

From

Arshak ali E.K

Edathola Kottasseri

Malabar manzil,Eranippadi

Kannamangalam P.O

Malappuram

Kerala-676304

To,

The Member Secretary

Kerala State Pollution Control Board

Thiruvananthapuram, Kerala

Sir,

Sub: Request to conduct Public Hearing – Environmental Clearance for the New Granite (Building Stone) Quarry -2.0144 Ha at S.F. No. 104/2B-09,104/2B-44 ,Block no.2 of Kannamangalam village, Thirurangadi Taluk, Malappuram District – Regarding.

Ref: Terms of Reference Letter No SEIAA-KS/F.No. 2069/EC6/2022/SEIAA

Please find enclosed herewith the application of Draft EIA Report along with necessary enclosures towards seeking environmental clearance for the New Granite (Building Stone) Quarry -2.0144 Ha at S.F. No. 104/2B-09,104/2B-44 ,Block no.2 of Kannamangalam village, Thirurangadi Taluk, Malappuram District, Kerala.

In this regard, we had obtained the Terms of Reference from State Environmental Impact Assessment Authority (SEIAA) Kerala, vide reference mentioned above for conducting EIA studies. We wish to inform that the draft EIA report complying with all the conditions mentioned in the ToR has been prepared and the copies of the same are enclosed with this letter. With reference to the above, Public Hearing Fee (Rs.4,00,000-Four Lakhs Rupees only) we kindly request the KSPCB to make the necessary arrangements for conducting the Public hearing for the New Granite (Building Stone) quarry.

With the above, we request the KSPCB to accept and process our application for conducting the Public Hearing at the earliest so as to facilitate the Government of Kerala for commencing the project.

Thanking you

Yours Sincerely

A handwritten signature in blue ink, appearing to be 'Arshak ali', with a horizontal line extending to the right.

Arshak ali

Enclosures: 1. 5 Hard copies of draft EIA report

2. 5 copies of Executive Summary (English & Malayalam)

3. 5 softcopies in CD

4. Demand draft(Rs.4 lakhs)

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

For

Granite Building Stone Quarry- 2.0144 Ha

At

**Re Survey Block No-2,
Re-Survey No. 104/2B-09 & 104/2B-44,
Kannamangalam Village,
Thirurangadi Taluk,
Malappuram District, Kerala**

**Project Proponent
Mr. Arshak Ali. E.K.
Edathola Kottasseri, Malabar Manzil,
Eranippadi,
Kannamangalam P.O,
Malappuram District – 676 304**

**Project termed under schedule 1(a)
Category B₁ (Cluster Mining)
Baseline Period : December 2021, January 2022 & February 2022**

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



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

**May
2023**

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Annexures

Annexure I: Letter of Intent

Annexure II: Approved Mining Plan

Annexure III: Minutes of Public Hearing

Annexure IV: ToR Letter

Annexure V: Explosive Certificate

Annexure VI:: Laboratory reports

Annexure VII: Cluster Certificate

Annexure VIII: Hydrogeology report

Abbreviation

LU –Land use

AP – Air Pollution monitoring, prevention and control

AQ- Meteorology, Air quality modeling and prediction

WP – Water pollution monitoring, prevention and control

EB- Ecology and Biodiversity

NV- Noise & Vibration

SE- Socio economics

HG- Hydrology, ground water and water conservation

GEO –Geology



RH – Risk assessment and hazards management

SHW –Solid and Hazardous waste management

SC- Soil conservation




Declaration of Experts contributing to the EIA


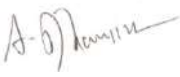


Declaration by experts contributing to the EIA report for Proposed Granite Building Stone Quarry mining project of Arshak Ali E.K. over an extent of 2.0144 Ha is situated at S.F. Re Survey Block No-2, Re-Survey No.104/2B-09 & 104/2B-44 of Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala State. I, hereby certify that I was a part of the EIA team in the following capacity that developed the above EIA.






Project	Granite Building Stone Quarry-2.0144 Ha
Type & Category	1 (a) Mining of Minerals
Project Proponent	Arshak Ali E.K
Environment Consultant with their Accreditation Status	M/s. Eco Tech Labs Pvt. Ltd., QCI Accredited
NABET Certificate No.	NABET/ EIA/2124/ SA 0147
EIA Coordinator Name	Dr. A. Dhamodharan (Mining of Minerals)
Signature	
Period of Involvement	 Dec 2021 to Feb 2022
Contact Information	M/s. Eco Tech Labs Pvt. Ltd. No. 48, 2nd Main Road, Ram Nagar South Extension Pallikaranai, Chennai - 600 100 Mobile: +91 9789906200 E-mail: dhamo@ecotechlabs.in

Functional Area Experts

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

S. No.	Functional areas	Name of the experts	Involvement (period and task)	Signature and date
1	AP	Mrs. K. Vijayalakshmi	<ol style="list-style-type: none">1. Selection of Baseline Monitoring stations based on the wind direction2. Interpretation of Baseline data by comparing it with standards prescribed by CPCB against the type of area3. Identification of sources of air pollution and suggesting mitigation measures to minimize impact <p><i>Period: Aug 2022 – Till now</i></p>	
2	WP	Dr. A. Dhamodharan	<ol style="list-style-type: none">1. Selection of baseline Monitoring Locations for Ground water analysis and also identifying nearest surface water to be studied.2. Interpretation of baseline data collected3. Identification of impacts based on the baseline study conducted and also to the ground water and nearby surface water due to the proposed project4. Preparation of suitable and appropriate mitigation plan. <p><i>Period: Aug 2022 – Till now</i></p>	
3	SHW	Dr. A. Dhamodharan	<ol style="list-style-type: none">1. Identification of nature of solid waste generated2. 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 Environment3. Suggesting suitable mitigation measures by recommending appropriate disposal method for each category of waste generated	

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

8	SC	Dr. A. Dhamodharan	<ol style="list-style-type: none"> 1. Interpretation of baseline report 2. Identification of possible impacts on soil, prediction of soil conservation and suggesting suitable mitigation measures. <p>Period: Aug 2022 – Till now</p>	
9	AQ	Mrs. K. Vijayalakshmi	<ol style="list-style-type: none"> 1. Collection of Meteorological data for the baseline study period 2. Plotting wind rose plot and thereby selecting the monitoring locations based on the wind pattern 3. Estimation of sources of air emissions and air quality modeling is done 4. Interpretation of the results obtained 5. Identification of the impacts and suggesting suitable mitigation measures. <p>Period: Aug 2022 – Till now</p>	
10	NV	Mrs. K. Vijayalakshmi	<ol style="list-style-type: none"> 1. Selection of monitoring locations 2. Interpretation of baseline data 3. Prediction of impacts due to noise pollution and suggestion of appropriate mitigation measures <p>Period: Aug 2022 – Till now</p>	
11	LU	Dr. T. P. Natesan	<ol style="list-style-type: none"> 1. Collection of Remote sensing satellite data to study the land use pattern. 2. Primary field survey and limited field verification for land categorization in the study area 3. Preparation of Land use map using Satellite data for 10km radius around the project site. <p>Period: Aug 2022 – Till now</p>	
12	RH	Mrs. K. Vijayalakshmi	<ol style="list-style-type: none"> 1. Identification of the risk 2. Interpreting consequence contours 3. Suggesting risk mitigation measures <p>Period: Aug 2022 – Till now</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 S.F. Re Survey Block No-2, Re Survey Nos. 104/2B-09 & 104/2B-44 of Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala State.

I also confirm that the consultant organization shall be fully accountable for any misleading information mentioned in this statement.

Signature:



Name: Dr.A.Dhamodharan

Designation: Managing Director

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

NABET Certificate No: NABET/EIA/2124/SA 0147

EXECUTIVE SUMMARY

1. Project Background:

Proposed proposal pertains to Granite Building Stone quarry project by open cast semi mechanized method on allotted mine lease area at Kannamangalam Village, Thirurangadi taluk of Malappuram District, Kerala. It is an elevated terrain. Proposed quarry lease is granted in favour of Mr. Arshak Ali in Re Survey Block No-2, Re-Survey No. 104/2B-09 & 104/2B-44 over an extent of 2.0144 Ha of Kannamangalam village vide LoI No. 1526/M3/2020, dated 29.01.2021. Mining plan approval is granted by Department of Geology and Mining vide Letter No. DOM/M-5037/2018 dated 01.12.2021 for a proposed mining depth of +70m MSL and ten years production of 7,50,000 m³ of Granite stone.

Based on the 500m radius letter obtained from Mining & Geology Department, Malappuram District vide Letter No. DOM/M-5037/2018 dt. 08.12.2021 proposal coming under Cluster of mine exceeding more than 5 Ha and the total cluster area is 6.8686 Ha. We have submitted our fresh application for ToR to SEIAA vide Proposal No: SIA/KL/MIN/73017/2022, 2069/EC6/2022/SEIAA.

The category of the project is B1 (cluster), the lease area exhibits elevated terrain with quarry land covered with native trees, shrubs, herbs, grass, climbers, bushes, rubber, etc., The quarry operation is proposed to carry out with conventional open cast semi mechanized mining with 5.0-meter vertical bench with a bench width of 5.0 meter. The mining will be done with the help of tools such as drills, jack-hammer, compressors, excavators, rock breaker, etc. The targeted annual production of Granite (Building Stone) is about 75,000 MT.

The quarry operation is proposed a ultimate pit limit will be +70 m MSL. The Total Geological reserve is about 28,38,840 cu.m of Granite Building Stone. The blocked and Mineable reserves are 20,81,820 cum and 7,57,020 cum respectively, the proposed Year wise production is carried out 75,000 MT of Granite Building Stone is to be mined for (One Hundred and Twenty months) Ten years only (7,50,000 cum in 10 years).

Mining plan was approved by Department of Geology and Mining vide Letter No. DOM/M-5037/2018 dated 01.12.2021. The project area does not fall in Hill Area Conservation Authority region. There is no interstate boundary, CRZ zone, Western Ghats, notified Bird sanctuaries, forest, wildlife sanctuaries as per Wild life protection Act 1972, within the radius of 15Km.

2. Nature & Size of the Project

The proposed Granite Building Stone Quarry over an extent of 2.0144 Hectares land is located at Kannamangalam Village of Thirurangadi taluk, Malappuram District, Kerala.

Mineral intends to quarry : Granite Building Stone
 District : Malappuram
 Taluk : Thirurangadi
 Village : Kannamangalam
 S. F. Nos. : Re Survey Block No – 2, Re Survey Nos. 104/2B-09 & 104/2B-44
 Extent : 2.0144 Hectares

Table 1: Brief Description of the Project

S. No.	Particulars	Details
1	Latitude	11° 5'48.70"N to 11° 5'55.58"N
2	Longitude	76°0'7.60"E to 76°0'13.10"E

3	Site Elevation above MSL	The highest elevation of the lease area is 190m MSL and Lowest is 70m MSL.
4	Topography	Elevated terrain
5	Land use of the site	Private Land
6	Extent of lease area	2.0144 Ha
7	Nearest highway/Road	NH 966 – Aravankara – 13 km, NE SH 65 – Kondotty – Thirurangadi Road – 11 km, NW
8	Nearest railway station	Parappanangadi Railway Station (21 km, SW)
9	Nearest airport	Calicut International Airport (15.0 km, NW)
10	Nearest town / city	Town - Kunnumpuram – 6 km District – Malappuram – 15 km, SE
11	Rivers / Canal/lake	<ul style="list-style-type: none"> • Kadalundi River – 5.32 kms, SE • Erattakulam – 5.19 kms, NW • Cheerakulam – 5.39 kms, NW
12	Archaeologically places	Nil in 15 km radius
13	National parks / Wildlife Sanctuaries	Nil in 15 Km radius
14	Reserved / Protected Forests	Nil
15	Seismicity	Proposed Lease area come under Seismic zone-III (Moderate risk area)
16	Defense Installations	Nil in 15 Km radius
17	Project Cost	235 Lakhs

3. Need for the Project

India is endowed with abundant resources of a wide variety of granite comprising over 200 shades. Granite is the most sought-after stone building stone since long. The Indian granite can match the best granites produced in the world, in terms of quality. The Indian granite is well established in the world market and it brings considerable amount of

foreign exchange to the country. Production of blocks of considerable size and weight is a special feature of granite mining.

With the invention of modern tools of greater hardness and polishing ability, the use of granite has rather increased for aesthetic values. Granite also finds its application in making garden furniture such as benches, fountains and many other articles which are used for landscaping and/or for decorative purposes. Crude granites are utilized for structural purpose after little dressing & sizing whereas processed granites are used mostly in the construction of buildings and monuments and for interiors and exterior facings. Because of its superior wear resistance and non-denting quality, granite is used for

various meteorological and engineering instruments such as surface plates, straight edges, parallels, cubes, V-blocks and work mounting tables of coordinate measuring machines.

Indian Granite, because of various uses enumerated above, is finding increased demand in the domestic as well as international market. It is an important commodity amongst ores and minerals which is being exported from the country. It is mainly traded in the form of crude or roughly trimmed blocks, as cut blocks and slabs and as polished blocks and tiles. Raw material for the infrastructure development is at high demand in the South India. In Malappuram district of Kerala, numbers of stone mines are there.

The mineral- rich colors, and the hardness & density, makes it useful for many applications.

The existing mining project will fulfill its end uses in buildings and construction, Used in Monuments, Memorials, Flooring slabs, Wall facings, Tiles, Kitchen articles, sculptures & export and many other exterior projects.



Figure 1: Location Map of the Project Site



Figure 2: Google Image of the Project Site

4. Geological Resources

Considering the above parameters and exposures observed in the allotted area, the surface geological plan and geological cross-sections & longitudinal section are prepared on a scale

1:1000. Accordingly, the reserves for Stone and associated minor minerals have been estimated on cross-sectional area method.

The geological cross sections are prepared across the strike of the ore body. The area of individual litho units in each cross section is calculated separately. Section wise sectional area is measured and multiplied by the influence to obtain the volume in m³. The volume is multiplied by 2.5MT/m³ (bulk density) to calculate the resource of Granite Stone in MT.

5. Mineable Resources

The mineable reserve is arrived after deducting the reserves locked in mines safety slope along with boundary in compliance with mineral concession rules. The granite building stone reserve as given below:

Table 2: Blocked and Mineable Reserves

BENCH	BLOCKED				A-A1	BENCH	MINEABLE			
	M2	M	DENSITY	TON			M2	M	DENSITY	TON
70-75	851	55.5	2.5	118076	70-75	138	48	2.5	16560	
75-80	793	55.5	2.5	110029	75-80	196	48	2.5	23520	
80-85	735	55.5	2.5	101981	80-85	254	48	2.5	30480	
85-90	702	55.5	2.5	97402.5	85-90	255	48	2.5	30600	
90-95	668	55.5	2.5	92685	90-95	242	48	2.5	29040	
95-100	635	55.5	2.5	88106.3	95-100	229	48	2.5	27480	
100-105	604	55.5	2.5	83805	100-105	214	48	2.5	25680	
105-110	569	55.5	2.5	78948.8	105-110	202	48	2.5	24240	
110-115	531	55.5	2.5	73676.3	110-115	193	48	2.5	23160	
115-120	476	55.5	2.5	66045	115-120	197	48	2.5	23640	
120-125	428	55.5	2.5	59385	120-125	198	48	2.5	23760	
125-130	396	55.5	2.5	54945	125-130	182	48	2.5	21840	

130-135	369	55.5	2.5	51198.8		130-135	161	48	2.5	19320
135-140	334	55.5	2.5	46342.5		135-140	142	48	2.5	17040
140-145	303	55.5	2.5	42041.3		140-145	129	48	2.5	15480
145-150	266	55.5	2.5	36907.5		145-150	119	48	2.5	14280
150-155	212	55.5	2.5	29415		150-155	124	48	2.5	14880
155-160	148	55.5	2.5	20535		155-160	137	48	2.5	16440
160-165	113	55.5	2.5	15678.8		160-165	122	48	2.5	14640
165-170	88	55.5	2.5	12210		165-170	97	48	2.5	11640
170-175	63	55.5	2.5	8741.25		170-175	73	48	2.5	8760
175-180	38	55.5	2.5	5272.5		175-180	48	48	2.5	5760
180-185	14	55.5	2.5	1942.5		180-185	32	48	2.5	3840
185-190	-	55.5	2.5			185-190	17	48	2.5	2040
				1295370						444120
					B-B1					
80-85	629	60	2.5	94350		80-85	85	52.5	2.5	11156.3
85-90	576	60	2.5	86400		85-90	138	52.5	2.5	18112.5
90-95	522	60	2.5	78300		90-95	192	52.5	2.5	25200
95-100	494	60	2.5	74100		95-100	189	52.5	2.5	24806.3
100-105	465	60	2.5	69750		100-105	174	52.5	2.5	22837.5
105-110	434	60	2.5	65100		105-110	163	52.5	2.5	21393.8
110-115	399	60	2.5	59850		110-115	151	52.5	2.5	19818.8
115-120	359	60	2.5	53850		115-120	145	52.5	2.5	19031.3
120-125	308	60	2.5	46200		120-125	149	52.5	2.5	19556.3
125-130	247	60	2.5	37050		125-130	163	52.5	2.5	21393.8
130-135	188	60	2.5	28200		130-135	177	52.5	2.5	23231.3
135-140	164	60	2.5	24600		135-140	156	52.5	2.5	20475
140-145	139	60	2.5	20850		140-145	137	52.5	2.5	17981.3
145-150	114	60	2.5	17100		145-150	114	52.5	2.5	14962.5
150-155	87	60	2.5	13050		150-155	93	52.5	2.5	12206.3
155-160	64	60	2.5	9600		155-160	71	52.5	2.5	9318.75
160-165	38	60	2.5	5700		160-165	49	52.5	2.5	6431.25
165-170	16	60	2.5	2400		165-170	26	52.5	2.5	3412.5
170-175	-	60	2.5	-		170-175	12	52.5	2.5	1575
				786450						312900

Table 3: Summary of Geological and Mineable Reserves

SECTION	BLOCKED RESERVE (MT)	MINEABLE RESERVE (MT)	GEOLOGICAL RESERVE (MT)
A-A1	1295370	444120	1739490
B-B1	786450	312900	1099350
TOTAL	2081820	757020	2838840

Table 4: Year Wise production Plan

Year	Benches	Minerals (MT)
I	155-160,160-165,165-170,170-175,175-180,180-185,185-190	75,000
II	145-150,150-155,155-160	75,000
III	135-140,140-145	75,000
IV	125-130,130-135	75,000
V	115-120,120-125	75,000
VI	110-115,115-120	75,000
VII	100-105,105-110	75,000
VIII	95-100,100-105	75,000
IX	85-90,90-95	75,000
X	70-75,75-80,80-85,85-90	75,000
	TOTAL	7,50,000

6. Mining

Opencast mining

The quarry operation is proposed to carry out with conventional open cast semi mechanized mining with 5.0 meter vertical bench with a bench width of 5.0 meter. The mining will be done with the help of tools such as drills, jack-hammer, compressors, excavators, rock breaker, etc.,

Process Description

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

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

7. Water Requirement

Total water requirement for the mining project is 3.5 KLD. Domestic water will be sourced from nearby Nediyruppu Village and other water will be source from nearby road tankers supply.

Table 5. Water Balance

Purpose	Quantity	Source
Drinking & Domestic Purpose	0.5 KLD	Open bore well
Green belt	1.5 KLD	Other domestic activities through road tankers supply
Dust suppression	1.5 KLD	From road tankers supply
Total	3.5 KLD	

8. Man Power and Organization Chart

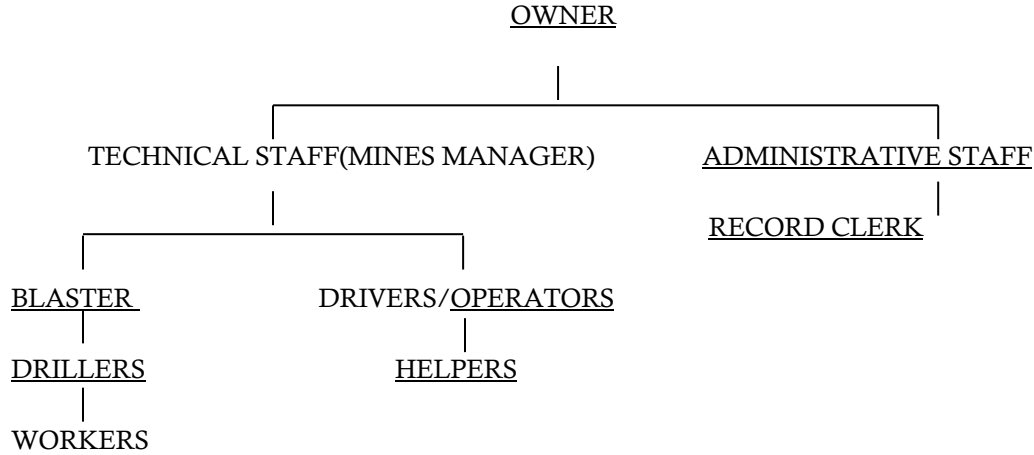
Total manpower required for the project is approximately 20 persons. Workers will be from nearby villages.

Table 6. Man Power

S. No.	Name of The Post	Nos.
1	Highly Skilled	2
2	Skilled	4
3	Semi-Skilled	8
4	Un- Skilled	6
	Total	20

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

ORGANISATION CHART



9. Solid Waste Management

Table 7 Solid Waste Management

S. No	Type	Quantity	Disposal Method
1	Organic	5.4 kg/day	Municipal bin including food waste
2	Inorganic	3.6 kg/day	KPCB authorized recyclers

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

10. 500m Radius Cluster Mine

1) Existing quarries:

S. No.	Name of the lessee / Permit Holder	Village & Taluk	S. F. No.	Extent
1.	Shahanas Edathola Kottassery, Chanaparambil Mandothingal House, Kodinhi Post, Malappuram	Tirurangadi	104/2B	1.7063
2.	Thumpath Puthenpeedikakkal Abdul Hameed, S/O	Tirurangadi	104/2B	3.1479

	Moideen KuttyHaji, Nayithode (H), Kannamangalam post, Malappuram			
				4.8542

2) Abandoned/Old quarries:

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

3) Details of Proposed/Applied quarries:

S. No.	Name of the lessee / Permit Holder	Village & Taluk	S. F. No.	Extent	Lease Period
1.	Arshak Ali E.K, S/O. Ali Moideen E.K, Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O, Malappuram District	Kannamangalam Village, Tirurangadi Taluk	Re-Survey Block No.2, Re-Survey Nos. 104/2B-09, 104/2B-44	2.0144	10
				2.0144	

The Total extent of the Existing / Lease expired / Proposed quarries are 6.8686 Ha

11. Land Requirement

The total extent area of the project is 2.0144 Ha, Private land in Kannamangalam Village of Tirurangadi Taluk, Malappuram District.

Table 8 Land Use Breakup

S. No.	Land Use Category	Pre-Operational (Ha.)	Operational (Ha.)	Post-Operational (Ha.)
1	Topsoil Dump	Nil	0.4 (Outside)	-
2	Over burden	Nil		
3	Excavation	Nil	0.8216 (0.80 ha Reclaimed by plantation)	1.4501 (Reclaimed by plantation)
4	Road	0.085	0.095	0.095
5	Built Up Area	-	-	-
6	Drainage	-	-	-
7	Green belt	-	0.4693	0.4693
8	Undisturbed Area	1.9294	0.6285	-
Total		2.0144	2.0144	2.0144

12. Human Settlement

There are no habitations within 500m radius.

13. Power Requirement

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

14. 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

14.1 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 Maximum Temperature. : 34 °C
- ii) Average Minimum Temperature : 24.4 °C
- ii) Average Annual Rainfall of the area : 2256 mm

14.2 Air Environment

Ambient air monitoring was carried out on monthly basis in the surrounding areas of the Mine Lease area to assess the ambient air quality at the source. To know the ambient air quality at a larger distance i.e. in the study area of 5 km. radius, air quality survey has been conducted at 7 locations. Major air pollutants like Particulate Matter (PM₁₀), Sulphur Dioxide (SO₂), Nitrogen Dioxide (NO₂) were monitored and the results are summarized below.

The baseline levels of PM₁₀ (39.5 to 65.0 (µg/m³), PM 2.5 (19.5 to 37.1 (µg/m³), SO_x (<2 to 3.20 (µg/m³), NO_x < 2 to 4.32 (µg/m³), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from Dec 2021 to Feb 2022.

14.3 Noise Environment

Ambient noise levels were measured at 7 locations around the proposed project site. The day and night noise level are well within the limit in all 7 locations

14.4 Water Environment

Ground Water quality is well within the desirable and permissible limits as per IS: 10500

14.5 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 is 6.21 with organic matter 0.27 %. The concentration of Nitrogen, Phosphorus & Potassium has been found to be poor which shows soil is infertile.

14.6 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.

15. Rehabilitation/ Resettlement

- The overall land of the mine is private 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.

16. 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. 1500 nos. of Local trees will be planted along the lease boundary (within 7.5 m barrier area and around offices, road side and fencing boundary) in area of 0.6231 ha. Plantation will be carried out in grid of 3 m X 3 m. Trees to be planted will be high dust capturing, soil holding capacity, ground water recharge capacity. More focus will be given for medicinal plants
4. The rate of survival expected to be 60% in this area

Table 9 Timeline of Plantation

Timeline	Category
First six Months	Herbs and Grass
Next Six Months	Shrubs
Next Six Months Onwards	Trees

17. Anticipated Environmental Impacts

17.1 Air Environment and Mitigation Measures

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

17.2 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 equipment shall be intermittent and does not cause much adverse impact

18. 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

19. Environmental Monitoring Program

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

20. Project Cost

The total project cost is **Rs. 6,94,75,389** 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 10 Project Cost details

I NO	Particulars	Amount
1	Actual Land Cost	53,17,389/-
2	Plant & Machinery	SPLIT UP 5,79,20,000
	Excavator (Rent) – 1700 (per hour) x 8 = 13,600 per day * 2 No's = 27,200*250 days =68,00,000 * 5 years = 3,40,00,000	
	Box compressor (Rent) - 16,000 (per month)*2 No's = 32000*12 = 3,84,000*5 years = 19,20,000/-	
	Breaker (Rent) -2,200 (per hour) * 8 = 17,600 Per day*250 days = 44,00,000*5 years = 2,20,00,000/-	
3	Infrastructure Development	SPLIT UP 8,00,000/-
	Explosive, Magazine Shed & other expenses - 5,00,000/-	
	Office Building - 3,00,000/-	

4	Administrative Cost & Other Expenses (P.M)	4,00,000/-
5	Revised CER with EMP Budget Cost (Details given by Annexures -3)	50,38,000/-
Total		6,94,75,389/-

21. Corporate Environmental Responsibility

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

Table 11 CER Cost

FY	Sector	Project Brief description	Project Cost	Beneficiaries and Impact
2023-25	Education	<p>As the part of Environment Management Plan, Corporate Environmental Responsibility Cell decided to provides the following facilities to Govt. Primary Health Centre, Kannamangalam.</p> <p>Solar Panel Implementation:</p> <p>The project proponent is ready to provide 5 KWp Hybrid solar panel facilities in Govt. Primary Health Centre, Kannamangalam in Kannamanagalam Grama panchayath. A 5 KWp hybrid solar system contains 15 solar panels of 335 Watts, MPPT charger controller unit, 8 solar tubular battery units of 150 AH/12V and a hybrid solar inverter of 5KW and other equipments. It will be helpful for the cold medicinal storage and other purposes during power failure time. Poor patients of Kannamangalam Grama Panchayath are the beneficiaries.</p> <p>Approximate cost for the project will be about 5,00,000 including its framework.</p> <p>Drinking water purifier facility:</p> <p>The CER Cell is decided to provide 3 drinking water purifier units with normal and cool water facility in Govt. Primary Health Centre, Kannamangalam in Kannamangalam Grama Panchayath. Committee decided to provide BLUE STAR Stainless steel water cooler with 2</p>	<p>5,00,000</p> <p>1,20,000</p>	For patients and staffs of Govt PHC, Kannamangalam

		taps in which one tap always give splain water and other tap has a cooling capacity of 40 liters/hour. Both taps provides filtered water. Poor patients of Kannamangalam Grama Panchayat area the beneficiaries. Approximate cost for the project will be about $3*40,000 = 1,20,000/-$ rupees.		
2025-28		Maintenance, project monitoring and additional works in provided facilities in Govt. Primary Health Centre, Kannamangalam as Solar Panel Framework painting and weather protection works, Battery unit maintenance and services, Solar Panel System services, Water Purifier filter replacement, etc.,	1,80,000	
TOTAL			<u>8,00,000</u>	

22. 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.

POINT WISE COMPLIANCE TO THE TOR POINTS

Point-wise compliance of TOR points issued by SEIAA, Kerala vide letter no. F.No. 2069/EC6/2022/SEIAA, dated 06.01.2023 for Mining of Minor Minerals in the Mine of “Granite Building stone Quarry over an Extent of 2.0144 Ha in Re-Survey Block No.2, Re-Survey Nos. 104/2B-09, 104/2B-44 of Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala.

Table 1: Compliance to the Additional ToR Points

ToR Ref.	Description	Response	Page Ref. in EIA Report
1.	A copy of document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	The Letter of Intent (LOI) for this mining Granite building stone quarry project issued by Directorate of Mining and Geology Department, Thiruvananthapuram Letter No.1526/M3/2020, dated. 29-01-2021.	Annexure-I
2.	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 approved by The Geologist through letter No. dated DOM/M- 5037/2018 dated 01.12.2021	Annexure-II
3.	All corner coordinates of the mine lease area, super imposed on a High Resolution Imagery/ toposheet should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	Details of coordinates of all corner of proposed mining lease area have been incorporated in Chapter2 of Draft EIA/EMP Report.	Table 2.2, Chapter-2
4.	Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological	Topo map enclosed in Chapter-2	Figure 2.4-2.6, Chapter - 2

	map of the area, important water bodies, streams and rivers and soil characteristics		
5.	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 existing for mining activities is given Chapter 2.	Sec 2.3.2, Chapter-2
6.	<p>It should be clearly stated whether the proponent company has 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?</p> <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>	Details of Environmental management Cell	Section 6.2, Chapter 6 and Section 10.4, chapter 10
7.	Issues relating to Mine Safety, including subsidence study in case of under ground mining and slope	It is an opencast mining project. Blasting details are incorporated in chapter-2	Section 2.7 Chapter-2

	study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.		
8.	The study area will comprise of 10km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc., should be for the life of the mine / lease period.	Study area comprises of 10 km radius from the mine lease boundary. Key plan showing core zone (ML area).	Chapter-2
9.	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	Land Use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, National park, migratory routes of fauna, water bodies, human settlements and other ecological features has been prepared and incorporated in Chapter-3 of draft EIA/EMP report. There is no wildlife sanctuary and national park, migratory routes of fauna in the study area.	Chapter-3
10.	Details of the land for any over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	The details of top soil and overburden are mentioned in chapter 2	Section 2.7.2, Chapter-2
11.	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 Draft EIA/EMP Report.	Section 3.11, Chapter-3
12.	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	Flora, fauna study observed in the study area and discussed in Chapter-3. No significant impact is anticipated.	Section 3.11, Chapter-3

	<p>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.</p>		
13.	<p>Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger/ Elephant Reserves (existing as well as proposed), if any, within 10km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the State Wildlife Department/Chief Wildlife Warden under the Wildlife (Protection) Act, 1972 and copy furnished.</p>	<p>There is no National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger/ Elephant, Reserves/ Critically polluted areas within 10km radius of the mining lease area.</p>	
14.	<p>A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan for their conservation should be prepared in consultation with State Forest and</p>	<p>Details biological study (flora & fauna) within 10 km radius of the project site have been incorporated in Chapter-3 of Draft EIA/EMP Report.</p>	<p>Section 3.11, Chapter-3</p>

	Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.		
15.	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravalli Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.	The granite mining lease area is not falling under forest land.	-
16.	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 the departments of the State Government. It may be clearly brought out whether the village located in the mine lease area will be	There is no Rehabilitation and resettlement is involved. Land classified as Private land.	--

	shifted or not. The issues relating to shifting of Village including their R&R and socio-economic aspects should be discussed in the report.		
17.	<p>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 EMPReport.</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 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.</p>	<p>Baseline data collected during Pre Monsoon Season (August-2020 to October 2020) has been incorporated in Draft EIA/EMP report.</p> <p>Site Specific metrological data has been collected and incorporated in draft EIA/EMP report.</p> <p>The key plan of monitoring station has been discussed in Chapter-3. Locations of the monitoring stations have been selected keeping in view the pre-dominant downwind direction and location of the sensitive receptors and also that they represent whole of the study area.</p>	Chapter 3
18.	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>Total water requirement: 3.5 kLD Dust Suppression: 1.5 kLD Domestic Purpose: 0.5 kLD Plantation :1.5 kLD</p> <p>Domestic Water will be sourced from nearby Kannamangalam which is 2 km on South West of the project site and other water will be source from nearby open well.</p>	Section 2.9, Chapter-2
19.	Description of water conservation measures proposed to be adopted in the Project should be given. Details	At the last stage of mining operation, almost complete area will be worked to restore the land to its optimum	Section 2.7.5, Chapter 2 and

	of rainwater harvesting proposed in the Project, if any, should be provided.	reclamation for future use as water reservoir.	Section 4.5 of Chapter 4
20.	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 draft EIA/EMP report.	Section 4.3.3, Chapter-4
21.	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 groundwater and for pumping of ground water should also be obtained and copy furnished.	Elevation: 70-190 MSL Depth of working: +70 m MSL Water table depth : 10-15 mbgl So mine working will not be intersecting the ground watertable.	Chapter 2
22.	Details of any stream, seasonal or otherwise, passing through the lease area and modification/ diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	There is no any stream, seasonal near the project site	Chapter-3
23.	Information on site elevation, working depth, ground water table etc. should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.	Highest elevation :190 MSL Lowest elevation : 70 m MSL Proposed depth – +70 m MSL	Chapter 2 and Chapter 3
24.	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form	Green Belt Development plan is given in Chapter 2.	Chapter -2

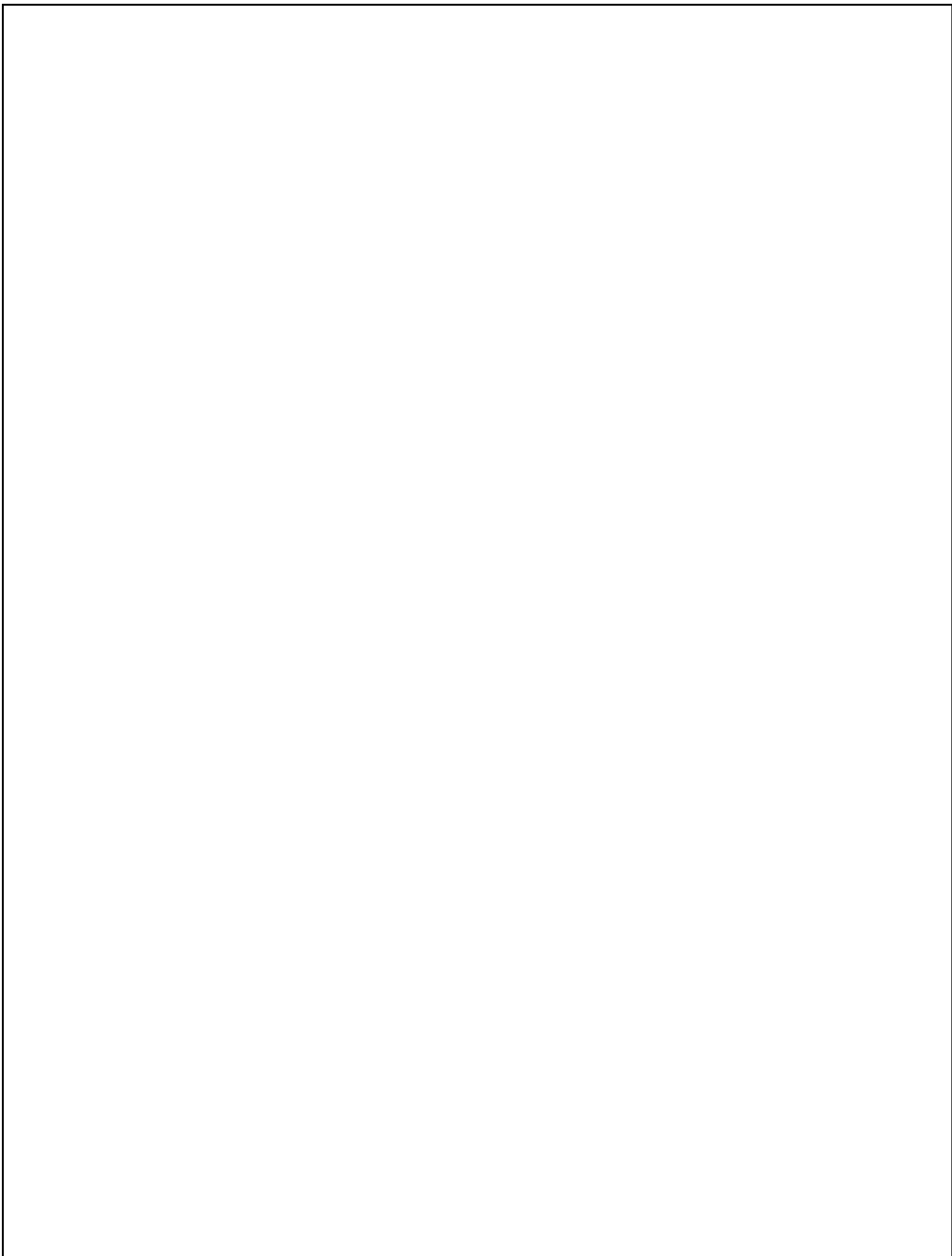
	<p>(indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the project.</p> <p>Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant pollution.</p>		
25.	<p>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.</p>	<p>Project site is connected through NH-213, Palakkad –Kozhikod and thus no major impact due to traffic is anticipated</p>	
26.	<p>Details of the onsite shelter and facilities to be provided to the</p>	<p>Adequate infrastructure & other facilities shall be provided to the mine workers.</p>	<p>Chapter-2</p>

	mine workers should be included in the EIA report.	Details are given in chapter-2 of draft EIA/EMP	
27.	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.	There is no Reclamation and Restoration is involved. Land classified as Private land.	
28.	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project in the mining area may be detailed.	Suitable measure will be opted to minimize occupational health impacts of the project. The project shall have positive impact on local environment. Details are given in chapter-9 of draft EIA/EMP.	Chapter-9
29.	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Suitable measure will be adopted to minimize occupational health impacts of the project.	Chapter-9
30.	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.	CER Activity Affidavit attached as Annexure-III	
31.	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	Environment Management Plan has been described in detail in Chapter-9 of the draft EIA/EMP Report.	Chapter-9

	other impacts specification the proposed Project.		
32.	Public hearing points raised and commitment of the project proponent on the same along with time bound action plan to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	Public hearing points raised and commitment of the project proponent are attached as Annexure IV	-
33.	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.	
34.	The cost of the project (capital cost and recurring cost)as well as the cost towards implementation of EMP should clearly be spelt out.	The cost of the project is discussed in Chapter 8	Chapter-8
35.	A Disaster Management Plan shall be prepared and included in EIA/EMP Report.	Disaster Management and Risk Assessment has be incorporated in Chapter-4	Chapter-4
36.	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 have incorporated.	Chapter-8
37.	Besides the above, the below mentioned general points are also to be followed:		
(a)	Executive Summary of the EIA/EMP report	Executive Summary of EIA Report is provided in this EIA report	
(b)	All documents to be properly referenced with index and continuous page numbering.	Complied	
(c)	Where data are presented in the reported specially intables, the period in which the data were	Complied	

	collected and the sources should be indicated.		
(d)	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc., using the MoEF& CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the project.	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 instruction for the proponents and instructions for the consultants issued by MoEF vide O.M. No.J-11013/41/2006-IA.II(I), dated 4th August 2009, which are available on the website of this Ministry, should also be followed.	The EIA report has been prepared and complying with the circular issued by MoEF vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009.	
(h)	Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than	There are no Changes in prepared EIA as per submitted Form-I and PFR.	

	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.	Will be complied after grant environment clearance form SEIAA, Kerala.	
	The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections (iii) sections of mine pit and external dumps, if any clearly showing the features of the adjoining area.	All Sectional Plates of Quarry is enclosed in Mining Plan.	
Additional ToR Points			
1	Impact on Slope Stability	Discussed in Chapter 4	Section 4.3.3.1, Chapter 4
2	Impact on Natural Drains	Discussed in Chapter 4	Section 4.3.3.2, Chapter 4



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<i>Project Location</i>	<i>Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala</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 is a decision-making tool, which guides the project proponent in taking appropriate decisions for proposed projects. It aims to predict environmental impacts at an early stage of project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the prediction options to the proponent. By using EIA, both environmental & economic benefits can be achieved. By considering environmental effects - prediction & mitigation, early benefits in project planning, protection of the environment, optimum utilization of resources, thus saving overall time & cost of the project. EIA also lessens conflicts by promoting community participation, informs project proponent, and helps to lay the base for environmentally sound projects.

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

1.2 General Information on Mining of Minerals

From the exposure pattern of the rock types, Malappuram district can be divided into two geological belts: (i) Charnockite group of rocks covering a major part and (ii) Migmatite Complex towards the east. Wayanad group is represented by small bodies of meta-ultramafites (tal-tremolite schist, talc-pyroxene-garnet schist, banded magnetite quartzite) and high-grade schist and gneiss (hornblende-biotite schist and gneiss+garnet with amphibolite band). The rocks of Peninsular Gneissic Complex, represented by granite gneiss and hornblende-biotite gneiss, form the next younger sequence. A linear band of granite gneiss NE of Perinthalmanna and a large body of hornblende-biotite gneiss east of Manjeri are prominent units. Charnockite Group includes charnockite/charnockite gneiss, having the

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largest areal distribution, followed in decreasing order of abundance by banded magnetite quartzite, pyroxene granulite amphibolite/hornblende granulite and pyroxenite, which occur as concordant as well as discordant bands, lenses, layers and enclaves both within charnockite as well as within gneisses of Migmatite Complex. The Migmatite Complex is represented by biotite-hornblende gneiss (or hornblende-biotite gneiss) and quartzofeldspathic

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, Kerala.

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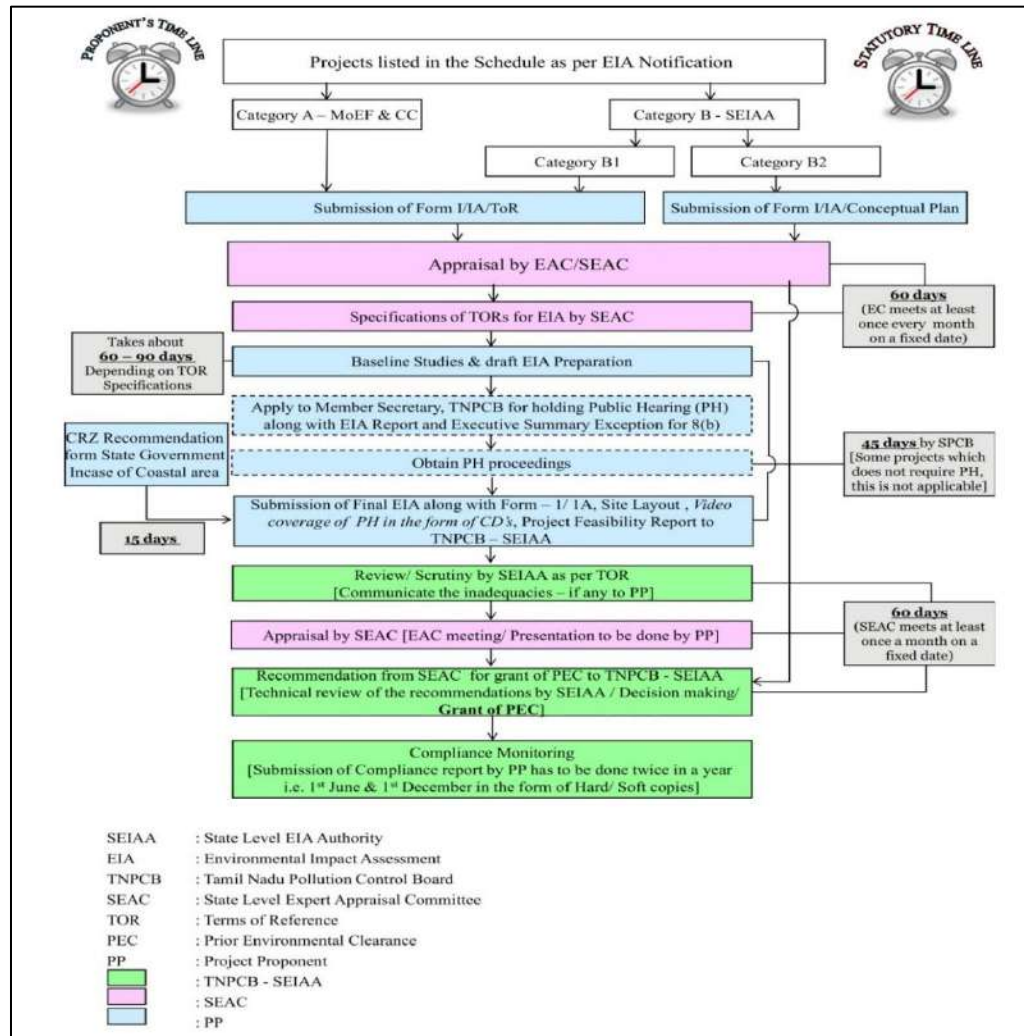


Figure 1-1: Process of EIA Study

1.4 Terms of Reference (ToR)

The terms of Reference has been issued by SEAC Kerala vide Letter No. SEIAA /F.No. 2069/EC6/2022/SEIAA dt. 06.01.2023 (Annexure V). Additional ToR points were recommended by SEAC Kerala in addition to the Standard ToR Points. The replies for the same were addressed in this report and compliance is given in this report

1.5 Post Environmental Clearance Monitoring

1.5.1 Methodology Adopted

Post project monitoring will be carried out as per conditions stipulated in environmental clearance letter issued by SEIAA, consent issued by SPCB as well as according to CPCB

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guidelines. The lease area is considered as core zone and the area lying within 10 km radius from the lease boundary is considered as buffer zone, where some impacts may be observed on physical and biological environment. In the buffer zone slight impact may be observed and that too is occasional.

Table 1-1: Post Environmental Clearance Monitoring

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

1.6 **Generic Structure of the EIA Document**

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

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

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

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

Chapter 5: Impact Analysis and mitigation measures. This chapter describes the anticipated impacts on the environment and mitigation measures. The method of assessment of

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

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

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

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

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

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

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

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

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1.7 Details of Project Proponent

Project Proponent : Mr. Arshak Ali E.K
Status of the Proponent : Individual
Proponent's Name & Address : Edathola Kottasseri, Malabar Manzil,
Eranippadi, Kannamangalam P.O,
Malappuram District,
Kerala – 676 304

1.8 Brief Description of the Project

1.8.1 Project Nature, Size & Location

As per EIA Notification, 2006 and its subsequent amendments (O.M vide No.F.No.L-11011/175/2018-IA-II(M) Govt of India MOEF&CC on December 12th 2018) project comes under category B1 cluster & schedule 1(a) under item 1. Proposed proposal pertains to Granite stone mining project by semi mechanized open cast method on allotted mine lease area at Kannamangalam Village, Tirurangadi taluk of Malappuram District, Kerala. It is an elevated terrain. The total allotted mine lease for the proposed project is 2.0144 Ha with the production capacity of 7,50,000 m³ of Granite for first Ten years and total mineable reserve of 7,57,020 MT.

