max	Avg	98 percentile
AAQ 1	Project Site	33	47	39.1	45.62	13	19	16.2	19	5	9	7.3	9	9	19	14.3	19
AAQ 2	Govt. School, Chidambaramperi	38	50	44.5	49.54	15	23	19.3	23	5	13	8.5	12.08	12	25	17.5	24.54
AAQ 3	Arulmigu Sri Abayahastha Anjaneyar Temple, Kadayanallur	48	58	52.5	57.08	18	29	23.0	28.08	11	20	14.7	19.54	21	34	25.9	33.08
AAQ 4	Arulmigu Poigai Ootrudaiyar Sastha Temple, Kambaneri Puthukudi	42	53	48.5	52.54	18	25	21.6	24.54	9	16	12.8	15.54	16	29	22.4	28.54
AAQ 5	Sri Santhana Mariyamman Kovil, Achampatti	48	60	53.8	59.08	22	31	25.7	30.08	13	20	15.8	20	22	39	29.2	38.54
NAAQ Standards - Residential Area		100 ( $\mu\text{g}/\text{m}^3$ )				60( $\mu\text{g}/\text{m}^3$ )				80 ( $\mu\text{g}/\text{m}^3$ )				80 ( $\mu\text{g}/\text{m}^3$ )			

<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District</b>	

### 3.4.2 Interpretation of ambient air quality:

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

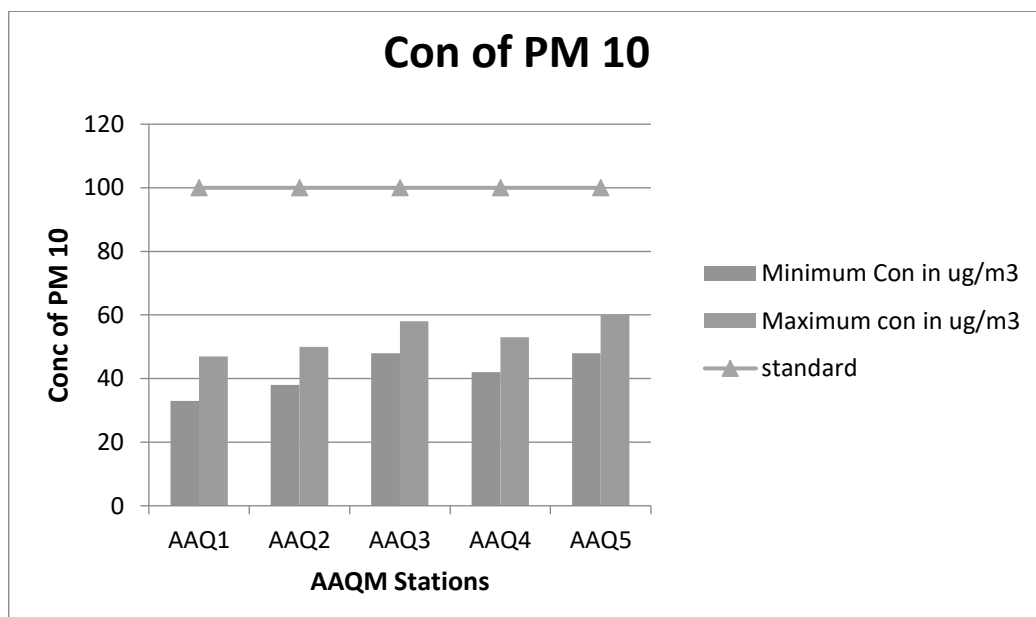
#### Observation:

The Maximum value of PM10 ( $60 \mu\text{g}/\text{m}^3$ ), PM 2.5 ( $31 \mu\text{g}/\text{m}^3$ ), SOx ( $20 \mu\text{g}/\text{m}^3$ ), NOx ( $39 \mu\text{g}/\text{m}^3$ ) is observed in different places.

#### Inference:

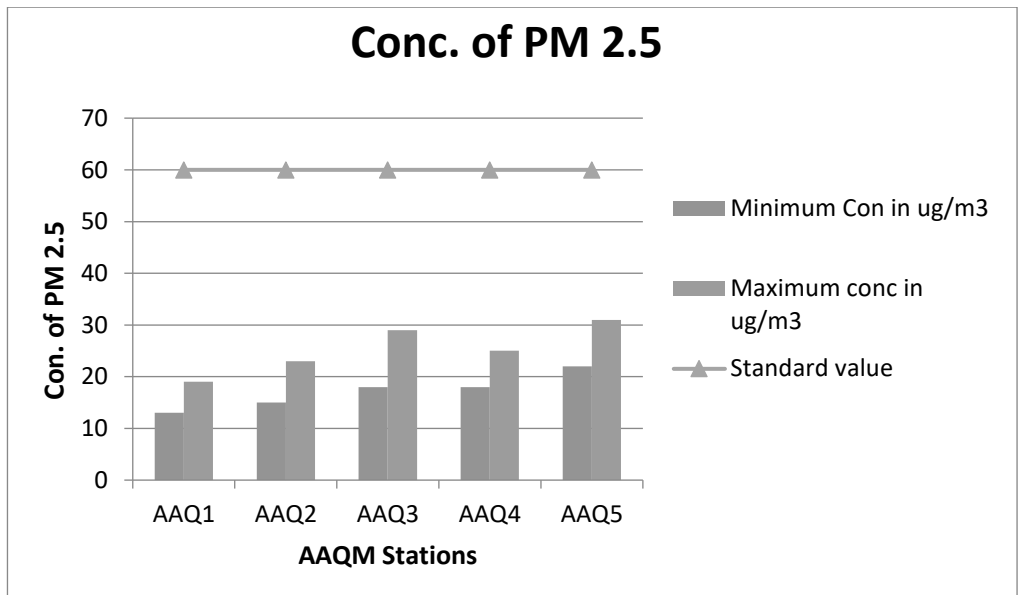
The monitoring results for PM10, PM2.5, SOx, NOx was found to be high in Sri Santhana Mariyamman Kovil, Achampatti which is due to the movement of vehicles .

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

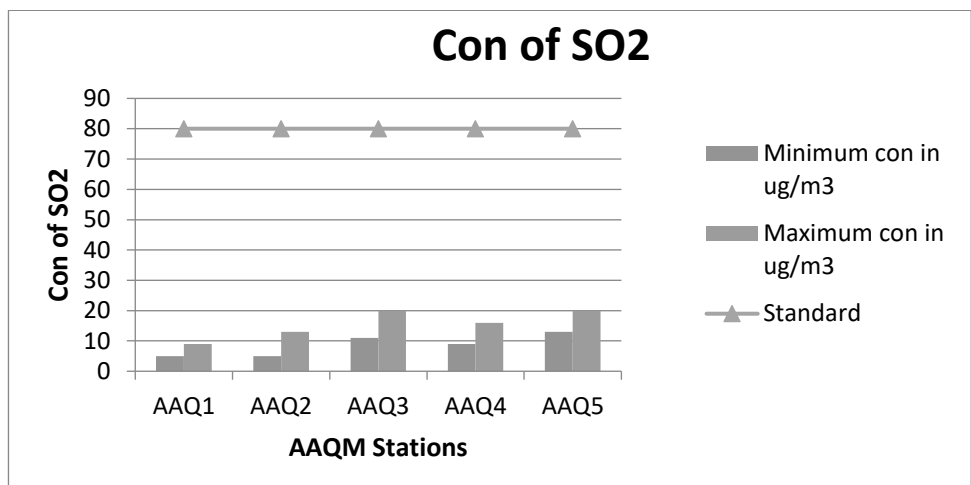


**Figure 3.8 Concentration of PM10 ( $\mu\text{g}/\text{m}^3$ ) in Study Area**

<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<b>Draft EIA Report</b>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi-1 Village, Kadayannallur Taluk, Tirunelveli District</b>	

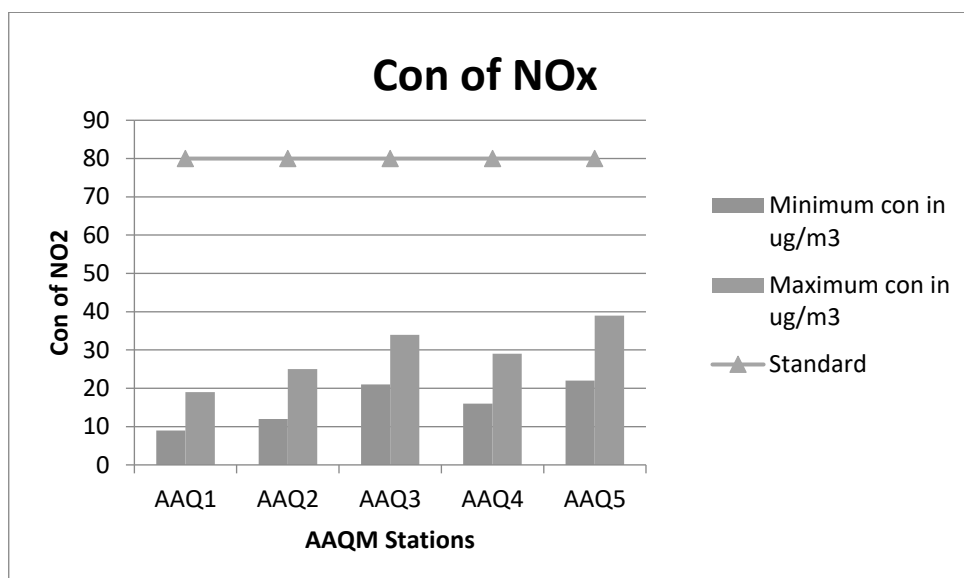


**Figure 3.9 Concentration of PM<sub>2.5</sub> (µg/m<sup>3</sup>) in Study Area**



**Figure 3.10 Concentration of SO<sub>x</sub> (µg/m<sup>3</sup>) in Study Area**

<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<b>Draft EIA Report</b>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District</b>	



**Figure 3.11 Concentration of NOx ( $\mu\text{g}/\text{m}^3$ ) in Study Area**

### 3.5 NOISE ENVIRONMENT:

**Table 3-10 Noise Analysis**

Environmental Parameters: <i>Noise Analysis</i>	
Monitoring Period	March 2023 to May 2023
Design Criteria	Based on the Sensitivity of the area
Monitoring Locations	Project Site – N 1 Government School, Chidambaramperi – N2 Arulmigu Sri Abayahastha Anjaneyar Temple, Kadayanallur – N3 Arulmigu Poigai Ootrudaiyar Sastha Temple, Kampaneri Puthukudi – N4 Sri Santhana Mariyamman Kovil, Achampatti – N5
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

<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<b>Draft EIA Report</b>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District</b>	

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

### 3.5.1 Maximum Day and Night Noise Level (Leq day)

**Table 3-11 Noise Level (Leq)**

<b>Location</b>	<b>Leq in dB(A)</b>		
	<b>Max in Day</b>	<b>Max in Night</b>	<b>Average</b>
Project Site	53	43	48
Government School, Chidambaramperi	55	46	50.5
Arulmigu Sri Abayahastha Anjaneyar Temple, Kadayanallur	60	47	53.5
Arulmigu Poigai Ootrudaiyar Sastha Temple, Kampaneri Puthukudi	58	47	52.5
Sri Santhana Mariyamman Kovil, Achampatti	61	50	55.5

### 3.5.2 Night Noise Level (Leq Night)

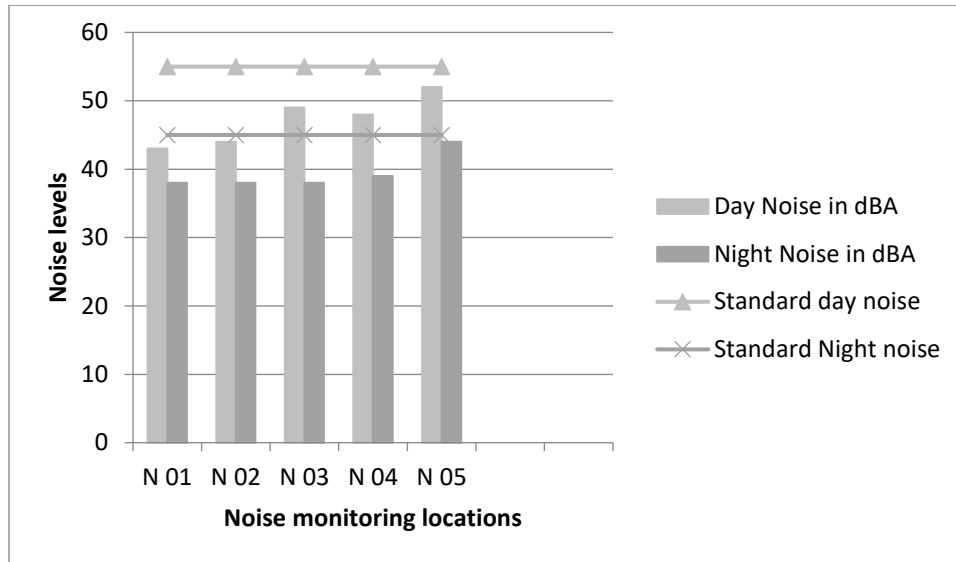
**Table 3-12 Noise Level (Leq)**

<b>Location</b>	<b>Leq Night in dB(A)</b>		
	<b>Min in Day</b>	<b>Min in Night</b>	<b>Average</b>
Project Site	43	38	40.5
Government School, Chidambaramperi	44	38	41
Arulmigu Sri Abayahastha Anjaneyar Temple, Kadayanallur	49	38	43.5
Arulmigu Poigai Ootrudaiyar Sastha Temple, Kampaneri Puthukudi	48	39	43.5

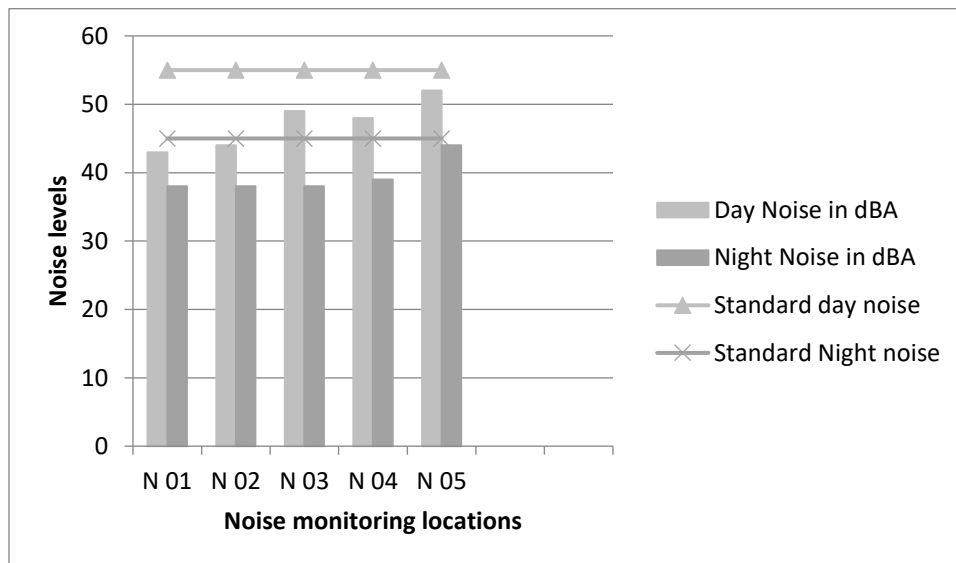


<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District</b>	

Sri Santhana Mariyamman Kovil, Achampatti	52	44	48
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**Noise Level (Leq) – Maximum Day and Night**



**Noise Level (Leq) – Minimum Day and Night**

**Observation:**

The maximum Day noise and Night noise were found to be 61 dB(A) and 50 dB(A) respectively in Sri Santhana Mariyamman Kovil, Achampatti. The minimum Day Noise and Night noise were 43 dB

<b>Project</b>	<b>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</b>	<i>Draft EIA Report</i>
<b>Project Proponent</b>	<b>Thiru. V. Maripandi</b>	
<b>Project Location</b>	<b>Kampaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District</b>	

(A) and 38 dB(A) respectively which was observed in Project site. The observed values are all well within the Standards prescribed by CPCB.

### 3.6 SOIL ENVIRONMENT

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



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

#### 3.6.1 *Baseline Data:*

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

- To determine the impact of proposed project on soil characteristics and

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District</i>	

- 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	March 2023 to May 2023
Design Criteria	Based on the environmental settings of the study area
Monitoring Locations	Project Site – SQ 1 Sri Santhana Mariyamman Kovil, Achampatti – SQ 2 Arulmigu Poigai Ootrudaiyar Sastha Temple, Kampaneri Puthukudi – SQ 3 Arulmigu Sri Abayahastha Anjaneyar Temple, Kadayanallur – SQ 4 Government School, Chidambaramperi – SQ 5
Methodology	Composite soil samples using sampling augers and field capacity apparatus
Frequency of Monitoring	Soil samples were collected from 5 locations Once in a season

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

**Table 3-14 Soil Quality Analysis**

<b>Parameters</b>	<b>Unit</b>	<b>Project Site SQ 1</b>	<b>Sri Santhana Mariyamman Kovil, Achampatti – SQ 2</b>	<b>Arulmigu Poigai Ootrudaiyar Sastha Temple, Kampaneri Puthukudi – SQ 3</b>	<b>Arulmigu Sri Abayahastha Anjaneyar Temple, Kadayanallur – SQ 4</b>	<b>Government School, Chidambaramperi – SQ 5</b>
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<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District</i>	

pH (at 25°C)	-	5.89	6.63	5.96	8.24	7.68
Specific Electrical Conductivity	mS/cm	0.03	0.06	0.05	0.31	0.21
Water Holding Capacity	ml/l	4.8	4.2	4.6	5.6	6.4
Chloride	g/cm <sup>3</sup>	179	115	10	129	152
Soluble Calcium	mg/kg	65.8	85.2	75.8	110	133
Soluble Sodium	mg/kg	479	493	506	652	597
Soluble Potassium	mg/kg	443	573	398	658	618
Organic matter	%	0.55	0.98	1.96	0.41	0.37
Magnesium	mg/kg	15.9	12.5	11.2	20.3	16.3
Sulphates	mg/kg	21.2	26.4	18.2	34.7	93.2
Cation Exchange Capacity	mg/kg	10.4	10.5	11.3	9.8	11.7
Carbonate	mg/kg	Nil	NIL	nil	16.1	Nil
Bicarbonate	mg/kg	54.7	104	25.6	139	83.7
Total Kjeldahl Nitrogen	%	0.12	0.032	0.02	0.05	0.16
Bulk Density	meq/100g	1.3	1.19	1.21	1.25	1.23
Phosphorous	meq/kg	135	125	85.8	142	128
Sand	%	66.7	71.4	51.7	52.6	68.2
Clay	mg/kg	6.6	7.2	14.3	21.1	9.09
Silt	mg/kg	26.7	21.4	34	26.3	22.7
SAR	mg/kg	13.7	13.2	14.4	14.9	13.1
Silicon	%	0.093	0.092	0.085	0.091	0.099

<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Thiru. V. Maripandi</i>	
<i>Project Location</i>	<i>Kampaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District</i>	

### 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 1.19 to 1.30 g/cm<sup>3</sup> which indicates favorable physical condition for plant growth. The water holding capacity was found in the range of 4.2 ml/1 to 6.4 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 5.89 to 8.24, which it indicates majority of pH of the soil is slightly alkaline. The soil in the project site is sodic in nature, which challenges because they tend to have very poor structure which limits or prevents water infiltration and drainage. The organic matter varies from 0.37 to 1.96 %, 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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**Table 3-15 Calculation of Density, Frequency (%), Dominance, Relative Density, Relative Frequency, Relative Dominance & Important Value Index**

<b>Parameters</b>	<b>Formula</b>
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					

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**Table 3-17 Shrubs in the Core Zone**

<b>S. No.</b>	<b>Scientific Name</b>	<b>Local Name</b>	<b>Total No. of species</b>	<b>Total of Quadrants with species</b>	<b>Total No. of Quadrants</b>	<b>Density</b>	<b>Frequency (%)</b>	<b>Abundance</b>	<b>Relative Density</b>	<b>Relative Frequency</b>	<b>IUCN Conservation Status</b>
1	Jatropagossypifolia	Kaatamanaku	32	17	24	1.17	0.71	1.65	14.43	17.17	Not Assessed
2	Calotropis gigantea	Erukam	16	12	24	0.58	0.50	1.17	7.22	12.12	Not Assessed
3	Tabernaemontanadivaricata	Crepe Jasmine	4	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
4	Catharanthus roseus	Nithyakalyani	4	3	24	0.13	0.13	1	1.55	3.03	Not Assessed
5	Datura metal	Ummattangani	7	4	24	0.21	0.17	1.25	2.58	4.04	Not Assessed
6	Robiniapseudoacacia	Black locust	15	5	24	0.71	0.21	3.4	8.76	5.05	Least Concern
7	Acalypha indica	Kuppaimeni	18	8	24	0.83	0.33	2.5	10.31	8.08	Not Assessed
8	Stachytarpeaurticifolia	Rat tail	13	9	24	0.63	0.38	1.67	7.73	9.09	Not Assessed
9	Woodfordiafruiticosa	Velakkai	4	3	24	0.13	0.13	1	1.55	3.03	Least Concern
10	Hibiscus rosa sinensis	Sembaruthi	3	2	24	0.13	0.08	1.5	1.55	2.02	Not Assessed
11	Lantana camara	Unnichedi	8	6	24	0.38	0.25	1.5	4.64	6.06	Not Assessed
12	Parthenium hysterophorous	Vishapoondu	45	13	24	2.08	0.54	3.85	25.77	13.13	Not Assessed
13	Euphorbia geniculata	Amman Pacharisi	5	3	24	0.13	0.13	1	1.55	3.03	Not Assessed

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**Table 3-18 Herbs & Grasses in the core zone**

S. No.	Scientific Name	Local Name	Total No. of species	Total of Quadrants with species	Total No. of Quadrants	Density	Frequency (%)	Abundance	Relative Density	Relative Frequency	IUCN Conservation status
1	Helicteresisora	Valampuri	4	2	30	0.07	0.07	1	0.79	2.15	Not assessed
2	Tridax procumbens	Vettukaayathalai	7	4	30	0.17	0.13	1.25	1.98	4.30	Not assessed
3	Heraculem spondylium	Hog Weed	19	10	30	0.67	0.33	2	7.94	10.75	Not assessed
4	Tridax procumbens	Cuminipachai	18	4	30	0.50	0.13	3.75	5.95	4.30	Not assessed
5	Senna occidentalis	Nattamsakarai	30	4	30	0.83	0.13	6.25	9.92	4.30	Not assessed
6	Plumbago zeylanica	Chittiramoolam	12	3	30	0.10	0.10	1	1.19	3.23	Not assessed
7	Scrophularia nodosa	Sarakkothini	18	7	30	0.50	0.23	2.14	5.95	7.53	Not assessed
8	Viburnum dentatum	Viburnum	7	5	30	0.17	0.17	1	1.98	5.38	Least concern
9	Cynodondactylon	Arugu	15	6	30	0.40	0.20	2	4.76	6.45	Not assessed
10	Euphorbia hirta	Amman Pacharisi	7	4	30	0.17	0.13	1.25	1.98	4.30	Not assessed
11	Sida cordifolia	Maanikham	50	4	30	1.50	0.13	11.25	17.86	4.30	Not assessed
12	Sida acuta	Malaidangi	12	3	30	0.33	0.10	3.33	3.97	3.23	Not assessed
13	Laportea canadensis	Peruganchori	28	20	30	1.00	0.67	1.5	11.90	21.51	Not assessed
14	Sporobolus fertilis	Giant Parramatta Grass	10	4	30	0.30	0.13	2.25	3.57	4.30	Not assessed
15	Tephrosia purpurea	Kavali	23	4	30	0.67	0.13	5	7.94	4.30	Not assessed

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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**

<b>Description</b>	<b>Formula</b>
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

<b>Scientific Name</b>	<b>Common Name</b>	<b>No. of Species</b>	<b>Pi</b>	<b>ln (Pi)</b>	<b>Pi x ln (Pi)</b>
Ficus Carica	Athi Maram	2	0.018182	-4.00733	-0.07286
Cocos nucifera	Thennai	10	0.090909	-2.3979	-0.21799

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Azadirachta indica	Veppam	17	0.154545	-1.86727	-0.28858
Tamarindus indica	Puli	10	0.090909	-2.3979	-0.21799
Mangifera indica	Mamaram	7	0.063636	-2.75457	-0.17529
Morinda pubescens	Nuna	6	0.054545	-2.90872	-0.15866
Couroupita guianensis	Nagalingam	5	0.045455	-3.09104	-0.1405
Bombax ceiba	Sittan	4	0.036364	-3.31419	-0.12052
Acacia nilotica	Karuvelai	4	0.036364	-3.31419	-0.12052
Bambusa vulgaris	Moongil	4	0.036364	-3.31419	-0.12052
Syzygium cumini	naval	5	0.045455	-3.09104	-0.1405
Carica papaya	Papaya	3	0.027273	-3.60187	-0.09823
Psidium guajava	Guava	3	0.027273	-3.60187	-0.09823
Cassia siamea	ManjalKonrai	3	0.027273	-3.60187	-0.09823
Ficus religiosa	Arasa maram	3	0.027273	-3.60187	-0.09823
Musa paradise	Vaazhai	3	0.027273	-3.60187	-0.09823
Prosopis juliflora	Vaelikaruvai	3	0.027273	-3.60187	-0.09823
Tectona grandis	Thekku	3	0.027273	-3.60187	-0.09823
Thespesia populnea	Poovarasam	3	0.027273	-3.60187	-0.09823
Causuarina equisetifolia	Savukku	2	0.018182	-4.00733	-0.07286
Alstonia scholaris	Elilaipalai	2	0.018182	-4.00733	-0.07286
Anacardium occidentale	Cashew	1	0.009091	-4.70048	-0.04273
Artocarpus heterophyllus	Palaa	2	0.018182	-4.00733	-0.07286
Aegle marmelos	Vilvam	1	0.009091	-4.70048	-0.04273
Delonix elata	Perungondrai	1	0.009091	-4.70048	-0.04273
Pithecellobium dulce	Kodukapuli	1	0.009091	-4.70048	-0.04273
Citrus medica	Elumichai	2	0.018182	-4.00733	-0.07286
Total		110			-3.02215005

H (Shannon Diversity Index) =3.02

### Shrubs

Scientific Name	Common Name	No. of Species	Pi	ln (Pi)	Pi x ln (Pi)
Jatropagossypifolia	Kaatamanaku	32	0.183908	-1.69332	-0.31142
Calotropis gigantea	Erukam	16	0.091954	-2.38647	-0.21945
Tabernaemontanadivaricata	Crepe Jasmine	4	0.022989	-3.77276	-0.08673
Catharanthus roseus	Nithyakalyani	4	0.022989	-3.77276	-0.08673
Datura metal	Ummattangani	7	0.04023	-3.21315	-0.12926
Robiniapseudoacacia	Black locust	15	0.086207	-2.45101	-0.21129
Acalypha indica	Kuppaimeni	18	0.103448	-2.26868	-0.23469
Stachytarpheaurticifolia	Rat tail	13	0.074713	-2.59411	-0.19381
Woodfordiafruticosa	Velakkai	4	0.022989	-3.77276	-0.08673
Hibiscus rosa sinensis	Sembaruthi	3	0.017241	-4.06044	-0.07001

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Lantana camara	Unnichi	8	0.045977	-3.07961	-0.14159
Parthenium hysterophorous	Vishapoonda	45	0.258621	-1.35239	-0.34976
Euphorbia geniculata	Amman Pacharisi	5	0.028736	-3.54962	-0.102
Total		174			-2.2234

H (Shannon Diversity Index) =2.22

### Herbs

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

H (Shannon Diversity Index) =2.51

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### **i. Species diversity calculation**

<b>Details</b>	<b>H</b>	<b>Hmax</b>	<b>Evenness</b>	<b>Species Richness (Margalef)</b>
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**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Schedule of wild life protection act</b>	<b>IUCN conservation status</b>
<b>Mammals</b>			
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
<b>Birds</b>			
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

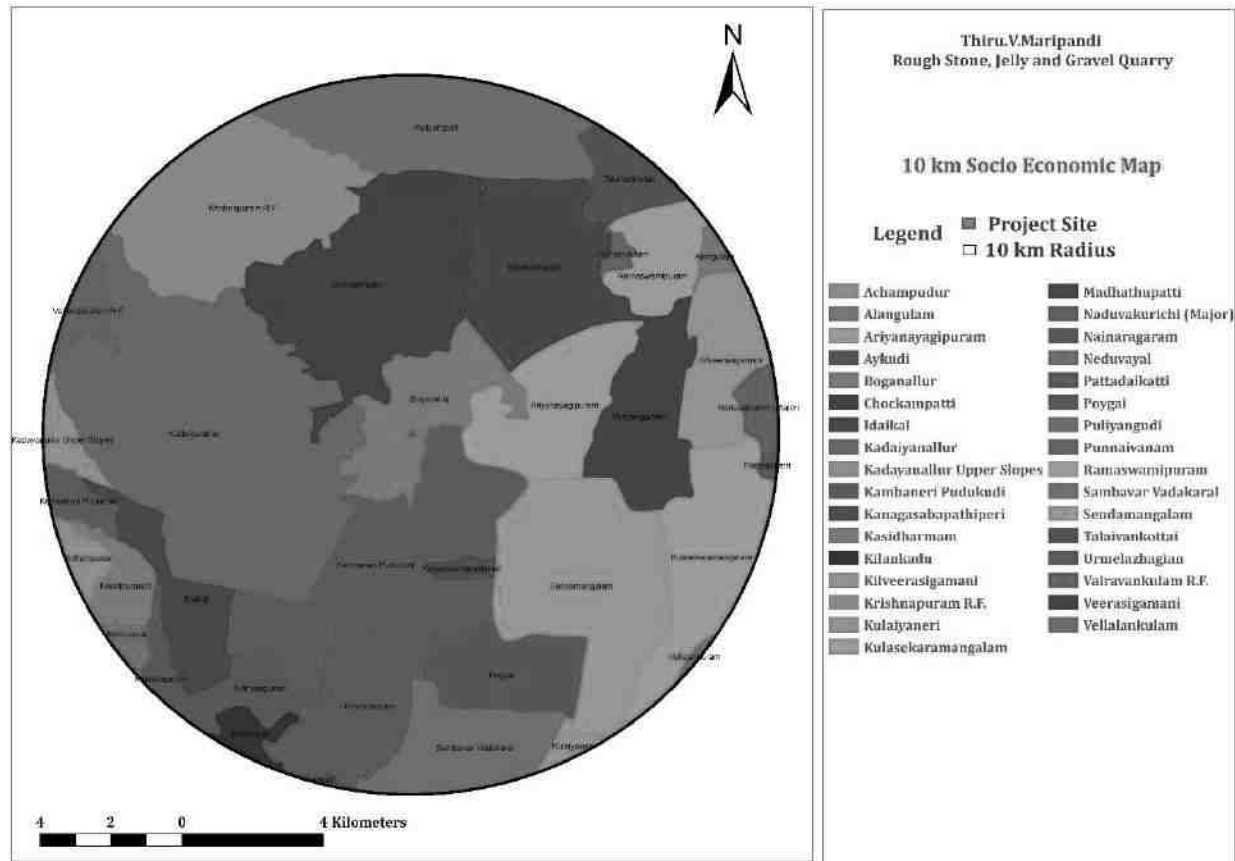
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Alcedo atthis	Small blue kingfisher	IV	Least concern
Cuculus canorus	Common Cukoo	IV	Least concern
Reptiles & Amphibians			
Chameleon zeylanicum	Chameleon	IV	Not listed
Calotes versicolor	Common garden lizard	II	Not listed
Bungarus caeruleus	Common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

### 3.8 DEMOGRAPHY AND SOCIO ECONOMICS

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

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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	Populatio	Sex Ratio		Literacy Rate		SC	ST
			Male	Female	Male	Femal		
Boganallur	1554	5555	2754	2801	2027	1668	2316	0
Ariyanayagipuram	1970	6956	3447	3509	2664	2200	1353	0
Veerasigamani	2262	8140	4018	4122	3089	2455	2753	3
Kilveerasigamani	695	2558	1294	1264	979	711	453	0

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Naduvakurichi (Major)	621	2257	1095	1162	799	618	296	0
Sendamangalam	4305	15613	7748	7865	6251	5105	1208	23
Sambavar Vadakarai	4423	16709	8347	8362	6159	4906	2236	35
Kambaneri Pudukudi	2272	8242	4084	4158	3071	2485	4671	1
Urmelazhagian	1612	5719	2774	2945	2153	1840	3575	0
Achampudur	3563	13566	6869	6697	5092	3908	2235	0
Kadayanallur	21076	90364	45449	44915	36013	28867	12325	382
Puliyangudi	17209	66034	32843	33191	25348	20598	11634	173
Chockampatti	4797	18220	9084	9136	6449	4829	3277	3
Madhathupatti	2228	8400	4232	4168	3153	2142	2106	0
Alangulam	47594	176138	87050	89088	67314	56480	19140	9358
Talaivankottai	1819	6470	3171	3299	2360	1821	1661	0
Ramaswamipuram	1167	3800	1848	1952	1254	915	1418	0
Punnaivanam	275	933	452	481	336	294	261	0
Kulasekaramangalam	1678	6212	3149	3063	2430	1886	1688	0
Pattadaikatti	942	3707	1918	1789	1433	1088	257	0
Vellalankulam	936	3561	1789	1772	1407	1089	533	1
Poygai	1478	5645	2856	2789	2230	1697	458	0
Kulaiyaneri	1639	6198	3056	3142	2099	1555	378	0
Kanagasabapathiperi	216	721	348	373	238	157	183	0
Nainaragaram	2611	9661	4806	4855	3741	2935	3192	16
Kilankadu	1341	4754	2370	2384	1801	1406	1624	60
Idaikal	812	3054	1534	1520	1186	940	939	15
Neduvayal	946	3618	1861	1757	1473	1159	1215	0
Kasidharmam	1281	4664	2293	2371	1752	1433	631	91

### 3.9 TRAFFIC IMPACT ASSESSMENT

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



**Figure 3.14: Site Connectivity**

**Table 3-22: No. of Vehicles per Day**

<b>S. No</b>	<b>Vehicles Distribution</b>	<b>Number of Vehicles Distribution/Day</b>	<b>Passenger Car Unit (PCU)</b>	<b>Total Number of Vehicle in PCU</b>
		<b>ODR</b>	<b>-</b>	<b>ODR</b>
1	Cars	131	1	131
2	Buses	30	3	90
3	Trucks	75	3	225

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4	Two wheelers	125	0.5	62
5	Three wheelers	103	1.5	154
<b>Total</b>		<b>464</b>	<b>-</b>	<b>662</b>

**Table 3-23: Existing Traffic Scenario and LOS**

<b>Road</b>	<b>V (Volume in PCU/hr)</b>	<b>C (Capacity in PCU/hr)</b>	<b>Existing V/C Ratio</b>	<b>LOS</b>
NH44	662/24=27	88	0.30	<b>B</b>

**Note:** The existing level may be “Very Good” for ODR

<b>V/C</b>	<b>LOS</b>	<b>Performance</b>
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								
<p><b><i>Mining of rough stone and Gravel</i></b></p>	<p>The proposed 1.40.5 Ha mine located in Kambaneri Puthukudi – 1 Village having 82,900 m<sup>3</sup> of Rough stone and 19,422 m<sup>3</sup> of Gravel. The quarry operation is proposed to carry out with conventional open cast mechanized mining with 5.0 meter vertical bench and bench width of 5.0 meter. At the end of 5 years, mining lease area will be converted into ultimate pit.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Pit No.</th> <th style="text-align: center;">Length (Max) (m)</th> <th style="text-align: center;">Width (Max) (m)</th> <th style="text-align: center;">Depth (Max) (m)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">I</td> <td style="text-align: center;">188</td> <td style="text-align: center;">50</td> <td style="text-align: center;">22</td> </tr> </tbody> </table> <p>The main impact of open cast mining on land-use is land degradation. The land is bound to be excavated for mining of Rough Stone, Jelly and Gravel Quarry.</p> <p>Impact on soil of the study area will be minimal as there are no wastewater generated, heavy metal infusion, stack emissions.</p>	Pit No.	Length (Max) (m)	Width (Max) (m)	Depth (Max) (m)	I	188	50	22	<p>The proposed project site is not prone to any kind of soil erosion (<b>Source: Bhuvan</b>).</p> <p>In addition, garland drainage of 1m x 1m will be provided to avoid storm water run-off.</p> <p>It is proposed to plant 1115 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.</p> <p>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.</p> <p>The source of dust generation is majorly due to drilling, blasting, loading &amp; unloading of the mined out mineral, the impact will be mitigated by water sprinkling regularly once in 3hrs.</p>
Pit No.	Length (Max) (m)	Width (Max) (m)	Depth (Max) (m)							
I	188	50	22							



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	<p>Impact due to transformation of terrain characteristics over the large area results in soil degradation.</p> <p>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.</p>	<p>The proposed mining activity is carried out in hilly terrain.</p> <p>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.</p> <p>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.</p>
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#### 4.3 WATER ENVIRONMENT:

<b>Aspect</b>	<b>Impact</b>	<b>Mitigation Measures</b>
<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 will not be intersected during mining, as the ultimate depth is limited upto 22 m (below ground level), whereas the ground water table is at 48 m below the ground level. The municipal wastewater will be disposed into

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	<p>The ground water depletion may occur due to mining activity</p> <p>Chemicals consisting of nitrate used for blasting may pollute the surface run off.</p> <p>Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labours.</p>	<p>septic tanks of 5 cum and soak pit. No chemicals consisting of toxic elements will be used for carrying out mining activity.</p> <p>The ground water table is at a depth of 48 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.</p> <p>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.</p> <p>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</p>
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#### 4.4 AIR ENVIRONMENT:

<b>Aspect</b>	<b>Impact</b>	<b>Mitigation Measures</b>
<p><i>Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.</i></p>	<p><i>Impacts during Operation Phase</i></p> <p>During mining operation, fugitive dust and other air pollutants like particulate matter (PM10 &amp; PM 2.5) will be generated.</p> <p>The main source of pollutants arises due to drilling and blasting. 3 Nos of Tipper will be used for loading and unloading, 2 Nos of Excavator (0.90 m<sup>3</sup> bucket capacity, and 1 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.</p>	<p><i>Mitigation Measures during Operation Phase</i></p> <p>It is proposed to plant 275 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.</p> <p>Planning transportation routes of the mined out mineral, so as to reach the nearest paved roads (an approach road) by shortest route connecting to ODR.</p> <p>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.</p>

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	<p><u>Effect on Human</u></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Dust generation due to loading and unloading of mineral and due to transportation can also affect the workers as well as nearby villagers.</li> </ul> <p><u>Effect on Plants</u></p> <ul style="list-style-type: none"> <li>• Stomatal index may be minimized due to dust deposit on leaf.</li> </ul>	<p>The trucks will be covered by tarpaulin.</p> <p>Overloading will be avoided.</p> <p>Personal Protective Equipments (PPEs) like eye goggles, dust mask, leather gloves, safety shoes &amp; boots will be provided to the workers engaged at dust generation points like excavation and loading points.</p> <p>0.5 KLD of water will be proposed for sprinkling on unpaved roads to avoid dust generation during transportation.</p>
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### **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 in 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 typically include dust collectors, hot water heaters, and emergency generator(s). Since at the present project the following sources are anticipated.

1. Hydraulic excavator – 0.90 Cum Bucket Capacity (with Rock Breaker Attachment)
2. Jack Hammer 32 mm Dia
3. Tipper
4. Tractor Mounted - Compressor
5. Drilling and excavation with Accessories

##### **Road Sources:**

A road network was developed to depict the anticipated haul truck routes and truck discharge locations during the mine operations. The anticipated emissions from the road sources and corresponding anticipated impact during the monitoring period of March to May 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 replicate a 2 truck travel adjacent for a typical mining scenario.

The parameters considered for the hauling operation include the following,

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

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### **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 March 2023 to May 2023 are superimposed on the maximum baseline concentrations obtained during the study period to estimate the post project scenario, which would prevail at the post operational phase. The overall scenario with predicted concentrations over the maximum baseline concentrations is shown in the following table along with isopleths.

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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	<b>USEPA (2008)</b>  <b>USEPA (2008)</b>  <b>USEPA (2006a)</b>  <b>USEPA (2006a)</b> <b>Cowherd (1988)</b>  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	
	Loading	2.3237E-04 kg PM10/ average time between spray application	
	Haulage	0.69718 kg PM10/VKT	
Rough stone mining	Wet drilling	8.00E-5 lbs PM10/ Ton produce	<b>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.</b>
	Loading	1.00E-4 lbs PM10/ Ton produce	

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#### 4.5 NOISE ENVIRONMENT:

<b>Aspect</b>	<b>Impact</b>	<b>Mitigation Measures</b>
<i>Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.</i>	<p>Usage of Equipments (Excavator, Tipper, Jack Hammer), Machinery and trucks used for transportation will generate noise.</p> <p>Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure.</p> <p>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.</p>	<ul style="list-style-type: none"> <li>• The machinery will be maintained in good running condition so that noise will be reduced to minimum possible level.</li> <li>• 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.</li> <li>• It will be ensured that all transportation vehicles carry a valid PUC Certificates.</li> <li>• Speed of trucks entering or leaving the mine will be limited to moderate speed (20km/hr) to prevent undue noise from empty vehicles.</li> </ul> <p>The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipments.</p> <ul style="list-style-type: none"> <li>• It is proposed to plant 1115 Nos. of local species (Neem, Mandharai, Athi, Tamarind, Ashoka, Casuarinas and Villam) to reduce the</li> </ul>



<i>Project</i>	<i>Rough stone, Jelly and Gravel Quarry- 2.23.0 Ha</i>	<i>Draft EIA Report</i>
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<i>Project Location</i>	<i>Kambaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District</i>	

		<p>impact of noise in the study area. The development of green belts around the periphery of the mine will be implemented to attenuate noise.</p> <ul style="list-style-type: none"> <li>• The trucks will be diverted on two roads viz. ODR to avoid traffic congestion.</li> <li>• Health check-up camps will be organized once in six month.</li> <li>• Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas.</li> <li>• Provision of quiet areas, where employees can get relief from workplace noise.</li> </ul>
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#### 4.6 **BIOLOGICAL ENVIRONMENT:**

<b>Aspect</b>	<b>Impacts</b>	<b>Mitigation Measures</b>
Site Clearance	Loss of habitat due to site clearance which may lead to ecological disturbance.	The proposed mining lease is already a dry land hence no site clearance is required. Only few shrubs and herbs like parthenium sp., prosopis juliflora were present.

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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 0.10.0 Ha of land is utilized for greenbelt development (1115 Nos – 5 years). This will attract avifauna thus enhancing the existing ecological environment.
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#### 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 <b>Thiru V Maripandi</b> and the land is vacant where there are no human settlement within 300m radius. Hence the project does not involve Rehabilitation and resettlement
Drilling, Blasting, Loading and Transportation of the 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 Sundaresapuram village which is 0.67 km, N from site
Grazing and Rearing activities in the nearby villages	The Grazing and rearing of local animals like Sheep, Goat and cows is observed in the nearby villages, which may be affected due to the project as the	It is proposed to use gravelled road and nearest paved road and preferred not to use unpaved roads. In addition to that, the speed of trucks will be limited to 20km/hr to avoid any accidents.