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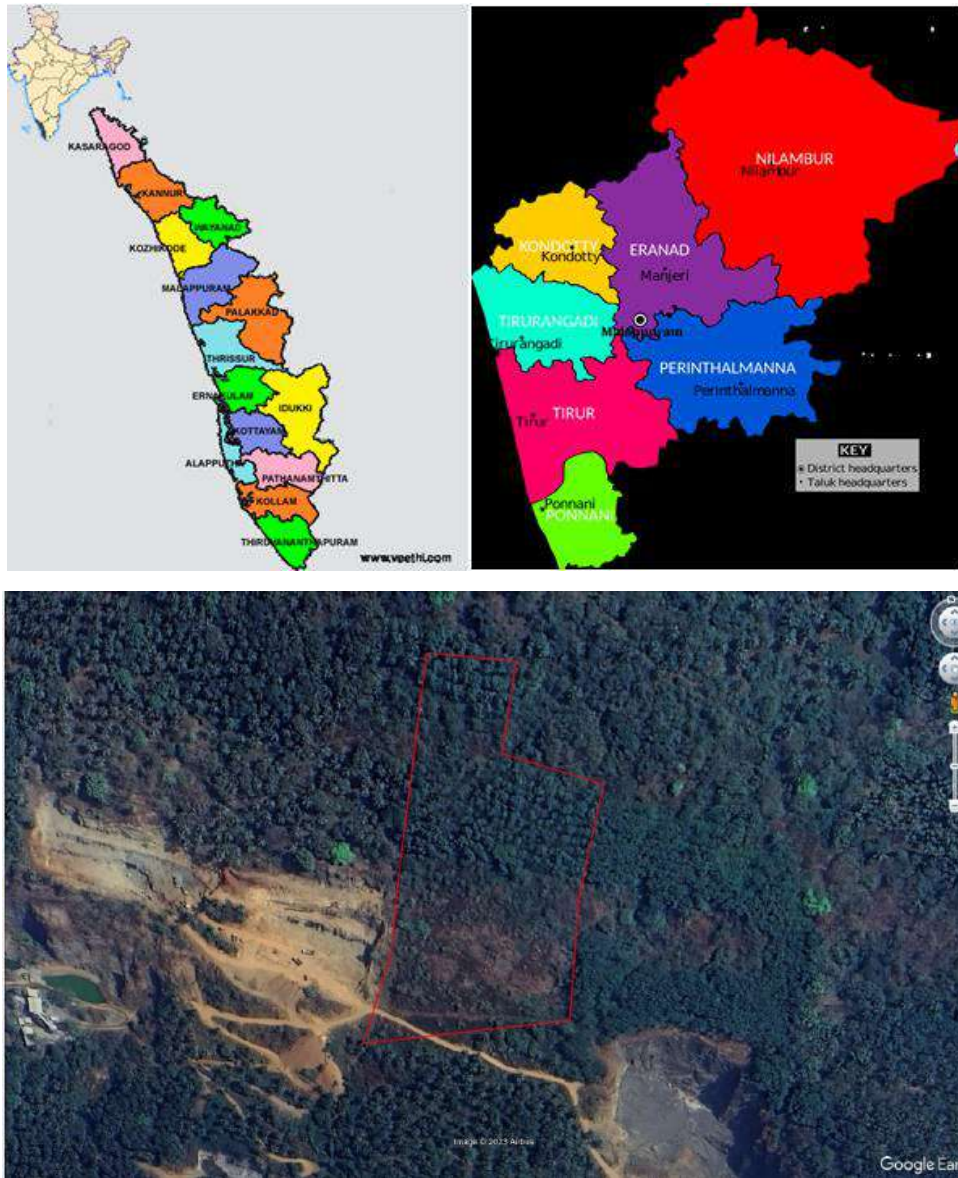


Figure 1-2: Location Map of the Project site

1.9 Importance of the Project

The major demand of building stone is due to its high compressive strength and durability (among the hardest, dimensional & structural stones), it can effectively withstand the vagaries of nature. The mining projects will fulfil its end uses in construction of buildings and construction of roads etc. The mining and associated activities bring about gains in Gross Domestic Product (GDP). The project will create direct and indirect employment opportunities. The project proponent needs to pay royalty to the DMG, GoK for every unit

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of the mineral produced from the mine. Direct and indirect taxes will also be paid by the project proponent to the Local Self Government, State Government and to the Central Government. These are the sources of revenue for the Government. The public revenue will be utilized by Government for development of various infrastructural facilities for the public in the field of health, education and social welfare, etc.

1.10 Scope of the EIA Study

The scope and objective of the study is to foresee the potential environmental problems that would arise out of the mining activities and suggest the methods to mitigate the impact on the Environment. The EIA study includes detail characterization of various environmental components like Air, Noise, Water, Soil, Land and socio-economics within an area of 10 km radius around the proposed mining areas. The EIA is done based on collection of one season data Dec 2021 to Feb 2022.

- Comply with the entire ToR by SEAC
- Environmental monitoring so as to establish the baseline environmental status of the study area.
- Collection of available secondary data from concerned department
- Identification of Environmental Aspects and its associated impacts on the environment.
- Prediction of impacts on environmental attributes
- Evaluate the predicted impacts on the various environmental attributes in the study area by using scientifically developed and widely accepted EIA Methodologies.
- Preparation of Environmental Management Plan (EMP) outlining the measures for improving the environmental quality.
- Identification of critical environmental attributes, which require monitoring.
- To check the compliance of operations as per the statutory Consent/Legal requirements

1.11 Applicable Environmental Regulations

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With respect to prevention and control of environmental pollution, the following Acts and Rules of MoEF&CC, GoI and Govt. of Kerala govern the proposed project:

- **The Environment Protection Act , 1986**

An Act to provide for the protection and improvement of environment and for matters connected there with. Introduction of this statute was due to a decision taken at United Nation Conference on the Human Environment held at Stockholm in June, 1972. This

is an umbrella Act and project proponent is required to comply with the provisions of the Act. A few of these are summarized below:

- **The EIA Notification, 2006 & the subsequent amendments**

EIA Notification, 2006 was issued under Section 3 of the Environment Protection Act, in supersession of EIA Notification, 1994. Through this Notification, the Central Governments directs that before the commencement of any activity or modernization of existing activity listed in the "Schedule" to the Notification, prior EC is mandatory. Prior EC is required for expansion, modernization, change in proposed mining area, product mix etc.

- **The Water Pollution (Prevention & Control) Act, 1974**

An Act to provide the prevention and control of water pollution and the maintaining or restoring of wholesomeness of water, for the establishment, with a view to carrying out the purposes of aforesaid, of Boards for the prevention and control of water pollution, for conferring on and assigning to such Boards powers and functions relating thereto and for matters connected therewith. Any activity before its establishment needs to take Consent to Establish (CTE) and Consent to Operate (CTO) from the concerned Pollution Control Board.

- **The Air Pollution (Prevention & Control) Act, 1981**

An Act to provide for the prevention, control and abatement of air pollution for the establishment , with a view to carrying out the aforesaid purposes, of Boards, for conferring on and assigning to such Boards powers and functions relating thereto and for matters connected there with. Any activity before its establishment needs to

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take Consent to Establish and Consent to operate from the concerned Pollution Control Board.

- **The Noise Pollution (Regulation and Control) Rules, 2000.**

This Rule is issued under Section 3 of Environment Protection Act. Through this Rule, four categories areas / zone as per the Schedule is provided in respect of "Ambient Air Quality Standards in respect of Noise" if sensitive receptors in the project area are affected by the noise created by the project, necessary mitigation measures are to be proposed in EIA report .

- **The Mines Act, 1952**

An Act to amend and consolidate the law relating to the Regulation of labour and safety in mines

- **The Mines and Minerals (Development and Regulation) Act, 1957**

An Act to provide for the development and regulation of mines and minerals under the control of the Union. This Act empowers the State Governments to make rules in respect of minor minerals. These rules are to be followed and got inspected by IBM/ DGMS.

- **The Minor Minerals Conservation and Development Amendment Rules 2018**

These rules aim to ensure that mineral production is not affected by the expiry of existing mining leases. The rules require general exploration (G2) to be carried out by 1 April 2019 for all mining leases (other than coal, lignite and atomic minerals) used for non-captive purposes expiring in March 2020. The amendment also lays down timelines for the implementation of exploration plans to ensure seamless transition on the expiry of existing mining leases

- **The Kerala Minor Mineral Concession Rules, 2015**

This Rule is issued under Mine and Mineral (Development and Regulation) Act , 1957. Through this Rule, the concept of Eco-friendly mining plan was introduced for all categories of Minor Mineral mining activities

- **The Explosive Act, 1884**

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<i>Project Proponent</i>	<i>Arshak Ali E.K</i>	
<i>Project Location</i>	<i>Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala</i>	

An Act to regulate the manufacture, possession, use, sale, transport, import export of explosive.

- **The Explosive Rules, 2008**

For the purposes of these rules, the explosives shall be classified in the manner specified in Schedule I. Approvals are required to be taken by the person who is involved in the handling and usage of explosives.

- **The Kerala Promotion of Tree Growth in Non-Forest Areas (Amendment) Act , 2007.**

An Act expedient to amend the Kerala Promotion of Tree Growth in Non- Forest Areas Act, 2005. As per the said Act, no permission is necessary for cutting and removal of trees provided in the Schedule.

- **The Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.**

Rules have been made for management of Hazardous Waste and other waste, occupier shall be responsible for safe and environmentally sound management of hazardous and other wastes. The hazardous and other wastes generated in the establishment of an occupier shall be sent or sold to an authorised actual user or shall be disposed of in an authorised disposal facility.

- **Batteries (Management and Handling) Rules 2022**

The Batteries (Management & Handling) Rules, 2022 apply to every manufacturer, importer, re-conditioner, assembler, dealer, recycler, auctioneer, consumer and bulk consumer involved in manufacture, processing, sale, purchase and use of batteries or components thereof.

- **Solid Waste Management Rule 2016**

For the purpose of segregation, store and handover to authorised collectors of waste at source itself. Shall not throw burn or bury the solid waste generated on streets, public spaces or in drains or waste bodies

1.12 Methodology of the EIA Study

<i>Project Name</i>	<i>Granite Building Stone Quarry – 2.0144 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Arshak Ali E.K</i>	
<i>Project Location</i>	<i>Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala</i>	

Environmental Impact Assessment (EIA) study has been conducted within an area of 10 km radius around the proposed mining area. The EIA/EMP has been prepared based on EIA Notification 2006, as amended from time to time and the approved ToR. The various steps involved in the study include:

- Identification of significant environmental parameters and assessing the status within the impact zone.
- Prediction of Impacts envisaged due to proposed scheme on various environmental parameters.
- Evaluation of impacts after superimposing the predicted scenario developed over the baseline scenario.
- Collection of site-specific meteorological data at the mine site.
- Carrying out a site-specific ecological study.
- Carrying out a site-specific study for the Core and Buffer Zone for Ambient air, Water, Soil, Land use, socio economic status etc.
- Literature review that includes identification of relevant data from various government agencies and other sources for socio-economy, demography, meteorology, land use, ecology, etc.
- Identify various existing pollution loads due to mining and domestic activities in the buffer zone.
- Evaluate the predicted impacts on the various environmental attributes in the study area by using scientifically developed and widely accepted EIA Methodologies.
- Preparation of EMP outlining the measures for improving the environmental quality.

Reconnaissance survey was conducted along with the concerned officials of proposed mining area and sampling locations were identified on the basis of:

- Predominant wind directions in the study area as recorded from the site.
- Existing topography, drainage pattern and location of surface water bodies like ponds, canals, and rivers;
- Location of villages/towns/sensitive areas;

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<i>Project Location</i>	<i>Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala</i>	

- Areas which represent baseline conditions; and
- Collection, collation and analysis of baseline data for various environmental attributes.
- The field observations are used to:
 - To observe the baseline environmental status of study area;
 - Identify extent of negative impacts on community/natural resources

1.13 Methodology of Data Collection

Identify mitigation measures and monitoring requirements. The baseline information on micrometeorology, ambient air quality, water quality, noise levels, soil quality and floristic descriptions are largely drawn from the data generated by NABL Accredited consultancy. The Functional Area Experts (FAE) were involved in selection of monitoring locations and data collection. Long term meteorological data recorded from the site. Apart from these, secondary data have been collected from Census Handbook, Revenue Records, Statistical Department, Soil Survey and Land use Organization, District Industries Centre, Forest Department, Central Ground Water Authority, etc. The study also provides framework and institutional strengthening for implementing the mitigation measures.

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<i>Project Proponent</i>	<i>Arshak Ali E.K</i>	
<i>Project Location</i>	<i>Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala</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 Granite building stone mining project by open cast semi mechanized method on allotted mine lease area at Kannamangalam Village, Thirurangadi taluk of Malappuram District, Kerala. It is an elevated terrain. Proposed quarry lease is granted in favour of Arshak Ali E.K. in Re Survey No. 2, Re Survey No. 104/2B-09 & 104/2B-44 of Kannamangalam Village over an extent of 2.0144 acre of Kannamangalam village vide LoI No. 1526/M3/2020, dated 29.01.2021. Mining plan approval is granted by Department of Geology and Mining vide Letter No. DOM/M-5037/2018 dated 01.12.2021 for a proposed mining depth of +70 m MSL and first ten years production of 7,50,000 m³ of Granite stone.

Type of the project:

As per EIA Notification, 2006 and its subsequent amendments (O.M vide No.F.No.L-11011/175/2018-IA-II(M) Govt of India MOEF&CC on December 12th 2018) project comes under category B1 cluster & schedule 1(a) under item 1. The project required to be appraised at state level by State Environment Impact Assessment Authority, Kerala. Environment Clearance study will involve preparation of final EIA report on the basis of baseline & impact assessment study is carried out. Also, before appraisal, under 7(III) of EIA notification 2006, the project involves the Public Consultation and the same will be conducted under SPCB (Kerala) in Malappuram District. The proceedings of the same has been incorporated in the Final EIA Report. The mines within 500m radius from the project site is listed below.

Project Name	<i>Granite Building Stone Quarry – 2.0144 Ha</i>	Draft EIA Report
Project Proponent	<i>Arshak Ali E.K</i>	
Project Location	<i>Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala</i>	

Table 2-1: Quarry within 500m Radius

1) Existing quarries:

S. No.	Name of the lessee / Permit Holder	Village & Taluk	S. F. No.	Extent
1.	Shahanas Edathola Kottassery, Chanaparambil Mandothingal House, Kodinhi Post, Malappuram	Kannamangalam, Tirurangadi	104/2B	1.7063
2.	Thumpath Puthenpeedikakkal Abdul Hamee, S/O Moideen KuttyHaji, Nayithode (H), Kannamangalam Post, Malappuram	Kannamangalam, Tirurangadi	104/2B	3.1479
				4.8542

2) Details of abandoned/old quarries:

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

3) Details of proposed/applied quarries:

S. No.	Name of the lessee / Permit Holder	Village & Taluk	S. F. No.	Extent	Lease Period
1.	Arshak Ali.E.K	Kannamangalam, Tirurangadi	Re Survey No. 104/2B-09, 104/2B- 44, Re Survey Block No. 2	2.0144	10
				2.0144	

<i>Project Name</i>	<i>Granite Building Stone Quarry – 2.0144 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Arshak Ali E.K</i>	
<i>Project Location</i>	<i>Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala</i>	

The Total extent of the Existing / Lease expired / Proposed quarries are 6.8686 Ha

2.1.1 Need for the project:

India is endowed with abundant resources of a wide variety of granite comprising over 200 shades. Granite is the most sought-after stone building stone since long. The Indian granite can match the best granites produced in the world, in terms of quality. The Indian granite is well established in the world market and it brings considerable amount of foreign exchange to the country. Production of blocks of considerable size and weight is a special feature of granite mining. With the invention of modern tools of greater hardness and polishing ability, the use of granite has rather increased for aesthetic values. Granite also finds its application in making garden furniture such as benches, fountains and many other articles which are used for landscaping and/or for decorative purposes. Crude granites are utilized for structural purpose after little dressing & sizing whereas processed granites are used mostly in the construction of buildings and monuments and for interiors and exterior facings. Because of its superior wear resistance and non-denting quality, granite is used for various meteorological and engineering instruments such as surface plates, straight edges, parallels, cubes, V-blocks and work mounting tables of coordinate measuring machines.

Indian Granite, because of various uses enumerated above, is finding increased demand in the domestic as well as international market. It is an important commodity amongst ores and minerals which is being exported from the country. It is mainly traded in the form of crude or roughly trimmed blocks, as cut blocks and slabs and as polished blocks and tiles. Raw material for the infrastructure development is at high demand in the South India. In Malappuram district of Kerala, numbers of stone mines are there. The mineral- rich colors, and the hardness & density, makes it useful for many applications. The existing mining project will fulfill its end uses in buildings and construction, Used in Monuments, Memorials, Flooring slabs, Wall facings, Tiles, Kitchen articles, sculptures & export and many other exterior projects.

2.2 Brief Description of the project

Table 2-2 Salient Features of the Project

S. No.	Description	Details
1	Project Name	Proposed Granite building Stone Quarry-2.0144 Ha

Project Name	Granite Building Stone Quarry – 2.0144 Ha	Draft EIA Report
Project Proponent	Arshak Ali E.K	
Project Location	Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala	

2	Proponent	Arshak Ali E.K	
3	Mining Lease Area Extent	2.0144 Ha	
4	Location	Re Survey No. 104/2B-09, 104/2B-44, Re Survey Block No. 2	
5	Latitude	11° 5'48.70"Nto 11° 5'55.58"N	
6	Longitude	76°0'7.60"Eto 76°0'13.10"E	
7	Geographical Coordinates of all corners	Latitude	Longitude
		11° 5'55.52"N	76° 0'10.47"E
		11° 5'55.10"N	76° 0'11.93"E
		11° 5'53.75"N	76° 0'11.45"E
		11° 5'52.96"N	76° 0'13.14"E
		11° 5'48.73"N	76° 0'12.10"E
		11° 5'48.68"N	76° 0'7.61"E
		11° 5'50.70"N	76° 0'8.74"E
8	Topography	Elevated terrain	
9	Site Elevation above MSL	Highest Elevation of the lease area is +190m MSL and Lowest is +70m MSL.	
10	Topo sheet No.	49M/16, 58/A/04	
11	Minerals of Mine	Granite	
12	Proposed production of Mine	Proposed production/year: 75,000 cum Production for 10 years: 7,50,000 cum Geological reserves: 28,38,840 cum Mineable Reserve: 7,57,020 cum	
13	Ultimate depth of Mining	+70 m MSL	
14	Method of Mining	Open cast, semi-mechanized mining	
15	Water demand	3.5 KLD	
16	Source of water	Packed Drinking Water is available from the nearby approved water vendors in Kannamangalam which is 1.89 km on SW of the project site. For other uses, water will be sourced from tanker suppliers in nearby areas	
17	Man power	20 No's.	
18	Mining Lease	LoI No. 1526/M3/2020, dated 29.01.2021	
19	Mining Plan Approval	Department of Geology and Mining vide Letter No. DOM/M-5037/2018	

<i>Project Name</i>	<i>Granite Building Stone Quarry – 2.0144 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Arshak Ali E.K</i>	
<i>Project Location</i>	<i>Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala</i>	

21	Boundary Fencing	7.5m barrier all along the boundary, Fencing will be provided.
22	Disposal of overburden	About 11443 cu.m of overburden will be generated throughout the mine life. This waste will be utilized within the pit for lying of haul roads. At the end use, overburden can be reutilized as soil base for plantation.
23	Ground water	The quarry operation is proposed up to a depth of +70 m MSL. The observation made during the field studies are varying between 10 m to 15 m below the ground level.
24	Habitations within 500m radius of the Project Site	There is no Habitation within 500m radius of the project site.
25	Drinking water	Water will be supplied through tankers and drinking water can be purchased from nearby vendors of village Kannamagalam which is approx. 1.89 m from the project site in South West Side.

Project Name	Granite Building Stone Quarry – 2.0144 Ha	Draft EIA Report
Project Proponent	Arshak Ali E.K	
Project Location	Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala	

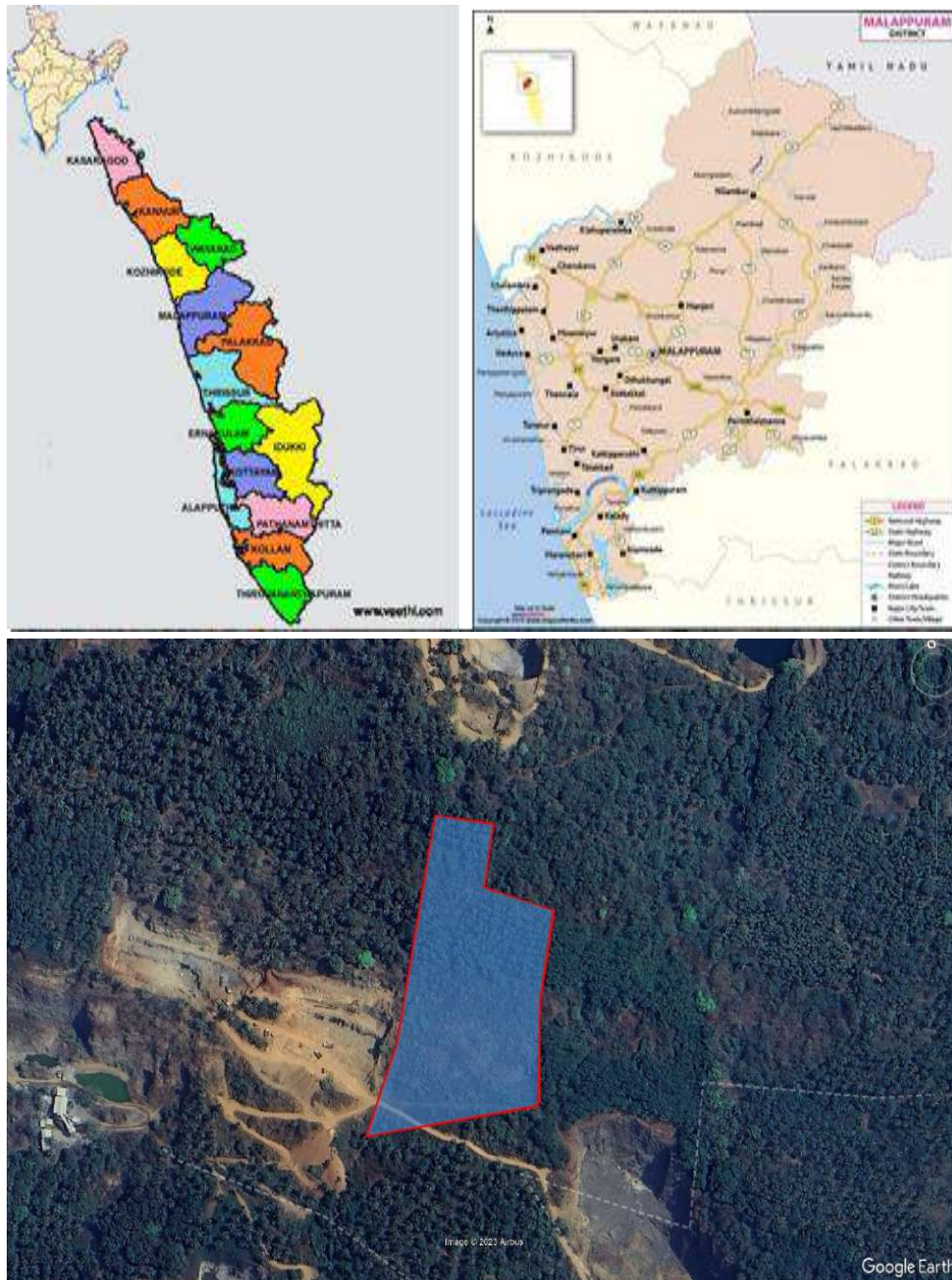


Figure 2-1: Location Map of the Project Site

<i>Project Name</i>	<i>Granite Building Stone Quarry – 2.0144 Ha</i>	<i>Draft EIA Report</i>
<i>Project Proponent</i>	<i>Arshak Ali E.K</i>	
<i>Project Location</i>	<i>Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala</i>	



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

2.2.1 Site Connectivity:

The site is well connected with roadways. The nearest highway, NH 966 runs at a distance of 6 km, NW.

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Project Location	Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala	

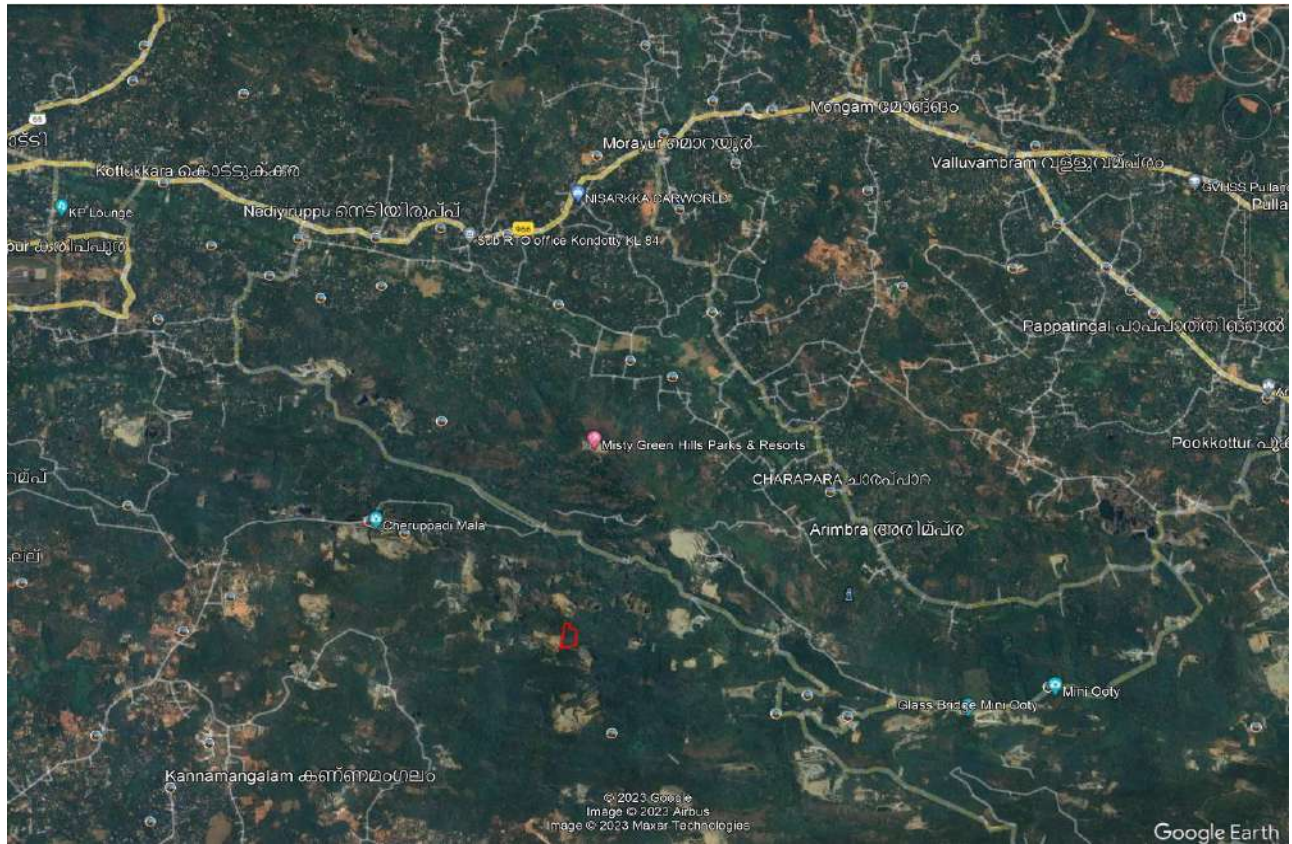


Figure 2-3: Connectivity Map

2.3 Location Details:

Table 2-3: Location Details

S. No	Particulars	Details	
1.	Latitude	11° 5'48.70"Nto 11° 5'55.58"N	
2.	Longitude	76°0'7.60"Eto 76°0'13.10"E	
3.	Geographical Coordinates of all corners	Latitude	Longitude
		11° 5'55.52"N	76° 0'10.47"E
		11° 5'55.10"N	76° 0'11.93"E
		11° 5'53.75"N	76° 0'11.45"E
		11° 5'52.96"N	76° 0'13.14"E
		11° 5'48.73"N	76° 0'12.10"E
		11° 5'48.68"N	76° 0'7.61"E
11° 5'50.70"N	76° 0'8.74"E		
4.	Site Elevation above MSL	Highest elevation of the lease area is +190m MSL and lowest is +70m MSL	
5.	Topography	Elevated terrain	

Project Name	Granite Building Stone Quarry – 2.0144 Ha	Draft EIA Report
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Project Location	Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala	

6.	Land use of the site	Proposed site is a private land. Land use around the lease area is generally hillock. Other area is covered with coconut trees
7.	Extent of lease area	2.0144 Ha
8.	Nearest railway Station	Parappanangadi Railway Station (21 km, SW)
9.	Nearest Airport	Calicut International Airport (15.0 km, NW)
10.	Nearest Highway	NH 966 – Nediyruppu (6 km, NW)
11.	Electric Line	Manjergara – Perandakkal (500 m, SW)
12.	Telephone	Kannamangalam Granite Crusher (1 km, SW)
13.	Tanker Water Supply	Nearby Site
14.	Nearest Hospital	PHC Kannamangalam (5 km, SW)
15.	Nearest Post-Office	Kannamangalam West (5 km, SW)
16.	Nearest School	PPTMY HSS Cherur (5 km, SW)
17.	Nearest Police Station	Vengara Police Station (7 km, S)

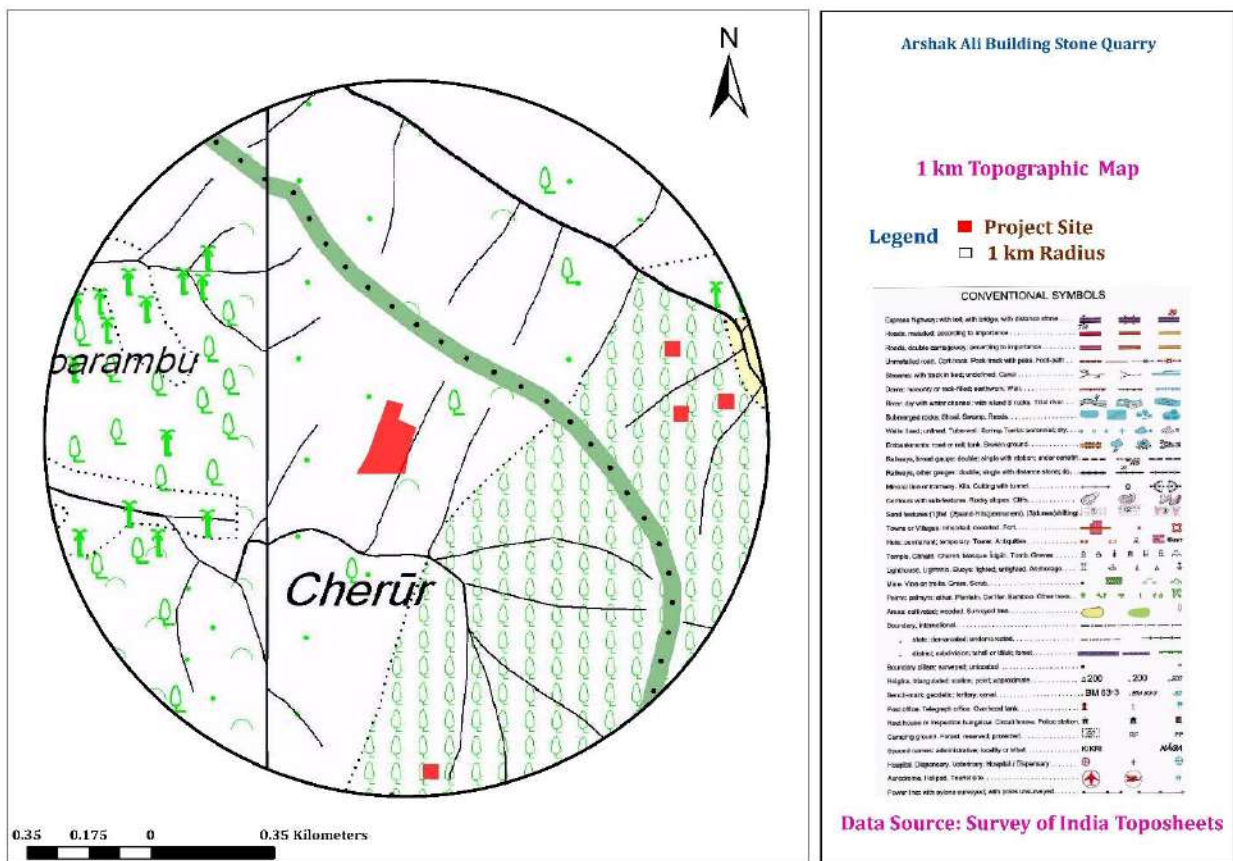


Figure 2-4: Topo Map of Project Site (1 km radius)

Project Name	Granite Building Stone Quarry – 2.0144 Ha	Draft EIA Report
Project Proponent	Arshak Ali E.K	
Project Location	Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala	

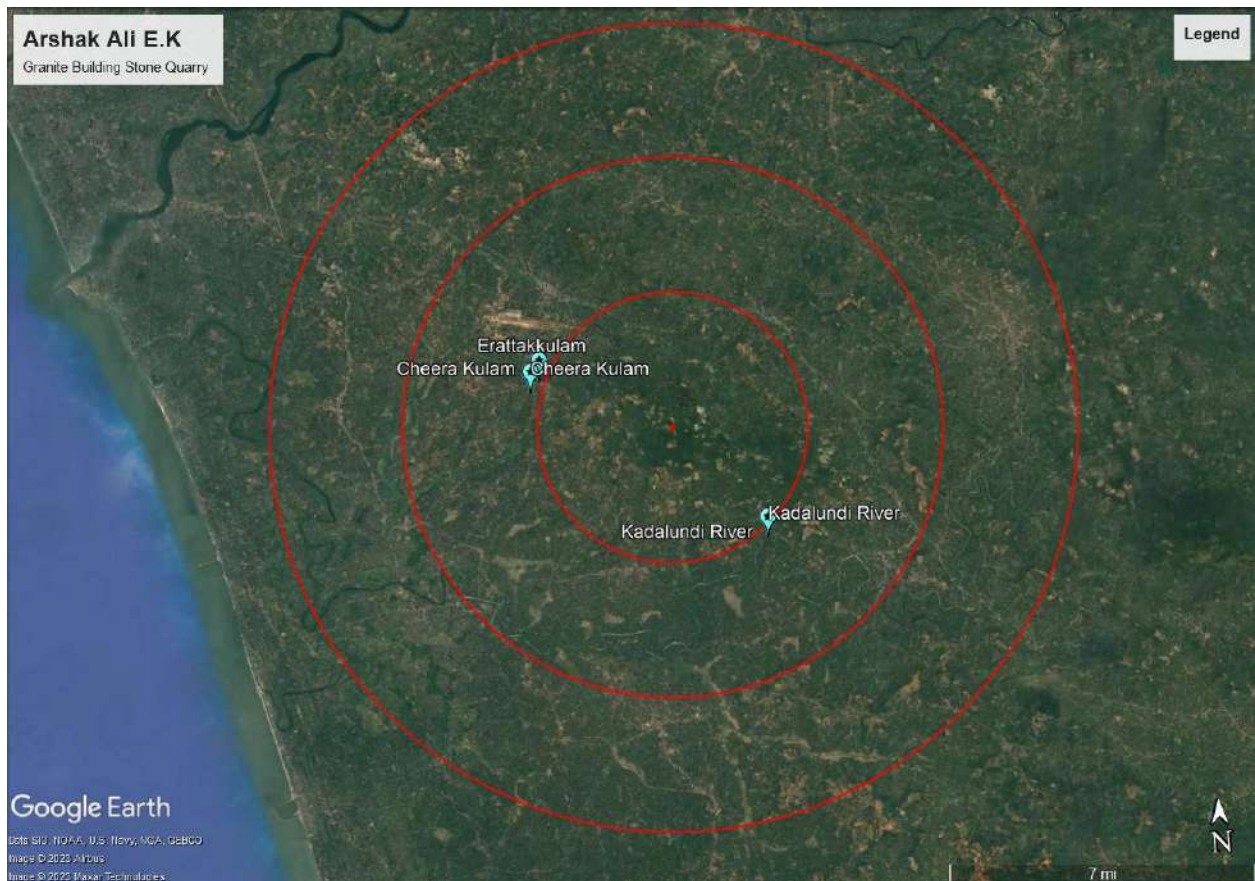


Figure 2-7: Environmental Sensitivity within 10 km radius

2.3.1 Site Photographs

The site photographs of the project site are as follows.

Project Name	Granite Building Stone Quarry – 2.0144 Ha	Draft EIA Report
Project Proponent	Arshak Ali E.K	
Project Location	Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala	

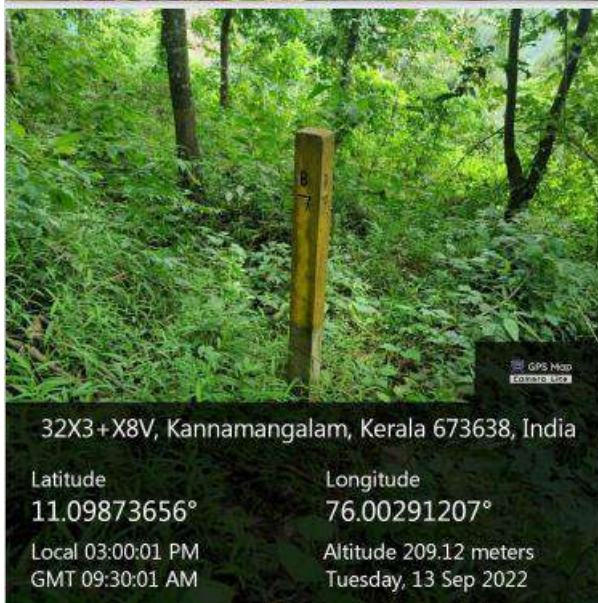
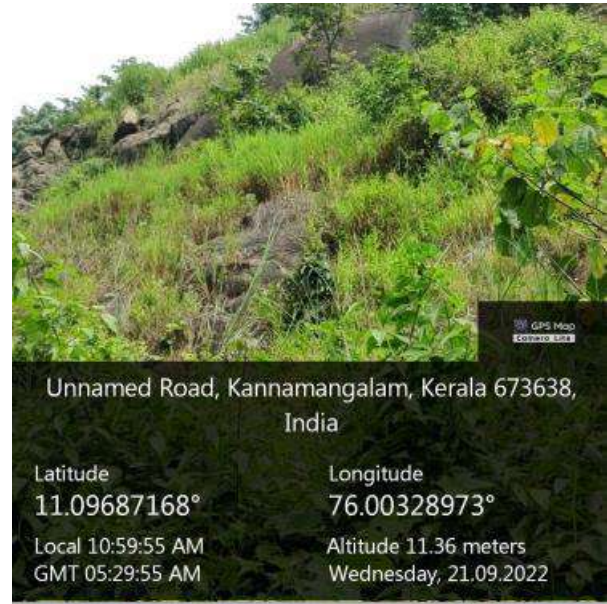


Figure 2-8: Site Photographs

2.3.2 Land Use Breakup of the Mine Lease Area

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

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Project Location	Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala	

Table 2-4: Land use pattern

S. No.	Land Use Category	Pre-Operational (Ha.)	Operational (Ha.)	Post-Operational (Ha.)
1	Topsoil Dump	Nil	0.4 (Outside)	-
2	Over burden	Nil		
3	Excavation	Nil	0.8216 (0.80 ha Reclaimed by plantation)	1.4501 (Reclaimed by plantation)
4	Road	0.085	0.095	0.095
5	Built Up Area	-	-	-
6	Drainage	-	-	-
7	Green belt	-	0.4693	0.4693
8	Undisturbed Area	1.9294	0.6285	-
Total		2.0144	2.0144	2.0144

2.3.3 Human Settlement

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

2.4 Leasehold Area

The proposed Granite Quarry mine of 2.0144 Ha is a Private land. The lease area falls in Re Survey Ni. 104/2B-09, 104/2B-44, Re Survey Block No. 2 in Kannamangalam Village, Tirurangadi taluk, Malappuram District. Proposed mine site is a private land. There is no reserve forest or protected forest land within the lease area. There is neither human settlement within 500m radius from the lease area.

2.5 Local Geology

The local geology belongs to the regional geology. Main rock type in the study area is charnockite. At places where they are exposed, the charnockite is medium to coarse grained with dark grey quartz. The soil & over burden thickness varies from average 1.4 m to 0.9 topographically, the area is undulating. In project area the granite (building stone) exposures are bordering to the lease boundary.

Particulars	Pit-1
Top Soil (thickness in m)	1.4
Over-burden	0.9

2.6 Quality of Reserves:

Project Name	Granite Building Stone Quarry – 2.0144 Ha	Draft EIA Report
Project Proponent	Arshak Ali E.K	
Project Location	Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala	

The mining lease area is of 2.0144 Ha, with annual production capacity of **75,000 m³** (7,50,000 cum in ten years) of Granite building stone. Due to significant role in the domestic as well as infrastructural market, making the mining of Stone along with associated minor minerals is economically viable.

Table 2-5: Details of Mining

S. No	Particulars	Details
1	Method of Mining	Open Cast Semi-mechanized
2	Geological Reserves	28,38,840 MT
3	Mineable Reserves	7,57,020 MT
4	Proposed Production	Proposed production/year: 75,000 MT Production for 10 years: 7,50,000 MT
5	Elevation Range of the Mine Site	Highest elevation of the lease area is +190m MSL and lowest is +70m MSL.

2.6.1 Estimation of Reserves

The surface geological plan and geological cross-sections & longitudinal section are prepared on a scale 1:1000. Accordingly, the reserves for Stone and associated minor minerals have been estimated on cross-sectional area method.

2.6.2 Geological and Mineable Reserves

The Mineable reserves are calculated by deducting 7.5m Safety distance and Bench Loss. The Mineable Reserve is calculated upto a depth of 15 m

Table 2-6: Blocked and Mineable Reserves

	BLOCKED					MINEABLE				
BENCH	M2	M	DENSITY	TON		BENCH	M2	M	DENSITY	TON
					A-A1					
70-75	851	55.5	2.5	118076		70-75	138	48	2.5	16560
75-80	793	55.5	2.5	110029		75-80	196	48	2.5	23520
80-85	735	55.5	2.5	101981		80-85	254	48	2.5	30480
85-90	702	55.5	2.5	97402.5		85-90	255	48	2.5	30600
90-95	668	55.5	2.5	92685		90-95	242	48	2.5	29040
95-100	635	55.5	2.5	88106.3		95-100	229	48	2.5	27480
100-105	604	55.5	2.5	83805		100-105	214	48	2.5	25680
105-110	569	55.5	2.5	78948.8		105-110	202	48	2.5	24240

Project Name	Granite Building Stone Quarry – 2.0144 Ha							Draft EIA Report	
Project Proponent	Arshak Ali E.K								
Project Location	Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala								

110-115	531	55.5	2.5	73676.3		110-115	193	48	2.5	23160
115-120	476	55.5	2.5	66045		115-120	197	48	2.5	23640
120-125	428	55.5	2.5	59385		120-125	198	48	2.5	23760
125-130	396	55.5	2.5	54945		125-130	182	48	2.5	21840
130-135	369	55.5	2.5	51198.8		130-135	161	48	2.5	19320
135-140	334	55.5	2.5	46342.5		135-140	142	48	2.5	17040
140-145	303	55.5	2.5	42041.3		140-145	129	48	2.5	15480
145-150	266	55.5	2.5	36907.5		145-150	119	48	2.5	14280
150-155	212	55.5	2.5	29415		150-155	124	48	2.5	14880
155-160	148	55.5	2.5	20535		155-160	137	48	2.5	16440
160-165	113	55.5	2.5	15678.8		160-165	122	48	2.5	14640
165-170	88	55.5	2.5	12210		165-170	97	48	2.5	11640
170-175	63	55.5	2.5	8741.25		170-175	73	48	2.5	8760
175-180	38	55.5	2.5	5272.5		175-180	48	48	2.5	5760
180-185	14	55.5	2.5	1942.5		180-185	32	48	2.5	3840
185-190	-	55.5	2.5			185-190	17	48	2.5	2040
				1295370						444120
					B-B1					
80-85	629	60	2.5	94350		80-85	85	52.5	2.5	11156.3
85-90	576	60	2.5	86400		85-90	138	52.5	2.5	18112.5
90-95	522	60	2.5	78300		90-95	192	52.5	2.5	25200
95-100	494	60	2.5	74100		95-100	189	52.5	2.5	24806.3
100-105	465	60	2.5	69750		100-105	174	52.5	2.5	22837.5
105-110	434	60	2.5	65100		105-110	163	52.5	2.5	21393.8
110-115	399	60	2.5	59850		110-115	151	52.5	2.5	19818.8
115-120	359	60	2.5	53850		115-120	145	52.5	2.5	19031.3
120-125	308	60	2.5	46200		120-125	149	52.5	2.5	19556.3
125-130	247	60	2.5	37050		125-130	163	52.5	2.5	21393.8
130-135	188	60	2.5	28200		130-135	177	52.5	2.5	23231.3
135-140	164	60	2.5	24600		135-140	156	52.5	2.5	20475
140-145	139	60	2.5	20850		140-145	137	52.5	2.5	17981.3
145-150	114	60	2.5	17100		145-150	114	52.5	2.5	14962.5
150-155	87	60	2.5	13050		150-155	93	52.5	2.5	12206.3
155-160	64	60	2.5	9600		155-160	71	52.5	2.5	9318.75

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160-165	38	60	2.5	5700		160-165	49	52.5	2.5	6431.25
165-170	16	60	2.5	2400		165-170	26	52.5	2.5	3412.5
170-175	-	60	2.5	-		170-175	12	52.5	2.5	1575
				786450						312900

Table 2-7: Summary of Geological and Mineable Reserves

SECTION	BLOCKED RESERVE (MT)	MINEABLE RESERVE (MT)	GEOLOGICAL RESERVE (MT)
A-A1	1295370	444120	1739490
B-B1	786450	312900	1099350
TOTAL	2081820	757020	2838840

The year-wise development for the ensuing Five Years period is shown in the plates with cross sections. In view of the development, year wise proposal for the present scheme period is from existing pit towards Southeastern side of the lease area. The Proposal for the next five Years reserves are calculated upto a depth of 15.0m

Table 2-8: Year wise Production Plan

Year	Benches	Minerals (MT)
I	155-160,160-165,165-170,170-175,175-180,180-185,185-190	75,000
II	145-150,150-155,155-160	75,000
III	135-140,140-145	75,000
IV	125-130,130-135	75,000
V	115-120,120-125	75,000
VI	110-115,115-120	75,000
VII	100-105,105-110	75,000
VIII	95-100,100-105	75,000

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IX	85-90,90-95	75,000
X	70-75,75-80,80-85,85-90	75,000
	TOTAL	7,50,000

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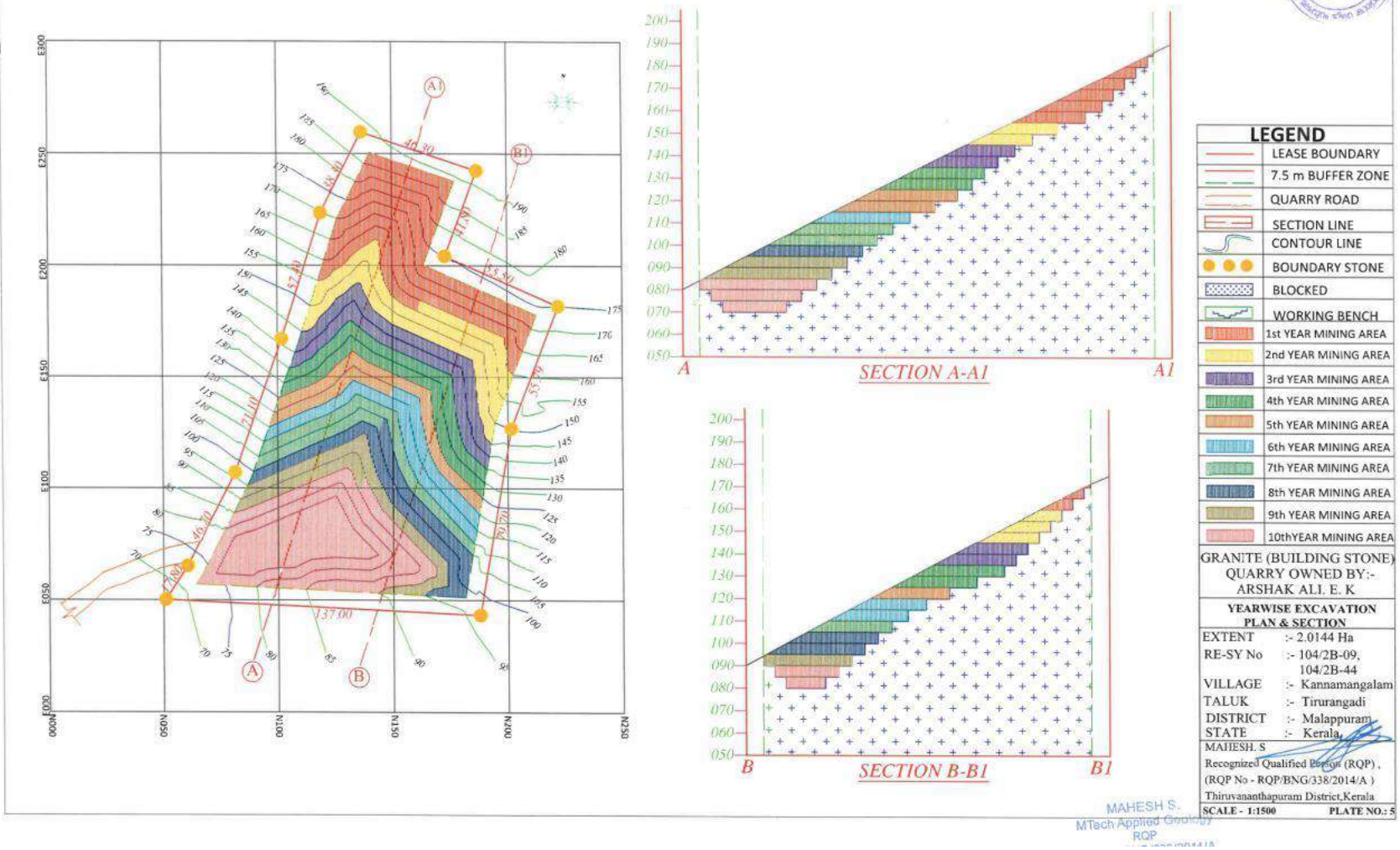


Figure 2-9 Year wise Production Plan

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2.7 Type of Mining

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

2.7.1 Method of Working:

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

In this proposed Quarry area under consideration mining will be done by opencast semi-mechanized method. First top soil as overburden will be removed. After exposing the granite stone drilling will be done by using jack hammer. The blasting will be carried out by cartridge slurry explosives. The rock breakers will be used to break the oversize boulders left after blasting. The blasted material and the broken material by rock breakers of the size 150mm will be loaded into the tippers by excavator and transported to the crushing and screening plant located outside the lease area. The crushing and screening shall be carried out by using primary and secondary crushers and the screens of 20mm, 12mm, 10mm & 6mm opening. The finished product shall be stacked in the crushing and screening plant area from where it shall be dispatched to the consumer directly

2.7.2 Top Soil and Overburden

About 11443 cu.m of overburden will be generated throughout the mine life. This waste will be utilized within the pit for lying of haul roads. At the end use, overburden can be reutilized as soil base for plantation. The topsoil excavated from the quarry will be dumped separately at pre-determined place and subsequently will be utilized in spreading over reclaimed areas for plantation. Precautions will be taken to limit the height of the topsoil dump to 5 to 6 meters in order to preserve its fertility. It will be suitably protected from soil

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erosion and infertility by planting fodder grass and leguminous plants during temporary storage.

About 28,091cu.m of overburden will be generated throughout the mine life. This waste will be utilized within the pit for lying of haul roads. At the end use, overburden can be reutilized as soil base for plantation.

The topsoil and overburden is stored in dump yard which is totally protected from leaching away by the running water and proper sediment trap is used for limiting the sediment transport. Care will be taken in selecting the site for the stacking yards for the stacking purpose. It will be located in a secure place and having solid base and on a non-used zone. These dump yards have been protected by toe walls. The toe walls will be constructed during first year period. The height of these dumps will also be restricted and benched. A retaining wall 0.5 m x 1.0 m will be made on the low altitude side of the dump. It is proposed to collect the storm water into the holding/ siltation tank by constructing channels all around the foot of hill. The channels will be constructed with intermediate check dams to prevent soil erosion. The sizing of the channels will be 1m x 1m.

Table 2-9: Year wise removal of Top Soil & Overburden Quantity

YEAR	TOPSOIL (CU.M.)	OVERBURDEN (CU.M.)	AREA (HA.)
I - VII	19617	11443	0.4 (OUTSIDE)

General Dumping Practices:

- During the planning stage identification of waste storage yard and topsoil should be done based on slope and runoff characteristics. The individual dump will have maximum slope of 37° and an overall slope not exceed 28°
- The completed dumps and the back-filled areas will be afforested in a planned way to increase their stability
- The topsoil prior to drilling and blasting will be stacked at designated area surrounded by embankment to prevent erosion. The topsoil dumps will be stabilized by plantation and retaining wall.
- The external dump will have stretches of retaining wall at suitable locations and the wall will be constructed with suitable height and top surface.

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- The wall will have weep holes to drain out water to the garland drain.
- Runoff from the mine and waste dumps should be regulated by constructing check dams and garland drains. Garland drains should be constructed on all side of quarries and dumping yards. All the garland drains should be routed through adequately sized catch pits or settling pits to remove suspended solids from flowing into storm water.
- Plantation on the topsoil dumps can only be taken up after dumping activity is stopped and the site is proposed for plantation. A layer of topsoil should be spread over the area and roughly levelled. Coir net / blanket should be spread, and native grass seed mix should be broadcasted uniformly on prepared slope

Reclamation Practices

The topsoil stabilisation is important from the environmental and aesthetic point of view. The most common method of stabilisation is reusing by plantation. Back filled topsoil are generally reclaimed by tree species as plantation improves the moisture contents, bulk density, pH and overall nutrient contents of soils. Maintain a reverse slope in all benches during the operational phase to avoid the erosion of back filled Soil and maintain a small channel in the bottom terrain of the benches

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

Sr. No.	Machine Type	Required No. of M/c	Size/Capacity
1.	Excavator	2	210 DP
2.	Rock Breaker	1	1500 HP
3.	Compressor	2	-
4.	Tippers/Trucks	4	10T
5.	Jack hammer	2	32 mm
6.	DG set	1	-

2.7.4 *Blasting:*

2.7.4.1 Blasting Pattern:

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

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2.7.4.2 Drilling & Blasting:

The excavation of mineral is proposed by excavators. The mineral is fractured and easily exploitable by rock breaker and excavators. The hard strata are proposed to excavate after drilling and blasting. The drilling and blasting parameters are in correlation with the proposals laid down in the approved mining plan. The controlled blasting is proposed by adopting all the safety measures as per “MMR 1961” and with the permission of DGMS. In this area for fragmentation of the rock, the blasting will be conducted.

Shallow holes of 32mm dia. holes are drilled and the depth of hole will be generally about 1.0m to 1.5 m drilled with the help of 32 mm drill rod, Jack Hammer and Air Compressor of 100 Cfm capacity. Water sprinkled for suppression of air borne dust on Mine haulage roads and waste dumps on regular intervals by water tankers. Drilling of blast holes will be always under wet condition to prevent flying of dust. In the unloading point of Tippers, water was sprinkled and further the drillers were provided with respirators in accordance with mines regulations.

Conventional low explosives will be used. It is estimated about 250g of explosives per hole is required. About 10-15 holes per blast are proposed. Therefore, the requirement of explosives will be about 3.75 kg/blast. Since the dimensional stones, which are needed to be without internal cracks, high explosives were not used. The scale of blasting was however very less considering the rate of production. Muffle blasting was not necessary as the area was free from dwelling houses, public utilities etc., Now wire saw machine is being utilized for primary cutting to liberate the required sizes of block from the parent rock The secondary splitting of the blocks been done by pressure-split method with the help of feather and wedges. In view of above, there is no adverse effect on dust, noise and ground vibration by mining activities. Only class 2 and class 6 explosive are proposed for use

Loading and Transportation: Loading of mineral will be done by excavator and will be sent to the crusher located outside the lease area for sizing. Trucks / Tippers of 10T will be used for transportation of mineral from mine site. It is expected that 35-40 trips will be required to transport on daily basis. For this, movement of truck per hour will be 4-5 only. Thus, the impact due to movement of trucks from the mine will be marginal.

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Use of Minerals

The rock produced from the quarries is sent to the Crusher unit near by the location for the final product generation. The aggregate produced is sold to the contractors and to the consumers which is finally consumed locally for various building purpose

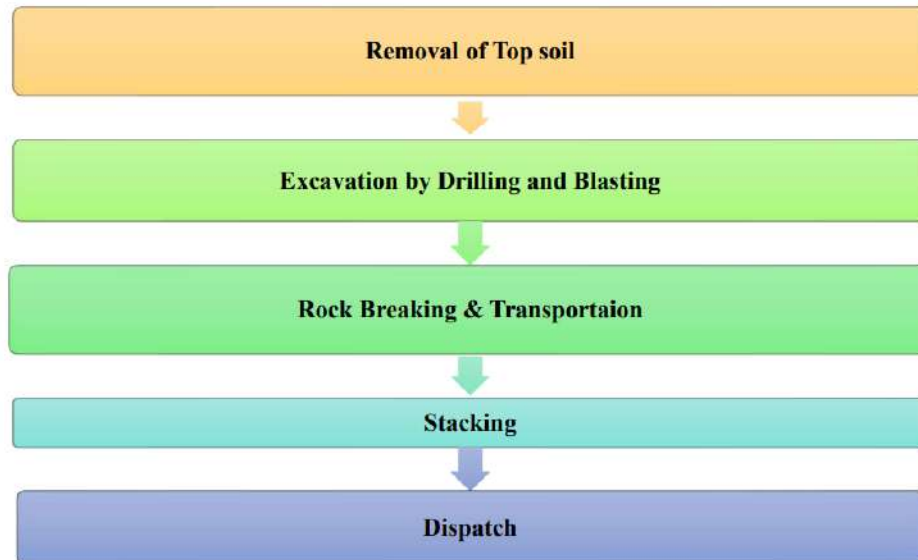


Figure 2-10 Process Flow Chart-Mining

2.7.4.3 Storage & Safety measures taken during blasting:

The project proponent “Arshak Ali E.K.” 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 VI*.

2.7.5 Mine Closure Plan

Proposed mines have a mine life of 10 years and as per norms, the progressive mine closure plan is applicable instead of Mine closure plan. The mine closure plan shall be prepared 5 years before expiry of the mine which covers technical, environmental, social, legal and financial aspects dealing with progressive and post closure activities. While formulating the closure objectives for the site, it is important to consider the pre-mining land use of the site and how the operation will affect this activity. The primary aim is to ensure that the following broad objectives along with the abandonment of the mine can be successfully achieved:

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- To create a productive and sustainable after-use for the site, acceptable to mine owners, regulatory agencies, and the public.
- To protect public health and safety of the surrounding habitation.
- To minimize environmental damage.
- To conserve valuable attributes and aesthetics.
- To overcome adverse socio-economic impacts.

The criteria involved in mine closure are discussed below:

Physical Stability:

All anthropogenic structures, which include mine workings, dumping, buildings, will be well stabilised during the mining activities, so that it will be physically stable even after the decommissioning of mine. This will not have any hazard to public health and safety. Mine benches shall be designed in such way to have good stability and good factor of safety, the proposed design and factors of safety will take full account of extreme events such as floods, hurricane, winds or earthquakes, and other natural perpetual forces like erosion, etc.

Chemical Stability

During the mining operations no hazardous chemicals are used for any activity in mine and also granite building stone is chemically inert, so this mining project will not have any Chemical impact on the topsoil and waste generated. The solid wastes (soil/OB) from this mine stacked separately so as to maintain chemically stable. This means that the consequences of chemical changes or conditions will not lead to leaching of metals, salts or organic compounds and will neither endanger public health and safety nor result in the deterioration of environmental attributes.

Biological Stability:

The biological stability of the mine site itself is closely related to rehabilitation and final land use. Nevertheless, biological stability can significantly influence physical or chemical stability by stabilizing soil cover, Erosion/wash off are prevented by developing vegetation cover on waste dumps and in green belt area. A vegetation cover over the disturbed site is usually one of the main objectives of the rehabilitation program, as vegetation cover is the best long-term method of stabilizing the site and it will be carried during mining period itself and also before the closure of mine.

Valuable attributes, Aesthetics and Socio-Economics at end of the mine:

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More important is given to for re-vegetation, management of soil nutrient levels. Additions of nutrients are carried out under necessary situations to the topsoil. The progressive mine closure plan is a part of approved mine plan. Stage wise progressive mine closure plan with budget available financial / manpower is prepared will be implemented stage wise. The progressive mine closure plan which is a part of the approved mining plan of the proposed mining lease.

2.8 Man Power Requirements and Organization Chart

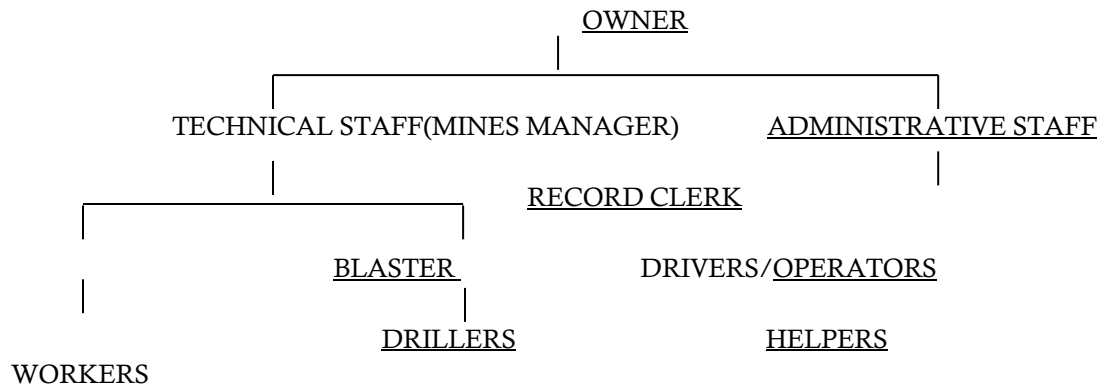
The manpower requirement to meet out the production Schedule and the machinery strength envisaged in the mining plan and to comply with the statutory provisions of the Mines Safety Regulations is as follows.

Table 2-11: Man Power Requirements

Sr. No.	Name of The Post	NOS.
1	Highly Skilled	2
2	Skilled	4
3	Semi-Skilled	8
4	Un- Skilled	6
	Total	20

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

ORGANISATION CHART



2.9 Water Requirement

Total water requirement for the mining project is 3.5 KLD. Domestic water will be sourced from nearby Kannamangalam Village and other water will be source from nearby road tankers supply.

Table 2-12: Water Requirements

Purpose	Quantity	Sources
Domestic & Flushing	0.5 KLD	Open Well
Green belt	1.5 KLD	Other domestic activities through road tankers supply

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Dust suppression	1.5 KLD	From road tankers supply
Total	3.5 KLD	

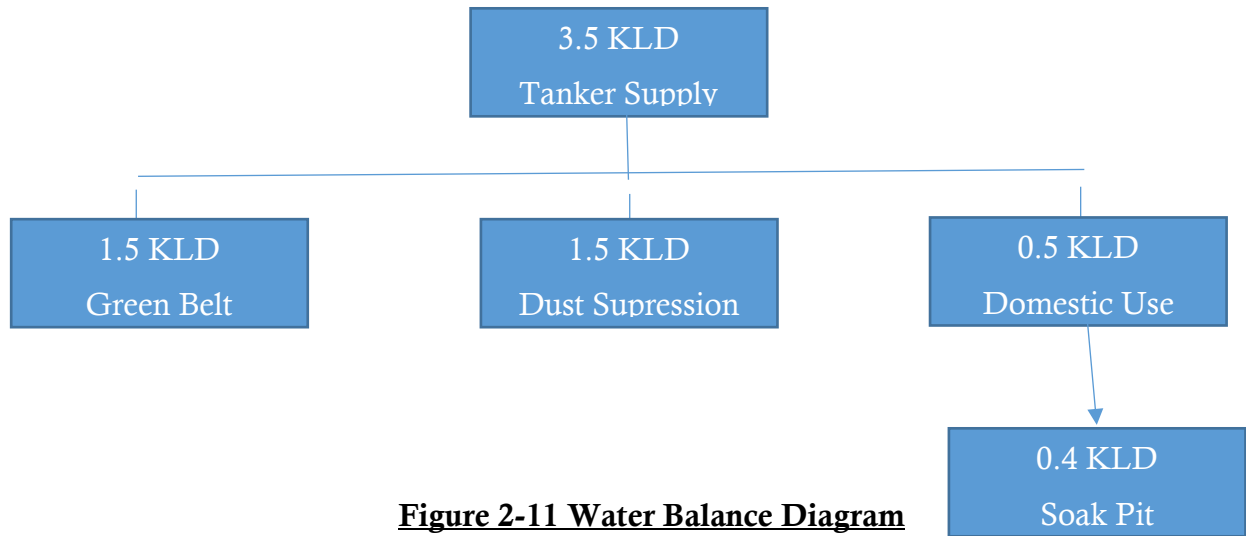


Figure 2-11 Water Balance Diagram

2.10 Wastewater Management

The liquid waste generated in the quarry site composed by surface runoff water and domestic sewage. The runoff water will be managed with garland drains, silt traps and checks dams. The sewage to a tune of 0.8 KLD generated from the mine office will be treated in septic tank and finally to soak pit discharge

2.11 Project Implementation Schedule

The implementation schedule of the proposed Mine Lease of Arshak Ali E.K. (2.0144 Ha) is as follows.

Table 2-13: Mining Schedule

MINING SCHEDULE					
Activity	Nov-23	Nov-24	Nov-25	Nov-26	Nov-27
Site Clearance					
Excavation - Top Soil Removal/Overburden					
I Year Production					
II Year Production					
III Year Production					
IV Year Production					
V Year Production					

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2.12 Solid Waste Management

Table 2-14: Solid Waste Management

S.No	Type	Quantity	Disposal Method
1	Organic	5.4 kg/day	Municipal bin including food waste
2	Inorganic	3.6 kg/day	KPCB authorized recyclers

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

2.13 Mine Drainage

The quarry operation is proposed up to a depth of +70m MSL. The water table is below 10-15 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.

2.14 Power Requirement

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

2.15 Project Cost

Table 2-15: Project Cost

I NO	Particulars	Amount
1	Actual Land Cost	53,17,389/-
2	Plant & Machinery	5,79,20,000
	SPLIT UP	
	Excavator (Rent) – 1700 (per hour) x 8 = 13,600 per day * 2 No's = 27,200*250 days = 68,00,000 * 5 years = 3,40,00,000	
	Box compressor (Rent) - 16,000 (per month)*2 No's = 32000*12 = 3,84,000*5 years = 19,20,000/-	
	Breaker (Rent) -2,200 (per hour) * 8 = 17,600 Per day*250 days = 44,00,000*5 years = 2,20,00,000/-	
3	Infrastructure Development	8,00,000/-
	SPLIT UP	
	Explosive, Magazine Shed & other expenses - 5,00,000/-	
	Office Building - 3,00,000/-	
4	Administrative Cost & Other Expenses (P.M)	4,00,000/-
5	Revised CER with EMP Budget Cost (Details given by Annexures -3)	50,38,000/-
	Total	6,94,75,389/-

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2.16 Greenbelt

1. The development of greenbelt in the peripheral buffer zone of the mine area.
2. Green belt has been recommended as one of the major component of Environmental Management plan, which will improve ecology, environment and quality of the surrounding area.
3. 1500 nos. of Local trees will be planted along the lease boundary (within 7.5 m barrier area and around offices, road side and fencing boundary) in area of 0.6231 ha. Plantation will be carried out in grid of 3 m X 3 m. Trees to be planted will be high dust capturing, soil holding capacity, ground water recharge capacity. More focus will be given for medicinal plants
4. The rate of survival expected to be 60% in this area

Table 2-16: Timeline for Plantation

Timeline	Category
First six Months	Herbs and Grass
Next Six Months	Shrubs
Next Six Months Onwards	Trees

Post Planting Care

Post planting care is most essential for healthy growth of vegetation. This will comprise of:

- i. Replacement of casualties at the first opportunity itself
- ii. Weeding monthly for first 2 months and later on six monthly
- iii. Irrigation fortnightly from Oct to March, once in 10 days between April and June
- iv. Soil working, manuring, mulching etc twice in year
- v. Protection from grazing cattle

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3 Description of the Environment

3.1 General:

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

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

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

3.1.1 Study Area:

The study area for the mining projects is as follows:

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

We have obtained Terms of Reference from SEIAA/F.No. 2069/EC6/SEIAA dt. 06.01.2023. The baseline monitoring is carried out in December 2021 to February 2022 and the analysis is briefed in the EIA report. The proponent has engaged M/s. Ecotech labs Pvt. Ltd for carrying out the existing baseline study.

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3.1.2 Instruments Used

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

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

3.1.3 Baseline Data Collection Period:

The baseline data is collected in accordance with the CPCB Guidelines. The Baseline study is carried out from December 2021 to February 2022.

3.1.4 Frequency of Monitoring

Table 3-1: Frequency of Sampling and Analysis

Attributes	Sampling	Frequency
Meteorology (wind speed, wind direction, rainfall, humidity, temperature)	Project site	1 hourly continuous
Air environment – Pollutants PM 10 PM 2.5 SO ₂ NO _x Lead in PM	7 locations	24 hourly twice a week 4 hourly. Twice a week, One non-monsoon season 8 hourly, twice a week 24 hourly, twice a week
Noise	7 locations	24 hourly Once in 7 locations
Water (Ground water) pH, Temperature, Turbidity, Magnesium Hardness, Total Alkalinity, Chloride, Sulphate, Fluoride, Nitrate, Sodium, Potassium, Salinity, Total nitrogen, Total Coliforms, Fecal Coliforms	2 locations	Once in 2 locations

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Water (surface water) pH, Temperature, Turbidity, Magnesium Hardness, Total Alkalinity, Chloride, Sulphate, Fluoride, Nitrate, Sodium, Potassium, Salinity, Total nitrogen, Total Coliforms, Fecal Coliforms	Sample from nearby lakes/river (1 river in study area)	One-time Sampling
Soil (Organic matter, Texture, pH, Electrical Conductivity, Permeability, Water holding capacity, Porosity)	1 locations	Once in 1 location
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
Land Use	10 km radius area	One-time study during study period using satellite imagery
Geology	10 km radius area	Resource map and approved mining plan
Hydrology	10 km radius area	As per resource map, available central ground water board report for Malappuram District.

3.1.5 Secondary data Collection

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

- Topography
- Drainage
- Geology
- Hydrology and Hydro-geology
- Flora & Faunal Study

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

3.1.5.1 Study area details

Table 3-2 Study area details

S. No	Description	Details		Source
1.	Project Location	Re Survey Block No-2, Re-Survey No: 104/2B-09 & 104/2B-44 of Kannamangalam Village, Thirurangadi Taluk, Malappuram District, Kerala		Field Study
2.	Latitude & Longitude	Latitude	Longitude	Topo Sheet
		11° 5'55.52"N	76° 0'10.47"E	
		11° 5'55.10"N	76° 0'11.93"E	
		11° 5'53.75"N	76° 0'11.45"E	
		11° 5'52.96"N	76° 0'13.14"E	
		11° 5'48.73"N	76° 0'12.10"E	
		11° 5'48.68"N	76° 0'7.61"E	
		11° 5'50.70"N	76° 0'8.74"E	
3.	Topo Sheet No.	49M/16 and 58/A/04		Survey of India Toposheet
4.	Mine Lease Area	2.0144 Ha		--
Demography in the study area (as per Census 2011)				
5.	Total Population	23,344		Census Survey of India
6.	Maximum Temperature (°C)	34°C		IMD
7.	Minimum Temperature (°C)	24.4°C		
8.	Ecological Sensitive Areas - Wetlands, watercourses	There are no water bodies like river, lake, within 500m radius of lease area.		Google Earth/Field Study

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	or other waterbodies, coastal zone, biospheres, mountains, forests		
9.	Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities)	Schools & Colleges 1. PPTMY HSS Cherur (5.0 km, SW) Hospitals 1. PHC Kannamangalam (5 km, SW) Worship 1. Shankara Narayana temple (1.13 kms, SE) 2. KT Para Masjid (1.73 kms, S) 3. Christ King Church (1.83 km, SE)	Google Earth/Field Study

3.1.6 Site Connectivity:

The site is well connected with roadways. The nearest highway, NH 966 runs at a distance of 6 km, NW.

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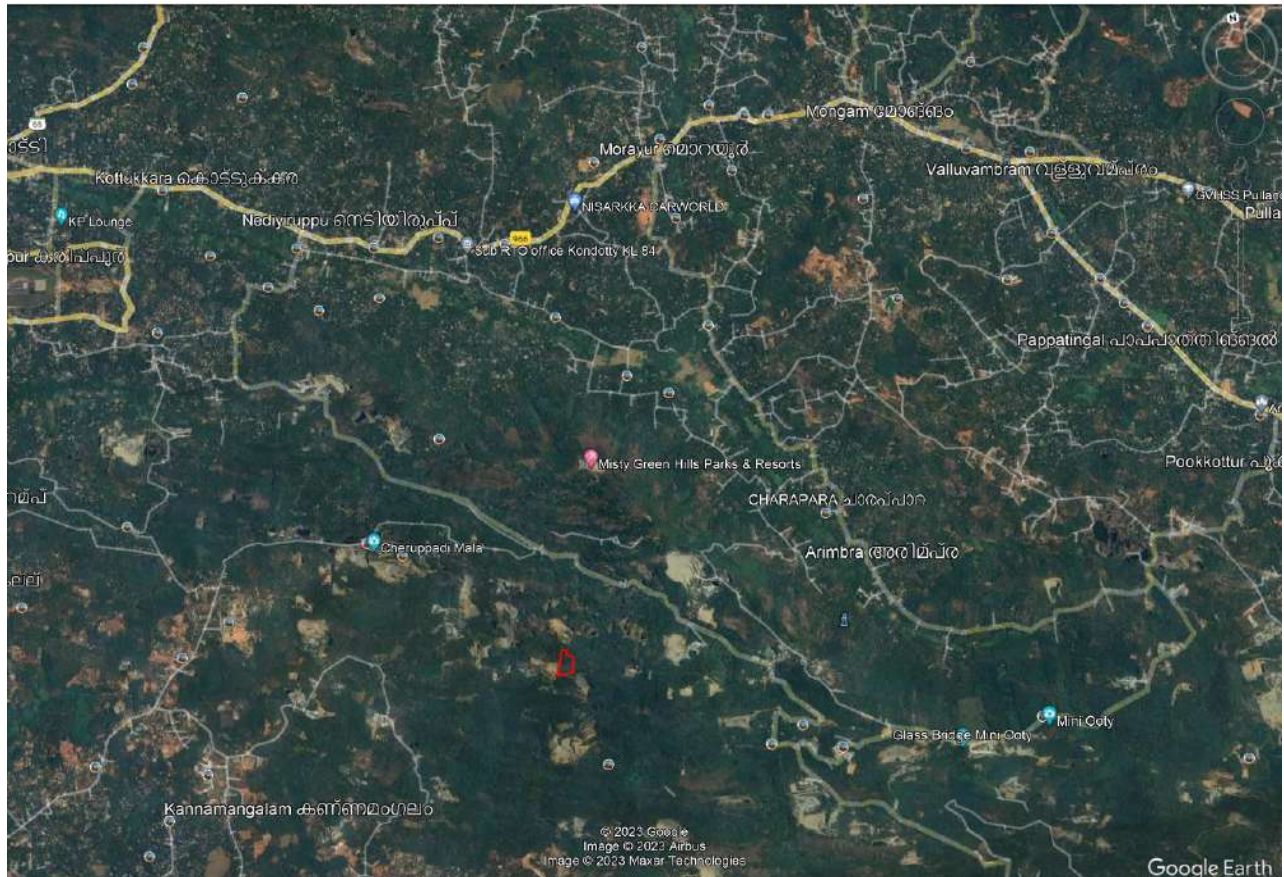


Figure 3-1 Site Connectivity Map

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

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activities on land, which are directly related to land (Anderson et al., 1976). The land use and the land cover determine the infiltration capacity. Barren surfaces are poor retainers of water as compared to grasslands and forests, which not only hold water for longer periods on the surface, but at the same time allow it to percolate down.

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

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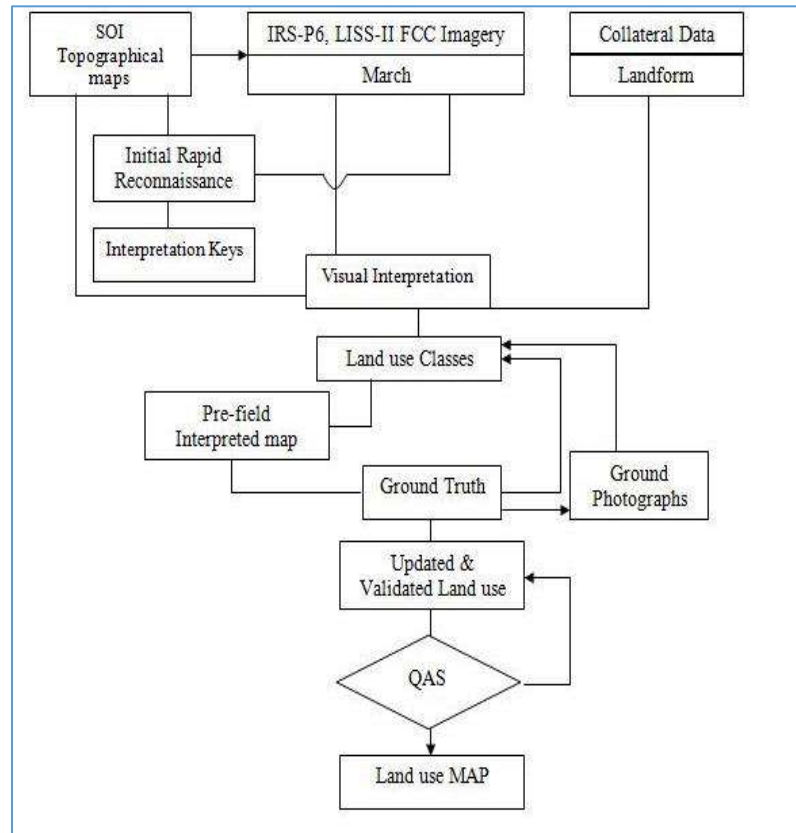


Figure 3-2 Flow Chart showing Methodology of Land use mapping

3.2.3 Satellite Data

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

3.2.4 Scale of mapping

Considering the user defined scale of mapping, 1:50000 IRS-P6, LISS-III data on 1:50000 Scale was used for Land use / Land cover mapping of 10 km radius for proposed site. The description of the land use categories for 10 km radius and the statistics are given for 10 km radius.

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3.2.5 Interpretation Technique

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

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

1. Digitization of the study area (10 km radius from the proposed site) from the topo maps
2. In the present study the IRS –P6 satellite image and SOI topo sheets No. 58A/4and 49M/16, have been procured and interpreted using the ERDAS imaging and ARC-GIS software adopting the necessary interpretation techniques.
3. Satellite data interpretation and vectorization of the resulting units
4. Adopting the available guidelines from manual of LULC mapping using Satellite imagery (NRSA, 1989)
5. Field checking and ground truth validation
6. Composition of final LULC map

The LULC Classification has been done at three levels where level -I being the broad classification about the land covers that is Built-up land, agriculture land, waste land, wet lands, and water bodies. These are followed by level –II where built-up land is divided into towns/cities as well villages. The 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.

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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.

3.2.7 Description of the Land Use / land cover classes

3.2.7.1 Built-up land

It is defined as an area of human settlements composed of houses, commercial complex, transport, communication lines, utilities, services, places of worships, recreational areas, industries etc. Depending upon the nature and type of utilities and size of habitations, residential areas can be aggregated into villages, towns and cities. All the man-made construction covering land belongs to this category. The built- up in 10 km radius from the proposed project site is as follows.

3.2.7.2 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.

3.2.7.3 Trees

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

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3.2.7.4 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.

3.2.7.5 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.

3.2.7.6 Crops

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

3.2.7.7 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.

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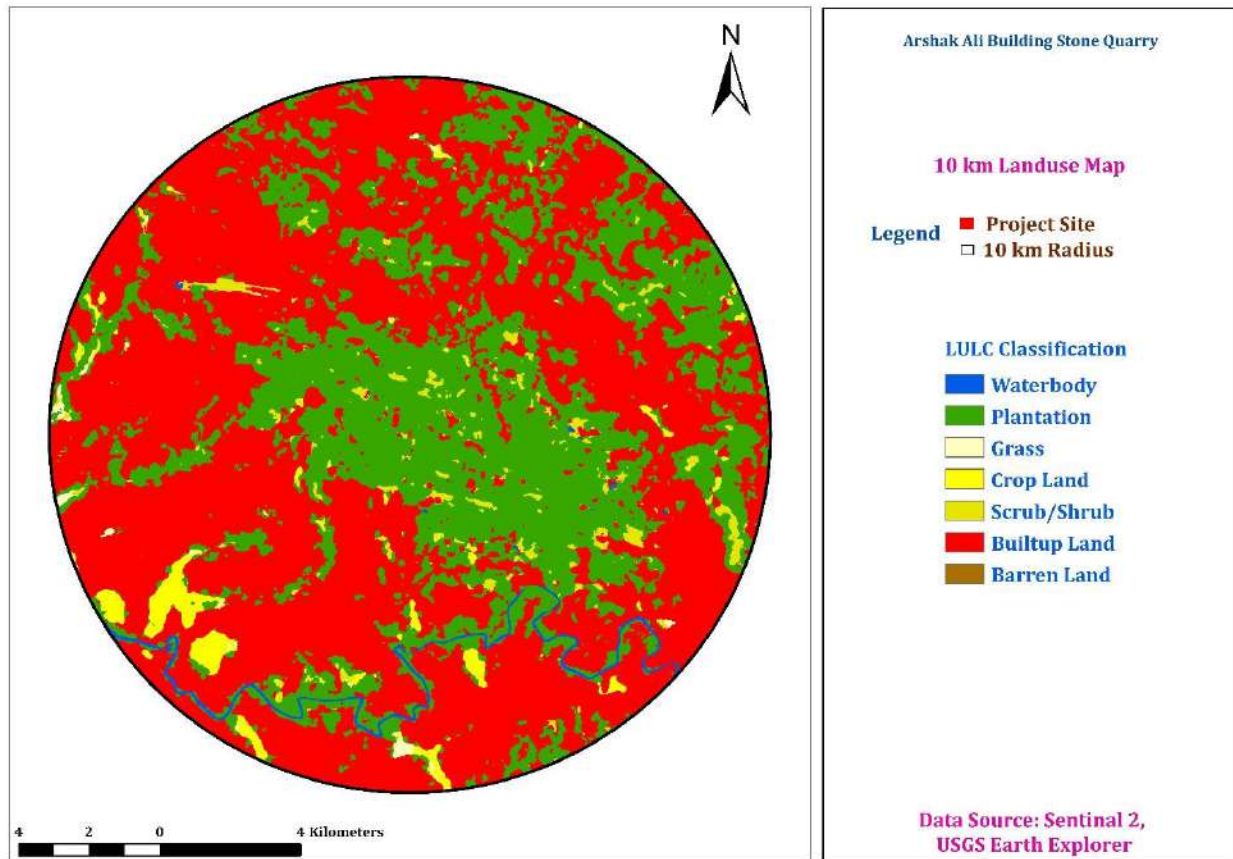


Figure 3-3 Land use classes around 10 km radius from the project site

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

Table 3-3 Land use pattern Details

S. No.	Land Use Category	Pre-Operational (Ha.)	Operational (Ha.)	Post-Operational (Ha.)
1	Topsoil Dump	Nil	0.40 (Outside)	-
2	Over burden	Nil		
3	Excavation	Nil	0.8216 (0.80 ha Reclaimed by plantation)	1.4501 (Reclaimed by plantation)
4	Road	0.085	0.095	0.095
5	Built Up Area	-	-	-
6	Drainage	-	-	-
7	Green belt	-	0.4693	0.4693
8	Undisturbed Area	1.9294	0.6285	-
Total		2.0144	2.0144	2.0144

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3.3 Slope of Project Area

Based on the DEM analysis, it was revealed that the elevation profile of the area (10km buffer zone) ranged from 14 to 316 MSL and the proposed quarry site is located above 145 MSL elevation. It indicated that the quarry falls fully in the midland region of Kerala . A 3D model of the entire area modeled in GIS software also gave an account of the elevation profile of the location. The slope of the study area was also generated from DEM which showed a slope gradient ranging from 0 – 31.05°. The result indicated that the terrain lies in a moderate sloppy condition. The maximum slope where the quarry proposed is only 14.03°.

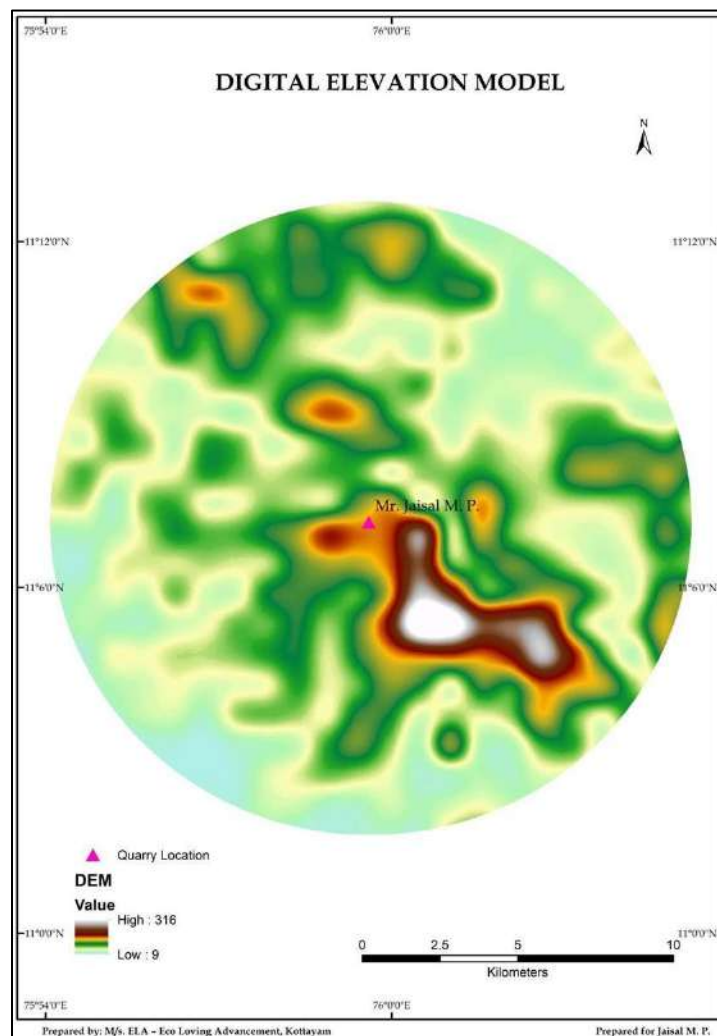


Figure 3-4 Digital Elevation Model of the 10km buffer zone of proposed granite quarry site

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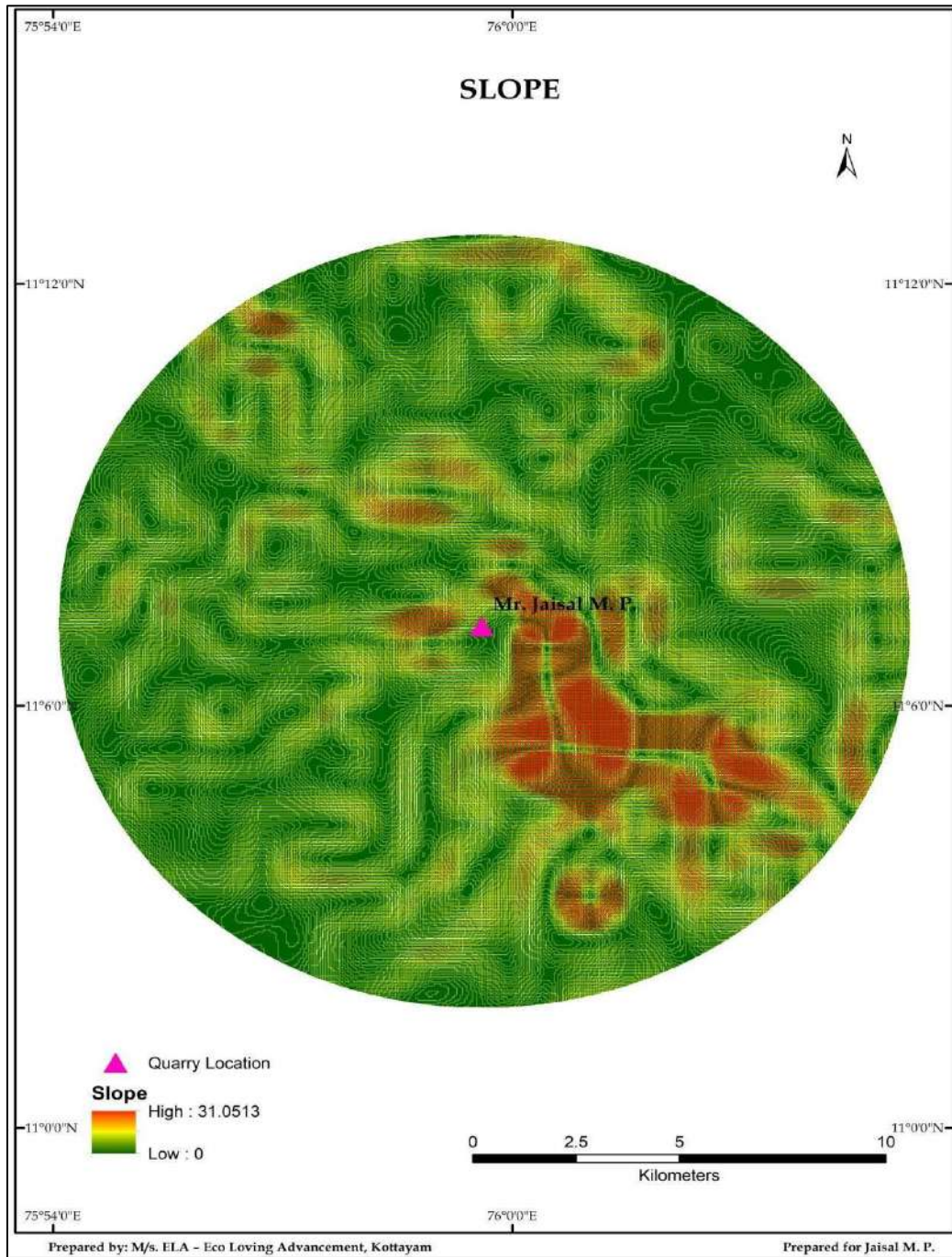


Figure 3-5 Slope of the 10 km buffer zone of proposed granite quarry site

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3.4 Water Environment

3.4.1 Contour & Drainage

Malappuram is a coastal district and has landforms such as coastal plains, alluvial and flood plains, linear ridges, sloping and hilly terrains. Malappuram district is mainly drained by the Kadalundi River, Chaliyar River and Bharathapuzha (locally known as Ponnani River). Of these rivers, only Chaliyar and Bharathapuzha are perennial and all others get dried up in summer and hence Malappuram district is drought prone. The Kadalundi River is formed by the confluence of its two main tributaries viz; the Olipuzha and the Veliyar. The Olipuzha takes its origin from 'the Cherakkobban Mala' (1160 m amsl) and the Veliyar originates from the forest of the 'Erattakomban Mala' (1190 m amsl). The Kadalundi River is 130 km long with a drainage area of 1274 sq. km.

The river joins the Lakshadweep Sea at about 5 km south of the Chaliyar river mouth. The Chaliyar River, one of the major rivers of the State, originates from the Ilambalari Hills in Nilgiri district of Tamil Nadu (2066 m amsl). The river flows along the northern boundary of Malappuram district through Nilambur, Mambad, Edavanna, Areakode and Feroke. It joins the Lakshadweep Sea near Beypore. The river is 169 km long with a drainage area of 2535 sq. km in Kerala State. The Bharathapuzha or the Ponnani River is the second longest river of Kerala, originating from the Anamalai Hills (1964 m amsl) in the Western Ghats. The river below the confluence of Bharathapuzha and Gayathripuzha is called the Ponnani River. It flows through the districts of Palakkad, Malappuram and Trichur and drains into the Lakshadweep Sea near Ponnani town in Malappuram district. The drainage pattern of the three rivers in the district is generally dendritic. Tidal effects are experienced in places such as Vallikkunnu and Tirurangadi, which are 6 to 8 km away from the coast. Analysis of the drainage characteristics of the two basins reveals that Kadalundi river is a fourth order stream, the Ponnani river is fifth order stream and the Chaliyar river is a seventh order stream

Elevation of project site varies between 30 m to 100 m amsl. Project site is hilly/elevated terrain. There are no water bodies within 500 m radius of the project site. The water from the site will be drained into the Kunthi River which is in south and Chaliyar River in the northwest direction of

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the site. The drainage pattern within in the 10 km of the project site is dendritic and is not prone to flooding. Drainage map of the study area is given below

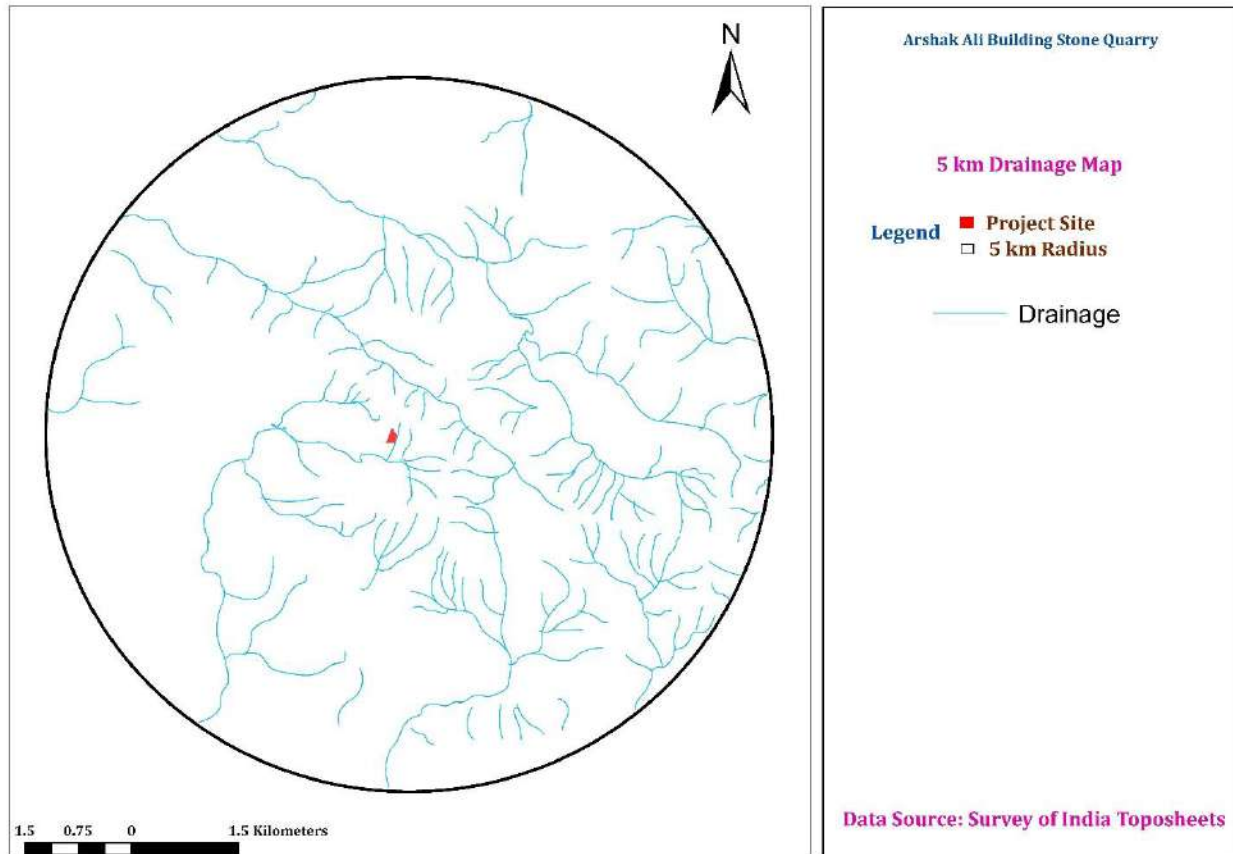


Figure 3-6 Drainage Map of Study Area

3.4.2 Geology

From the exposure pattern of the rock types, the district can be divided into two geological belts: (i) Charnockite group of rocks covering a major part and (ii) Migmatite Complex towards the east. Wayanad group is represented by small bodies of metaultramafites (tal-tremolite schist, talc-pyroxene-garnet schist, banded magnetite quartzite) and high-grade schist and gneiss (hornblende-biotite schist and gneiss+garnet with amphibolite band). The rocks of Peninsular Gneissic Complex, represented by granite gneiss and hornblende-biotite gneiss, form the next younger sequence. A linear band of granite gneiss NE of Perinthalmanna and a large body of hornblende-biotite gneiss east of Manjeri are prominent units. Charnockit Group includes

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charnockite/charnockite gneiss, having the largest areal distribution, followed in decreasing order of abundance by banded magnetite quartzite, pyroxene granulite amphibolite/hornblende granulite and pyroxenite, which occur as concordant as well as discordant bands, lenses, layers and enclaves both within charnockite as well as within gneisses of Migmatite Complex. The Migmatite Complex is represented by biotite-hornblende gneiss (or hornblende- biotite gneiss) and quartzo-feldspathic. Based on the study of different section available in the area a tentative stratigraphic has been arrived at which is given below:

Age	Thickness	Lithounits
Quaternary	1-15	Soil & Alluvium
	1-10	Beach sand and sand bars
	1-2	Black sticky clay and mud with sheel
	4-5	Teri sands and laterite pebble bed
	8-10	Polymitic pebble bed with grit and clay
-----Unconformity-----		
TERTIARY WARKALLI		
	1-2	Sandstones with clay beds
	2-3	Lignite associated with beds of plusih green c kalnadu clay
-----Unconformity-----		
Precambrian		Crystalline Rock Intrusives Pegamite and quartz vein Dolerit-gabbro Dharwars Charconite-Khondalite

3.4.3 Soils

The soil types occurring in Malappuram district can be broadly grouped into four types on the basis of their physio-chemical properties and morphological features. They are (a) Lateritic soil (b) Riverine alluvium, (c) Brown hydromorphic, and (d) Forest loams. The soil thickness varies from avg. 1.4 m to 0.9m whereas granite(building stone) are very well exposed in most part of the site and the evidence of the granite (building stone) is seen in the old worked pits in the nearby areas.