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	movement of the vehicles may affect/injure the animals	
Employment opportunity	The project will improve the livelihood of the local people	After the development of the proposed mine, it will improve the livelihood of local people and also provide the direct and indirect employment opportunities. The rough stone for the infrastructural development in the area will be made available from the local markets at reasonably lower price.
Corporate Environmental Responsibility	The proposed project will help in natural resource augmentation & Community resource development.	As a part of CER i.e, 5 Lakhs will be allocated. Developing sports facilities, providing hygienic toilet, R.O Water facilities to Panchayat Union Middle School, Nagaram, Vasudevanallur Union, Tirunelveli District

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#### 4.8 OTHER IMPACTS:

<b>S. No</b>	<b>Aspect</b>	<b>Impact</b>	<b>Mitigation measure</b>
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, Tirunelveli District prior to submission of the Form-1 and PFR. ToR issued by the SEIAA-TN vide Letter No. SEIAA-TN/ F. No. 9623/SEAC/ToR-1325/2023 Dated 10.02.2023. The study for alternative analysis involves in-depth examination of site and technology.

#### 5.1.1 *Analysis for Alternative Sites and Mining Technology*

##### 5.1.1.1 **Alternative Site**

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

##### 5.1.1.2 **Alternative Technology**

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

**Table 5-1: Alternative for Technology and other Parameters**

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

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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 Sundaresapuram 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.

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5.	Water	Tanker supplier	Ground water/	Tanker supply will be preferred. Water will be sourced from Sundaresapuram village which is 0.67 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**

<b>Parameters</b>	<b>Sampling</b>	<b>Frequency</b>	<b>Location</b>
Air environment – Pollutants PM 10	5 locations	24 hourly twice a week 4 hourly.	Project Site Sri Santhana Mariyamman Kovil, Achampatti



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<i>Project Location</i>	<i>Kambaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District</i>	

PM 2.5 SO <sub>2</sub> NO <sub>x</sub>		Twice a week, One non monsoon season 8 hourly, twice a week 24 hourly, twice a week	Arulmigu Sri Abayahastha Anjaneyar Temple, Kadayanallur Government School, Chidambaramperi Arulmigu Poigai Ootrudaiyar Sastha Temple, Kambaneri Puthukudi
Noise	5 locations	24 hourly Once in 5 locations	Project Site Sri Santhana Mariyamman Kovil, Achampatti Arulmigu Sri Abayahastha Anjaneyar Temple, Kadayanallur Government School, Chidambaramperi Arulmigu Poigai Ootrudaiyar Sastha Temple, Kambaneri Puthukudi
Water (Ground water) • pH • Temperature • Turbidity • Magnesium Hardness • Total Alkalinity • Chloride • Sulphate • Fluoride • Nitrate • Sodium • Potassium • Salinity • Total nitrogen	5 locations	Once in 5 locations	Project Site Sri Santhana Mariyamman Kovil, Achampatti Arulmigu Sri Abayahastha Anjaneyar Temple, Kadayanallur Government School, Chidambaramperi Arulmigu Poigai Ootrudaiyar Sastha Temple, Kambaneri Puthukudi

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<ul style="list-style-type: none"> <li>• Total Coliforms</li> <li>• Fecal Coliforms</li> </ul>			
<p>Water (surface water)</p> <ul style="list-style-type: none"> <li>• pH</li> <li>• Temperature</li> <li>• Turbidity</li> <li>• Magnesium Hardness</li> <li>• Total Alkalinity</li> <li>• Chloride</li> <li>• Sulphate</li> <li>• Fluoride</li> <li>• Nitrate</li> <li>• Sodium</li> <li>• Potassium</li> <li>• Salinity</li> <li>• Total nitrogen</li> <li>• Total Coliforms</li> <li>• Fecal Coliforms</li> </ul>	<p>Sample from nearby lakes/river</p>	<p>One time Sampling</p>	<p>Periyakulam</p>
<p>Soil (Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)</p>	<p>5 locations</p>	<p>Once in 5 locations</p>	<p>Project Site Sri Santhana Mariyamman Kovil, Achampatti Arulmigu Sri Abayahastha Anjaneyar Temple, Kadayanallur Government School, Chidambaramperi Arulmigu Poigai Ootrudaiyar Sastha Temple, Kambaneri Puthukudi</p>

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<b>Project Location</b>	<b>Kambaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District</b>	

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

**Table 6-2: Monitoring Schedule during Mining**

<b>S. No.</b>	<b>Attributes</b>	<b>Parameters</b>	<b>Frequency</b>	<b>Location</b>
1.	Ambient Air Quality at Mine Site & Fugitive Dust Sampling	PM 10 PM 2.5 SO <sub>2</sub> NO <sub>x</sub>	Once in a Month	Project Site
2.	Ground water Quality	Drinking Water Parameters, As per IS - 10500: 2012	Half yearly	Project Site
3.	Surface Water Quality	Class will be assessed as per the CPCB Guidelines	Half yearly	Project Site
4.	Soil Quality	(Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	Half yearly	Project Site

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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**- Thiru S. Arunachalam – 2.00.0 Ha, Thiru S. Arunachalam – 3.00.0 Ha **Abandoned /Old Quarries** – Thiru K. Selvakumar – 2.00.0 Ha **Proposed Quarries** – Thiru V Maripandi – 2.23.0 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 Tirunelveli 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:

The quarrying operation will be carried out in conjunction with conventional method of mining using Jack hammer drilling and blasting for shattering effect and loosen the Rough stone.

#### 7.1.3.2 Drilling and Blasting:

Drilling and Blasting parameters are as follows:

<b>Parameters</b>	<b>Details</b>
Depth of each hole	1 m to 1.5m
Diameter of hole	32-36 mm
Spacing between holes	0.6 m
Pattern of hole	Zigzag
Inclination of holes	70° from horizontal
Use of delay detonators	25 milli seconds delays
Detonating fuse	“Detonating” Cord

##### a. Types of explosives to be used:

Slurry Class 3 explosives, type of nitro compound are proposed to be used for shattering and heaving effect for removal and winning of Rough Stone. No deep hole drilling or Primary blasting is proposed. Detonators of Class 3 and Safety fuse of Class 6 are used.

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

The quarry is situated more than 1.0 km from the nearby villages. Controlled blasting measures will be adopted for minimizing ground vibration and fly of rock. Shallow depths jackhammer drilling & blasting is proposed to be carried out with minimum use of explosive mainly to give the shattering effect in rough stone for easy excavation and to control fly of rocks.

Diameter of Holes = 32-36mm

Depth = 1 to 1.5 m

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

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

- For Mining – Excavator of 0.90 Cum Bucket capacity (2 No's), Jack Hammers (30-32 mm Dia) of 4 Nos.
- Loading Equipment – Excavator of 0.9 Cum Bucket Capacity
- Transportation (includes within the mine and mine to destination) – Tipper 2 No of 10 M.T capacity (from quarry to needy peoples and local crushers)

***a. Risk:***

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

***b. Mitigation measures to minimize the risk***

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

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

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

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- All safety precautions and provisions of Mine Act, 1952, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations;
- Entry of unauthorized persons will be prohibited;
- Firefighting and first-aid provisions in the ECC and mining area;
- Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the workers (18 Nos.) and regular inspection for their use;
- In case of eventuality, first aid will be given by the senior safety 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 negligently 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 footwear and safety helmets;
- Cleaning of mine faces will be regularly done;
- Handling of explosives, charging and blasting will be carried out by highly skilled laborers 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 laborers periodically.



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### 7.1.6 *Emergency Control Centre*

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

## 7.2 DISASTER MANAGEMENT

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

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

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

Major objectives of this onsite – offsite emergency plan are:

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

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

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

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

#### 7.2.1 *Onsite off-site emergency Plan:*

##### **1- Emergency on account of:**

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

##### **2- Disaster due to natural calamities like:**

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

#### 7.2.2 *Emergency Plan:*

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

#### 7.2.3 *Emergency Control:*

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

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

### **7.3 NATURAL RESOURCE CONSERVATION**

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

### **7.4 RESETTLEMENT AND REHABILITATION:**

The proposed Mine lease area is 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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<i>Project Location</i>	<i>Kambaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District</i>	

## 8 Project Benefits

### 8.1 GENERAL

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

#### 8.1.1 *Physical Benefits*

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

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

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

**Enhancement of Green Cover & Green Belt Development:** As a part of reclamation plan, native tree species will be planted along the safety boundary of the mine lease area. A suitable combination of trees that can grow fast and also have good leaf cover will be adopted to develop the green belt. It is proposed to plant 703 numbers of native species along with some fruit bearing and medicinal trees during the mining plan period.

### 8.2 SOCIAL BENEFITS

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

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

Construction of Infrastructure, additional class room, Environmental books for library (in Tamil language), Greenbelt facilities and basic amenities such as safe drinking water, Hygienic Toilets

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facilities, furniture to Panchayat Union Middle School, Nagaram, Vasudevanallur Union, Tirunelveli District

### 8.3 PROJECT COST / INVESTMENT DETAILS

1	<b>C. Fixed Asset Cost:</b> Land Cost Labour shed Sanitary Facility First Aid Room and Accessories Total	: : : : : :	Rs. 8,92,000 Rs.1,00,000 Rs. 1,00,000 Rs.1,00,000 <b>Rs. 11,92,000/-</b>
2	<b>D. Operational Cost:</b> 1.Machineries 2. Fencing Cost	: :	Rs.40,00,000/- Rs. 1,00,000/-
	<b>Total Project Cost(A+B)</b>	:	<b>Rs. 52,92,000/-</b>

EMP Cost:

Categories	Mitigation Measure	Provision for Implementation	Capital Cost	Recurring Cost
			(Rs)	
	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	22300	22300

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Air Environment	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	100000	25000
	Air Quality will be regularly monitored as per norms within ML area & Ambient Area	Yearly Compliance as per CPCB norms	0	40000
	Muffle blasting – To control fly rocks during blasting	Blasting face will be covered with sand bags / 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	25000	2500
	No overloading of trucks/tippers/tractors	Manual Monitoring through Security guard	0	5000
	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	15000	0
	Regular monitoring of exhaust fumes as per RTO norms		0	5000

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	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	10000
	Installing wheel wash system near gate of quarry	Installation + Maintenance + Supervision	40000	10000
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
Noise Environment	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
	Ambient Noise will be regularly monitored as per norms within ML area and near Reserve Forest with necessary permission	Yearly compliance as per CPCB Norms	0	20000

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	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	40000	2000
	NONEL Blasting will be practiced to control Ground vibration and fly rocks	Rs. 30/- per 6 Tonnes of Blasted Material	0	200000
Water Environment	Water Environment	Provision for garland drain @ Rs. 10,000/- per Hectare with maintenance of Rs. 5,000/- per annum	22300	5000
Waste Management	Waste management (Spent Oil, Grease etc.,)	Provision for domestic waste collection and disposal through authorized agency	3000	2000
		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
Implementation of EC, Mining	Size 6' X 5' with blue background and white letters as mentioned in	Fixed Display Board at the Quarry Entrance as permanent structure	10000	2000



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Plan & DGMS Condition	MoM Appendix II by the SEAC TN	mentioning Environmental Conditions		
	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)	68000	17000
Implementation of EC, Mining Plan & DGMS Condition	Health checkup for workers will be provisioned	IME & PME Health check up @ Rs. 1000/- per employee	0	17000
	First aid facility will be provided	Provision of 2 Kits per Hectare @ Rs. 2000/-	0	4460
	Mine will have safety precaution measures, signages, boards.	Provision for signages and boards made	10000	2000
	Barbed Wire Fencing to quarry area will be provisioned.	Per Hectare fencing Cost @ Rs. 2,00,000/- with Maintenance of Rs 10,000/- per annum	446000	10000
Implementation of EC, Mining Plan & DGMS Condition	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	111500	10000
	Installation of CCTV cameras in the mines and mine entrance	Camera 4 Nos, DVR, Monitor with internet facility	20000	5000

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	Implementation as per Mining Plan and ensure safe quarry working	Mines Manager (1st Class / 2nd 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
Greenbelt development	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)	89200	13380
		Avenue Plantation @ 300 per plant (capital) for plantation outside the lease area and @ 30 per plant maintenance (recurring)	200700	20070
Total			1228000	1241710
Total Cost			2469710	

Year	Cost (@ 5% per year inflation adjustment)
1 <sup>st</sup> Year	2469710

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2 <sup>nd</sup> Year	1303796
3 <sup>rd</sup> Year	1368985
4 <sup>th</sup> Year	1437435
5 <sup>th</sup> Year	1509306
Total	80,89,232

**Total EMP Cost – Rs. 80,89,232 (Rs. 80 Lakhs)**

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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, Tirunelveli. Subsidence/slope failures are not envisaged because there are no loose strata overlying the deposit (mineral to be excavated). The bench height will be 5m. 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, Thiru. V. Maripandi will work in association with M/s. Ecotech Labs Pvt Ltd.

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**Table 9-1: Impacts and mitigation measures**

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

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				<ul style="list-style-type: none"> <li>✓ By complying with the safety procedures, norms and guidelines (as applicable) as outlined in the National Building Code of India, Bureau of Indian Standards.</li> <li>✓ Provide adequate number of decentralized latrines and urinals</li> <li>✓ Providing Septic tank along with Soak pit arrangement</li> <li>✓ Providing First Aid room, conducting frequent health checkups to labor and conducting free medical camps</li> <li>✓ Providing safety helmet, Gloves, Jacket &amp; Boots</li> <li>✓ Providing measures to prevent fires. Fire fighting extinguishers and buckets of sand will be provided in the construction site</li> </ul>
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.	<ul style="list-style-type: none"> <li>• Use of locally available construction materials.</li> </ul>

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## 10 Summary & Conclusion

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

### 10.1 INTRODUCTION

Thiru. V. Maripandi site is a cluster of four mining project. Total cluster area is 9.23.0 Ha. The individual mine lease area is 2.23.0 Ha of Rough Stone, Jelly and Gravel Quarry located at S.F.Nos. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 & 155/16 of Kampaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District.

### 10.2 PROJECT OVERVIEW

**Table 10-1: Project Overview**

<b>S. No.</b>	<b>Description</b>	<b>Details</b>
1	Project Name	Thiru. V. Maripandi Rough Stone, Jelly and Gravel Quarry
2	Proponent	Thiru. V. Maripandi
3	Mining Lease Area Extent	2.23.0 Ha
4	Location	155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 & 155/16
5	Latitude	09°05'32.17"N to 09°05'38.97"N
6	Longitude	77°23'07.87"E to 77°23'11.87"E
7	Topography	Slightly Undulated Topography
8	Site Elevation above MSL	210 m from MSL
9	Topo sheet No.	58 G/08 of Survey of India
10	Minerals of Mine	Rough Stone and Gravel Quarry
11	Proposed production of Mine	82,900 m <sup>3</sup> of Rough stone & 19,422 m <sup>3</sup> of Gravel
12	Ultimate depth of Mining	22 m below ground level
13	Method of Mining	Open cast mechanized mining
14	Water demand	2.0 KLD

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15	Source of water	Water will be supplied through tankers supply
16	Man power	17 Nos.
17	Mining Plan Approval	Mining Plan was approved by The Deputy Director, Department of Geology & Mining, Tirunelveli vide letter Rc.No.M1/61043/2009 dated 15.12.2017.
18	Production details	Geological reserves: 2,54,870 m <sup>3</sup> of Rough stone and 28,084 m <sup>3</sup> of Gravel Proposed year wise reserves: 82,900 m <sup>3</sup> of Rough stone and 19,422 m <sup>3</sup> of Gravel
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	The overburden is in the form of Gravel formation, it has been removed earlier quarry operation. The excavated rough stone will be directly loaded into tipper to the needy crushers/ other buyers for road project and construction works for filling and levelling of low lying areas.
21	Ground water	Ground water table in this area is below 48 mts from ground level. The quarrying is up to a maximum depth of 22 m below the ground level. Hence the quarry operation will not be affected by the ground water.
22	Habitations within 300m radius of the Project Site	There is no Habitation within 300m radius of the project site.
23	Drinking water	Water will be supplied through tankers from Sundaresapuram village which is 0.67 Km N 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 rough stone form the primary building material.

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

Southern Granulite Terrain (SGT) of Tamil Nadu lying south of Palaghat-Cauvery shear zone has been divided into two major tectonic blocks by the Madurai block and Nagercoil-Trivandrum Block in the south. It is separated by WNW-ESE trending Achankovil-Tamiraparani Lineament. Tirunelveli and Thothukudi are significantly the only districts in the state to witness the geology and structure of both the blocks. Tirunelveli district represents a well-developed lithopackage of meta-sedimentary sequence inter banded with charnockite Group of rocks. The rock types exposed are of quartzite, calc-granulite, garnet-biotite-sillimanite gneiss, garnet quartzo-feldspathic gneiss and garnetbiotite-cordierite gneiss belonging to Khondalite Group of rock. Charnockite and pyroxene granulite are the Charnockite Group. Hornblende-biotite gneiss belongs to Migmatitic Complex. Besides, basic intrusive (pyroxenite) and acid intrusive (granite) are noticed. The younger intrusive are represented by pegmatite and quartz veins. Evidence of development of incipient / patchy charnockite along the shear plane is noticed in the district along the Western Ghat high hills

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**Table 10-2: Anticipate Impacts & Appropriate Mitigation Measures**

<b>S. No.</b>	<b>Potential Impact</b>	<b>Mitigation Measure</b>
1	The main impact in the air environment is dust emission during various mining activities such drilling, blasting, excavation, loading and transportation. The dust emission may affect the quality of ambient air in the and around the mine area. The increased emission may cause respiratory & Cardiovascular problems in human health	Proper mitigation measures like water sprinkling on haul roads will be adopted to control dust emissions.  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	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.

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	health condition of the workers by creating headache	Noise generated by these equipments shall be intermittent and does not cause much adverse impact. Plantation will be carried out along approach roads. The plantation minimizes propagation of noise and also arrest dust.
4	Solid waste will be generated from the mining activity as there will be refuse after 95% recovery and also generation of domestic waste	The 100% recovery is achieved by extracting the entire mineable reserve. Hence there will be no refuse generation due to the mining activity. Apart from that, a very meagre quantity of domestic waste will be generated in the project, which will be handed over to the local body on daily basis.
5	During mining activities, there are chances of workers getting health issues or may be prone to accidents	Dust masks will be provided as additional personal protection equipment to the workers working in the dust prone area. Periodical trainings will be conducted to create awareness about the occupational health hazards due to activities like blasting, drilling, excavation Workers health related problem if any, will be properly addressed.

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## **11 Disclosure of Consultant**

### **11.1 INTRODUCTION**

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

### **11.2 ECO TECH LABS PVT. LTD – ENVIRONMENT CONSULTANT**

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

#### **The Quality policy**

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



**ANNEXURE-I**  
**STANDARD TOR CONDITIONS WITH**  
**ADDITIONAL TOR POINTS**







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

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

3rd Floor, PanagalMaaligai,  
No.1, Jeenis Road, Saidapet,  
Chennai - 600 015.

Phone No. 044-24359973

Fax No. 044-24359975

**TERMS OF REFERENCE (ToR)**

**Lr No.SEIAA-TN/F.No.9623/SEAC/ToR-1325/2023 Dated:10.02.2023**

**To**

Thiru. V. Maripandi,  
S/o. T. Velusamy Thevar,  
No. 4/66, Pillayar Koil Main Road,  
Sundaresapuram (Post),  
Kadayanallur, Tenkasi Taluk,  
Tirunelveli District - 627 751.

**Sir / Madam,**

**Sub:** SEIAA, Tamil Nadu – Terms of Reference with Public Hearing (ToR) for the Proposed Rough stone, Jelly & Gravel quarry over an extent of 2.23.0 Ha (Patta land) at Survey No. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 & 155/16 in Kampaneri Puthukudi-I Village, Kadayanallur Taluk, Tirunelveli District, Tamil Nadu by Thiru. V.Maripandi -under project category – “B1” and Schedule S.No. 1(a) – ToR issued along with Public Hearing- preparation of EIA report – Regarding.

**Ref:**

1. Online proposal No.SIA/TN/MIN/408351/2022, Dated: 29.11.2022.
2. Your application submitted for Terms of Reference dated: 06.12.2022
3. Minutes of the 346<sup>th</sup>Meeting of SEAC held on 12.01.2023

  
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4. Minutes of the 591<sup>st</sup> meeting of Authority held on 10.02.2023.

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

The proponent, Thiru. V.Maripandi has submitted application for ToR, in Form-I, Pre-Feasibility report for the Proposed Rough stone, Jelly & Gravel quarry over an extent of 2.23.0 Ha (Patta land) at Survey No. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 & 155/16in KampaneriPuthukudi-I Village, Kadayanallur Taluk, Tirunelveli District, Tamil Nadu.

**Discussion by SEAC and the Remarks:-**


Proposed Rough stone, Jelly & Gravel quarry over an extent of 2.23.0 Ha (Patta land) at Survey No. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 & 155/16in KampaneriPuthukudi-I Village, Kadayanallur Taluk, Tirunelveli District, Tamil Nadu by Thiru. V.Maripandi - for Terms of Reference (SIA/TN/MIN/408351/2022, Dated: 29.11.2022).

The proposal was placed in this 346<sup>th</sup> meeting of SEAC held on 12.01.2023. The details of the project furnished by the proponent are available in the website (parivesh.nic.in).

**The SEAC noted the following**

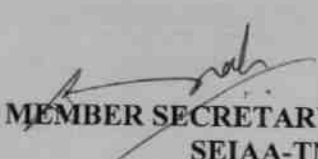
1. The Project Proponent, Thiru. V.Maripandi has applied for Terms of Reference for the Proposed Rough stone, Jelly & Gravel quarry over an extent of 2.23.0 Ha of Patta land at Survey No. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 & 155/16in KampaneriPuthukudi-I Village, Kadayanallur Taluk, Tirunelveli District, Tamil Nadu.
2. The proposed quarry/activity is covered under Category "B1" of Item 1(a) "Mining Projects" of the Schedule to the EIA Notification, 2006.
3. The precise area communication was issued for the period of 5 years. The approved mining plan is for the period of five years & production should not exceed 1,36,030 cu.m of Rough Stone, 35133 Cu.m of Weathered Rock & 27482 cu.m of Gravel. The ultimate depth is 35m (2m Gravel + 3m Weathered Rock + 30m Rough stone).

Based on the presentation made by the proponent, SEAC decided to recommend grant of Terms of Reference (TOR) with Public Hearing subject to the following additional TORs, in

  
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addition to the standard terms of reference for EIA study for non-coal mining projects and details issued by the MOEF & CC to be included in EIA/EMP Report:

1. The PP shall furnish the revised 'Yearwise Development & Production Plan' after removing the Block-I and Block - II shown in the Mining Plan considering the safety and environmental aspects, vetted by the concerned AD (Geology & Mines) during the EIA appraisal.
2. The PP shall furnish the letter received from DFO concerned stating the proximity details of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., upto a radius of 25 km from the proposed site.
3. The PP shall incorporate the study on mitigation measures in consultation with the DFO, since the Nellai WLS is located within 10 Km.
4. The Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, as the depth of the proposed working is extended beyond 30 m below ground level.
5. The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc.
6. The 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.
7. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.
8. 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.
9. 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 prepare and submit an 'Action Plan' for carrying out the realignment of the benches in the

  
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- proposed quarry lease after it is approved by the concerned Asst. Director of Geology and Mining during the time of appraisal for obtaining the EC.
10. 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.
  11. 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.
  12. 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.
  13. 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,
    - a. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?
    - b. Quantity of minerals mined out.
    - c. Highest production achieved in any one year
    - d. Detail of approved depth of mining.
    - e. Actual depth of the mining achieved earlier.
    - f. Name of the person already mined in that leases area.
    - g. If EC and CTO already obtained, the copy of the same shall be submitted.
    - h. Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.
  14. 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).

  
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15. The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,
16. The PP shall furnish the revised manpower including the statutory & competent persons as required under the provisions of the MMR 1961 for the proposed quarry based on the volume of rock handled & area of excavation.
17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees & safety distance between the adjacent quarries & water bodies nearby provided as per the approved mining plan.
18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.
19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of 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 ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. 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

  
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- 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, 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. Public Hearing points raised and commitments of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF& CC accordingly.

  
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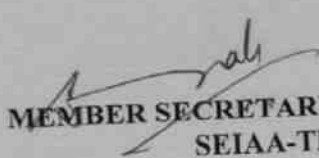
32. The Public hearing advertisement shall be published in one major National daily and one most circulated vernacular daily.
33. The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing in Tamil Language also.
34. As a part of the study 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.
35. 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 and local school/college authorities. 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.
36. Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site-specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner
37. 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.
38. 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.
39. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
40. 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

  
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- detailed along with budgetary allocations.
41. 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.
  42. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
  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. 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.
  45. The PP shall 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.
  46. 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	வில்லம்
2	<i>Adenaanthera pavonina</i>	Manjadi	மஞ்சாடி, ஆனைக்குன்றிமணி
3	<i>Albizia lebbbeck</i>	Vaagai	வாகை
4	<i>Albizia amara</i>	Usil	உசில்
5	<i>Bauhinia purpurea</i>	Mantharai	மந்தாரை
6	<i>Bauhinia racemosa</i>	Aathu	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>	Purunai	புன்னை
13	<i>Cassia fistula</i>	Sarakondrai	சரக்கொன்றை
14	<i>Cassia roxburghii</i>	Sengondrai	செங்கொன்றை
15	<i>Chloroxylon sweetenia</i>	Purasamaram	பரசு 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	சிறு உசா
21	<i>Diospyro sebenuim</i>	Karungali	கருங்காலி
22	<i>Diospyro schloroxylon</i>	Vaganai	வாகனை
23	<i>Ficus amplissima</i>	Kalltchi	கல் இச்சி
24	<i>Hibiscus tiliaceou</i>	Aatrupoovarasu	ஆற்றுப்புவரசு
25	<i>Hardwickia binata</i>	Aacha	ஆச்சா
26	<i>Holoptelia integrifolia</i>	Aayili	ஆயா மரம், ஆயிலி
27	<i>Lannea coromandelica</i>	Odham	ஓதியம்
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	வில்லா 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	ஈச்சமரம்
39	<i>Pongamia pinnat</i>	Pungam	புங்கம்


  
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40	<i>Premna mollissima</i>	Munnai	முள்ளை
41	<i>Premna serratifolia</i>	Narununnai	நறு முள்ளை
42	<i>Premna tomentosa</i>	Malipoovarasu	மலை புலக
43	<i>Prosopis cinerea</i>	Vanni maram	வள்ளி மரம்
44	<i>Pterocarpus marsupium</i>	Vengai	வேங்கை
45	<i>Pterospermum canescens</i>	Vennangu, Tada	வேணாங்கு
46	<i>Pterospermum xylocarpum</i>	Polavu	புலவு
47	<i>Puthranjiva roxburghii</i>	Karipala	கரிபலா
48	<i>Salvadora persica</i>	Ugaa Maran	ஊகா மரம்
49	<i>Sapindus emarginatus</i>	Manupungan, Soapukai	மனிப்புங்கை சோபுகைய
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	தேத்தாள் கோட்டை
54	<i>Syzygium cumini</i>	Navai	நாவல்
55	<i>Terminalia bellerica</i>	Thandri	தாண்டி
56	<i>Terminalia arjuna</i>	Ven marudhu	வேண மருது
57	<i>Toona ciliata</i>	Sandhana vembu	சந்தன வேம்பு
58	<i>Thespesia populnea</i>	Puvarasu	புலக
59	<i>Walsuratrifoliata</i>	valsura	வால்சூரா
60	<i>Wrightia tinctoria</i>	Veppalai	வேப்பலை
61	<i>Pithecolobium dulce</i>	Kodukkapuli	கொடுக்காப்பூளி

#### Discussion by SEIAA and the Remarks:-

The proposal was placed in the 591<sup>st</sup> Authority meeting held on 10.02.2023. The authority noted that this proposal was placed for appraisal in this 346<sup>th</sup> meeting of SEAC held on 12.01.2023. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions in addition to the conditions in 'Annexure B' of this minute.

1. The EMP should include mine closure plan using weathered rock. It should be used for site restoration.

  
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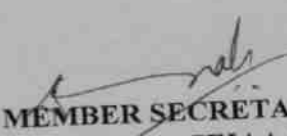


**Annexure 'B'**

1. Cluster Management Committee, which must include all the proponents in the cluster as members including the existing as well as proposed quarry.
2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,
3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.
4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.
5. The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.
6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.
7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.
8. The committee shall furnish the Emergency Management plan within the cluster.
9. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.
10. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
  - a) Soil health & bio-diversity.
  - b) Climate change leading to Droughts, Floods etc.
  - c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.


  
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- d) Possibilities of water contamination and impact on aquatic ecosystem health.
  - e) Agriculture, Forestry & Traditional practices.
  - f) Hydrothermal/Geothermal effect due to destruction in the Environment.
  - g) Bio-geochemical processes and its foot prints including environmental stress.
  - h) Sediment geochemistry in the surface streams.
11. The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.
  12. The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.
  13. The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilise the Energy shall be furnished.
  14. Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.
  15. Impact on surrounding agricultural fields around the proposed mining Area.
  16. Erosion Control measures.
  17. Impact on soil flora & vegetation around the project site.
  18. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.
  19. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.
  20. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.
  21. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.

  
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22. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.
23. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
24. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
25. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
26. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.
27. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.
28. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.
29. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.
30. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.
31. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.
32. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.
33. The project proponent shall study and furnish the details on potential fragmentation impact of natural environment, by the activities.
34. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.

  
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35. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.
36. The project proponent shall detailed study on impact of mining on Reserve forests free ranging wildlife.
37. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
38. To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.
39. To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.
40. Detailed Mine Closure Plan covering the entire mine lease period as per precise area communication order issued.
41. Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.


**A. STANDARD TERMS OF REFERENCE**

- 1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.

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

  
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lease period.

- 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
- 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
- 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
- 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked 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

  
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- ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
- 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
- 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
- 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.

  
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- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
- 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
- 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
- 28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be


  
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- 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 measures spelt out in detail. Details of pre-placement medical examination and periodical

  
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- 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

  
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- etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
- e) Where the documents provided are in a language other than English, an English translation should be provided.
  - f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.
  - g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.
  - h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the ToR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.
  - i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the Environment Clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
  - j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and 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.

  
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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 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 its acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest , eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)
18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety

  
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- system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
  21. Emergency preparedness plan in case of natural or in plant emergencies
  22. Issues raised during public hearing (if applicable) and response given
  23. CER plan with proposed expenditure.
  24. Occupational Health Measures
  25. Post project monitoring plan
  26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
  27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
  28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
  29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
  30. Reserve funds should be earmarked for proper closure plan.
  31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

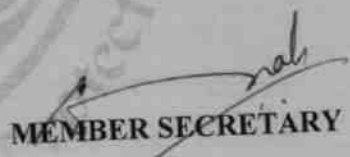
**Besides the above, the below mentioned general points should also be followed:-**

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

  
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- 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 2<sup>nd</sup> December, 2009, 18<sup>th</sup> March 2010, 28<sup>th</sup> May 2010, 28<sup>th</sup> June 2010, 31<sup>st</sup> December 2010 & 30<sup>th</sup> September 2011 posted on the Ministry's website <http://www.moef.nic.in/> may be referred.
- After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
  - The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
  - The 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 29<sup>th</sup> August, 2017.

  
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Copy to:

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

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



## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

### COMPLIANCE OF TOR CONDITIONS

**Point wise compliance of ToR points issued by SEIAA, TN vide letter No. SEIAA-TN/F.No.9623/SEAC/ToR-1325/2023 Dated: 10.02.2023 for Mining of Minor Minerals in the Mine of “Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha at S.F.No. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 & 155/16 of Kambaneri Puthukudi - I Village, Kadayanallur Taluk, Tirunelveli 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.	<p>Precise Area Communication Letter received from District Collector, Tirunelveli District vide letter Roc.No.M1/61043/2009 dated 11.05.2017.</p> <p>Mining Plan was approved by the Deputy Director, Department of Geology &amp; Mining, Tirunelveli vide letter Rc.No.M1/61043/2009 dated 15.12.2017</p> <p>As area is being exploited for the first time hence Year-wise production details since 1994 and before 1994 are not relevant or applicable.</p> <p>Proposed Production of Rough Stone &amp; Gravel for five years is proposed in the EIA/EMP in chapter no-2.</p>	<p>Chapter-2</p> <p>Table No.2.2</p> <p>Page No.38</p>

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

		Year	Rough stone (m <sup>3</sup> )	Gravel (m <sup>3</sup> )	
		I	16300	12324	
		II	16180	7098	
		III	16450	-	
		IV	16670	-	
		V	17300	-	
		<b>Total</b>	<b>82900</b>	<b>19422</b>	
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 2.23.0 hectare in Kampaneri Puthukudi - 1 Village for Rough stone and Gravel quarry approved by Deputy Director, Dept. of Geology & Mining, Tirunelveli vide Rc.No.M1/61043/2009 dated 15.12.2017			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 Deputy Director, Dept. of Geology & Mining, Tirunelveli			Annexure-VI  Chapter-II
4	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/toposheet should be provided. Such an	Details of coordinates of all corners of proposed mining lease area have been incorporated in mining plan and Chapter 2 of EIA/ EMP Report.			Chapter-2, Fig no. 2.2

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).		Page. no. 42
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. 44
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 43
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?	Noted.	

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	<p>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.</p>		
8	<p>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.</p>	<p>It is an open cast mining project. Blasting details are incorporated in chapter 2</p>	<p>Chapter-2, Page no.56</p>
9	<p>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.</p>	<p>Study area comprises of 10 km radius from the mine lease boundary. Key Plan showing core zone (ML area).</p>	<p>Chapter-2 Fig no. 2.5 Page no.45</p>
10	<p>Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park,</p>	<p>Land Use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, National park, migratory routes of fauna, water bodies,</p>	<p>Chapter-2, Table no. 2.4 Page no.47</p>

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	<p>migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated.</p> <p>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.</p>	<p>human settlements and other ecological features has been prepared and incorporated in Chapter-3 of EIA/EMP Report.</p> <p>There is no national park, migratory routes of fauna in the study area.</p> <p>Nellai Wildlife Sanctuary is located at a distance of 10 km, W.</p>	
11	<p>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&amp;R issues, if any, should be given.</p>	<p>The over burden in the form of Gravel is used for filling and levelling of low lying areas of road projects and other infrastructure development work in and around the district.</p>	<p>Chapter-2, Page no.53</p>
12	<p>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.</p> <p>In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this</p>	<p>Complied.</p> <p>The proposed mining lease area is not falling under forest land.</p>	

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

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



TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

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 Standing Committee of National Board of Wildlife and copy furnished.	There is no National Parks, Bird Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger / Elephant Reserves / Critically Polluted areas within 10 km radius of the mining lease area. Nellai Wildlife Sanctuary is located at a distance of 10 km, W.	
18	A detailed biological study of the study area [core zone and buffer	Details biological study (flora & fauna)	

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	<p>zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.</p>	<p>within 10 km radius of the project site have been incorporated in Chapter-3 of EIA/ EMP Report.</p> <p>No flora &amp; 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 &amp; fauna, if any in the lease hold area.</p>	<p>Chapter – 3 Pg No. 98</p>
19	<p>Proximity to Areas declared as ‘Critically Polluted’ or the Project areas likely to come under the ‘Aravali Range’, (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.</p>	<p>The proposed mining lease area is not falling under critically polluted area.</p>	
20	<p>Similarly, for coastal projects, A</p>	<p>There is no Coastal Zone within 15km</p>	

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	<p>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)</p>	<p>radius of the project site.</p>	
<p>21</p>	<p>R&amp;R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&amp;R Plan, the relevant State/National Rehabilitation &amp; 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</p>	<p>There is no Rehabilitation and resettlement is involved. Land classified as Patta land</p>	

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	<p>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&amp;R and socio-economic aspects should be discussed in the report.</p>		
22	<p>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.</p> <p>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 predominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500m of the mine lease in the predominant downwind direction. The mineralogical composition of PM10, particularly for free silica,</p>	<p>Baseline data collected during Summer Monsoon (March 2023 to May 2023) has been incorporated in EIA/EMP report.</p> <p>The key plan of monitoring station has been discussed in Chapter-4. Locations of the monitoring stations have been selected keeping in view the predominant downwind direction and location of the sensitive receptors and also that they represent whole of the study area.</p>	Chapter 3

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	should be given.		
23	<p>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.</p> <p>The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing predominant wind direction may also be indicated on the map.</p>	<p>Air quality modelling &amp; Impact of Air quality will be furnished in Final EIA report</p> <p>Transportation of mineral during operation of mines will be done by road ODR through dumpers and the impact of movement of vehicles are incorporated in EIA/EMP report.</p> <p>Air quality modelling &amp; Impact of Air quality will be furnished in Final EIA report</p>	<p>Chapter-4</p> <p>Page No.116</p>
24	<p>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.</p>	<p>Total water requirement: 2.0 KLD</p> <p>Dust Suppression: 1.0 KLD</p> <p>Domestic Purpose: 0.5 KLD</p> <p>Plantation :0.5 KLD</p> <p>Domestic Water will be sourced from nearby Sundaresapuram village which is about 0.67 km N of the area.</p>	<p>Chapter-2</p> <p>Page no.59</p>
25	<p>Necessary clearance from the Competent Authority for drawl</p>	<p>Not Applicable</p> <p>Water will be taken from nearby villages</p>	

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	of requisite quantity of water for the Project should be provided.		
26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	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 regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	Maximum working depth: 22 m BGL  The ground water table is reported as 56m below surface ground level in nearby wells of this area. Now, the present quarry shall be proposed above the water table and hence, quarrying may not affect the ground water So mine working will not be intersecting the ground water table.	Chapter-2  Page no. 40
29	Details of any stream, seasonal or otherwise, passing through the lease	There is no any stream crossing in the proposed quarry	Executive Summary

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	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.	Highest elevation: 210 MSL Water Table Depth: 48 m Below Ground Level	Chapter-2 Table no. 2.2 Page no. 40
31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to	Green Belt Development plan is proved given in Chapter 2.	Chapter-2

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	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	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.114
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	Suitable measure will be adopted to minimize occupational health impacts of	Chapter-10 Pg No. 151



## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	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.	the project. The project shall have positive impact on local environment. Details are given in chapter-10 of EIA/EMP.	
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-10  Pg No. 143
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. 116
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. 145
39	Public hearing points raised and	Public Hearing proceedings will be	

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	commitment of the project proponent on the same along with time bound action plan to implement the same should be provided and incorporated in the final EIA/EMP Report of the Project.	furnished in Final EIA report													
40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the project should be given.	Not applicable  No. litigation is pending against the project in any court.													
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 border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">S. No</th> <th style="text-align: center;">Description</th> <th style="text-align: center;">Cost</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>Fixed Asset Cost</td> <td style="text-align: right;">11,43,000</td> </tr> <tr> <td style="text-align: center;">2</td> <td>Operational Cost</td> <td style="text-align: right;">41,50,000</td> </tr> <tr> <td></td> <td>Total</td> <td style="text-align: right;">52,93,000/-</td> </tr> </tbody> </table>	S. No	Description	Cost	1	Fixed Asset Cost	11,43,000	2	Operational Cost	41,50,000		Total	52,93,000/-	Chapter-8 Pg No. 151
S. No	Description	Cost													
1	Fixed Asset Cost	11,43,000													
2	Operational Cost	41,50,000													
	Total	52,93,000/-													
42	Disaster Management Plan shall be prepared and included in the EIA/EMP Report.	Disaster Management and Risk Assessment has been incorporated in Chapter-7	Chapter-7 Pg No. 136												
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. 143												
44	Besides the above, the below mentioned general points are also to be followed:														
(a)	Executive Summary of the	Executive Summary of EIA Report is													

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	EIA/EMP report	given from page No.10-25	
(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. J-11013/41/2006-IA. II(I) dated 4th	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.	

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	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 & Forest and climate change as may be applicable.	Will be complied after grant environment clearance from SEIAA, Tamilnadu	
(j)	The EIA report should also include (i) surface plan of the area indicating contours of main topographic	All Sectional Plates of Quarry is enclosed	

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	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.	in Mining Plan.	
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TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

**Additional TOR by SEAC**

<b>S.No.</b>	<b>Condition</b>	<b>Compliance</b>
1.	The PP shall furnish the revised “Yearwise Development & Production Plan” after removing the Block-I and Block-II shown in the Mining plan considering the safety and environmental aspects, vetted by the concerned AD (Geology & Mines) during the EIA appraisal.	Agreed and Noted. Block – I and Block – II has been removed and the plan is revised.
2.	The PP shall furnish the letter received from DFO concerned stating the proximity details of Reserve Forest, Protected Areas, Sanctuaries, Tiger Reserve, etc., upto a radius of 25 km from the proposed site.	Agreed and Noted. The DFO letter will be attached in final EIA Report
3.	The PP shall incorporate the study on mitigation measures in consultation with the DFO, since the Nellai WLS is located within 10 km.	Agreed and Noted. The Mitigation measures in consultation with DFO, Nellai WLS located within 10 km will be furnished in Final EIA Report.
4.	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 30m below ground level	The mining was done upto the depth of 22 m only. So, the Slope Stability Report will be not needed.
5.	The structures within the radius of i) 50 m, ii) 100 m, iii) 200 m and iv) 300 m 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.	Noted and Agreed to comply. The structures located within 300 m will be furnished in Final EIA Report.
6.	The PP shall submit a detailed hydrological report	The hydrological report within 1 km

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	(indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.	radius will be furnished in final EIA Report.
7.	The Proponent shall carry out Bio diversity through reputed institution and the same shall be included in EIA Report.	The Bio diversity report will be included in final EIA Report.
8.	The proponent shall furnish photographs of adequate fencing, greenbelt along the periphery including replantation of existing trees and safety distance between the adjacent quarries and water bodies nearby provided as per the approved mining plan.	Complied. The photographs of fencing and greenbelt attached as per SEAC Recommendations.
9.	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 prepare and submit an 'Action Plan' for carrying out the realignment of the benches in the proposed quarry lease after it is approved by the concerned Asst. Director of Geology and Mining during the time of appraisal for obtaining the EC.	Agreed to comply.
10.	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.	Noted and Agreed to comply.
11.	The PP shall present a conceptual design for carrying out only controlled blasting operation	The mining will be done upto the depth of 22 m only.

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	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.	
12.	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.	There is no quarries operated by the proponent in the past in the same location or elsewhere in the state.
13.	<p>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,</p> <ol style="list-style-type: none"> <li>What was the period of the operation and stoppage of the earlier mines with the last work permit issued by the AD/DD mines?</li> <li>Quantity of minerals mines out.</li> <li>Highest production achieved in any one year.</li> <li>Details of approved depth of mining.</li> <li>Actual depth of the mining achieved earlier.</li> <li>Name of the person already mined in that leases area.</li> <li>If EC and CTO already obtained, the copy of the same shall be submitted.</li> </ol> <p>Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.</p>	<p>It is a fresh quarry (Patta Land)</p> <p>Agree to comply</p>
14.	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/Topo	<p>Complied.</p> <p>All corners with coordinates of the</p>



## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	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 feature of the study area (core and buffer zone)	mine lease area has attached with EIA report in chapter 2
15.	The PP shall carry out Drone vide survey covering the cluster, Greenbelt, Fencing, etc.,	The drone video survey covering the cluster, greenbelt, fencing etc will be attached in Final EIA Report.
16.	The PP shall furnish the revised manpower including the statutory & competent persons as required under the provisions of the MMR 1961 for the proposed quarry based on the volume of rock handled and area of the excavation.	Noted and Agreed to comply.
17.	The proponent shall furnish photographs of adequate fencing, greenbelt along the periphery including replantation of existing trees and safety distance between the adjacent quarries and water bodies nearby provided as per the approved mining plan.	Complied. The photographs of fencing and greenbelt attached as per SEAC Recommendations.
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.	The details of Mineable and Planed production capacity has been attached in EIA Report in Executive Summary and the anticipated impacts of mining operation and the remedial measures has been discussed in Chapter 4. The mining methodology and impacts are followed as on prescribed norms by Government.
19.	The Project Proponent shall provide the	Complied.