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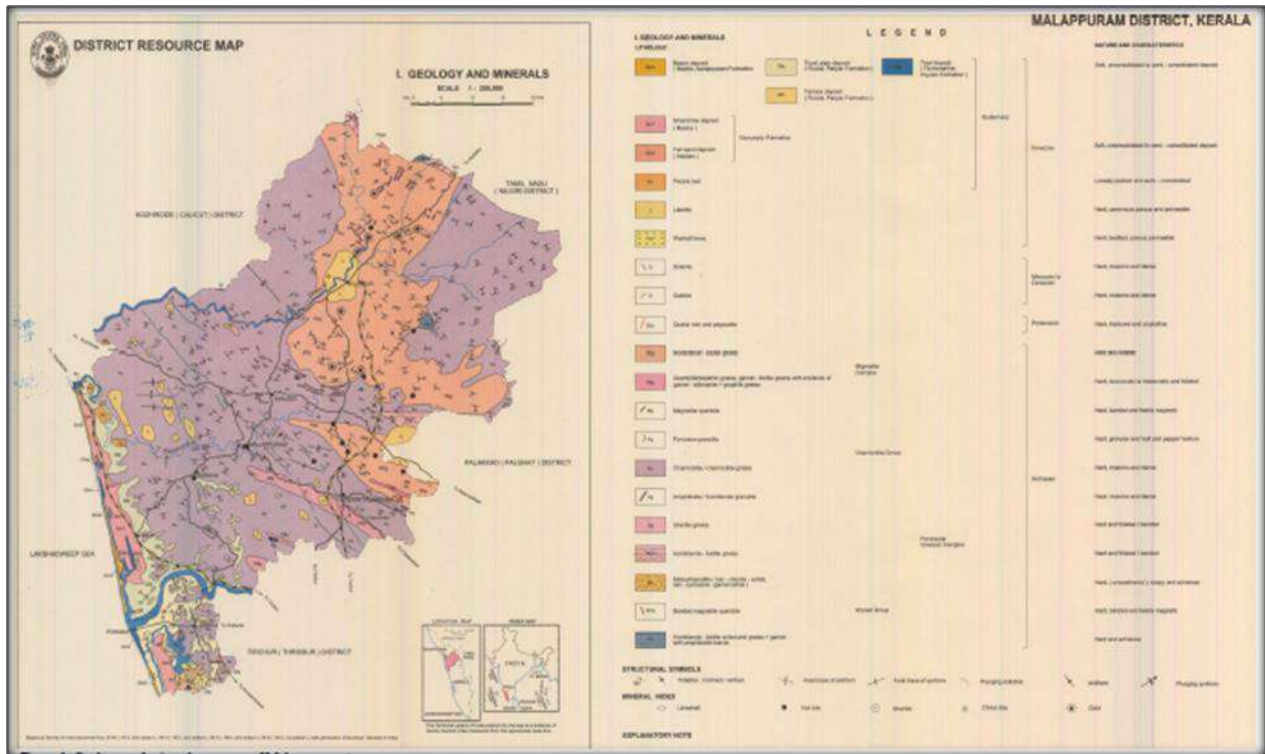


Figure 3-7: Geology and Mineral Resources of Mallapuram District

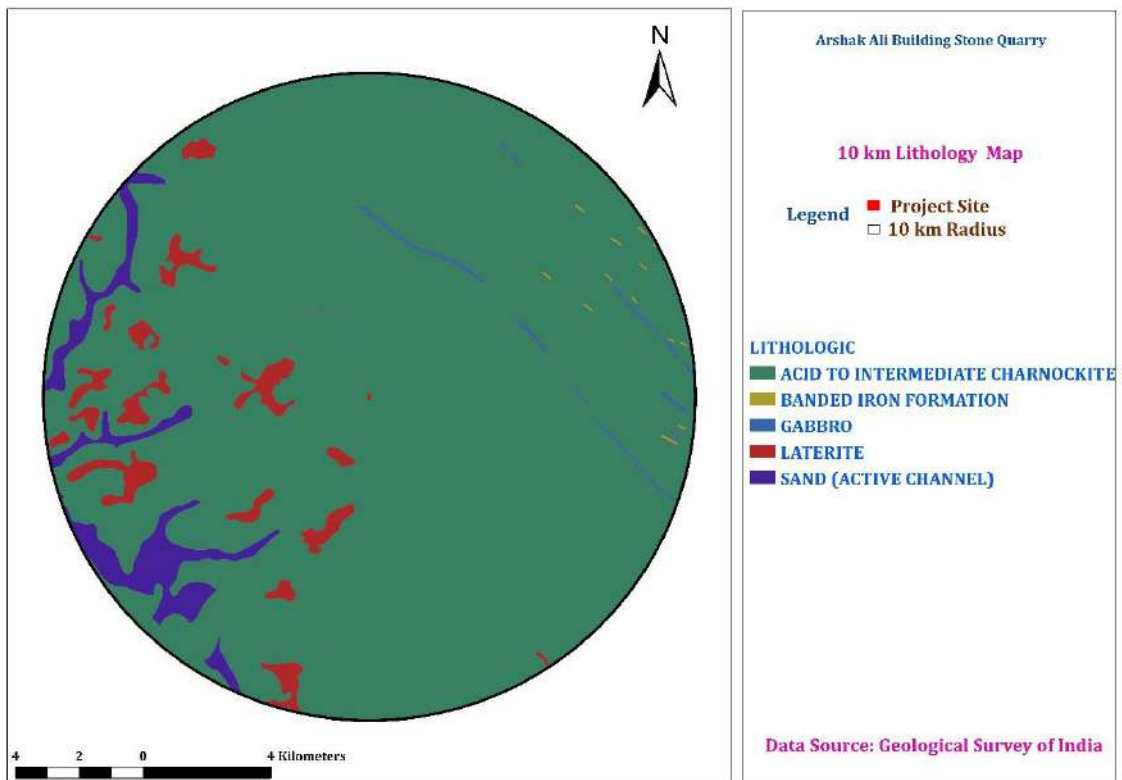


Figure 3-8: Lithology Map

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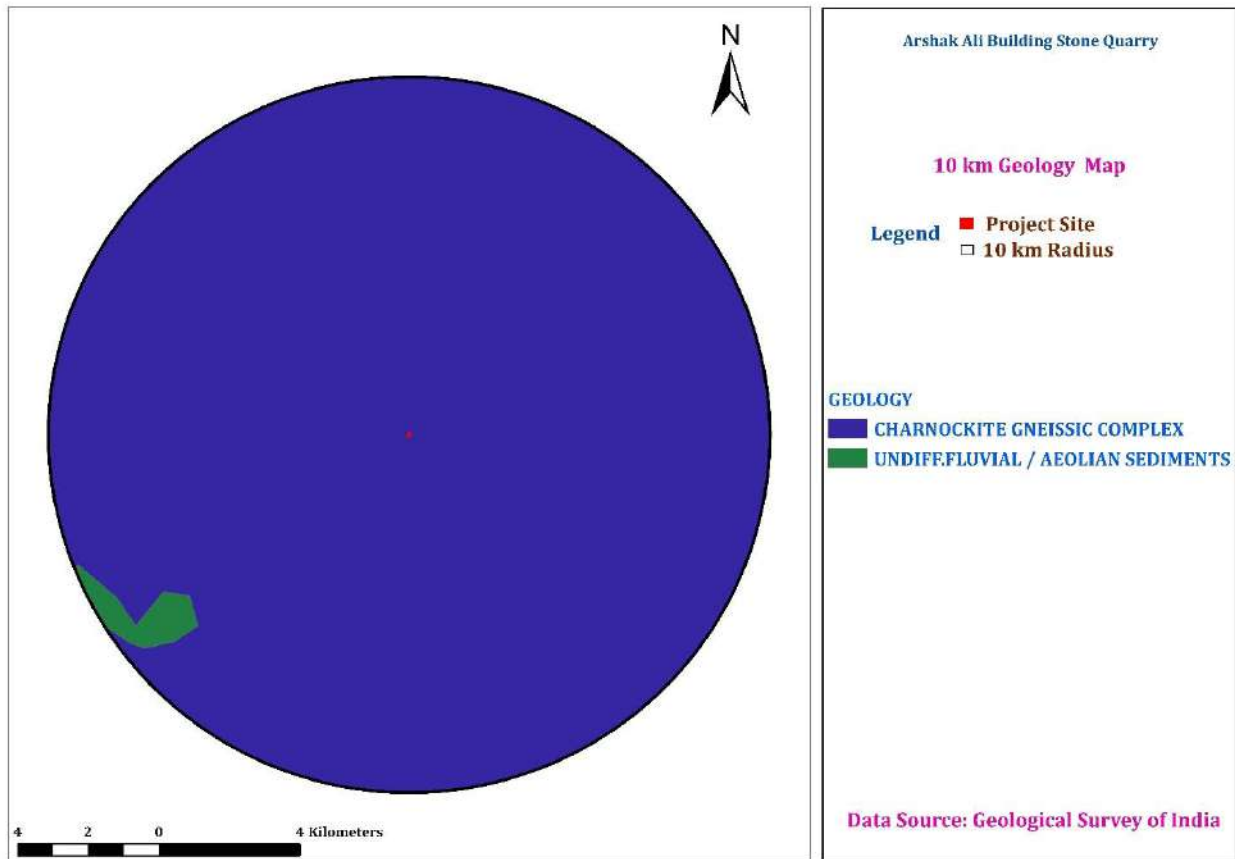


Figure 3-9: Soil Map

3.4.4 Geomorphology

Geomorphologically the district can be divided into three physiographic units from west to east viz. coastal plain (less than 7.5m amsl), mid land (7.5 – 75m amsl) and highland (above 75m amsl) or hilly terrain. The coastal plains extend as a narrow stretch of land lying along the coast from Kadalundi Nagaram in the north to Ponnani in the south. It exhibits depositional landforms of marine, fluvial and fluvio-marine origin. Palaeo-beach ridges suggestive of marine regression in the Quaternary period are well developed in the coastal tract. The area lying between the coastal plain in the west and the high-ranges in the east is occupied by midlands. This is the most prominent physiographic unit of the district.

The mid-land region is relatively wide with elevations ranging between 200 and 300m. It is a denudational terrain characterized by flat-topped laterite capped flats, mesas, interfluves, hills, mounds and spurs interspersed by narrow valleys as well as wide alluvial valleys and flood plains.

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Geomorphological studies in this region have brought out remnants of four palaeoplanation surfaces. Around 550m, 350-400m, 150-230m and 45-130m above msl. Of these the first two surfaces only have accordance of summits with relicts of laterite, whereas the latter two have extensive and plateau-type remnants with thick laterite profile. The hilly region in the east is more than 600m high. The terrain is characterized by hills and narrow incised valleys representing structural cum denudational landforms. This is characterized by flat topped hillock with steep 'U' shaped valleys and ridges. The valley forms potential area for agriculture including paddy, arecanut, vegetable, banana and coconut. The hill tops are generally barren and covered by thick and compact laterite. The eastern parts of the district are characterized by steep hills, gorges and escarpments. The elevation of the hill ranges goes up to 1127 m amsl. Most of the high lands are occupied by forests. Chaliyar puzha is the major river draining the northern part, Kadalundi puzha drains the central part, while the lower reaches of Ponnani puzha drain the coastal tract in the south.

Table 3-4 Geomorphology details in Nediyruppu Village

S.No.	Rock Type	Area
1	Lower Plateau (Lateritic) – Dissected	789.15 Ha
2	Piedmont Zone	486.1 Ha
3	Residual Mount	73.82 Ha
4	Rock Exposure	4.63 Ha
5	Structural Hills	476.62 Ha
6	Valley Fill	223.95 Ha

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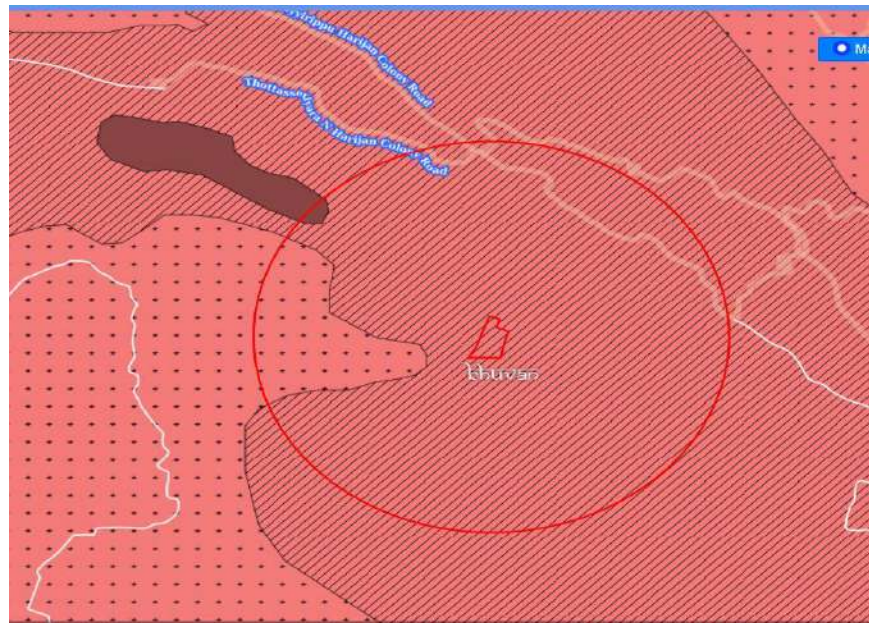


Figure 3-10: Geo-morphology of Study Area (1km radius)

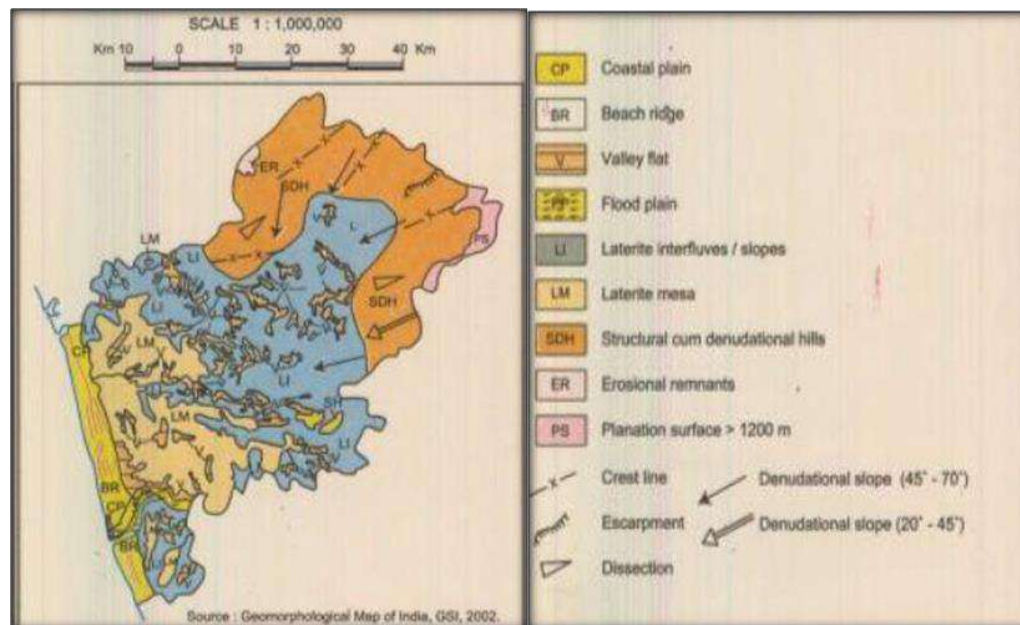


Figure 3-11: Geo-morphology of Mallapuram District

3.4.5 Hydrogeology

Groundwater occurs in the weathered, fractured, crystalline and alluvial formations in the district. Phreatic conditions exist in weathered formation and are mostly developed by dug wells for

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domestic and irrigation purposes. Semi-confined conditions exist in deep fractures and storage and movement of groundwater is mainly controlled by the fracture system.

The district is divisible into two hydrological provinces viz., (i) the eastern Wayanad Plateau where dug wells give moderate yield and bore wells are feasible along fracture planes and (ii) the western mountains, which are generally unsuitable for groundwater development but the valleys with thick alluvium sustain dug wells. All the four blocks in the district are having similar hydrogeological conditions. The major water bearing formations in the district are weathered/fractured crystallines, alluvium and valley fills

Ground water occurs under phreatic, semi-confined and confined conditions in the above formations. The weathered Charnockites, Granite gneiss, schists and laterites form the major phreatic aquifers, whereas the deep fractures in the Charnockites, Granite Gneiss & schists and the granular zones in the Tertiary sedimentary formations form the potential confined to semi confined aquifers.

There are two types of alluvium in the district: riverine and coastal. Coastal alluvium occurs in the western part of district and the riverine alluvium occurs along river courses. The abstraction structures in alluvium are dug wells and filter point wells wherever the saturated sand thickness is 4 m or more. The Tertiaries occurring in the district are the Vaikom bed and these are occurring below the alluvium and have been encountered at shallow depths in the narrow coastal strip of the district. The thickness and extent of Tertiary beds is very limited with poor ground water potential.

Depth to water level in the crystalline rock aquifers ranges from 6.46 to 8.79 mbgl during premonsoon and from 4.21 to 5.88 m during Post-monsoon as per CGWB study report. The depth to water level in the wells tapping laterites ranges from 2.08 to 12.47 m bgl during pre- monsoon and from 1.75 to 10.32 m bgl during post monsoon. The water level ranges from 3.4 to 8.85 m bgl during the pre-monsoon and from 1.4 to 5.36 m bgl during post monsoon in alluvial aquifers. Depth to water level in the lateralized sedimentary aquifers varies from 10.46 to 21. 22 mbgl during the premonsoon and from 7.0 to 10.11m bgl during the post monsoon.

The quality of water in hard rock aquifer is good. The depth of bore wells drilled by CGWB in the district varies from 114m to 200 mbGL with yield in the range of 10 to 1020 LPM. The yield of

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bore wells in hornblende biotitegneiss varies between 10 and 402 LPM and that in biotitegneiss varies between 150 and 410 LPM. The highly fractured potential aquifer among the crystalline rocks is hornblende-biotite gneiss. The yield of bore wells in Charnockite varies between 82 and 286 LPM. Exploration drilling by CGWB has revealed occurrence of deep potential fractures between 70 and 151m BGL along lineaments.

The seasonal fluctuation of the water table is due to variation in the rainfall, evapotranspiration, withdrawals for irrigation and other purposes, base flow, seepage from surface water bodies etc. A study of fluctuation in water level over the past decade (2002-2011) in the pre-monsoon has indicated that, the water level has shown a declining trend in parts of south / south-eastern parts of the district whereas it shows rising trend in the northern parts of the district. The district has recorded a maximum fall in water level 2.56 m at Malappuram (decadal mean 2002-2011 Vs 2012 April). The long-term trend of pre-monsoon water level for the last 10 years (2002-2011) indicates a falling trend in areas at Malappuram, Balussery, Quilandy etc.

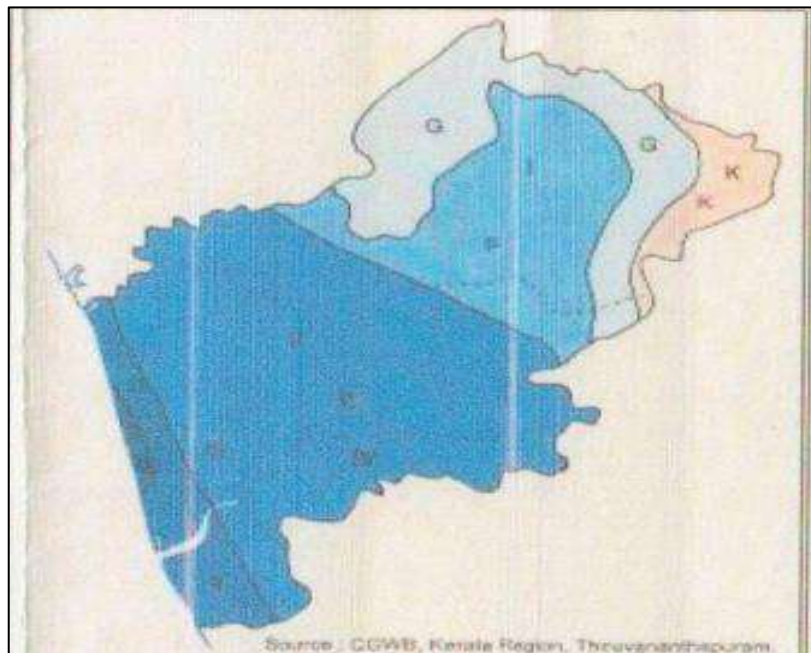


Figure 3-12: Geo-Hydrology of Mallapuram District

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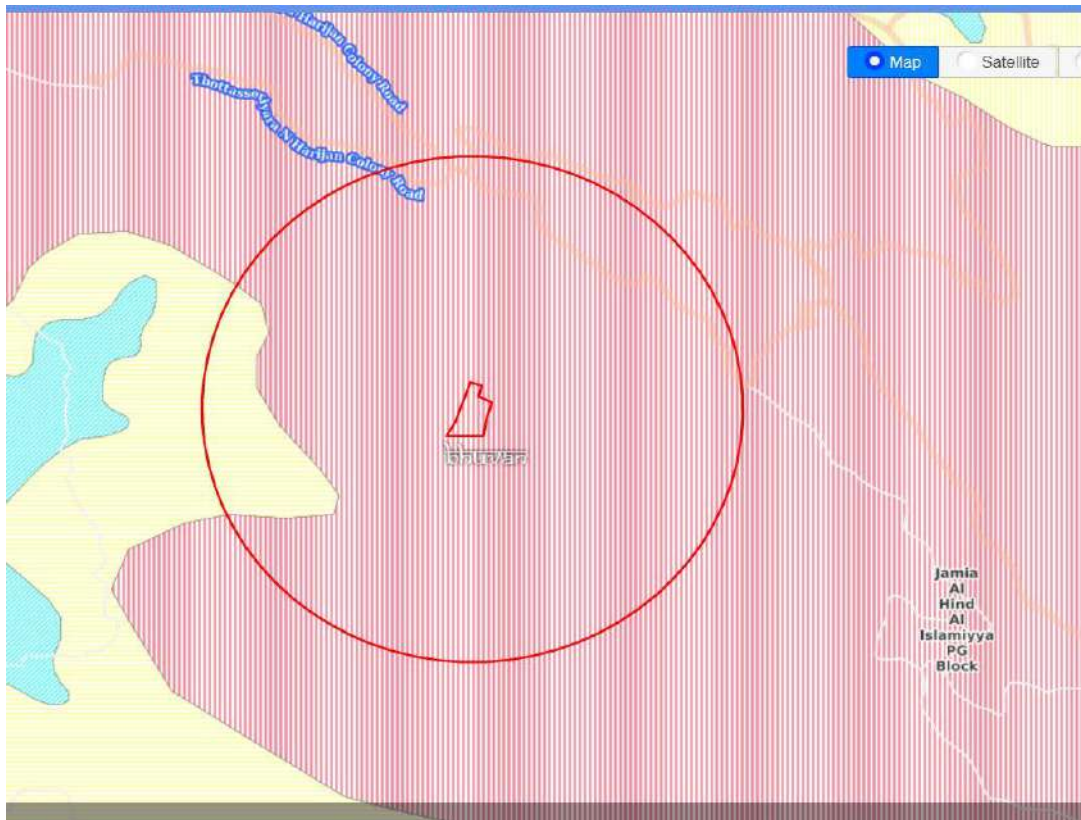


Figure 3-13: Ground water Potential Map of Mallapuram District

3.4.6 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 3-5 Ground water Quality Analysis

Environmental Parameters: Ground water Quality Analysis	
Monitoring Period	December 2021 to February 2022
Design Criteria	Based on the Environmental settings in the study area
Monitoring Locations	Open Well
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

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3.4.6.1 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 2 open wells in project area 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 3-6: Standard Procedure

S. No	Parameters	Test Method
1	pH (at 25°C)	IS:3025(P -11)1983 RA: 2012
2	Electrical Conductivity	IS:3025(P -14) 2013
3	Colour	IS:3025 (P -4)1983 RA: 2012
4	Turbidity	IS:3025(P -10)1984 RA: 2012
5	Total Dissolved Solids	APHA 22 nd Edn.2012-2540-C
6	Total Suspended Solids	IS:3025(P-17)-1984 RA:2012
7	Total Hardness as CaCO ₃	APHA 22 nd Edn.2012-2340-C
8	Calcium as Ca	APHA 22 nd Edn2012.3500 Ca-B
9	Magnesium as Mg	APHA 22 nd Edn.2012-3500 Mg-B
10	Chloride as Cl	IS:3025(P -32)-1988 RA: 2014
11	Sulphate as SO ₄	APHA 22 nd Edn.2012-4500 SO ₄ -E
12	Total Alkalinity as CaCO ₃	APHA 22 nd Edn.2012-2320-B
13	Iron as Fe	IS:3025(P -53):2003 RA: 2014
14	Silica as SiO ₂	IS:3025(P -35)1988 RA: 2014
15	Fluoride as F	APHA 22 nd Edn.2012-4500-F-D
16	Nitrate as NO ₃	IS:3025(P -34):1988 RA: 2014
17	Sodium as Na	IS:3025(P -45):1993 RA: 2014
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 3-7 Ground water sampling results

Parameter	Unit	Method	Result							Requirement (Acceptable LimitasperI S 10500:2012)
			GW1	GW2	GW3	GW4	GW5	GW6	GW7	
pHat25 ⁰ C	-	Cl.2of IS 3025 (Pt 11):1983, Reaff. 2012	5.71	5.66	6.21	6.89	7.01	5.63	6.48	6.5-8.5
Odour	-	IS3025 (Part 5):1983	Agreea ble	Agreeab le	Agreeab le	Agreeab le	Agreeab le	Agreeab le	Agreeab le	Agreea ble
Colour	Hazen Units, max	Cl.2 of IS 3025 (Pt 4):1983, Reaff. 2012	1	1	1	1	1	1	1	5.0
Turbidity	NTU, max	IS 3025 (Pt 10):1984, Reaff.2012	2.10	<0.1	<0.1	7.90	3.10	<0.1	3.0	1.0
Total Dissolved Solids	mg/l, max	IS3025(Pt 6):1984,	64	65	197	306	178	180	260	500

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		Reaff.2006									
Total Hardness as CaCO ₃	mg/l, max	Cl.5 of IS 3025(Pt 21):2009, Reaff.2012	26.5	26.5	85.7	167	87.7	75.5	122	200	
Chloride as Cl	mg/l, max	Cl.2 of IS 3025(Pt 32):1988, Reaff.2009	15.9	15.9	53.9	12.9	15.9	39.9	37.9	250	
Sulphate as SO ₄	mg/l, max	Cl.4 of IS 3025(Pt 24):1986, Reaff.2009	1.77	1.93	2.38	8.09	1.93	6.42	25.5	200	
Alkalinity as CaCO ₃	mg/l, max	Cl.8.1 of IS 3025(Pt 23):1986, Reaff.2009	12.1	48.9	48.2	155	48.9	34.2	70.4	200	
Iron as Fe	mg/l, max	Cl.6 of IS 3025 (Pt 53):2003, Reaff.2009	0.15	0.36	0.18	0.89	0.36	0.16	0.43	0.3	

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3.4.6.2 Interpretation of results:

All the parameters tested for groundwater are well within the standards as per IS:10500. Overburden and top soil do not have any toxic minerals that could contaminate ground or surface water.

3.4.6.3 Physical parameters of Ground water:

The basic physical parameters of water include

Colour:

Value observed in monitored locations: 1 Hazen unit.

Acceptable and permissible limits: 5 Hazen units and 15 Hazen units respectively. The value observed at monitoring locations is within the desirable and permissible limits of IS 10500:2012 (referred as “Standards” from herein).

Odour & Taste:

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

pH:

Value observed in the monitoring locations: 5.63-7.01

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

Turbidity:

Value observed in the sampling locations: 2.10-7.90 NTU.

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 sampling location indicates the water is less turbid and no any physical treatment is required to treat the turbidity of the water.

Total Dissolved Solids:

Value observed in the sampling locations: 64-306 mg/L.

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

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

3.4.6.4 Chemical parameters of Ground water:

The chemical parameters of the drinking water include,

Calcium:

Value observed in the sampling location: 5.60-30.4 mg/L.

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 sampling location: 1.98 – 23.8 mg/L.

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

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

Chloride

Value observed in the sampling locations: 12.9-53.9 mg/L.

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

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

Hardness:

Value observed in the sampling locations: 26.5 - 167 mg/L. Value of hardness exceeds at all the locations but is within permissible limits

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

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

3.4.7 Surface Water Analysis

Surface water samples were taken from Kadalundi river near the project site. The results are summarized below.

Table 3-8 Surface Water Sample Results

S.No.	Parameters	Unit	Method	SW1	Requirement (Acceptable limit as per IS 10500:2012)
1	Colour	Hazen	IS 3025 (Part4): 1983	1	Max 5
2	Odour	-	IS 3025 (Part 5): 2018	Agreeable	Agreeable
3	Turbidity	NTU	IS 3025 (Part10): 1984	0.60	Max 1
4	pH at 25 ⁰ C	-	Cl.2of IS3025 (Pt 11):1983, Reaff. 2017	7.16	6.5-8.5
5	Total Dissolved Solids	mg/l	IS 3025 (Pt 16):1984,Reaff. 2017	92	Max 500
6	Total Hardness as CaCO ₃	mg/l	Cl.5 of IS3025 (Pt 21):2009, Reaff.2014	38.8	Max200
7	Calcium as Ca	mg/l	IS 3025 (Part40):1991	9.99	Max75

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8	Magnesium as Mg	mg/l	IS 3025(Part 461:1994	4.47	Max30
9	Chloride as Cl	mg/l	Cl.2 of IS 3025(Pt 32):1988, Reaff. 2014	24.9	Max200
10	Sulphate as SO ₄	mg/l	Cl.4 of IS 3025 (Pt 24):1986, Reaff. 2014	2.30	Max200
11	Dissolved Oxygen	mg/l	Cl. 4.1 & 4.2 of IS 3025 (Pt 38):1989, Reaff.2014	-	-
12	Iron	mg/l	IS3025(Part 53):2003	0.35	Max1
13	Total Alkalinity as CaCO ₃	mg/l	IS3025(Part 23):1986	28.1	Max200
14	Total coliform bacteria (MPN/100ml)	-	IS 15185:2016	Absent/ 100 ml	Absent/100ml
15	Ecoli	-	IS15185:2016	Absent/100ml	Absent/100ml

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

Location Code	Location	Location Coordinates	Distance and Direction From Mine Area
GW1	Within	11°5'48.70"N	-

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	projectarea	76°0'13.10"E	
GW2	Anthaloos Mini Stadium, Arimbra	11°5'51.86"N 76° 1'34.67"E	2.52Km-SW
GW3	KP Store, Myladi	11°5'53.36"N 76°2'50.72"E	4.83Km-NW
GW4	Yoosuf Pullats Diary Farm	11°5'39.92"N 75° 59'11.67"E	1.84Km-NW
GW5	Government Health Sub Centre, kannamangalam	11°5'45.17"N 75° 57'34.37"E	4.78Km-NW
GW6	Sub RTO Office ,Kondotty	11°7'48.74"N 76° 0'5.54"E	3.76km-NE
GW7	Karimbili Masjid	11°3'13.99"N 75° 59'50.79"E	4.79km-NE

SW1	Kadalundi River-SW	11°6'15.09"N 75° 51'45.19"E	15.39km-NW	-	River
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3.5 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

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The climate is generally hot and humid. March and April months are the hottest and January and February months are the coldest.

ii) Temperature and Relative Humidity

The maximum temperatures ranges from 28.9 to 36.2°C and the minimum temperatures range from 17.0 to 23.4°C. The temperature starts rising from January and reaches the peak in the month of March and April and then decreases during the monsoon month and again rising from September onwards.

The relative humidity ranges from 81 to 91 % during morning hours. The humidity is more during the peak monsoon months from June to September.

iii) Rainfall:

Rainfall: Based on the 5 years annual rainfall data as per IMD, the average rainfall is 3.174 mm and the maximum rainfall is observed in June 2018 i.e. 1081.8 mm. Groundwater year book of Kerala (2016-2017), CGWB of Malappuram has shown an average rainfall of 2256.8mm during April 2016 to March 2017 period with maximum precipitation of 916.4mm during June 2016. Major rainfall contribution is from SW monsoon followed by the NE monsoon. The South West monsoon is usually very heavy and nearly 73.5% of the rainfall is received during this season. NE monsoon contributes nearly 16.4% and March to May summer rain contributes nearly 9.9% and the balance 0.2% is accounted for during January and February months.

Metrological Data

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

vi) Wind Rose Diagram

The wind is predominant from east as well as west during morning and evening hours. The wind speed is more during December to February months. It ranges from 2.9 to 7.2 km per hour. The wind rose denotes a class of diagrams designed to display the distribution of wind direction at a given location over a period of time. Wind roses are also useful as they project a large quantity of data in a simple graphical plot. The wind speed & wind direction data are taken and wind rose is plotted for Aug to Oct 2020.

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Windrose Plot for [VOCL] Calicut
 Obs Between: 01 Dec 2021 12:30 AM - 27 Feb 2022 11:30 PM Asia/Kolkata

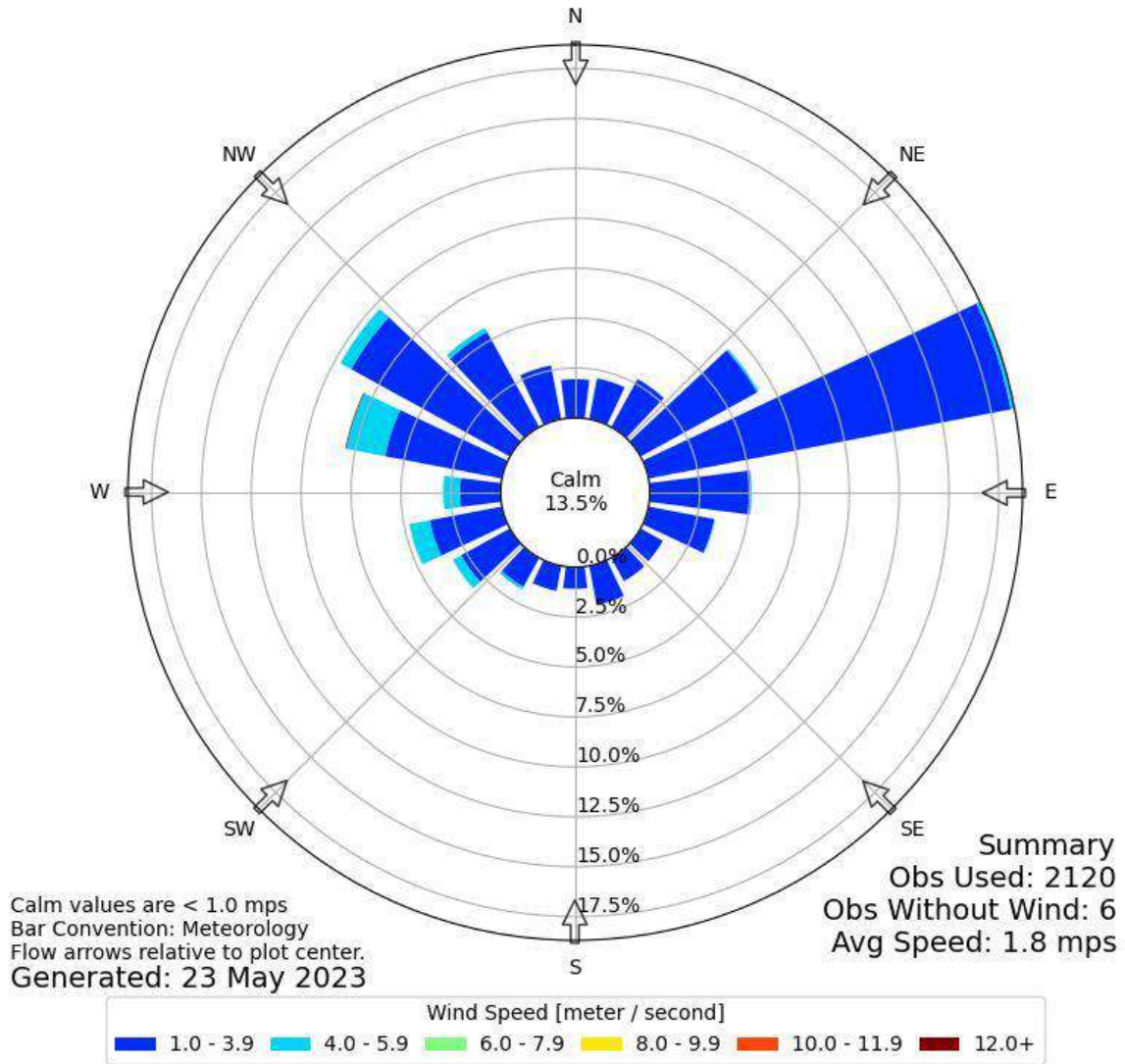


Figure 3-14 Wind-Rose

3.6 Seismicity

As per the seismic hazard map of India, Mallapuram district comes under Zone III, i.e. Moderate Hazard Zone. Seismic Zone Map is shown below

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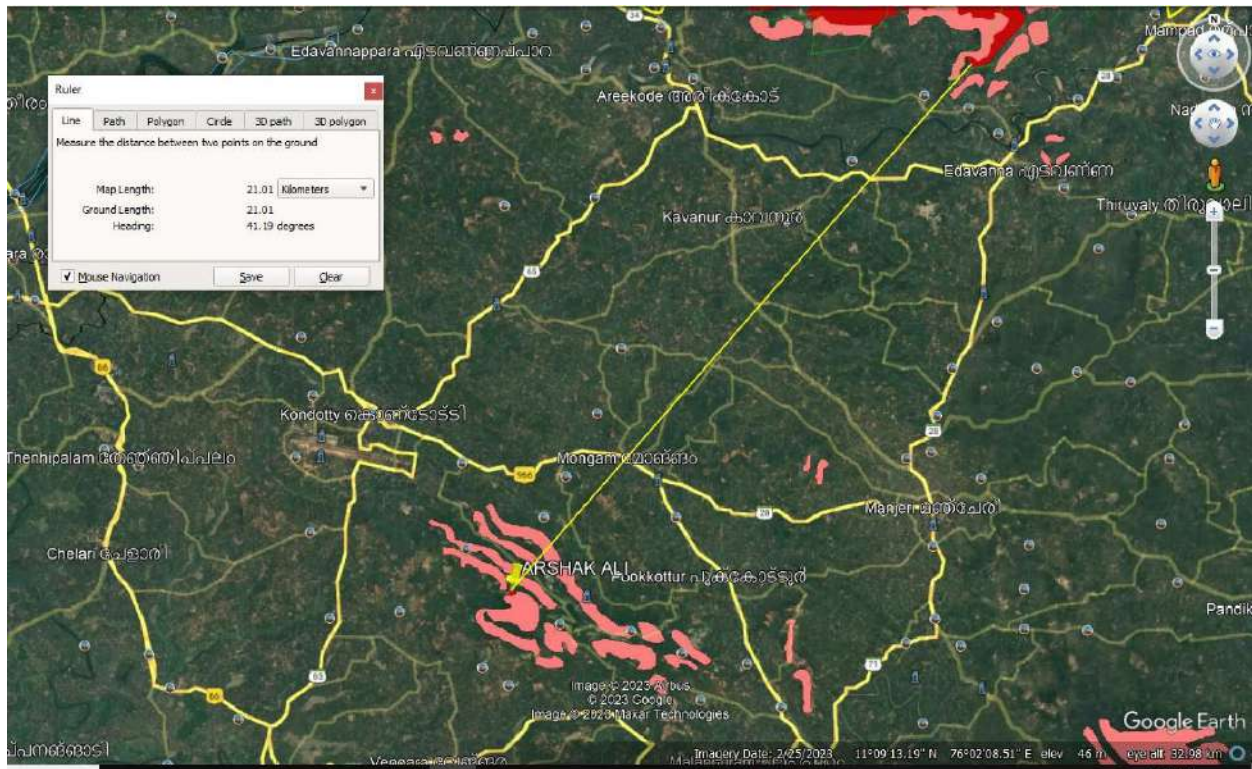


Figure 3-15 SeismicMap of India

3.7 Landslide hazardous study in the Area

Due to steep slopes, a large part of the district is prone to landslides, especially during the rainy season but our proposed site does not belong in the landslide prone area. The Malappuram district falls under seismic zone III of ISI Classification. The Map for Hazards like Landslide, Flood, Drought and earthquake is shown below as per the Landslide Susceptibility Zones of Malappuram Districts of Kerala (NCESS, 2010). From the below maps it is evident that our proposed belong in medium hazard zone. Proposed mine site falls under medium hazard zone

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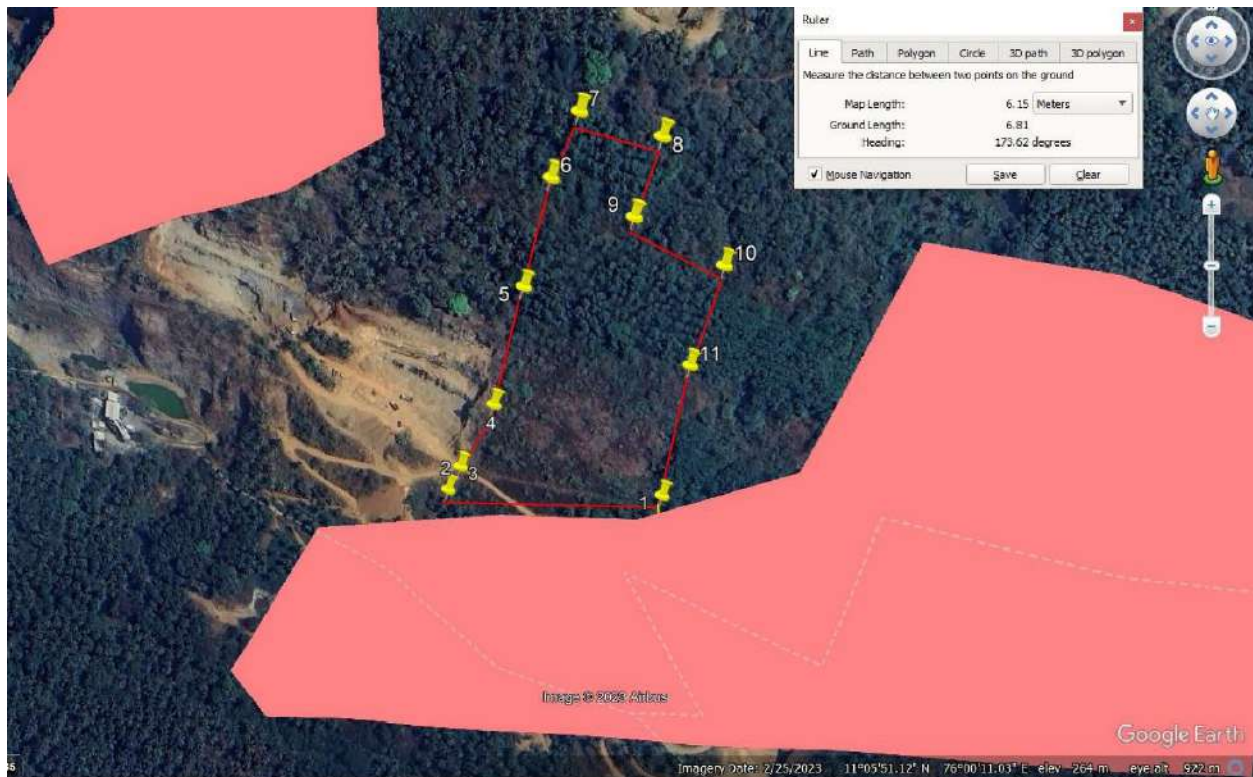


Figure 3-16 Hazard Map of project Area

3.8 Ambient Air Quality

The ambient air quality with respect to the study zone around the proposed project area forms the baseline information. The various sources of air pollution in the region are traffic, urban rural activities and industrial activities (existing mining activities). The study area represents mostly rural environment. This section describes the selection of sampling locations, methodology adopted for sampling, analytical techniques and frequency of sampling.

Table 3-9: Selection of Sampling Location

Environmental Parameters: <i>Ambient Air</i>	
Monitoring Period	Dec 2021 to Feb 2022
Design Criteria	The monitoring stations are selected based on factors like topography/terrain, prevailing meteorological conditions like predominant wind direction, etc, play a vital role in the selection of air sampling stations. Based on these criteria, 7 air sampling station were selected in the area as shown below.

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Monitoring Locations	S.No	Monitoring locations (AAQ)	Distance from the Project boundary (km)	Location Co-ordinates
	AAQ1	Project Site	-	11°5'48.70"N 76°0'13.10"E
	AAQ2	Anthaloos Mini Stadium, Arimbra	2.52 km – SW	11°5'51.86"N 76° 1'34.67"E
	AAQ 3	KP Store	4.83 km – NW	11°5'53.36"N 76°2'50.72"E
	AAQ 4	Yoosuf Pullats Diary Farm	1.84 km – NW	11°5'39.92"N 75° 59'11.67"E
	AAQ 5	Government Health Sub Centre, Kannamangalam	4.78 km – NW	11°5'45.17"N 75° 57'34.37"E
	AAQ 6	Sub RTO Office, Kondotty	3.76 km – NE	11°7'48.74"N 76° 0'5.54"E
	AAQ 7	Karimbili Masjid	4.79 km - NE	11°3'13.99"N 75° 59'50.79"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.			
Instrument	Time averaged in – situ sampling was adopted by passing a known volume of air through a trap, and a collecting medium (filter paper and bubbler). Respirable Dust Sampler and Fine particulate Sampler were used for the purpose. This procedure was adopted because there are no short-term variations and low concentration of gaseous pollutants was expected.			

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<p>Conditions for sampling</p>	<ul style="list-style-type: none"> • Ensure that the air quality sampling shall be done as per CPCB/NABL guidelines. • Ensure that the high volume sampler inlet height shall be minimum 3 m above ground level. • Ensure that the sampler shall be kept sufficiently away from any obstructions like building or trees etc. • Ensure that the sampling flow rate of about 1.1 cu.m/min shall be maintained, if flow rate falls below 1 cu.m/min, ensure that the new filter paper shall be installed in the sampler. • Ensure that the initial and final weight of the two filter papers shall be included in the report • The field sampling dates to be informed well in advance to depute experts at site during the field sampling/measurement. • The hourly reading of flow rate & rota meter % to be taken during the sampling. • Ensure that the laboratory analysis of the sample to be as per the CPCB/NABL guidelines with the properly calibrated instruments only and calibration charts to be provided for the instruments used. • Trained & competent manpower with adequate numbers shall be provided on site for sampling.
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3.8.1 Ambient Air Quality: Results & Discussion

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

Table 3-10 Ambient Air Quality

Location	PM 10 ($\mu\text{g}/\text{m}^3$)				PM 2.5 ($\mu\text{g}/\text{m}^3$)				SO ₂ ($\mu\text{g}/\text{m}^3$)				NO _x ($\mu\text{g}/\text{m}^3$)			
	Min	Max	Avg	98 th %ile	Min	Max	Avg	98 th %ile	Min	Max	Avg	98 th %ile	Min	Max	Avg	98 th %ile
Project Site – A1	43.9	59.3	52.5	59.02	22.8	32.5	28.6	32.34	<2	<2	<2	1.89	<2	<2	<2	1.89
Anthaloos Mini Stadium, Arimbra – A2	49.7	63.6	57.4	63.35	22.8	35.4	28.8	35.13	2.12	3.10	2.71	3.08	2.25	3.91	2.99	3.87
KP Store, Myladi-A3	47.9	65.0	57.2	64.68	20.1	37.1	29.6	36.8	2.18	3.17	2.46	3.14	2.01	4.12	2.96	4.07
Yoosuf Pullats Diary Farm-A4	40.7	59.4	48.7	58.97	20.3	30.8	25.4	30.58	1.99	3.20	2.73	3.18	2.12	3.97	3.02	3.93
Govt. Health Sub Centre, Kannamangalam-A5	40.9	62.5	54.8	62.19	19.5	35.8	27.6	35.47	2.11	3.05	2.94	3.04	2.78	4.32	3.28	4.27

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Sub RTO Office-A6	39.5	58.4	49.4	58.04	19.9	31.3	25.7	31.07	<2	2.93	2.48	2.91	2.0 2	3.74	2.85	3.70
Karimbili Masjid-A7	40.3	59.4	49.6	59.00	19.3	31.1	24.9	30.85	1.89	3.12	2.73	3.10	2.2 2	4.28	3.13	4.23
CPCB Standards																
Industrial / Residential/ Rural and Other Area	100			60			80			80						

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3.8.2 Interpretation of ambient air quality:

- PM10 - The maximum value is observed in the KP Store, Myladi and the value is found to be 65.0 µg/m³ and the minimum value is 40.7 µg/m³ at Yoosuf Pullats Diary Farm.
- PM2.5 - The maximum value is observed in the KP Store, Myladi and the value is found to be 37.1 µg/m³ and the minimum value is 20.1 µg/m³ at KP Store, Myladi.
- SO_x -The maximum value is observed in near KP Store, Myladi and the value is found to be 3.17 µg/m³ and the minimum value is <2 µg/m³ at Project Site.
- NO_x: The maximum value is observed in Govt. Health Sub Centre, Kannamangalam and the value is found to be 4.32 µg/m³ and minimum value is < 2 µg/m³ at Project Site.
- The value of air quality is well within the standards prescribed by NAAQ, 2009.

3.9 Noise Environment:

Table 3-11 Noise Analysis

Environmental Parameters: <i>Noise Analysis</i>				
Monitoring Period	Dec 2021 to Feb 2022			
Design Criteria	Based on the Sensitivity of the area			
Monitoring Locations	S.No	Monitoring locations (AAQ)	Distance from the Project boundary (km)	Location Coordinates
	N1	Project Site	-	-
	N2	Anthaloos Mini Stadium, Arimbra	2.52 km, SW	11°5'48.70"N 76°0'13.10"E
	N3	KP Store, Myladi	4.83 km, NW	11°5'51.86"N 76° 1'34.67"E
	N4	Yoosuf Pullats Diary Farm	1.84 km-NW	11°5'53.36"N 76°2'50.72"E
	N5	Govt. Health Sub Centre, Kannamangalam	4.78 km-NW	11°5'39.92"N 75° 59'11.67"E
	N6	Sub RTO Office, Kondotty	3.76 km-NE	11°7'48.74"N 76° 0'5.54"E
	N7	Karimbili Masjid	4.79 km-NE	11°3'13.99"N

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			75° 59'50.79"E
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 Monitor	Noise samples were collected from 5 locations - Once in a seas		

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

3.9.1 Day Noise Level (Leq day)

Table 3-12 Day Noise Level (Leq day)

S.NO	TIME	NOISE LEVEL (Leq in dB (A))							CPCB
		N1	N2	N3	N4	N5	N6	N7	
1	6am-7am	33.4	35.8	36.9	34.9	36.8	37.5	35.9	55 dB (A)
2	7am-8am	35.8	38.4	39.5	37.4	39.4	40.2	38.5	55 dB (A)
3	8am-9am	39.6	42.4	43.7	41.4	43.6	44.5	42.6	55 dB (A)
4	9am-10am	42.7	45.8	47.1	44.6	47.0	48.0	45.9	55 dB (A)
5	10am-11am	44.7	48.0	49.4	46.8	49.3	50.3	48.1	55 dB (A)
6	11am-12pm	47.5	50.9	52.4	49.7	52.3	53.4	51.1	55 dB (A)
7	12pm-1pm	45.1	48.3	49.8	47.2	49.6	50.7	48.5	55 dB (A)
8	1pm-2pm	44.4	47.6	49.0	46.4	48.9	49.9	47.7	55 dB (A)
9	2pm-3pm	44.7	48.0	49.4	46.8	49.3	50.3	48.1	55 dB (A)
10	3pm-4pm	45.1	48.3	49.8	47.2	49.6	50.7	48.5	55 dB (A)
11	4pm-5pm	46.1	49.4	50.9	48.2	50.8	51.9	49.6	55 dB (A)
12	5pm-6pm	46.4	49.8	51.3	48.6	51.2	52.2	50.0	55 dB (A)
13	6pm-7pm	41.6	44.6	46.0	43.6	45.9	46.8	44.8	55 dB (A)
14	7pm-8pm	38.5	41.3	42.6	40.3	42.4	43.3	41.4	55 dB (A)
15	8m-9pm	35.1	37.6	38.8	36.7	38.7	39.5	37.7	55 dB (A)
16	9pm-10pm	34.7	37.2	38.3	36.3	38.2	39.0	37.3	55 dB (A)

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3.9.2 Night Noise Level (Leq Night)

Table 3-13 Night Noise Level (Leq Night)

S.NO	TIME FREQUENC	NOISE LEVEL (Leq in dB (A))							CPCB STANDAR
		N1	N2	N3	N4	N5	N6	N7	
1	10pm-11pm	32.3	34.7	35.7	33.8	35.6	36.4	34.8	45 dB (A)
2	11pm-12am	32.1	34.0	34.3	32.0	36.2	37.1	33.2	45 dB (A)
3	12am-1am	34.4	36.5	36.8	34.3	38.8	39.7	35.6	45 dB (A)
4	1am-2am	35.1	37.2	37.5	35.0	39.5	40.5	36.3	45 dB (A)
5	2am-3am	34.8	36.9	37.2	34.7	39.2	40.1	35.9	45 dB (A)
6	3am-4am	35.4	37.6	37.9	35.3	39.9	40.9	36.6	45 dB (A)
7	4am-5am	34.4	36.5	36.8	34.3	38.8	39.7	35.6	45 dB (A)
8	5am-6am	36.1	38.3	38.6	36.0	40.7	41.6	37.3	45 dB (A)

Location	N1	N2	N3	N4	N5	N6	N7	CPCB Standard
Day Time	43.2	46.4	47.9	45.3	47.7	48.8	46.6	55
Night time	34.8	36.9	37.2	34.6	39.2	40.1	35.9	45

Observation:

The day and night noise level are well within the limit in all 7 locations.

3.10 Soil Environment

The soils in the buffer zone (within 5 km, 10 km radius) from the project site are loamy and clayey soil. Loam is the fourth type of soil. It is a combination of sand, silt, and clay such that the beneficial properties from each are included. For instance, it has the ability to retain moisture and nutrients; hence, it is more suitable for farming.

This soil is also referred to as an agricultural soil as it includes an equilibrium of all three types of soil materials being sandy, clay, and silt, and it also happens to have humus. Apart from these, it also has higher calcium and pH levels because of its inorganic origins. Clay is the smallest particle amongst the other two types of soil.

The particles in this soil are tightly packed together with each other with very little or no airspace.

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This soil has very good water storage qualities and makes it hard for moisture and air to penetrate into it. It is very sticky to the touch when wet, but smooth when dried. Clay is the densest and heaviest type of soil which does not drain well or provide space for plant roots to flourish. Soil environment is studied for 10 km radius from the project site. The 10 km radius image shows that the soil is not affected by any kind of erosion.

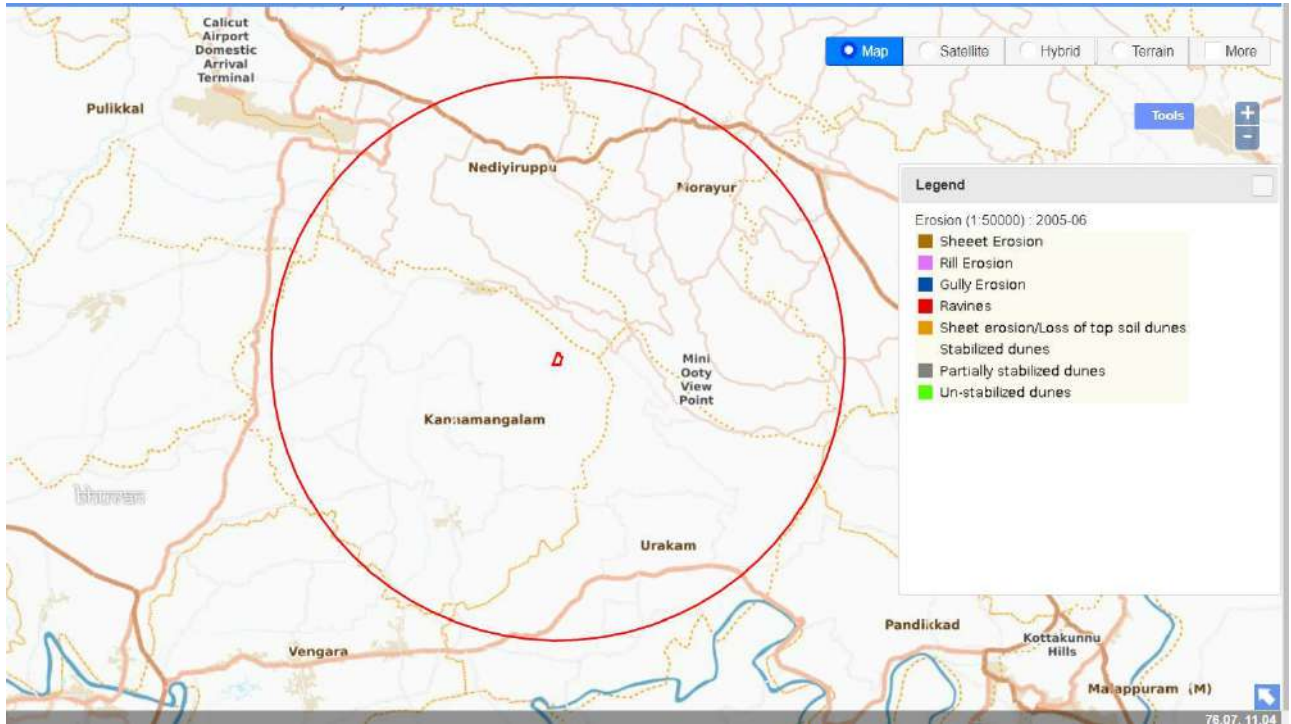


Figure 3-17 Soil Erosion pattern within 5 km radius of the project site

3.10.1 Baseline Data:

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

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

Table 3-14 Soil Quality Analysis

Environmental Parameters: Soil Quality Analysis	
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Design Criteria	Based on the environmental settings of the study area
Monitoring Locations	1 location
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.

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Table 3-15 Soil Quality Analysis Results

Sl.No.	Parameter	Unit	Method	Results						
				S1	S2	S3	S4	S5	S6	S7
1.	Water Holding Capacity	%	SEAL/EN/SLS/SOP/O1	60.0	58.5	50.0	58.6	52.5	60.0	56.0
2.	Conductivity	µS/cm	IS14767:2000	85.0	122	138	92.0	105	93.0	146
3.	pH at 25°C	-	IS10158:1982	6.02	5.86	4.76	5.18	5.02	6.18	6.21
4.	Organic Matter	%	IS2720Part22:1992	18.9	0.25	0.20	0.22	0.30	0.25	0.27
5.	Sodium as Na	%	USEPA70008:2009	0.32	0.10	0.09	0.10	0.09	0.13	0.12
6.	Chlorides	%	SEAL/EN/SLS/SOP/08	0.10	0.13	0.11	0.14	0.10	0.16	0.13
7.	Sulphur as SO ₄	%	IS2720Part27:1977	0.08	0.09	0.10	0.10	0.08	0.09	0.10
8.	Total Kjeldahl Nitrogen (as N)	%	IS14684:1999	0.39	0.31	0.29	0.28	0.22	0.32	0.24
9.	Available Potassium	meq/100g	SEAL/EN/SLS/SOP/03	52.6	40.2	52.5	78.5	60.8	64.0	86.4

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10.	Total Phosphorous (asP)	%	IS10158:1982	0.29	0.18	0.21	0.22	0.12	0.16	0.14
11.	Particle Size Distribution									
	Clay	%	SEAL/EN/SLS/SOP/14	38.6	34.0	38.1	37.2	36.2	37.6	37.6
	Sand	%	SEAL/EN/SLS/SOP/14	42.5	39.1	42.5	40.6	39.5	42.1	41.2
	Silt	%	SEAL/EN/SLS/SOP/14	18.9	26.9	19.4	22.2	24.3	20.3	21.2

S. No:	Location	Code	Location coordinates	Distance and Direction From Mine Area	Zone (Core/Buffer)
1	Within Core Zone	S1	11°5'48.70"N 76°0'13.10"E	-	Within Core Zone
2	Anthaloos Mini Stadium, Arimbra	S2	11°5'51.86"N 76° 1'34.67"E	2.52Km-SW	Buffer
3	KP Store, Myladi	S3	11°5'53.36"N 76°2'50.72"E	4.83Km-NW	Buffer
4	Yoosuf Pullats Diary Farm	S4	11°5'39.92"N 75° 59'11.67"E	1.84Km-NW	Buffer
5	Government Health Sub Centre, kannamangalam	S5	11°5'45.17"N 75° 57'34.37"E	4.78Km-NW	Buffer
6	Sub RTO Office , Kondotty	S6	11°7'48.74"N 76° 0'5.54"E	3.76km-NE	Buffer
7	Karimbili Masjid	S7	11°3'13.99"N 75° 59'50.79"E	4.79km-NE	Buffer

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3.10.2 Inference

Soil samples were collected and tested

- pH is 6.21 which indicates soil is slightly acidic.
- EC of soil is 146 mS/cm
- Organic matter in soil is 0.30%, which indicates the soil infertile.

3.11 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

3.11.1 Methods available for floral analysis:

3.11.1.1 Plot Sampling Methods

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

3.11.1.2 Plot less Sampling Methods

- Closest individual method - Distance is measured from each random point to the nearest individual.

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- 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.

3.11.1.3 Field study & Methodology adopted:

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

3.11.2 Study outcome:

The frequency of the floral species in the study area is highest for *Cocos nucifera* (83.33) followed by *Tectona grandis* (75.00) and *Swietenia mahagoni* (66.67). In the case of floral density also, *Cocos nucifera* recorded the highest value of 266.67, followed by *Hevea braziliensis* (200). Abundance showed highest value for *Hevea braziliensis* (480) followed by *Areca catechu* (380).

The floral species which showed high values for phytosociology parameters are cash crops cultivated by the farmers such as *Cocos nucifera*, *Tectona grandis*, *Hevea braziliensis*, *Swietenia mahagoni*, *Areca catechu* etc. Along with that, species such as *Macaranga peltata*, *Mangifera indica*, *Artocarpus hirsutus*, *Artocarpus heterophyllus*, *Albizia odoratissima*, *Anacardium occidentale*, *Flacourtia Montana*, *Bombax ceiba*, *Ficus hispida*, *Pongamia pinnata*, *Tamarindus indica*, *Gliricidia sepium* and *Moringa oleifera* were also observed as native species which need special conservation strategies.

Phyto-sociological parameters, such as **Density, Frequency and 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. The IVI of the species revealed that *Cocos nucifera* (48.76) showed highest value followed by *Tectona grandis* (36.62).

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Importance Value is a measure of how dominant a species is in a given area. It is a standard tool used by ecologists for the inventory of an ecosystem. Hence, it is very much evident that the natural flora existed in the area was already converted as plantations. As discussed earlier even though the natural species existed in the area were comparatively low, they must be given high conservation priorities

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

Table 3-16 Calculation of Density, Frequency (%), Dominance, Relative Density, Relative Frequency, Relative Dominance & Important Value Index

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

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36	<i>Lannea coromandelica</i>	0	0	0	1	0	0	0	0	1
37	<i>Psidium guajava</i>	0	0	0	0	1	0	0	0	1

3.11.3 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. The biodiversity indices estimated for the purpose of understanding richness, evenness and abundance of the flora are given below

3.11.4 Floral study in the Buffer Zone:

Flora observed in the buffer zone is listed below

Trees Observed

The study reported 65 species (Table 7) from the buffer area including a Near Threatened species (*Pterocarpus marsupium*)

Table 3-18: Tree Species Observed in Buffer Zone

S.No.	Scientific Name	Family	Local Name	No. of Individuals
1.	<i>Cocos nucifera</i>	Palmae	Thengu	54
2.	<i>Grewia tiliifolia</i>	Tiliaceae	Chadachi	26
3.	<i>Macaranga peltata</i>	Euphorbiaceae	Vatta	24
4.	<i>Gliricidia sepium</i>	Fabaceae	Sheemakonna	19
5.	<i>Tectona grandis</i>	Verbenaceae	Thekku	18
6.	<i>Ficus racemosa</i>	Moraceae	Athi	14
7.	<i>Briedelia retusa</i>	Euphorbiaceae	Mulluvenga	12
8.	<i>Dalbergia lanceolaria</i>	Fabaceae	Eetti	10
9.	<i>Bombax ceiba</i>	Bombacaceae	Elavu	8
10	<i>Hymenodictyon orixense</i>	Rubiaceae		8
11	<i>Areca catechu</i>	Palmae	Thengu	7
12	<i>Grewia serrulata</i>	Tiliaceae	Chadachi	7

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13	<i>Ficus exasperata</i>	Moraceae	Parakam	6
14	<i>Phyllanthus emblica</i>	Euphorbiaceae	Nelli	6
15	<i>Santalum album</i>	Santalaceae	Chandanam	6
16	<i>Caryota urens</i>	Palmae	pana	5
17	<i>Pterocarpus marsupium</i>	Fabaceae	Venga	5
18	<i>Xylia xylocarpa</i>	Fabaceae	Irupool	5
19	<i>Albizia sps.</i>	Fabaceae	Karivaka	4
20	<i>Mangifera indica</i>	Anacardiaceae	Mavu	4
21	<i>Terminalia paniculata</i>	Combretaceae	Maruth	4
22	<i>Dalbergia sissoides</i>	Fabaceae	Eetti	3
23	<i>Schleichera oleosa</i>	Sapindaceae	Poovam	3
24	<i>Artocarpus heterophyllus</i>	Moraceae	Plavu	2
25	<i>Bauhinia malabarica</i>	Fabaceae		2
26	<i>Lagerstroemia microcarpa</i>	Lythraceae	Vennilavu	2
27	<i>Moringa oleifera</i>	Moringaceae	Muringa	2
28	<i>Tamarindus indica</i>	Fabaceae	Valanpuli	2
29	<i>Terminalia bellirica</i>	Combretaceae	Karimaram	2
30	<i>Trema orientalis</i>	Ulmaceae		2
31	<i>Albizia amara</i>	Fabaceae	Karivaka	1
32	<i>Anacardium occidentale</i>	Anacardiaceae	Kashumavu	1
33	<i>Careya arborea</i>	Lecythidaceae	Pezhu	1
34	<i>Erythrina stricta</i>	Fabaceae	Murikk	1
35	<i>Ficus tsjahela</i>	Moraceae	Kallal	1
36	<i>Lannea coromandelica</i>	Anacardiaceae	Karilavu	1
37	<i>Psidium guajava</i>	Myrtaceae	Pera	1
38	<i>Sterculia guttata</i>	Sterculiaceae		1
39	<i>Sterculia urens</i>	Sterculiaceae		1
40	<i>Terminalia elliptica</i>	Combretaceae	Karimaruth	1
41	<i>Vitex altissima</i>	Verbenaceae	Mayila	1
42	<i>Zanthoxylum rhetsa</i>	Rutaceae		1

Shrubs and Herbs Observed

34 shrubs and 60 herbs including 40 species of climbers from the quadrates studied and from field observations are listed below

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Table 3-19: Shrubs Species Observed in Buffer Zone

Sl No.	Species Name	Common Name	Family
1.	<i>Allophylus</i> sps.	Sapindaceae	
2.	<i>Alternanthera brasiliana</i>	Amaranthaceae	Chumalacheera
3.	<i>Antidesma</i> sps.	Euphorbiaceae	
4.	<i>Bridelia stipularis</i>	Euphorbiaceae	
5.	<i>Canthium</i> sps.	Rubiaceae	Kara
6.	<i>Capsicum frutescens</i>	Solanaceae	Kanthari
7.	<i>Catunaregam spinosa</i>	Rubiaceae	Malankara
8.	<i>Chromolaena odorata</i>	Asteraceae	Communist pacha
9.	<i>Clerodendrum infortunatum</i>	Verbenaceae	Peringalam
10.	<i>Coffea arabica</i>	Rubiaceae	Kappi
11.	<i>Dendrophthoe falcata</i>	Loranthaceae	Ithile
12.	<i>Desmodium motorium</i>	Fabaceae (Papilionoideae)	Indian telegraphic plant
13.	<i>Desmodium triquetrum</i>	Fabaceae (Papilionoideae)	Orila
14.	<i>Embelia tsjeriam-cottam</i>	Myrsinaceae	
15.	<i>Ficus hispida</i>	Moraceae	Therakam
16.	<i>Flueggea leucopyrus</i>	Euphorbiaceae	
17.	<i>Flueggea virosa</i>	Euphorbiaceae	
18.	<i>Grewia nervosa</i>	Tiliaceae	
19.	<i>Helicteres isora</i>	Sterculiaceae	Idampiri
20.	<i>Hibiscus hispidissimus</i>	Malvaceae	Panchakam
21.	<i>Hyptis suaveolens</i>	Lamiaceae	Narippalla
22.	<i>Lantana camara</i>	Verbenaceae	Kongini
23.	<i>Leea indica</i>	Leeaceae	Choriyan thali
24.	<i>Memecylon</i> sps.	Melastomataceae	kaashavu
25.	<i>Mussaenda frondosa</i>	Rubiaceae	Vellila
26.	<i>Osbeckia aspera</i>	Melastomataceae	Athiraani
27.	<i>Pseudarthria viscida</i>	Fabaceae (Papilionoideae)	Moovila
28.	<i>Senna tora</i>	Fabaceae (Caesalpinioideae)	

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29.	<i>Strachytarpheta urticifolia</i>	Verbenaceae	Narivalan
30.	<i>Thespesia lampas</i>	Malvaceae	Kattupoovarash
31.	<i>Triumfetta</i> sps.	Tiliaceae	Urpam
32.	<i>Urena lobata</i>	Malvaceae	Urpam
33.	<i>Ziziphus rugosa</i>	Rhamnaceae	Tholdali
34.	<i>Cycas circinalis</i>	Cycadaceae	Einthu

Table 3-18: Herbs Species Observed in Buffer Zone

Sl. No.	Scientific Name	Common Name	Family
1.	<i>Ageratum conyzoides</i>	Asteraceae	Appa
2.	<i>Alternanthera bettzickiana</i>	Amaranthaceae	
3.	<i>Asystasia gangetica</i>	Acanthaceae	Creeping foxglove
4.	<i>Blumea</i> sps.	Asteraceae	
5.	<i>Cyathula prostrata</i>	Amaranthaceae	Cherukadaladi
6.	<i>Desmodium</i> sps.	Fabaceae	
7.	<i>Desmodium triflorum</i>	Fabaceae	Nilam parand
8.	<i>Elephantopus scaber</i>	Asteraceae	Anachuvadi
9.	<i>Lepidagathis</i> sps.	Acanthaceae	
10.	<i>Leucas aspera</i>	Lamiaceae	Thumba
11.	<i>Melochia corchorifolia</i>	Sterculiaceae	
12.	<i>Microstachys chamaelea</i>	Euphorbiaceae	
13.	<i>Mimosa pudica</i>	Fabaceae (Mimosoideae)	Thottavadi
14.	<i>Mitracarpus hirtus</i>	Rubiaceae	
15.	<i>Naregamia alata</i>	Meliaceae	Nilanarakam
16.	<i>Oldenlandia auricularia</i>	Rubiaceae	Tharthaval
17.	<i>Peperomia pellucida</i>	Piperaceae	Mashithanduchedi
18.	<i>Phaulopsis imbricata</i>	Acanthaceae	
19.	<i>Phyllanthus urinaria</i>	Euphorbiaceae	
20.	<i>Phyllanthus virgatus</i>	Euphorbiaceae	
21.	<i>Pogostemon</i> sps.	Lamiaceae	

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22.	<i>Pouzolzia</i> sps.	Urticaceae	
23.	<i>Scoparia dulcis</i>	Plantaginaceae	
24.	<i>Sida alnifolia</i>	Malvaceae	Kurumthotti
25.	<i>Sida cordata</i>	Malvaceae	
26.	<i>Spermacoce</i> sps.	Rubiaceae	Tharthaval
27.	<i>Spilanthes radicans</i>	Asteraceae	Venapacha
28.	<i>Synedrella nodiflora</i>	Asteraceae	
29.	<i>Talinum portulacifolium</i>	Talinaceae	Sambar cheera
30.	<i>Tridax procumbens</i>	Asteraceae	
31.	<i>Viscum</i> sps.	Viscaceae	
32.	<i>Wedelia trilobata</i>	Asteraceae	Singaore daisy
33.	<i>Zornia</i> sps.	Fabaceae	
34.	<i>Ananas comosus</i>	Bromeliaceae	Pineapple
35.	<i>Apluda mutica</i>	Poaceae	
36.	<i>Axonopus compressus</i>	Poaceae	Buffalo grass
37.	<i>Brachiaria</i> sps.	Poaceae	
38.	<i>Centotheca lappacea</i>	Poaceae	
39.	<i>Colocasia</i> sps.	Araceae	Chembu
40.	<i>Commelina benghalensis</i>	Commelinaceae	
41.	<i>Costus speciosus</i>	Costaceae	
42.	<i>Curculigo orchioides</i>	Hypoxidaceae	Nilappana
43.	<i>Curcuma</i> sps.	Zingiberaceae	Koova
44.	<i>Cyanotis arachnoidea</i>	Commelinaceae	
45.	<i>Cymbopogon</i> sps.	Poaceae	Theruvapullu
46.	<i>Cynodon</i> sps.	Poaceae	Karukappullu
47.	<i>Cyrtococcum oxphyllum</i>	Poaceae	
48.	<i>Digitaria</i> sps.	Poaceae	
49.	<i>Ischaemum</i> sps.	Poaceae	
50.	<i>Kyllinga</i> sps.	Cyperaceae	Muthangapullu

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51.	<i>Melinis sps.</i>	Poaceae	
52.	<i>Musa paradisiaca</i>	Musaceae	Vazha
53.	<i>Oplismenus sps.</i>	Poaceae	
54.	<i>Paspalum conjugatum</i>	Poaceae	
55.	<i>Pennisetum pedicellatum</i>	Poaceae	Pothapullu
56.	<i>Pennisetum polystachyon</i>	Poaceae	Pothapullu
57.	<i>Setaria sps.</i>	Poaceae	
58.	<i>Themeda sps.</i>	Poaceae	
59.	<i>Theriophonum sps.</i>	Araceae	
60.	<i>Zingiber zerumbet</i>	Zingiberaceae	Kattinji

Table 3-21: Climber Species Observed in Buffer Zone

Sl. No.	Scientific Name	Common Name	Family
1.	<i>Abrus pulchellus</i>	Fabaceae (Papilionoideae)	
2.	<i>Acacia caesia</i>	Fabaceae (Mimosoideae)	Inja
3.	<i>Acacia torta</i>	Fabaceae (Mimosoideae)	Inja
4.	<i>Aristolochia indica</i>	Aristolochiaceae	Garudakodi
5.	<i>Cajanus sps.</i>	Fabaceae (Papilionoideae)	
6.	<i>Calycopteris floribunda</i>	Combretaceae	Pullani
7.	<i>Centrosema molle</i>	Fabaceae (Papilionoideae)	Kattupayar
8.	<i>Cissus heyneana</i>	Vitaceae	
9.	<i>Cissus latifolia</i>	Vitaceae	
10.	<i>Clitoria ternatea</i>	Fabaceae (Papilionoideae)	Sangupushpam
11.	<i>Connarus sps.</i>	Connaraceae	
12.	<i>Cosmostigma racemosm</i>	Asclepiadaceae	
13.	<i>Cryptolepis buchananii</i>	Periplocaceae	
14.	<i>Cyclea peltata</i>	Menispermaceae	Padakizhang
15.	<i>Dalbergia sps.</i>	Fabaceae (Papilionoideae)	
16.	<i>Diploclisia glaucescens</i>	Menispermaceae	
17.	<i>Dipolocyclos palmatus</i>	Cucurbitaceae	Neyyunni

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18.	<i>Gymnema sylvestre</i>	Asclepadaceae	Chakarakolli
19.	<i>Hemidesmus indicus</i>	Periplocaceae	Naruneendi
20.	<i>Hewittia malabarica</i>	Convolvulaceae	
21.	<i>Ichnocarpus frutescens</i>	Apocynaceae	Palvalli
22.	<i>Ipomoea obscura</i>	Convolvulaceae	Thiruthali
23.	<i>Jasminum coarctatum</i>	Oleaceae	Kattumulla
24.	<i>Merremia umbellata</i>	Convolvulaceae	
25.	<i>Merremia vitifolia</i>	Convolvulaceae	Manjakolambi
26.	<i>Mikania micrantha</i>	Asteraceae	Dhridharashtrappacha
27.	<i>Mimosa diplotricha</i>	Fabaceae (Mimosoideae)	Anathottavadi
28.	<i>Mucuna bracteata</i>	Fabaceae (Papilionoideae)	Kattanpayar
29.	<i>Naravelia zeylanica</i>	Ranunculaceae	Vathakodi
30.	<i>Passiflora foetida</i>	Passifloraceae	
31.	<i>Piper nigrum</i>	Piperaceae	Kurumulak
32.	<i>Pueraria phaseoloides</i>	Fabaceae (Papilionoideae)	Kattupayar
33.	<i>Rourea minor</i>	Connaraceae	
34.	<i>Tinospora sinensis</i>	Menispermaceae	Amrithu
35.	<i>Tylophora sps.</i>	Asclepiadaceae	
36.	<i>Xenostegia tridentata</i>	Convolvulaceae	Prasarani
37.	<i>Ziziphus oenoplia</i>	Rhamnaceae	Thodali
38.	<i>Dioscorea pentaphylla</i>	Dioscoreaceae	
39.	<i>Dioscorea wallichii</i>	Dioscoreaceae	Kattukizhangu
40.	<i>Smilax zeylanica</i>	Smilacaceae	Arikanni

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.

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3.11.5 Faunal Communities

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

- Point Survey Method: Observations were made in each site for 28 minutes duration.
- Road Side Counts: The observer traveled by motor vehicles from site to site, all sightings were recorded (this was done both in the day and night time). An index of abundance of each species was also established.
- Pellet and Track Counts: All possible animal tracks and pellets were identified and recorded (South Wood, 1978).

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

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

Methodology Adopted:

Point Survey method was adopted for this development project where observations were made in each site for 28 minutes duration (10 times). Map showing location of point surveys is given below

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.

Herpeto fauna (Reptiles and Amphibians)

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The survey on the herpeto fauna was also conducted at different micro-habitats during the day and in the evening. GPS records were taken to outline the area covered during the field survey and to show specific points where specimens were encountered. Photos were taken using camera. The species of Reptiles and Amphibians were identified through field guides

Insects (Butterflies and Odonates)

Insects especially butterflies and odonates were also recorded from various habitats through transect method. Species sightings were recorded in the field and possibly photographed using camera. The species of butterflies and odonates were identified through field guides

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

Among invertebrate, butterflies were the most dominant category identified from the field. A total of 36 species were identified from the field and all the species were in the least concerned category

Table 3-22 Butterflies in Buffer Zone

Sl. No	Common Name	Scientific Name	IUCN	Total Count
1	Chestnut bob	<i>Iambrix salsala</i>	LC	4
2	Common Rose	<i>Pachliopta aristolochiae</i>	LC	3
3	Common Mormon	<i>Papilio polytes</i>	LC	5
4	Crimson Rose	<i>Pachliopta hector</i>	LC	3
5	Common line blue	<i>Prosotas nora</i>	LC	11
6	Southern Birdwing	<i>Troides minos</i>	LC	1
7	Great Eggfly	<i>Hypolimnna bolina</i>	LC	4
8	Common Grass Yellow	<i>Eurema hecabe</i>	LC	7
9	Rice swift	<i>Borbo cinnara</i>	LC	4
10	Blue mormon	<i>Papilio polymnestor</i>	LC	3
11	Chocolate Pansy	<i>Junonia iphita</i>	LC	2
12	Common crow	<i>Euploea core</i>	LC	5
13	Psyche	<i>Leptosia nina</i>	LC	2
14	Striped tiger	<i>Danaus genutia</i>	LC	6

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15	Tiny grass blue	<i>Zizula hylax</i>	LC	6
16	Gram blue	<i>Euchrysops cnejus</i>	LC	7
17	Gladeye bushbrown	<i>Mycalesis patina</i>	LC	8
18	Common fourring	<i>Ypthima huebneri</i>	LC	6
19	Common evening brown	<i>Melantis leda</i>	LC	3
20	Dark evening brown	<i>Melantis phedima</i>	LC	5
21	Common hedge blue	<i>Acytolepis puspa</i>	LC	9
22	Pointed ciliate blue	<i>Anthene lycaenina</i>	LC	4
23	Common baron	<i>Euthalia aconthea</i>	LC	2
24	Dark palm dart	<i>Telicota ancilia</i>	LC	3
25	Fulvous pied flat	<i>Pseudocoladenia dan</i>	LC	2
26	Common fivering	<i>Ypthima baldus</i>	LC	3
27	Common cerulean	<i>Jamides celeno</i>	LC	8

Table 3-23 Butterflies in Study Area (Core Zone)

Sl. No:	Common Name	Scientific Name	IUCN Status	Total Count
1	Common jezebel	<i>Delias eucharis</i>	LC	3
2	Common Rose	<i>Pachliopta aristolochiae</i>	LC	3
3	Common Mormon	<i>Papilio polytes</i>	LC	2
4	Crimson Rose	<i>Pachliopta hector</i>	LC	2
5	Common wanderer	<i>Pareronia valeria</i>	LC	2
6	Southern Birdwing	<i>Troides minos</i>	LC	3
7	Great Eggfly	<i>Hypolimnas bolina</i>	LC	2
8	Common Grass Yellow	<i>Eurema hecabe</i>	LC	5
9	Psyche	<i>Leptosia nina</i>	LC	2
10	Blue mormon	<i>Papilio polymnestor</i>	LC	3
11	Chocolate Pansy	<i>Junonia iphita</i>	LC	2
12	Common crow	<i>Euploea core</i>	LC	2
13	Common emigrant	<i>Catopsilia pomona</i>	LC	3
14	Common albatross	<i>Appias albina</i>	LC	3
15	Angled castor	<i>Ariadne ariadne</i>	LC	2
16	Mottled emigrant	<i>Catopsilia pyranthe</i>	LC	3
17	Common wanderer	<i>Pareronia valeria</i>	LC	2
18	Tailed jay	<i>Graphium agamemnon</i>	LC	2

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19	Striped tiger	<i>Danaus genutia</i>	LC	2
20	Common fourring	<i>Ypthima huebneri</i>	LC	7
21	Common evening brown	<i>Melantis leda</i>	LC	2
22	Dark evening brown	<i>Melantis phedima</i>	LC	3
23	Common sailer	<i>Neptis hylas</i>	LC	2
24	Tailed palmfly	<i>Elymnias caudata</i>	LC	1
25	Palni bushbrown	<i>Teligna davisoni</i>	LC	2
26	Common lascar	<i>Pantoporia hordonia</i>	LC	2
27	Common hedge blue	<i>Acytolepis puspa</i>	LC	5
28	Forget me not	<i>Catochrysops strabo</i>	LC	1
29	Pointed ciliate blue	<i>Anthene lycaenina</i>	LC	2
30	Lime blue	<i>Chilades lajus</i>	LC	3
31	Small cupid	<i>Chilades parrhasius</i>	LC	5
32	Psyche	<i>Leptosia nina</i>	LC	3
33	Small grass jewel	<i>Freyeria putli</i>	LC	6
34	Common fivering	<i>Ypthima baldus</i>	LC	3
35	Common cerulean	<i>Jamides celeno</i>	LC	2
36	Tiny grass blue	<i>Zizula hylax</i>	LC	1
37	Gram blue	<i>Euchrysops cnejus</i>	LC	6
38	Common awl	<i>Hasora badra</i>	LC	2
39	Common line blue	<i>Prosotas nora</i>	LC	6
40	Ciliate blue	<i>Anthene emolus</i>	LC	4
41	Common snow flat	<i>Tagiades japetus</i>	LC	1
42	Yamfly	<i>Loxura atymnus</i>	LC	2
43	Bush hopper	<i>Ampittia discorides</i>	LC	3
44	Chestnut angle	<i>Odontoptilum angulate</i>	LC	2
45	Rice swift	<i>Borbo cinnara</i>	LC	2
46	Chestnut bob	<i>Iambrix salsala</i>	LC	1

Table 3-24 Mammals in Core Area

Sl.	Common Name	Scientific Name	IUCN Status	Count
1	Indian Flying fox	<i>Pterus</i>	LC	2
2	Wild Boar	<i>Sus Scrofa</i>	LC	4
3	Indian Crested Porcupine	<i>Hystrix indica</i>	LC	
4	Indian Grey Mongoose	<i>Herepestes edwardsii</i>	LC	1
5	Indian Palm Squirrel	<i>Funambulus Palmarum</i>	LC	3

Table 3-25 : Mammals in Buffer Zone

1	Indian Flying Fox	<i>Pteropus Medius</i>	LC	1
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2	Wild Boar	<i>Sus scrofa</i>	LC	
3	Indian Palm Squirrel	<i>Funambulus Palmarum</i>	LC	2
4	Indian Grey Mongoose	<i>Herepestes edwardsii</i>	LC	1

A total of 4 reptiles were identified from the field and all the identified species were listed under least concerned category

Table 3-26 Reptiles in Study Area (Core Zone)

SN o.	Scientific Name	Common Name	IUCN Status	Count
1.	<i>Calotes versicolor</i>	Oriental garden lizard	LC	1
2	<i>Eutropis carinata</i>	Keeled grass skink	LC	2
3	<i>Psammophilus dorsalis</i>	Peninsular rock agama	LC	2
4	<i>Cnemaspis</i>	Ground gecko	LC	2

Table 3-27 Reptiles in Study Area (Buffer Zone)

1.	<i>Calotes calotes</i>	Green forest lizard	LC	2
2	<i>Eutropis carinata</i>	Keeled grass skink	LC	1
3	<i>Calotes versicolor</i>	Oriental garden lizard	LC	2
4	<i>Cnemaspis</i>	Ground gecko	LC	3

Table 3-19 Amphibians in Study Area (Core Zone)

S. No	Common Name	Scientific Name	
1	Common Indian Toad	<i>Duttaphrynus melanostictus</i>	
2	Minervarya sps.	<i>Minervarya sps.</i>	
3	Skittering frog	<i>Euphlyctus sp.</i>	
4	Common tree frog	<i>Pseudophilautus sp.</i>	

Table 3-29 Amphibians in Buffer Zone

1	Common Indian Toad	<i>Duttaphrynus melanostictus</i>	
2	Skittering frog	<i>Euphlyctus sps.</i>	
3	Common tree frog	<i>Pseudophilatus sp.</i>	

Three Spiders and five ant species were identified from the study and listed here.

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Table 3-30 Odonates in Study Area (Core Zone)

Sl No	Common Name	Scientific name	T1	T2	T3	T4	T5	T6
1	Ground skimmer	<i>Diplacodes trivialis</i>	1		1			2
2	Spread wing	<i>Lestes elatus</i>		2				1
3	Blue bush dart	<i>Copera vittata</i>			1			
4	Pied paddy skimmer	<i>Neurothemis tullia</i>		2		2	1	
5	Wandering glider	<i>Pantala flavescens</i>	3		7			3
6	Green striped slender dartlet	<i>Aciagrion occidentale</i>			1			
7	Red faced skimmer	<i>Orthretum chrysis</i>		1			1	
8	Granite ghost	<i>Macrodiplax cora</i>		2				

A total of 8 species odonates were identified from the field and all the species were in the least concerned category

Table 3-31 Odonates in Study Area (Buffer Zone)

Sl No	Common Name	Scientific name	T1	T2	T3	T4	T5	T6
1	Ground skimmer	<i>Diplacodes trivialis</i>	1		1	2		
2	Blue bush dart	<i>Copera vittata</i>				2		1
3	Golden dartlet	<i>Ischnura aurora</i>		1				
4	Red faced skimmer	<i>Orthretum chrysis</i>					1	
5	Granite ghost	<i>Macrodiplax cora</i>			2			
6	Global wanderer	<i>Pantala flavescens</i>	3		1	6		
7	Common picture wing	<i>Rhyothemis variegata</i>		1			1	2

Table 3-32 Odonates in Study Area (Core Zone)

Sl No	Common Name	Scientific name	T1	T2	T3	T4	T5	T6
1	Ground skimmer	<i>Diplacodes trivialis</i>	1		1			2
2	Spread wing	<i>Lestes elatus</i>		2				1
3	Blue bush dart	<i>Copera vittata</i>			1			
4	Pied paddy skimmer	<i>Neurothemis tullia</i>		2		2	1	

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5	Wandering glider	<i>Pantala flavescens</i>	3		7			3
6	Green striped slender dartlet	<i>Aciagrion occidentale</i>			1			
7	Red faced skimmer	<i>Orthretum chrysis</i>		1			1	
8	Granite ghost	<i>Macrodiplax cora</i>		2				

Findings/Results

The assessment was carried out during the summer season. The details of the flora and fauna observed are given below.

- Records of threatened species in the area: No threatened species were observed
- Endangered Species as per Wildlife (Protection) Act: No Endangered fauna was recorded in the project area.
- Endemic Species of the Project areas: No endemic species were observed in the project area.
- Migratory species of the Project areas: No migratory fauna observed in project area.
- Migratory corridors and Flight paths: No migratory corridors and Flight paths were observed in project area.
- Breeding and spawning grounds: No breeding and spawning grounds were earmarked for the wildlife fauna in project area.
- The proposed quarry mining will not make any serious impact on the vegetation and related fauna at this location. The study would suggest to keep the disturbance to the minimal level and to ensure to plant the trees which are suitable to the present habitat

3.12 Demography and Socio Economics

Kannamangalam is a village located in Tirurangadi Taluka of Malappuram district, Kerala with total 7,194 families residing. The Kannamangalam village has population of 41,260 of which 19,911 are males while 21,349 are females as per Population Census 2011. In Kannamangalam village population of children with age 0-6 is 6332 which makes up 15.35 % of total population of village. Average Sex Ratio of Kannamangalam village is 1072 against Kerala state average of 1084. Child Sex Ratio in Kannamangalam per census is 952 compared to Kerala state average of 964.

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Kannamangalam village has higher literacy rate compared to Kerala. In 2011, literacy rate of Kannamangalam village was 95.91 % compared to 94.00 % of Kerala. In Kannamangalam, Male literacy stands at 97.10 % while female literacy rate was 94.89 %.

In Kannamangalam village out of total population, 7147 were engaged in work or business activities. 77.5% of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 22.5 % were involved in Marginal activity providing livelihood for less than 6 months. Of 7147 workers engaged in Main Work, 76 were cultivators (owner or co-owner) while 285 were Agricultural labourer.

Table 3-20: Demography Detail of Kannamangalam village (Source: Census of India, 2011)

Particulars		Male	Female
Total No. of Houses	7,194	-	-
Population	41,260	19,911	21,349
Child (0-6)	6,332	3,244	3,088
Schedule Caste	3,562	1785	1777
Schedule Tribe	181	88	93
Literacy	95.91 %	97.1 %	94.89 %
Total Workers	9,451	8,382	1,069
Main Worker	7826	7379	447
Marginal Worker	1,625	1,003	622

Study Area:

Socio-economy map of the project area is given in Figure 3.18. Detail of demography of study area is given in Table 3.32. In study area there are around 25 villages all falling in Mallapuram District. Total households in the study area are 285781 and total population is 1538240. Household size is 5.3. Male population is 740200 and female population is 798040. Total SC population is 99019 which is around 6.45 of total population of study area. Total ST population is 3180 which is around 0.2% of the total population of study area. Total literates population in the study area is 1232171 which is around 80.10% of total population. Total working population is 372397 which is 24.2% of the total population

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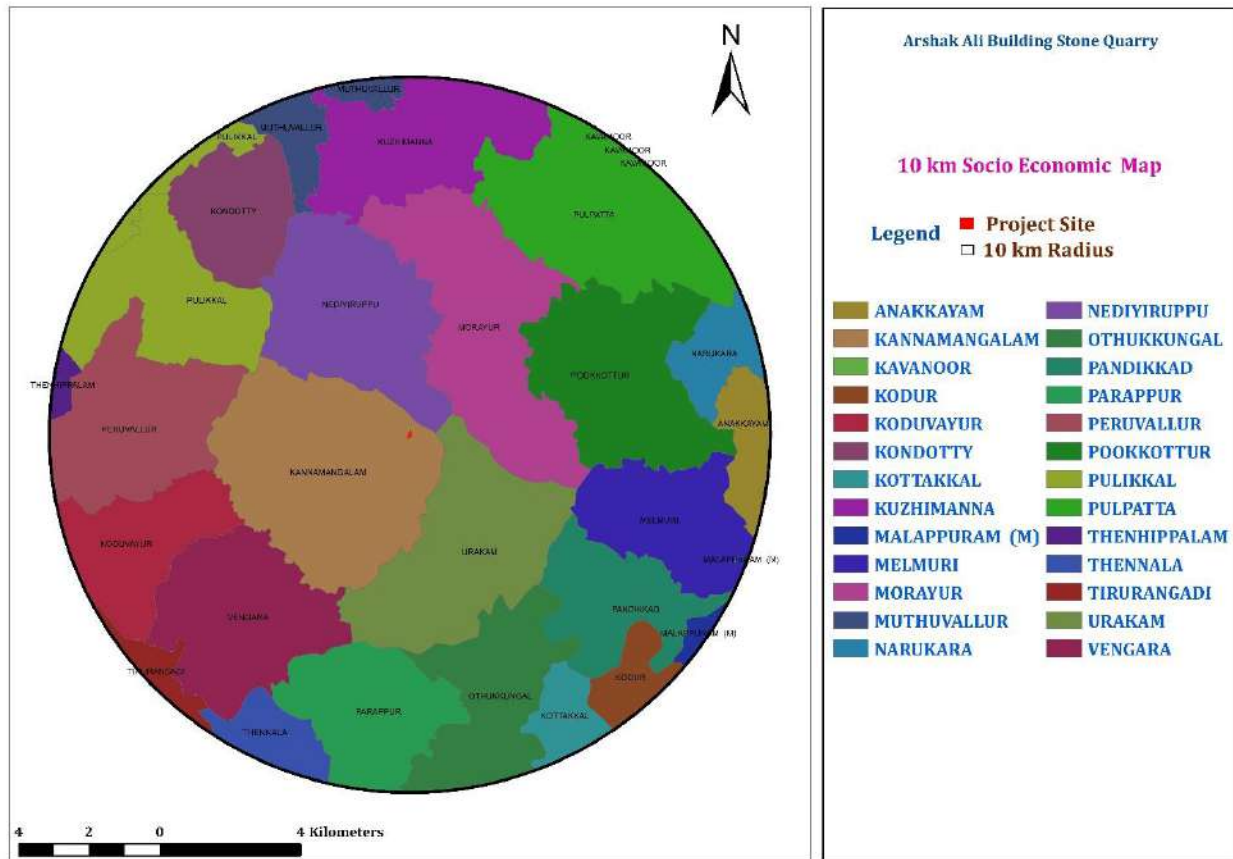


Figure 3-18 Map Showing Location of Socio Economic

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Table 3-21: Demography Detail of Study Area

Village	Households	Total Population	Male	Female	SC	Male-SC	Female-SC	ST	Male-ST	Female-ST	Literates	Male-Literates	Female-Literates	Total Workers	Main Workers	Marginal Workers	Non Workers
Anakkayam	6461	33259	15983	17276	2004	992	1012	19	11	8	27178	13092	14086	8450	7553	897	24809
Areekode	6037	31563	15628	15935	2991	1479	1512	35	17	18	25414	12800	12614	8446	6343	2103	23117
Cheekkodde	4318	22413	11086	11327	1700	835	865	23	13	10	18029	9105	8924	5676	3562	2114	16737
Cherukavu (CT)	6063	30126	14778	15348	2455	1228	1227	43	19	24	24644	12271	12373	8151	6183	1968	21975
Kannamangalam (CT)	7194	41260	19911	21349	3562	1785	1777	181	88	93	32293	15858	16435	9451	7826	1625	31809
Kavanoor	7259	37977	18813	19164	4209	2071	2138	77	35	42	30051	15234	14817	9764	6314	3450	28213
Kuzhimanana	6492	34413	16879	17534	3322	1655	1667	68	38	30	27370	13714	13656	9015	6678	2337	25398
Melmuri	4249	22217	10637	11580	777	382	395	82	36	46	17566	8516	9050	5482	4120	1362	16735
Moonniyur (CT)	10176	55535	26727	28808	2916	1424	1492	68	38	30	43974	21484	22490	12870	10152	2718	42665
Morayur	6501	33960	16299	17661	2313	1143	1170	45	22	23	27392	13316	14076	8096	6200	1896	25864
Muthuvallur	6905	36482	17931	18551	4192	2084	2108	93	51	42	29176	14584	14592	9420	6603	2817	27062
Nediyirupu	5676	30462	14859	15603	4135	2050	2085	35	22	13	24847	12305	12542	7859	6207	1652	22603
Othukkungal (CT)	7084	39139	18595	20544	1574	811	763	47	21	26	31558	15049	16509	8859	7441	1418	30280

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Pandikkad	3578	18406	872 9	967 7	186 3	901	962	44	22	22	1494 7	7156	7791	4727	3919	808	1367 9
Parappur (CT)	6554	36270	169 75	192 95	612	306	306	56	33	23	2914 1	1372 5	1541 6	7692	6815	877	2857 8
Peruvallur (CT)	6411	34941	168 83	180 58	261 9	133 6	128 3	61	33	28	2745 9	1357 6	1388 3	8563	6972	1591	2637 8
Pookkottu r	7032	37636	183 94	192 42	225 1	113 9	111 2	66	36	30	2998 8	1485 1	1513 7	9081	7211	1870	2855 5
Pulikkal	7611	40133	196 95	204 38	357 1	172 7	184 4	10 1	49	52	3226 7	1612 5	1614 2	1009 1	6962	3129	3004 2
Pulpatta	7973	42683	211 51	215 32	465 1	232 4	232 7	49 3	238	255	3382 8	1718 0	1664 8	1140 4	7499	3905	3127 9
Thenhippa lam (CT)	6782	32045	157 23	163 22	308 3	152 3	156 0	71	37	34	2670 8	1325 5	1345 3	9518	8075	1443	2252 7
Thennala (CT)	10353	56546	267 15	298 31	174 6	838	908	66	36	30	4525 6	2163 5	2362 1	1220 5	1037 7	1828	4434 1
Tirurangad i	131272	71301 7	341 192	371 825	384 45	190 21	194 24	12 12	616	596	5712 14	2775 66	2936 48	1709 35	1407 42	3019 3	5420 82
Urakam (CT)	5294	29157	139 15	152 42	149 8	739	759	50	28	22	2328 0	1117 6	1210 4	6622	5308	1314	2253 5
Vengara (CT)	8506	48600	227 02	258 98	253 0	125 8	127 2	14 4	76	68	3859 1	1824 0	2035 1	1002 0	7976	2044	3858 0
Kondotty (CT)	5436	28794	140 36	147 58	313 9	160 4	153 5	37	16	21	2346 9	1162 6	1184 3	6143	5386	1905	2150 3
Kodur (CT)	8399	45459	216 27	238 32	141 6	701	715	88	43	45	3705 5	1764 6	1940 9	1044 3	8763	1680	3501 6

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Conclusion

Socio economic assessment is a major part of EIA study. The social study aims at appraise the performance of various sectors in the society. However, it gives awareness to the proponent to provide a financial assistance to rural poor to improve their standard of living. The above information gives a brief idea about the social and economic background of people in the village. It is important to achieve the inclusive and sustainable development by promoting Education, Health, Environment, Transportation, Communication, Agriculture and allied sector, Industrial services like small scale industries, which serves as the major pillars of the development of rural poor

3.13 Traffic Survey

Project site is connected through NH-966. Highway is from Kozhikoode to Palakkad and is of total length of 125.3 km. Traffic survey data on NH-213 is given below

S. No.	Road	Volume PCU	Capacity PCU/Hr	Volume/Capacity
1	NH 966 (old NH 213) - Palakkad Sid			
	Star Jn - Kuruppath Jn	3961	3600	1.10
	Kuruppath Jn - Kodangad Jn	2841.5	1500	1.89
2	NH 966 (old NH 213) - Kozhikode Side			
	Star Jn - Kondotty 17 Jn	4214.5	3600	1.17
	Kondotty 17 Jn - Pandikkadu Jn	3147.5	1500	2.10

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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

The impacts on different environmental parameters due to this mining project are discussed below:

4.2 Construction Phase

There will be no impacts as no construction stage is involved in this project.