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of Mines Act' 1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.	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 ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within I km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Necessary data and documentation in this regard may be provided.	Hydro geological study report will be submitted along final EIA report
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 quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study details 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	Noted. Agree to comply.

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	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.	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 dump (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.	There is no overburden formed
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

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

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.	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, 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, Tenkasi District
31.	Public hearing points raised and commitments of the PP on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project and to be submitted to SEIAA/SEAC with regard to the Office Memorandum of MoEF & CC accordingly.	Noted and will be complied in Final EIA report.
32.	The Public hearing advertisement shall be published in on major National daily and one most	Noted. Agree to comply.

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	circulated vernacular daily	
33.	The PP shall produce/display the EIA report, Executive summary and other related information with respect to public hearing Tamil Language also.	Noted
34.	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.	Noted. Agree to comply
35.	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 and local school/college authorities. 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
36.	Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meter wide and in between blocks in an organized manner.	The green belt plan enclosed with mining plates in Annexure VI

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

37.	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.
38.	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.
39.	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Occupational Health impacts of the project has prepared and incorporated in Environmental management plan.
40.	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.
41.	The Socio-economic studies should be carried out within a 5km 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.

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

42.	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.
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 in EIA report chapter 8
44.	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	It is a fresh quarry. So, certified compliance report is not needed.
45.	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.	Noted. Agree to comply.
46.	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the Condition mentioned above may result in withdrawal of this Terms of conditions besides attracting penal provisions in the Environment (Protection) Act, 1986	Noted.

### Additional TOR by SEIAA

S.No.	Condition	Compliance
1.	Cluster Management Committee which must include all the proponents in the cluster as members including the existing as well as proposed quarry	Noted and Complied. All the proponents in the cluster is discussed in Chapter-2, Page number-35

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

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.,	Green belt development, water sprinkling, tree plantation is discussed in chapter-2, Page number-58
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.	Agreed to comply.
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.	Agreed to comply.  It will be furnished in final EIA report.
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	Risk management plan is discussed in Chapter-7, page number-135
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.	Agreed to comply.  It will be furnished in final EIA report.
7.	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	Agreed to comply.  It will be furnished in final EIA report.
8.	The committee shall furnish the Emergency	Emergency management plan is



TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	Management plan within the cluster.	discussed in Chapter-7, page number-139
9.	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
10.	<p>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.</p> <ul style="list-style-type: none"> <li>a) Soil health &amp; bio-diversity</li> <li>b) Climate change leading to Droughts, Floods etc.,</li> <li>c) Pollution leading to release Greenhouse gases (GHG), rise in Temperature &amp; Livelihood of the local people.</li> <li>d) Possibilities of water containment and impact on aquatic ecosystem health.</li> <li>e) Agriculture, Forestry &amp; Traditional practices.</li> <li>f) Hydrothermal/Geothermal effects due to destruction in the Environment.</li> <li>g) Bio-geochemical processes and its foot prints including environmental stress</li> <li>h) Sediment geochemistry in the surface streams</li> </ul> <p>Sediment geochemistry in the surface streams.</p>	<p>The biodiversity has been studied and discussed in chapter 3.</p> <p>The soil erosion map 5km surrounding the project site has been given in chapter 3.</p> <p>The detailed study will be carried out and will be enclosed in the Final EIA Report.</p>
11.	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation and safety.	<p>Agreed to comply.</p> <p>It will be furnished in final EIA</p>

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

		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
13.	The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilize the energy shall be furnished	Agreed to Comply.
14.	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
15.	Impact on surrounding agricultural fields around the proposed mining area.	There is no agricultural fields around the proposed mining area
16.	Erosion Control Measures	Complied. Erosion details has been attached in Chapter 3. Greenbelt will be planted to avoid and control erosion.
17.	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
18.	Detailed study shall be carried out regard to impact of mining around the proposed mine lease area on the nearby villages, Water-bodies/Rivers, & any ecological fragile areas.	The detailed study will be carried out and will be furnished in the Final EIA Report.
19.	The project proponent shall furnish VAO Certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake,	Obtained and same has been attached as Annexure.

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	pond, tank, etc.	
20.	As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.	Noted and public hearing details will be included along with final EIA report.
21.	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks, and temperature reduction including control of other emission and climate mitigation activities.	Noted and will be complied in Final EIA report.
22.	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	The biodiversity has been studied and discussed in chapter 3 – Pg No. 113.
23.	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	Noted. Agree to comply.
24.	The project proponent shall study impact on fish habitats and the food WEB/food chain in the water body and reservoir.	There is no water bodies within 1 km radius. Hence there won't be much impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
25.	The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.	The soil erosion map 5km surrounding the project site has been given in chapter 3. The soil samples have been

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

		collected surrounding the project site and physical, chemical components and microbial components study has been carried out and the results are tabulated in chapter 3
26.	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
27.	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.
28.	The Environmental Impact Assessment should study on wetlands, water bodies, river streams, lakes and farmer sites.	The water environment impacts and its mitigation measures has been given in Chapter 4
29.	The EIA should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.	The EMP details has been given in Chapter 8
30.	The EIA should study impact on climate change, temperature rise, pollution and above soil carbon stock.	Noted and will be complied in Final EIA report.
31.	The EIA should study impact on protected areas, Reserve forests, National parks, Corridors and Wildlife pathways, near project site.	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

TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

		attached with Annexures.  There is no protected areas, National Parks, Corridors and Wildlife pathways near project site.
32.	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.
33.	The PP shall study and furnish the details on potential fragmentation impact of natural environment, by the activities.	Noted and will be complied in Final EIA report.
34.	The PP 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 landform changes visual and aesthetic impacts	Noted. Agree to comply.
35.	The PP shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impact of plastic & microplastic on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	There will not be any plastic and microplastic pollution due to mining activity. Also, we ensure that we won't use any single use plastics in the project site.
36.	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

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

		cause any damage to reserve forest. Also, we have received letter from DFO indicating the nearest reserve forest and attached with Annexures.
37.	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc., within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data and documentation in this regard may be provided, covering the entire mine lease period.	The hydro-geological study will be conducted and submitted in final EIA report.
38.	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazard & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	Disaster Management and Risk Assessment has be incorporated in Chapter-7
39.	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.
40.	Detailed mine closure plan covering the entire mine lease period as per precise area communication order issued.	Mine closure plan has been attached along with mining plates as Annexure VI.
41	Detailed Environment Management plan along	Environment Management Plan

## TOR Reply of Proposed Rough stone & Gravel Quarry Over an Extent of 2.23.0 Ha

	with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	has been described in detail in Chapter-10 of the Draft EIA/EMP Report.
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**ANNEXURE-II**  
**PRECISE AREA COMMUNICATION LETTER**





**From**

Dr.M.Karunakaran, I.A.S.,  
District Collector,  
Tirunelveli District,  
Tirunelveli.

**To**

Thiru.V.Maripandi,  
S/o. T.Velusamy Thevar,  
4/66, Pillaiyar Koil Main Road,  
Sundaresapuram (Post),  
Kadayanallur,  
Tenkasi Taluk

Sir,

**Roc. No. M1/61043/2009, dated: 11.05.2017.**

**Sub:** **Mines and Minerals** - Minor Minerals - Roughstone, Jelly and Gravel - Tirunelveli District - Kadayanallur Taluk - Kambaneri Pudukudi - 1 Village - S.F. Nos. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 and 155/16 - over an extent of 2.23.0 Hect of patta lands - Quarry lease application preferred by Thiru.V.Maripandi - area falls under Hill Village - Clearance from HACA obtained - Precise area communicated - Approved Mining Plan and Environmental clearance - called for - reg.

- Ref :-**
- 1) Quarry lease application of Thiru.V.Maripandi, Kadayanallur Taluk, Tirunelveli District, dated: 17.08.2009 and 22.12.2010.
  - 2) Revenue Divisional Officer, Tenkasi report No: A3/9479/2009, dated: 03.06.2010 and A3/3595/2014, dated: 11.08.2014.
  - 3) Deputy Director, Town and Country Planning (i/c), Tirunelveli Letter Rc. No: 2455/2009/TVM3, dated: 21.07.2010 and No: 834/2016/TVM3, dated: 01.06.2016.
  - 4) Principal Chief Conservator of Forests, Chennai letter No: K.Dis. TS4/54179/2009, dated: 14.05.2010 and TS4/5873/2015, dated: 09.02.2016
  - 5) Chief Engineer Agriculture, Engineering (i/c), Chennai letter No: NPT.2/60600/2009, dated: 25.01.2010 and No: NPT.1/39178/2014, dated: 15.04.2016.

- 6) Report of Assistant Director, Geology and Mining, Tirunelveli, dated: 15.07.2016
- 7) This office letter No. M1/61043/2009, dated: 14.12.2016.
- 8) Member Secretary, Hill Area Conservation Authority / Commissioner of Town and Country Planning, Chennai Letter No. 23033/2016/HSBA, dated: 15.02.2017.

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Thiru.V.Maripandi, S/o.T.Velusamy Thevar, residing at No:4/66, Pillaiyar Kovil Main Road, Sundaresapuram Post, Kadayanallur Taluk, Tirunelveli District applied on 17.08.2009 and 22.12.2010 for grant of quarry lease for quarrying Roughstone, Jelly and Gravel over an extent of 2.46.5 Hectares of patta lands in S.F.Nos: 155/3, 155/6, 155/7A, 155/8B, 155/11, 155/13, 155/14, 155/15 and 155/16 of Kambaneri Pudukudi - I Village, Kadayanallur Taluk, Tirunelveli District under Rule 19(1) of Tamil Nadu Minor Mineral Concession Rules, 1959.

2. As the applied area falls in Hill Village as notified in G.O. Ms. No. 49, Housing and Urban Development Department, dated: 24.03.2003 and clearance from the Hill Area Conservation Authority is a pre-requisite for grant of quarry lease for minor minerals, a proposal was forwarded to the Commissioner of Town and Country Planning, Chennai in the reference 7<sup>th</sup> cited, with a request to place the proposal before the Committee for obtaining clearance from the Hill Area Conservation Authority.

3. The Commissioner of Town and Country Planning / Member Secretary, Hill Area Conservation Authority in the reference 8<sup>th</sup> cited has informed that the subject was placed before HACA at its 57<sup>th</sup> meeting held on 07.02.2017 as agenda item No. 12 and the HACA decided to recommend the proposal for grant of quarry lease over an extent of 2.23.0 Hectares of patta lands in SF. Nos. 155/3, 8B, 11, 13, 14, 15, 16 of Kampaneri Pudukudi Village, Kadayanallur Taluk, Tirunelveli District subject to the conditions imposed by the Agriculture Engineering Department, Forest Department and Geology and Mining Department.

4. In view of the above, the quarry lease application preferred by Thiru.V.Maripandi for grant of quarry lease for quarrying Roughstone, Jelly and Gravel in the subject area is considered for a period of 5 years and accordingly precise area is hereby communicated over an extent of 2.23.0 hectare of patta lands in S.F.Nos: 155/3 (0.40.0), 155/8B (0.42.5), 155/11 (0.21.5), 155/13 (0.25.0), 155/14 (0.39.0), 155/15 (0.37.0) and 155/16 (0.18.0) of Kampaneri Puthukudi -1 Village, Kadayanallur Taluk, Tirunelveli District subject to the following conditions under Rule 41 (4) of Tamil Nadu Minor Mineral Concession Rules, 1959.

- I. A safety distance of 7.5 meters should be provided for the adjacent patta lands.
- II. There should not be any hindrance to the adjacent pattadars or public while quarrying and transporting the minerals from the subject area.
- III. The applicant is restrained from producing products other than the permitted minerals in this area.

- IV. Child labour should be prohibited in the quarrying activities.
- V. Quarrying operation should be carried out without affecting the nearby water bodies, odai and adjoining agricultural lands.
- VI. Waste materials should be dumped within the area proposed for grant of quarry lease.
- VII. Environment clearance should be obtained from the appropriate authority.

5. You are hereby directed to submit draft mining plan duly prepared by Recognized Qualified Person in respect of the precise area communicated for approval of the Deputy Director of Geology and Mining, Tirunelveli within a period of 90 days from the date of receipt of this letter as required under rule 41 (5) of Tamil Nadu Minor Mineral Concession Rules, 1959.

6. You are further directed to produce Approved Mining Plan and Environmental Clearance obtained from the District Level Environmental Impact Assessment Authority as required under Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 for grant of quarry lease in respect of the precise area communicated.

**District Collector,  
Tirunelveli.**

**Copy to**  
The Revenue Divisional Officer,  
Tirunelveli.

*[Handwritten signature]*  
11.5.79

**ANNEXURE-III**  
**MINING PLAN APPROVED LETTER**



**From**

S.Thangamuniasamy, M.Sc.,  
Deputy Director,  
Department of Geology and Mining,  
Tirunelveli.

**To**

Thiru.V.Maripandi,  
S/o.T.Velusamy Thevar,  
No:4/66, Pillaiyar Kovil Main Road,  
Sundaresapuram Post,  
Kadayanallur Taluk,  
Tirunelveli District.

**Rc. No. M1/61043/2009, dated: 15.12.2017.**

**Sir,**

**Sub :** Mines and Minerals - Minor Minerals -  
Roughstone, Jelly & Gravel - Tirunelveli District -  
Kadayanallur Taluk - Kambaneri Pudukudi - I  
Village - S.F Nos: 155/3.8B,11,13,14,15 & 16 -  
over an extent of 2.23.0 Hectares of patta lands  
- quarry lease application preferred by  
Thiru.V.Maripandi - precise area communicated  
- draft Mining Plan submitted - Approval  
accorded.

- Ref :**
- 1) Quarry lease application preferred by  
Thiru.V.Maripandi, dated: 17.08.2009 and  
22.12.2010.
  - 2) Ministry of Environment and Forest,  
Government of India, Office Memorandum  
No. L-11011/47/20112-IA-11(M), dated:  
18.05.2012.
  - 3) Commissioner of Geology and Mining,  
Chennai letter Rc.No.3868/LC/2012, dated:  
19.11.2012 & 07.11.2014.
  - 4) G.O. (Ms). No. 79, Industries (MMC1),  
Department, dated: 06.04.2015.
  - 5) Commissioner of Town and Country  
Planning, Chennai letter No.  
23033/2016/HACA, dated: 15.02.2017
  - 6) This office Letter No. M1/61043/2009, dated:  
11.05.2017.
  - 7) Letter dated: 11.07.2017 received from  
Thiru.V.Maripandi.

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Thiru.V.Maripandi applied on 22.12.2010 for grant of quarry lease for quarrying Roughstone, Jelly and Gravel over an extent of 2.23.0 Hectares of patta lands in S.F.Nos: 155/3 (0.40.0), 155/88 (0.42.5), 155/11 (0.21.5), 155/13 (0.25.0), 155/14 (0.39.0), 155/15 (0.37.0) and 155/16 (0.18.0) of Kambaneri Pudukudi - I Village, Kadayanallur Taluk, Tirunelveli District under Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959., vide reference 1<sup>st</sup> cited.

2) In the reference 6<sup>th</sup> cited, precise area has communicated by the District Collector directing the applicant to submit draft Mining Plan duly prepared by Recognized Qualified Person for approval of the Deputy Director of Geology and Mining, Tirunelveli within 90 days from the date of receipt of the notice as required under Rule 41 (5) of Tamil Nadu Minor Mineral Concession Rules, 1959.

3) In response to the precise area communicated, Thiru.V.Maripandi has submitted three copies of draft Mining Plan duly prepared by a Recognized Qualified Person and requested for approval of the same vide reference 7<sup>th</sup> cited.

4) The draft Mining Plan submitted in respect of the precise area communicated has been verified with reference to field conditions and co-ordinates of all the corners of the lease applied area were verified with the Global Positioning System (GPS) and same was found to be correct. The required 7.5 meters safety distance for the adjacent patta lands has been clearly demarcated in the sketches.

5) In exercise of the powers vested under sub rule (2) and (5) of Rule 41 of Tamil Nadu Minor Mineral Concession Rules, 1959, I hereby approve the mining plan subject to the following conditions:-

- (i) The mining plan is approved without prejudice to any other order or direction from any court of contempt jurisdiction.
- (ii) 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.
- (iii) The approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Indian Explosives Act, 1884 (Central Act IV of 1884) and the Rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959.
- (iv) Quarrying operations should be carried out in accordance with the approved mining plan.
- (v) The applicant is entitled for production of 27,482 cubic meters of Gravel as per the approved mining plan.
- (vi) The applicant is entitled for production of 1,71,163 cubic meters of Roughstone for a period of five years as per the approved mining plan.
- (vii) A safety distance of 7.5 meters should be provided to the adjacent patta lands.
- (viii) All the statutory and safety requirements should be strictly adhered.
- (ix) No hindrance shall be caused to the adjoining pattadars lands or public while carrying out quarrying operations.
- (x) Waste materials generated during quarrying operation shall be dumped within the area granted under quarry lease.

6) The applicant is hereby directed to obtain Environmental Clearance from the District Level Environmental Impact Assessment Authority, Tirunelveli in respect of the precise area communicated as required under Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 for grant of quarry lease.

**Encl:** Approved Mining Plan.

*g/c* <sup>15.12.19</sup>  
Deputy Director,  
Geology and Mining,  
Tirunelveli.

**Copy submitted to:**

The Chairman / District Collector  
District Level Environmental  
Impact Assessment Authority,  
Collectorate, Tirunelveli

*g/c*  
15/12/19

*Receive To Copy.*

*M. Palanivel.*

*M. Palanivel.*

**ANNEXURE-IV**  
**500M Radius letter**



From

Thiru.A.Arumuganainar, M.Sc.,  
Joint Director/  
Assistant Director(i/c),  
Geology and Mining,  
Tirunelveli.

To

The Chairperson,  
SEIAA, Tamil Nadu,  
3<sup>rd</sup> Floor, Panagal Maligai,  
No. 1, Jeenis Road,  
Saidapet, Chennai - 15.

Rc. No.M1/61043/2009, dated: .12.2020

Sir,

**Sub: Mines and Minerals - Minor Minerals - Roughstone, Jelly and Gravel - Tenkasi District - Kadayanallur Taluk - Kambaneri Pudukudi - 1 Village - SF. Nos. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 & 155/16 - over an extent of 2.23.0 hectares of patta lands - Quarry lease application preferred by Thiru.V.Maripandi - Certain Particulars requested - for obtaining Environmental Clearance - furnished - reg.**

- Ref:**
1. Quarry lease application preferred by Thiru.V. Maripandi dated. 17.08.2009 and 22.12.2010.
  2. Ministry of Environment and Forest, Government of India, Office Memorandum No. L-11011/47/20112 - IA - 11(M), dated. 18.05.2012.
  3. This office notice No. M1/61043/2009, dated. 11.05.2017.
  4. Mining Plan Approval letter No. M1/61043/2009, dated. 15.12.2017. -
  5. Letter dated: 26.11.2020 received from Thiru. V. Maripandi.
  6. G.O (Ms) No. 169, Industries (MMC-1) Department dated. 04.08.2020.
- \*\*\*\*\*

Thiru. V. Maripandi, S/o.T.Velusamy Thevar, residing at No. 4/66, Pillayar Kovil Main Road, Sundaresapuram Post, Kadayanallur Taluk, Tirunelveli District has preferred and application for grant of quarry

lease for quarrying Roughstone, Jelly and Gravel over an extent of 2.23.0 hectares of patta land in SF. Nos. 155/3 (0.40.0), 155/8B (0.42.5), 155/11 (0.21.5), 155/13 (0.25.0), 155/14 (0.39.0), 155/15 (0.37.0) & 155/16 (0.18.0) of Kambaneri Pudukudi-I Village, Kadayanallur Taluk, Tirunelveli District for a period of 5 years under Rule 19 (1) of Tamil Nadu Minor Mineral Concession Rules, 1959 vide reference 1<sup>st</sup> cited.

2. In the reference 3<sup>rd</sup> cited above, precise area has been communicated based on the recommendations of the Sub-Collector, Cheranmahadevi and the Assistant Director of Geology and Mining, Tirunelveli, the quarry lease application preferred by the applicant for grant of quarry lease for quarrying roughstone, jelly and gravel in the subject area has been considered for grant for a period of 5 years and precise area is hereby communicated over an extent of 2.23.0 hectares of patta land in SF. Nos. 155/3 (0.40.0), 155/8B (0.42.5), 155/11 (0.21.5), 155/13 (0.25.0), 155/14 (0.39.0), 155/15 (0.37.0) & 155/16 (0.18.0) of Kambaneri Pudukudi-I Village, Kadayanallur Taluk, Tirunelveli District.

3. The Mining Plan submitted by the lessee, Thiru.V.Maripandi, S/o. Velusamy for quarrying roughstone has been approved vide this office letter No. M1/61043/2009, dated. 15.12.2017 for obtaining Environmental Clearance as per the Rule Number 41 and 42 of Tamil Nadu Minor Mineral Concession Rules 1959.

4. In the reference 5<sup>th</sup> cited, Thiru.V.Maripandi, S/o. Velusamy has requested to furnish certain particulars such as existing / proposed / abandoned mines within a radial distance of 500 meters from the periphery of the existing mining lease hold area for obtaining environmental clearance from the State Level Environment Impact Assessment Authority, Chennai.

5. The details of quarry leases granted for Roughstone falling within a radial distance of 500 meters from the subject leasehold area are furnished below:-


Sl. No.	Name of the Lessee	Village & SF. No.	Extent - Hectares	Lease status
<b>1. Existing quarries</b>				
1.	S.Arunachalam, S/o.Subbaiah, 295, Main Road, Krishnapuram, Kadayanallur, Tenkasi.	Ariyanayagipura m & SF.No. 729 (Pt-I) - Poramboke land	2.00.0	Proceeding No. M3/67787/2004, dt.19.01.2016 for a period 5 years from 08.02.2016 to 07.02.2021
2.	S.Arunachalam, S/o.Subbaiah, 295, Main Road, Krishnapuram, Kadayanallur Taluk, Tenkasi.	Ariyanayagipura m & SF.No.729 (Pt-II) - Poramboke land	3.00.0	Proceeding No. M3/67787/2004, dt.19.01.2016 for a period 5 years from 08.02.2016 to 07.02.2021
<b>Total extent of Existing quarries</b>			<b>5.00.0</b>	
<b>2. Abandoned quarries</b>				
1.	K.Selvakumar, 136/46, LRS, Palayam, Tenkasi	Kadayamper umpathu - II & SF. No.829(P)	2.00.0	Proceeding No. M1/11147/2013, dt. 10.06.2014 for a period 5 years from 10.06.2014 to 09.06.2019
<b>Total extent of abandoned quarries</b>			<b>2.00.0</b>	




### 3. proposed quarries

			in SF. Nos.	
1.	V.Maripandi, S/o.Velusamy Thevar, 4/66, Pillaiyar Kovil Main Road, Sundaresapuram post, Kadayanallur Taluk, Tenkasi.	Kambaneri Pudukudi-I Village, Kadayanallur Taluk	155/3 (0.40.0), 155/8B (0.42.5), 155/11 (0.21.5), 155/13 (0.25.0), 155/14 (0.39.0), 155/15 (0.37.0)& 155/16 (0.18.0)	Proposed Quarry
<b>Total extent of proposed quarries</b>			<b>2.23.0</b>	
<b>Grand Total extent of all quarries</b>			<b>9.23.0</b>	

6. In view of the above it is recommended that Environmental Clearance may be issued in favour of the applicant subject to the usual terms and conditions.

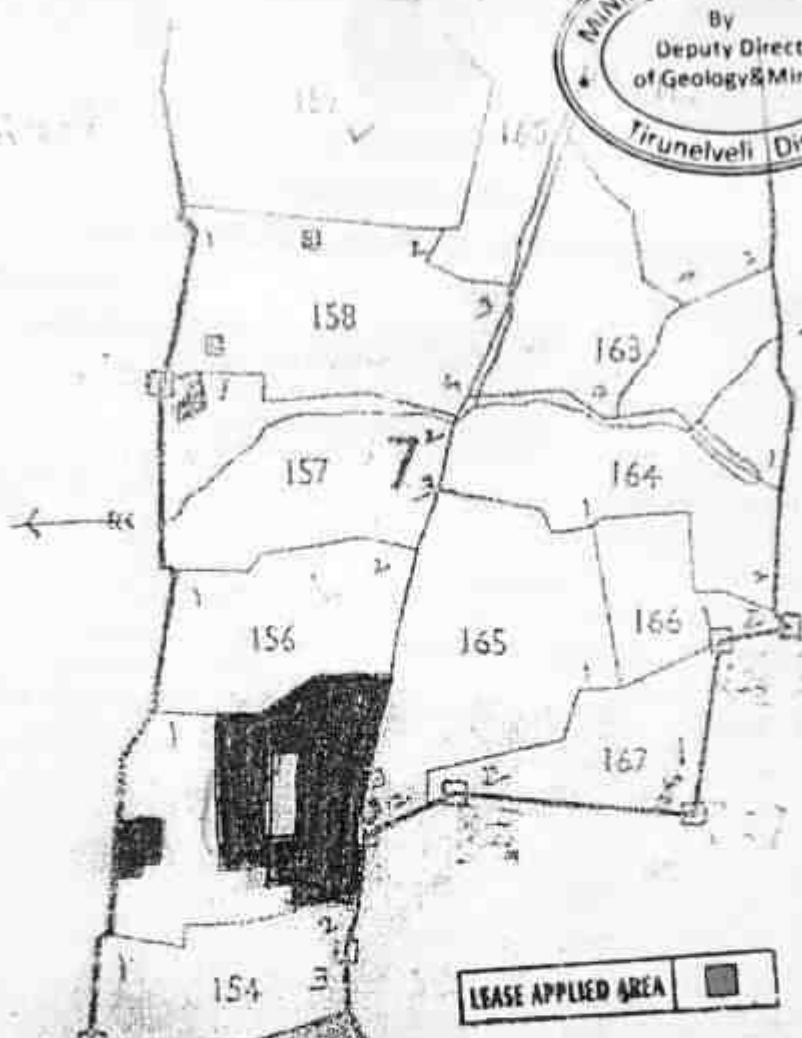
  
Joint Director/  
Assistant Director(i/c),  
Geology and Mining,  
Tirunelveli.

  
2-11-2020

**ANNEXURE-V**  
**FMB, A REGISTER, VILLAGE MAP AND**  
**DEED OF AGREEMENT**







LEASE APPLIED AREA

சென்னை மாவட்டம்  
செய்யாயக்புரம் 4 மில்லி





தமிழக அரசு

வருவாய்த் துறை

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

வட்டம் : திருநெல்வேலி

வட்டம் : கடையநல்லூர்

சுவாமி கிராமம் : அச்சன்புதூர்கம்பனேரி புதுக்குடி பகுதி  
பட்டா எண் : 2117

## உரிமையாளர்கள் பெயர்

ஆறுமுகப்பெருமாள் நாடார்

மகன் அந்தோணிச்சாமி

புள்ளி எண்	உட்பிரிவு	நன்செய்		புன்செய்		மற்றவை	
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை
		ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை	ஹெக்ட - ஏர்	ரூ - பை
155	11	--	--	0 - 21.50	0.30	--	--
155	14	--	--	0 - 39.00	0.55	--	--
155	15	--	--	0 - 37.00	0.50	--	--
155	3	--	--	0 - 40.00	0.55	--	--
155	7A	--	--	0 - 4.50	0.05	--	--
155	6B	--	--	0 - 42.50	0.55	--	--
155	7	--	--	1 - 17.00	1.60	--	--
				3 - 1.50	4.10		

குறிப்பு 2 :



1. கீழ்க்கண்ட தகவல் / சான்றிதழ் தகவல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 29/12/2017/02117/70191 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 10-06-2017 அன்று 05:05:09 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode பாடிப்பான் மூலம் பாடித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.



தமிழக அரசு

வருவாய்த் துறை

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

வட்டம் : திருநெல்வேலி

வாய் கிராமம் : அச்சன்புதூர்கம்பனேரி புதுக்குடி பகுதி  
பட்டா எண் : 2102

வட்டம் : கடையநல்லூர்

உரிமையாளர்கள் பெயர்

வேலுச்சாமித்தேவர்

மகன்

மாரிப்பாண்டி

நன்செய்

புன்செய்

மற்றவை

பரப்பு

தீர்வை

பரப்பு

தீர்வை

பரப்பு

தீர்வை

எண்	உட்பிரிவு	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை
5	13	--	--	0 - 25.00	0.35	--	--
2	16	--	--	0 - 18.00	0.25	--	--
5	6	--	--	0 - 19.00	0.25	--	--
2	28	--	--	0 - 19.50	0.25	--	--
				0 - 81.50	1.10		

2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 29/12/2017/02102/70145 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 10-06-2017 அன்று 05:07:03 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.

419 - ஆம் பக்கத்தில் திரைப்படம்

பக்கம் 1.1.1

11/7/69



1. இம் வரித் திட்டத்தில் பயன்பாட்டிற்கு விடப்படும்					சமீபத்தில் கண்டுபிடிக்கப்பட்ட	சமீபத்தில் கண்டுபிடிக்கப்பட்ட	சமீபத்தில் கண்டுபிடிக்கப்பட்ட	சமீபத்தில் கண்டுபிடிக்கப்பட்ட	சமீபத்தில் கண்டுபிடிக்கப்பட்ட	சமீபத்தில் கண்டுபிடிக்கப்பட்ட
(1)	(2)	(3)	(4)	(5)						
36	13	000	025	0108	1. கார்ப்புரேஷன்					
	16	0180	005	11						
	6	0190	005	11						
159	08	0145	025	11						

சென்னை 12/7/69

5. கம்பெனி புதுச்சேரி பகுதி  
கொண்டி மட்டம்



வட்டாட்சியர் அலுவலக இணைய சேவை - அபிவிேடு விவரம்

அ-பதிவேடு விவரம்



வட்டம் : திருநெல்வேலி

பட்டம் : கடையநல்லூர்

பாடம் : அச்சன்புதூர்கம்பளேரி புதுக்குடி பகுதி 1

புல எண்	155	9. மண் வயனமும் ரகமும்	8 - 3
உட்பிரிவு எண்	3	10. மண் தரம்	5
பழைய புல உட்பிரிவு எண்	-3	11. தீர்வை (ரூ - ஹெ)	1.38
வசூதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 40.00
அரசு / ரயத்துவாரி ரயத்துவாரி		13. மொத்த தீர்வை (ரூ - பை)	0.55
சிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	2117
பாசன ஆதாரம்	-	15. குறிப்பு	-
இரு போகமா	-	16. பெயர்	1.அந்தோணிச்சாமி

குறிப்பு 1:



மற்றகண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60191 என்ற குறிப்பு எண்ணை உள்ளிட்டு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : திருநெல்வேலி

வட்டம் : கடையநல்லூர்

கிராமம் : அச்சன்புதூர்கம்பளேரி புதுக்குடி பகுதி I

1. புல எண்	155	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	8B	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-8	11. தீர்வை (ரூ - ஹெ)	1.38
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 42.50
5. அரசு / ரயத்துவாரி ரயத்துவாரி		13. மொத்த தீர்வை (ரூ - பை)	0.55
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	2117
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
- இரு போகமா	-	16. பெயர்	1. அந்தோணிச்சாமி

குறிப்பு 1:



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் யின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை நாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60191 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : திருநெல்வேலி  
 வட்டம் : கடையநல்லூர்  
 கிராமம் : அச்சன்புதூர்கம்பனேரி புதுக்குடி பகுதி 1

1. ஸ்ரீ எண்	155	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	11	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-11	11. தீர்வை (ரூ - ஹெ)	1.38
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 21.50
5. அரசு / ரயத்துவாரி ரயத்துவாரி		13. மொத்த தீர்வை (ரூ - பை)	0.30
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	2117
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. நுட்போகமா	-	16. பெயர்	1. அந்தோணிச்சாமி

குறிப்பு 1:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60191 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



ாவட்டம் : திருநெல்வேலி

ட்டம் : கடையநல்லூர்

ிராமம் : அச்சன்புதூர்கம்பளேரி புதுக்குடி பகுதி I

புல எண்	155	9. மண் வயளமும்	
பிரிவு எண்	13	ரகமும்	8 - 3
புல		10. மண் தரம்	5
பிரிவு எண்	-13	11. தீர்வை (ரு - ஹெ)	1.38
பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஓர்)	0 - 25.00
அரசு / ரயத்துவாரி ரயத்துவாரி		13. மொத்த தீர்வை (ரு - பை)	0.35
லத்தின் வகை	புஞ்சை	14. பட்டா எண்	2102
சன ஆகாரம்	-	15. குறிப்பு	-
கு போகமா	-	16. பெயர்	1.மாரிப்பாண்டி

பு 1:



மேற்கண்ட தகவல் / சான்றிதழ் தகவல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60145 என்ற குறிப்பு எண்ணை உள்விட்டு செய்து உறுதி செய்துகொள்ளவும்.



## அ-பதிவேடு விவரங்கள்

மாவட்டம் : திருநெல்வேலி

வட்டம் : கடையநல்லூர்

கிராமம் : அச்சன்புதூர்கம்பனேரி புதுக்குடி பகுதி I

1. புல எண்	155	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	14	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-14	11. தீர்வை (கு - ஹெ)	1.38
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 39.00
5. அரசு / ரயத்துவாரி ரயத்துவாரி		13. மொத்த தீர்வை (கு - எப)	0.55
நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	2117
பாசன ஆதாரம்	-	15. குறிப்பு	-
இரு போகமா	-	16. பெயர்	1-அந்தோணிச்சாமி

குறிப்பு 1:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60191 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.

அபிவிேடு விவரங்கள்



மாவட்டம் : திருநெல்வேலி

வட்டம் : கதையநல்லூர்

கிராமம் : அச்சன்புதூர்கம்பளேரி புதுக்குடி பகுதி 1

1. புல எண்	155	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	15	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-15	11. தீர்வை (ரு - ஹெ)	1.38
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 37.00
5. அரசு / ரயத்துவாரி ரயத்துவாரி		13. மொத்த தீர்வை (ரு - னை)	0.50
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	2117
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1. அந்தோணிச்சாமி

குறிப்பு 1:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60191 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



வாவட்டம் : திருநெல்வேலி

வட்டம் : கடையநல்லூர்

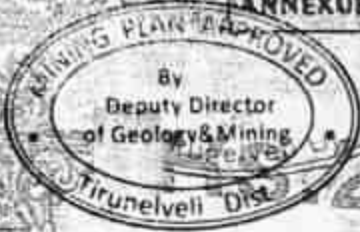
பிராமம் : அச்சன்புதார்கம்பனேரி புதுக்குடி பகுதி I

புல எண்	155	9. மண் வயனமும் ரகமும்	8 - 3
உட்பிரிவு எண்	16	10. மண் தரம்	5
பழைய புல உட்பிரிவு எண்	-16	11. தீர்வை (ரூ - ஹெ)	1.38
பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 18.00
அரசு / ரயத்துவாரி ரயத்துவாரி		13. மொத்த தீர்வை (ரூ - பை)	0.25
நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	2102
பாசன ஆதாரம்	-	15. குறிப்பு	-
இரு போகமா	-	16. பெயர்	1.மாரிப்பாளன்டி

குறிப்பு 1:



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60145 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.



बीस रुपये

₹.20



TWENTY RUPEES

INDIA NON JUDICIAL

TAMIL NADU

எண்: 14219

57AA 100987

திருச்செங்கை

28.11.10

கட்டுக்குத்தகை அ.பிரகாசு

2010 ஆம் ஆண்டு நவம்பர் மாதம் 28 ஆம் தேதிக்கு

1150 ஆம் ஆண்டு கார்த்திகை மாதம் 10 ஆம் தேதி

தென்காசி தாலுகா, பொக்கலூர் கிராம அந்திசுழற் றில் பிள்ளையார் கோவில் அருகிலுள்ள தெருவில் வசிக்கும் கெழுச்சாமித் தேவர் அங்குள்ள குமாரர் மாரியாச்சாமி (1), சிவசிரித் தாலுகா, புளியங்குடி டவுன் சிந்தாமணி கிராமம், சாவிழார் ம.கந்தித் தெருவில் 4615 எண் வீட்டில் வசிக்கும் P. சுவாமிநாத செல்வமன் நாடார் அவர்கள் குமாரர் A. சுந்தரானிச்சாமி (2), ஆயிர நாடுகளும் அழகிக் கோட்டை கட்டுக்குத்தகை அ.பிரகாசு,

சென்னை

28/11/2010



R. SUBRAMANIAN, B.A.B.L. ADVOCATE & NOTARY PUBLIC BOARD'S COUNSEL TIRER (TIRUNELVELI REGION) 14 & SUM VIDYED COMPLEX, GANDI 54/115





रु. 500



FIVE HUNDRED RUPEES

पाँच सौ रुपये

Rs 500

INDIA NON JUDICIAL

தமிழ்நாடு தமிழ்நாடு TAMILNADU ரூ 500

2156 / 10-6-11

சந்தோஷ்கிருஷ்ணன்  
பரிமாற்றிய

ரூபாய் 400/-  
ரூபாய் 100/-  
ரூபாய் 50/-  
ரூபாய் 150/-  
8

S 967999  
B. சந்தோஷ்கிருஷ்ணன்  
சா.நா.பி.சி.என்.டி.  
25-11-2011  
30-11-2011

ரூபாய் 8,000/- க்கு கிராமம் சத்தனந் மதிப்பு ரூபாய் 8,168/-  
2011 ஆம் வருடம் ஜூன் மாதம் 16 ஆம் தேதிக்கு  
1785 ஆம் ஆண்டு ஆளி மாதம் 1 ஆம் தேதி

சிவகிரித் தாலுக்கா, பரிமங்குடி டிவன், சித்தாமணி கிராமம்,  
46B சான்றோர் மடத்துத் தெருவில் வசிக்கும் P. ஆறுமுக வருடயார்  
நட்பார் அவர்கள் குமாரர் A. சந்தோஷ்கிருஷ்ணன் (ஒட்டுநர் வரிமம் எண்  
FTTN/76Z/002827/2008) அவர்களுக்கு

எழுதிக் கொடுப்பவர்

M. சந்தோஷ்கிருஷ்ணன்

M. சந்தோஷ்கிருஷ்ணன்

எழுதி வந்தபவர்

ச. சந்தோஷ்கிருஷ்ணன்



சொத்தைச் சர்வ சுதந்திரக் கிரையப் பாத்தியமாய் தங்கள் விருப்பம்  
 உால் ஆண்டனாபவித்துக் கொள்ள வேண்டியது. இனிமேல் தபசில்  
 ாத்து சம்மந்தமாய் எங்களுக்காவது எங்கள் வாரிககளுக்காவது  
 எந்தக் காலத்திலும் எவ்விதப் பாத்தியமும் பின் தொடர்ச்சியும்  
 கிடையாது

தபசில் சொத்து விபரம்

திருநெல்வேலி மாவட்டம், தென்காசி வட்டம், தென்காசி பதிவு  
 மாவட்டம், கடையநல்லூர் சார்பதிலாளர் அலுவலகம் கம்பனோரி  
 புதுக்குடி கிராமம், புஞ்சை சர்வே 155/7A எண் ஹெக்டேர் 0.04.5க்கு  
 செண்டு 11 புஞ்சை சர்வே 155/8A எண் ஹெக்டேர் 0.01.0க்கு  
 செண்டு 3 ஆக செண்டு 14ம் இதற்கு எல்லை மால்

- புடக்கில் - கோட்டுராத் தேவர் புஞ்சை
- தெற்கில் - S.K. மாரியப்பாண்டி புஞ்சை
- கிழக்கில் - தங்கள் கைவச புஞ்சையும், S.K. மாரியப்பாண்டி  
 புஞ்சையும்
- மேற்கில் - காந்தித் தேவர்

தபசில் விபரம் சரி.

எழுதிக் கொடுப்பவர்

M. சிவசுப்ரமணியன்  
 M. சிவசுப்ரமணியன்

எழுதி வாங்குபவர்  
 R. சிவசுப்ரமணியன்







1968 ஆம் வருடத்திய தமிழ்நாடு முத்திரைக் குறைப்பு தடுப்பு வ்தி  
எண் 3(1)வ் படி அறிக்கை விபரம்  
கிராமம் - கம்பனேரி புதுக்குடி

வரிசை எண்	சர்வே எண்	விஸ்தீரணம் ஹெக்/ச.மீ.	சொத்தின் தன்மை	ஹெக்/ச.மீ. 1க்கு	சொத்தின் மதிப்பு
1.	155/7A	0.04.5	பஞ்சை	ரூ.1,48,500	ரூ.6,683.00
2.	155/8A	0.01.0	பஞ்சை	ரூ.1,48,500	ரூ.1,485.00
மேற்படி சொத்துக்களின் தற்கால நடப்பு மதிப்பு					ரூ.8,168.00

எழுதிக் கொடுப்பவர்

எழுதி வாங்குபவர்

1. குடுகன்  
M. கி. ஜெ. ஜெ.

R. ...



Numbered up to: 12 OCT 1987  
14/9/87  
Regional Controller of Mines  
INDIAN BUREAU OF MINES  
Ministry of Steel Mines & Coal  
MADRAS

## CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON TO PREPARE MINING PLANS

(Under Rule 22 (c) of Mineral Concession Rules 1960)

Shri ..... C. NATARAJAN ..... resident

of ALAMEADI (VILL), VEDASENDUR (TD), ANNA (DISTT), TAMILNADU, son

of ..... SHRI K. CHINNA GOUNDER ..... , having given satisfactory

evidence of his qualifications and experience is hereby granted recognition under Rule 22 (c) of the Mineral Concession Rules, 1960 as a Qualified Person to prepare Mining Plans.

His registration number is

RDP / MAS / 004 / 87 / A

This recognition is valid for a period of two years ending ..... 25.10.1989 .....

Place: MADRAS

Date: 26.10.1987

P. Manimurthy 26/10/87  
Regional Controller of Mines  
Indian Bureau of Mines  
MADRAS.

23 OCT 1993  
Renewed up to.....

23-10-1993  
Renewed up to.....



*Phanumun*  
Regional Controller of Mines  
INDIAN BUREAU OF MINES

*Suprabhena*  
REGIONAL CONTROLLER OF MINES  
INDIAN BUREAU OF MINES  
CHENNAI

23 OCT 1995  
Renewed up to.....

*Phanumun*

श्रीव काम निबंध  
Regional Controller of Mines  
भारतीय खान ब्यूरो  
INDIAN BUREAU OF MINES

22-10-2021  
Renewed up to.....

*Shin*  
REGIONAL CONTROLLER OF MINES  
INDIAN BUREAU OF MINES  
CHENNAI REGION

22 OCT 1997  
Renewed up to.....

*Shin*  
श्रीव काम निबंध  
Regional Controller of Mines  
भारतीय खान ब्यूरो  
INDIAN BUREAU OF MINES

22-10-99  
Renewed up to.....

*H.K.A. Murugan*  
Regional Controller of Mines  
INDIAN BUREAU OF MINES

22-10-2001  
Renewed up to.....

*Suprabhena*  
Regional Controller of Mines  
INDIAN BUREAU OF MINES



GOVERNMENT OF INDIA  
MINISTRY OF MINES AND MINERALS  
INDIAN BUREAU OF MINES  
OFFICE OF THE REGIONAL CONTROLLER OF MINES

No. : 656(48)/2010-Mds

C 4 A Rajaji Bhavan  
Besant Nagar  
Chennai 600 090.

Dated : 21 / 9 / 2011

To :  
Sri C. Natarajan  
S/o K. Chinna Gounder  
No. 5/85 Muthugapatti - Post  
Namakkal Taluk & District  
Pincode - 637405

Sub. : Renewal of recognition as recognized qualified person under Rule 22C of MCR, 1960 reg.

Ref. : a) Your letter dated 5.08.2011.  
b) Reg. No. RQP/MAS/004/87/A dated 26.10.87.

Sir,

With reference to your request for renewal of recognition under Rule 22C of MCR, 1960, please find enclosed herewith the original certificate of recognition duly renewed for a further period of ten years.

02. You are advised to prepare standard mining plans/scheme of mining/Progressive Mine Closure Plan/Final Mine Closure Plan complete in all respects as per the outline/guidelines and taking into account all requirements as per CCOM's Circular to RQPs and instructions issued from time to time. Further, you are advised not to furnish any deliberate false information in the mining plan/scheme of mining/Progressive Mine Closure Plan/Final Mine Closure Plan, so as to mislead the authorities. It may please be noted that any such incidence on your part may lead to withdrawal of the recognition granted to you.

03. The recognition is valid up to 22.10.2021.

Yours faithfully,

(Ivan Khess)

Regional Controller of Mines

Copy for kind information to :

The Controller of Mines (S), Indian Bureau of Mines, Bangalore without any enclosure.

(Ivan Khess)

Regional Controller of Mines



4524/2022



தமிழ்நாடு தமில்நாடு TAMILNADU 19.10.2022

Y 256402

மணம்

M. மீனாட்சி  
ஸ்டாம்பு வெண்டர்  
பரிமம் எண்: 3 / 2009  
தென்காசி

சான்றிதழ்  
சிந்தாமணி



வாடகை ஒப்பந்தம்  
2022 வருடம் அக்டோபர் மாதம் 19ம் தேதிக்கு  
1198 ஆம் வருடம் ஐப்பசி மாதம் 02ம் தேதி  
தென்காசி மாவட்டம், கடையநல்லூர் வட்டம், புளியங்குடி கிராமம்,  
சிந்தாமணி ஊரில், சான்றோர் மடத்து தெருவில், 46B நிர் வீட்டில் வசிக்கும்  
ஆறுமுகப்பெருமாள் அவர்கள் குமாரர் திரு. அந்தோணிச்சாமி -1.(வயது-50)  
(ஆதார் எண் 5929 7644 1312) செல் -99766 47590 மேற்படி வட்டம், போகநல்லூர்  
கிராமச் சரகம், சுந்தரேசபுரம் ஊரில், மெயின் ரோட்டில் 4/66 நிர் வீட்டில்  
வசிக்கும்

ச. மணிவேல்  
சா. சான்றிதழ்

புத்தகம் 2022ம் வருடத்திய 4524ம்  
ஆவணம் ..... தாள்களைக் கொண்டது  
..... வது தாள்  
பதிவு அலுவலர்





தமிழ்நாடு தமிழ்நாடு TAMILNADU 19.10.2022

CK 534559

B. லோகநாயகி  
B. லோகநாயகி  
ஸ்டாம்பு வெண்டர்  
உரிமம் எண்: 2193  
கடையநல்லூர்.

மாண்புமிகு  
சுற்றுச்சூழல்

-2-

வேல்சாமி அவர்கள் குமாரர் திரு. மாரிப்பாண்டி -2. (வயது-55)(ஆதார்  
எண் 5817 9228 6342) செல் - 98424 85495 ஆகிய நாம் இருவரும் செய்து  
கொண்ட வாடகை ஒப்பந்தம்

என்னவென்றால் நம்மில் 1வது நபருக்கு கடையநல்லூர் சார்பதிவாளர்  
அலுவலகம் 3082/2008 நிர் கிரைய ஆவணம் மூலம் பாத்தியப்பட்ட இதன்  
1முதல் 4அயிட்ட தபசில் சொத்துக்களை மட்டும் நம்மில் 2வது நபர் நம்மில்

ச. லோகநாயகி

சே. லோகநாயகி

..... புத்தகம் 2022ம் வருடத்திய 1524  
ஆவணம் ..... 12 ..... தாள்களைக் கொண்டது  
2  
..... வது தாள்  
பதிவு அலுவலர்



தமிழ்நாடு தமிழ்நாடு TAMIL NADU 19.10.2022

மார்ப்பாண்டி  
சுதேசம்

57AA 616010

ப. லோகநாயகி

B. லோகநாயகி  
ஸ்டாம்பு வெண்டர்  
உரிமம் எண்: 2/93  
கடையநல்லூர்.

-3-

1வது நபரிடம் விவசாய பொருட்கள் கொண்டு செல்லும் வகைக்கு  
வாடகைக்கு பயன்படுத்தக் கேட்டதில் 1வது நபர் 2வது நபருக்கு வாடகைக்கு  
கொடுப்பதற்கு மனப்பூர்வமாய் சம்மதித்து நம்மில் 1வது நபர் நாளது தேதி  
முதல் மாதம் 1க்கு வாடகையாக ரூபாய் 500/- (ரூபாய் ஐநூறு) வீதம் 10  
வருடங்களுக்கு வாடகைக்கு பயன்படுத்திக் கொள்ள ஒப்புக்கொண்டு நம்மில்  
2வது நபரிடமிருந்து நம்மில் 1வது நபர் நாளது தேதியில் அட்வான்ஸாக  
ரூ. 1,000/- ரொக்கம் (ரூபாய் ஆயிரம் மட்டும்) பெற்றுக் கொண்டதால் நம்மில்

ச. ரமணி

சே. லோகநாயகி

புத்தகம் 2022ம் வருடத்திய 14.10.2022  
ஆவணம் 12 தாள்களைக் கொண்டது  
3 வது தாள்  
பதிவு அலுவலர்



2வது நபர் தபசில் கண்ட சொத்துக்களை வாடகை பாத்தியமாய் அனுபவித்துக் கொண்டு அந்தந்த மாதம் 5ம் தேதிக்குள் (ஆங்கில மாதம்) வாடகை தொகையை 1வது நபருக்கு 2வது நபர் ரொக்கம் கொடுத்து ரசீதுபெற்றுக் கொள்ளவேண்டியது. மேற்படி கடைசி மாத (18-10-2032) முடிவில் 2வது நபர் 1வது நபரிடமிருந்து மேற்படி அட்வான்ஸ் தொகை ரூபாய் 1,000/-ஐ (ரூபாய் ஆயிரம்) திரும்ப பெற்றுக் கொண்டு மேற்படி தபசில் சொத்துக்களை 2வது நபர் 1வது நபரிடம் ஒப்படைத்து விட்டு விலகிக் கொள்ள வேண்டியது என்று நாம் இருவரும் பேசி முடிவு செய்து இந்த வாடகை ஒப்பந்தத்தை பிறப்பித்துக் கொண்டோம்.

தபசில் சொத்து விபரம்

1) தென்காசி மாவட்டம் கடையநல்லூர் வட்டம், தென்காசி பதிவு மாவட்டம், கடையநல்லூர் சார்பதிவகம் கம்பனேரி புதுக்குடி - 1 கிராமம் புன்செய் சர்வே155/3நிர் ஹெக்டேர் 0.40.0க்கு செண்டு 99ம் இதற்கு எல்கைமால்

வடக்கில் - காந்தித்தேவர் புன்செய்  
தெற்கே - ம. பண்டாரம் வகையறா புன்செய்  
கிழக்கே - கீழ்கண்ட இரண்டாவது அயிட்ட புன்செய்  
மேற்கே - சுடலைமுத்து நாடார் புன்செய்

மேற்படி நிலத்திலிருக்கிற கல்கெட்டு கிணர் ஐலம் கமலை கமலைத்தடம் பத்தநடை பாசான வாய்க்கால் வகையறாவில் மேற்படி நிலத்துக்குரிய முழுபாத்தியம் உள்படவும்

Dr. Lennivandy  
Dr. Lennivandy

புத்தகம் 2022ம் வருடத்திய பு.உ.ப.ம்  
ஆவணம் ...1.2... தாள்களைக் கொண்டது  
...4... வட்ட தாள்  
பதிவு அலுவலர்

2) மேற்படி கிராமம் புன்செய் சர்வே 155/7A நிர் ஹெக்டேர் 0.45.0க்கு ஏக்கர் 1 செண்டு 11ம் புன்செய் சர்வே 155/8B நிர் ஹெக்டேர் 0.42.5க்கு ஏக்கர் 1 செண்டு 05ம் ஆக ஹெக்டேர் 0.86.6க்கு ஏக்கர் 2 செண்டு 16ம் இதற்கு எல்கைமால்

வடக்கில் - கோட்டுராத்தேவர் வகையறா புன்செய்  
தெற்கே - பொன்னையாத் தேவர் வகையறா புன்செய்  
கிழக்கே - கீழ்கண்ட மூன்றாவது அயிட்ட புன்செய்  
மேற்கே - மேற்படி 1வது அயிட்ட புன்செய்யும் காந்தி ஆறுமுகம் புன்செய்யும்

3) மேற்படி கிராமம் புன்செய் சர்வே 155/11 நிர் ஹெக்டேர் 0.21.5க்கு செண்டு 53ம் இதற்கு எல்கைமால்

வடக்கில் - ஆறுமுகம் புன்செய்  
தெற்கே - பொன்னையாத் தேவர் வகையறா புன்செய்  
கிழக்கே - கீழ்கண்ட நான்காவது அயிட்ட புன்செய்  
மேற்கே - மேற்படி இரண்டாவது அயிட்ட புன்செய்

4) மேற்படி கிராமம் புன்செய் சர்வே 155/14 நிர் ஹெக்டேர் 0.39.0க்கு செண்டு 96ம் புன்செய் சர்வே 155/15 நிர் ஹெக்டேர் 0.37.0க்கு செண்டு 92ம் ஆக ஹெக்டேர் 0.76.1க்கு ஏக்கர் 1 செண்டு 88ம் இதற்கு எல்கைமால்

வடக்கில் - கோட்டுராத்தேவர் வகையறா புன்செய்  
தெற்கே - பொன்னையாத் தேவர் வகையறா புன்செய்  
கிழக்கே - ம.பண்டாரம் 1.காந்தி தேவர் 2. இவர்கள் புன்செய்  
மேற்கே - மேற்படி 3வது அயிட்ட புன்செய்யும் ஆறுமுகம் புன்செய்யும்

A. Ramalingam,  
இரண்டாவது

..... புத்தகம் 2022ம் வருடத்திய 4.9.2022  
ஆவணம் 1.2..... தாள்களைக் கொண்டது  
..... 5..... வது தாள்  
பதிவு அலுவலர்

மேற்படி 1முதல்4 அயிட்ட சொத்துக்கள் மொத்தம் ஏக்கர் 05 செண்டு 56 ம்  
(ஏக்கர் ஐந்தும் செண்டு ஐம்பத்தி ஆறும்) தபசில் சொத்து விபரம் சரி.

செ. சுவாமி சண்முகம்  
செ. சுவாமி சண்முகம்

சாட்சிகள்

1. K.P. Vanu

வரதுங்கராமபாண்டியன், த/பெ. பிச்சுமணி பாண்டியன்,  
12,பிள்ளையார்கோவில் தெரு, கம்பநேரி, கடையநல்லூர் வட்டம், தென்காசி  
மாவட்டம், ஆதார் எண்- 5842 5174 0518, செல்-94865 33584.

2. S. Srinivasan

கார்த்திக் த/பெ. சோலைமலை 19 வடக்கு கார் தெரு, சிந்தாமணி  
புளியங்குடி, கடையநல்லூர் வட்டம், தென்காசி மாவட்டம், (ஆதார் எண்  
6364 3649 8185) செல்- 95246 08327

செ. சுவாமி சண்முகம்

ஆவணத்தை தயார் செய்தவர்



M.SUDALAIKANI, B.A.,B.L.,

Advocate, Entrol No: MS 1077/08,

30-A New Bazaar,

Kadayanallur -627 751.

Cell- 99766 39217.

புத்தகம் 2022ம் வருடத்திய 4524  
ஆவணம் ...12... தாள்களைக் கொண்டது  
.....6..... வது தாள்  
பதிவு அலுவலர்



இந்திய அரசாங்கம்

Government of India

இந்திய தனிப்பட்ட அடையாள ஆணைய அமைதி

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பதிவேட்டு எண்/ Enrolment No.: 2040/80262/14536

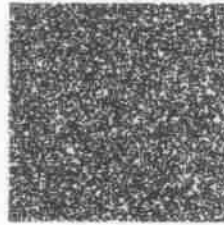
Download Date: 13/09/2021

To

அந்தோனிச்சாமி ஆ.  
Antonyysamy A  
S/O: Arumugaperumal  
46B  
SANTROR MADATHU STREET  
CHINTHAMANI  
Puliyangudi  
Puliyangudi  
Tirunelveli Tamil Nadu - 627855  
9978647590

Issue Date: 28/05/2015

Signature valid



உங்கள் ஆதார் எண் / Your Aadhaar No. :

5929 7644 1312

VID : 9139 5752 3810 0281

எனது ஆதார். எனது அடையாளம்



இந்திய அரசாங்கம்

Government of India



அந்தோனிச்சாமி ஆ.  
Antonyysamy A  
பிறந்த நாள்/DOB: 09/01/1972  
ஆண்/ MALE

Download Date: 13/09/2021

Issue Date: 28/05/2015

5929 7644 1312

VID : 9139 5752 3810 0281

எனது ஆதார். எனது அடையாளம்



Government of India



தகவல்

- ஆதார் அடையாளத்திற்கான சான்று. குடியுரிமைக்கு அல்ல.
- பாதுகாப்பான QR குறியீடு ஆப்லைவ் XML / ஆன்லைவ் அங்கீகாரத்தைப் பயன்படுத்தி அடையாளத்தை சரிபார்க்கவும்
- இது எலக்ட்ரானிக் செயல்முறை மூலம் தயாரிக்கப்பட்ட கடிதமாகும்.

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- உங்கள் மொபைல் எண் மற்றும் மின்னஞ்சல் ஐடியை ஆதாரில் புதுப்பிக்கவும்
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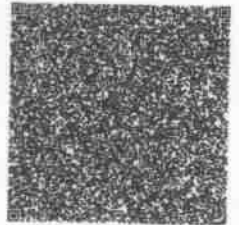
இந்திய தனிப்பட்ட அடையாள ஆணைய அமைதி

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முகவரி:  
தந்தை / தாய் பெயர்: ஆறுமுகப்பெருமாள்,  
46 பி, சன்ரோர் மடத்து தெரு, சிந்தாமணி,  
புளியங்குடி, திருநெல்வேலி,  
தமிழ் நாடு - 627855

Address:  
S/O: Arumugaperumal, 46B, SANTROR  
MADATHU STREET, CHINTHAMANI,  
Puliyangudi, Tirunelveli,  
Tamil Nadu - 627855



5929 7644 1312

VID : 9139 5752 3810 0281

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புத்தகம் 2022ம் வருடத்திய 14524ம்  
ஆவணம் ..12..... தாள்களைக் கொண்டது  
.....7..... வது தாள்  
பதிவு அலுவலர்



வே. லெட்சுமி/



K.P.V.V.V

...1... புத்தகம் 2022ம் வருடத்தியடிகளும்  
ஆவணம் ...12... தாள்களைக் கொண்டது  
.....8..... வது தாள்  
பதிவு அலுவலர்







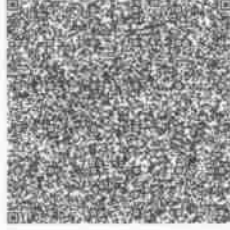
இந்திய அரசாங்கம்  
Government of India

இந்திய தனிப்பட்ட அடையாள ஆணைய அமைதி  
Unique Identification Authority of India

பதிவேட்டு எண்/ Enrolment No.: 1092/12179/27999

To  
கார்த்திக்  
Karthick  
S/O: Solaimalai  
19A  
NORTH CAR STREET  
CHINTHAMANI  
Puliankudi  
Tirunelveli Tamil Nadu - 627855  
9524608327

Signature valid



உங்கள் ஆதார் எண் / Your Aadhaar No. :

6364 3649 8185

VID : 9109 9001 3508 2972

எனது ஆதார். எனது அடையாளம்



இந்திய அரசாங்கம்  
Government of India



கார்த்திக்  
Karthick  
பிறந்த நாள்/DOB: 10/12/1991  
ஆண்/ MALE

Issue Date: 28/11/2013

6364 3649 8185

VID : 9109 9001 3508 2972

எனது ஆதார். எனது அடையாளம்



Government of India



தகவல்

- ஆதார் அடையாளத்திற்கான சான்று குடியுரிமைக்கு அல்ல.
- பாதுகாப்பான OR குறியீடு/ ஆப்லைன் XML / ஆன்லைன் அங்கீகாரத்தைப் பயன்படுத்தி அடையாளத்தை சரிபார்க்கவும்
- இது எலக்ட்ரானிக் செயல்முறை மூலம் தயாரிக்கப்பட்ட கடிதமாகும்.

### INFORMATION

- Aadhaar is a proof of identity, not of citizenship.
- Verify identity using Secure QR Code/ Offline XML/ Online Authentication.
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- ஆதார் நாடு முழுவதிலும் செல்லுபடியாகும்.
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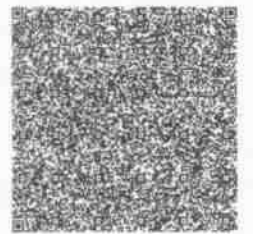
இந்திய தனிப்பட்ட அடையாள ஆணைய அமைதி  
Unique Identification Authority of India



முகவரி:  
S/O: சோலைமலை, 19ஏ, வடக்குரத வீதி,  
சிந்தாமணி, புளியங்குடி, திருநெல்வேலி,  
தமிழ் நாடு - 627855

Address:  
S/O: Solaimalai, 19A, NORTH CAR STREET,  
CHINTHAMANI, Puliankudi, Tirunelveli,  
Tamil Nadu - 627855

Download Date: 19/10/2022



6364 3649 8185

VID : 9109 9001 3508 2972

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

*[Handwritten Signature]*

..... புத்தகம் 2022ம் வருடத்திய 4524ம்  
ஆவணம் ..... தாள்களைக் கொண்டது  
..... வது தாள்கள்  
பதிவு அலுவலர்



தமிழக அரசு

வருவாய்த் துறை

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

மாவட்டம் : தென்காசி

வட்டம் : கடையநல்லூர்

வருவாய் கிராமம் : கம்பனேரி புதுக்குடி பகுதி-1  
2117

பட்டா எண் :

உரிமையாளர்கள் பெயர்

1. ஆறுமுகப்பெருமாள் நாடார்

மகன்

அந்தோணிச்சாமி

புல எண்	உட்பிரிவு	புன்செய்		நன்செய்		மற்றவை		குறிப்புரைகள்
		பரப்பு	தீர்வை	பரப்பு	தீர்வை	பரப்பு	தீர்வை	
		ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	
155	11	0 - 21.50	0.30	--	--	--	--	R1537/09---- 15-07-2000
155	14	0 - 39.00	0.55	--	--	--	--	R1537/09---- 25-09-2000
155	15	0 - 37.00	0.50	--	--	--	--	R1537/09---- 15-07-2000
155	3	0 - 40.00	0.55	--	--	--	--	R1537/09---- 15-07-2000
155	7A	0 - 4.50	0.05	--	--	--	--	----- 10-09-2014
155	8B	0 - 42.50	0.55	--	--	--	--	R1537/09---- 15-07-2000
165	7	1 - 17.00	1.60	--	--	--	--	R1537/09---- 15-07-2000
		3 - 1.50	4.10					

குறிப்பு2 :









- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <https://eservices.tn.gov.in> என்ற இணைய தளத்தில் 34/12/501/02117/120191 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 19-10-2022 அன்று 10:49:32 AM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்

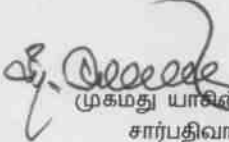
..... புத்தகம் 2022ம் வருடத்திய 4524ம்  
ஆவணம் ...1.2... தாள்களைக் கொண்டது  
.....10..... வது தாள்தான்  
பதிவு அலுவலர்

R/கடைய நல்லூர்/புத்தகம்-1/4524/2022

2022 ஆம் ஆண்டு அக்டோபர் மாதம் 19ம் தேதி பி.ப. 04:22 மணியளவில் கடைய நல்லூர் சார்பதிவாளர் அலுவலகத்தில் தாக்கல் செய்து கட்டணம் ₹ 810/- செலுத்தியவர்.

<p>இடது பெருவிரல்</p>  	<p>A. Arumugam</p> <p>கூடுதல் விவரங்கள் ஆவண வாசகத்தில் உள்ளபடி</p>	
<p>எழுதிக் கொடுத்ததாக ஒப்புக் கொண்டவர் இடது பெருவிரல்</p>  	<p>A. Arumugam</p> <p>"சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் : UKC:220400284d33bac035444ea85d741cd3b27d74 (Details from UIDAI : Antonysamy A S/O: Arumugaperumal, 09-01-1972, xxxxxxxx1312)</p>	
<p>எழுதி வாங்கியதாக ஒப்புக் கொண்டவர் இடது பெருவிரல்</p>  	<p>G. Maripandi V</p> <p>"சம்மதத்துடன் கூடிய ஆதார் அங்கீகாரம்" என்ற வழி இந்த நபரின் அடையாளம் விரல் ரேகை மூலம் ஆதார் ஆணையத்துடன் சரிபார்க்கப்பட்டது. ஒப்பீட்டு எண் : UKC:100578a2b0d2e180c6493687ed27c31c2a3ac7 (Details from UIDAI : Maripandi V C/O Velsamy Thevar, 26-03-1967, xxxxxxxx6342)</p>	

2022 ஆம் ஆண்டு அக்டோபர் மாதம் 19ம் நாள்

  
 முகமது யாசீன் சா  
 சார்பதிவாளர்  
 கடைய நல்லூர்  
 சார்பதிவாளர்  
 கடைய நல்லூர்

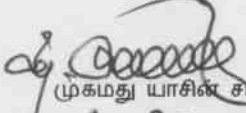
..... புத்தகம் 2022ம் வருடத்திய 4524ம்  
 ஆவணம் ...12..... தாள்களைக் கொண்டது  
 ..... வது தாள்  
 பதிவு அலுவலர்


R/கடைய நல்லூர்/புத்தகம்-1/4524/2022

R/கடைய நல்லூர்/புத்தகம்-1/4524/2022 எண்ணாகப் பதிவு செய்யப்பட்டது.

நாள்: 19/10/2022  
கடைய நல்லூர்



  
முகமது யாசின் சா  
சார் பதிவாளர்  
கடைய நல்லூர்

..... புத்தகம் 2022ம் வருடத்திய 4524ம்  
ஆவணம் ..12..... தாள்களைக் கொண்டது  
.....12..... வது தாள்  
  
பதிவு அலுவலர்

**ANNEXURE-VI MINING PLAN REPORT &  
PLATES**



# MINING PLAN FOR KAMPANERI PUTHUKUDI-1 ROUGH STONE, JELLY AND GRAVEL QUARRY

(Prepared under the provisions of rule 12 of Minor Mineral Conservation and Development Rules, 2010 & as per Rule 19(1), 41 and 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 by incorporating the conditions imposed in the precise area communication letter)

## LOCATION OF THE QUARRY LEASE APPLIED AREA

STATE : TAMIL NADU  
DISTRICT : TIRUNELVELI  
TALUK : KADAYANALLUR  
VILLAGE : KAMPANERI PUTHUKUDI-1  
S.F.NOS : 155/3, 155/8B, 155/11, 155/13,  
155/14, 155/15 AND 155/16  
EXTENT : 2.23.0Ha

For

## APPLICANT

**Thiru. V.Maripandi,**  
S/o.T.Velusamy Thevar  
No.4/66, Pillaiyar Koil Main Road,  
Sundaresapuram (Post),  
Kadayanallur, Tenkasi Taluk,  
Tirunelveli District.

## PREPARED BY

**C.NATARAJAN, M.Sc.,M.Phil.,**

**RQP/MAS/004/87/A**

(Valid Upto-22.10.2021)

93/36-E2, SubramaniyarKovilStreet,

OmalurTaluk, Salem District,

Tamil Nadu, PIN-636 455.

Mobile:97502 23535 - 9444654520.

Email: [geoprabu@gmail.com](mailto:geoprabu@gmail.com).

[infoglobalmining@gmail.com](mailto:infoglobalmining@gmail.com).

V.Maripandi,  
S/o.T.Velusamy Thevar,  
No.4/66, Pillaiyar Koil Main Road,  
Sundaresapuram (Post),  
Kadayanallur, Tenkasi Taluk,  
Tirunelveli District.



**CONSENT LETTER FROM THE APPLICANT**

The Mining Plan in respect of **Rough Stone, Jelly and Gravel** quarry over an extent of 2.23.0Ha of (**Patta land**) in S.F.Nos. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 and 155/16 of Kampaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District, Tamil Nadu State has been prepared by

**C.Natarajan, M.Sc.,M.Phil.,**  
**RQP/MAS/004/87/A**

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

**C.Natarajan, M.Sc., M.Phil.,**  
**RQP/MAS/004/87/A**

No.93/36E2, Subramaniyar Kovil Street,  
Omalur Taluk, Salem District,  
Tamil Nadu, Pin-636 455.  
Mobile:9750223535 & 94446 54520.

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

Signature of the Applicant

*V. Maripandi*  
V.Maripandi,

Place: Tirunelveli  
Date: 13.05.2017



V.Maripandi,  
S/o.T.Velusamy Thevar,  
No.4/66, Pillaiyar Koil Main Road,  
Sundaresapuram (Post),  
Kadayanallur, Tenkasi Taluk,  
Tirunelveli District.



**DECLARATION**

The Mining Plan in respect of **Rough Stone, Jelly and Gravel** quarry over an extent of 2.23.0Ha of **(Patta land)** in S.F.Nos. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 and 155/16 of Kampaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District, Tamil Nadu State has been prepared with my consultation and I have understood the contents and agree to implement the same in accordance with the Mining Laws.

Signature of the Applicant

*V. Maripandi*  
V.Maripandi,

Place: Tirunelveli

Date: 13.05.2017



C.Natarajan, M.Sc.,M.Phil.,

RQP/MAS/004/87/A

No.93/36E2, Subramaniyar Kovil Street,

Omalur Taluk, Salem District,

Tamil Nadu, Pin-636 455.

Mobile:9750223535 & 94446 54520.

CERTIFICATE

This is to certify that, the provisions of Minor Minerals Conservation and Development Rules, 2010 (MMCDR) have been observed in the Mining Plan for the grant of **Rough Stone, Jelly and Gravel** quarry lease over an extent of 2.23.0Ha of (**Patta land**) in S.F.Nos. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 and 155/16 of Kampaneri Pudukudi Village, Kadayanallur Taluk, Tirunelveli District, Tamil Nadu State applied by Thiru. V.Maripandi, for fresh quarry lease.

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

Certified

Signature of Recognized Qualified Person.

C.Natarajan, M.Sc.,M.Phil.,

RQP/MAS/004/87/A

C. NATARAJAN, M.Sc.,M.Phil.,

RECOGNISED QUALIFIED PERSON,

RQP / MAS / 004 / 87 / A

Place: Salem

Date: 13.06.2017.



**C.Natarajan, M.Sc.,M.Phil.,**

**RQP/MAS/004/87/A**

No.93/36E2, Subramaniyar Kovil Street,

Omalur Taluk, Salem District,

Tamil Nadu, Pin-636 455.

Mobile:9750223535 & 94446 54520.

CERTIFICATE

Certified that, in preparation of Mining Plan for **Rough Stone, Jelly and Gravel** quarry over an extent of 2.23.0Ha of (**Patta land**) in S.F.Nos. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 and 155/16 of Kampaneri Pudukudi Village, Kadayanallur Taluk, Tirunelveli District, TamilNadu State for Thiru.V.Maripandi, covers all the provisions of Mines Act, Rules, and Regulations etc., made there under and whenever specific permission are required, the applicant will approach the Director General of Mines Safety, Chennai. The standards prescribed by DGMS in respect of Mines Health will be strictly implemented.

Certified

Signature of Recognized Qualified Person.

**C.Natarajan, M.Sc.,M.Phil.,**

**RQP/MAS/004/87/A**

**C. NATARAJAN, M.Sc.,M.Phil.,**

**RECOGNISED QUALIFIED PERSON,**

**RQP / MAS / 004 / 87 / A**

Place: Salem

Date: 13.06.2017.

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**Annexure**

S. No.	Description	
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## MINING PLAN FOR MINOR MINERALS

### **ROUGH STONE, JELLY AND GRAVEL**

Over an extent of 2.23.0hectares of Patta land in  
S.F.Nos. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 and 155/16 of  
Kampaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District,  
Tamil Nadu State.

(PREPARED UNDER RULE 19 (1), 41 and 42 OF TNMMCR 1959)

#### 1.0 Introduction and Executive Summary;

1. The present Mining plan is prepared for Thiru.V.Maripandi, S/o.T.Velusamy Thevar residing at No.4/66, Pillaiyar Koil Main Road, Sundaresapuram (Post), Kadayanallur, Tenkasi Taluk, Tirunelveli District.
2. The application was processed by the District Collector, Tirunelveli and passed an order vide Roc.No. M1/61043/2009, dated 11.05.2017 has directed the applicant to produce approved Mining Plan and Environmental Clearance certificate from the State Level Environmental Impact Assessment Authority (SEIAA) for the grant of quarry lease to quarry **Rough Stone, Jelly and Gravel** over an extent 2.23.0hectares of Patta lands in S.F.Nos. 155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 and 155/16 of Kampaneri Puthukudi-1 Village, Kadayanallur Taluk, Tirunelveli District of Tamil Nadu State for a period of Five years only.
3. Accordingly, Mining Plan is prepared under the provisions of rule 19(1), 41 and 42 and as per the amendments under TamilNadu Minor Mineral Concession Rules, 1959 by incorporating the conditions imposed in the precise area communication letter.
4. Geological Resources is estimated at 6,85,170m<sup>3</sup> of Rough stone, 68,517m<sup>3</sup> of Weathered Rock and 45,678m<sup>3</sup> of gravel formation and Mineable Reserves is estimated at 1,36,030m<sup>3</sup> of Rough Stone, 35,133m<sup>3</sup> of Weathered Rock and 27,482m<sup>3</sup> of gravel formation and after leaving necessary safety distance from the lease boundary as indicated in the precise area letter and relevant mining laws in force.



5. Production Schedule is proposed production of 1,36,040m<sup>3</sup> of Rough Stone, 35,133m<sup>3</sup> of Weathered Rock and 27,482m<sup>3</sup> of gravel formation for the period of Five years.

6. Environmental parameters,

- i) The area does not attract the Forest Conservation Act, 1980 as there is no forest around 10Kms radius.
- ii) There is no interstate boundary around 10Kms radius.
- iii) There is no wild life animal sanctuary within 10Kms radius from the project site area under the Wildlife (Protection) Act, 1972.

Therefore the project seeks clearance only from State Level Environmental Impact Assessment Authority (SEIAA), under B2 Category.

7. Environmental measures to be adopted shall be,

- i) Dust Control at source while drilling and blasting,
- ii) Dust suppression at loading point and transport haul roads,
- iii) Noise Control in blasting, control of fly rock missiles and vibration by doing peak particle velocity with in standard as prescribed by the DGMS and MOEF.
- iv) Unnecessary land degradation should be avoided or damaged land should be reclaimed or rehabilitated.
- v) Avoid uneven rat hole mining and follow scientific and systematic mining by safe bench system of open cast mining.
- vi) Mining near major fracture zones if any should be avoided to control ground water fluctuation in the adjacent agricultural lands.
- vii) Emission test of vehicles should be in tack to maintain minimum emission level of flue gases.
- viii) Noise level should not exceed 80db and the vehicles should use only permitted Air Horn while on road near residential areas.
- ix) Safety zones as prescribed by the Department of Geology and Mining from adjacent infrastructures should be strictly adhere to.
- x) And any other conditions as stipulated by the concerned authorities should be followed to protect the environment.



**EXECUTIVE SUMMARY:**

a.	Name of the Village Panchayat	:	Kampaneri Puthukudi
b.	Name of the Panchayat Union	:	Kadayanallur
c.	The proposed total Movable Reserves	:	1,36,030m <sup>3</sup> of Rough Stone, 27,482m <sup>3</sup> of gravel formation 35,133m <sup>3</sup> of Weathered Rock
d.	The proposed quantity of reserves (level of production) for Five years to be mined is (Recoverable reserves)	:	1,36,030m <sup>3</sup> of Rough Stone, 27,482m <sup>3</sup> of gravel formation 35,133m <sup>3</sup> of Weathered Rock
e.	Total extent of the area	:	2.23.0Ha
f.	Proposed Period of mining	:	Five Years
g.	Existing depth	:	It is a fresh quarry lease applied area
h.	Proposed Depth of mining	:	35m below ground level
i.	Method of mining / level of mechanization	:	Opencast, Semi-mechanized Mining with a bench height of 5m and bench width of 5m is proposed.
j.	Types of Machineries used in the quarry	:	Machineries like Tractor mounted compressor attached with Jack hammers, Excavators are proposed to deploy for quarrying operation.
k.	Cost of the Project A. Fixed Assets Cost B. Operational Cost C. EMP Cost		Rs. 11,92,000 /- Rs.41,00,000/- Rs. 4,25,000/- Total Project cost(A+B+C)=Rs. 57,17,000

l. The The area applied for lease is bounded by Two blocks and Twenty four corners and the coordinates are clearly marked in plate no II.

**Block-I**

Corners	Co- ordinates		Distance between the corners
	Latitude	Longitude	
1	09° 05' 33"N	77° 23' 03"E	1-2 = 59.8m
2	09° 05' 35"N	77° 23' 03"E	2-3 = 69.6m
3	09° 05' 35"N	77° 23' 05"E	3-4 = 51.8m
4	09° 05' 33"N	77° 23' 05"E	4-5 = 15.2m
5	09° 05' 33"N	77° 23' 05"E	5-6 = 5.4m
6	09° 05' 33"N	77° 23' 05"E	6-1 = 58.2m

**Block-II**

7	09° 05' 34"N	77° 23' 07"E	7-8 = 137.8m
8	09° 05' 38"N	77° 23' 07"E	8-9 = 15.8m
9	09° 05' 38"N	77° 23' 07"E	9-10 = 22.0m





10	09° 05' 38"N	77° 23' 08"E	10-11 =	37.0m
11	09° 05' 38"N	77° 23' 09"E	11-12 =	36.2m
12	09° 05' 38"N	77° 23' 11"E	12-13 =	36.2m
13	09° 05' 34"N	77° 23' 11"E	13-14 =	14.8m
14	09° 05' 34"N	77° 23' 11"E	14-15 =	71.4m
15	09° 05' 32"N	77° 23' 10"E	15-16 =	21.6m
16	09° 05' 32"N	77° 23' 09"E	16-17 =	21.8m
17	09° 05' 32"N	77° 23' 09"E	17-18 =	40.2m
18	09° 05' 33"N	77° 23' 09"E	18-19 =	47.8m
19	09° 05' 33"N	77° 23' 07"E	19-20 =	5.7m
20	09° 05' 33"N	77° 23' 07"E	20-21 =	43.8m
21	09° 05' 35"N	77° 23' 08"E	21-22 =	47.2m
22	09° 05' 35"N	77° 23' 09"E	22-23 =	67.6m
23	09° 05' 37"N	77° 23' 09"E	23-24 =	51.8m
24	09° 05' 37"N	77° 23' 08"E	24-21 =	66.4m

**2.0 General Information:**

2.1	a.	Name of the Applicant	:	Thiru.V.Maripandi,
	b.	Address of the Applicant with phone No and e-mail id if any	:	S/o.T.Velusamy Thevar No.4/66, Pillaiyar Kovil Main Road, Sundaresapuram (Post), Kadayanallur, Tenkasi Taluk, Tirunelveli District. Pincode-627 751 Cell No.:9976647590 & 9842485495
	c.	Status of the Applicant	:	Individual
2.2	a.	Mineral Which the applicant intends to mine	:	Rough Stone, Jelly and Gravel.
	b.	Precise area communication letter No.	:	Precise area communication letter received from District Collector, Tirunelveli letter vide Roc.No.M1/61043/2009, dated 11.05.2017.
	c.	Period of permission / lease granted	:	The applicant has applied permission for Five years/ The District Collector consider for grant of lease period of <b>Five years only</b> .
	d.	Name and Address of the RQP preparing Mining Plan	:	<b>C.Natarajan,M.Sc.,M.Phil.,</b> <b>RQP/MAS/004/87/A</b> No.93/36E2, Subramaniyar Kovil Street, OmalurTaluk, Salem District, Tamil Nadu, Pin-636 455. Mobile: 9750223535 &94446 54520.



e. RQP Registration. No. : RQP/MAS/004/87/A  
Valid Til. 22.10.2021.

**3.0 Location:**

Details of the Area:

State	District	Taluk	Village	S.F.Nos	Extent in hectares
Tamil Nadu	Tirunelveli	Kadayanallur	Kampaneri Puthukudi-1	155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 and 155/16	2.23.0
b.	Classification of the Area (Ryotwari/poramboke/others)		: Patta land		
c.	Ownership / Occupancy of the Applied area (Surface rights)		: It is patta land registered in the name of the Thiru.Anthonysamy and Applicant vide Patta Nos-2117 & 2102. The applicant has obtained consent from pattadhar, Please refer annexure no IV& VII.		
d.	Toposheet No. with Latitude and Longitude		: Topo Sheet No: 58-G/08 : Latitude : 09°05'32"N to 09°05'38"N : Longitude : 77°23'03"E to 77°23'11"E		
e.	Existence of Public Road / Railway line if any nearby the area and approximate distance		: There is an existing road from the area leads to Sundaesapuram - Balarunachalapuram Village road on Western side of the area. The Nearest Railway line is Tenkasi - Sankarankovil line which is about 750m on Northwestern side of the area.		

**PART - A**

**4.0 Geology and Mineral Reserves:**

4.1	a.	Topography	: 1. The area applied for quarry lease is exhibits slightly undulated topography covered by Gravel formation. The massive Charnockite formation is noticed below 2m (Avg) Gravel and 3m weathered rock formation and sloping towards western side of the area, the altitude of the area is above 210m(maximum) from MSL. 2. No major river is found nearby the lease applied area. 3. Water table is found at a depth of 48m in summer and 45m in rainy seasons. 4. Temperature of the area is reported to be 18°C to a maximum of 42°C during summer.
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5. Rainfall of this area is about 800mm to 900 mm during the both NE & SW monsoons

b. General Geology of the Area :

The area is underlain by the wide base of metamorphic rocks of peninsular gneissic complex. These rocks are extensively weathered and overlain by the recent valley fills and alluvium at places. The geological formations found in the district are Archaean rocks like Gneisses, Granites, Charnockites basic granulites and calc-gneisses. The younger formations are Quartz veins and pegmatite. The rock type noticed in the area for lease is Charnockite which contains mostly Quartz and Feldspar with some ferromagnesian minerals. The Charnockite is part of peninsular Gneisses, a high grade metamorphic rock. The strike of the Charnockite formation is N45°E-S45°W with dipping towards SE60°. The general geological succession of the area is given as under.

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

4.2 Details of Exploration already carried out if any :

No exploration was carried out, the rough stone formation are clearly visible from adjacent pit.



4.3	a.	Estimation of Reserves	:	<p>The Geological and Recoverable reserves are estimated by cross sectional method. Totally nine sections have been drawn. Three sections drawn length wise as (X-Y), (X1-Y1), (X2-Y2) and another six sections drawn width wise as (A-B), (C-D), (E-F), (G-H), (I-J) and (K-L) to cover maximum area considered for lease. The Plans and Sections have been drawn with a scale of 1:1000 and 1:500 respectively. Please refer plate no.III.</p>
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**a. Geological Resources**

The quarrying is restricted up to a depth of 35m below ground level only. Availability of Resources is given below.

Table No-1

Section	Length in (m)	Width in (m)	Depth in (m)	Volume In m <sup>3</sup>	Gravel Formation in m <sup>3</sup>	Weathered Rock in m <sup>3</sup>	Geological Resources of Rough stone in m <sup>3</sup>
XY-AB	56	105	2	11760	11760		
	56	105	3	17640		17640	
	56	105	30	176400			176400
<b>Total</b>					<b>11760</b>	<b>17640</b>	<b>176400</b>
XY-CD	68	48	2	6528	6528		
	68	48	3	9792		9792	
	68	48	30	97920			97920
<b>Total</b>					<b>6528</b>	<b>9792</b>	<b>97920</b>
XY-EF	42	96	2	8064	8064		
	42	96	3	12096		12096	
	42	96	30	120960			120960
<b>Total</b>					<b>8064</b>	<b>12096</b>	<b>120960</b>
XY-GH	38	45	2	3420	3420		
	38	45	3	5130		5130	
	38	45	30	51300			51300
<b>Total</b>					<b>3420</b>	<b>5130</b>	<b>51300</b>
X1Y1-IJ	126	31	2	7812	7812		
	126	31	3	11718		11718	
	126	31	30	117180			117180
<b>Total</b>					<b>7812</b>	<b>11718</b>	<b>117180</b>
X2Y2-KL	57	71	2	8094	8094		
	57	71	3	12141		12141	
	57	71	30	121410			121410
<b>Total</b>					<b>8094</b>	<b>12141</b>	<b>121410</b>
<b>Grand Total</b>					<b>45678</b>	<b>68517</b>	<b>685170</b>

Gravel Formation : 45,678m<sup>3</sup>  
 Weathered Rock Formation : 68,517m<sup>3</sup>  
 The Geological Resources of Rough stone : 6,85,170m<sup>3</sup>



**b. Mineable Reserve**

The mineable reserve calculated by deducting 7.5m and 10m safety distance and bench loss.