4.3 Operation Phase

Some of the impacts identified in various phases of operation are insignificant and do not warrant much attention whereas some others are important especially with respect to the present context.

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Therefore objective is to identify those impacts, which are significant and require a detailed analysis for decision making or formulating adequate management measures.

4.3.1 Air Environment

Mining Operation carried out by opencast semi-semi-mechanized method generate dust particles due to various activities like drilling, blasting, Loading & Unloading of Granite and Transportation. The air quality in the mining area depends upon the nature and concentration of emissions and meteorological conditions. Though it is an open cast semi- mechanized mine with all possible air quality controlling measures but the major air pollutants from mining include: -

- Particulate Matter (Dust) of various sizes.
- Gases, such as, Sulphur Dioxide, Oxides of Nitrogen, Carbon Monoxide etc. from vehicular exhaust.

Dust is the major air pollutant observed in the open cast mines. Diesel operating drilling machines, blasting and movement of machinery/ vehicles produce NOX, SO2 and CO emissions, usually at low levels. Dust can be of significant nuisance to surrounding land users and potential health risk in some circumstances.

Air Quality Modeling:

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

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

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

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

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

4.3.1.1 Source Characterization

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

The emission Sources from the proposed operation are

Point Sources:

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

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

Road Sources:

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

The parameters considered for the hauling operation include the following,

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

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

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

Activity		Source Type	Emissions (g/s)				
			TSPM	PM ₁₀	PM _{2.5}	NO _x	CO
Haulage		Line volume	4.796E-02	1.356E-02	8.134E-03	3.364E-02 (from tipper)	2.0291E-03 (from tipper)
Topsoil	Scraper	open pit	Negligible	Negligible	Negligible	N/A	N/A

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handling	Bulldozing		9.014E-02	2.991E-02	1.795E-02	6.70E-03 (from excavator)	5.833E-02 (from excavator)
Granite mining	Wet drilling		1.88E-04	3.76E-05	2.25E-05	5.22E-03 (from compressor)	1.13E-03 (from compressor)
	Loading		2.34E-04	4.69E-05	2.82E-05	N/A	N/A

Mitigation Measures

- **Drilling:** To control fugitive dust at source, wet drilling will be practiced, where there is a scarcity of water, suitably designed dust extractor will be provided for dry drilling along with dust hood at the mouth of the drill-hole collar.
Advantages of Wet Drilling: In this system dust gets suppressed close to its formation. Dust suppression become very effective and the work environment will be improved from the point of occupational comfort and health. Due to dust free atmosphere, the life of engine, compressor etc. will be increased. The life of drill bit will be increased. The rate of penetration of drill will be increased. Due to the dust free atmosphere visibility will be improved resulting in safer working conditions after day light hours.
- **Blasting:** Establish time of blasting to suit the local conditions will be evaluated and practiced. Avoid blasting i.e., when temperature inversion is likely to occur and strong wind blows towards residential areas.
- **Transport:** The speed of dumpers/ trucks on haul road will be controlled as increased speed increases dust emissions. Overloading of transport vehicles will be avoided. The trucks/ tippers will have sufficient free board. Spillage of ore on public roads will be cleared immediately and vehicles will maintain safe speed.
- **Green Belt:** Planting of trees all along main mine haul road and regular grading of haul roads will be practiced to prevent the generation of dust due to movement of dumpers/trucks. Green belt of adequate width will be developed around the lease area. Plantation will also be done in dumping area, mineral stock yard.

4.3.2 Noise Environment

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Noise pollution is mainly due to operation of blast hole drilling, blasting and occasional plying of trucks. These activities will not cause any problem to the inhabitants of this area because there is no human settlement in close proximity to the lease area.

Impacts of Noise Pollution

- Transportation vehicles used for the transportation of mineral area source of noise pollution at the site.
- Drilling & blasting activities during mining.
- Loading & unloading of waste & minerals

Mitigation Measures

- Periodical monitoring of ambient noise will be done as per CPCB guidelines.
- No other equipment except the transportation vehicles and excavator for loading will be allowed.
- Noise generated by these equipment shall be intermittent and does not cause much adverse impact.
- Proper maintenance of all equipment/machines will be carried out which help in reducing noise during operations.
- Plantation will be taken up along the approach roads and side. The plantation minimizes propagation of noise and also arrests dust.

4.3.3 Water Environment

Mining and its associated activities not only use a lot of water but also likely to affect the hydrological regime of the area. The major impact of deep and large mines (both underground and open cast) is of natural groundwater table. Lowering of water table may result in reduced groundwater availability. The mine is located at higher elevation on hill. The ground water level is 30m MSL. The deepest mining operation shall be about +70 m MSL, which will be much above the ground water table. Hence the ground water will not affect in the manner due to quarrying operation during the entire lease period.

Mitigation Measures

- Natural drainage system will be followed for rainwater.
- No waste water will be generated from the mine.

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- Natural pits will be used for rainwater harvesting.
- No toxic water will be generated.
- Water monitoring will be done.
- There is no surface water body & pond within the site.
- Water conservation measure will be followed.

4.3.3.1 Impact on Natural Drainage

There is no prominent nalla or river flowing within the lease area. The ground water depths were observed from the available nearby sources. The observation made during the field studies are varying between 20m to 30m below the existing ground level. Mining activities will not intersect with the ground water table.

Encounter and discharge of mine water: There is no chance of groundwater likely to be encountered in the mine. But the rainwater will accumulate at pit bottom in rainy seasons and this may be dried up slowly by percolating to ground.

The mining activities will be restricted within the mine lease area and there will not be any impact on the drainage pattern outside the mine lease area. No prominent water course or nallah occur in the lease area. Overall drainage planning has been done in such a manner that the existing pre-mining drainage conditions will be maintained to the extent possible so that run off distribution is not affected. No natural course of water stream is interrupted or diverted due to mining activity; hence no impact on natural drain is anticipated.

Garland drain will be constructed on all sides of quarry along with settling pond to remove the suspended solids from storm water. The collected water shall be used in plantation and spraying on haul roads. Settling ponds will be designed on the basis of silt loading, slope of the lease, detention time required etc. As the proposed mining activity method is semi mechanized, the existing drainage pattern of the mine lease area will be unaltered.

4.3.3.2 Impact on Slope Stability

The Lowest and the Highest Contour Levels of the site are 100 m MSL and 30m MSL respectively. The proposed area is hilly and the drainage of the mine area is towards south direction. No habitants are located in the mine area. The area is fully granite rock. A reworked drainage plan is already

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submitted. The maximum slope is 21; much less than the allowable 45 limit as per KMMCR and SEIAA conditional rules. A detailed plan of the same is attached. A total quantity of 43,697cu. m of topsoil is proposed to be removed during the mining operations. The topsoil excavated from the quarry will be dumped separately at pre-determined place and subsequently will be utilized in spreading over reclaimed areas for plantation. Precautions will be taken to limit the height of the topsoil dump to 5 to 6 meters in order to preserve its fertility.it will be suitably protected from soil erosion and infertility by planting fodder grass and leguminous plants during temporary storage. About 11,443 cu.m of overburden will be generated throughout the mine life. This waste will be utilized within the pit for lying of haul roads. At the end use, overburden can be reutilized as soil base for plantation. The soil and overburden thickness varies from average 1.6 to 0.8m The mining activities will be restricted within the mine lease area and there will not be any impact on the drainage pattern outside the mine lease area. No prominent water course or nallah occur in the lease area. Overall drainage planning

Mitigation Measures

- Build a retaining wall by rough stone, within the 50 mtr interval on all the region of the proposed area.
- The same interval region (50 mtr), for planting trees which preventing soil erosion.
- Trees like Bamboo, Banyan Tree and Ramacham etc.
- Properly maintaining the drainage way in all side of the proposed region.
- A sustainable garland drainage system shall be provided to prevent surface water from entering into mines directly, which help to reduce soil wash off.
- Advantages of sustainable drainage system: - it control surface water run-off of the proposed lease area such as grass swales, small stream or infiltration trenches.
- Surface inflow of rainwater into mine pit shall be diverted through a network of garland drains located sufficiently ahead of the overburden face. The drains will be made by cutting and digging along the contour lines so that only the direct precipitation of rain water need to be tackled within the mine and backfilled areas.
- Sustainable Silt trap and Sedimentation pit which aid to prevent soil erosion
- Substitute Methods – Cover or screen stockpiles, tips and mounds, vegetation plantation retaining fences to prevent solids from being washed or blown away.

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- The quarry working area will be maintained within (5*5) interval (5 mtr height * 5mtr bench) while the face of the quarry showing a fine-looking, eco-friendly and averting from a dangerous. It thwarts the soil erosion and slope failure.
- Cleaning the site regularly and keep them free from dust and mud.
- The buffer area will be befitting a tree planting to form a new landscape. Planting trees which help to decrease Soil erosion.

4.3.4 Anticipated Environment Impact and Mitigation Measures for Biological Environment

Identification of all potential environmental impacts due to a project is an essential step of Environmental Impact Assessment. Mining activities are normally carried out over a long period. This also encourages development in the area, which adds to environmental degradation. Positive impacts on the socio-economic environment are expected to create employment opportunities and development of infrastructure such as roads, school, hospitals etc The impact on biodiversity would be high if the project is located close to a sensitive area and are discussed in detail in table below:

Table 4-2: Impact on Bio-diversity

Issues	Observations
Proximity to national park/wildlife sanctuary/ reserve forest/ mangroves/ coastline/ estuary/ sea	There is no National Park, Wildlife Sanctuary or Biosphere Reserve within 10 km
Activities of the project affects the breeding/ nesting sites of birds and animals	There is no ecological sensitive area and the area is covered by rubber plantation, so there is no scope of breeding ground less vulnerable for the proposed mining activities.
Located near an area populated by rare or endangered species	There is no rare/endangered plant species recorded within the core areas.
Proposed project restricts access to water holes for wildlife	No wildlife corridors or migratory routes for wildlife lies within the within the core/buffer/surrounding areas. Thus project does not restrict access to waterholes for wildlife
Proposed mining project impact on surface water quality that also provides water to wildlife	There is no effluent discharge from the mine.
Whether the quarry in operations will affect the diversity	The flora and especially fauna could be affected due to blasting vibrations, dust generation etc. The mitigation measures suggested in the mining plan such as use of new

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	blasting technology, suppression of dust by sprinkling water in the site and on the road would help to a great extent to reduce the impact
Proposed mining project could increase siltation that would affect nearby biodiversity area.	Siltation within the mining area is to be controlled by providing check dams, gully plugs, garland drains, silt traps, retaining walls.
Risk off all/slip or cause death to wild animals due to project activities	There is no wildlife corridor or migratory route for wildlife lies within the core Mine Lease area. Therefore there are less chances of Wildlife entering into the ML area. However, as per the requirement proper fencing shall be provided surrounding the pit area preventing any approach of wild animals into the area and also a retaining wall is provided surrounding the waste dump to arrest any landslide, Waste dump is also stabilized by concurrent afforestation. Further watch & ward is also provided to prevent any such incidence.
The project releases effluents into a water body that also supplies water to wildlife	No effluents will be released from the mine as per the plan. The mine does not reach the depth of ground water. The effluents are proposed to be treated through silt traps/check dams etc. Hence the quality of water down stream will not be affected. No wildlife dependence on the water is expected.
Mining project affects the forest-based livelihood/any specific forest product on which local livelihood depends.	There is no report on forest dependency such as forest products by local community livelihood.
Project likely to affect migration routes	No such wildlife corridors or migration routes exist within the ML area.
Project likely to affect flora of an area, which have medicinal value	No. There a very few plants recorded as medicinal in the proposed mining sites. But these are to be compensated with planting in the surrounding areas.
Forest land is to be diverted, has carbon high sequestration	No forestland is required to be diverted
The project likely to affect wetlands, fish breeding grounds, marine ecology	There is no effluent/water discharge from the mine. Therefore the project is not going to affect any wetlands or nearby areas.

Mitigation Measures

- Conservation of nature and natural resources involves proper management of natural wealth, biological wealth and the habitats that sustain these resources. The need for conservation, preservation and management of biological diversity arises because of threats to natural terrestrial and aquatic ecosystems by anthropogenic activities. The mine lease area

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does not fall neither protected area nor Wildlife Sanctuary/reserve forest, so there is limited ecological destruction. Some of the other rejuvenating plants would probably check the sound and air pollution are provided below. But still we hereby suggest a biodiversity conservation and management plan for the region with the following objectives in mind:

- Preservation of natural habitats in the buffer zone and identification of areas that require special attention;
- To improve habitat conditions by taking up afforestation with local species of fruit yielding species, which attract faunal diversity and soil conservation measures.
- To create awareness regarding conservations and ensure people's participation in the conservation efforts.
- The following areas require special attention with reference to conservation and management of flora and fauna:
- Mining and its buffer zone
- Development of ex-situ area for conservation of important plant species

Table 4-3: List of Species to be Planted

S.No.	Scientific Name	Common Name
Trees		
1	<i>Syzygium cumini</i>	Njaval
2	<i>Pongamia pinnata</i>	Ung
3	<i>Holigarna arnottiana</i>	Cheru
4	<i>Mangifera indica</i>	Mavu
5	<i>Strychnos nux-vomica</i>	Kanjiram
6	<i>Artocarpus heterophyllus</i>	Plavu
7	<i>Artocarpus hirsutus</i>	Anjili
9	<i>Mimusops elengi</i>	Elanji
Shrub		
1	<i>Thyrsostachys oliveri</i>	
2	<i>Memecylon sps.</i>	Kasavu
3	<i>Bambusa bambos</i>	
4	<i>Murraya paniculata</i>	Maramulla
5	<i>Bambusa tuldoides</i>	Buddha Belly Bamboo
6	<i>Thyrsostachys oliveri</i>	
Herbs		
1	<i>Cymbopogon sps</i>	Lemon grass
2	<i>Pennisetum purpureum</i>	

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3	<i>Vetivera zizanoides</i>	Ramacham
4	<i>Chrysopogon nodulibarbis</i>	
5	<i>Pennisetum polystachyon</i>	
6	<i>Axonopus compressus</i>	Buffalo grass

4.3.5 impacts on Socio-Economic Environment

The impact of mining on socio-economic scenario has both the facets. On one hand it may degrade the fertile land leading to reduced agricultural income. On the other hand being a commercial activity it provides opportunity for both direct and in-direct employment. Finally, the ultimate land use conceived will be a pond, which may be use for community needs like fish farming or agriculture. If community agrees, the area can be developed to a tourist destination as well.

Anticipated Impact

- No human settlements will be disturbed due to proposed mining
- Impact on grazing land/pasture land.
- Positive impacts on present status of livelihood in the area.

Mitigation Measures

- Skill based training to locals employed people shall be given in the project.
- Socio economic benefits arising out of mining: It would be adopted to reiterate here that no human settlements will be disturbed due to proposed mining; consequently, one of the major negative impacts will not be applicable in this case.
- There will be opportunities of direct and indirect employments. However, the operations being mechanized will not generate large scale direct employment. As mentioned earlier there will be around 10 personnel, most of them will be skilled or semi-skilled. The indirect employment will be far reaching. The jobs from which local community can be benefited

4.3.6 Impacts due to Solid/Mine Waste Generation

The overburden is in the form of topsoil and weathered rock formation. It will be quarried for filling purpose to nearby end users and part of soil will be preserved all along the boundary as barrier for afforestation.

Mitigation Measures

- Waste will be negligible & very less amount of waste will be stored within the site.
- Precaution will be taken for landslide control. The slope also maintained

Impact assessment study during operation phase of the project is tabulated below

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Table 4-4: Impacts on Project Due to Mine operation

Aspect	Impact	Mitigation Measures
Land Environment		
<i>Mining of Granite</i>	<p>The proposed 2.0144 Ha mine located in Kannamangalam Village, for Granite building stone production of 7,50,000 cum at a depth of +70 m MSL for the period of respectively. The quarry operation is proposed to carry out with conventional open cast semi mechanized mining with 5.0 meter vertical bench and bench width of 5.0 meter. At the end of 5 years, mining lease area will be converted into ultimate pit.</p>	<p>The proposed project site is not prone to any kind of soil erosion</p> <p>In addition, garland drainage will be provided to avoid storm water run- off.</p> <p>It is proposed to plant 1500 Nos of local tree species per year 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 top soil of the lease area is 19,617 m³. Topsoil excavated from the quarry will be dumped separately at pre-determined place and subsequently will be utilized in spreading over reclaimed areas for plantation. Precautions will be taken to limit the height of the topsoil dump to 5 to 6 meters in order to preserve its fertility. It will be suitably protected from soil erosion and infertility by planting fodder grass and leguminous plants during temporary storage</p> <p>About 11,443 cu.m of overburden will be generated throughout the mine life. This waste will be utilized within</p>

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	<p>The main impact of open cast mining on land-use is land degradation. The land is bound to be excavated for mining of Granite Building Stone</p> <p>Impact on soil of the study area will be minimal as there are no wastewater generated, heavy metal infusion, stack emissions.</p> <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</p>	<p>the pit for lying of haul roads. At the end use, overburden can be reutilized as soil base for plantation</p> <p>The source of dust generation is majorly due to drilling, blasting (mild blasting if necessary), loading & unloading of the mined out mineral, the impact will be mitigated by water sprinkling regularly</p> <p>The proposed mining activity is carried out in almost slightly elevated 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>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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	properly managed, may cause odor and health problem to the workers.	
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Water Environment

<i>Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.</i>	<p>The mining in the area may cause ground water contamination due to intersection of the water table and mine runoff.</p> <p>The ground water depletion may occur due to mining activity</p> <p>Chemicals consisting of nitrate used for blasting (if necessary) 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>The water table will not be intersected during mining, as the ultimate depth is limited upto +70 m MSL , whereas the ground water table is at 10-15 m below the ground level. The municipal wastewater will be disposed into septic tanks of 5 cum and soak pit. No chemicals consisting of toxic elements will be used for carrying out mining activity.</p> <p>The ground water table is at a depth of 10-15 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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Air Environment

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<p><i>Drilling, 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 & PM 2.5) will be generated.</p> <p>The main source of pollutants arises due to drilling and blasting. 5 No of Tippers will be used for loading and unloading, 2 No of Excavator (1.2 m³ bucket capacity (with rock breaker attachment) will be used for excavation of the mineral which contributes to the generation of fugitive dust. In addition, blasting will be done using explosives leading to the generation of dust.</p> <p><u><i>Effect on Human</i></u></p> <ul style="list-style-type: none"> • Adverse effect on human health of working labourers and neighbouring villagers like effect on breathing and respiratory system, damage to lung tissue, influenza or asthma. • Dust generation due to loading and unloading of mineral and due to transportation can also affect the workers as well as nearby 	<p><i>Mitigation Measures during Operation Phase</i></p> <p>It is proposed to plant 1500 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 in two tier to combat air pollution and with herbs 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 NH-966</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> <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 & boots will be provided to the workers engaged at dust generation points like excavation and loading points.</p> <p>1.0 KLD of water will be proposed for sprinkling on unpaved roads to avoid dust generation during transportation.</p>
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	<p>villagers.</p> <p><u>Effect on Plants</u></p> <ul style="list-style-type: none"> Stomatal index may be minimized due to dust deposit on leaf. 	
Noise Environment		
<p><i>Drilling, Blasting, Loading and unloading, Transportation of the excavated mineral.</i></p>	<p>Usage of Equipment (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 collate which may result in unwanted sound and can also cause impact on human health like breathing and respiratory system, damage to lung tissue, influenza or asthma.</p>	<ul style="list-style-type: none"> The machinery will be maintained in good running condition so that noise will be reduced to minimum possible level. Awareness will be imparted to the workers once in six months about the permissible noise level and effect of maximum exposure to those levels. Adequate silencers will be provided in all the diesel engines of vehicles. It will be ensured that all transportation vehicles carry a valid PUC Certificates. Speed of trucks entering or leaving the mine will be limited to moderate speed (20km/hr) to prevent undue noise from empty vehicles. <p>The noise generated by the machinery will be reduced by proper lubrication of the machinery and other equipment</p> <ul style="list-style-type: none"> It is proposed to plant 1500 Nos. of local species to reduce the impact of noise in the study area. The development of green belts around the periphery of the mine will be implemented to attenuate noise. The trucks will be diverted on two roads viz. NH-966 and a District road to avoid traffic congestion. Health check-up camps will be organized once in six month. Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas. Provision of quiet areas, where employees can get relief from workplace noise.

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Biological Environment		
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.
Planting of trees	Development of afforestation in the mine lease area will have a positive impact as the land was initially a barren.	7.5m safety distance will be provided all along the boundary of the mine lease area and safety. Around 0.6231 Ha of land is utilized for greenbelt development (1500 Nos – 5 years). This will attract avifauna thus enhancing the existing ecological environment.
Socio-economic Environment		
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 private land of Arshak Ali E.K. and the land is vacant where there are no human settlement within 500m radius. Hence the project does not involve Rehabilitation and resettlement
Drilling, Blasting, Loading and Transportation of the mined out mineral	The mining activities may cause dust emission, noise pollution thereby causing disturbance to the local habitat	No human activity is envisaged near the project site. The nearest human settlement is observed in village Kannamangalam which is approx. 2 km from the project site in South West Side.
Grazing and Rearing activities in the nearby villages	The Grazing and rearing of local animals like Sheep, Goat and cows is observed in the nearby villages, which may be affected due to the project as the movement of the vehicles may affect/injure the animals	It is proposed to use gravelled road and nearest paved road and preferred not to use unpaved roads. In addition to that, the speed of trucks will be limited to 20km/hr to avoid any accidents.
Employment opportunity	The project will improve the livelihood of the local people	After the development of the proposed mine, it will improve the livelihood of local people and also provide the direct and indirect employment opportunities. The Granite building stone for the infrastructural development in the area will be made available from the local markets at reasonably lower price.

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<i>Corporate Environmental Responsibility</i>	The proposed project will help in natural resource augmentation & Community resource development.	As a part of CER, 2% of the project cost i.e, 8 Lakhs will be allocated.
Other Impacts		
Risk due to the proposed mining	Accidents may occur in the mine area	Proper PPE kit (Safety jacket, Helmet, Safety Shoes, Gloves) etc will be provided to each and every employee in the mine lease concerning the safety of each labor
Blasting	Injury to the labours due to the blasting activity	Alarm system in the form of Siren will be engaged in the project site to caution the blasting activity. In addition to that, the blasting activity (if necessary) will be scheduled at particular time – 5 P.M to 6 P.M (or whenever required) so that the employees will be aware of the activity. Smoking will be banned in the site and sign boards will be displayed in various places at site.
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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4.4 Plantation/Afforestation Program

It is proposed to develop the greenbelt in the peripheral buffer zone of the mine area. Green belt has been recommended as one of the major components of environmental Management plan, which will improve ecology, environment and quality of the surrounding area. The rate of survival expected to be 60% in this area. 1500 nos. of Local trees will be planted along the lease boundary (within 7.5 m barrier area and around offices, road side and fencing boundary) in area of 0.6231 ha. Plantation will be carried out in grid of 3 m X 3 m. Trees to be planted will be high dust capturing, soil holding capacity, ground water recharge capacity. More focus will be given for medicinal plants.

4.5 Mine Closure Plan

Mine closure plan is one of the most important requirements in the environment management of mining projects. It also facilitates a periodically monitoring mechanism. The mine closure plan covers technical, environmental, social, legal and financial aspects dealing with progressive and post closure activities. The closure operation is a continuous series of activities right from the commencement to decommissioning of the project. Therefore, progressive mine closure plan is specifically included in the mining plan, which is to be reviewed every five years in the scheme of mining. As progressive mine closure is a continuous series of activities, it is obvious that the proposals of scientific mining have included most of the activities to be included in the closure plan. The primary aim is to ensure that the following broad objectives along with the abandonment of the mine can be successfully achieved:

- Creation of a productive and sustainable after-use for the site, acceptable to mine owners, regulatory agencies, and most importantly to the community.
- Protection of public health and safety of the surrounding habitation.
- Minimization of environmental damage.
- Conservation of valuable attributes and aesthetics.
- Counter balancing the adverse socio-economic impacts.

4.6 Disaster Management and Risk Assessment

It is an opencast mine there may be certain emergencies during mining operations. These would range from small events, which can be dealt with by the works personal without outside help to the largest event for which it is practical to have a plan. For the mine the major hazardous accident are those involved major fires with danger of explosion and fly rocks arising from the blasting. However there is no toxic material involved in this mine. If any accident takes place at mine site, workers will be

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immediately provided the first aid by a trained worker. It is proposed that first aid box will always be provided to the mining mate/ mine supervisor to attend minor injuries a done vehicle will always be present at the mines site.

Onsite Emergency Planning

- Raising the alarm
- Communication both inside and outside the mine lease area
- Appointment of key personal and their duties and responsibilities.
- Emergency control center.

These are further divided as Action on Site. The primary purpose of the onsite emergency plan is to control and contain the incident so to prevent it from spreading to nearby areas. It is not possible to cover every eventuality in the plan and the successful handling of the emergency will depend on appropriate action and discussion being taken on the spot. The other important steps need to be considered includes the following.

i) Evacuation: Non-essential personal will be evacuated from the incident area and also from adjacent area. Evacuation should be a pre-determined assembly point in a safe part. Accounting for personal: It is important to account for personal during an emergency. Access to records: This is necessary in order that the relative of any casualty can be informed.

ii) public relation: Any incident may attract the interest of the media. It is essential to make arrangement for the authoritative release of information during any emergency.

iii) Rehabilitation: The emergency will continue until all fires have been extinguished with no risk of re-ignition or when the escape has been stopped and/or the gas cloud safely dispersed. The mines safety inspectorate may wish to initiate an inquiry and should be consulted regarding the collection of evidence before it is disturbed.

iv) Post Disaster Analysis and Evaluation: When the emergency is over, the team will carry out a detailed analysis of the causes of the accident, evaluate the reasons and suggest measures to minimize them in future.

Offsite Emergency Planning

Action off site: The offsite emergency plan is an integral part of any hazard control system. The responsibility for the off-site plan will be likely to rest either works management or with the local authority.

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- i) Organization: Details of command structure, warning systems, implementation procedures, name and appointments of incident controller and their duties and other key persons should be specified.
- ii) Communication: Identification of personnel involved, communication center and telephone numbers.
- iii) Special Emergency Equipment: Details of availability and location of heavy lifting gear, bull dozers and fire-fighting equipment.
- iv) Voluntary Organizations: Details of organizer, telephone number, resources etc.
- v) Meteorological Information: Arrangements for obtaining details of weather conditions prevailing at the time and weather forecasts.
- vi) Public information: The following Authorities namely fire authorities, health authorities, police; Department of Mines and Geology of the state and the Directorate of Mines safety of the Government of India etc are required to be vigilant and alert in the event of any inadvertent event.

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

ToR issued by the SEIAA Kerala vide Letter No. F.No. 2069/EC6/SEIAA/2022. The study for alternative analysis involves in-depth examination of site and technology.

5.1.1 Analysis for Alternative Sites and Mining Technology

5.1.1.1 Alternative Site

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

5.1.1.2 Alternative Technology

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

Table 5-1: Alternative for Technology and other Parameters

S. No.	Particular	Alternative Option 1	Alternative Option 2	Remarks
1.	Technology	Opencast semi mechanized mining	Opencast mechanized mining	Opencast semi mechanized Involving drilling and blasting are preferred. Benefits: Material is hard so to make it loose and to bring it to appropriate size.
2.	Employment	Local employment.	Outsource employment	Local employment is preferred Benefits:

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				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 Nediyruppu village so they will either reach mine site by bicycle or by foot. Benefits: Cost of transportation of labors will be negligible
4.	Material transportation	Public transport	Private transport	Material will be transported through trucks/trolleys on the contract basis Benefits: It will give indirect employment.
5.	Water	Tanker supplier	Ground water/	Packed Drinking Water is available from the nearby approved water vendors in Kannamangalam which is 2 km on SouthWest of the project site. For other uses, water will be sourced from tanker suppliers in nearby areas

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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.

6.2 Environmental Management Cell:

In order to maintain the environmental quality within the stipulated standards, regular monitoring of various environmental components is necessary which will be complied as per conditions for this an Environmental Management Cell be constituted. Responsibilities for Environmental Management Cell (EMC) include the following:

- Environmental Monitoring of the surrounding area.
- Developing the green belt/plantation.
- Ensuring minimal use of water.

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- Proper implementation of pollution control measures

6.3 Data Generation

The baseline data for the project site and 5 km, 10 km radius area were collected in accordance with the requirement of guidelines of MoEF. Monitoring was done during August 2020 to October 2020 for the following parameters.

Table 6-1: Environmental Parameters Monitored During EIA Study

Attributes	Sampling	Frequency
Meteorology (wind speed, wind direction, rainfall, humidity, temperature)	Project site	1 hourly continuous
Air environment – Pollutants PM 10 PM 2.5 SO ₂ NO _x	7 locations	24 hourly twice a week 4 hourly. Twice a week, One non-monsoon season 8 hourly, twice a week 24 hourly, twice a week
Noise	7 locations	24 hourly Once in 7 locations
Water (Ground water) pH, Temperature, Turbidity, Magnesium Hardness, Total Alkalinity, Chloride, Sulphate, Fluoride, Nitrate, Sodium, Potassium, Salinity, Total nitrogen, Total Coliforms, Fecal Coliforms	2 locations	Once in 2 locations
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 (1 river in study area)	One-time Sampling
Soil (Organic matter, Texture, pH, Electrical Conductivity,	1 locations	Once in 1 location

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Permeability, Water holding capacity, Porosity)		
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
Land Use	10 km radius area	One-time study during study period using satellite imagery
Geology	10 km radius area	Resource map and approved mining plan
Hydrology	10 km radius area	As per resource map, available central ground water board report for Malappuram District.

6.4 Collection of Data

The EIA study is prepared for the core zone and area within buffer zone, the following data collected through field survey and other sources:-

- Details of fauna& flora in this region.
- Sensitive places/ historical monuments and sanctuaries.
- Demography and socio-economic analysis based on last available census data for entire study area.

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6.4.1 Ambient Air Quality Monitoring and Management

Table 6-2: Air Quality Monitoring and Management Plan

Potential Impact	Action	Parameters for Monitoring	Timing
Air Emissions	All mining and transportation equipment are operated as per specified design parameters of the manufacturers. To keep gaseous emissions from the vehicles within the prescribed limit, proper tuning of engine should be ensured and periodically checked.	Random checks of logbook of equipment and follow-up action as per manufactures manual.	At the commissioning of mining operations.
	Vehicle trips to be controlled as per mining plan. Either hooded trucks or covered with tarpaulin or polyethylene sheet shall be used.	Vehicle logs are to be maintained regularly. The overloading of vehicles to be prevented by properly adjusting the weighing machine to display the true weight (tare and loaded).	During site clearing, transportation of minerals
	The topsoil mainly consisting silt/clay as crust material must be removed 2 to 3 days before the mining in the area earmarked is taken up. The topsoil shall be scrapped, collected and stacked systematically near the place where plantation is to be carried out as per approved mine plan.	Absence of heaps / Stockpiles of topsoil in the active mining area	During site clearing as per progressive mine plan
	Periodical grading and maintenance of haul roads so as to facilitate smooth movement of vehicles and minimizing the incidence of spillage of mineral.	Depressions and furrows created on the surface profile of the road due to continuous movement of the vehicles.	During entire operation period of mine
	Regular water spraying shall be done on haul roads through moving sprinklers, besides water spray on top surface of the area to be mined on daily basis subject to site requirements.	Quantity of water requirement shall be monitored from daily water utilization register as well as from water consumption statement.	During entire operation period of mine
	Ambient air quality with in mine lease area and other locations of the proposed unit to be monitored.	The ambient air quality will conform to the standards for PM10, SO2 and NOx	As per CPCB requirement.

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6.4.2 Ambient Noise Levels Monitoring and Management

Noise levels in the working area will be monitored once in every season till the continuation of mining operations. Ambient noise levels will also be monitored once in a season at one site in the core area zone and four each in buffer zone preferably at the nearest settlement.

Due to use of excavators and loaders the level of noise will definitely rise above threshold level at the place in the mine where the machines are in operation. But this increase in noise level will not be continuous and shall be governed by the breakup of cycle of operation of the machine which includes idle time also. Therefore, it would be most appropriate if following measures are rigorously applied during construction/operation phase of the project.

Table 6-3: Noise Level Monitoring and Management Plan

Potential Impact	Action	Parameters for Monitoring	Timing
Noise	Inventory of all noise generating machinery onsite along with the information of the running hours corresponding to useful life of machinery to be prepared. All equipment under deployment must be maintained in good condition	Equipment logs, noise reading	During entire mining operation
	Implement good working practices (Equipment selection and siting) to minimize noise and also reduce its impacts on human health (earmuffs, safe distances and enclosures).	Site working practices records.	During entire mining operation.
	The Noise level should not exceed the permissible limit both during day and night times.	Noise level monitoring	As per CPCB requirement or quarterly whichever is lesser.
	All mining and transportation equipment are operated as per specified design parameters of the manufacturers. Proper maintenance of vehicles and their silencers to minimize noise levels	Random checks of logbook of equipment and follow-up action as per manufactures manual.	At the commissioning of mining operations.
	Vehicle trips to be controlled as per mining plan. Either hooded trucks or covered with tarpaulin or polyethylene sheet to be used. Minimum use of horns in the village area. Phasing out of old trucks which have outlived their useful life.	Vehicle logs are to Be maintained regularly. The overloading of vehicles to be prevented by properly adjusting the weighing machine to	During site clearing, transportation of minerals

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		display the true weight (tare and loaded).	
	Plantation of trees in the safety zone including the avenue plantation along haul roads to attenuate the noise level.	Green development programme in the approved mining plan/ EMP	During entire period of the mining operation.

6.4.3 Water Quality Monitoring and Management

Water is one of most precious natural resources. Human beings are highly dependent on water for various purposes such as domestic needs, sanitation irrigation, industry and disposal of wastes, etc. The terrestrial and aquatic fauna also depend upon the water. The mining activity in mine will lead to increase in siltation though to a lesser degree. Further, due to congregation of labourers during the operation phase, open air defecating cannot be ruled out completely, if proper sanitation facilities are not provided to them.

Table 6-4: Physico-Chemical and Bacteriological Parameters to be Monitored.

S. No.	Parameter	S. No.	Parameter
1	pH	12	Fluorides
2	Electrical Conductivity	13	Iron
3	Turbidity	14	DO
4	Water Temperature	15	Phosphates
5	TSS	16	BOD
6	TDS	17	COD
7	Totalhardness	18	Alkalinity
8	Magnesium	19	Chlorides
9	Calcium	20	Oil andGrease
10	Nitrates	21	TotalColiform
11	Sulphates	22	E-Coli

6.4.4 Socio Economic Environment

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

FY	Sector	Project Brief description	Project Cost	Beneficiaries and Impact
2023-25		As the part of Environment Management plan provide the following facilities to Govt. Primary Health Centre, Kannamangalam		Patients of Govt PHC, Kannamangalam

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2025-28	Education	<p>Solar Light Implementation: The project proponent is ready to provide 5 KWp Hybrid solar panel facilities in Govt. Primary Health Centre, Kannamangalam in Kannamangalam Grama Panchayath. A 5 KWp hybrid solar system contains 15 solar panels of 335 Watt, MPPT charger controller unit, 8 solar tubular battery units of 1500AH/12V and a hybrid solar inverter of 5KW and other equipments. It will be helpful for the cold medicinal storage and other purposes during power failure time. Poor patients of Kannamangalam Grama Panchayath are the beneficiaries. Approximate cost for the project will be about 5,00,000 including its framework.</p> <p>Drinking Water Purifier: The CER cell is decided to provide 3 drinking water purifier unit with normal and cool water facility in Govt. Primary Health Centre, Kannamangalam in Kannamangalam Grama Panchayath. Committee decided to provide BLUE STAR Stainless Steel water cooler with 2 taps in which one tap always gives plain water and other tap has a cooling capacity of 40 liters/hor. Both taps provides filtered water. Poor patients of Kannamangalam Grama Panchayath area the beneficiaries. Approximate cost for the project will be about 3 * 40,000 = 1,20,000 Rupees.</p> <p>Maintenance, Project monitoring and additional works in provided facilities in Govt. Primary Health Centre, Kannamangalam as Solar panel framework painting and weather protection works, Battery unit maintenance and services, Solar panel system services, water purifier filter replacement, etc.</p>	5,00,000	
		TOTAL		<u>8,00,000</u>

6.5 Post Project Monitoring

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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 5 km,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 zones light impact may be observed and that too is occasional

Table 6-5: Monitoring Schedule during Mining

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

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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:

Public Hearing will be conducted after Submission of Draft EIA Report.

7.1.2 Risk assessment:

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

7.1.2 Identification of Hazard

7.1.2.1 Blasting Pattern:

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

Following are the parameters which is used.

- Depth of Hole – 1.0 m to 1.5 m
- Diameter of hole – 32 mm
- Spacing between holes – 1 m

The blasting pattern entirely depends on the situation of the joints present in the rocks. The drilling is done as per the requirement of the rock fragmentation with desired production of mineral.

Type of Explosive to Be Used

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Only class 2 and class 6 explosive is proposed for use as given in Table below:-

Table 7-1: Explosives to be Used.

S. No.	Name and description	N division	If any
1	Nitrate Mixture	2,0	0
2	Safety Fuse	6,1	0
3	Electric Detonators	6,3	0
4	Ordinary Detonator	6,3	0

Storage of Explosives

Considering low consumption, a 150kg magazine exists for storing the explosive. The magazine is located at 75mtrs away from the mine site. The controlled blasting is proposed by adopting all the safety measures as per “MMR 1961” and with the permission of DGMS.

Blasting will be performed as per requirement on the face. The explosives are supplied by authorized dealers and the blasting will be carried out under personal supervision of DGMS approved Blaster/Mate.

PRECAUTIONS:

- a. Proper and safe storage of explosives in approved and Licensed Magazine.
- b. Proper, safe and careful handling and use of explosives by competent Blasters having Blaster’s Certificate of Competency issued by DGMS.
- c. Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette etc.
- d. The explosives of class 2 will be used in their original cartridge packing and such cartridge shall not be cut to remove explosive for making cartridge of different size.
- e. Detonators will be conveyed in special containers. These will not be carried with other explosives.
- f. The holes which have been charged with explosives will not be left unattended till blasting is completed.
- g. Before starting charging, clear audible warning signals by Sirens will be given so that people nearby can take shelter.
- h. Blasting operations will be carried out in day times only at designated hours as in this project the mining operations are proposed to be carried out in the day time only.

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7.1.2.2 Drilling and Blasting:

Drilling and Blasting parameters are as follows:

Sr. No.	Machine Type	Required No. of M/c	Size/Capacity
1.	Excavator	2	210 DP
2.	Rock Breaker	1	1500 HP
3.	Compressor	2	-
4.	Tippers/Trucks	4	10T
5.	Jack hammer	2	32 mm
6.	DG set	1	-

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

- For Mining – Excavator of 1.2 Cum Bucket capacity (with Rock Breaker attachment), Jack Hammers (25.5 mm Dia) of 2 Nos.
- Loading Equipment – Excavator of 1.2 Cum Bucket Capacity (with Bucket attachment)
- Transportation (includes within the mine and mine to destination) – Tipper 5 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.

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

- In order to take care of above hazard/disaster, the following control measures will be adopted:
- All safety precautions and provisions of Mine Act,1952, Metalliferous Mines Regulation, 1961 and Mines Rules, 1955 will be strictly followed during all mining operations.
- Entry of unauthorized persons will be prohibited.
- Firefighting and first-aid provisions in the ECC and mining area.
- Provisions of all the safety appliances such as safety boot, helmets, goggles etc. will be made available to the workers (18 Nos.) and regular inspection for their use.
- In case of eventuality, first aid will be given by the senior safety office in the mine area initially to the injured person. The safety officer will give notice of accident as per Rule-23 of Mines Act-1952.
- The safety officer will be responsible for coordination between management district authorities/DGMS etc. Regarding general safety as per Rule-181 of MMR 1961, “No person shall negligently or will fully do anything likely to endanger life or limb in the mine, or negligible or will fully omit to do anything necessary for the safety of the mine or of the persons employed there in”. The workers will be provided with protective foot wear and safety helmets;
- Cleaning of mine faces will be regularly done.
- Handling of explosives, charging and blasting will be carried out by highly skilled labours only;
- Regular maintenance and testing of all mining equipment as per manufacturer’s guidelines;
- Suppression of dust by sprinkling water on the haulage roads;

7.1.4 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

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and provide professional expert advice on various issues related to occupational safety and health. Organizing safety training will be conducted to employees and contractor labors periodically.

7.1.5 Emergency Control Centre

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

7.2 Disaster Management:

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

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

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

Major objectives of this onsite – offsite emergency plan are:

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

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

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

- Onsite (Within ML boundary)

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- Offsite (Outside ML boundary)

7.2.2 Onsite off-site emergency Plan:

1- Emergency on account of:

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

2- Disaster due to natural calamities like:

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

7.2.3 Emergency Plan:

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

7.2.4 Emergency Control:

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

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

7.3 Natural Resource Conservation

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

7.4 Resettlement and Rehabilitation:

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

7.4.1 Traffic movement and Transportation plan

Subsequent to the drilling and blasting, the material so fragmented/loosened from the rock mass, the boulders so generated subsequent to the blasting, will be broken with the help of the rock breakers. Thereafter the material will be loaded into trucks/tippers of 15-20 Tonnes capacity with the help of the excavator. The rubble from the mine will be sent to the stone crusher unit located at about 3km from the proposed mine area to produce various sizes of coarse and fine aggregates and M-sand which are used for building construction. There will be increase in the traffic density in the road way due to implementation of project. The traffic movement of the proposed quarry is from site to Oravankuzhy by 7.5m road and the village road connection both Cherukode and valoringal junction. From both valoringal Jn and Cherukode Jn connects to Wandoor by Manjery –Wandoor road and Sh73 (Main Ooty road) respectively. The traffic movement of the adjacent quarry is same as the proposed quarry. In order to understand the road traffic study, the survey conducted on the Oravankuzhy junction.

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A Study is conducted to determine the vehicular traffic measures and best possible route for material transportation from mines to destination points. It is proposed to take the material to different destination in routes.

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8 Project Benefits

8.1 General

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

8.1.1 Physical Benefits

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

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

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

c. Enhancement of Green Cover & Green Belt Development: As a part of reclamation plan, native tree species will be planted along the safety boundary (0.6231 Ha) of the mine lease area. A suitable combination of trees that can grow fast and also have good leaf cover will be adopted to develop the green belt. It is proposed to plant 1500 numbers of native species along with some fruit bearing and medicinal trees during the mining plan period.

8.2 Social Benefits

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

As a part of CER, 2% of the project cost i.e., 8 Lakhs will be allocated. The detailed agenda, which is to be executed has been framed. The salient features of the programme are given in Chapter above

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8.3 Project Cost / Investment Details

I NO	Particulars	Amount
1	Actual Land Cost	53,17,389/-
2	Plant & Machinery	5,79,20,000
	SPLIT UP	
	Excavator (Rent) – 1700 (per hour) x 8 = 13,600 per day * 2 No's = 27,200*250 days =68,00,000 * 5 years = 3,40,00,000	
	Box compressor (Rent) - 16,000 (per month)*2 No's = 32000*12 = 3,84,000*5 years = 19,20,000/-	
	Breaker (Rent) -2,200 (per hour) * 8 = 17,600 Per day*250 days = 44,00,000*5 years = 2,20,00,000/-	
3	Infrastructure Development	8,00,000/-
	SPLIT UP	
	Explosive, Magazine Shed & other expenses - 5,00,000/-	
	Office Building - 3,00,000/-	
4	Administrative Cost & Other Expenses (P.M)	4,00,000/-
5	Revised CER with EMP Budget Cost (Details given by Annexures -3)	50,38,000/-
	Total	6,94,75,389/-

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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.

Environmental Management Plan which is to be implemented in the project has detailed under the following heads:

- Land use pattern and environment
- Air Environment
- Noise Environment
- Water Management
- Solid waste Management
- Biological Environmental including Plantation Development

9.2 Subsidence

Mining will be carried out by opencast semi mechanized mining method as per scheme of mining plan approved by Commissionerate of Geology and Mining, Guindy. Subsidence/slope failures are not envisaged because there are no loose strata overlying the deposit (mineral to be excavated). The bench height will be average 5m. The individual bench slope has been proposed to be kept at 60° 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.

- Water flowing down the drains will be accumulated at the lower most gradient outside the lease area by constructing siltation tanks.
- 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.

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<i>Project Location</i>	<i>Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala</i>	

- The siltation tanks will act as water storage and help in the settlement of silt. Silt will be regularly cleared and so the storage capacity of the tank will not be reduced. The de-silted water from the siltation tank will be allowed to flow into the check dam constructed. This will help in storing large quantity of surface water flowing from mine area during rainy seasons and also will prevent sudden influx of floodwater to the nearby streams during heavy monsoon.
- Water drains from the pits/dumps will be constructed in such a way that the water will be drained to nallas only through the siltation tank and check dam.
- The storm water collected from the mine area will be utilized for dust suppression on haul roads, plantation within the premises, etc.,
- All measures will be taken not to disturb the existing drainage pattern adjacent to the mine lease area.
- The garland drainages will be provided with de-siltation pits at regular intervals to facilitate the deposition of suspended silt in flood water. The silt will be periodically removed and the siltation pits will be maintained regularly. The benches will be planned in such a way to channelize the rain water towards their bases and this water will be allowed to drain to the garland canals planned along the inner periphery. This will prevent water from flowing down along the bench edges which may cause wall collapse and sliding of the mine pit.
- The vertical drains and horizontal drains will be provided on the dumps, mining pits and benches to properly channelize the mine water flow and surface water flow and will be connected to main drainage with all necessary check measures
- Vertical drains will be planned in selected areas both along the mine pits and also along the overburden dumps to prevent the formation of temporary fast flowing water channels during heavy monsoon.
- The mining activity will be restricted to limited area so the general slope of the area will not be affected much.

9.3.2 Drainage

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

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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 Land use pattern

Deviation from planned mining procedure can lead to soil erosion/cutting and there by degradation of land, causing loss of properties and degradation surrounding of landscape. Thus for environmental friendly major mining mineral will be mined out in from the proposed lease area and sufficient safety barrier should be taken during mining.

9.3.4 Air Environment

In order to minimize impacts of mining on air and to maintain it within the prescribed limits of CPCB/SPCB, an Environmental Management Plan (EMP) has been prepared. This will help in resolving all environmental and ecological issues likely to cause due to mining in the area.

During the course of mining no toxic substances are released into the atmosphere as such there seems to be no potential threat to health of human beings. In the mining activities, the only source of gaseous emissions is from the engines of vehicles. The reasons may be quality of fuel, improper operation of the engine, etc.

Proper maintenance of engines will improve combustion process and brings reduction in pollution.