Table No-2

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m <sup>3</sup>	Gravel Formation in m <sup>3</sup>	Weathered rock Formation in m <sup>3</sup>	Minable Reserve of Rough stone in m <sup>3</sup>
XY-AB	I	45	89	2	8010	8010		
	II	43	85	3	10965		10965	
	III	41	81	5	16605			16605
	IV	36	71	5	12780			12780
	V	31	61	5	9455			9455
	VI	26	51	5	6630			6630
	VII	21	41	5	4305			4305
	VIII	16	31	5	2480			2480
		<b>Total</b>				<b>8010</b>	<b>10965</b>	<b>52255</b>
XY-CD	I	68	31	2	4216	4216		
	II	68	26	3	5304		5304	
	III	68	23	5	7820			7820
	IV	68	13	5	4420			4420
	V	68	3	5	1020			1020
		<b>Total</b>				<b>4216</b>	<b>5304</b>	<b>13260</b>
XY-EF	I	42	77	2	6468	6468		
	II	42	73	3	9198		9198	
	III	42	69	5	14490			14490
	IV	42	59	5	12390			12390
	V	42	49	5	10290			10290
	VI	37	39	5	7215			7215
	VII	32	29	5	4640			4640
	VIII	27	19	5	2565			2565
		<b>Total</b>				<b>6468</b>	<b>9198</b>	<b>51590</b>
XY-GH	I	30	25	2	1500	1500		
	II	27	20	3	1620		1620	
	III	26	17	5	2210			2210
	IV	21	7	5	735			735
		<b>Total</b>				<b>1500</b>	<b>1620</b>	<b>2945</b>
X1Y1-LJ	I	106	14	2	2968	2968		
	II	102	9	3	2754		2754	
	III	98	6	5	2940			2940
		<b>Total</b>				<b>2968</b>	<b>2754</b>	<b>2940</b>
X2Y2-KL	I	40	54	2	4320	4320		
	II	36	49	3	5292		5292	
	III	32	46	5	7360			7360
	IV	22	36	5	3960			3960
	V	12	26	5	1560			1560
	VI	2	16	5	160			160
		<b>Total</b>				<b>4320</b>	<b>5292</b>	<b>13040</b>
		<b>Grand Total</b>				<b>27482</b>	<b>35133</b>	<b>136030</b>



The mineable reserve is computed as 1,36,030m<sup>3</sup> of rough stone of 5.23m of weathered rock formation and 27,482m<sup>3</sup> of Gravel formation upto a depth of 35m below ground level.

Gravel and weathered rock mass will be removed first, after the excavation of weathered rock mass will preserved all along the boundary barrier if market is rise the will be loaded into tipper for needy customer this will be done after paying the necessary Seigniorage Fees to Government.

**5.0 Mining:**

5.1	Method of Mining	<p>1. Opencast method of semi mechanized mining with 5.0m vertical bench width of the bench is not less than bench height.</p> <p>2. However, as far as the quarrying of Rough stone is concerned, observance of the provisions of Regulation 106(2) (b) as above is seldom possible due to various inherent 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 for which necessary provision is available with the regulation 106 (2) (b) of MMR-1961, under Mine Act-1952.</p>
5.2	Mode of Working	<p>The rough stone is proposed to quarry 5m bench height and width with conventional opencast semi-Mechanized method.</p> <p>The quarry operation involves shallow jack hammer drilling, slurry blasting, excavation, Loading and transportation of Rough stone to the needy crusher/other buyers. The production of Rough stone in this quarry involves the following method which is typical for Rough Stone quarrying in contrast to other major mineral mining.</p> <p>Splitting of rock mass of considerable volume from the parent rock mass by jackhammer drilling and blasting, hydraulic excavators are used for loading the Rough Stone from pithead to the needy crusher/other buyers. Occasionally hydraulic excavators are attached with rock breakers for fragmentation to avoid secondary blasting. The primary boulders thus splitted are removed from the pits by excavators and further made to smaller sizes by</p>



		rock breakers attached in excavators. It is an opencast semi mechanized method of mining.
5.3	Proposed bench height & Width	Quarrying of Rough Stone is proposed to be 5m and bench width of 5m.
5.4	Details of Overburden / Mineral Production proposed for the first 5 years.	The overburden in the form of Gravel and weathered rock mass after the excavation of weathered rock mass will preserved all along the boundary barrier if market is rise the will be loaded into tipper for needy customer this will be done after paying the necessary Seigniorage Fees to Government. The excavated rough stone and gravel will be directly loaded into tipper to the needy crushers/other buyers for road project and construction works for filling and leveling of low lying areas.

**The Yearwise Production and Development Table**

Table No -3

Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Volume in m <sup>3</sup>	Gravel Formation in m <sup>3</sup>	Weathered Rock Formation in m <sup>3</sup>	Mineable reserve of Roughstone in m <sup>3</sup>
I	XY-AB	I	45	89	2	8010	8010		
		II	43	85	3	10965		10965	
		III	41	81	5	16605			16605
	XY-CD	I	68	31	2	4216	4216		
		II	68	26	3	5304		5304	
		III	68	23	5	7820			7820
	XY-EF	I	9	77	2	1386	1386		
		II	9	73	3	1971		1971	
		III	9	69	5	3105			3105
<b>Total</b>							<b>13612</b>	<b>18240</b>	<b>27530</b>
II	XY-EF	I	33	77	2	5082	5082		
		II	33	73	3	7227		7227	
		III	33	69	5	11385			11385
		IV	42	59	5	12390			12390
	XY-GH	I	30	25	2	1500	1500		
		II	27	20	3	1620		1620	
		III	26	17	5	2210			2210
		IV	21	7	5	735			735
<b>Total</b>							<b>6582</b>	<b>8847</b>	<b>26720</b>
III	XY-CD	IV	68	13	5	4420			4420
		V	68	3	5	1020			1020
	XY-AB	IV	36	71	5	12780			12780
		V	31	61	5	9455			9455
		<b>Total</b>							
IV	XY-EF	V	42	49	5	10290			10290
		VI	37	39	5	7215			7215
	XY-AB	VI	26	51	5	6630			6630
		VII	15	41	5	3075			3075
		<b>Total</b>							
V	XY-AB	VII	6	41	5	1230			1230
		VIII	16	31	5	2480			2480
	XY-EF	VII	32	29	5	4640			4640



X1Y1-IJ	VIII	27	19	5	2565			
	I	106	14	2	2968	2968		
	II	102	9	3	2754		2754	
X2Y2-KL	III	98	6	5	2940			2940
	I	40	54	2	4320	4320		
	II	36	49	3	5292		5292	
	III	32	46	5	7360			7360
	IV	22	36	5	3960			3960
	V	12	26	5	1560			1560
	VI	2	16	5	160			160
<b>Total</b>						<b>7288</b>	<b>8046</b>	<b>26895</b>
<b>Grand Total</b>						<b>27482</b>	<b>35133</b>	<b>136030</b>

The applicant has proposed to carry out 1,36,030m<sup>3</sup> of rough stone of 35,133m<sup>3</sup> of weathered rock formation and 27,482m<sup>3</sup> of Gravel formation upto a depth of 35m below ground level for the period of Five years only.

5.5	Machineries to be used		
	a. Mining	:	It is proposed to use following machineries for quarrying rough stone 1) Tractor mounted compressor with jack hammer 2) Excavator of 0.90m <sup>3</sup> bucket capacity (with Rock breaker attachment).
	b. Loading	:	Excavator of 0.90m <sup>3</sup> bucket capacity (with Rock breaker attachment).
	c. Transportation	:	Tipper 3Nos 5/10Ts capacity.
5.6	Disposal of Overburden	:	The overburden in the form of Gravel and weathered rock mass after the excavation of weathered rock mass will preserved all along the boundary barrier if market is rise the will be loaded into tipper for needy customer this will be done after paying the necessary Seigniorage Fees to Government. Gravel will be directly loaded into tipper to the needy crushers/other buyers for road project and construction works for filling and leveling of low lying areas.
5.7	Brief Note on Conceptual Mining Plan for the entire lease period	:	Conceptual Mining Plan is prepared with an object of Five years of systematic development of bench lay outs, selection of ultimate pit limit, depth of quarrying, ultimate pit slope, selection of sites for construction of infrastructures etc. Ultimate pit size is designed based on certain practical factors such as the economical





depth of mining, safety zones, permissible areas etc.

Ultimate Pit dimension is given as under,

Ultimate Pit dimension (M)			
Pit No	Length (max) in m	Width (Avg) in m	Depth(max) in(m)
I	187	49	35
II	108	16	10
III	56	41	25

Afforestation has been proposed on all along the boundary barrier by planting trees.

All the baseline information studies like Air Quality monitoring, Noise and Vibration monitoring, Water Analysis studies will be carried out every year as per the MOEF norms.

**6.0 Blasting:**

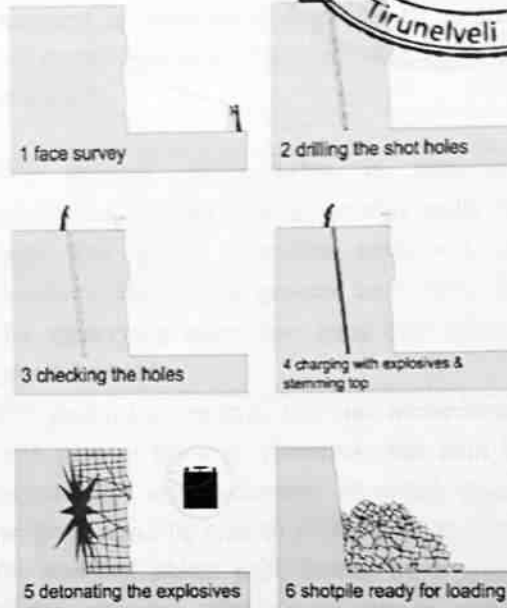
6.1 Blasting Pattern

: The massive formation shall be broken into pieces of portable size by drilling and blasting using jack hammers and shot hole blasting. Powder factor of explosives for breaking such hard rock shall be in the order of 6 to 7 Tonnes per K.g of explosives. Blasting parameters are as follows.

Diameter of the hole	: 32-36 mm
Spacing	: 60 Cms
Depth	: 1 to 1.5m
Burden for hole	: 0.6m
Pattern of hole	: ZigZag
Inclination of hole	: 70° from the horizontal.



**ROCK BLASTING**



6.2 Types of Explosives

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

6.3 Measures proposed to minimize ground vibration due to blasting

: Controlled blasting measures will be adopted for minimizing ground vibration and fly rock. Shallow depths jackhammer drilling and blasting is proposed to be carried out with minimum use of explosive mainly to give shattering effect in rough stone for easy excavation and to control fly rock.

Number of holes	: 90
Powder factor	: 6Ts/Kg of explosives
Total explosive required	: 45Kg slurry explosives
Charge / hole	: 0.5Kg
Blasting time	: 12-2 Pm



6.4	Storage of Explosives and safety measures to be taken while blasting.	: The applicant will engage explosive agency to carry out the amount of blasting and it will be supervised by competent and statutory manager.
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**7.0 Mine Drainage:**

7.1	Depth of Water table	: The ground water table is reported as 48mbelow ground level in nearby wells of this area. The quarry operation proposed upto a depth of 35m below ground level only. Hence the quarrying operation may not affect the ground water.
7.2	Arrangement and Places where the mine water is finally proposed to be discharged	: The ground water may not rise immediately in this type of mining. However, the rain water percolation and collection of water from the seepage shall be less than 300lpm and it shall be pumped about periodically by a stand by diesel powered Centrifugal pump motivated with 7.5 H.P. Motor.  The quality of water is potable and it is not contaminated with any hazardous things. Hence, water stored in the quarry pit will be pumped into the adjacent agricultural fields. Further the water stored in the old pit will also be used for plantation purposes

**8.0 Other Permanent Structures:**

8.1	Habitations / Village	: There are no habitations within a radius of 500m.
8.2	Power lines (HT/LT)	: There is no LT/HT power lines within a radius of 500m.
8.3	Water bodies (River, Pond, Lake, Odai, Channel etc)	: There is seasonal odai passing on northern side of the area for which has been 10m safety distance has Maintained.
8.4	Archeological / Historical Monuments	: There are no Archeological / Historical Monuments within a radius of 500m.
8.5	Road (NH, SH, Village Road etc)	: The National Highway (NH-208) Thenkasi - Tirumangalam is about 3.5km on Western side of the area.  The State Highway (SH-76) Puliyangudi -



		Sankarankovil is about 10km Northern side of the area.
8.6	Places of Worship	: There are no Places of Worship within a radius of 500m.
8.7	Reserved Forest / Forest / Social Forest / Wild Life Sanctuary etc.,	: There are no Reserved Forest / Forest / Social Forest / Wild Life Sanctuary etc within a radius of 500m.
8.8	Any Interstate Border, Protected areas under the Wild Life (Protection) Act, 1972, Critically Polluted Areas as Identified by Central Pollution Control Board and Notified Eco sensitive areas	: There are No inter State border within a radius of 10km.
8.9	Any Other Structures	: Nil

**9.0 Employment Potential & Welfare Measures:**

9.1	Employment Potential (Management & Supervisory personal)	:	1. Skilled	Operator	6 No.
				Mechanic	1 No.
				Mines manager / Mat	1 No.
			2. Semi - skilled	Driver	3 No
			3. Unskilled	Musdoor / Labours	6Nos
				Total =	17Nos
<p>Allowing 10% absentee, the no. of men of roll will be around 15.</p> <p>The above man power is adequate to meet out the production schedule and the machinery strength envisaged in the mining plan and to comply the statutory provisions of Mines Safety Regulations.</p> <p>It is been ensured that, child labours under 18 years of age will not be engaged for quarrying operation.</p> <p>Necessary life insurance policies will be taken by the applicant to all the employees up to the end of the lease period.</p>					
9.2	Welfare Measures				
	a. Drinking Water	:	Packaged drinking water is available from the nearby approved water vendors in Sundaesapuram village which is about 1.0km on Northeastern side of the area.		
	b. Sanitary facilities	:	Semi permanent latrines & urinals shall be		



		maintained at convenient places for use of labourers as per the provisions of Rule (33) of the Mines Rules, 1960 separately for men and women. Washing facilities shall also be arranged as per rule (36) of the Mines Rules, 1960.
c.	First Aid Facility	: First aid kits are kept in Mines office room, in case of such eventualities the victim will be given first aid immediately at the site and injured person will be taken to the hospital. Hospital is available at distance of 4.5km (W) in Kadayanallur the competent and Statutory foreman/ permit manager will be in charge of first aid.
d.	Labour Health	: As per Mines Rule, Periodic medical examination related to occupational health safety will be conducted to all the workers in applicants own cost.
e.	Precautionary safety measures to the Labourers	: Safety provisions like helmet, goggles, safety shoes, Dust mask, Ear muffs etc., have to be provided as per the circulars and amendments made for Mine labours under the guidance of DGMS being a mechanized operation.  Necessary training will be conducted once in a year to all the employees with the help of qualified and experienced officers to train about the safe and systematic quarrying operation.

**PART - B**

**10.0 Environmental Management Plan:**



10.1 Existing Land Use Pattern : 1. The area is exhibits topography covered by gravel formation.  
 2. Quarrying is proposed up to below ground level.  
 3. Fluctuation of Water table in this area is in between 48m and 45m during a year.  
 4. This region receives the average annual rainfall of 800mm to 900mm. The surrounding area is practiced by the seasonal cultivation.  
 The existing land use pattern is given as under.

Table No-4

Sl. No.	Land Use	Present Area (Hect)	Area in use during the quarrying period (Hect)
1.	Quarrying Pit	Nil	1.32.0
2.	Infrastructure	Nil	0.01.0
3.	Roads	Nil	0.01.0
4.	Green Belt	Nil	0.10.0
5.	Unutilized	2.23.0	0.79.0
	<b>Total =</b>	<b>2.23.0</b>	<b>2.23.0</b>

10.2 Water Regime : Water table in this area is noticed at a depth of 48m and presently, the quarrying of Rough Stone quarry is proposed up to a depth of 35m below ground level and hence, it will not affect the ground water depletion of this area.

10.3 Flora and Fauna : Except acacia bushes, no other valuable trees are noticed in the applied area. Further, neither flora of botanical interest nor fauna of zoological interest is noticed in this area.

10.4 Climatic conditions : Generally subtropical climatic condition prevails throughout the year and there is no sharp variation in climate.  
 This District receives rain both in south west and north east monsoon.  
 The average rainfall is about 800mm to 900mm and the temperature ranges from 18°C during winter and to a maximum of 42°C during the summer.



10.5	Human Settlement	<p>The nearest habitations with population given as under.</p> <p style="text-align: center;">Table No-5</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>S.No</th> <th>Name of the Village</th> <th>Approximate distance &amp; Direction from lease applied area</th> <th>Approximate population</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Sundaresapuram</td> <td>1.0km - NE</td> <td>300</td> </tr> <tr> <td>2.</td> <td>Kumanthapuram</td> <td>3.5km - NW</td> <td>200</td> </tr> <tr> <td>3.</td> <td>Tirumalapuram</td> <td>4.0Km - SE</td> <td>400</td> </tr> <tr> <td>4.</td> <td>Bala Arunachalapuram</td> <td>1.0km-SW</td> <td>300</td> </tr> </tbody> </table>	S.No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population	1.	Sundaresapuram	1.0km - NE	300	2.	Kumanthapuram	3.5km - NW	200	3.	Tirumalapuram	4.0Km - SE	400	4.	Bala Arunachalapuram	1.0km-SW	300
S.No	Name of the Village	Approximate distance & Direction from lease applied area	Approximate population																			
1.	Sundaresapuram	1.0km - NE	300																			
2.	Kumanthapuram	3.5km - NW	200																			
3.	Tirumalapuram	4.0Km - SE	400																			
4.	Bala Arunachalapuram	1.0km-SW	300																			
10.6	Plan for Air, Dust Suppression	<p>Air or dust expected to be generated from drilling process, hauling roads, places of excavation etc., will be suppressed by periodical wetting of land by water spraying.</p> <p>Wet drilling and dust extractor arrangements will be provided to drilling units so as to control raise of dust from the site of drilling.</p> <p>Operators, those exposed directly to such conditions will be provide such protective equipment like mask, ear plug, helmet, gloze etc., as per the Mines Act.</p>																				
10.7	Plan for Noise Control	<p>Quarrying of Rough Stone will be carried out by drilling and blasting by using low power explosives, and hence, noise will be very minimum. However, periodical noise level monitoring will be carried out to check the noise level in and around the quarry site. Nowhere the noise level should exceed the permissible limit of 80db during the quarry working hours.</p>																				
10.8	Environmental Impact Assessment Statement Describing Impact on mining on the next Five years	<p>The mining plan proposed is for a small production of Rough stone without involving deep hole drilling and heavy blasting. Such limited mining activity is not likely to cause any impact adversely on environment as far as pollution of air, water and noise is concerned, anyhow environmental impact studies will be conducted as per EIA notification issued by MOEF. It is B2 Category mine.</p>																				



10.9 Proposal for Waste Management : There is no waste anticipated in quarry operation.

10.10 Proposal of Reclamation of Land affected during mining activities and at the end of mining. : In the proposed mining plan depth of 35m below ground level has been envisaged as workable depth for safe & economic mining during the lease period. Hence, after quarry reaches ultimate pit limit (for this lease period) of 35m depth, fencing will be constructed around the quarried pits to prevent inherent entry of the public and cattle.

10.11 Program for Afforestation : The 7.5m, safety distance along the lease boundary has been identified to be utilized for afforestation. Appropriate native species of neem trees will be planted in a phased manner as described below.

Table No- 6

Year	No. of tress proposed to be planted	Survival %	Area to be covered Sq.m	Name of the species	No of trees expected to be grown.
I	20	80%	200	Neem	16
II	20	80%	200	Neem	16
III	20	80%	200	Neem	16
IV	20	80%	200	Neem	16
V	20	80%	200	Neem	16

Nearly 1000Sq.m area is proposed to use under afforestation by planting 20nos. of neem trees during every year with an anticipated survival rate of 80%. The Quarry landuse, layout and afforestation plan is shown in Plate No.III.

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

**A.Fixed Asset Cost:**

1. Land Cost (400000/1Ha)=	: Rs. 8,92,000
2. First aid room and accessories	: Rs.1,00,000
3. Labour Shed	Rs.1,00,000
4. Sanitary Facility	Rs.1,00,000
<b>Total=</b>	<b>Rs. 11,92,000/-</b>





<b>B.Operational Cost:</b>		
1. Machineries	:	Rs.40,00,000-
2. Fencing cost	:	Rs.1,00,000
<b>Total</b>	:	<b>Rs.41,00,000/-</b>
<b>C.EMP Cost:</b>		Budget Provision for the entire quarrying period.
	:	Air Quality Sampling = Rs. 40,000/-
	:	Water Quality Sampling = Rs. 40,000/-
	:	Noise Monitoring = Rs. 20,000/-
	:	Ground vibration test = Rs. 20,000/-
<b>Expenditure</b>		
1. Drinking water facility	:	Rs.1,00,000/-
2. Sanitary Arrangments	:	Rs. 25,000/-
3. Safety kids	:	Rs. 50,000/-
4. Water sprinkling	:	Rs. 1,00,000/-
5. Afforestation	:	Rs. 5,000/-
6. Cost towards charity	:	Rs. 25,000/-
<b>Total=</b>	:	<b>Rs. 4,25,000/-</b>
<b>Total Project Cost (A+B+C)</b>	:	<b>Rs. 57,17,000/-</b>

#### 11.0 Mine Closure Plan:

11.1	Steps proposed for phased restoration, reclamation of already mined out area.	:	There is no proposal for back filling, reclamation and rehabilitation. The quarried pits after the end of the life of lease will be fenced to prevent inherent entry of public and cattles.
11.2	Measures to be under taken on mine closure as per Act & Rules	:	Measures will be taken as per the Acts and Rules. The quarried pit will be fenced by using Barbed wire fencing to prevent inherent entry of public and cattle.
11.3	Mitigation measures to be undertaken for safety and restoration/ reclamation of the already mined out area	:	Mitigation measures: Drilling will be carried out by wet drilling mode to control the dust propagation into the air. Blasting will be carried out on limited scale. Mist Water spraying on haul road is proposed to prevent the dust propagation into the air.



**12.0 Any Other Details Intend to Furnish by the Applicant:**

- (i) Permission will be obtained from the District Mines Office to extract the Rough Stone from the Boundary barriers and for slopes.
- (ii) Care and precautionary measures will be taken for the safety of workers as per Rules and Acts.
- (iii) The applicant will endeavor every attempt to quarry the Rough Stone economically without any wastage and to improve the environment and ecology.
- (iv) The Mining Plan is prepared by incorporating the conditions stipulated in the precise area communication issued and also prepared by incorporating the details mentioned in the letter SEIAA/TN/Minor and Minerals/2012 dated 17.04.2013.
- (v) Any violation pointed out by the inspecting authorities shall be rectified as per the guidelines of the Department.

Prepared by

*C. Natarajan*

C.Natarajan, M.Sc.,M.Phil.,  
RQP/MAS/004/87/A

**C. NATARAJAN, M.Sc.,M.Phil.,**  
**RECOGNISED QUALIFIED PERSON,**  
**RQP / MAS / 004 / 87 / A**

Place : Salem  
Date : 13.06.2017.

*The Mining plan is approved subject to the conditions stipulated in govt or. no. M.1/61043/2009 dt. 15.12.2017*

*N. [Signature]*  
15.12.2017  
**DEPUTY DIRECTOR**  
**Dept. of Geology and Mining**  
**Tirunelveli**

From

Dr.M.Karunakaran, I.A.S.,  
District Collector,  
Tirunelveli District,  
Tirunelveli.

To

Thiru.V.Maripandi,  
S.No. 1, P.O. Sathy Chetty,  
4/66, Pillayar Koil, Kadayanallur,  
Tenkasi Taluk  
Tirunelveli Dist.



Sir,

Roc. No. M1/61043/2009, dated: 11.05.2017.

**Sub:** Mines and Minerals - Minor Minerals -  
Roughstone, Jelly and Gravel - Tirunelveli  
District - Kadayanallur Taluk - Kambaneri  
Pudukudi - 1 Village - S.F. Nos. 155/3, 155/8B,  
155/11, 155/13, 155/14, 155/15 and 155/16 -  
over an extent of 2.23.0 Hect of patta lands -  
Quarry lease application preferred by  
Thiru.V.Maripandi - area falls under Hill  
Village - Clearance from HACA obtained -  
Precise area communicated - Approved  
Mining Plan and Environmental clearance -  
called for - reg.

- Ref:-**
- 1) Quarry lease application of  
Thiru.V.Maripandi, Kadayanallur Taluk,  
Tirunelveli District, dated: 17.08.2009 and  
22.12.2010.
  - 2) Revenue Divisional Officer, Tenkasi report  
No: A3/9479/2009, dated: 03.06.2010  
and A3/3595/2014, dated: 11.08.2014.
  - 3) Deputy Director, Town and Country  
Planning (i/c), Tirunelveli Letter Rc. No:  
2455/2009/TVM3, dated: 21.07.2010 and  
No: 834/2016/TVM3, dated: 01.06.2016.
  - 4) Principal Chief Conservator of Forests,  
Chennai letter No: K.Dis. TS4/54179/2009,  
dated: 14.05.2010 and TS4/5873/2015,  
dated: 09.02.2016
  - 5) Chief Engineer Agriculture, Engineering  
(i/c), Chennai letter No:  
NPT.2/60600/2009, dated: 25.01.2010 and  
No: NPT.1/39178/2014, dated: 15.04.2016.

- 6) Report of Assistant Director, Geology and Mining, Tirunelveli dated: 15.07.2016
- 7) This office letter No. M1/61043/2009 dated: 14.12.2016.
- 8) Member Secretary, Hill Area Conservation Authority / Commissioner of Town and Country Planning, Chennai Letter No. 23033/2016/HSBA, dated: 15.02.2017.

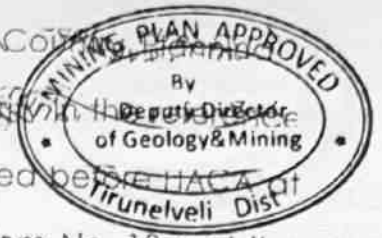


\*\*\*\*\*

Thiru.V.Maripandi, S/o.T.Velusamy Thevar, residing at No:4/66, Pillaiyar Kovil Main Road, Sundaresapuram Post, Kadayanallur Taluk, Tirunelveli District applied on 17.08.2009 and 22.12.2010 for grant of quarry lease for quarrying Roughstone, Jelly and Gravel over an extent of 2.46.5 Hectares of patta lands in S.F.Nos: 155/3, 155/6, 155/7A, 155/8B, 155/11, 155/13, 155/14, 155/15 and 155/16 of Kambaneri Pudukudi - I Village, Kadayanallur Taluk, Tirunelveli District under Rule 19(1) of Tamil Nadu Minor Mineral Concession Rules, 1959.

2. As the applied area falls in Hill Village as notified in G.O. Ms. No. 49, Housing and Urban Development Department, dated: 24.03.2003 and clearance from the Hill Area Conservation Authority is a pre-requisite for grant of quarry lease for minor minerals, a proposal was forwarded to the Commissioner of Town and Country Planning, Chennai in the reference 7<sup>th</sup> cited, with a request to place the proposal before the Committee for obtaining clearance from the Hill Area Conservation Authority.

3. The Commissioner of Town and Country Planning, Member Secretary, Hill Area Conservation Authority, 8<sup>th</sup> cited has informed that the subject was placed before its 57<sup>th</sup> meeting held on 07.02.2017 as agenda item No. 12 and the HACA decided to recommend the proposal for grant of quarry lease over an extent of 2.23.0 Hectares of patta lands in SF. Nos. 155/3, 8B, 11, 13, 14, 15, 16 of Kampaneri Pudukudi Village, Kadayanallur Taluk, Tirunelveli District subject to the conditions imposed by the Agriculture Engineering Department, Forest Department and Geology and Mining Department.



4. In view of the above, the quarry lease application preferred by Thiru.V.Maripandi for grant of quarry lease for quarrying Roughstone, Jelly and Gravel in the subject area is considered for a period of 5 years and accordingly precise area is hereby communicated over an extent of 2.23.0 hectare of patta lands in S.F.Nos: 155/3 (0.40.0), 155/8B (0.42.5), 155/11 (0.21.5), 155/13 (0.25.0), 155/14 (0.39.0), 155/15 (0.37.0) and 155/16 (0.18.0) of Kampaneri Puthukudi -1 Village, Kadayanallur Taluk, Tirunelveli District subject to the following conditions under Rule 41 (4) of Tamil Nadu Minor Mineral Concession Rules, 1959.

- I. A safety distance of 7.5 meters should be provided for the adjacent patta lands.
- II. There should not be any hindrance to the adjacent pattadars or public while quarrying and transporting the minerals from the subject area.
- III. The applicant is restrained from producing products other than the permitted minerals in this area.



Child labour should be prohibited in the quarrying activities.

Quarrying operation should be carried out without affecting the nearby water bodies, odai and adjoining agricultural lands.

- VI. Waste materials should be dumped within the area proposed for grant of quarry lease.
- VII. Environment clearance should be obtained from the appropriate authority.

5. You are hereby directed to submit draft mining plan duly prepared by Recognized Qualified Person in respect of the precise area communicated for approval of the Deputy Director of Geology and Mining, Tirunelveli within a period of 90 days from the date of receipt of this letter as required under rule 41 (5) of Tamil Nadu Minor Mineral Concession Rules, 1959.

6. You are further directed to produce Approved Mining Plan and Environmental Clearance obtained from the District Level Environmental Impact Assessment Authority as required under Rule 42 of Tamil Nadu Minor Mineral Concession Rules, 1959 for grant of quarry lease in respect of the precise area communicated.

District Collector,  
Tirunelveli.

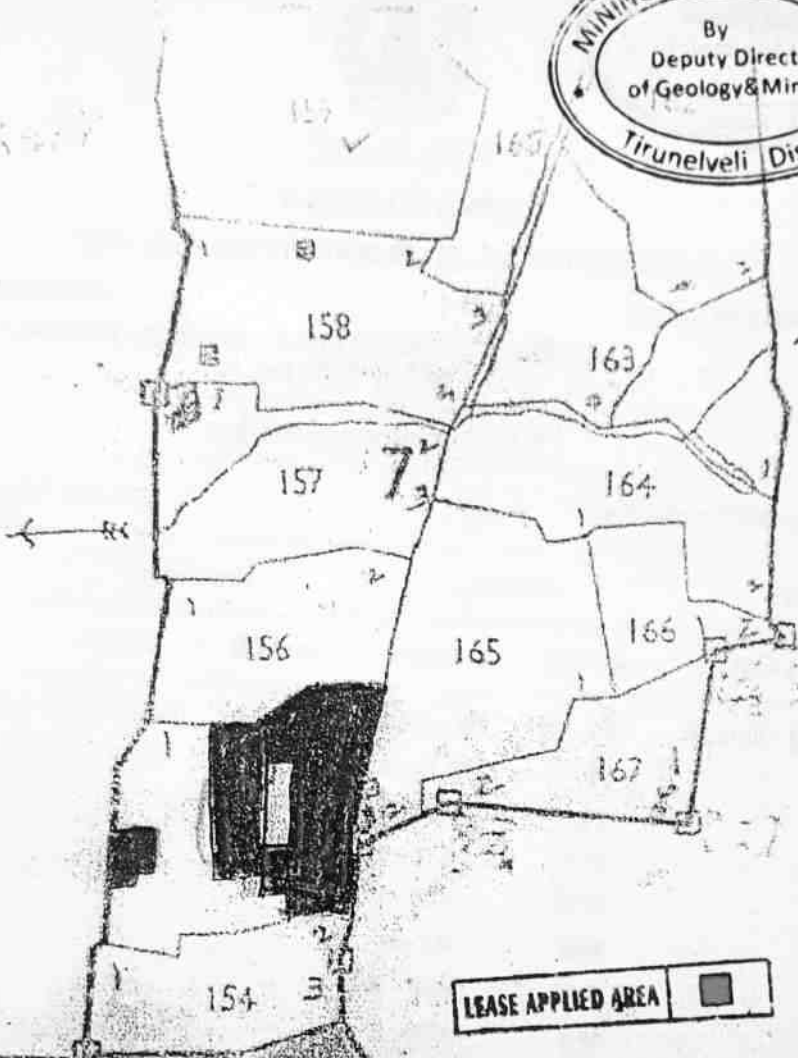
Copy to

The Revenue Divisional Officer,  
Tirunelveli.

11.5.17



MINING PLAN APPROVED  
By  
Deputy Director  
of Geology & Mining  
Tirunelveli Dist



சென்னை நகரில் இருந்து 4 மைல்

சென்னை நகரில் இருந்து 4 மைல்







தமிழக அரசு

வருவாய்த் துறை

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

வட்டம் : திருநெல்வேலி

வட்டம் : கடையநல்லூர்

நவாய் கிராமம் : அச்சன்புதூர்கம்பனேரி புதுக்குடி பகுதி  
பட்டா எண் : 2117

உரிமையாளர்கள் பெயர்

ஆறுமுகப்பெருமாள் நாடார்

மகன்

அந்தோணிச்சாமி

நன்செய்

புன்செய்

மற்றவை

பரப்பு

தீர்வை

பரப்பு

தீர்வை

பரப்பு

தீர்வை

பட்டா எண்	உட்பிரிவு	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை
155	11	--	--	0 - 21.50	0.30	--	--
155	14	--	--	0 - 39.00	0.55	--	--
155	15	--	--	0 - 37.00	0.50	--	--
155	3	--	--	0 - 40.00	0.55	--	--
155	7A	--	--	0 - 4.50	0.05	--	--
155	8B	--	--	0 - 42.50	0.55	--	--
155	7	--	--	1 - 17.00	1.60	--	--
				3 - 1.50	4.10		

குறிப்பு 2 :

- மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 29/12/501/02117/70191 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
- இத் தகவல்கள் 10-06-2017 அன்று 05:05:09 PM நேரத்தில் அச்சடிக்கப்பட்டது.
- கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்



தமிழக அரசு

வருவாய்த் துறை

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

வட்டம் : திருநெல்வேலி

வாய் கிராமம் : அச்சன்புதூர்கம்பனேரி புதுக்குடி பகுதி  
பட்டா எண் : 2102

வட்டம் : கடையநல்லூர்

உரிமையாளர்கள் பெயர்

வேலுச்சாமித்தேவர்

மகன்

மாரிப்பாண்டி

நன்செய்

புன்செய்

மற்றவை

பரப்பு

தீர்வை

பரப்பு

தீர்வை

பரப்பு

தீர்வை

எண்	உட்பிரிவு	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை	ஹெக் - ஏர்	ரூ - பை
55	13	--	--	0 - 25.00	0.35	--	--
5	16	--	--	0 - 18.00	0.25	--	--
5	6	--	--	0 - 19.00	0.25	--	--
9	2B	--	--	0 - 19.50	0.25	--	--
				0 - 81.50	1.10		

பு2 :



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 29/12/501/02102/70145 என்ற குறிப்பு எண்ணை உள்ளிடு செய்து உறுதி செய்துகொள்ளவும்.
2. இத் தகவல்கள் 10-06-2017 அன்று 05:07:03 PM நேரத்தில் அச்சடிக்கப்பட்டது.
3. கைப்பேசி கேமராவின் 2D barcode படிப்பான் மூலம் படித்து 3G/GPRS வழி இணையதளத்தில் சரிபார்க்கவும்.

419 - ஆம் பசலியில் திருவெலையி

மாவட்டம்

11/17/69



நில வரித் திட்டத்தில் பாடி புலங்களின் விபரம்.					சாகுபடி யாளரின் பெயர்.	நிலத்தின் எந்த பகுதி யாவது சாகுபடியாளரால் பயிரிடப்பட்டுள்ளதா.	எந்த மாதத்தில் பயிர் செய்யப்பட்டது எந்த மாதத்தில் அறுவடை செய்யப்பட்டது.	பயிரின் பெயர்.	பயிராளர் / அறுவடையாளர் பரப்பு.	உண்டையாளர் பாய்ச்சல் ஆதாரம்.	விளைச்சல் அளவு விழுக்காடு.	
(1)	(2)	(3)	(4)	(5)								(6)
30	13	0000	035	2102	1. காரிபுளங்கு							
	16	0180	025	11	—							
	6	0190	025	11	—							
159	28	0195	025	11	—							

சென்னை 12/17/69  
 10/17/69

பிரபு பிரவாக அதுவலை  
 5. கம்பனேரி புதுக்குடி பகுதி-1  
 தென் காசி மட்டம்

வட்டாட்சியர் அலுவலக இணைய சேவை - அ-பதிவேடு விவரங்கள்

அ-பதிவேடு விவரங்கள்



பாவட்டம் : திருநெல்வேலி

பட்டம் : கடையநல்லூர்

பாடம் : அச்சன்புதூர்கம்பனேரி புதுக்குடி பகுதி I

புல எண்	155	9. மண் வயனமும் ரகமும்	8 - 3
உட்பிரிவு எண்	3	10. மண் தரம்	5
பழைய புல உட்பிரிவு எண்	-3	11. தீர்வை (ரூ - ஹெ)	1.38
பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 40.00
அரசு / ரயத்துவாரி ரயத்துவாரி		13. மொத்த தீர்வை (ரூ - பை)	0.55
சிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	2117
பாசன ஆதாரம்	-	15. குறிப்பு	-
இரு போகமா	-	16. பெயர்	1.அந்தோணிச்சாமி

குறிப்பு 1:



மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60191 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாகவட்டம் : திருநெல்வேலி

வட்டம் : கடையநல்லூர்

கிராமம் : அச்சன்புதூர்கம்பனேரி புதுக்குடி பகுதி I

1. புல எண்	155	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	8B	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-8	11. தீர்வை (ரூ - ஹெ)	1.38
4. பகுதி	P	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 42.50
5. அரசு / ரயத்துவாரி ரயத்துவாரி		13. மொத்த தீர்வை (ரூ - பை)	0.55
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	2117
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.அந்தோணிச்சாமி

குறிப்பு 1:



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60191 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : திருநெல்வேலி  
 வட்டம் : கடையநல்லூர்  
 கிராமம் : அச்சன்புதூர்கம்பனேரி புதுக்குடி பகுதி I

1. டீல எண்	155	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	11	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-11	11. தீர்வை (ரூ - ஹெ)	1.38
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 21.50
5. அரசு / ரயத்துவாரி ரயத்துவாரி		13. மொத்த தீர்வை (ரூ - பை)	0.30
6. நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	2117
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. நு போகமா	-	16. பெயர்	1.அந்தோணிச்சாமி

குறிப்பு 1:



1. மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60191 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



பட்டம் : திருநெல்வேலி

பட்டம் : கடையநல்லூர்

பிராமம் : அச்சன்புதார்கம்பனேரி புதுக்குடி பகுதி I

புல எண்	155	9. மண் வயனமும்	
புல பிரிவு எண்	13	ரகமும்	8 - 3
புல எண்		10. மண் தரம்	5
புல பிரிவு எண்	-13	11. தீர்வை (ரூ - ஹெ)	1.38
பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 25.00
அரசு / ரயத்துவாரி ரயத்துவாரி		13. மொத்த தீர்வை (ரூ - பை)	0.35
நிலத்தின் வகை	பஞ்சை	14. பட்டா எண்	2102
பாசன ஆதாரம்	-	15. குறிப்பு	-
புல போகமா	-	16. பெயர்	1.மாரிப்பாண்டி

பகுதி 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60145 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



மாவட்டம் : திருநெல்வேலி

வட்டம் : கடையநல்லூர்

கிராமம் : அச்சன்புதூர்கம்பனேரி புதுக்குடி பகுதி I

1. புல எண்	155	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	14	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-14	11. தீர்வை (ரூ - ஹெ)	1.38
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 39.00
5. அரசு / ரயத்துவாரி ரயத்துவாரி		13. மொத்த தீர்வை (ரூ - பை)	0.55
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	2117
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1.அந்தோணிச்சாமி

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60191 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.



அ-பதிவேடு விவரங்கள்



மாவட்டம் : திருநெல்வேலி

வட்டம் : கடையநல்லூர்

கிராமம் : அச்சன்புதூர்கம்பனேரி புதுக்குடி பகுதி I

1. புல எண்	155	9. மண் வயனமும் ரகமும்	8 - 3
2. உட்பிரிவு எண்	15	10. மண் தரம்	5
3. பழைய புல உட்பிரிவு எண்	-15	11. தீர்வை (ரூ - ஹெ)	1.38
4. பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 37.00
5. அரசு / ரயத்துவாரி ரயத்துவாரி		13. மொத்த தீர்வை (ரூ - பை)	0.50
6. நிலத்தின் வகை	புஞ்சை	14. பட்டா எண்	2117
7. பாசன ஆதாரம்	-	15. குறிப்பு	-
8. இரு போகமா	-	16. பெயர்	1. அந்தோணிச்சாமி

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60191 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.

அ-பதிவேடு விவரங்கள்



வட்டம் : திருநெல்வேலி

பட்டம் : கடையநல்லூர்

பிராமம் : அச்சன்புதார்கம்பனேரி புதுக்குடி பகுதி I

புல எண்	155	9. மண் வயனமும் ரகமும்	8 - 3
உட்பிரிவு எண்	16	10. மண் தரம்	5
பழைய புல உட்பிரிவு எண்	-16	11. தீர்வை (ரூ - ஹெ)	1.38
பகுதி	-	12. பரப்பு (ஹெக்டேர் - ஏர்)	0 - 18.00
அரசு / ரயத்துவாரி ரயத்துவாரி நிலத்தின் வகை	புஞ்சை	13. மொத்த தீர்வை (ரூ - பை)	0.25
பாசன ஆதாரம்	-	14. பட்டா எண்	2102
இரு போகமா	-	15. குறிப்பு	-
		16. பெயர்	1.மாரிப்பாண்டி

குறிப்பு 1:



1.

மேற்கண்ட தகவல் / சான்றிதழ் நகல் விவரங்கள் மின் பதிவேட்டிலிருந்து பெறப்பட்டவை. இவற்றை தாங்கள் <http://eservices.tn.gov.in> என்ற இணைய தளத்தில் 60145 என்ற குறிப்பு எண்ணை உள்ளீடு செய்து உறுதி செய்துகொள்ளவும்.



बीस रुपये

₹. 20



TWENTY RUPEES

INDIA NON JUDICIAL

தமிழ்நாடு TAMIL NADU

எண்: 14218

57AA 100987

சுற்றுலா துறை

22.11.10

20,000

கட்டுக்குத்தகை அடியாவை

2010 ஆம் வருடம் நவம்பர் மாதம் 28 ஆம் தேதிக்கு.

1180 ஆம் ஆண்டு கார்த்திகை மாதம் 10 ஆம் தேதி.

சென்காசி தாலுகா, போகநல்லூர் கிராம சுந்தரேசுவரம் ஊரில் பிள்ளையார் கோவில் வெயின்ஜாடு தெருவில் வசிக்கும் ஸ்ரீராமச்சந்திர தேவர் அவர்கள் குமாரர் மாநிமாவா (1), சிவசிரித் தாலுகா, புளியங்குடி டவுன் சிந்தாமணி கிராமம், சானேரோடி மடத்தித் தெருவில் 4613 எண் வீட்டில் வசிக்கும் P. அறுமுக பெருமாள் நாடார் அவர்கள் குமாரர் A. அந்தோணிசாமி (2), ஆசிய மாநிலங்களும் மூலதிக கொண்ட கட்டுக்குத்தகை அடியாவை.

சென்காசி தாலுகா

in Sem

28/11/2010



R. SUBRAMANIAN, B.A., B.L. ADVOCATE, NOTARY PUBLIC BOARD'S COUNSEL, T.N.E.R (TIRUNELVELI REGION) 4 & 5 SUN VIDED COMPLEX GANDHI NAGAR



रु. 500



FIVE HUNDRED RUPEES

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INDIA NON JUDICIAL

தமிழ்நாடு தமிழ்நாடு TAMILNADU ரூ 500

2156  
10.6.11

அந்தோனிச்சாமி  
முனியாட்சுமி

ரூபாய் 400/-  
ஆண்டு 14/1  
பக்கம் 8  
எண் 8

S 967999  
B. சிவசாமி  
ஜி. பி. சிவசாமி  
உ. பி. சிவசாமி  
செ. பி. சிவசாமி

ரூபாய் 8,000/- க்கு கிரையம் சந்தை மதிப்பு ரூபாய் 8,168/-  
2011 ஆம் வருடம் ஜூன் மாதம் 16 ஆம் தேதிக்கு  
1186 ஆம் ஆண்டு ஜூன் மாதம் 1 ஆம் தேதி

சிவகிரித் தாலுகா, புளியங்குடி டவுண், சிந்தாமணி கிராமம்,  
46B சான்றோர் மடத்துத் தெருவில் வசிக்கும் P. ஆறுமுக பெருமாள்  
நாடார் அவர்கள் குமாரர் A. அந்தோனிச்சாமி (ஒட்டுநர் உரிமை எண்  
FTN/76Z/002827/2006) அவர்களுக்கு

எழுதிக் கொடுப்பவர்

M. சிவசாமி

M. சிவசாமி

எழுதி வாங்குபவர்

ச. சிவசாமி



சொத்தைச் சர்வ சுதந்திரக் கிரையப் பாத்தியமாய் தங்கள் விருப்பம்  
 ஶால் ஆண்டனுபவித்துக் கொள்ள வேண்டியது. இனிமேல் தபசில்  
 சொத்து சம்மந்தமாய் எங்களுக்காவது எங்கள் வாரிககளுக்காவது  
 எந்தக் காலத்திலும் எவ்விதப் பாத்தியமும் பின் தொடர்ச்சியும்  
 கிடையாது

தபசில் சொத்து விபரம்

திருநெல்வேலி மாவட்டம், தென்காசி வட்டம், தென்காசி பதிவு  
 மாவட்டம், கடையநல்லூர் சார்பதிவாளர் அலுவலகம் கம்பனேரி  
 புதுக்குடி கிராமம், புஞ்சை சர்வே 155/7A எண் ஹெக்டேர் 0.04.5க்கு  
 செண்டு 11 புஞ்சை சர்வே 155/8A எண் ஹெக்டேர் 0.01.0க்கு  
 செண்டு 3 ஆக செண்டு 14ம் இதற்கு எல்லை மால்

- படக்கில் - கோட்டுராத் தேவர் புஞ்சை
- தெற்கில் - S.K. மாரிப்பாண்டி புஞ்சை
- கிழக்கில் - தங்கள் கைவச புஞ்சையும், S.K. மாரிப்பாண்டி  
 புஞ்சையும்
- மேற்கில் - காந்தித் தேவர்

தபசில் விபரம் சரி.

எழுதிக் கொடுப்பவர்

M. சீரான  
 M. சீரான

எழுதி வாங்குபவர்  
 R. சீரான





ஆவணம் முன்மாதிரி பாத்தியமாபட்ட இதன் தபசில் கண்ட பெருமளவு நபருக்கு வருடம் ஒன்றுக்கு ரூபாய் 25,000/- (இருபது ஆயிரம் ரூபாய்) வருடம் ஆறுக்கு மொத்தம் ரூபாய் 1,50,000/- (ஒரு இலட்சத்து ரூபாய்) குத்தகைக்கு பேசி இது தொகை முழுவதையும் நம்மில் 1வது நபர் 2வது நபர் ரொக்கம் கீழ்க்கண்ட சாட்சிகள் முன்புக்கு பெற்றுக் கொண்டார். நாளது தேதி முதல் நம்மில் 2வது நபரிடமிருந்து நம்மில் 1வது நபர் தபசில் சொத்துக்களை கட்டுக் குத்தகைக்கு ஏற்றுள்ளார். நாளது தேதி முதல் ஆறு வருட வாய்தா காலமான 2016 ஆம் வருடம் நவம்பர் மாதம் 10ஆம் தேதி வரை தபசில் சொத்துக்களை 1வது நபர் குத்தகைப் பாத்தியமாபட்ட அனுபவித்துக் கொண்டு தபசில் சொத்துக்களிலுள்ள கல்லை உடைத்து எடுத்துக் கொள்ள வேண்டியது. இது ஆறு வருட வாய்தா காலம் முடிந்தவுடன் தபசில் சொத்துக்களை 1வது நபர் 2வது நபரிடம் ஒப்படைத்து விட்டு விலகிக் கொள்ள வேண்டியது.

உயரில் சொத்து விபரம்

தென்வாசி பழிவு மாவட்டம், கடையநல்லூர் சார்பதிவகம் கம்பனேரி

புதுக்குடி கிராமம் பட்டா எண் 2117ல் கண்ட

1. புதுசை சர்வே 155/11 எண் ஹெக்டேர் 0.21.5க்கு செண்டு 53
2. புதுசை சர்வே 155/14 எண் ஹெக்டேர் 0.39.0க்கு செண்டு 96
3. புதுசை சர்வே 155/15 எண் ஹெக்டேர் 0.37.0க்கு செண்டு 92
4. புதுசை சர்வே 155/3 எண் ஹெக்டேர் 0.40.0க்கு செண்டு 99
5. புதுசை சர்வே 155/7A எண் ஹெக்டேர் 0.04.5க்கு செண்டு 11
6. புதுசை சர்வே 155/813 எண் ஹெக்டேர் 0.42.5க்கு ஏக்கர் 1 செண்டு 05
7. புதுசை சர்வே 165/7 எண் ஹெக்டேர் 1.17.0க்கு ஏக்கர் 2 செண்டு 89

இது 1 முதல் 7 அடிபட்ட சொத்துக்களில் உள்ள கல்லை உடைத்து எடுத்துக் கொள்ளும் பாத்தியமும் சேர்ந்து தபசில் விபரம் சரி.

சென்னை

28/11/2019

2019 28/11/19

சாட்சிகள்

28/11/2019

S. Arun Kumar

S/o U Saravanan

D. S. S. S. S. S.

S. S. S. S. S.  
S/o S. S. S. S. S.  
S. S. S. S. S.  
S. S. S. S. S.



1968 ஆம் வருடத்திய தமிழ்நாடு முத்திரைக் குறைப்பு தடுப்பு வ்தி  
எண் 3(1)ன் படி அறிக்கை விபரம்  
கிராமம் - கம்பனேரி புதுக்குடி

வரிசை எண்	சர்வே எண்	விஸ்தீரணம் ஹெக்/ச.மீ.	சொத்தின் தன்மை	ஹெக்/ச.மீ. 1க்கு	சொத்தின் மதிப்பு
1.	155/7A	0.04.5	பஞ்சை	ரூ.1,48,500	ரூ.6,683.00
2.	155/8A	0.01.0	பஞ்சை	ரூ.1,48,500	ரூ.1,485.00
மேற்படி சொத்துக்களின் தற்கால நடப்பு மதிப்பு					ரூ.8,168.00

எழுதிக் கொடுப்பவர்

எழுதி வாங்குபவர்

M. குமார்

A. ...

M. ...



ANNEXURE IX

Renewed up to 24 OCT 1989



MINING PLAN APPROVED  
By  
Deputy Director  
of Geology & Mining  
Tirunelveli Dist

Regional Controller of Mines  
INDIAN BUREAU OF MINES  
Ministry of Steel, Mines & Fuel  
MADRAS

14/9/89

# CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON TO PREPARE MINING PLANS

(Under Rule 22 (c) of Mineral Concession Rules 1960)

Shri ..... C. NATARAJAN ..... resident

of ALAMBADI (VILL), VEDASENDUR (TO), ANNA (DISTT), TAMILNADU, son

of SHRI K. CHINNA GOUNDER, having given satisfactory evidence of his qualifications and experience is hereby granted recognition under Rule 22 (c) of the Mineral Concession Rules, 1960 as a Qualified Person to prepare Mining Plans.

His registration number is RQP / MAS / 004 / 87 / A

This recognition is valid for a period of two years ending 25.10.1989

Place: MADRAS  
Date: 26.10.1987

P. Hanumanthayya 26/10/87  
Regional Controller of Mines  
Indian Bureau of Mines  
MADRAS

तक नवीकृत 23 OCT 1993  
Renewed up to.....

तक नवीकृत 22-10-2001  
Renewed up to.....



*Phanumun*  
Regional Controller of Mines  
INDIAN BUREAU OF MINES

*Suprabhemeeta*  
REGIONAL CONTROLLER OF MINES  
INDIAN BUREAU OF MINES  
CHENNAI

तक नवीकृत  
Renewed up to 23 OCT 1995

*Phanumun*

क्षेत्रीय खान नियंत्रक  
Regional Controller of Mines  
भारतीय खान ब्यूरो  
INDIAN BUREAU OF MINES

तक नवीकृत 22-10-2001  
Renewed up to.....

*Shin*  
REGIONAL CONTROLLER OF MINES  
INDIAN BUREAU OF MINES  
CHENNAI REGION

तक नवीकृत 22 OCT 1997  
Renewed up to.....

*Shin*  
क्षेत्रीय खान नियंत्रक  
Regional Controller of Mines  
भारतीय खान ब्यूरो  
INDIAN BUREAU OF MINES

तक नवीकृत 22-10-99  
Renewed up to.....

*M.K.A. Manoj*  
Regional Controller of Mines  
INDIAN BUREAU OF MINES

तक नवीकृत 22-10-2001  
Renewed up to.....

*Suprabhemeeta*  
Regional Controller of Mines  
INDIAN BUREAU OF MINES



GOVERNMENT OF INDIA  
MINISTRY OF MINES AND MINEALS  
INDIAN BUREAU OF MINES  
OFFICE OF THE REGIONAL CONTROLLER OF MINES

No. : 656(48)/2010-Mds

C 4 A Rajaji Bhavan  
Besant Nagar  
Chennai 600 090.

Dated : 21 / 9 / 2011

To :  
Sri C. Natarajan  
S/o K. Chinna Gounder  
No. 5/85 Muthugapatti - Post  
Namakkal Taluk & District  
Pincode - 637405

Sub. : Renewal of recognition as recognized qualified person under Rule 22C of MCR, 1960 reg.  
Ref. : a) Your letter dated 5.08.2011.  
b) Reg. No. RQP/MAS/004/87/A dated 26.10.87.

Sir,

With reference to your request for renewal of recognition under Rule 22C of MCR, 1960, please find enclosed herewith the original certificate of recognition duly renewed for a further period of ten years.

02. You are advised to prepare standard mining plans/scheme of mining/Progressive Mine Closure Plan/Final Mine Closure Plan complete in all respects as per the outline/guidelines and taking into account all requirements as per CCOM's Circular to RQPs and instructions issued from time to time. Further, you are advised not to furnish any deliberate false information in the mining plan/scheme of mining/Progressive Mine Closure Plan/Final Mine Closure Plan, so as to mislead the authorities. It may please be noted that any such incidence on your part may lead to withdrawal of the recognition granted to you.

03. The recognition is valid up to 22.10.2021.

Yours faithfully,

*Ivan Khes*  
20/9/11

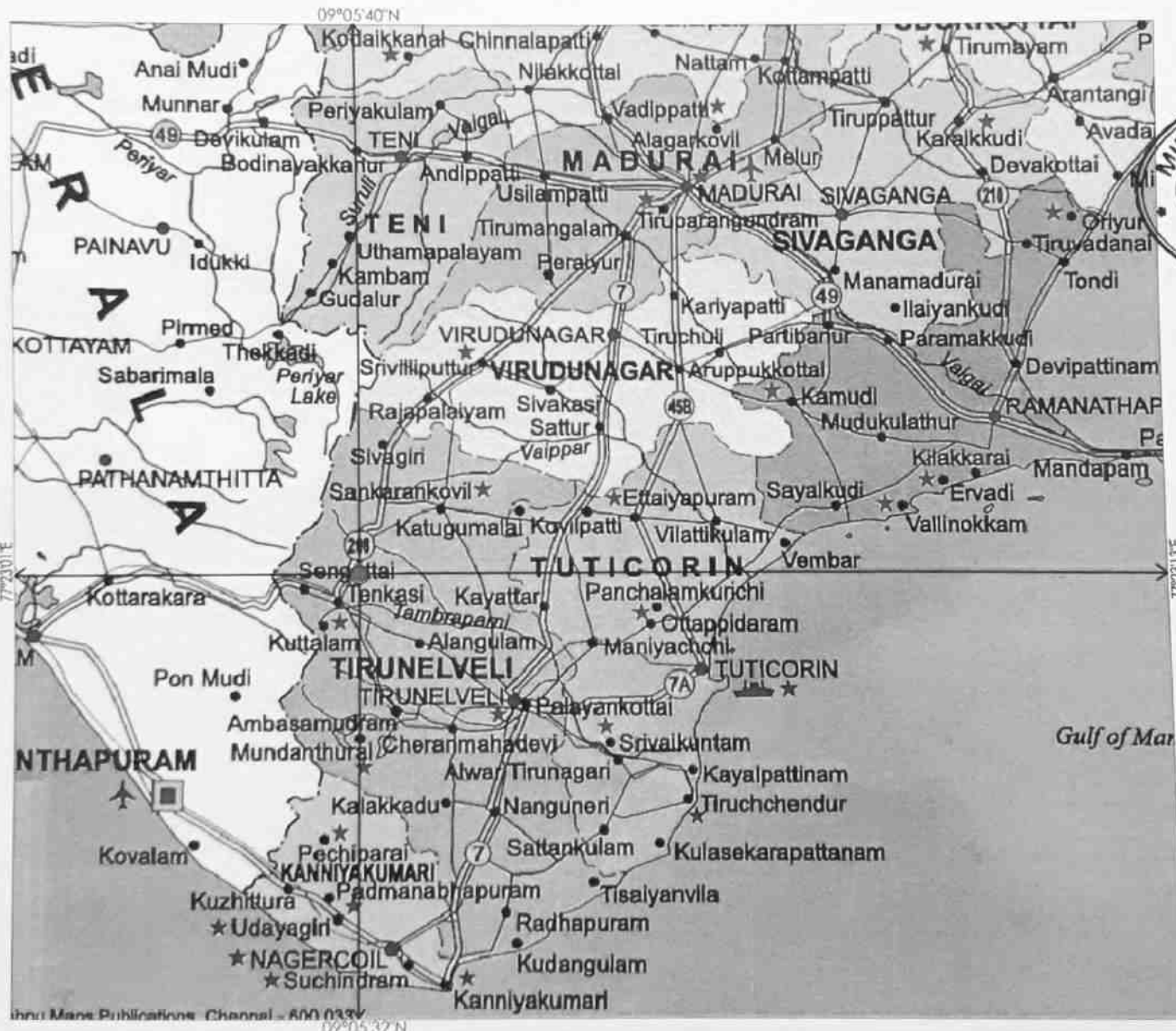
(Ivan Khes)

Regional Controller of Mines

Encl. as above.  
Copy for kind information to :  
The Controller of Mines (S), Indian Bureau of Mines, Bangalore without any enclosure.

(Ivan Khes)

Regional Controller of Mines



TITLE: QUARRY LEASE  
 S/o: T. VEDUSAMY THEVAR,  
 No. 8/66 PILLAIYAR KOIL MAIN ROAD,  
 SUNDARESANPURAM (P.O.),  
 KADAYANALLUR,  
 TENKASI TALUK,  
 TIRUNELVELI DISTRICT

**QUARRY LEASE APPLIED AREA:**  
 S.F. NOS : 155/3, 155/8B, 155/11, 155/13,  
 155/14, 155/15 & 155/16.  
 EXTENT : 2.23.0 Ha.  
 VILLAGE : KAMBANERI PUDUKUDI,  
 TALUK : KADAYANALLUR,  
 DISTRICT : TIRUNELVELI

**INDEX**

Q. L. APPLIED AREA : ●  
 TOPO SHEET NO : 58 G / 08  
 LATITUDE : 09°05'32"N to 09°05'40"N  
 LONGITUDE : 77°23'01"E to 77°23'13"E

**LOCATION PLAN**

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

  
 C. NATARAJAN, M.Sc.M.Phil.,  
 RECOGNIZED QUALIFIED PERSON  
 RQP/MAS/004/87/A



PLATE NO: 1A  
DATE OF SURVEY: 13.05.2017

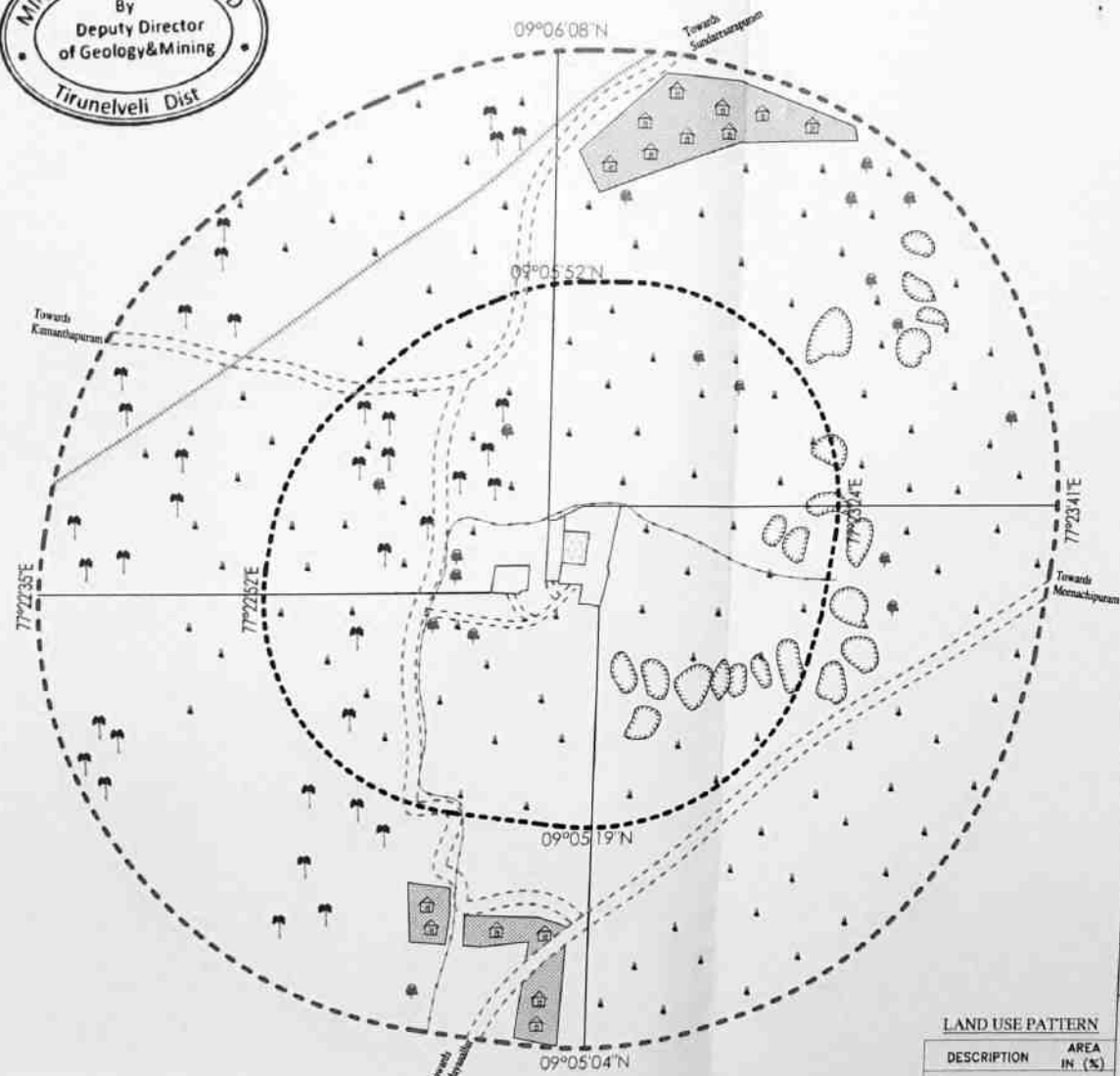
**APPLICANT:**  
THIRU V. MARIPANDI  
S/O: T. VELUSAMY THEVAR  
No 4/86, PILLAYAR KOIL MAIN ROAD,  
SUNDARESIAPURAMPOST,  
KADAYANALLUR,  
TENKASI TALUK,  
TIRUNELVELI DISTRICT.

**QUARRY LEASE APPLIED AREA:**  
S.F.NOS : 155/3, 155/8B, 155/11, 155/13,  
155/14, 155/15 & 155/16,  
EXTENT : 2.23.0 Ha.  
VILLAGE : KAMBANERI PUDUKUDH,  
TALUK : KADAYANALLUR,  
DISTRICT : TIRUNELVELI.

**INDEX**

TOPO SHEET NO : 58 G / 08  
LATITUDE : 09°05'32"N to 09°05'40"N  
LONGITUDE : 77°23'01"E to 77°23'13"E

- Q.L APPLIED AREA
- 500M RADIUS
- 1KM RADIUS
- QUARRY ROAD
- APPROACH ROAD
- PANCHAYAT ROAD
- BARREN LAND
- TREES
- SEASONAL AGRICULTURAL LAND
- QUARRY PIT
- HABITATION
- RAIL WAY LINE
- ODAI
- NON LEASE AREA



**LAND USE PATTERN**

DESCRIPTION	AREA IN (%)
ROAD	04
TREES	14
BARREN LAND	55
HABITATION	10
AGRICULTURAL LAND	15

**ENVIRONMENTAL PLAN**  
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.

*C. Natarajan*  
C. NATARAJAN, M. SC. M. PHIL.,  
RECOGNIZED QUALIFIED PERSON  
RQP/MAS/004/87/A



PLATE NO: 1B

DATE OF SURVEY : 13.05.2017

**APPLICANT:**

THIRU V MARIPANDI,  
S/o T VELLUSAMY THEVAR,  
No 4/96 PILLAYAR KOIL MAIN ROAD,  
SUNDARESAPURAM POOTE,  
KADAYANALLUR,  
TENKASI TALUK,  
TIRUNELVELI DISTRICT.

**QUARRY LEASE APPLIED AREA:**

S.F.NOS : 155/3, 155/8B, 155/11, 155/13,  
155/14, 155/15 & 155/16,  
EXTENT : 2.23.0 Ha,  
VILLAGE : KAMBANERI PUDUKUDH,  
TALUK : KADAYANALLUR,  
DISTRICT : TIRUNELVELI.

**INDEX**

TOPO SHEET NO : 58 G / 08

LATITUDE : 09°05'32"N to 08°05'40"N

LONGITUDE : 77°23'01"E to 77°23'13"E

Q.L. APPLIED AREA	
500M RADIUS	
1 KM RADIUS	
APPROACH ROAD	
PANCHAYAT ROAD	
NON LEASE AREA	

**SATELLITE IMAGE**

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

*C. Natarajan*  
C. NATARAJAN, M.Sc.M.Phil.,  
RECOGNIZED QUALIFIED PERSON  
RQP/MAS/004/87/A



APPLICANT:  
 THIRU. V. MARIPAN,  
 S/O. T. VELUSAMY THEVAR,  
 No. 476/5 PILLAIYAR KOIL MAIN ROAD,  
 BUNDIYARAPURAM (POST),  
 KADAYANALLUR,  
 TENKASI TALUK,  
 TIRUNELVELI DISTRICT.



PLATE NO: 1C

DATE OF SURVEY: 13.05.2017



QUARRY LEASE APPLIED AREA

S.F.NOS : 155/3, 155/88, 155/11, 155/13,  
 155/14, 155/15 & 155/16.

EXTENT : 2.23.0 Ha,  
 VILLAGE : KAMBANERI PUDUKUDI,  
 TALUK : KADAYANALLUR,  
 DISTRICT : TIRUNELVELI.

**INDEX**

TOPO SHEET NO : 58 H / 05

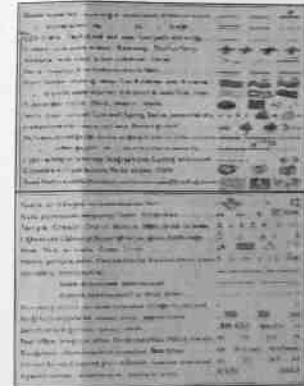
LATITUDE : 08°56'14"N to 08°56'23"N

LONGITUDE : 77°20'33"E to 77°20'41"E

Q.L. APPLIED AREA



10KM RADIOUS



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

# KEY PLAN



PLATE NO: I-D

DATE OF SURVEY : 13.05.2017

**APPLICANT:**

THIRU. V.MARIPANDEI  
S/O. T.VELUSAMY THEVAR,  
No.4/66,PILLAIYAR KOIL MAIN ROAD,  
SUNDARESAPURAM(POST),  
KADAYANALLUR,  
TENKASI TALUK,  
TIRUNELVELI DISTRICT

**QUARRY LEASE APPLIED AREA:**

S.F.NOS : 155/3, 155/8B, 155/11, 155/13,  
155/14, 155/15 & 155/16.  
EXTENT : 2.23.0 Ha,  
VILLAGE : KAMBANERI PUDUKUDHI,  
TALUK : KADAYANALLUR,  
DISTRICT : TIRUNELVELI.

**INDEX**

- Q.L. APPLIED AREA
- NATIONAL HIGHWAY
- PANCHAYAT ROAD
- APPROACH ROAD
- HABITATIONS
- NON LEASE AREA

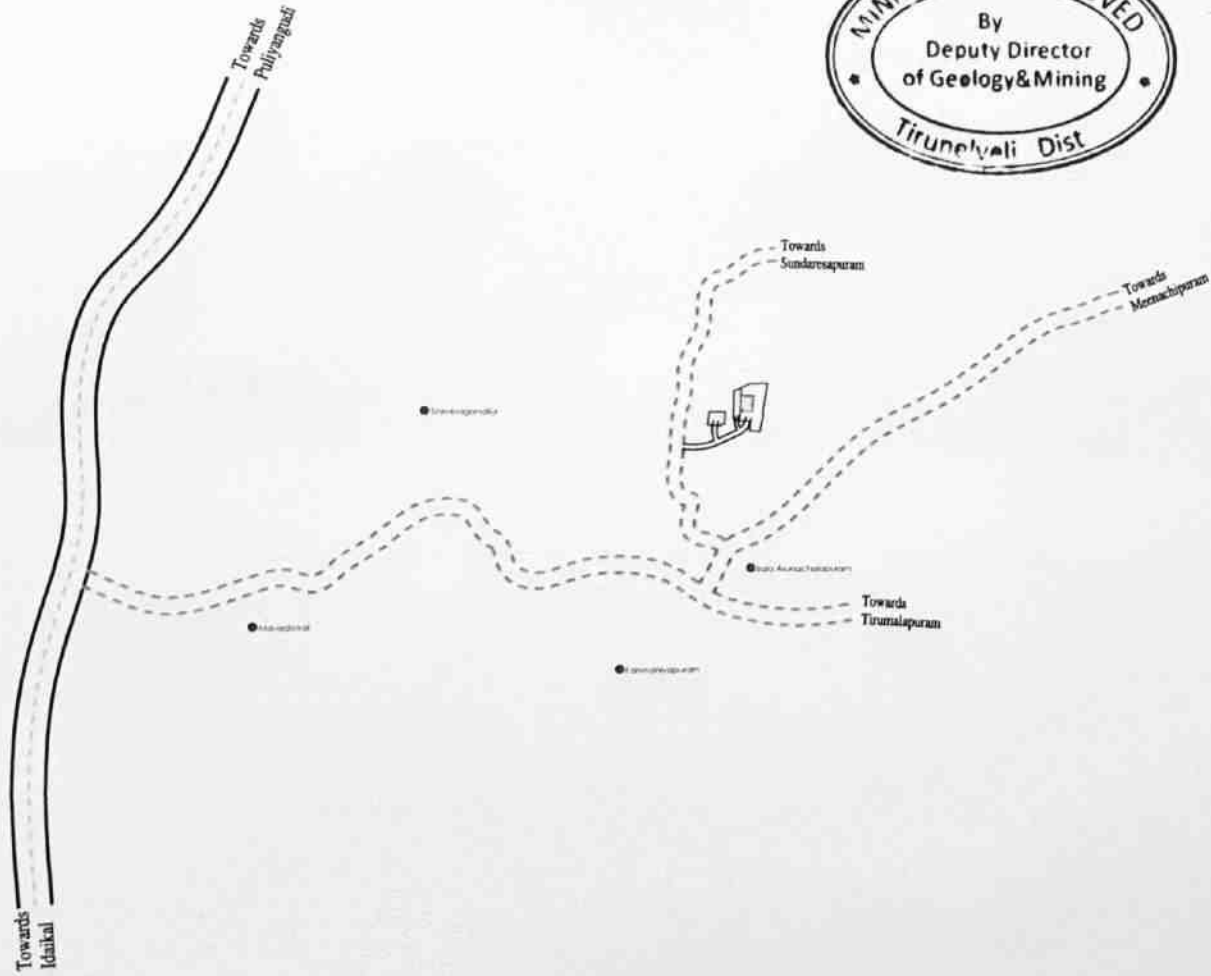
**KEY PLAN**

Not To Scale

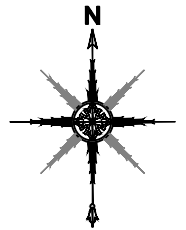
**PREPARED BY:**

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

C. NATARAJAN, M. S. M. Phil.,  
RECOGNIZED QUALIFIED PERSON  
RQP/MAS/004/B7/A

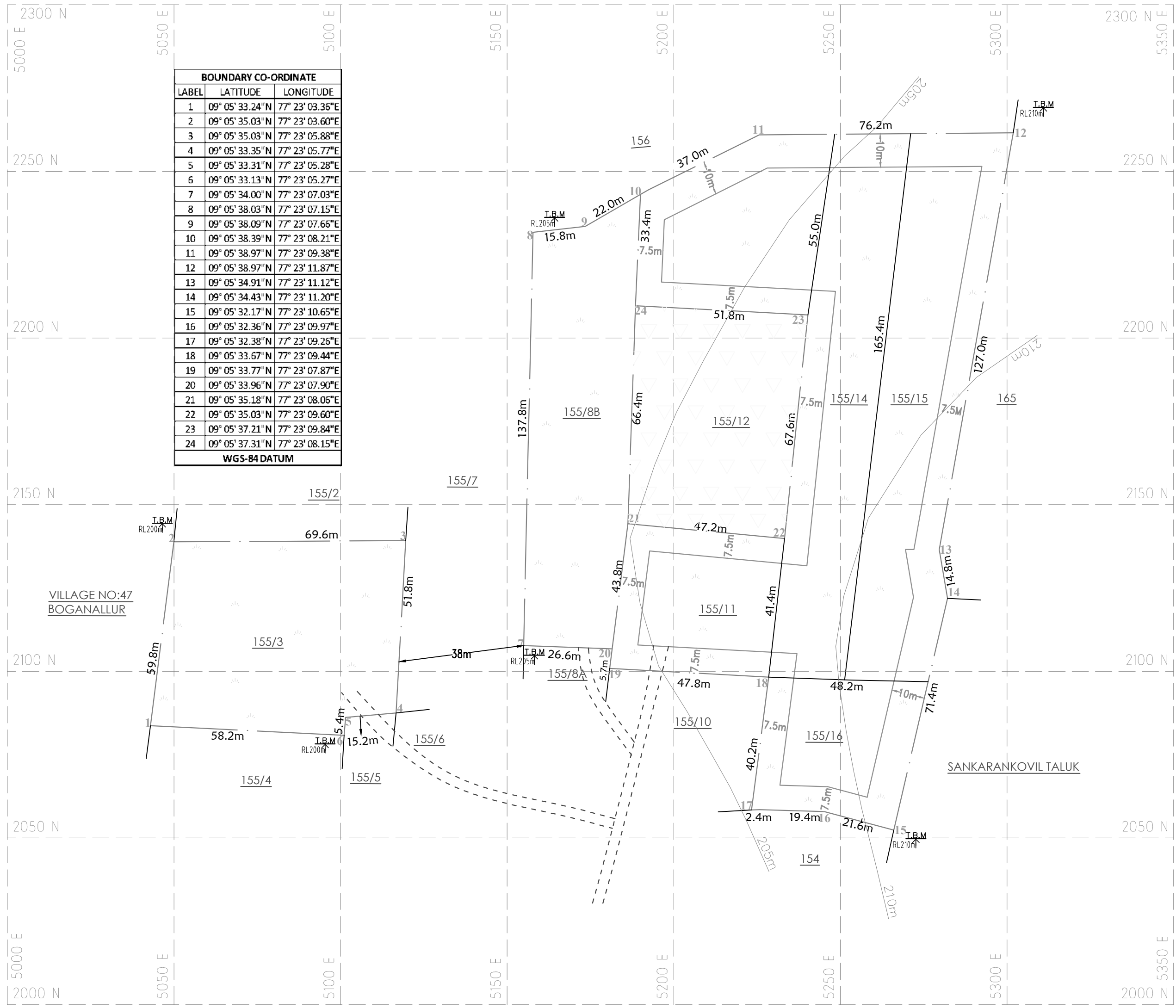






BOUNDARY CO-ORDINATE		
LABEL	LATITUDE	LONGITUDE
1	09° 05' 33.24"N	77° 23' 03.36"E
2	09° 05' 35.03"N	77° 23' 03.60"E
3	09° 05' 35.03"N	77° 23' 05.88"E
4	09° 05' 33.35"N	77° 23' 05.77"E
5	09° 05' 33.31"N	77° 23' 05.28"E
6	09° 05' 33.13"N	77° 23' 05.27"E
7	09° 05' 34.00"N	77° 23' 07.03"E
8	09° 05' 38.03"N	77° 23' 07.15"E
9	09° 05' 38.09"N	77° 23' 07.66"E
10	09° 05' 38.39"N	77° 23' 08.21"E
11	09° 05' 38.97"N	77° 23' 09.38"E
12	09° 05' 38.97"N	77° 23' 11.87"E
13	09° 05' 34.91"N	77° 23' 11.12"E
14	09° 05' 34.43"N	77° 23' 11.20"E
15	09° 05' 32.17"N	77° 23' 10.65"E
16	09° 05' 32.36"N	77° 23' 09.97"E
17	09° 05' 32.38"N	77° 23' 09.26"E
18	09° 05' 33.67"N	77° 23' 09.44"E
19	09° 05' 33.77"N	77° 23' 07.87"E
20	09° 05' 33.96"N	77° 23' 07.90"E
21	09° 05' 35.18"N	77° 23' 08.06"E
22	09° 05' 35.03"N	77° 23' 09.60"E
23	09° 05' 37.21"N	77° 23' 09.84"E
24	09° 05' 37.31"N	77° 23' 08.15"E

WGS-84 DATUM



**PLATE NO-II**

DATE OF SURVEY : 13.05.2017

**APPLICANT:**

THIRU. V.MARIPANDI,  
S/o. T.VELUSAMY THEVAR,  
No.4/66,PILLAIYAR KOIL MAIN ROAD,  
SUNDARESAPURAM(POST),  
KADAYANALLUR,  
TENKASI TALUK,  
TIRUNELVELI DISTRICT.

**QUARRY LEASE APPLIED AREA:**

S.F.NOS : 155/3, 155/8B, 155/11, 155/13,  
155/14, 155/15 & 155/16,  
EXTENT : 2.23.0 Ha,  
VILLAGE : KAMBANERI PUDUKUDI-I,  
TALUK : KADAYANALLUR,  
DISTRICT : TIRUNELVELI.

**INDEX**

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- 7.5m & 10m SAFETY DISTANCE
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- CONTOUR
- TREES
- QUARRY PIT
- NON LEASE AREA

**QUARRY LEASE & SURFACE PLAN**

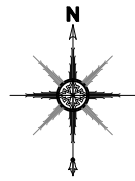
SCALE 1: 1000

**PREPARED BY:**

THIS IS TO CERTIFY THAT THE  
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KNOWLEDGE BASED UPON THE LEASE MAP  
AUTHENTICATED BY STATE GOVERNMENT

*C. Natarajan*

C.NATARAJAN, M.Sc. M.Phil.,  
RECOGNIZED QUALIFIED PERSON  
RQP/MAS/004/87/A



**BOUNDARY CO-ORDINATE**

LABEL	LATITUDE	LONGITUDE
1	09° 05' 33.24"N	77° 23' 03.36"E
2	09° 05' 35.03"N	77° 23' 03.60"E
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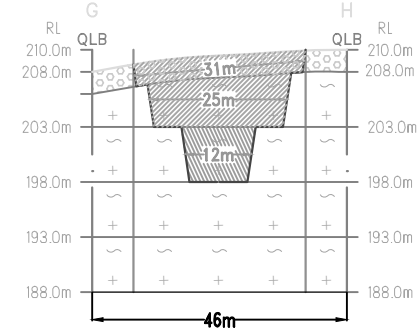
**WGS-84 DATUM**

**PRESENT & POST LAND USE PATTERN**

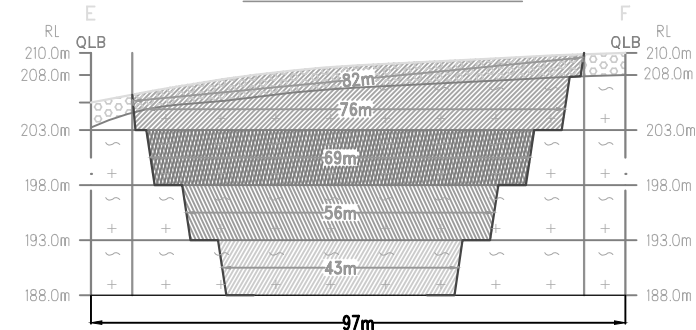
DESCRIPTION	PRESENT AREA (Ha)	AREA AT THE END OF THIS QUARRYING PERIOD (Ha)
AREA UNDER QUARRYING	NII	0.94.0
INFRASTRUCTURE	NII	0.01.0
ROADS	NII	0.01.0
GREEN BELT	NII	1.27.0
UN-UTILIZED AREA	2.23.0	NII
<b>GRAND TOTAL</b>	<b>2.23.0</b>	<b>2.23.0</b>

- 1st Year Proposed area to be Quarried
- 2nd Year Proposed area to be Quarried
- 3rd Year Proposed area to be Quarried
- 4th Year Proposed area to be Quarried
- 5th Year Proposed area to be Quarried
- Proposed area to be Planted

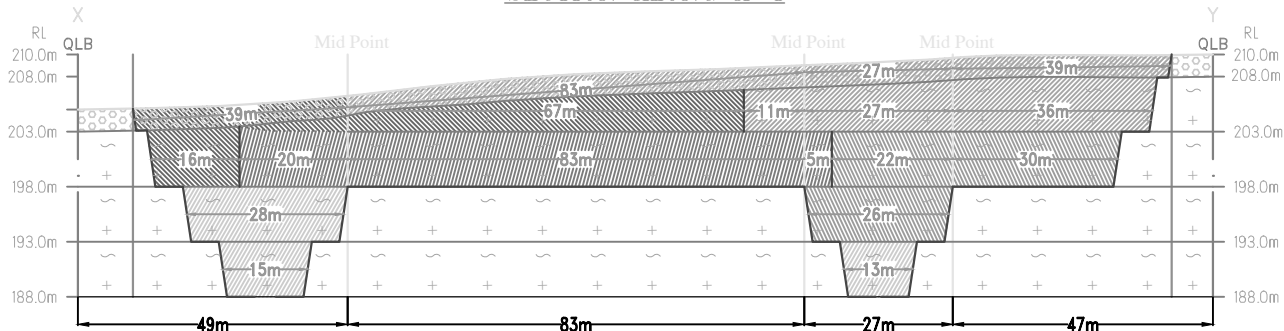
**SECTION ALONG G-H**



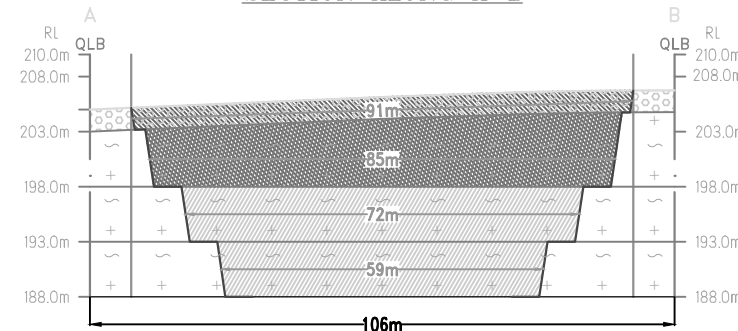
**SECTION ALONG E-F**



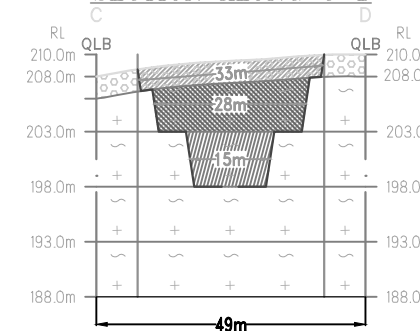
**SECTION ALONG X-Y**



**SECTION ALONG A-B**



**SECTION ALONG C-D**



**PLATE NO-III**

DATE OF SURVEY : 13.05.2017

**APPLICANT:**

THIRU. V.MARIPANDI,  
S/o. T.VELUSAMY THEVAR,  
No.4/66,PILLAIYAR KOIL MAIN ROAD,  
SUNDARESAPURAM(POST),  
KADAYANALLUR,  
TENKASI TALUK,  
TIRUNELVELI DISTRICT.

**QUARRY LEASE APPLIED AREA:**

S.F.NOS : 155/3, 155/8B, 155/11, 155/13,  
155/14, 155/15 & 155/16,  
EXTENT : 2.23.0 Ha,  
VILLAGE : KAMBANERI PUDUKUDI-I,  
TALUK : KADAYANALLUR,  
DISTRICT : TIRUNELVELI.