The fugitive dust generation during mining and transportation requires some mitigation.

Control of Dust Pollution

The main pollutant in air is Particulate Matter (PM), which is generated due to various mining activities. However to reduce the impact of dust pollution the following steps have been taken during various mining activities.

(a) During drilling operations

- Sharp drill bits will be used for drilling and regrinding is done periodically to reduce generation of dust.
- Drilling machines will be equipped with Bag filters to prevent dust to get air borne.
- The drill machines will be kept leakage free.
- Drill operator and his helper will be equipped with personal protective equipment (ear plugs/ear muffs)

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(b) During blasting operation

All essential steps will be taken to prevent any person entering in the mine site during blasting operations. The drill holes will be charged by certified blaster and in supervision of Mining Engineer/Mines Manager. The holes will be blasted by certified blaster. Before blasting the warning siren will be blown and men & machinery will be taken out from the safety zone.

During blasting all the statutory requirements as per MMR-1961 will be strictly followed.

- The use of ‘water ampoules’ will be done to arrest dust.
- Blasting will be done in most scientific & controlled manner with the use of latest technology like use of milli second delay detonators, cord relay to control and prevent the dust to get air borne and to limit the flyrocks within 50– 60 m.
- Rock breaker will be used for breaking over size boulders. This has reduced generation of dust considerably, in place of secondary blasting.
- With the good blasting system, dozing of broken rocks will be less there by dust due to dozing will be less.
- Competent persons carry out blasting and all the precautions lay under MMR, 1961 Act are followed.
- Time to time scientific studies regarding ground vibration, noise level, flying rocks and other blasting hazards will be conducted through experts of the subjects.

(c) During loading operation

- Latest loading equipment like hydraulic excavators of large capacity will be used with dumpers. This reduces the number of buckets to fill from height and thus have comparatively less dust generation.
- The propagation of this dust is confined to loading point only and does not affect any person both the operators of excavator and dumpers who works in closed chamber and will be equipped with dust mask.
- Skilled operators will operate excavators

(d) During Transport operation

- All the haulage roads including the main ramp from crusher to mines pit will be kept wide, leveled, compacted and properly maintained and watered regularly during the shift operation to prevent generation of dust due to movement of dumpers, and other vehicles.

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- The crushed material from crushing plant will be transported by rope way as well as by Road transport.

(e) Plantation work carried out

- In order to reduce air pollution in the surroundings, green belt will be developed around the mines office, mine approach road. The plantation will be done around the lease boundary.
- Plantation will be done along crusher ramp slope to prevent dust pollution during stormy wind.

9.3.5 Noise Environment

Proper maintenance of all machines is being carried out, which help in reducing generation of noise during operations. Cushioned pad at foundation helps reduction in noise generation. Noise generated by these equipments is intermittent and does not cause much adverse impact. Periodical monitoring of noise will be done to adopt corrective actions wherever needed. Plantation will be taken up along the approach roads. The plantation minimizes propagation of noise and also arrests dust.

9.3.6 Water Management

- Mining will neither intersect the ground water table of the area. So not at all disturbing water environment.
- The mining does not have any impact on topography and natural drainage of surrounding area.
- Rainwater harvesting pits will be proposed on the mining site.

9.3.7 Waste Water Management

- No waste water is generated from the mining activity of major minerals as the project only involves lifting of over burden.

9.3.8 Solid Waste Management

- No solid waste is generated from the said mining operations.
- There is no toxic element present in the mineral which may contaminate the soil.

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9.3.9 Biological Environment

- There will be no significant impact of mining project on the biological diversity found in the 500m, 1 km radius of the project site.
- The mining lease area is in non-forest land where presence of fauna is very rare. No endangered species of fauna is found in and around lease area. As such, there will be no adverse impact of the mining activity on fauna around the mining lease area.
- To study the floral and faunal diversity of the 5km, 10km radius a detailed Biological study has carried out and suggested mitigation measures are proposed there in so that there will be no impact on the biological diversity of the forests falling in the proximity of the proximity of the site.

9.3.10 Plantation Development

- Plantation is an important in pollutants including noise. Green Cover in mining helps in reducing pollution level, but also improves the aesthetics and beneficially influence the micro climate of the surrounding.
- The species, selected for Plantation should have rapid growth, evergreen, large crown volume and small/pendulous leave with smooth surface. In mining project Plantation will be developed along the approach roads. Thick Plantation will work as a pollutant arrestor, reduces floods as well as avoids the situation of erosion of soil during monsoon season.

9.3.11 Socio-Economic Environment

- In general, socio-economic environment will have positive impact due to the mining project in the area.
- The deployed laborers will be from nearby villages only as these people are mainly dependent upon such mining activities.
- In order to further improve the socio-economic conditions of the area, the management will contribute for development works in consultation with local bodies.

9.3.12 Occupational Health and Safety

Occupational Health and Safety professionals develop and coordinate safety and health systems and strategies with in organizations. They identify work place hazards, assess risks to employee

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health and safety and recommend solutions. Increasingly, Health and Safety Professionals are also responsible for many of the environmental aspects of their workplace. As this profession matures there is an increased emphasis on risk management strategy and on the development of workplace culture.

- Occupational Health and Safety professionals in the minerals industry may perform the following tasks.
- Except dust generation there is no source which can show a probability for health related diseases and proper dust suppression will control dust generation and dispersion.
- Dust masks will be provided to the workers working in the dust prone areas as additional personal protective equipment
- The occupational health hazards have so far not been reported. Awareness program will be conducted about likely occupational health hazards so as to have preventive action in place.
- Any workers health related problem will be properly addressed.
- Periodical medical checkup will be conducted
- Promote occupational health and safety within their organization and develop safer and healthier ways of working.
- Help supervise the investigation of accidents and unsafe working conditions, study possible causes and recommend remedial action.
- Regular Health check up of Employee
- Develop and implement training sessions for management, supervisors and workers on health and safety practices and legislation.

9.4 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, Jaisal M.P. will work in association with M/s. Ecotech Labs Pvt Ltd.

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Table 9-1: Impacts and mitigation measures

S. No	Impacts on Environment	Activity / Aspect	Anticipated impacts	Mitigation measures	Budgetary Allocation
1.	Air	Fugitive Emission	During mining operation, fugitive dust and other air pollutants like particulate matter (PM10 & PM 2.5) will be generated.	<ul style="list-style-type: none"> Planting of trees along the safety distance of the Mine Lease Area Water will be sprinkled in the site as dust suppression measure. 	Rs.50,000 Rs.1,50,000
2.	Water	Wastewater Generation	Improper management of Domestic wastewater in the Mine lease may create unhygienic conditions in the site thereby causing health impacts to the labors	<ul style="list-style-type: none"> Provision of urinals/Latrines along with septic tank followed by soak pit arrangement will be provided in the Mine Lease area for the proper management of wastewater. 	Rs.55,000
3.	Noise	Mining activities like drilling, blasting, loading and transportation	Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure. Apart from Mining activities like drilling, blasting may generate noise	<ul style="list-style-type: none"> Use of personal protective devices i.e., earmuffs and earplugs by workers, who are working in high noise generating areas. 	Rs.10,000
4.	Land	Improper management of Storm water Runoff	Storm water Runoff may result in Soil Erosion	<ul style="list-style-type: none"> Garland drainage of will be provided to avoid storm water run-off. 	Rs.1,00,000

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5.	Social Responsibility	Mining workers	Unhygienic site sanitation facilities may cause health damage to workers.	<p>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</p> <ul style="list-style-type: none"> ✓ By complying with the safety procedures, norms and guidelines (as applicable) as outlined in the National Building Code of India, Bureau of Indian Standards. ✓ Provide adequate number of decentralized latrines and urinals ✓ Providing Septic tank along with Soak pit arrangement ✓ Providing First Aid room, conducting frequent health checkups to labor and conducting free medical camps ✓ Providing safety helmet, Gloves, Jacket & Boots ✓ Providing measures to prevent fires. Fire fighting extinguishers and buckets of sand will be provided in the construction site 	<p>Rs.25,000</p> <p>Rs.30,000</p> <p>Rs.1,00,000</p> <p>Rs.36,000</p> <p>Rs.50,000</p>
6.	Building materials resource conservation	Building Material consumption	Use of farfetched construction materials than the locally available construction materials may	<ul style="list-style-type: none"> • Use of locally available construction materials. 	

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			lead to over exploitation of natural resources & increase in carbon footprint.		
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Table 9-2: Budgetary Allocation for EMP during Mining

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

9.5 Conclusion

As discussed, it is safe to say that this mining project does not cause any significant impact on the ecology of the area as there are no major polluting sources except the dust generated during handling of mineral. Besides this adequate preventive measures will be adopted to contain the various pollutants within permissible limits.

Employment opportunities will be provided to the locals only as providing extraction of minerals from the mine site is the only prevailing occupation for them for their livelihood

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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

Arshak Ali.E.K. site is a cluster of two mining project. The individual mine lease area is 2.0144 Ha of Granite building Stone Quarry located at Re Survey Block No 2, Re Survey No: 104/2B-09 & 104/2B-44 of Kannamangalam Village, Thirurangadi Taluk, Malappuram District.

10.2 Project Overview

Table 10-1: Project Overview

S. No.	Description	Details
1	Project Name	Proposed Granite building Stone Quarry-2.0144 Ha
2	Proponent	Arshak Ali E.K
3	Mining Lease Area Extent	2.0144 Ha
4	Location	Re Survey Block No 2, Re Survey No: 104/2B-09 & 104/2B-44
5	Latitude	11° 5'48.70"N to 11° 5'55.58"N
6	Longitude	76°0'7.60"E to 76°0'13.10"E
7	Topography	Elevated Terrain
8	Site Elevation above MSL	Highest elevation of the lease area is +190m MSL and lowest is +70m MSL
9	Topo sheet No.	49M/16, 58/A/04
10	Minerals of Mine	Granite
11	Proposed production of Mine	Proposed production/year: 75,000 MT Production for 10 years: 7,50,000 MT Geological reserves: 28,38,840 MT Mineable Reserve: 7,57,020 MT
12	Ultimate depth of Mining	+70 m MSL
13	Method of Mining	Open cast-mechanized mining

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14	Water demand	3.5 KLD
15	Source of water	Packed Drinking Water is available from the nearby approved water vendors in Kannamangalam which is 2 km on South West of the project site. For other uses, water will be sourced from tanker suppliers in nearby areas
16	Man power	20 No's.
17	Mining Lease	LoI No. 1526/M3/2020, dated 29.01.2021
18	Mining Plan Approval	Department of Geology and Mining vide Letter No.DOM/M-5037/2018 dated 01.12.2021
19	Boundary Fencing	7.5m barrier all along the boundary, Fencing will be provided.
20	Disposal of overburden	The top soil of the lease area is 19,617 m ³ . Topsoil excavated from the quarry will be dumped separately at pre-determined place and subsequently will be utilized in spreading over reclaimed areas for plantation. Precautions will be taken to limit the height of the topsoil dump to 5 to 6 meters in order to preserve its fertility. It will be suitably protected from soil erosion and infertility by planting fodder grass and leguminous plants during temporary storage About 11,443 cu.m of overburden will be generated throughout the mine life. This waste will be utilized within the pit for lying of haul roads. At the end use, overburden can be reutilized as soil base for plantation
21	Ground water	The quarry operation is proposed up to a depth of +70 m MSL . The water table is below 10-15m from ground level which is observed from the nearby open wells and bore wells. Hence the ground water will not be affected in any manner due to the quarrying operation during the entire lease period.
22	Habitations within 500m radius of the Project Site	There is no Habitation within 500m radius of the project site.
23	Drinking water	Bore well

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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 granite form the primary building material.

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

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

Table 10-2: Anticipate Impacts & Appropriate Mitigation Measures

S. No.	Potential Impact	Mitigation Measure
1	The main impact in the air environment is dust emission during various mining activities such drilling, blasting, excavation, loading and transportation. The dust 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 equipment will be carried out on contractual basis. Plantation will be carried out along approach roads & mine premises.

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2	<p>Wastewater 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</p>	<p>No wastewater 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.</p> <p>Mining will not intersect ground water table. Hence the water table will not be impacted due to the proposed project</p>
3	<p>Noise will be generated in the mine area during various mining activities such as blasting, drilling, excavation. During transportation of the mined out mineral, there may be noise generation due to the movement of vehicles. This may impact the health condition of the workers by creating headache</p>	<p>Periodical monitoring of noise will be done.</p> <p>No other equipment except the transportation vehicles and Excavator (as & when required) for loading will be allowed at site.</p> <p>Noise generated by these equipment shall be intermittent and does not cause much adverse impact.</p> <p>Plantation will be carried out along approach roads. The plantation minimizes propagation of noise and also arrest dust.</p>
4	<p>Solid waste will be generated from the mining activity as there will be refuse</p>	<p>The 100% recovery is achieved by extracting the entire mineable reserve. Hence there will be no refuse</p>

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	after 95% recovery and also generation of domestic waste	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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<i>Project Proponent</i>	<i>Arshak Ali E.K</i>	
<i>Project Location</i>	<i>Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala</i>	

11. Disclosure of Consultant

11.1 Introduction

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

11.2 Eco Tech Labs Pvt. Ltd – Environment Consultant

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

11.2.1 The Quality policy

- We, at Eco Tech Labs Pvt. Ltd. engaged in providing Environmental consulting services and we are committed to strengthen our capabilities in all areas of our operations in line with 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

**ANNEXURE 1
TOR APPROVAL
LETTER**

State Environment Impact Assessment Authority (SEIAA) Kerala

***K.S.R.T.C Bus Terminal Complex, 4th Floor, Thampanoor,
Thiruvananthapuram - 695 001***

Ph: +91471-2334262 (Off) +91471-2334265 (Fax)

e-mail: seacseiaakerala@gmail.com

web: www.seiaakerala.in

No. SIA/KL/MIN/73017/2022, 2069/EC6/2022/SEIAA

Date: 06.01.2023

From

The Administrator
State Environment Impact Assessment Authority

RECEIVED
10/01/2023

To,

Sri.Arshak Ali E.K
Edathola Kottasseri
Malabar Manzil, Eranippadi
Kannamanagalam P.O
Malappuram – 676 304

Sir,

Sub: - SEIAA – ToR Application for the Granite Building Stone Quarry Project in
Survey No. 104/2B-09 & 104/2B-44 in Kannamangalam Village, Thirurangadi
Taluk, Malappuram, Kerala. – Approval of Terms of Reference - reg:-

Ref :- 1) Minutes of 133rd meeting of SEAC held on 11th to 13th October 2022
2) Minutes of the 120th meeting of SEIAA held on 25th & 26th November 2022

Attention is invited to the references cited. The application for the approval of ToR was placed in the 133rd meeting of SEAC held on 11th to 13th October 2022 and the Committee decided to approve Standard ToR with certain additional studies.

In the 120th meeting of SEIAA held on 25th & 26th November 2022, the Authority decided to approve the Standard Terms of Reference with the following additional aspects for EIA Study as recommended by SEAC.

1. Landslide proneness of the impact zone.
2. Accident potential analysis to the houses in the immediate vicinity.
3. Water quality of the streams in the impact zone.

Hence, the Standard ToR as mentioned in the document published by the MoEF & CC, GoI in April 2015 along with the above mentioned additional aspects is hereby approved for the EIA study for the Proposed Granite Building Stone Quarry Project of Sri. Arshak Ali. E. K. for an area of 2.0144 Ha in Survey Nos. 104/2B-09 & 104/2B-44 in Kannamangalam Village, Thirurangadi Taluk, Malappuram District, Kerala. The validity of the ToR will be as per the EIA Notification 2006 and its subsequent amendments.

Yours faithfully,



**Administrator, SEIAA
For Member Secretary, SEIAA**

**ANNEXURE 2
MINING PLAN
APPROVAL
LETTER**

DOM/M- 5037/2018

Dept. of Mining & Geology,
Malappuram District Office,
Mini Civil Station, Manjeri.
Malappuram District
e-mail: geo.mal.dmg@kerala.gov.in
Phone :0483- 2760695
Date : 1.12.2021

From

The Senior Geologist
Malappuram

To

Sri, Arshak Ali.E.K
S/O Ali Moideen.E.K
Edathola Kottasseri, Malabar Manzil,
Eranippadi,Kannamangalam.P.o
Malappuram,676304

Sir,

Sub: Approval of eco-friendly Mining Plan-Granite Building Stone Quarry in
Re.Survey Block No.2,Re- survey Nos.104/2B-09,104/2B-44 of
Kannamangalam Village of Tirurangadi Taluk of Malappuram District
Kerala- Reg

Ref : (1) The Kerala Minor Mineral Concession Rules,2015
(2) Your Application Dtd: 07.07.2021.

Sir,

The Mining plan for the Granite Building Stone quarry of Sri. Arshak Ali.E.K,
S/o.Ali Moideen.E.K, Edathola Kottasseri House,Malabar
Manzil,Eranippadi,Kannamangalam Post, Malappuram in Re.Survey Nos. 104/2B-09,
104/2B-44, Block No.2 of Kannamangalam Village, Tirurangadi Taluk, Malappuram
District, Kerala for an extent of 2.0144 hectares is hereby approved vide the powers
delegated to the Geologist for the approval of Mining Plan for the minor minerals
issued under Rule 66 of the Kerala Minor Mineral Concession Rules 2015 with the
following conditions.

1. That you will follow the prescribed Rules & Regulations of Central Government and State Government issued from time to time in regard to mining.
2. That you will follow the Mine Safety Rules & Regulations.
3. That you will store the mining waste in the earmarked location/dumping yard only as specified in the plan.
4. That you will carry out the plantation as committed in the plan.
5. That provision shall be made for the housing facility for the labour with all basic infrastructure facilities including safe drinking water, toilets etc, within in site.
6. That any modification in the scheme shall only be carried out with prior approval from the authority concerned.

This Mining Plan is Valid only with valid Quarrying Permit/Quarrying Lease issued from the Department of Mining & Geology.

Yours faithfully,


District Geologist 1/12/21



DIST. C. O. Manjeri
Mini Civil Station, Manjeri
Malappuram District

ANNEXURE 3
NON - CLUSTER
CERTIFICATE

No.DOM/M- 5037/2018

District Office
Mining & Geology Department
Mini Civil Station, Manjeri
Malappuram District, Kerala
Email: geo.mal.dmg@kerala.gov.in
Phone: 0483 2760695
Date : 08.12.2021

CERTIFICATE

This is to certify that the following authorized Granite (Building Stone) quarry is situated within 500 meter radius of the proposed granite quarry of Sri. Arshak Ali, S/o Ali Moideen .E.K, Edathola Kottasseri, Malabar Manzil , Eranippadi, Kannamangalam Post, Malappuram comprised in Re.Survey Nos. 104/2B-09, 104/2B-44 Block No.2 of Kannamangalam village of Tirurangadi Taluk, Malappuram District, Kerala State.

SL No.	Quarry Owner	Taluk	Village	Re.Survey No	Area (Hect)
1	Shahanas Edathola Kottassery, Chanaparambil Mandothingal House, Kodinhi Post, Malappuram	Tirurangadi	Kannamangalam	104/2B	1.7063
2	Thumpath Puthenpeedikakkal Abdul Hameed, S/O Moideen KuttyHaji, Nayithode (H) , Kannamangalam post, Malappuram	Tirurangadi	Kannamangalam	104/2B	3.1479

This certificate is issued to produce before the State Environment Impact Assessment Authority, Thiruvananthapuram, Kerala.


8/12/21
District Geologist



GEOLOGIST
DIST. Office Of Mining & Geol
Mini Civil Station, Manjeri
Malappuram District

**ANNEXURE 4
POSSESSION
CERTIFICATE
AND
TAX RECEIPT**



കൈവശ സർട്ടിഫിക്കറ്റ്

നമ്പർ: 336/20

വില്ലേജ് ഓഫീസ് : കണ്ണമംഗലം

തീയതി : 04/06/2020

തിരുരങ്ങാടി താലൂക്ക് കണ്ണമംഗലം വില്ലേജ്, ചേറൂർ അംശം ദേശത്ത് ആലി മൊയ്തീൻ ഇ.കെ. മക്കൾ 1) അക്ബർ അലി, 2) അംജദ് അലി, 3) അർഷക് അലി (എടത്തോള കോറ്റശ്ശേരി ഹൗസ്, എരണിപ്പടി, കണ്ണമംഗലം പി ഒ). 4) ഇ.കെ കാദർ ബാബു S/O മൊയ്തീൻ കുട്ടി ഹാജി, എടത്തോള കോറ്റശ്ശേരി ഹൗസ്, എരണിപ്പടി, കണ്ണമംഗലം. 5) ആരിഹു സലാഹ് കെ.പി S/O കടക്കുളത്ത് പൂക്കാട്ട് മുഹമ്മദ്, പൂക്കാട്ട് ഹൗസ്, കൊണ്ടോട്ടി താലൂക്ക്, പള്ളിക്കൽ വില്ലേജ്. 6) സിദ്ധീഖ്.കെ, S/O കൊന്നക്കാട്ട് കാദർ, കൊന്നക്കാട്ട് ഹൗസ്, തിരുർ താലൂക്ക്, എടയൂർ വില്ലേജ്, എടയൂർ പി ഒ. 7) ഇ.കെ അഹമ്മദ് കുട്ടി S/O കാദർ ഹാജി, എടത്തോള കോറ്റശ്ശേരി ഹൗസ്, എരണിപ്പടി, കണ്ണമംഗലം. എന്നിവർക്ക് കണ്ണമംഗലം വില്ലേജിൽ താഴെ പറയുന്ന ഭൂമി സ്വന്തമായി കൈവശ്യത്തിലും അധീനതയിലും ഉണ്ടെന്ന് സാക്ഷ്യപ്പെടുത്തുന്നു.

വില്ലേജിന്റെയും അംശത്തിന്റെയും പേര്	ബ്ലോക്ക് നമ്പർ	സർവ്വെ നമ്പർ	റിസർവ്വെ നമ്പർ	വിസ്തീർണ്ണം ഹെക്ടർ		കൈവശരേഖയുടെ വിവരം പട്ടയം/ആധാരം	ഭൂമിയുടെ തരം
കണ്ണമംഗലം ചേറൂർ അംശം	നികുതി രസീത് (പ്രകാരം ബ്ലോക്ക് നമ്പർ 2	-----	104/2B-44 (TP-7856)	ഹെ. 0	ആർ. 864 2 (Hr)	DOC NO: 1949/2018 SRO VENGARA	അസ്ഥിര പുഞ്ച (unoccupied dry)

ഈ സർട്ടിഫിക്കറ്റ് മെനിങ് & ജിയോളജി ഓഫീസ് ആവിശ്യത്തിന് കൊടുക്കുന്നതാണ്



1/e
 വില്ലേജ് ഓഫീസർ
 4/6/20
 കണ്ണമംഗലം വില്ലേജ് ഓഫീസ്



കൈവശ സർട്ടിഫിക്കറ്റ്

നമ്പർ: 337/20

വില്ലേജ് ഓഫീസ് : കണ്ണമംഗലം

തീയതി : 04/06/2020

തിരുരങ്ങാടി താലൂക്ക് കണ്ണമംഗലം വില്ലേജ്, ചേറൂർ അംശം ദേശത്ത് അലി മൊയ്തീൻ ഇ.കെ. മക്കൾ 1) അക്ബർ അലി. 2) അംജദ് അലി. 3) അർഷക് അലി (എടത്തോള കോറ്റശ്ശേരി ഹൗസ്, എരണിപ്പടി, കണ്ണമംഗലം പി ഒ). 4) ഇ.കെ കാദർ ബാബു S/O മൊയ്തീൻ കുട്ടി ഹാജി, എടത്തോള കോറ്റശ്ശേരി ഹൗസ്, എരണിപ്പടി, കണ്ണമംഗലം. 5) ആരിഫു സലാഹ് കെ.പി S/O കടക്കുളത്ത് പൂക്കാട്ട് മുഹമ്മദ്, പൂക്കാട്ട് ഹൗസ്, കൊണ്ടോട്ടി താലൂക്ക്, പള്ളിക്കൽ വില്ലേജ്. 6) സിദ്ധീഖ്, S/O കൊന്നക്കാട്ട് കാദർ, കൊന്നക്കാട്ട് ഹൗസ്, തിരൂർ താലൂക്ക്, എടയൂർ വില്ലേജ്, എടയൂർ പി ഒ. 7) ഇ.കെ അഹമ്മദ് കുട്ടി S/O കാദർ ഹാജി, എടത്തോള കോറ്റശ്ശേരി ഹൗസ്, എരണിപ്പടി, കണ്ണമംഗലം. എന്നിവർക്ക് കണ്ണമംഗലം വില്ലേജിൽ താഴെ പറയുന്ന ഭൂമി സ്വന്തമായി കൈവശ്യത്തിലും അധീനതയിലും ഉണ്ടെന്ന് സാക്ഷ്യപ്പെടുത്തുന്നു.

വില്ലേജിന്റെയും അംശത്തിന്റെയും പേര്	ബ്ലോക്ക് നമ്പർ	സർവ്വേ നമ്പർ	റിസർവ്വേഷൻ നമ്പർ	വിസ്തീർണ്ണം ഹെക്ടർ.		കൈവശരേഖയുടെ വിവരം പട്ടയം/ ആധാരം	ഭൂമിയുടെ തരം
				ഹെ.	ആർ.		
കണ്ണമംഗലം ചേറൂർ അംശം	നികുതി രസീത് പ്രകാരം ബ്ലോക്ക് നമ്പർ 2	-----	104/2B-9 (TP-7784)	01	72.87	DOC NO: 1950/2018 SRO VENGARA	അസ്ഥിര പുഞ്ച (unoccupied dry)

ഈ സർട്ടിഫിക്കറ്റ് മൈനീസ് & ജിയോളജി ഓഫീസ് ആവിശ്യത്തിന് കൊടുക്കുന്നതാണ്



1/C - 4/6/20
 വില്ലേജ് ഓഫീസർ
 കണ്ണമംഗലം
 ചേറൂർ പി ഒ



കേരള സർക്കാർ രസീത്

ജില്ല : മലപ്പുറം

രസീത് നമ്പർ : KL10060402935/2020

താലൂക്ക് : തിരൂരങ്ങാടി

വില്ലേജ് : കണ്ണമംഗലം

തണ്ടപ്പേർ നമ്പർ 7856 അനുസരിച്ച് കരം ഒടുക്കിയതിന് രസീത്

ഇനം	ഉപ ഇനം	രൂപ	കാലയളവ്	വിവരങ്ങൾ
അടിസ്ഥാന ഭൂനികുതി	തൻവർഷം	₹435	2020-2021	ബ്ലോക്ക്:002, തണ്ടപ്പേർ നം:7856 പട്ടാഭാരയാരുടെ വിവരങ്ങൾ 1) അക്ബർഅലി, ആലിമൊസ്ലീൻ മകൻ, എടത്തോളകൊറ്റശ്ശേരി, കണ്ണമംഗലം, കണ്ണമംഗലം 676304 2) അജദ് അലി, ആലിമൊസ്ലീൻ മകൻ, എടത്തോളകൊറ്റശ്ശേരി, കണ്ണമംഗലം, കണ്ണമംഗലം 676304 3) അർഷാദ് അലി, ആലിമൊസ്ലീൻ മകൻ, എടത്തോളകൊറ്റശ്ശേരി, കണ്ണമംഗലം, കണ്ണമംഗലം 676304 ... മുതൽപേർ സരവ & സബ്ബ് നം, വിസ്തീർണ്ണം 1) 104/2B-44, 86 ആർ, 42 സ്ക്വ.മീ.
കർഷക തൊഴിലാളി ക്ഷേമനിധി	തൻവർഷം	₹87	2020-2021	
ആകെ രൂപ		₹522		

മേൽ വിവരിച്ച പ്രകാരം ₹522 (അഞ്ഞൂറി ഇരുപത്തിരണ്ട് രൂപ) 2020 ജൂൺ മാസം 02 തീയതിയായ ഇന്നേ ദിവസം സീക്രിച്ച് വില്ലേജ് കണക്കിൽ മുതൽ വച്ചിരിക്കുന്നു.

ടി വില്ലേജിലെ റീസർവ്വേ നടപടികൾ പൂർത്തിയാക്കാത്തതിനാൽ രസീതിൽ സൂചിപ്പിച്ചിരിക്കുന്ന ഭൂവിവരങ്ങളുടെ ആധികാരികത റീസർവ്വ്/മാപ്പിങ്ങ് നടപടികൾക്ക് വിധേയമായിരിക്കും.

സ്ഥലം: കണ്ണമംഗലം
തീയതി: 02/06/2020



ഈ രസീത് വന്യ വകുപ്പിന്റെ ഓൺലൈൻ സംവിധാനം രൂപം നൽകിയ കമ്പ്യൂട്ടറിലെ ഡാറ്റാകണിയിലൂടെയാണ് വില്ലേജ് ഓഫീസറുടെ ഒപ്പോ ഓഫീസ് സിലോ ആവശ്യമില്ല രസീതിന്റെ ആധികാരികത വന്യ വകുപ്പിന്റെ www.revenue.kerala.gov.in എന്ന പേജിൽ പരിശോധിക്കാവുന്നതാണ്.

QR കോഡ് സ്കാൻ ചെയ്ത് രസീതിന്റെ ആധികാരികത ഉറപ്പ് വരുത്താവുന്നതാണ്.



കേരള സർക്കാർ രസീത്

ജില്ല : മലപ്പുറം

രസീത് നമ്പർ : KL10060402934/2020

താലൂക്ക് : തിരൂരങ്ങാടി

വില്ലേജ് : കണ്ണമംഗലം

തണ്ടപ്പേർ നമ്പർ 7784 അനുസരിച്ച് കരം ഒടുക്കിയതിന് രസീത്

ഇനം	ഉപ ഇനം	തുക	കാലയളവ്	വിശദാംശങ്ങൾ
അടിസ്ഥാന ഭൂനികുതി	തൻവർഷം	₹865	2020-2021	ബ്ലോക്ക്:002, തണ്ടപ്പേർ നം:7784 പട്ടാഭാരന്മാരുടെ വിവരങ്ങൾ 1) അക്ബർ അലി, ആലിമൊയ്തീൻ മകൻ, എടത്തോളകൊറ്റശ്ശേരി, കണ്ണമംഗലം, കണ്ണമംഗലം-676304 2) അംജദ് അലി, ആലിമൊയ്തീൻ മകൻ, എടത്തോളകൊറ്റശ്ശേരി, കണ്ണമംഗലം, കണ്ണമംഗലം-676304 3) അർഷാദ് അലി, ആലിമൊയ്തീൻ മകൻ, എടത്തോളകൊറ്റശ്ശേരി, കണ്ണമംഗലം, കണ്ണമംഗലം-676304 മുതൽപേർ സർവ്വേ & സബ് നം, വിസ്തീർണ്ണം 1)104/2B-9, 1 ഹെ., 72 ആർ, 87 സ്ക്വ.മീ.
കർഷക തൊഴിലാളി ക്ഷേമനിധി	തൻവർഷം	₹173	2020-2021	
ആകെ തുക		₹1038		

മേൽ വിവരിച്ച പ്രകാരം ₹1038(ആയിരത്തി മുപ്പത്തിയെട്ട് രൂപ) 2020 ജൂൺ മാസം 02 തീയതിയായ ഇന്നേ ദിവസം സ്വീകരിച്ച് വില്ലേജ് കണക്കിൽ മുതൽ വച്ചിരിക്കുന്നു.

ടി വില്ലേജിലെ റിസർവ് നടപടികൾ പൂർത്തിയാക്കാത്തതിനാൽ രസീതിൽ സൂചിപ്പിച്ചിരിക്കുന്ന ഭൂവിവരങ്ങളുടെ ആധികാരികത റിസർവ് മാപ്പിങ്ങ് നടപടികൾക്ക് വിധേയമായിരിക്കും.

സ്ഥലം: കണ്ണമംഗലം
 തീയതി: 02/06/2020



ഈ രസീത് വന്യ വകുപ്പിന്റെ ഓൺലൈൻ സംവിധാനം മുഖേന തയ്യാറാക്കി ലഭ്യമാക്കുന്നതിനാൽ വില്ലേജ് ഓഫീസറുടെ ഒപ്പോ ഓഫീസ് സീലോ ആവശ്യമില്ല രസീതിന്റെ ആധികാരികത വന്യ വകുപ്പിന്റെ www.revenue.kerala.gov.in എന്ന പേര് താഴെ പരിശോധിക്കാവുന്നതാണ്.

QR കോഡ് സ്കാൻ ചെയ്ത് രസീതിന്റെ ആധികാരികത ഉറപ്പ് വരുത്താവുന്നതാണ്.

ANNEXURE 5
CONSENT FROM
OTHER LAND
OWNERS



കേരളം കേരल KERALA

സമ്മതപത്രം

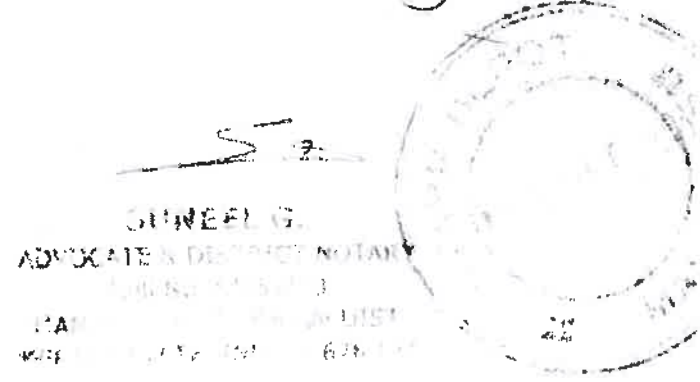
23AA 336661

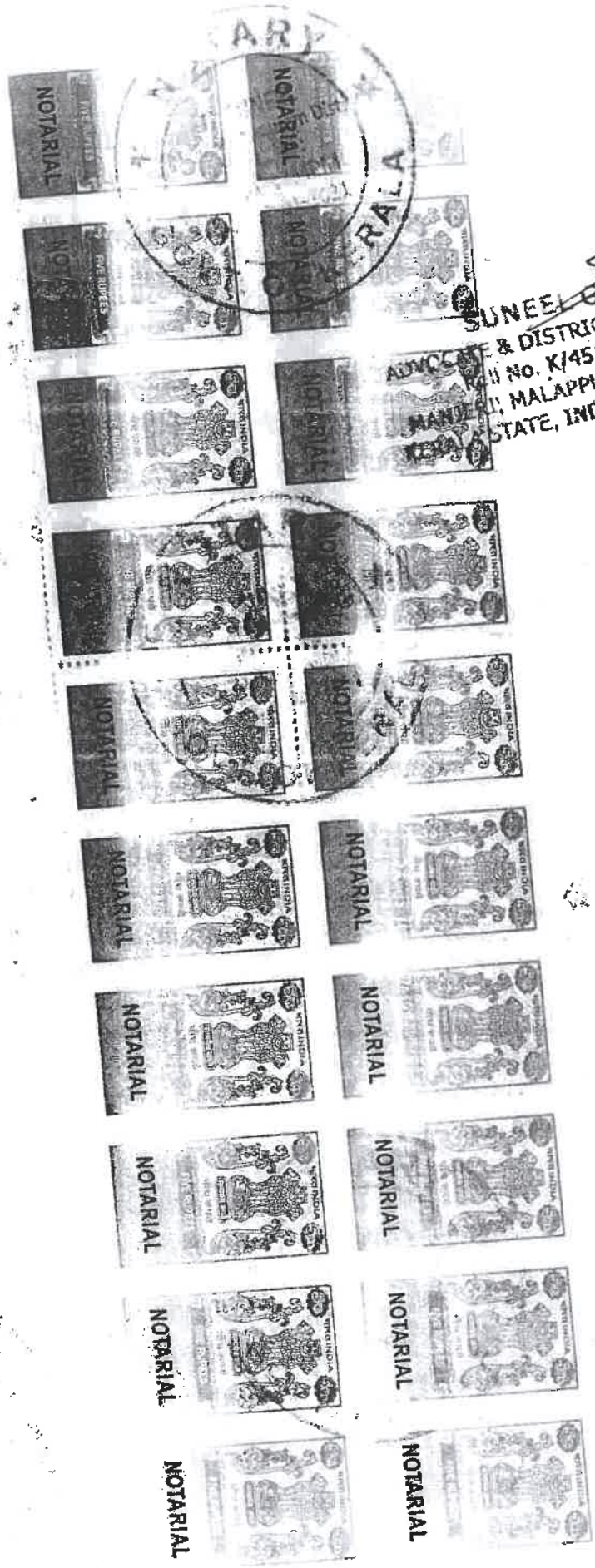
2018.00 ആണ്ട് ഡിസംബർ മാസം 10.00 തിയ്യതി, മലപ്പുറം ജില്ലയിൽ തിരുരങ്ങാടി താലൂക്കിൽ കണ്ണമംഗലം വില്ലേജിൽ പി.ഒ. കണ്ണമംഗലം, എടത്തോള കൊറ്റശ്ശേരി വീട്ടിൽ ആലിമൊയ്തീൻ എന്നയാളുടെ മക്കൾ 1. അകബർ അലി, 2. അംജദ് അലി, മലപ്പുറം ജില്ലയിൽ തിരുരങ്ങാടി താലൂക്കിൽ കണ്ണമംഗലം വില്ലേജിൽ പി.ഒ. കണ്ണമംഗലം, എടത്തോള കൊറ്റശ്ശേരി വീട്ടിൽ മൊയ്തീൻകുട്ടി ഹാജി എന്നയാളുടെ മകൻ 3. കാദർ ബബു, മലപ്പുറം ജില്ലയിൽ കൊണ്ടോട്ടി താലൂക്കിൽ പള്ളിക്കൽ വില്ലേജിൽ പി.ഒ. പള്ളിക്കൽ, പൂക്കാട്ട് വീട്ടിൽ കടകുളത്ത് പൂക്കാട്ട് മുഹമ്മദ് എന്നയാളുടെ മകൻ 4. ആരിഫുസലാഹ്, മലപ്പുറം ജില്ലയിൽ തിരുർ താലൂക്കിൽ എടയൂർ വില്ലേജിൽ പി.ഒ. എടയൂർ, കൊന്നക്കാട്ടിൽ വീട്ടിൽ കാദർ എന്നയാളുടെ മകൻ 5. സിദ്ധീഖ്, മലപ്പുറം ജില്ലയിൽ തിരുരങ്ങാടി താലൂക്കിൽ കണ്ണമംഗലം വില്ലേജിൽ പി.ഒ. കണ്ണമംഗലം, എടത്തോള കൊറ്റശ്ശേരി വീട്ടിൽ കാദർഹാജി എന്നയാളുടെ മകൻ 6. അഹമ്മദുക്കുട്ടി ഹാജി എന്നീയാളുകൾ,

മലപ്പുറം ജില്ലയിൽ തിരുരങ്ങാടി താലൂക്കിൽ കണ്ണമംഗലം വില്ലേജിൽ പി.ഒ. കണ്ണമംഗലം, എടത്തോള കൊറ്റശ്ശേരി, മലബാർ മൻസിൽ വീട്ടിൽ ആലിമൊയ്തീൻ. ഇ.കെ.

- | | |
|--------------------|----------------------|
| 1. Akbar Ali Ek | 4. Arifussalah .k.p |
| 2. Arjad Ali | 5. K. Sidriqne |
| 3. Kadar Babu . Ek | 6. E.K. Ahamedulhaqq |

No: 2152
 Date: 10/12/18
 Value: 100
 Amount: 10000/-
 Tel: 0477-2333333
 Name: [Signature]
 Add: Stamp Vendor, Major, OF KERALA
 C. J. P. Aary





Suneel G.
SUNEEL G.
ADVOCATE & DISTRICT NOTARY
No. K/451/90
MANNAR, MALAPPURAM DIST.
KERALA STATE, INDIA - 676 12





भारतीय गैर न्यायिक



കേരളം കേരल KERALA

- 2 -

23AA 336662

എന്നയാളുടെ മകൻ അർഷക് അലി. ഇ.കെ. എന്നയാൾക്ക് എഴുതിക്കൊടുക്കുന്ന സമ്മതപത്രം.

ഞങ്ങളുടെയും മേൽപറഞ്ഞ അർഷക് അലി. ഇ.കെ. എന്നവരുടെയും ഉടമസ്ഥതയിലും കൈവശത്തിലിരിക്കുന്നതും വേങ്ങര സബ് രജിസ്ട്രാർ ഓഫീസിലെ ഡോക്മെന്റ് നമ്പർ: 1949/2018 ൽ ഉൾപ്പെട്ട മലപ്പുറം ജില്ലയിൽ തിരുരങ്ങാടി താലൂക്കിൽ കണ്ണമംഗലം വില്ലേജിൽ റീസർവ്വെ ബ്ലോക്ക് നമ്പർ 2, റീസർവ്വെ 104/2B-44 നമ്പരിൽപ്പെട്ട 0.8642 ഹെക്ടർ സ്ഥലത്തിൽ ഉൾപ്പെട്ട 0.8642 ഹെക്ടർ സ്ഥലത്തുനിന്നും കരിങ്കല്ല് ചെറുനം ചെയ്ത് വിൽപന നടത്തുന്നതിന് മൈനിങ്ങ് & ജിയോളജി വകുപ്പിൽ നിന്നും ക്വാറിയിംഗ് ലീസ് അനുവദിച്ചു എക്സിക്യൂട്ട് ചെയ്യുന്ന തീയതി മുതൽ 10 (പത്ത്) വർഷത്തേക്ക് താഴെ പേരെഴുതി ഒപ്പിട്ടിരിക്കുന്ന രണ്ട് സാക്ഷികൾ മുമ്പാകെ സ്വമനസ്സാലെ പൂർണ്ണമായും സമ്മതിച്ചിരിക്കുന്നു.

സാക്ഷികൾ:

1. Shaib.mv
munsakkaivaluppiya
Puzham peramb
Mempoor (PO)
2. Shajahan EK
Ettahola Kottasserich
Ezhiyil Padu, Kannamangalam (PO)
Vengara (vi) Matappuram.

1. AKBAR ALI EK
2. Amjad Ali Afadali
3. Kader Babu, EK
4. Arifhssaleh. KP (KP)
5. K. Sidhique KUPU
6. E. K. Ahem

No: 31
Date: 10-12-18
Value: 100
Att: [Signature]
Tel: [Signature]
Name: [Signature]
Add: Stamp Vendor, Manager
C J Mary



Execute Signed: [Signature]
Date: 10/12/18
SUNEEL G
ADVOCATE & DISTRICT NOTARY
Roll No. K/451/90



3368
SUNEEL G.
ADVOCATE & DISTRICT NOTARY
Roll No. K/451/90



കേരളം കേരള KERALA സമ്മതപത്രം

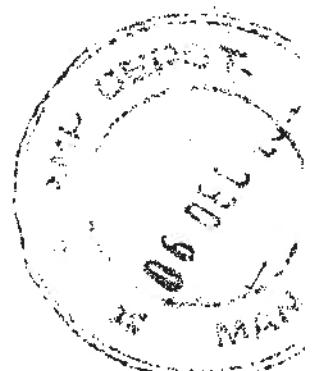
23AA 336663

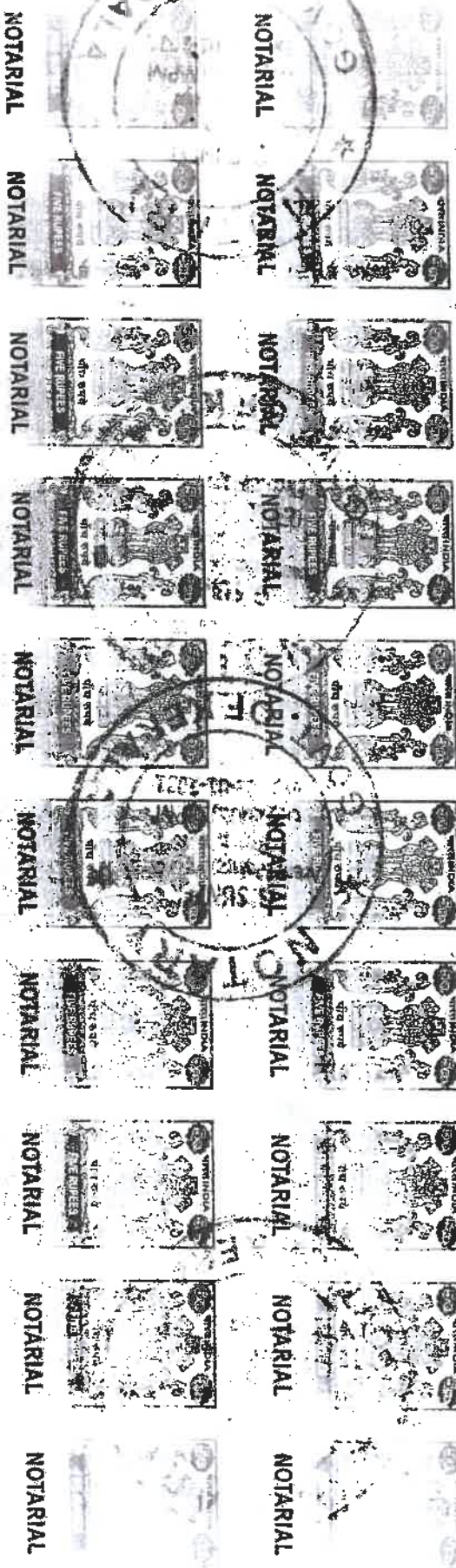
2018-ാം ആണ്ട് നവംബർ മാസം 26-ാം തിയ്യതി, മലപ്പുറം ജില്ലയിൽ തിരുരങ്ങാടി താലൂക്കിൽ കണ്ണമംഗലം വില്ലേജിൽ പി.ഒ. കണ്ണമംഗലം, എടത്തോള കൊറ്റശ്ശേരി വീട്ടിൽ ആലിമൊയ്തീൻ എന്നയാളുടെ മക്കൾ 1. അക്ബർ അലി, 2. അംജദ് അലി, മലപ്പുറം ജില്ലയിൽ തിരുരങ്ങാടി താലൂക്കിൽ കണ്ണമംഗലം വില്ലേജിൽ പി.ഒ. കണ്ണമംഗലം, എടത്തോള കൊറ്റശ്ശേരി വീട്ടിൽ മൊയ്തീൻകുട്ടി ഹാജി എന്നയാളുടെ മകൻ 3. കാദർ ബബു, മലപ്പുറം ജില്ലയിൽ കൊണ്ടോട്ടി താലൂക്കിൽ പള്ളിക്കൽ വില്ലേജിൽ പി.ഒ. പള്ളിക്കൽ, പൂക്കാട്ട് വീട്ടിൽ കടകുളത്ത് പൂക്കാട്ട് മഹമ്മദ് എന്നയാളുടെ മകൻ 4. ആരിഹുസലാഹ്, മലപ്പുറം ജില്ലയിൽ തിരുർ താലൂക്കിൽ എടയൂർ വില്ലേജിൽ പി.ഒ. എടയൂർ, കൊന്നക്കാട്ടിൽ വീട്ടിൽ കാദർ എന്നയാളുടെ മകൻ 5. സിദ്ധീഖ്, മലപ്പുറം ജില്ലയിൽ തിരുരങ്ങാടി താലൂക്കിൽ കണ്ണമംഗലം വില്ലേജിൽ പി.ഒ. കണ്ണമംഗലം, എടത്തോള കൊറ്റശ്ശേരി വീട്ടിൽ കാദർഹാജി എന്നയാളുടെ മകൻ 6. അഹമ്മദ്കുട്ടി ഹാജി എന്നീയാളുകൾ,

മലപ്പുറം ജില്ലയിൽ തിരുരങ്ങാടി താലൂക്കിൽ കണ്ണമംഗലം വില്ലേജിൽ പി.ഒ. കണ്ണമംഗലം, എടത്തോള കൊറ്റശ്ശേരി, മലബാർ മൻസിൽ വീട്ടിൽ ആലിമൊയ്തീൻ. ഇ.കെ. എന്നയാളുടെ മകൻ അർഷദ് അലി. ഇ.കെ. എന്നയാൾക്ക് എഴുതിക്കൊടുക്കുന്ന സമ്മതപത്രം.