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- GRAVEL
- WEATHERED ROCK
- ROUGH STONE
- STRIKE & DIP
- NON LEASE AREA

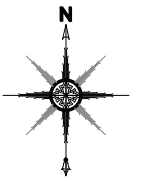
**TOPOGRAPHY, GEOLOGICAL, YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTION**

SCALE 1 : 1000  
SECTION HOR 1 : 1000, VER 1 : 500

**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

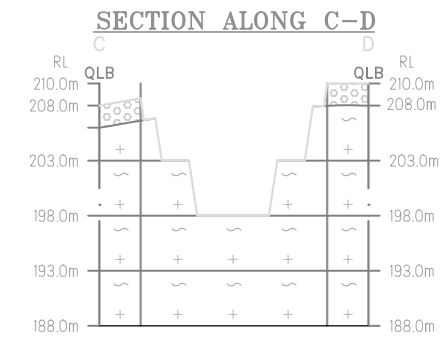
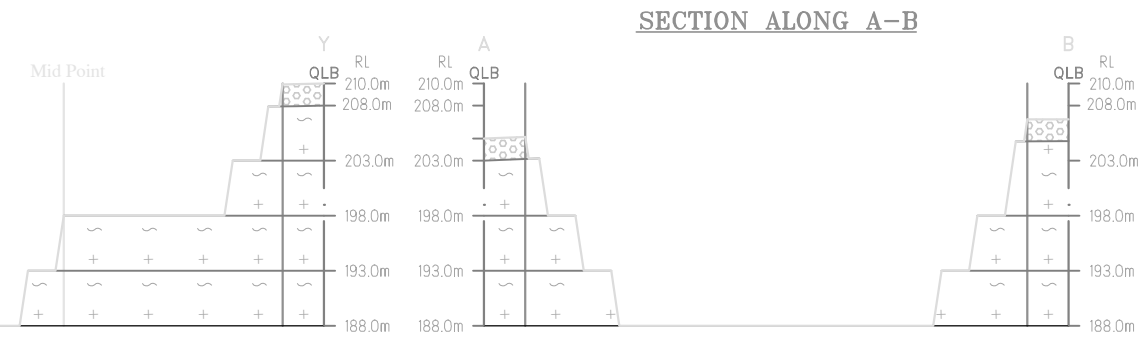
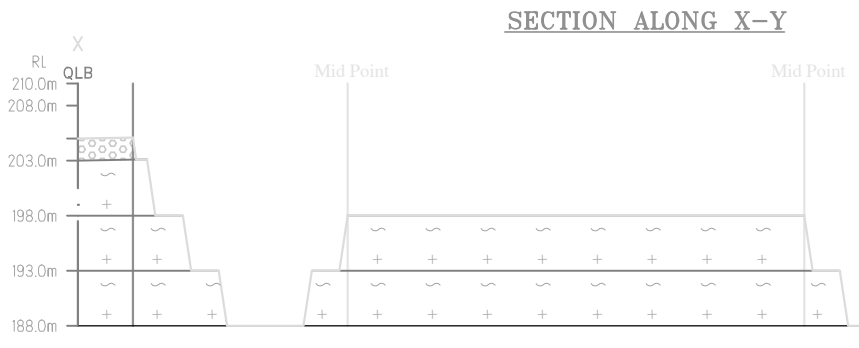
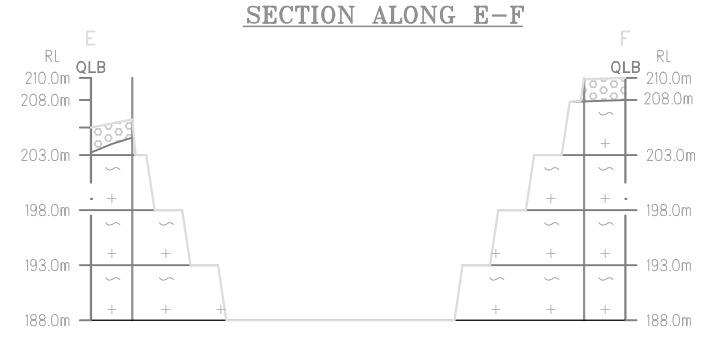
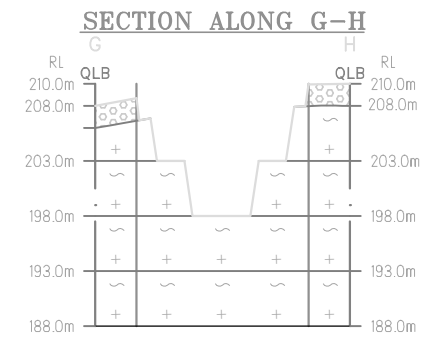
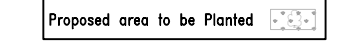
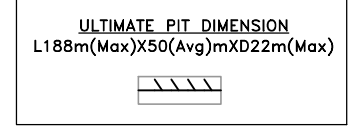
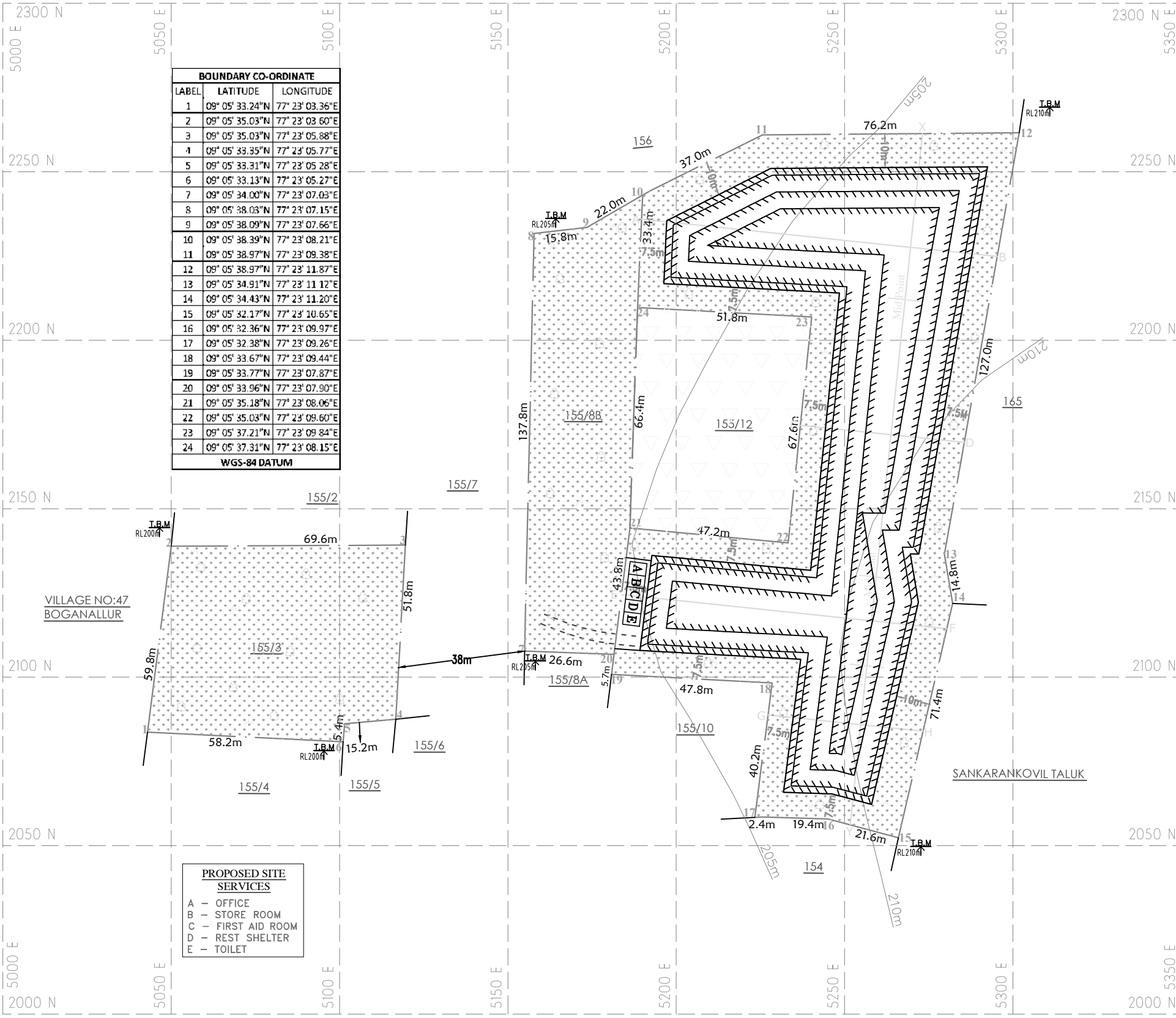
C.NATARAJAN, M.Sc.M.Phil.,  
RECOGNIZED QUALIFIED PERSON  
RQP/MAS/004/87/A



**BOUNDARY CO-ORDINATE**

LABEL	LATITUDE	LONGITUDE
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WGS-84 DATUM



**PLATE NO-IV**  
DATE OF SURVEY : 13.05.2017

**APPLICANT:**  
THIRU. V.MARIPANDI,  
S/o. T.VELUSAMY THEVAR,  
No.4/66,PILLAIYAR KOIL MAIN ROAD,  
SUNDAREAPURAM(POST),  
KADAYANALLUR,  
TENKASI TALUK,  
TIRUNELVELI DISTRICT.

**QUARRY LEASE APPLIED AREA:**  
S.F.NOS : 155/3, 155/8B, 155/11, 155/13,  
155/14, 155/15 & 155/16,  
EXTENT : 2.23.0 Hc,  
VILLAGE : KAMBANERI PUDUKUDI-I,  
TALUK : KADAYANALLUR,  
DISTRICT : TIRUNELVELI.

**INDEX**

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CONTOUR	
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GRAVEL	
WEATHERED ROCK	
ROUGH STONE	
STRIKE & DIP	
PROPOSED QUARRY PIT	
NON LEASE AREA	

**CONCEPTUAL PLAN & SECTION**  
SCALE 1 : 1000  
SECTION HOR 1 : 1000, VER 1: 500

**PREPARED BY:**  
THIS IS TO CERTIFY THAT THE  
INFORMATION IN THIS PLATE IS TRUE AND  
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*C. Natarajan*  
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RQP/MAS/004/87/A

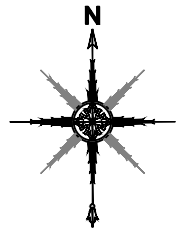
GEOLOGICAL RESOURCES							
section	Bench	length in (m)	Width in (m)	Depth in (m)	Volume m3	Gravel m3	Geological Resources in m3
XY-AB	I	49	106	2	10388	10388	
	II	49	106	15	77910		77910
	<b>TOTAL</b>					<b>10388</b>	<b>77910</b>
XY-CD	I	83	49	2	8134	8134	
	II	83	49	20	81340		81340
	<b>TOTAL</b>					<b>8134</b>	<b>81340</b>
XY-EF	I	27	97	2	5238	5238	
	II	27	97	20	52380		52380
	<b>TOTAL</b>					<b>5238</b>	<b>52380</b>
XY-GH	I	47	46	2	4324	4324	
	II	47	46	20	43240		43240
	<b>TOTAL</b>					<b>4324</b>	<b>43240</b>
<b>GRAND TOTAL</b>						<b>28084</b>	<b>254870</b>

MINEABLE RESERVES							
section	Bench	length in (m)	Width in (m)	Depth in (m)	Volume M3	Gravel m3	Mineable Reserves in m3
XY-AB	I	39	91	2	7098	7098	
	II	36	85	5	15300		15300
	III	28	72	5	10080		10080
	IV	15	59	5	4425		4425
	<b>TOTAL</b>					<b>7098</b>	<b>29805</b>
XY-CD	I	83	33	2	5478	5478	
	II	78	28	5	10920		10920
	III	83	15	5	6225		6225
	<b>TOTAL</b>					<b>5478</b>	<b>17145</b>
XY-EF	I	27	82	2	4428	4428	
	II	27	76	5	10260		10260
	III	27	69	5	9315		9315
	IV	26	56	5	7280		7280
	V	13	43	5	2795		2795
	<b>TOTAL</b>					<b>4428</b>	<b>29650</b>
XY-GH	I	39	31	2	2418	2418	
	II	36	25	5	4500		4500
	III	30	12	5	1800		1800
	<b>TOTAL</b>					<b>2418</b>	<b>6300</b>
<b>GRAND TOTAL</b>						<b>19422</b>	<b>82900</b>

YEARWISE RESERVES								
Year	section	Bench	L(m)	W(m)	D(m)	Volume M3	Gravel m3	Yearwise Reserves in m3
I	XY-GH	I	39	31	2	2418	2418	
		II	36	25	5	4500		4500
	XY-EF	I	27	82	2	4428	4428	
		II	27	76	5	10260		10260
	XY-CD	I	83	33	2	5478	5478	
		II	11	28	5	1540		1540
	<b>TOTAL</b>							<b>12324</b>
II	XY-CD	II	67	28	5	9380		9380
	XY-AB	I	39	91	2	7098	7098	
		II	16	85	5	6800		6800
	<b>TOTAL</b>							<b>7098</b>
III	XY-AB	II	20	85	5	8500		8500
	XY-CD	III	83	15	5	6225		6225
	XY-EF	III	5	69	5	1725		1725
	<b>TOTAL</b>							
IV	XY-EF	III	22	69	5	7590		7590
		IV	26	56	5	7280		7280
	XY-GH	III	30	12	5	1800		1800
	<b>TOTAL</b>							
V	XY-AB	III	28	72	5	10080		10080
		IV	15	59	5	4425		4425
	XY-EF	V	13	43	5	2795		2795
	<b>TOTAL</b>							
<b>GRAND TOTAL</b>							<b>19422</b>	<b>82900</b>

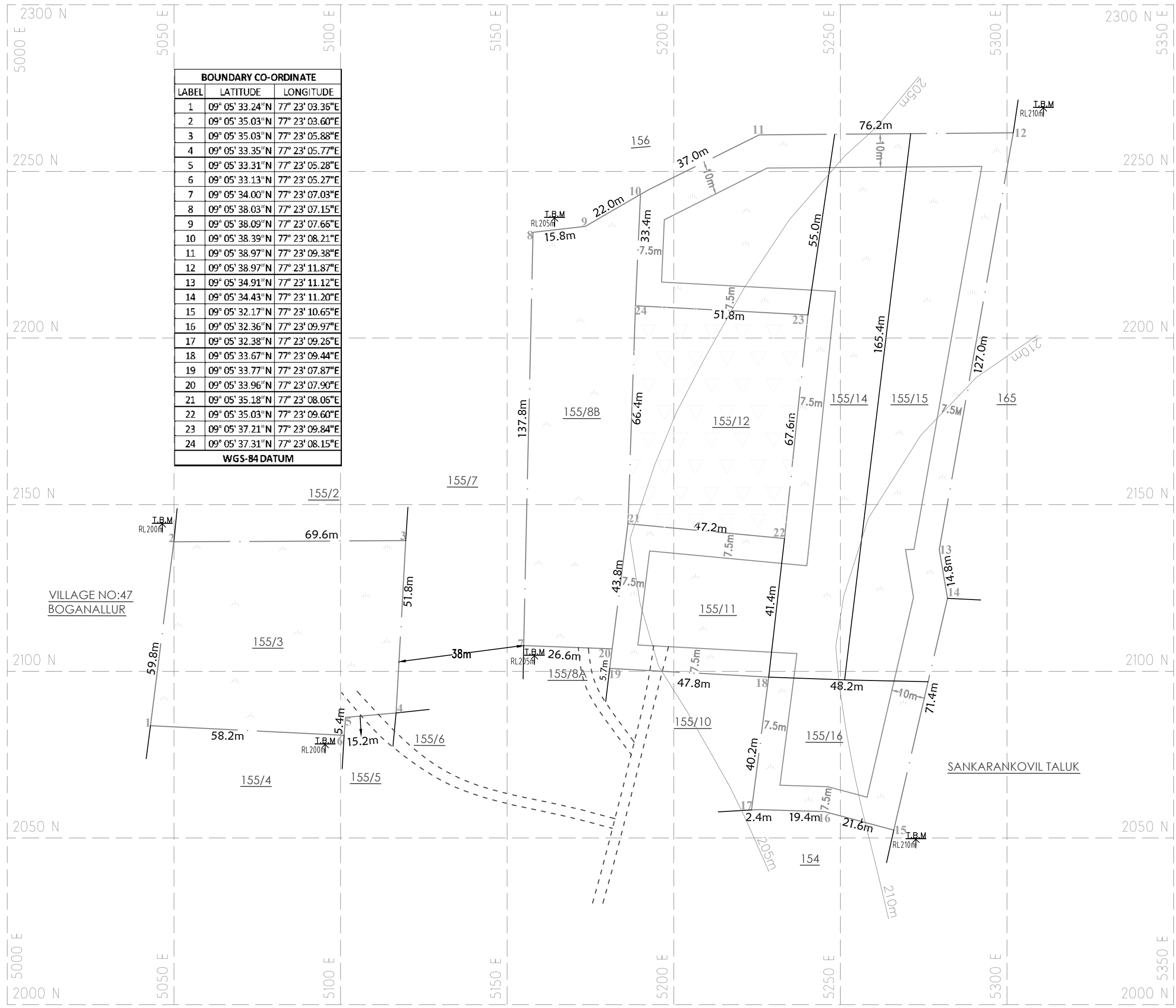
**ANNEXURE 7**  
**REVISED TABLES AND PLATES**





BOUNDARY CO-ORDINATE		
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WGS-84 DATUM



**PLATE NO-II**

DATE OF SURVEY : 13.05.2017

**APPLICANT:**

THIRU. V.MARIPANDI,  
S/o. T.VELUSAMY THEVAR,  
No.4/66,PILLAIYAR KOIL MAIN ROAD,  
SUNDARESAPURAM(POST),  
KADAYANALLUR,  
TENKASI TALUK,  
TIRUNELVELI DISTRICT.

**QUARRY LEASE APPLIED AREA:**

S.F.NOS : 155/3, 155/8B, 155/11, 155/13,  
155/14, 155/15 & 155/16,  
EXTENT : 2.23.0 Ha,  
VILLAGE : KAMBANERI PUDUKUDI-I,  
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DISTRICT : TIRUNELVELI.

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- NON LEASE AREA

**QUARRY LEASE & SURFACE PLAN**

SCALE 1: 1000

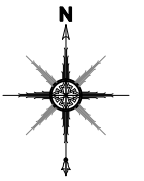
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RQP/MAS/004/87/A





**BOUNDARY CO-ORDINATE**

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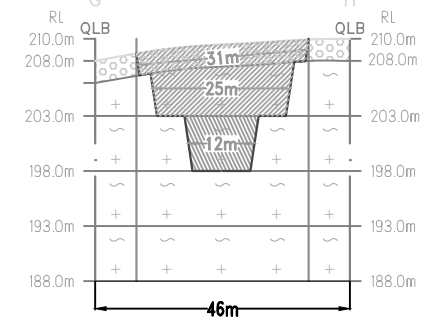
WGS-84 DATUM

**PRESENT & POST LAND USE PATTERN**

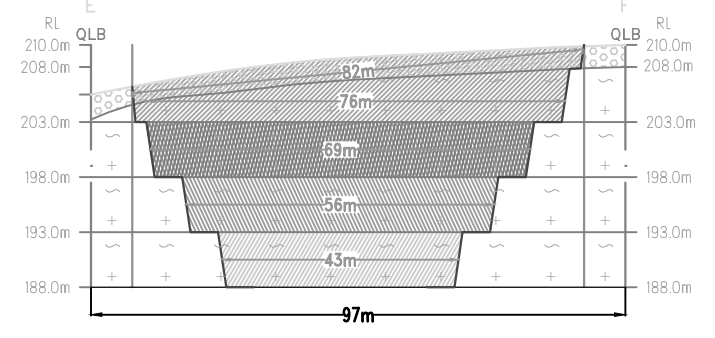
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AREA UNDER QUARRYING	NII	0.94.0
INFRASTRUCTURE	NII	0.01.0
ROADS	NII	0.01.0
GREEN BELT	NII	1.27.0
UN-UTILIZED AREA	2.23.0	NII
<b>GRAND TOTAL</b>	<b>2.23.0</b>	<b>2.23.0</b>

- 1st Year Proposed area to be Quarried
- 2nd Year Proposed area to be Quarried
- 3rd Year Proposed area to be Quarried
- 4th Year Proposed area to be Quarried
- 5th Year Proposed area to be Quarried
- Proposed area to be Planted

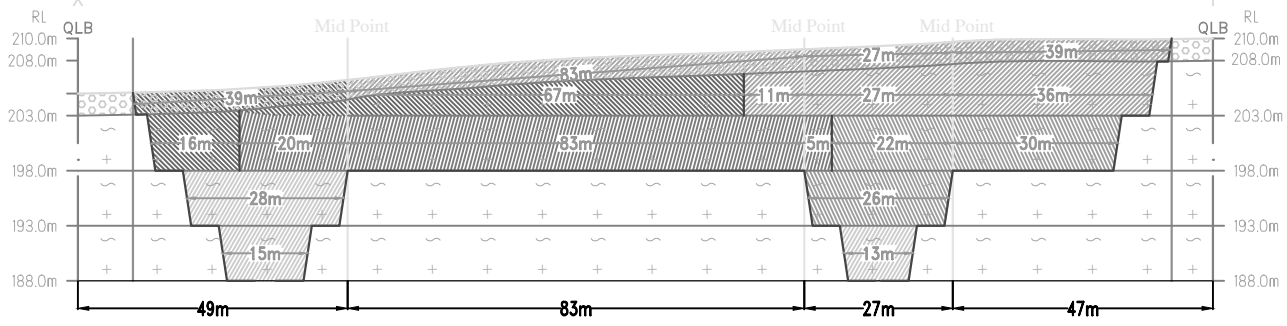
**SECTION ALONG G-H**



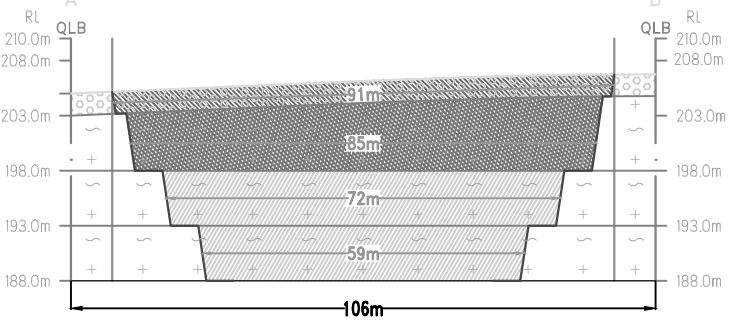
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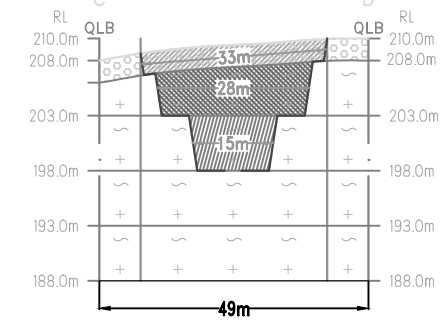
**SECTION ALONG X-Y**



**SECTION ALONG A-B**



**SECTION ALONG C-D**



- PROPOSED SITE SERVICES**
- A - OFFICE
  - B - STORE ROOM
  - C - FIRST AID ROOM
  - D - REST SHELTER
  - E - TOILET

**PLATE NO-III**

DATE OF SURVEY : 13.05.2017

**APPLICANT:**

THIRU. V.MARIPANDI,  
S/o. T.VELUSAMY THEVAR,  
No.4/66,PILLAIYAR KOIL MAIN ROAD,  
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TENKASI TALUK,  
TIRUNELVELI DISTRICT.

**QUARRY LEASE APPLIED AREA:**

S.F.NOS : 155/3, 155/8B, 155/11, 155/13,  
155/14, 155/15 & 155/16,  
EXTENT : 2.23.0 Ha,  
VILLAGE : KAMBANERI PUDUKUDI-I,  
TALUK : KADAYANALLUR,  
DISTRICT : TIRUNELVELI.

**INDEX**

- Q.LEASE APPLIED BOUNDARY
- 7.5m & 10m SAFETY DISTANCE
- TEMPORARY BENCH MARK
- APPROACH ROAD
- CONTOUR
- TREES
- GRAVEL
- WEATHERED ROCK
- ROUGH STONE
- STRIKE & DIP
- NON LEASE AREA

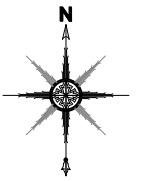
**TOPOGRAPHY, GEOLOGICAL, YEARWISE DEVELOPMENT & PRODUCTION PLAN & SECTION**

SCALE 1 : 1000  
SECTION HOR 1 : 1000, VER 1 : 500

**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

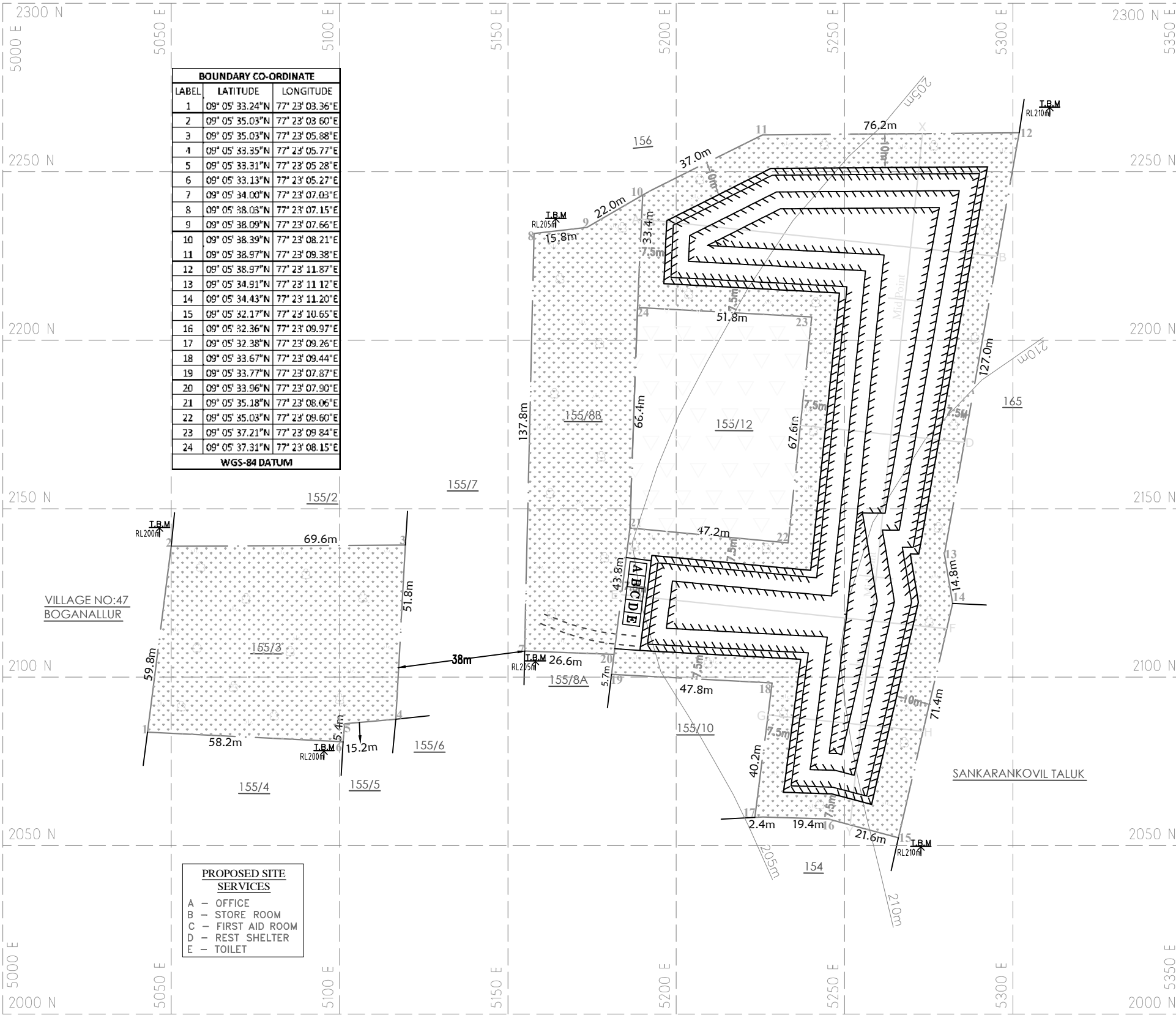
*C. Natarajan*  
C.NATARAJAN, M.Sc.M.Phil.,  
RECOGNIZED QUALIFIED PERSON  
RQP/MAS/004/87/A



**BOUNDARY CO-ORDINATE**

LABEL	LATITUDE	LONGITUDE
1	09° 05' 33.24"N	77° 23' 03.36"E
2	09° 05' 35.03"N	77° 23' 03.60"E
3	09° 05' 35.03"N	77° 23' 05.88"E
4	09° 05' 33.35"N	77° 23' 05.77"E
5	09° 05' 33.31"N	77° 23' 05.28"E
6	09° 05' 33.13"N	77° 23' 05.27"E
7	09° 05' 34.00"N	77° 23' 07.03"E
8	09° 05' 38.03"N	77° 23' 07.15"E
9	09° 05' 38.09"N	77° 23' 07.66"E
10	09° 05' 38.39"N	77° 23' 08.21"E
11	09° 05' 38.97"N	77° 23' 09.38"E
12	09° 05' 38.97"N	77° 23' 11.87"E
13	09° 05' 34.91"N	77° 23' 11.12"E
14	09° 05' 34.43"N	77° 23' 11.20"E
15	09° 05' 32.17"N	77° 23' 10.65"E
16	09° 05' 32.36"N	77° 23' 09.97"E
17	09° 05' 32.38"N	77° 23' 09.26"E
18	09° 05' 33.67"N	77° 23' 09.44"E
19	09° 05' 33.77"N	77° 23' 07.87"E
20	09° 05' 33.96"N	77° 23' 07.90"E
21	09° 05' 35.18"N	77° 23' 08.06"E
22	09° 05' 35.03"N	77° 23' 09.60"E
23	09° 05' 37.21"N	77° 23' 09.84"E
24	09° 05' 37.31"N	77° 23' 08.15"E

WGS-84 DATUM



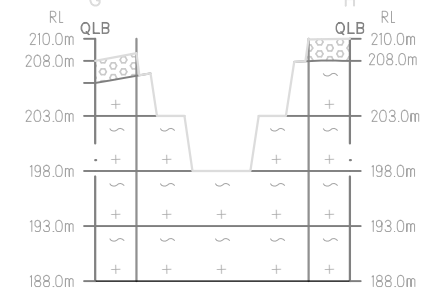
**PROPOSED SITE SERVICES**

A	OFFICE
B	STORE ROOM
C	FIRST AID ROOM
D	REST SHELTER
E	TOILET

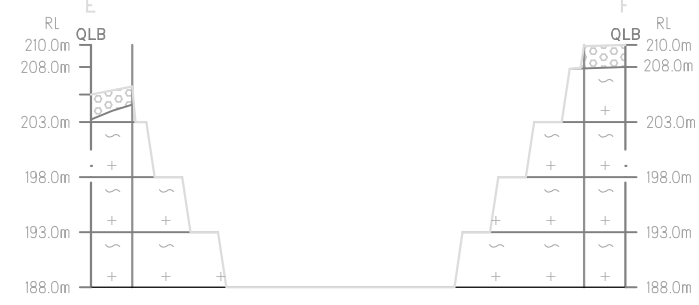
**ULTIMATE PIT DIMENSION**  
L188m(Max)X50(Avg)mXD22m(Max)

**Proposed area to be Planted**

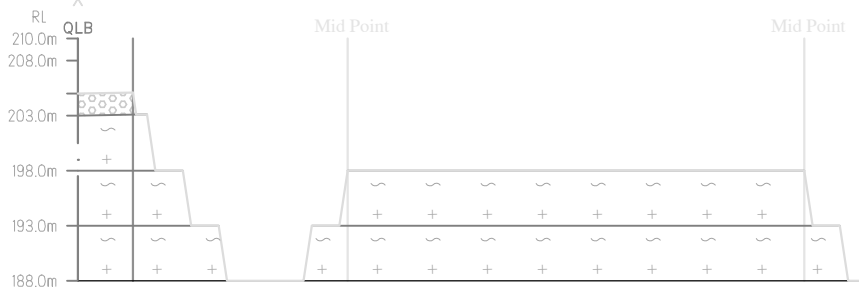
**SECTION ALONG G-H**



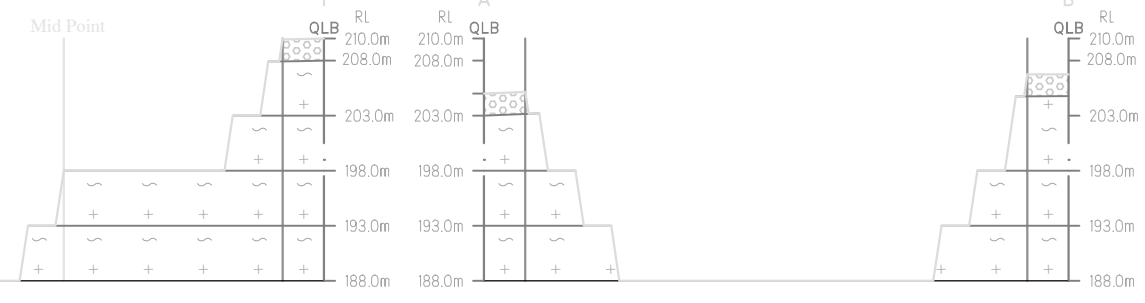
**SECTION ALONG E-F**



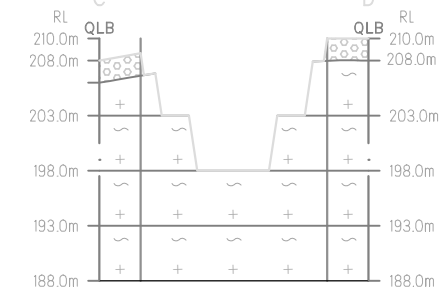
**SECTION ALONG X-Y**



**SECTION ALONG A-B**



**SECTION ALONG C-D**



**PLATE NO-IV**  
DATE OF SURVEY : 13.05.2017

**APPLICANT:**  
THIRU. V.MARIPANDI,  
S/o. T.VELUSAMY THEVAR,  
No.4/66,PILLAIYAR KOIL MAIN ROAD,  
SUNDAREAPURAM(POST),  
KADAYANALLUR,  
TENKASI TALUK,  
TIRUNELVELI DISTRICT.

**QUARRY LEASE APPLIED AREA:**  
S.F.NOS : 155/3, 155/8B, 155/11, 155/13,  
155/14, 155/15 & 155/16,  
EXTENT : 2.23.0 Hc,  
VILLAGE : KAMBANERI PUDUKUDI-I,  
TALUK : KADAYANALLUR,  
DISTRICT : TIRUNELVELI.

**INDEX**

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- GRAVEL
- WEATHERED ROCK
- ROUGH STONE
- STRIKE & DIP
- PROPOSED QUARRY PIT
- NON LEASE AREA

**CONCEPTUAL PLAN & SECTION**

SCALE 1 : 1000  
SECTION HOR 1 : 1000, VER 1: 500

**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

*C. Natarajan*  
C.NATARAJAN, M.Sc.M.Phil.,  
RECOGNIZED QUALIFIED PERSON  
RQP/MAS/004/87/A

GEOLOGICAL RESOURCES							
section	Bench	length in (m)	Width in (m)	Depth in (m)	Volume m3	Gravel m3	Geological Resources in m3
XY-AB	I	49	106	2	10388	10388	
	II	49	106	15	77910		77910
	<b>TOTAL</b>					<b>10388</b>	<b>77910</b>
XY-CD	I	83	49	2	8134	8134	
	II	83	49	20	81340		81340
	<b>TOTAL</b>					<b>8134</b>	<b>81340</b>
XY-EF	I	27	97	2	5238	5238	
	II	27	97	20	52380		52380
	<b>TOTAL</b>					<b>5238</b>	<b>52380</b>
XY-GH	I	47	46	2	4324	4324	
	II	47	46	20	43240		43240
	<b>TOTAL</b>					<b>4324</b>	<b>43240</b>
<b>GRAND TOTAL</b>						<b>28084</b>	<b>254870</b>

MINEABLE RESERVES							
section	Bench	length in (m)	Width in (m)	Depth in (m)	Volume M3	Gravel m3	Mineable Reserves in m3
XY-AB	I	39	91	2	7098	7098	
	II	36	85	5	15300		15300
	III	28	72	5	10080		10080
	IV	15	59	5	4425		4425
	<b>TOTAL</b>					<b>7098</b>	<b>29805</b>
XY-CD	I	83	33	2	5478	5478	
	II	78	28	5	10920		10920
	III	83	15	5	6225		6225
	<b>TOTAL</b>					<b>5478</b>	<b>17145</b>
XY-EF	I	27	82	2	4428	4428	
	II	27	76	5	10260		10260
	III	27	69	5	9315		9315
	IV	26	56	5	7280		7280
	V	13	43	5	2795		2795
	<b>TOTAL</b>					<b>4428</b>	<b>29650</b>
XY-GH	I	39	31	2	2418	2418	
	II	36	25	5	4500		4500
	III	30	12	5	1800		1800
	<b>TOTAL</b>					<b>2418</b>	<b>6300</b>
<b>GRAND TOTAL</b>						<b>19422</b>	<b>82900</b>

YEARWISE RESERVES								
Year	section	Bench	L(m)	W(m)	D(m)	Volume M3	Gravel m3	Yearwise Reserves in m3
I	XY-GH	I	39	31	2	2418	2418	
		II	36	25	5	4500		4500
	XY-EF	I	27	82	2	4428	4428	
		II	27	76	5	10260		10260
	XY-CD	I	83	33	2	5478	5478	
		II	11	28	5	1540		1540
<b>TOTAL</b>							<b>12324</b>	<b>16300</b>
II	XY-CD	II	67	28	5	9380		9380
	XY-AB	I	39	91	2	7098	7098	
		II	16	85	5	6800		6800
	<b>TOTAL</b>							<b>7098</b>
III	XY-AB	II	20	85	5	8500		8500
	XY-CD	III	83	15	5	6225		6225
	XY-EF	III	5	69	5	1725		1725
	<b>TOTAL</b>							
IV	XY-EF	III	22	69	5	7590		7590
		IV	26	56	5	7280		7280
	XY-GH	III	30	12	5	1800		1800
	<b>TOTAL</b>							
V	XY-AB	III	28	72	5	10080		10080
		IV	15	59	5	4425		4425
	XY-EF	V	13	43	5	2795		2795
	<b>TOTAL</b>							
<b>GRAND TOTAL</b>							<b>19422</b>	<b>82900</b>

**ANNEXURE 8**  
**VAO CERTIFICATE**



சான்று

கண்டயநல்லூர் வட்டம் கம்பகோடு  
49264 பகுதி - I கிராமப் பஞ்சாயத்து 4வது  
155-3, 155-8B, 155-11, 155-13, 155-14  
155-15 ஆகிய 4வது பகுதி ஆய்வுக் குழு  
புள்ளி மசூதி (பட்டி 2117 அளவு) சிந்தனைக்கான  
என்பவற்றைப் பரிசீலனைப்பட்டு இடத்தில்  
அங்கு கட்டுவதற்கு அனுமதி கோரி  
உண்ணப்படுகின்றன. மேல்கண்ட 4வது பகுதி  
கிராமப் பஞ்சாயத்து இயக்குகிற பகுதி  
குழுவின் மூலம் சான்றிதழைப் பெறலாம்.



Village Administrative Officer  
Kambaneri Pudukkudi Part - I  
Kadayanallur Taluk

**ANNEXURE 9**  
**BLASTING AGREEMENT**







Phone: Off: 04636 - 233551  
Resi: 04636 - 233434  
Cell: 99766 47590

**SRI GANAPATHI MURUGAN EXPLOSIVES**  
46-A, Sandore Madathu Street,  
**CHINTHAMANI - PULIANGUDI - 627 855.**  
Tirunelveli Dist.

Date.....

TO

V.Maripandi S/O Velusamy Thevar

4/66, pillaiyar kovil main road

sundaresapuram post,

kadaiyanallur -Taluk,

Tenkasi -Dt

sir,

sub: Regarding Blasting work using explosives in your proposed Quarry

we are having explosives licence in from 22 holding no. E/SC/TN/22/347( **E6148**) situated in survey No. 670/1C,Chinthamni Village, kadaiyanallur TK, Tenkasi DT. Our office functioning of address **SRI GANAPATHYMURUGAN EXPLOSIVES**, 46A, Sandror Madathu Street, Chinthamani, Puliangudi, kadaiyanallur (TK), Tenkasi (DT)

we are enacting 7 explosives vans for transporting detonators and class 2 separately for our magazine to our work site and well experienced and licensed blasters and mate from safe blasting work since 5 years without untoward incident.

we are willing to undertake blasting work on contrast basic at your proposed quarry at SF No. No.155/3,155/8B, 155/11, 155/13,155/14, 155/15 & 155/16 Kambaneri Pudukudi - I Village kadaiyanallur Taluk, Thenkasi Dt.

For Sri Ganapathymurugan Explosives

*A. Antonysamy*

Signature of Licensing Authority

(Mr.A. ANTONYSAMY)

## अनुज्ञप्ति प्ररूप एल. ई.-3 | LICENCE FORM LE-3

(विस्फोटक नियम, 2008 की अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (घ) देखिए।  
(See article 3(a) to (d) of Part I of Schedule IV of Explosives Rules, 2008)(ग) उपयोग के लिए एक समय पर वर्ग 1,2,3,4,5 या वर्ग 7 के विस्फोटक या किसी मैगजीन में वर्ग 6 के विस्फोटक रखने  
Licence to possess : (c) for use, explosives of class 1, 2,3,4,5,6 or 7 in a magazineअनुज्ञप्ति सं. (Licence No.): E/SC/TN/22/347(E6148)  
वार्षिक फीस रूपए (Annual Fee Rs): 4200/-

1. Licence is hereby granted to

M/s.Sri Ganapathy Murugan Explosives (अधिभोगी / Occupier : A.Antonymsamy), 46-A Sandror Madathu Street, Chinthamani  
Village,Puliyangudi Post., Town/Village - Puliyangudi, District-THIRUNELVELI, State-Tamil Nadu, Pincode - 627855

को अनुज्ञप्ति अनुदत्त की जाती है।

2. अनुज्ञप्तिधारी की प्रास्थिति | Status of licensee : Partnership Firm

3. अनुज्ञप्ति निम्नलिखित प्रयोजनों के लिए विधिमान्य है।  
Licence is valid only for the following purpose.4. अनुज्ञप्ति विस्फोटकों के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिमान्य है।  
Licence is valid for the following kinds and quantity of explosives: - (क) (a)possess for use of Ordinary/Electric/Non Electric Detonators, Safety Fuse, Nitrate  
Mixture, Detonating Fuse, - के उपयोग के लिए

क्र. Sr. No.	नाम और विवरण Name and Description	वर्ग और प्रभाग Class & Division	उप-प्रभाग Sub-division	मात्रा किसी एक समय में Quantity at any one time
1	Nitrate Mixture	2, 0	0	800 Kg.
2	Detonating Fuse	6, 2	0	1500 Mtrs
3	Ordinary/Electric/Non Electric Detonators	6, 3	0	25000 Nos.
4	Safety Fuse	6, 1	0	5000 Mtrs

(ख) किसी एक कलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा [अनुच्छेद 3(ख) और (ग) के अधीन अनुज्ञप्ति के लिए  
(b) Quantity of explosives to be purchased in a calendar month [applicable for licence under article 3(b) and (c)] :20 times  
as above.5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञप्त परिसर की पुष्टि होती है।  
The licensed premises shall conform to the following drawing(s).रेखाचित्र क्र. (Drawing No.) E/SC/TN/22/347(E6148)  
दिनांक (Dated) 27/04/20056. अनुज्ञप्ति परिसर निम्नलिखित पते पर स्थित है। The licensed premises are situated at following address:  
Survey No(s). 670/1C, ग्राम (Town/Village) : Chinthamani, Sivagiri taluk  
जिला (District) THIRUNELVELI  
दूरभाष (Phone)राज्य (State) Tamil Nadu  
ई. मेल (E-Mail)पुलिस थाना (Police Station) : Puliyangudi  
पिनकोड (Pincode)  
फैक्स (Fax)7. अनुज्ञप्ति परिसर में निम्नलिखित सुविधाएं अंतर्विष्ट हैं।  
The licensed premises consist of following facilities.

HE, LOBBY and Detonator room as per the plan

8. अनुज्ञप्ति समय - समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम, 2004 के उपबंधों, शर्तों और अतिरिक्त शर्तों और  
निम्नलिखित उपाबंधों के अधीन रहते हुए अनुदत्त की जाती है।  
The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2008 framed there under and the  
conditions, additional conditions and the following Annexures.

- उपर्युक्त क्रम सं. 5 में यथा कथित रेखाचित्र (स्थान, सन्निर्माण संबंधी और अन्य विवरण दर्शित करते हुए)।  
Drawings (showing site, constructional and other details) as stated in serial No. 5 above.
- अनुज्ञप्ति प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञप्ति की शर्तों और अतिरिक्त शर्तों।  
Conditions and Additional Conditions of this licence signed by the licensing authority.
- दूरी प्ररूप DE-2 | Distance Form DE-2.

9. यह अनुज्ञप्ति तारीख 31 मार्च 2007 तक विधिमान्य रहेगी। This licence shall remain valid till 31st day of March 2007.

यह अनुज्ञप्ति, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपवर्णित इस अनुज्ञप्ति की शर्तों का  
अधिकरण करने या यदि अनुज्ञप्त परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिसंहत की जा सकती है, जहां  
वह लागू हो।  
This licence is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Set VIII,  
wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and Annexure attached  
hereto.

तारीख | The Date - 27/04/2005

संयुक्त मुख्य विस्फोटक नियंत्रक | Joint Chief Controller of Explosives  
South Circle, Chennai

Sd/-

- Amendments :
- Change in Authorized Signatory/Occupier/Partners/Directors dated : 29/08/2011
  - Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 07/09/2011
  - Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 03/08/2012
  - Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 24/07/2013

नवीनीकरण के पृष्ठांकन के लिए स्थान  
Space for Endorsement of Renewalनवीकरण की तारीख  
Date of Renewalसमाप्ति की तारीख  
Date of Expiry

08/02/2019

31/03/2023

अनुज्ञापन प्राधिकारी के हस्ताक्षर और स्टाम्प  
Signature of licensing authority and stamp

Jt. Chief Controller of Explosives, South Circle, Chennai

**Form DE-2**  
**(See rule 113 of the Explosives Rules, 2008)**  
**(Distance Form to be attached to the licence)**

Safety distances required to be kept clear around magazine for high explosives or fire works or factory licence number E/SC/TN/22/347(E6148) in form LE-3 granted to M/s.Sri Ganapathy Murugan Explosives, 46-A Sandror Madathu Street ,Chinthamani Village,Puliyangudi Post., Tamil Nadu- .

Type of Structure(s)	Safety distances meters	
	M	UM
<b>Inside Safety Distances(ISD)</b>		
1 Room or Workshop used in Connection with the Magazine	24	36
2 Any other Explosives Magazine or store House or Factory of the Applicant		
3 Magazine Office		
<b>Middle Safety Distances(MSD)</b>		
4 Magazine Keeper's or Chowkidar's Dwelling house		
5 Railway including Minerals and Private Railways		
6 Canal (in active use) or other navigable water		
7 Dock or Pier or Jetty		74
8 Public Highway or Public Road		
9 Private Road which is PRINCIPAL means of access to a Temple, Mosque, Church, Gurudwara or other places of worships, Hospital, College, School or Factory		
10 River Embankment or Sea Embankment or Public Well		
11 Reservoir or Bounded tank/rope way		
12 Windmillor or Solar panel for Power Generation		
<b>Outside Safety Distances(OSD)</b>		
13 Dwelling House		
14 Govt. and Public Building		
15 Temple, Mosque, Church or Gurudwara or other Places of Worships		
16 Shops, Market place, Public recreation and Sports Ground, College, School, Hospital, Theater, Cinema or other Building where the public are accustomed to assemble		
17 Factory		
18 Buildings or Works used for the Storage in Bulk of Petroleum, Sprit, gas, or other inflammable or hazardous substances		148
19 Building or Works used for Storage and Manufacture of Explosives or of articles which contain Explosives		
20 Aerodrome		
21 Furnace, Kiln or Chimney		
22 Quarry or mine pit head		
23 Power House or Electric Substation		
24 Wireless Station		
25 Warehouse or other Storage Building		
26 Any other Protected works		
<b>Overhead Electric lines</b>		
27 Electric Power over head Transmission Lines above 440V		90
28 Electric Power over head Transmission Lines upto 440V		15

The Date : 27/04/2005

For Joint Chief Controller of Explosives  
South Circle, Chennai

**Amendments :**

- Change in Authorized Signatory/Occupier/Partners/Directors dated : 29/08/2011

<http://10.0.1.11/IntExp/Form18.asp?LetterGeneratedYN=Y>

2/8/2019

## (सेट VIII (Set VIII))

मैगजीन में वर्ग 1,2,3,4,5,6, और 7 के विस्फोटकों को बिक्री या प्रयोग हेतु रखने के लिए प्रत्येक पैरा. 3 (अनुच्छेद 3 (ए)) में मुख्य विस्फोटक नियंत्रक या विस्फोटक नियंत्रक द्वारा प्रदान किए जाने वाले अनुज्ञापत्र सं. E/SCT/N/22/347(E6148) की शर्त निम्नलिखित हैं।  
The following are the conditions of licence number E/SCT/N/22/347(E6148) to possess for sale or use, explosives of Class 1,2,3, 4, 5, 6 and 7 in a magazine in Form LE-3 (articles 3(b) to (c)) granted by Chief controller of Explosives or Controller of Explosives.

- परिसर में किसी भी समय विस्फोटकों की मात्रा अनुज्ञापत्र योग्य सामर्थ्य से अधिक नहीं होगी।  
The quantity of explosives on the premises at any one time shall not exceed the licensable capacity
- विस्फोटकों के भंडारण के लिए पर्युक्तर होने वाली मैगजीन अनुसूची III और अनुज्ञापत्र के उपाबंध में विनिर्दिष्ट सुरक्षा दूरी बनाए रखना होगा।  
The magazine used for storage of explosives shall maintain safety distance specified in Schedule III and annexure to the licence.
- मैगजीन का प्रयोग उन सभी विस्फोटकों के, जो इस अनुज्ञापत्र में विनिर्दिष्ट हैं, रखे जाने के लिए और ऐसे रखे जाने से संबन्ध आधान या औजार या उपकरणों के रखे जाने के लिए ही किया जाएगा, अन्यथा नहीं।  
The magazine shall be used only for keeping all explosives specified in this licence and of receptacles for, or tools or implements for work connected with the keeping of such explosives
- पैकजों को खोलने का कार्य और विस्फोटकों को तौलने तथा पैक करने का कार्य मैगजीन में नहीं किया जाएगा।  
The opening of packages and the weighing and packing of explosives shall not be carried on in the magazine
- दो या दो से अधिक वर्णन के विस्फोटकों को, जिन्हें मैगजीन में रखे जाने की अनुज्ञा दी जा सकती है, मैगजीन में तभी रखे जाएंगे जब उनमें से प्रत्येक को, ऐसे पदार्थ या स्वरूप का कोई मध्यवर्ती विभाजन लगाकर या उनके बीच ऐसा मध्यवर्ती स्थान छोड़कर, परस्पर पृथक् कर दिया जाए कि किसी वजह से विस्फोटक में लगने वाली आग या होत्रे वास्तु विस्फोट किसी अन्य वर्णन के विस्फोटक तक न पहुंच सकें -  
(घ) 2 (नाइट्रेट मिश्रण), वर्ग 3 (नाइट्रो यौगिक) के विभिन्न विस्फोटक, वर्ग 6 प्रथम प्रभाग के अंतर्गत आने वाले सुरक्षा पत्तियों और वर्ग 6 प्रभाग 2 के अंतर्गत आनेवाले विस्फोटक प्रेरक पत्तियों, जिनमें कोई खुला लोहा या इस्पात नहीं है, एक दूसरे के साथ बिना किसी मध्यवर्ती विभाजन या स्थायक के रखे जा सकते हैं।  
(ङ) वर्ग 6 प्रभाग 3 के अंतर्गत आनेवाले विस्फोटक प्रेरक अलग रखे जाएंगे।  
(च) वर्ग 1 के अंतर्गत आने वाले बारूद को अलग रखा जाएगा।  
Two or more description of explosives which may be permitted to be kept in the magazine shall be kept only if they are separated from each other by an intervening partition of such substance or character, or by such intervening space, as will effectually prevent explosion or fire in the one communicating with the other; Provided that—  
(d) the various explosives of Class 2 (nitrate-mixture), Class 3 (nitro-compound), safety fuses belonging to Class 6 Division 1 and detonating fuses belonging to Class 6 Division 2 as do not contain any exposed iron or steel, may be kept with each other without any intervening partition or space.  
(e) Detonators belonging to Class 6 Division 3 shall be kept separately  
(f) Gun powder belonging to Class 1 shall be kept separately
- वर्ग 3 (नाइट्रो यौगिक) के विस्फोटकों को, उनके विनिर्माण की तारीख से एक वर्ष बीत जाने के पश्चात सिवाय अनुज्ञापत्र प्राधिकारी की विशेष मंजूरी के मैगजीन में नहीं रखा जाएगा।  
Explosives of Class 3 (nitro compound) shall not be kept in the magazine after the expiration of one year from the date of their manufacture except with the special sanction of licensing authority
- वर्ग 3 (नाइट्रो यौगिक) के विस्फोटकों को, उनके विनिर्माण की तारीख से एक वर्ष बीत जाने के पश्चात मैगजीन में तभी रखा जाएगा जब कि किसी विस्फोटक नियंत्रक ने इसके लिए विशेष मंजूरी दे दी हो।  
(1) जब ऐसी मंजूरी दे दी गई हो तो प्रत्येक निरीक्षण पर किसी विस्फोटक नियंत्रक से ऐसा लिखित प्रमाणपत्र अभिप्राप्त कर लिया जाए जिसमें दी गई मंजूरी के अंतर्गत आनेवाली अवधि दर्शित की गई हो और ऐसे प्रमाणपत्र के अनुज्ञापत्रारी अपने पास रखेगा और मांग की जाने पर प्रस्तुत करेगा।  
(2) जब कोई विस्फोटक भ्रान्त श्रुद्धता का न रह जाने के कारण या द्रवणीकरण या नाइट्रो ग्लिसरीन या नाइट्रो ग्लिसरीन या द्रव नाइट्रो यौगिक के निकल जाने के चिन्त प्रकट होने के कारण मैगजीन में भण्डारित किए जाने के उपयुक्त नहीं रह जाता है तो अनुज्ञापत्रारी अपने ही व्यय पर ऐसे विस्फोटक के निपटारे के लिए ऐसे निर्देशों का अनुपालन करेगा जो मुख्य नियंत्रक या विस्फोटक नियंत्रक जारी करें।  
Explosives of Class 3 (nitro compound) shall not be kept in the magazine after the expiration of one year from the date of their manufacture except with the special sanction of the Controller of Explosives  
(i) When such sanction has been given, a written certificate showing the period covered by the sanction shall be obtained from the Controller of Explosives at each inspection, and shall be kept by the licensee and produced on demand.  
(ii) When an explosive owing to its being no longer of standard purity or owing to signs of liquefaction or of exuded nitro-glycerin or liquid nitro-glycerin or liquid nitrocompound is no longer fit for storage in the magazine or store house the licensee shall comply, at his own expense, with such directions as to its disposal as the Chief Controller or Controller of Explosives may issue
- मैगजीन के भीतरी भाग या उसमें लगी बेंचों, शेल्फों और उसकी फिटिंग का इस प्रकार सन्निर्माण किया जाएगा या उन्हें इस प्रकार अंतरित या अवतरित किया जाएगा कि विस्फोटक का किसी लोहे या इस्पात के साथ संपर्क होकर जा सके। भीतरी भाग में लगी बेंचों, शेल्फों और फिटिंग यथासाध्य घिंट से मुक्त एवं साफ रखे जाएंगे तथा ऐसे विस्फोटक, जो जल से खतरनाक रूप में प्रभावित हो सकते हैं, इस बाबत सम्यक सावधानी बरती जाएगी कि वहां कोई जल भण्डार न रहे परंतु किसी लोहे या इस्पात के खुले होने के विरुद्ध सावधानी से संबंधित इस शर्त का वह भाग ऐसे किसी भवन में बाध्यकर नहीं होगा जिसमें वर्ग 6 (गोला बारूद) के प्रथम के विस्फोटक से भिन्न कोई विस्फोटक रखा गया है।  
The interior of the magazine and the benches, shelves and fittings therein shall be so constructed or so lined or covered as to prevent the exposure of any iron or steel contact with the explosives. Such interior, benches, shelves and fittings shall so far as is reasonably practicable, be kept free from grit and shall otherwise be clean; and in the case of any explosives liable to be dangerously affected by water, due precautions shall be taken to exclude water there from.  
Provided that so much of this condition as relates to precautions against the exposure of any iron or steel shall not be obligatory in a building in which no explosive other than explosive of the 1st Division 6th (Ammunition) Class is kept
- यदि तड़ित चालक का परीक्षण विस्फोटक नियंत्रक करता है तो अनुज्ञापत्रारी ऐसे परीक्षण के लिए विहित फीस का संव्यय करेगा यदि परीक्षण असमाधानकारी साबित होता है तो उतनी ही फीस अनुज्ञापत्रारी द्वारा पश्चात्कर्त प्रत्येक परीक्षण के लिए तब तक दी जाती रहेगी जब तक कि परीक्षण अधिकारी तड़ित चालक को समाधानप्रद घोषित नहीं कर देता : परंतु किसी एक परीक्षण के लिए देय फीस किसी एक दिन के दौरान किसी चालक के लिए गए सभी परीक्षणों के लिए प्रभार्य होगा। परंतु यह और कि यदि दो या अधिक तड़ित चालक एक ही मैगजीन से संबन्ध हैं तो ऐसे सभी चालकों के परीक्षण के लिए फीस ऐसी किसी फीस से अधिक नहीं होगी जो किसी एक तड़ित चालक के परीक्षण के लिए हर स्थिति में विहित की गई है।  
(If the lighting conductor is tested by the Controller of Explosives, the licensee shall pay the fees prescribed for test. In the even of the test proving unsatisfactory, the same fees shall be payable by the licensee for each subsequent test until the lighting conductor is passed by the testing officer as satisfactory  
Provided that the fees payable for a single test shall be charged for all tests made on a conductor during any one day
- Provided further that where two or more lighting conductors are attached to one and the same magazine, the fee for the testing of all such conductors shall not exceed the fee prescribed in this condition for testing a single lighting conductor
- उपयुक्त तथा जब रहित कार्यकरण वस्त्रों, उपयुक्त जूतों के प्रयोग द्वारा तथा तलाशी लेकर या अन्यथा अथवा ऐसे किन्हीं साधनों द्वारा इस बाबत सम्यक उपबंध किया जाएगा कि कैन्ड्री परिसर में अग्नि, दियासलाई अथवा ऐसी कोई वस्तुएं या पदार्थ, जिससे विस्फोट हो सकता है या आग लग सकती हो, किन्तु इस शर्त के कारण ऐसी संरचना, स्थिति या स्वरूप में किसी कृत्रिम बत्ती का प्रवेश वर्जित नहीं है जिससे आग लगने या विस्फोट होने का खतरा न हो। परंतु इस शर्त का वह भाग, जो लोहे या इस्पात के अपवर्जन को लागू होता है, ऐसे किसी भवन के संबंध में बाध्य कर नहीं होगा जिससे भिन्न कोई विस्फोटक नहीं रखा गया है।  
Due provisions shall be made, by the use of suitable working clothes without pockets, suitable shoes and by searching or otherwise or by such means, for preventing the introduction into danger area of the factory premises of fire, Lucifer matches or any substance or article likely to cause explosion or fire, but this condition shall not prevent the introduction of an artificial light of such construction, position or character as not to cause any danger of fire or explosion.  
Provided that so much of this condition as applies to the exclusion of iron or steel, shall not be obligatory in a building in which no explosive other than an explosive of the 1st Division of the 6th (Ammunition) Class is kept
- अनुज्ञापत्रारी प्रत्येक आर ई-3 और आर ई-4 या आर ई-5, जैसी स्थिति हो, में सभी विस्फोटकों का अभिलेख और लेख रखेगा और विस्फोटक नियम, 2008 के अधीन प्राधिकृत किसी भी अधिकारी के समक्ष उसके द्वारा ऐसा करने की मांग की जाने पर स्टॉक पुस्तक और अभिलेख प्रस्तुत करेगा। स्टॉक पुस्तक विहित प्रोफार्म में पृष्ठ संख्यांकित होगी।  
The licensee shall keep records and accounts of all explosives in Forms RE-3 and RE-4 or RE-5, as the case may be, and exhibit the stock books and records to any of the officers authorised under the Explosives Rules, 2008 whenever such officer may call upon him to do so. The stock books in the prescribed proforma shall be page numbered
- परिसरों में कोई परिवर्तन या तबदीली अनुज्ञापत्र प्राधिकारी के पूर्वानुमोदन बिना नहीं की जाएगी और अनुज्ञापत्रारी ऐसी किसी शर्त का अनुपालन करेगा जो इस विहित अनुज्ञापत्र प्राधिकारी विनिर्दिष्ट करें।  
No changes or alterations shall be carried out to the premises without prior approval of the licensing authority and the licensee shall comply with any condition that may be specified by the licensing authority in this behalf

13. मैगजीन सभी समयों पर अच्छी मरम्मत की स्थिति में बनाई रखी जाएगी (या अच्छी हालत में बनाई रखी जाएगी)। यदि किसी कारणवश किसी विस्फोटक के भण्डारण के लिए मैगजीन अनुपयुक्त हो जाती है तो अनुज्ञप्तिधारी इस बात की सूचना अनुज्ञापन प्राधिकारी को तुरंत देगा।  
Magazine shall at all times be kept in state of good repair (or maintained in good condition) The licensee shall report to licensing authority forthwith, if the magazine becomes unfit for storage of any explosives for any reason whatsoever  
मैगजीन का अनुज्ञप्तिधारी इन नियमों के नियम 24 के उप-नियम 3 के अनुसार त्रैमासिक विवरणी प्रस्तुत करेगा।  
The licensee of the magazine shall submit quarterly return as per sub-rules (3) and (4) of rule 24 of these rules
14. यदि सुरक्षा दूरी का कोई अधिकमण होता है तो उसकी सूचना अनुज्ञापन प्राधिकारी को आवश्यक सलाह और कार्यवाही के लिए तुरंत दी जाएगी।  
Any encroachment of the safety distance shall be immediately communicated to the licensing authority for necessary advice and action.
15. यदि कोई विस्फोटक विनष्ट हुआ अथवा अनुपयोगी जाया जाता है तो उसकी सूचना अनुज्ञापन प्राधिकारी को सलाह प्राप्त करने के लिए तुरंत दी जाएगी।  
The licensing authority shall be immediately informed for advice if any explosive is found deteriorated or unserviceable.
16. विस्फोटकों के पैकेटों के चट्टे इस प्रकार लगाए जाएंगे कि कम से कम एक व्यक्ति भण्डार किए गए सभी पैकेटों की हालत की जांच करने और प्रत्येक पैकेज की विनिर्माण विशेषताओं को पढ़ने के लिए उनके बीच से होकर आ जा सके।  
The explosive packages shall be stocked in such a way so as to allow movement of at least one person to check the condition of all packages stored and to read the manufacture particulars of each package  
तड़ित चालकों की भूमि के लिए प्रतिरोध यथासंभव न्यूनतम होगा और किसी भी दश में 10 ओहम से अधिक नहीं होगा।  
The resistance of the lightning conductor to earth shall be as low as possible and in no case be more than 10 ohms.
17. मैगजीन के चारों ओर 15 मीटर की दूरी के अंतर्गत कोई शुष्क घास या झाड़ी या ज्वलनशील सामग्री नहीं रहने दी जाएगी।  
A distance of 15 meters surrounding the magazine or store house shall be kept clear of dried grass or bush or flammable materials.
18. विस्फोटकों के प्रत्येक पैकेट की, जब उसे मैगजीन के भीतर लिया जा रहा हो, ठीक दशा जानने के लिए परीक्षा की जाएगी।  
Every package of explosive at the time of bringing inside the magazine shall be examined for its sound condition.
19. किसी मैगजीन / भंडारगृह में किसी एक समय में चार व्यक्तियों से अधिक को नहीं रहने दिया जाएगा।  
Not more than 4 persons shall be allowed inside the magazine or store house at any one time.
20. विस्फोटकों के खाली पैकेटों को शीघ्रतः वहां से हटा दिया जाएगा और नष्ट कर दिया जाएगा।  
Empty packages of the explosives shall be removed at the earliest and destroyed.
21. अनुज्ञप्तिधारी और कर्मचारियों को परिसर के भीतर आपातकाल के दौरान की जाने वाली प्रक्रियाओं से अवगत होना चाहिए।  
The licensee and the employee shall be conversant with procedure to be taken during the emergency within the premises.
22. निरीक्षण या नमूना अधिकारी को सभी युक्तियुक्त समयों पर अनुज्ञप्त परिसर में अबाध रूप से पहुंचने दिया जाएगा और यह सुनिश्चित करने के लिए कि अधिनियम और इन नियमों के उपबंधों और सुरक्षा स्थितियों को सम्यक्तः अनुपालन किया जा रहा है, अधिकारी को प्रत्येक सुविधा प्रदान की जाएगी।  
Free access to the licensed premises shall be given at all reasonable times to any inspecting or sampling officer and every facility shall be afforded to the officer for ascertaining that the provisions of the Act and these rules and the safety conditions are duly observed.
23. यदि अनुज्ञापन प्राधिकारी या विस्फोटक नियंत्रक अनुज्ञप्तिधारक को अनुज्ञप्त परिसरों या मशीनरी, दूर या उपकरण में ऐसी कोई मरम्मत या परिवर्धन या परिवर्तन करने या सफाई कराने को लिखित रूप में सूचित करता है जो परिसर के अंदर या बाहर या व्यक्तियों की सुरक्षा के लिए आवश्यक है, अनुज्ञप्तिधारक सफाई को निष्पादित करेगा और विनिर्दिष्ट अवधि के भीतर अनुपालन रिपोर्टें एकत्रित करेगा।  
If the licensing authority or a Controller of Explosives informs in writing, the holder of the licence to execute any repairs or to make any additions or alterations to the licensed premises or machinery, tools or apparatus or carry out recommendations, which are in the opinion of such authority may pose unacceptable risk and so necessary for the safety of either on-site or off-site of the premises or persons, the holder of the licence shall execute the recommendations and report compliance within the period specified by such authority
24. अनुज्ञप्तिधारी मैगजीन में रखने और बिक्री के लिए प्राधिकृत विस्फोटक सूची में उल्लिखित अनुज्ञप्त फैक्टरी या कंपनी से प्राधिकृत विस्फोटक / आतिशबाजी या सुरक्षा पत्तों खरीदेगा।  
The licensee shall purchase authorised explosives/ fireworks or safety fuse as mentioned in the list authorised explosives from a licensed factory or company for possession and sale from the magazine
25. निम्न से अधिक ध्वनि स्तर उत्पादित करने वाले आतिशबाजियों पटाखों की बिक्री और रखने के लिए -  
(क) जो फटने की जगह से चार मीटर की दूरी पर है, 125 डीबी (ए) या 145 डीबी (सी)पी के प्रतिबंधित होंगे;  
(ख) शृंखला (जुड़े हुए पटाख) को गठन करने वाले व्यक्तिगत पटाखों के लिए उपर्युक्त उल्लिखित सीमा 5 लॉग 10 (एन) डीबी (सी) पी के प्रतिबंधित होंगे।  
The possession and sale of fire-crackers generating noise level exceeding;  
a) 125 dB(A) or 145 dB(C)pk at 4 meters distance from the point of bursting shall be prohibited,  
b) For individual fire-cracker constituting the series (joined fire-crackers), the above mentioned limit be reduced by 5 log<sub>10</sub> (N) dB, where N = number of crackers joined together
26. अगम या विस्फोट द्वारा दुर्घटना या नुकसान पटाखों की कमी या चोरी, तुरंत पास के पुलिस थाने और अनुज्ञापन प्राधिकारी और अनुज्ञापन प्राधिकारी के स्थानीय कार्यालय को रिपोर्ट की जाएगी।  
Accidents by fire or explosion and losses, shortage or theft of explosives shall be immediately reported to the nearest police station and the licensing authority and local office of the licensing authority

### अतिरिक्त शर्तें / Additional Conditions :

1. अनुज्ञप्तिधारी विदेशी मूल के आतिशबाजी को ना प्रदर्शित करेगा, ना रखेगा और ना ही उसकी बिक्री करेगा। The licensee shall not exhibit, possess and sell fireworks of foreign origin.

कृते संयुक्त मुख्य विस्फोटक नियंत्रक  
For Joint Chief Controller of Explosives  
दक्षिणार्ध, चेन्नै। South Circle, Chennai



Phone : Off: 04636 - 233551

Resi : 04636 - 233434

Cell : 99766 47590

## SRI GANAPATHI MURUGAN EXPLOSIVES

46-A, Sandore Madathu Street,

**CHINTHAMANI - PULIANGUDI - 627 855.**

Tirunelveli Dist.

Date.....

TO

V.Maripandi S/O Velusamy Thevar

4/66, pillaiyar kovil main road

sundaresapuram post,

kadaiyanallur -Taluk,

Tenkasi -Dt

sir,

sub: Regarding Blasting work using explosives in your proposed Quarry

we are having explosives licence in from 22 holding no. E/SC/TN/22/347( **E6148**) situated in survey No. 670/1C,Chinthamni Village, kadaiyanallur TK, Tenkasi DT. Our office functioning of address **SRI GANAPATHYMURUGAN EXPLOSIVES**, 46A, Sandror Madathu Street, Chinthamani, Puliangudi, kadaiyanallur (TK), Tenkasi (DT)

we are enacting 7 explosives vans for transporting detonators and class 2 separately for our magazine to our work site and well experienced and licensed blasters and mate from safe blasting work since 5 years without untoward incident.

we are willing to undertake blasting work on contrast basic at your proposed quarry at SF No. No.155/3,155/8B, 155/11, 155/13,155/14, 155/15 & 155/16 Kambaneri Pudukudi - I Village kadaiyanallur Taluk, Thenkasi Dt.

For Sri Ganapathymurugan Explosives

*A. Antonysamy*

Signature of Licensing Authority

(Mr.A. ANTONYSAMY)

## अनुज्ञप्ति प्ररूप एल.ई.-3 | LICENCE FORM LE-3

(विस्फोटक नियम, 2008 की अनुसूची 4 के भाग 1 के अनुच्छेद 3(क) से (घ) देखिए।)  
(See article 3(a) to (d) of Part 1 of Schedule IV of Explosives Rules, 2008)

(ग) उपयोग के लिए एक समय पर वर्ग 1,2,3,4,5 या वर्ग 7 के विस्फोटक या किसी मैगजीन में वर्ग 6 के विस्फोटक रखने  
Licence to possess : (c) for use,explosives of class 1, 2,3,4,5,6 or 7 in a magazine

अनुज्ञप्ति सं. (Licence No.): E/SC/TN/22/347(E6148)  
वार्षिक फीस रूपए (Annual Fee Rs): 4200/-



1. Licence is hereby granted to

M/s.Sri Ganapathy Murugan Explosives (अधिभोगी / Occupier : A.Antonysamy), 46-A Sandror Madathu Street ,Chinthamani Village,Puliyangudi Post., Town/Village - Puliyangudi, District-THIRUNELVELI, State-Tamil Nadu, Pincode - 627855

को अनुज्ञप्ति अनुदत्त की जाती है।

2. अनुज्ञप्तिधारी की प्रास्थिति | Status of licensee : Partnership Firm

3. अनुज्ञप्ति निम्नलिखित प्रयोजनों के लिए विधिमान्य है।

possess for use of Ordinary/Electric/Non Electric Detonators, Safety Fuse, Nitrate Mixture, Detonating Fuse, - के उपयोग के लिए

4. अनुज्ञप्ति विस्फोटकों के निम्नलिखित किस्मों, प्रकार और मात्रा के लिए विधिमान्य है।

Licence is valid for the following kinds and quantity of explosives: - (क) (a)

क्र Sr. No.	नाम और विवरण Name and Description	वर्ग और प्रभाग Class & Division	उप-प्रभाग Sub-division	मात्रा किसी एक समय में Quantity at any one time
1.	Nitrate Mixture	2,0	0	800 Kg.
2.	Detonating Fuse	6,2	0	1500 Mtrs
3.	Ordinary/Electric/Non Electric Detonators	6,3	0	25000 Nos.
4.	Safety Fuse	6,1	0	5000 Mtrs

(ख) किसी एक कलेंडर मास में खरीदे जाने वाले विस्फोटक की मात्रा (अनुच्छेद 3(ख) और (ग) के अधीन अनुज्ञप्ति के लिए

20 times  
as above.

(b) Quantity of explosives to be purchased in a calendar month[applicable for licence under article 3(b) and (c)] :

5. निम्नलिखित रेखाचित्र (रेखाचित्रों) से अनुज्ञप्त परिसर की पुष्टि होती है।

रेखाचित्र क्र (Drawing No.) E/SC/TN/22/347(E6148)  
दिनांक (Dated) 27/04/2005

The licensed premises shall conform to the following drawing(s):

6. अनुज्ञप्ति परिसर निम्नलिखित पते पर स्थित है। The licensed premises are situated at following address:

Survey No(s). 670/IC, ग्राम (Town/Village) : Chinthamani,Sivagiri taluk

पुलिस थाना (Police Station) : Puliyangudi

जिला (District)

THIRUNELVELI

राज्य (State)

Tamil Nadu

पिनकोड (Pincode)

दूरभाष (Phone)

ई मेल (E-Mail)

फैक्स (Fax)

7. अनुज्ञप्ति परिसर में निम्नलिखित सुविधाएं अंतर्विष्ट हैं।

HE, LOBBY and Detonator room as per the plan

The licensed premises consist of following facilities.

8. अनुज्ञप्ति समय - समय पर यथासंशोधित विस्फोटक अधिनियम, 1884 और उनके अधीन विरचित विस्फोटक नियम, 2004 के उपबंधों, शर्तों और अतिरिक्त शर्तों और निम्नलिखित उपाबंधों के अधीन रहते हुए अनुदत्त की जाती है।

The licence is granted subject to the provision of Explosives Act 1884 as amended from time to time and the Explosives Rules, 2008 framed there under and the conditions, additional conditions and the following Annexures.

1. उपर्युक्त क्रम सं. 5 में यथा कथित रेखाचित्र (स्थान, सन्निर्माण संबंधी और अन्य विवरण दर्शित करते हुए)।

Drawings (showing site, constructional and other details) as stated in serial No. 5 above.

2. अनुज्ञप्ति प्राधिकारी द्वारा हस्ताक्षरित इस अनुज्ञप्ति की शर्तों और अतिरिक्त शर्तों।

Conditions and Additional Conditions of this licence signed by the licensing authority.

3. दूरी प्ररूप DE-2 | Distance Form DE-2.

9. यह अनुज्ञप्ति तारीख 31 मार्च 2007 तक विधिमान्य रहेगी। This licence shall remain valid till 31st day of March 2007.

यह अनुज्ञप्ति, अधिनियम या उसके अधीन विरचित नियमों या अनुसूची V के भाग 4 के प्रति निर्दिष्ट सेट-VII के अधीन तथा उपबर्णित इस अनुज्ञप्ति की शर्तों का अधिक्रमण करने या यदि अनुज्ञप्त परिसर योजना या उससे संलग्न उपबंध में दर्शित विवरण के अनुरूप नहीं पाए जाने पर निलंबित या प्रतिसंहत की जा सकती है, जहां वह लागू हो।

This licence is liable to be suspended or revoked for any violation of the Act or Rules framed there under or the conditions of this licence as set forth under Set VIII, wherever applicable, referred to in Part 4 of Schedule V or if the licensed premises are not found conforming to the description shown in the plans and Annexure attached hereto.

तारीख | The Date - 27/04/2005

Sd/-  
संयुक्त मुख्य विस्फोटक नियंत्रक | Joint Chief Controller of Explosives  
South Circle, Chennai

## Amendments :

- Change in Authorized Signatory/Occupier/Partners/Directors dated : 29/08/2011.
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 07/09/2011
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 03/08/2012
- Amendment of Quantity of Explosives/Monthly Purchase Limit dated : 24/07/2013

नवीनीकरण के पृष्ठानक के लिए स्थान  
Space for Endorsement of Renewal

नवीकरण की तारीख  
Date of Renewal

समाप्ति की तारीख  
Date of Expiry

अनुज्ञापन प्राधिकारी के हस्ताक्षर और स्टाम्प  
Signature of licensing authority and stamp

08/02/2019

31/03/2023

Jt. Chief Controller of Explosives, South Circle, Chennai



**Form DE-2**  
**(See rule 113 of the Explosives Rules, 2008)**  
**(Distance Form to be attached to the licence)**

Safety distances required to be kept clear around magazine for high explosives or fire works or factory licence number E/SC/TN/22/347(E6148) in form LE-3 granted to M/s.Sri Ganapathy Murugan Explosives, 46-A Sandror Madathu Street ,Chinthamani Village,Puliyangudi Post., Tamil Nadu- .

Type of Structure(s)	Safety distances meters	
	M	UM
<b>Inside Safety Distances(ISD)</b>		
1 Room or Workshop used in Connection with the Magazine	24	36
2 Any other Explosives Magazine or store House or Factory of the Applicant		
3 Magazine Office		
<b>Middle Safety Distances(MSD)</b>		
4 Magazine Keeper's or Chowkidar's Dwelling house		
5 Railway including Minerals and Private Railways		
6 Canal (in active use) or other navigable water		
7 Dock or Pier or Jetty		
8 Public Highway or Public Road		74
9 Private Road which is PRINCIPAL means of access to a Temple, Mosque, Church, Gurudwara or other places of worships, Hospital, College, School or Factory		
10 River Embankment or Sea Embankment or Public Well		
11 Reservoir or Bounded tank/rope way		
12 Windmillor or Solar panel for Power Generation		
<b>Outside Safety Distances(OSD)</b>		
13 Dwelling House		
14 Govt. and Public Building		
15 Temple, Mosque, Church or Gurudwara or other Places of Worships		
16 Shops, Market place, Public recreation and Sports Ground, College, School, Hospital, Theater, Cinema or other Building where the public are accustomed to assemble		
17 Factory		
18 Buildings or Works used for the Storage in Bulk of Petroleum, Sprit, gas, or other inflammable or hazardous substances		148
19 Building or Works used for Storage and Manufacture of Explosives or of articles which contain Explosives		
20 Aerodrome		
21 Furnace, Kiln or Chimney		
22 Quarry or mine pit head		
23 Power House or Electric Substation		
24 Wireless Station		
25 Warehouse or other Storage Building		
26 Any other Protected works		
<b>Overhead Electric lines</b>		
27 Electric Power over head Transmission Lines above 440V		90
28 Electric Power over head Transmission Lines upto 440V		15

The Date : 27/04/2005

For Joint Chief Controller of Explosives  
South Circle, Chennai

**Amendments :**

- Change in Authorized Signatory/Occupier/Partners/Directors dated : 29/08/2011

**ANNEXURE 10**  
**AFFIDAVIT AND CER DETAILS**





தமிழ்நாடு தமில்நாடு TAMILNADU

CV 669119

தமிழ்நாடு V. கனலிம்மாணம்  
நாள் : 21/11/2011 சந்திரா 45ம்  
இனம் : 100 Affidavit to SEIAA, Tamilnadu

ச. இராதாகிருஷ்ணன், B.A.  
முத்திரைத்தான் விவகாரப்பாளர்  
உரிமம் எண். 15/1997-1998 -11-93  
நாள்: 15/11/2011

I, Thiru V. Maripandi, S/o. T. Velusamy Thevar, residing at No.4/66, Pillayar Kovil Main Road, Sundaresapuram Post, Kadayanallur Taluk, Tenkasi District - 627751, solemnly declare and sincerely affirm that:

I have applied for prior Environment Clearance to SEIAA, Tamil Nadu for quarry lease for quarrying of Rough Stone & Gravel quarry over an extend of 2.23.0 hectares of own / consent Patta Land in S.F.No.155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 and 155/16 of Kambaneri Puthukudi-I Village, Kadayanallur Taluk, Tenkasi District, Tamilnadu.

1. I swear to state and confirm that within 10km radius of the quarry site none of the following is situated

a. Protected Areas notified under the Wild life (Protection) Act, 1972



A. NAVARETNAM, B.Sc., LL.B.  
ADVOCATE & NOTARY  
G.O. Ms. No. 200 Dt. 8-8-2000  
15/87-113, COURT ROAD  
NAGERCOIL-1, K.K. DIST

- b. Critically polluted areas as notified by the Central Pollution Control Board constituted under water (Prevention and Control of Pollution) Act, 1974
- c. Eco-Sensitive areas as notified
2. I will ensure to take up the following Corporate Environment Responsibility (CER) activities as per OM of MoEF & CC dated 01.05.2018

CER Activity	Project Cost (Rs.in Lakh)	CER Cost 2.0% of Project Cost (Rs in Lakh)
Planting and maintaining Native species of Neem and Pungan trees periphery of the village haul road, Or any other recommendations by SEAC	62.66	1.25
<b>Total Cost Allocation</b>	<b>62.66</b>	<b>1.25</b>

3. List of quarries within 500m radius from the periphery of the proposal
- i). Existing Other Quarry

S no	Name of the Lessee / Permiot Holder	Village	S.F.NO	Extend in Ha	Lease period
1.	S.Arunachalam, S/o. Subbaiah, 295, Main road, Krishnapuram, Kadayanallur, Tenkasi	Ariyanayagipuram	729 (pt-1) - Poramboke land	2.00.0	08.02.2016 to 07.02.2021

ii). Proposed quarries

S no	Name of the Lessee / Permiot Holder	Village	S.F.NO	Extend in Ha	Lease period
1.	V.Maripandi, S/o. T.Velusamy Thevar, No.4/66, Pillayar Kovil Main Road, Kadayanallur Taluk, Tenkasi	Kambaneri Puthukudi-I	155/3, 155/8B, 155/11, 155/13, 155/14, 155/15 and 155/16	2.23.0	Proposed quarry



A. NAVARETNAM, B.Sc., LL.B.  
 ADVOCATE & NOTARY  
 G.O. Ms. No. 200 Dt. 8-8-2000  
 15/87-113, COURT ROAD  
 NAGERCOIL-1, K.K. DIST.

*V. Maripandi*

iii). Abandoned / Lease expired Quarry

S no	Name of the Lessee / Permiot Holder	Village	S.F.NO	Extend in Ha	Lease period
1.	K.Selvaraj, 136//46, LRS, Palayam, Tenkasi	Kadayamperum pathu-II	829(p)	2.00.0	10.06.2014 to 09.06.2019

4. There will not be any hindrance or disturbance to the people during btransportation. No Villages are enrouted during transportation.
5. There are noapproved habitations within 300m radius from the periphery of the quarry.
6. I swear that Greenbelt development will be carried out during the course of quarrying operation and maintained
7. The required insurance will be taken in the name of the laborers working in the quarry site
8. I will not engage any child labour I our quarry will be provided to all the labourers working in my quarry
9. I will not engage any child labouror any kind of quarry works
10. All types of safety/ Personal protective equipment will be provided to all the labourers working in the quarry
11. There is nopermanant structure located within 300m radius from the periphery of the quarry

I ensure to do all the social and Environment commitment as mentioned in the Mining Plan to the best of my knowledge .

*N. Venkumari*

**V.Maripandi**  
Deponent

*Attested*

*A. Navaretnam*  
21/11/22



A. NAVARETNAM, B.Sc., LL.B.  
ADVOCATE & NOTARY  
G.O. Ms. No. 200 Dt. 8-8-2000  
15/87-113, COURT ROAD  
NAGERCOIL-1, K.K. DIST



**ANNEXURE 11**  
**HACA CLEARANCE LETTER**





Town and Country Planning Department

From  
Thiru. Shambhu Kallollikar, IAS.,  
Member Secretary/  
Hill Area Conservation Authority,  
Commissioner of Town and Country  
Planning  
807, Anna Salai,  
Chennai-2.

To  
The District Collector,  
Tirunelveli District.

**Roc.No. 23033/2016/HSBA dated:15.02.2017**

Sir,

Sub: Hill Area Conservation Authority – Mines and Minerals –  
Tirunelveli District, Kadayanallur Taluk, Kampaneri  
Pudukudi Village – S.F.No.155/3, 8B, 11, 13, 14, 15 & 16  
over an extent of 2.23.0 Hectare Rough Stone Quarry  
lease – HACA Clearance requested – Decision of HACA  
communicated – Regarding.

Ref: From the Collector, Tirunelveli District letter  
Roc.No.M1/61043/2009, dated:14.12.2016.

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With reference to your letter cited it is informed that the subject was placed  
before HACA at its 57<sup>th</sup> “ Meeting held on 07.02.2017” as agenda item No.12.

“ A copy of the extract of the minutes is enclosed and requested that  
necessary action may be taken as per the decision of the Hill Area Conservation  
Authority (HACA)”.

**Encl:**

Copy of the extract of the Minutes is enclosed

(Sd)/-Shambhu Kallollikar  
Member Secretary,  
Hill Area Conservation Authority/  
Commissioner of Town and Country Planning,

**Copy to:** V.Maripandi,  
S/o.T.Velusamy Thevar,  
4/66 Pillaiyar Koil Main Road,  
Sundarasapuram (Post),Kadayanallur,  
Tenkasi Taluk,Tirunelveli District.

/Forwarded By Order/

Assistant Director of Town and Country Planning

  
16/02/17

  
16/02/17


**Extract of the Subject No.12 of the Minutes of the 57<sup>th</sup> HACA meeting held on 07.02.2017 at 11.00pm in the Old Conference Hall, 2<sup>nd</sup> Floor, Secretariat, Chennai-9.**


12	Hill Areas – Mines and Minerals – Tirunelveli District – Kadayanallur Taluk – Kampeneri pudukkudi Village – S.F.No. 155/3,8B, 11,13,14,15,16 - over an extent of 2.23.0 Hectares – Grant of Quarry lease - HACA Clearance– Regarding. <b>File No. 23033/16/HACA</b>	HACA decided to recommend the proposal for grant of quarry lease in Tirunelveli District Kadayanallur Taluk, Kampeneri pudukkudi Village, for S.F.No. 155/3,8B, 11,13,14,15,16 - over an extent of 2.23.0 Hectares for clearance., subject to the conditions imposed by the Forest Department, Agricultural Engineering Department and Geology & Mining Department.
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(Sd)/- Shambhu Kallollikar  
 Member Secretary, Hill Area Conservation Authority/  
 Directorate of Town and Country Planning,  
 807, Anna Salai,  
 Chennai – 600 002.

(Sd)/- Dharmendra Pratap Yadav  
 Chairman, Hill Area Conservation Authority /  
 Secretary to Government,  
 Housing and Urban Development Department, Fort St. George,  
 Chennai – 600 009.

/Forwarded By Order/

  
 Assistant Director of Town and Country Planning

  
 13/02/17

**ANNEXURE 12**  
**NABET CERTIFICATE**





## National Accreditation Board for Education and Training



# Certificate of Accreditation

### Eco Tech Labs Pvt Ltd.,

**48, 2nd Main Road, Ram Nagar South Extension, Pallikaranai, Chennai- 600100, T.N.**

The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals - including Open cast only	1	1 (a) (i)	B
2	Thermal power plants	4	1(d)	A
3	Coal washeries	6	2 (a)	B
4	Metallurgical industries - Ferrous only	8	3 (a)	B
5	Synthetic organic chemicals industry (dyes & dye intermediates; bulk drugs and intermediates excluding drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates)	21	5 (f)	A
6	Airports	29	7 (a)	A
7	Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes	31	7 (c)	A
8	Building and construction projects	38	8 (a)	B
9	Townships and Area development projects	39	8 (b)	B

**Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in SAAC minutes dated Apr. 20, 2021 and supplementary minutes dated Oct.19, 2021 posted on QCI-NABET website**

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no. QCI/NABET/ENV/ACO/22/2217 dated Jan. 19, 2022. The accreditation needs to be renewed before the expiry date by Eco Tech Labs Pvt. Ltd., Chennai following due process of assessment.

# NABET

**Sr. Director, NABET**  
Dated: Jan. 19, 2022

**Certificate No.**  
NABET/EIA/2124/SA 0147

**Valid up to**  
Sep. 15, 2023

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.