- | | |
|---------------------------------------|---|
| 1. AKBAR ALI <i>[Signature]</i> | 4. Arifussalah K.P <i>[Signature]</i> |
| 2. Anjad Ali <i>[Signature]</i> | 5. K. Sidhique <i>[Signature]</i> |
| 3. Kader Noman. KH <i>[Signature]</i> | 6. E.K. Ahammedkutty <i>[Signature]</i> |

No: 164
 Date: 12/11/2018
 Value: 100
 Amt: *[Signature]*
 Tel: *[Signature]*
 No: *[Signature]*
 AG: *[Signature]*





SUNEEL G.
ADVOCATE & DISTRICT NOTARY
Roll No. K/451/90
MANJERI, MALAPPURAM DIST.
KERALA STATE, INDIA - 676 12



भारतीय गैर न्यायिक



INDIA NON JUDICIAL

കേരളം കേരള KERALA

- 2 -

23AA 336664

ഞങ്ങളുടെയും മേൽപറഞ്ഞ അർഷക് അലി. ഇ.കെ. എന്നവരുടെയും ഉടമസ്ഥതയിലും ഐക്യവശത്തിലിരിക്കുന്നതും വേങ്ങര സബ് രജിസ്ട്രാർ ഓഫീസിലെ ഡോക്മെന്റ് നമ്പർ: 1950/2018 ൽ ഉൾപ്പെട്ട മലപ്പുറം ജില്ലയിൽ തിരുരങ്ങാടി താലൂക്കിൽ കണ്ണമംഗലം വില്ലേജിൽ റീസർവ്വെ ബ്ലോക്ക് നമ്പർ 2, റീസർവ്വെ 104/2B-09 നമ്പരിൽപ്പെട്ട 1.7287 ഹെക്ടർ സ്ഥലത്തിൽ ഉൾപ്പെട്ട 1-6634 ഹെക്ടർ സ്ഥലത്തുനിന്നും കരികളി് വനനംചെയ്ത് വിൽപ്പന നടത്തുന്നതിന് മൈനിങ്ങ് & ജിയോളജി വകുപ്പിൽ നിന്നും ക്വാറിയിംഗ് ലീസ് അനുവദിച്ചു എക്സിക്യൂട്ട് ചെയ്യുന്ന തീയതി മുതൽ 10 (പത്ത്) വർഷത്തേക്ക് താഴെ പേരെഴുതി ഒപ്പിട്ടിരിക്കുന്ന രണ്ട് സാക്ഷികൾ മുമ്പാകെ സ്വമനസ്സാലെ പൂർണ്ണമായും സമ്മതിച്ചിരിക്കുന്നു.

സാക്ഷികൾ :

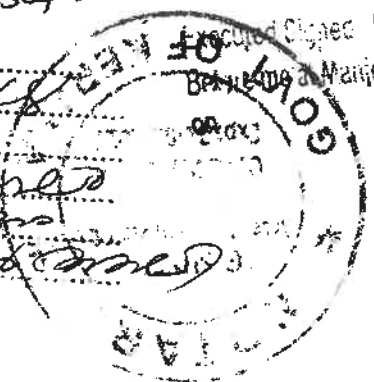
സ്ഥലം ഉടമകളുടെ പേരും ഒപ്പും

- 1. Shuaib-mv
Mundakkavaleppil
Puliyam paramb -
Koripara. PO
- 2. Shajahan EK
Kadathala Kattasseri
Eraniipadi, Kannamangalam
Vengara (vi), Malappuram.
-676304 -

- 1. ALIBORAL EK
- 2. Amjad Ali
- 3. Kadesubabu. EK
- 4. Arifussalah. KP
- 5. K. Sathique K
- 6. E. K. Ahammed Kutty H

1. 6460
ADVOCATE & DISTRICT NOTARY
SURESH C.
KAILASH MALAPPURAM DIST.Roll No. K/451/90

No: 21006
Date: 10.12.2018
Value: 100
Amount: 1000000
Title: 1000000
Name: 1000000
Auctioneer: Vendor, Manjeri
C: 1000000



10/12/18
S
KANNAMANGALAM
MALAPPURAM DIST.
KERALA STATE INDIA - 676



ANNEXURE 6

LAB REPORT

TEST REPORT

Test Report No.:20211203/R037	Date: 09-12-2021	Page 1 of 1
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CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 03-12-2021


SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	20211203/S037
Sample Name	Ambient Air	Sample Received on	04-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	06-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	09-12-2021

DETAILS OF SAMPLING			
Sampling Location	Project site	Date of Sampling	03-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	43.9	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	22.8	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



End of Report


Laiju P. N.
Laboratory Head
Authorized Signatory

The results are related only to the samples submitted for analysis and this test report shall not be reproduced except in full, without the written approval of the laboratory.

Standard^S Environmental & Analytical Laboratories

Approval & Recognition: "A" Grade Laboratory approved by Kerala State Pollution Control Board.

K.J. Tower, Pathalam, Udyogamandal P.O., Ernakulam-683 501, Tel. 0484-2546660, 93 87 27 24 02, 90 74 34 14 43
Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

Test Report No.:20211203/R038	Date: 09-12-2021	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 03-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	20211203/S038
Sample Name	Ambient Air	Sample Received on	04-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	06-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	09-12-2021

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	03-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	50.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	23.8	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	3.10	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.60	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:

End of Report




Laiju P. N.
Laboratory Head
Authorized Signatory

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Approval & Recognition: "A" Grade Laboratory approved by Kerala State Pollution Control Board.

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

Test Report No.:20211203/R039	Date: 09-12-2021	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 03-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	20211203/S039
Sample Name	Ambient Air	Sample Received on	04-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	06-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	09-12-2021

DETAILS OF SAMPLING

Sampling Location	KP Store, Myladi	Date of Sampling	03-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	53.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	24.7	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	3.17	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.89	Max 80

Remarks:

Shency Joy
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

Test Report No.:20211203/R040	Date: 09-12-2021	Page 1 of 1
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CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 03-12-2021


SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	20211203/S040
Sample Name	Ambient Air	Sample Received on	04-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	06-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	09-12-2021

DETAILS OF SAMPLING			
Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	03-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	49.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	24.2	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	3.20	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.55	Max 80

Remarks:


Shency Joy
 Dy. TM Chemical
 Checked by:



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 Laboratory Head
 Authorized Signatory

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TEST REPORT

Test Report No.:20211203/R041	Date: 09-12-2021	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 03-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	20211203/S041
Sample Name	Ambient Air	Sample Received on	04-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	06-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	09-12-2021

DETAILS OF SAMPLING

Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	03-12-2021
Sampling Procedure	SEAL/ENL/GEN/SOP/02	Humidity	69%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS


Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	50.1	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.3	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.98	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.26	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



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Laiju P.N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: sealab@gmail.com

TEST REPORT

Test Report No.:20211203/R042	Date: 09-12-2021	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 03-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	20211203/S042
Sample Name	Ambient Air	Sample Received on	04-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	06-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	09-12-2021

DETAILS OF SAMPLING

Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	03-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS


Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	41.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	19.9	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.08	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



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TEST REPORT

Test Report No.:20211203/R043	Date: 09-12-2021	Page 1 of 1
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CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 03-12-2021


SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	20211203/S043
Sample Name	Ambient Air	Sample Received on	04-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	06-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	09-12-2021

DETAILS OF SAMPLING			
Sampling Location	Karimbili Masjid	Date of Sampling	03-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	45.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	23.4	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	3.11	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.60	Max 80

Remarks:


Shency Joy
De. TM Chemical
Checked by:



End of Report


Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

Test Report No.:20211207/R055	Date: 11-12-2021	Page 1 of 1
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CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 07-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	20211207/S055
Sample Name	Ambient Air	Sample Received on	08-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	09-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	11-12-2021

DETAILS OF SAMPLING			
Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	07-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	57.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	27.3	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.88	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.43	Max 80

Remarks: 

End of Report

Shency Joy
Dy. TM Chemical
Checked by:




Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: sealab@gmail.com

TEST REPORT

Test Report No.:20211207/R056	Date: 11-12-2021	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 07-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	20211207/S056
Sample Name	Ambient Air	Sample Received on	08-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	09-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	11-12-2021

DETAILS OF SAMPLING

Sampling Location	KP Store, Myladi	Date of Sampling	07-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	58.7	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.6	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	3.10	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.45	Max 80

Remarks:


Checked by:
Shency Joy
Chemical



End of Report


Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

Test Report No.:20211207/R057	Date: 11-12-2021	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District		
Customer Reference	Test Request dt: 07-12-2021		

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	20211207/S057
Sample Name	Ambient Air	Sample Received on	08-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	09-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	11-12-2021

DETAILS OF SAMPLING

Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	07-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	43.3	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	21.5	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.98	Max 80

Remarks:



Shency Joy
Dy. TM Chemical

Checked by:



End of Report



Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

Test Report No.:20211207/R058	Date: 11-12-2021	Page 1 of 1
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CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 07-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	20211207/S058
Sample Name	Ambient Air	Sample Received on	08-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	09-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	11-12-2021

DETAILS OF SAMPLING			
Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	07-12-2021
Sampling Procedure	SEAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala


TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	49.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	23.8	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.66	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.92	Max 80

Remarks:


Shency Joy
 Dy. TM Chemical
 Checked by:



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Laiju P. N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

Test Report No.:20211207/R059	Date: 11-12-2021	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 07-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	20211207/S059
Sample Name	Ambient Air	Sample Received on	08-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	09-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	11-12-2021

DETAILS OF SAMPLING

Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	07-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44	Re survey Block No-2	
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	40.3	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	21.6	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.20	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



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Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

Test Report No.:20211207/R060	Date: 11-12-2021	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 07-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	20211207/S060
Sample Name	Ambient Air	Sample Received on	08-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	09-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	11-12-2021

DETAILS OF SAMPLING

Sampling Location	Karimbili Masjid	Date of Sampling	07-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	43.7	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	21.8	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.83	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.10	Max 80


Remarks:


Shency Joy
Dy. TM Chemical

Checked by:



End of Report


Laiju P. N.
Laboratory Head
Authorized Signatory

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Standard^S Environmental & Analytical Laboratories

Approval & Recognition: "A" Grade Laboratory approved by Kerala State Pollution Control Board.

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Web: www.sealabs.in, E-mail: sealab@gmail.com

TEST REPORT

Test Report No.:20211210/R087	Date: 16-12-2021	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 10-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	20211210/S087
Sample Name	Ambient Air	Sample Received on	11-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	13-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	16-12-2021

DETAILS OF SAMPLING

Sampling Location	Project site	Date of Sampling	10-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS


Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	49.9	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	25.3	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



End of Report


Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

Test Report No.:20211210/R088	Date: 16-12-2021	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 10-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	20211210/S088
Sample Name	Ambient Air	Sample Received on	11-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	13-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	16-12-2021

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	10-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS


Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

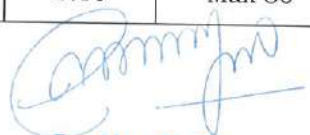
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	56.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	23.5	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.90	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.10	Max 80

Remarks:

End of Report


Shency Joy
Dy. TM Chemical
Checked by:




Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

Test Report No.:20211210/R089	Date: 16-12-2021	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 10-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	20211210/S089
Sample Name	Ambient Air	Sample Received on	11-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	13-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	16-12-2021

DETAILS OF SAMPLING

Sampling Location	KP Store, Myladi	Date of Sampling	10-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	49.3	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	24.4	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.77	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.90	Max 80

Remarks:

Shency Joy
Dr. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

Test Report No.:20211210/R090	Date: 16-12-2021	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 10-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	20211210/S090
Sample Name	Ambient Air	Sample Received on	11-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	13-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	16-12-2021

DETAILS OF SAMPLING

Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	10-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	47.9	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	23.5	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.45	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.06	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



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Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

Test Report No.:20211210/R091	Date: 16-12-2021	Page 1 of 1
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CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 10-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	20211210/S091
Sample Name	Ambient Air	Sample Received on	11-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	13-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	16-12-2021

DETAILS OF SAMPLING			
Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	10-12-2021
Sampling Procedure	SEAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	44.6	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	22.3	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	3.05	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.62	Max 80

Remarks:

End of Report

Shency Joy
Dy. TM Chemical
Checked by:



Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

Test Report No.:20211210/R092	Date: 16-12-2021	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 10-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	20211210/S092
Sample Name	Ambient Air	Sample Received on	11-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	13-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	16-12-2021

DETAILS OF SAMPLING

Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	10-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS


Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	47.7	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	21.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.93	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.74	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



End of Report


Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

Test Report No.:20211210/R093	Date: 16-12-2021	Page 1 of 1
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CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 10-12-2021


SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	20211210/S093
Sample Name	Ambient Air	Sample Received on	11-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	13-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	16-12-2021

DETAILS OF SAMPLING			
Sampling Location	Karimbili Masjid	Date of Sampling	10-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

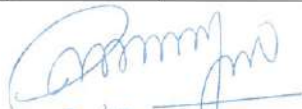
TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	45.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	22.9	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	3.11	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	4.01	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



End of Report


Laiju P.N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC54022100006882F		
LRI No:SEAAL21120569A	Date: 20-12-2021	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 14-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN21120118
Sample Name	Ambient Air	Sample Received on	15-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	16-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	20-12-2021

DETAILS OF SAMPLING			
Sampling Location	Project site	Date of Sampling	14-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	47.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	25.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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Standard^S Environmental & Analytical Laboratories

Accreditation & Approval: NABL accredited Testing Laboratory as per ISO/IEC 17025:2017
vide Certificate No. TC - 5402 & "A" Grade Laboratory approved by KSPCB.

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540221000006883F

LRI No:SEAAL21120570A

Date: 20-12-2021

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 14-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN21120119
Sample Name	Ambient Air	Sample Received on	15-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	16-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	20-12-2021

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	14-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	49.7	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	22.8	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.19	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.25	Max 80

Remarks:

Shency Joy
Dr. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC54022100006884F

LRI No:SEAAL21120571A

Date: 20-12-2021

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 14-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN21120120
Sample Name	Ambient Air	Sample Received on	15-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	16-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	20-12-2021

DETAILS OF SAMPLING

Sampling Location	KP Store, Myladi	Date of Sampling	14-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	52.9	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.4	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.43	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.11	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC54022100006885F		
LRI No:SEAAL21120572A	Date: 20-12-2021	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 14-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN21120121
Sample Name	Ambient Air	Sample Received on	15-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	16-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	20-12-2021

DETAILS OF SAMPLING			
Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	14-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

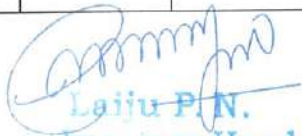
TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	48.6	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	23.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.26	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.41	Max 80

Remarks: 

Shency Joy
 Checked by:



End of Report


Lajju P.N.
 Laboratory Head
 Authorized Signatory

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 Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540221000006886F		
LRI No:SEAAL21120573A	Date: 20-12-2021	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 14-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN21120122
Sample Name	Ambient Air	Sample Received on	15-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	16-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	20-12-2021

DETAILS OF SAMPLING			
Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	14-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	47.6	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	23.4	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.12	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.34	Max 80

Remarks:

 Checked by:



End of Report

Lajju P.N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No:TC54022100006887F		
LRI No:SEAAL21120574A	Date: 20-12-2021	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 14-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN21120123
Sample Name	Ambient Air	Sample Received on	15-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	16-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	20-12-2021

DETAILS OF SAMPLING			
Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	14-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	42.1	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	23.4	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.12	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.34	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P.N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC54022100006888F		
LRI No:SEAAL21120575A	Date: 20-12-2021	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 14-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN21120124
Sample Name	Ambient Air	Sample Received on	15-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	16-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	20-12-2021

DETAILS OF SAMPLING			
Sampling Location	Karimbili Masjid	Date of Sampling	14-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	45.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	22.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.97	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.14	Max 80

Remarks:

Shency Joy
Checked by.



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Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540221000006963F		
LRI No:SEAAL21120650A	Date: 23-12-2021	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 17-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN21120181
Sample Name	Ambient Air	Sample Received on	18-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	20-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	23-12-2021

DETAILS OF SAMPLING			
Sampling Location	Project site	Date of Sampling	17-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	44.1	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	23.2	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



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Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540221000006964F		
LRI No:SEAAL21120651A	Date: 23-12-2021	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 17-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN21120182
Sample Name	Ambient Air	Sample Received on	18-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	20-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	23-12-2021

DETAILS OF SAMPLING			
Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	17-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	55.6	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.3	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.59	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.76	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC54022100006965F		
LRI No:SEAAL21120652A	Date: 23-12-2021	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 17-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN21120183
Sample Name	Ambient Air	Sample Received on	18-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	20-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	23-12-2021

DETAILS OF SAMPLING			
Sampling Location	KP Store, Myladi	Date of Sampling	17-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

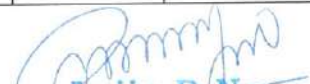
TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	60.3	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	27.9	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.89	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.97	Max 80

Remarks: 

Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report


Laiju P.N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No:TC54022100006966F		
LRI No:SEAAL21120653A	Date: 23-12-2021	Page 1 of 1



CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 17-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN21120184
Sample Name	Ambient Air	Sample Received on	18-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	20-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	23-12-2021

DETAILS OF SAMPLING			
Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	17-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	42.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	20.3	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.12	Max 80

Remarks: 

Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report


Lajju P.N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No:TC540221000006967F		
LRI No:SEAAL21120654A	Date: 23-12-2021	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 17-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN21120185
Sample Name	Ambient Air	Sample Received on	18-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	20-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	23-12-2021

DETAILS OF SAMPLING			
Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	17-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	50.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	25.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.77	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.92	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540221000006968F		
LRI No:SEAAL21120655A	Date: 23-12-2021	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 17-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN21120186
Sample Name	Ambient Air	Sample Received on	18-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	20-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	23-12-2021

DETAILS OF SAMPLING			
Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	17-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	39.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	20.7	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.73	Max 80

Remarks:

Shency Joy
Checked by:



End of Report

Laiju P.N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540221000006969F

LRI No:SEAAL21120656A

Date: 23-12-2021

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 17-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN21120187
Sample Name	Ambient Air	Sample Received on	18-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	20-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	23-12-2021

DETAILS OF SAMPLING

Sampling Location	Karimbili Masjid	Date of Sampling	17-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	41.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	20.6	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.98	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540221000007189F		
LRI No:SEAAL21120876A	Date: 29-12-2021	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 21-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN21120228
Sample Name	Ambient Air	Sample Received on	22-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	23-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	29-12-2021

DETAILS OF SAMPLING			
Sampling Location	Project site	Date of Sampling	21-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	56.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	25.7	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540221000007190F

LRI No:SEAAL21120877A

Date: 29-12-2021

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 21-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN21120229
Sample Name	Ambient Air	Sample Received on	22-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	23-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	29-12-2021

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	21-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	53.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	24.6	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.29	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.25	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju T. J.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540221000007191F		
LRI No:SEAAL21120878A	Date: 29-12-2021	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 21-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN21120230
Sample Name	Ambient Air	Sample Received on	22-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	23-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	29-12-2021

DETAILS OF SAMPLING			
Sampling Location	KP Store, Myladi	Date of Sampling	21-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	48.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	23.7	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.64	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	4.12	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



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Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540221000007192F		
LRI No:SEAAL21120879A	Date: 29-12-2021	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 21-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN21120231
Sample Name	Ambient Air	Sample Received on	22-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	23-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	29-12-2021

DETAILS OF SAMPLING			
Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	21-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 · Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	44.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	21.9	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.32	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.09	Max 80

Remarks:

Shency Joy
Dr. TM Chemical
Checked by:



End of Report

Laiju P.N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540221000007193F		
LRI No:SEAAL21120880A	Date: 29-12-2021	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 21-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN21120232
Sample Name	Ambient Air	Sample Received on	22-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	23-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	29-12-2021

DETAILS OF SAMPLING			
Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	21-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	42.9	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	21.6	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.09	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.46	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540221000007194F		
LRI No:SEAAL21120881A	Date: 29-12-2021	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 21-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN21120233
Sample Name	Ambient Air	Sample Received on	22-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	23-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	29-12-2021

DETAILS OF SAMPLING			
Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	21-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	46.3	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	22.3	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.87	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.46	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P.N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC54022100007195F		
LRI No:SEAAL21120882A	Date: 29-12-2021	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 21-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN21120234
Sample Name	Ambient Air	Sample Received on	22-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	23-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	29-12-2021

DETAILS OF SAMPLING			
Sampling Location	Karimbili Masjid	Date of Sampling	21-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	49.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	24.7	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.96	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.88	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Lajju P.N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000106F

LRI No:SEAAL22010106A

Date: 04-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 24-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN21120291
Sample Name	Ambient Air	Sample Received on	28-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	30-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	04-01-2022

DETAILS OF SAMPLING

Sampling Location	Project site	Date of Sampling	24-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	59.3	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	28.2	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000107F

LRI No:SEAAL22010107A

Date: 04-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 24-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN21120292
Sample Name	Ambient Air	Sample Received on	28-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	30-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	04-01-2022

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	24-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44	Re survey Block No-2	
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	57.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	24.3	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.86	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.93	Max 80

Remarks:

Shency Joy
Dr. TM Chemical
Checked by:



End of Report

Laiju P.N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000108F

LRI No:SEAAL22010108A

Date: 04-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 24-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN21120293
Sample Name	Ambient Air	Sample Received on	28-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	30-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	04-01-2022

DETAILS OF SAMPLING

Sampling Location	KP Store, Myladi	Date of Sampling	24-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	57.9	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	28.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	3.15	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.98	Max 80

Remarks:

Shency Joy
Checked by:



End of Report

Laiju P.N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC54022200000109F

LRI No:SEAAL22010109A

Date: 04-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 24-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN21120294
Sample Name	Ambient Air	Sample Received on	28-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	30-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	04-01-2022

DETAILS OF SAMPLING

Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	24-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	40.7	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	20.8	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.38	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.88	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:

End of Report

Laiju P.N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC54022200000110F

LRI No:SEAAL22010110A

Date: 04-01-2022

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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 24-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN21120295
Sample Name	Ambient Air	Sample Received on	28-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	30-12-2021
Sampled by	Lab Authorized Sampler.	Test Completed on	04-01-2022

DETAILS OF SAMPLING

Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	24-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	58.7	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.3	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.86	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	4.32	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000111F

LRI No:SEAAL22010111A

Date: 04-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 24-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN21120296
Sample Name	Ambient Air	Sample Received on	28-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	30-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	04-01-2022

DETAILS OF SAMPLING

Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	24-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	41.7	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	21.4	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.96	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



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Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC54022200000112F

LRI No:SEAL22010112A

Date: 04-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 24-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN21120297
Sample Name	Ambient Air	Sample Received on	28-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	30-12-2021
Sampled by	Lab Authorized Sampler	Test Completed on	04-01-2022

DETAILS OF SAMPLING

Sampling Location	Karimbili Masjid	Date of Sampling	24-12-2021
Sampling Procedure	SEAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	40.3	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	19.3	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.79	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



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Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000113F

LRI No:SEAAL22010113A

Date: 05-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasserri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 28-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN21120329
Sample Name	Ambient Air	Sample Received on	31-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	01-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	05-01-2022

DETAILS OF SAMPLING

Sampling Location	Project site	Date of Sampling	28-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	49.6	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	23.8	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000114F

LRI No:SEAAL22010114A

Date: 05-01-2022

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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 28-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN21120330
Sample Name	Ambient Air	Sample Received on	31-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	01-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	05-01-2022

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	28-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	50.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	23.9	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.76	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.97	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000115F

LRI No:SEAAL22010115A

Date: 05-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 28-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN21120331
Sample Name	Ambient Air	Sample Received on	31-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	01-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	05-01-2022

DETAILS OF SAMPLING

Sampling Location	KP Store, Myladi	Date of Sampling	28-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	47.9	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	20.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.43	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.47	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000116F

LRI No:SEAAL22010116A

Date: 05-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 28-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN21120332
Sample Name	Ambient Air	Sample Received on	31-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	01-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	05-01-2022

DETAILS OF SAMPLING

Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	28-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	50.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	22.3	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.32	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.35	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000117F		
LRI No:SEAAL22010117A	Date: 05-01-2022	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 28-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN21120333
Sample Name	Ambient Air	Sample Received on	31-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	01-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	05-01-2022

DETAILS OF SAMPLING			
Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	28-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	40.9	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	19.5	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.11	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.92	Max 80

Remarks:

Shency Joy
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000118F		
LRI No:SEAAL22010118A	Date: 05-01-2022	Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 28-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN21120334
Sample Name	Ambient Air	Sample Received on	31-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	01-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	05-01-2022

DETAILS OF SAMPLING

Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	28-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	44.9	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	22.3	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.53	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.65	Max 80

Remarks:

Shency Joy
Dy. TM Chemical

Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000119F		
LRI No:SEAAL22010119A	Date: 05-01-2022	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 28-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN21120335
Sample Name	Ambient Air	Sample Received on	31-12-2021
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	01-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	05-01-2022

DETAILS OF SAMPLING			
Sampling Location	Karimbili Masjid	Date of Sampling	28-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	50.1	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	25.7	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.98	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.16	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P.N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000181F		
LRI No:SEAAL22010181A	Date: 07-01-2022	Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 31-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010001
Sample Name	Ambient Air	Sample Received on	01-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	03-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	07-01-2022

DETAILS OF SAMPLING

Sampling Location	Project site	Date of Sampling	31-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	52.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	27.6	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:

Shency Joy
Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laju P. N.
Laju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000182F

LRI No:SEAAL22010182A

Date: 07-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 31-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010002
Sample Name	Ambient Air	Sample Received on	01-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	03-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	07-01-2022

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	31-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	56.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	25.6	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.59	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.88	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000183F

LRI No:SEAAL22010183A

Date: 07-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 31-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010003
Sample Name	Ambient Air	Sample Received on	01-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	03-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	07-01-2022

DETAILS OF SAMPLING

Sampling Location	KP Store, Myladi	Date of Sampling	31-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	56.7	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	28.6	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.89	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.96	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000184F

LRI No:SEAAL22010184A

Date: 07-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address
Mr. Arashak Ali E.K
 S/o Ali Moideen E.K
 Edathola Kottasseri, Malabar Manzil,
 Eranippadi, Kannamangalam P.O.,
 Malappuram District

Customer Reference
 Test Request dt: 31-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010004
Sample Name	Ambient Air	Sample Received on	01-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	03-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	07-01-2022

DETAILS OF SAMPLING

Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	31-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	51.3	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	22.9	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.98	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.97	Max 80

Remarks:

Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report

Laiju P. N.
 Laboratory Head
 Authorized Signatory

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 Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000185F

LRI No:SEAAL22010185A

Date: 07-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address
Mr. Arashak Ali E.K
 S/o Ali Moideen E.K
 Edathola Kottasseri, Malabar Manzil,
 Eranippadi, Kannamangalam P.O.,
 Malappuram District

Customer Reference
 Test Request dt: 31-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010005
Sample Name	Ambient Air	Sample Received on	01-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	03-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	07-01-2022

DETAILS OF SAMPLING

Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	31-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	50.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	25.3	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.87	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.95	Max 80

Remarks:

Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report

Laiju P.N.
 Laboratory Head
 Authorized Signatory

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 Web: www.sealabs.in, E-mail: sealab@gmail.com

TEST REPORT

ULR No:TC540222000000186F

LRI No:SEAAL22010186A

Date: 07-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address
Mr. Arashak Ali E.K
 S/o Ali Moideen E.K
 Edathola Kottasseri, Malabar Manzil,
 Eranippadi, Kannamangalam P.O.,
 Malappuram District

Customer Reference
 Test Request dt: 31-12-2021

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010006
Sample Name	Ambient Air	Sample Received on	01-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	03-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	07-01-2022

DETAILS OF SAMPLING

Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	31-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	46.9	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	22.8	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.39	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.11	Max 80

Remarks:

Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report

Laiju P. N.
 Laboratory Head
 Authorized Signatory

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 Web: www.sealabs.in, E-mail: sealab@gmail.com

TEST REPORT

ULR No:TC540222000000187F		
LRI No:SEAAL22010187A	Date: 07-01-2022	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 31-12-2021

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN22010007
Sample Name	Ambient Air	Sample Received on	01-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	03-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	07-01-2022

DETAILS OF SAMPLING			
Sampling Location	Karimbili Masjid	Date of Sampling	31-12-2021
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

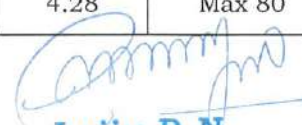
TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	48.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	24.3	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	3.12	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	4.28	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



End of Report


Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC54022200000219F

LRI No:SEAAL22010219A

Date: 10-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 04-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010040
Sample Name	Ambient Air	Sample Received on	05-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	06-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	10-01-2022

DETAILS OF SAMPLING

Sampling Location	Project site	Date of Sampling	04-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	49.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	28.4	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000220F

LRI No:SEAAL22010220A

Date: 10-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address
Mr. Arashak Ali E.K
 S/o Ali Moideen E.K
 Edathola Kottasseri, Malabar Manzil,
 Eranippadi, Kannamangalam P.O.,
 Malappuram District

Customer Reference
 Test Request dt: 04-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010041
Sample Name	Ambient Air	Sample Received on	05-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	06-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	10-01-2022

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	04-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	60.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	28.4	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.45	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.85	Max 80

Remarks:

Shency Joy
 D. TM Chemical
 Checked by:



End of Report

Laiju P. N.
 Laboratory Head
 Authorized Signatory

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 Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000221F

LRI No:SEAAL22010221A

Date: 10-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address
Mr. Arashak Ali E.K
 S/o Ali Moideen E.K
 Edathola Kottasseri, Malabar Manzil,
 Eranippadi, Kannamangalam P.O.,
 Malappuram District

Customer Reference
 Test Request dt: 04-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010042
Sample Name	Ambient Air	Sample Received on	05-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	06-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	10-01-2022

DETAILS OF SAMPLING

Sampling Location	KP Store, Myladi	Date of Sampling	04-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	62.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	34.2	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.58	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.12	Max 80

Remarks:

End of Report

Shency Joy
 Checked by: al



Laju P. N.
 Laboratory Head
 Authorized Signatory

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 Web: www.sealabs.in, E-mail: sealab@gmail.com

TEST REPORT

ULR No:TC540222000000222F

LRI No:SEAAL22010222A

Date: 10-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 04-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010043
Sample Name	Ambient Air	Sample Received on	05-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	06-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	10-01-2022

DETAILS OF SAMPLING

Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	04-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	46.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	24.8	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.98	Max 80

Remarks:

Shency Joy
Checked by:



End of Report

Lajju P.N.
Laboratory Head
Authorized Signatory

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K.J. Tower, Pathalam, Udyogamandal P.O., Ernakulam-683 501, Tel. 0484-2546660, 93 87 27 24 02, 90 74 34 14 43
Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000223F

LRI No:SEAAL22010223A

Date: 10-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address
Mr. Arashak Ali E.K
 S/o Ali Moideen E.K
 Edathola Kottasseri, Malabar Manzil,
 Eranippadi, Kannamangalam P.O.,
 Malappuram District

Customer Reference
 Test Request dt: 04-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010044
Sample Name	Ambient Air	Sample Received on	05-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	06-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	10-01-2022

DETAILS OF SAMPLING

Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	04-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	55.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	28.6	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.64	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3-12	Max 80

Remarks:

Shency Joy
 Dr. TM Chemical
 Checked by:



End of Report

Laiju P. N.
 Laboratory Head
 Authorized Signatory

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 Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC54022200000224F

LRI No:SEAAL22010224A

Date: 10-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 04-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010045
Sample Name	Ambient Air	Sample Received on	05-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	06-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	10-01-2022

DETAILS OF SAMPLING

Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	04-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	48.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.4	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.95	Max 80

Remarks:

Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report

Laiju P. N.
 Laboratory Head
 Authorized Signatory

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 Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC54022200000225F

LRI No:SEAAL22010225A

Date: 10-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 04-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010046
Sample Name	Ambient Air	Sample Received on	05-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	06-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	10-01-2022

DETAILS OF SAMPLING

Sampling Location	Karimbili Masjid	Date of Sampling	04-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

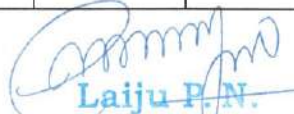
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	41.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	20.6	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.98	Max 80

Remarks:

Checked by: 
Shency Joy
 Dr. TM Chemical



End of Report


Laiju P.N.
 Laboratory Head
 Authorized Signatory

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 Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000263F

LRI No:SEAAL22010263A

Date: 14-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address
Mr. Arashak Ali E.K
 S/o Ali Moideen E.K
 Edathola Kottasseri, Malabar Manzil,
 Eranippadi, Kannamangalam P.O.,
 Malappuram District

Customer Reference
 Test Request dt: 07-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010061
Sample Name	Ambient Air	Sample Received on	08-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	10-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	14-01-2022

DETAILS OF SAMPLING

Sampling Location	Project site	Date of Sampling	07-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	50.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	29.2	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:

Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report

Laiju P. N.
 Laboratory Head
 Authorized Signatory

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 Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000264F

LRI No:SEAAL22010264A

Date: 14-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address
Mr. Arashak Ali E.K
 S/o Ali Moideen E.K
 Edathola Kottasseri, Malabar Manzil,
 Eranippadi, Kannamangalam P.O.,
 Malappuram District

Customer Reference
 Test Request dt: 07-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010062
Sample Name	Ambient Air	Sample Received on	08-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	10-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	14-01-2022

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	07-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	60.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	28.9	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.52	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.98	Max 80

Remarks:

End of Report

Shency Joy
 Dr. TM Chemical
 Checked by:



Laiju P. N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No:TC540222000000265F

LRI No:SEAL22010265A

Date: 14-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 07-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010063
Sample Name	Ambient Air	Sample Received on	08-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	10-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	14-01-2022

DETAILS OF SAMPLING

Sampling Location	KP Store, Myladi	Date of Sampling	07-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	63.0	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	35.4	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.64	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.25	Max 80

Remarks:

[Signature]

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

[Signature]
Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000266F

LRI No:SEAAL22010266A	Date: 14-01-2022	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 07-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010064
Sample Name	Ambient Air	Sample Received on	08-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	10-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	14-01-2022

DETAILS OF SAMPLING

Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	07-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	47.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	25.0	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.01	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.01	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P.N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC54022200000267F

LRI No:SEAAL22010267A

Date: 14-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 07-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010065
Sample Name	Ambient Air	Sample Received on	08-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	10-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	14-01-2022

DETAILS OF SAMPLING

Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	07-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

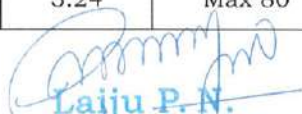
TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	56.0	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	29.0	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.75	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.24	Max 80

Remarks: 
Shency Joy
 Dy. Checked by:



End of Report


Lajju P.N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No:TC540222000000268F		
LRI No:SEAAL22010268A	Date: 14-01-2022	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 07-01-2022

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN22010066
Sample Name	Ambient Air	Sample Received on	08-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	10-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	14-01-2022

DETAILS OF SAMPLING			
Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	07-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	49.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	28.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.01	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P.N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000269F		
LRI No:SEAAL22010269A	Date: 14-01-2022	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 07-01-2022

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN22010067
Sample Name	Ambient Air	Sample Received on	08-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	10-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	14-01-2022

DETAILS OF SAMPLING			
Sampling Location	Karimbili Masjid	Date of Sampling	07-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	49.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	24.7	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.96	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.88	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000286F

LRI No:SEAAL22010286A

Date: 17-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 11-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010094
Sample Name	Ambient Air	Sample Received on	12-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	13-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	17-01-2022

DETAILS OF SAMPLING

Sampling Location	Project site	Date of Sampling	11-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS


Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	52.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	30.5	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



End of Report


Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: sealab@gmail.com

TEST REPORT

ULR No:TC540222000000287F

LRI No:SEAAL22010287A

Date: 17-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 11-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010095
Sample Name	Ambient Air	Sample Received on	12-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	13-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	17-01-2022

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	11-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	62.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	32.5	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.48	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.89	Max 80

Remarks:


Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report


Laiju P. N.
 Laboratory Head
 Authorized Signatory

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 Web: www.sealabs.in, E-mail: sealab@gmail.com

TEST REPORT

ULR No:TC540222000000288F

LRI No:SEAAL22010288A

Date: 17-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address
Mr. Arashak Ali E.K
 S/o Ali Moideen E.K
 Edathola Kottasseri, Malabar Manzil,
 Eranippadi, Kannamangalam P.O.,
 Malappuram District

Customer Reference
 Test Request dt: 11-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010096
Sample Name	Ambient Air	Sample Received on	12-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	13-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	17-01-2022

DETAILS OF SAMPLING

Sampling Location	KP Store, Myladi	Date of Sampling	11-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

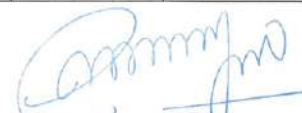
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	64.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	36.8	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.65	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.45	Max 80

Remarks:


Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report


Laiju P. N.
 Laboratory Head
 Authorized Signatory

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 Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000289F

LRI No:SEAAL22010289A

Date: 17-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address
Mr. Arashak Ali E.K
 S/o Ali Moideen E.K
 Edathola Kottasseri, Malabar Manzil,
 Eranippadi, Kannamangalam P.O.,
 Malappuram District

Customer Reference
 Test Request dt: 11-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010097
Sample Name	Ambient Air	Sample Received on	12-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	13-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	17-01-2022

DETAILS OF SAMPLING

Sampling Location	Yoosuf Pullat's Diary Farm	Date of Sampling	11-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	48.1	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.4	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.12	Max 80

Remarks:

Shency Joy
 Dy. TM Chemical
 Checked by:



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 Laboratory Head
 Authorized Signatory

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 Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC54022200000290F		
LRI No:SEAAL22010290A	Date: 17-01-2022	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 11-01-2022

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN22010098
Sample Name	Ambient Air	Sample Received on	12-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	13-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	17-01-2022

DETAILS OF SAMPLING			
Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	11-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	58.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	28.2	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.68	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.45	Max 80

Remarks:

Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report

Laiju P. N.
 Laboratory Head
 Authorized Signatory

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 Web: www.sealabs.in, E-mail: sealab@gmail.com

TEST REPORT

ULR No:TC54022200000291F

LRI No:SEAAL22010291A

Date: 17-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 11-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010099
Sample Name	Ambient Air	Sample Received on	12-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	13-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	17-01-2022

DETAILS OF SAMPLING

Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	11-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	50.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	29.6	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.98	Max 80

Remarks:


Shency Joy
Checked by:



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Lalju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000292F

LRI No:SEAAL22010292A

Date: 17-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 11-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010100
Sample Name	Ambient Air	Sample Received on	12-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	13-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	17-01-2022

DETAILS OF SAMPLING

Sampling Location	Karimbili Masjid	Date of Sampling	11-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	52.3	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	25.6	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.95	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P.N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000350F

LRI No:SEAAL22010350A

Date: 20-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 14-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010126
Sample Name	Ambient Air	Sample Received on	15-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	17-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	20-01-2022

DETAILS OF SAMPLING

Sampling Location	Project site	Date of Sampling	14-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	52.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	30.9	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:

End of Report

Shency Joy
Dy. TM Chemical
Checked by:



Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000351F

LRI No:SEAAL22010351A

Date: 20-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 14-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010127
Sample Name	Ambient Air	Sample Received on	15-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	17-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	20-01-2022

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	14-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS


Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	63.1	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	33.0	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.50	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.91	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



End of Report


Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000352F		
LRI No:SEAAL22010352A	Date: 20-01-2022	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 14-01-2022

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN22010128
Sample Name	Ambient Air	Sample Received on	15-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	17-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	20-01-2022

DETAILS OF SAMPLING			
Sampling Location	KP Store, Myladi	Date of Sampling	14-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala


TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	64.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	36.9	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.65	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.48	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



End of Report


Laju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000353F		
LRI No:SEAAL22010353A	Date: 20-01-2022	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 14-01-2022


SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN22010129
Sample Name	Ambient Air	Sample Received on	15-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	17-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	20-01-2022

DETAILS OF SAMPLING			
Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	14-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	48.6	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.9	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.05	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.05	Max 80

Remarks:


Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report


Laiju P.N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No:TC540222000000354F		
LRI No:SEAAL22010354A	Date: 20-01-2022	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 14-01-2022

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN22010130
Sample Name	Ambient Air	Sample Received on	15-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	17-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	20-01-2022

DETAILS OF SAMPLING			
Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	14-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	58.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	28.7	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.70	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.49	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



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Laiju P.N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: sealab@gmail.com

TEST REPORT

ULR No:TC540222000000355F		
LRI No:SEAAL22010355A	Date: 20-01-2022	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 14-01-2022


SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN22010131
Sample Name	Ambient Air	Sample Received on	15-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	17-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	20-01-2022

DETAILS OF SAMPLING			
Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	14-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	51.0	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	30.2	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.00	Max 80

Remarks:


Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report


Laiju P.N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No:TC540222000000356F		
LRI No:SEAAL22010356A	Date: 20-01-2022	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 14-01-2022

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN22010132
Sample Name	Ambient Air	Sample Received on	15-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	17-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	20-01-2022

DETAILS OF SAMPLING			
Sampling Location	Karimbili Masjid	Date of Sampling	14-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	52.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	25.9	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.01	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.90	Max 80

Remarks:

Shency Joy
Dy. TM Chemical

Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000438F

LRI No:SEAAL22010438A

Date: 24-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address
Mr. Arashak Ali E.K
 S/o Ali Moideen E.K
 Edathola Kottasseri, Malabar Manzil,
 Eranippadi, Kannamangalam P.O.,
 Malappuram District

Customer Reference
 Test Request dt: 18-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010182
Sample Name	Ambient Air	Sample Received on	19-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	20-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	24-01-2022

DETAILS OF SAMPLING

Sampling Location	Project site	Date of Sampling	18-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	53.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	31.3	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:

Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report

Laiju P. N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No:TC540222000000439F

LRI No:SEAAL22010439A

Date: 24-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 18-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010183
Sample Name	Ambient Air	Sample Received on	19-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	20-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	24-01-2022

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	18-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	63.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	33.5	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.48	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.91	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000440F

LRI No:SEAAL22010440A

Date: 24-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 18-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010184
Sample Name	Ambient Air	Sample Received on	19-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	20-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	24-01-2022

DETAILS OF SAMPLING

Sampling Location	KP Store, Myladi	Date of Sampling	18-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	65.0	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	37.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.58	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.44	Max 80

Remarks:

Shency Joy
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000441F

LRI No:SEAAL22010441A

Date: 24-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 18-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010185
Sample Name	Ambient Air	Sample Received on	19-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	20-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	24-01-2022

DETAILS OF SAMPLING

Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	18-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	49.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	27.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.03	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.10	Max 80

Remarks:

Shency Joy
Dy. TM Chemical

Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000442F

LRI No:SEAAL22010442A

Date: 24-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 18-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010186
Sample Name	Ambient Air	Sample Received on	19-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	20-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	24-01-2022

DETAILS OF SAMPLING

Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	18-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	59.1	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	29.0	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.65	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.44	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000443F

LRI No:SEAAL22010443A

Date: 24-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 18-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010187
Sample Name	Ambient Air	Sample Received on	19-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	20-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	24-01-2022

DETAILS OF SAMPLING

Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	18-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	51.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	30.6	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.09	Max 80

Remarks:

[Signature]

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

[Signature]

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000444F

LRI No:SEAL22010444A	Date: 24-01-2022	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 18-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010188
Sample Name	Ambient Air	Sample Received on	19-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	20-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	24-01-2022

DETAILS OF SAMPLING

Sampling Location	Karimbili Masjid	Date of Sampling	18-01-2022
Sampling Procedure	SEAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	53.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.4	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	20.8	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.92	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000000561F

LRI No:SEAAL22010561A

Date: 28-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 21-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010199
Sample Name	Ambient Air	Sample Received on	22-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	24-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	28-01-2022

DETAILS OF SAMPLING

Sampling Location	Project site	Date of Sampling	21-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	53.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	31.5	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000000562F

LRI No:SEAAL22010562A

Date: 28-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 21-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010200
Sample Name	Ambient Air	Sample Received on	22-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	24-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	28-01-2022

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	21-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	63.6	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	33.8	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.40	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.88	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: sealab@gmail.com

TEST REPORT

ULR No: TC540222000000563F

LRI No:SEAAL22010563A

Date: 28-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 21-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010201
Sample Name	Ambient Air	Sample Received on	22-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	24-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	28-01-2022

DETAILS OF SAMPLING

Sampling Location	KP Store, Myladi	Date of Sampling	21-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

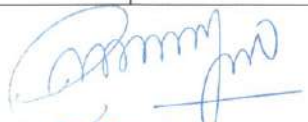
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	64.0	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	36.6	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.60	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.13	Max 80

Remarks:


Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report


Laiju P. N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No: TC540222000000564F

LRI No:SEAAL22010564A

Date: 28-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 21-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010202
Sample Name	Ambient Air	Sample Received on	22-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	24-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	28-01-2022

DETAILS OF SAMPLING

Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	21-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	49.0	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.5	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.10	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.05	Max 80

Remarks:

Shency Joy
Dy. TM Chemical

Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000000565F

LRI No:SEAAL22010565A

Date: 28-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 21-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010203
Sample Name	Ambient Air	Sample Received on	22-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	24-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	28-01-2022

DETAILS OF SAMPLING

Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	21-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS


Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	59.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	29.4	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.68	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.12	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



End of Report


Laiju R.N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000000566F

LRI No:SEAAL22010566A	Date: 28-01-2022	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 21-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010204
Sample Name	Ambient Air	Sample Received on	22-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	24-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	28-01-2022

DETAILS OF SAMPLING

Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	21-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	51.7	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	30.8	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.88	Max 80

Remarks:

Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report

Laiju P. N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No: TC540222000000567F

LRI No:SEAAL22010567A

Date: 28-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 21-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010205
Sample Name	Ambient Air	Sample Received on	22-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	24-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	28-01-2022

DETAILS OF SAMPLING

Sampling Location	Karimbili Masjid	Date of Sampling	21-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	53.6	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.2	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.10	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.85	Max 80

Remarks:

End of Report

Shency Joy
 Dy. TM Chemical
 Checked by:



Laiju P.N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No: TC540222000000652F

LRI No:SEAAL22020041A

Date: 01-02-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 25-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010234
Sample Name	Ambient Air	Sample Received on	27-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	27-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	01-02-2022

DETAILS OF SAMPLING

Sampling Location	Project site	Date of Sampling	25-01-2022
Sampling Procedure	SEAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	50.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	29.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:


Shency Joy
 Dy. TM, Chemical
 Checked by:



End of Report


Laiju P. N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No: TC540222000000653F

LRI No: SEAL22020042A	Date: 01-02-2022	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 25-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010235
Sample Name	Ambient Air	Sample Received on	27-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	27-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	01-02-2022

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	25-01-2022
Sampling Procedure	SEAL/ENL/GEN/SOP/02	Humidity	68%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

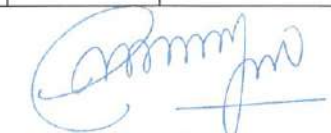
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	58.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.8	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.48	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.85	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



End of Report


Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000000654F

LRI No:SEAAL22020043A

Date: 01-02-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 25-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010236
Sample Name	Ambient Air	Sample Received on	27-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	27-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	01-02-2022

DETAILS OF SAMPLING

Sampling Location	KP Store, Myladi	Date of Sampling	25-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	62.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	34.8	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.50	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.10	Max 80

Remarks:

End of Report

Shency Joy
Dy. TM Chemical

Checked by:



Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000000655F

LRI No:SEAL22020044A

Date: 01-02-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 25-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010237
Sample Name	Ambient Air	Sample Received on	27-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	27-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	01-02-2022

DETAILS OF SAMPLING

Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	25-01-2022
Sampling Procedure	SEAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	49.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.9	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.12	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.08	Max 80

Remarks:

End of Report

Shency Joy
Dy. TM Chemical
Checked by:



Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000000656F

LRI No:SEAAL22020045A

Date: 01-02-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 25-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010238
Sample Name	Ambient Air	Sample Received on	27-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	27-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	01-02-2022

DETAILS OF SAMPLING

Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	25-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	58.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	28.3	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.72	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.10	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000000657F

LRI No:SEAAL22020046A

Date: 01-02-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 25-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010239
Sample Name	Ambient Air	Sample Received on	27-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	27-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	01-02-2022

DETAILS OF SAMPLING

Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	25-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS


Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	52.1	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	31.2	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.90	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



End of Report


Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No: TC540222000000658F

LRI No:SEAAL22020047A

Date: 01-02-2022

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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 25-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010240
Sample Name	Ambient Air	Sample Received on	27-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	27-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	01-02-2022

DETAILS OF SAMPLING

Sampling Location	Karimbili Masjid	Date of Sampling	25-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	54.1	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.7	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.05	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.75	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No: TC540222000000723F

LRI No:SEAAL22020112A

Date: 03-02-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 28-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010260
Sample Name	Ambient Air	Sample Received on	29-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	30-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	03-02-2022

DETAILS OF SAMPLING

Sampling Location	Project site	Date of Sampling	28-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

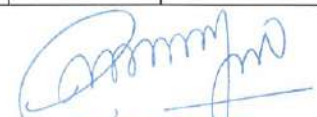
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	50.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	29.6	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



End of Report


Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000000724F

LRI No:SEAAL22020113A

Date: 03-02-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 28-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010261
Sample Name	Ambient Air	Sample Received on	29-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	30-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	03-02-2022

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	28-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	58.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	27.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.50	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.92	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



End of Report


Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000000725F

LRI No:SEAAL22020114A

Date: 03-02-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 28-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010262
Sample Name	Ambient Air	Sample Received on	29-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	30-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	03-02-2022

DETAILS OF SAMPLING

Sampling Location	KP Store, Myladi	Date of Sampling	28-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	63.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	35.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.62	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.01	Max 80

Remarks:

End of Report

Shency Joy
Dy. TM Chemical
Checked by:



Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000000726F

LRI No:SEAAL22020115A

Date: 03-02-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 28-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010263
Sample Name	Ambient Air	Sample Received on	29-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	30-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	03-02-2022

DETAILS OF SAMPLING

Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	28-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS


Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	49.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	27.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.10	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.12	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



End of Report


Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000000727F

LRI No:SEAAL22020116A

Date: 03-02-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 28-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010264
Sample Name	Ambient Air	Sample Received on	29-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	30-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	03-02-2022

DETAILS OF SAMPLING

Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	28-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	58.9	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	28.4	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.65	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.12	Max 80

Remarks:

Shency Joy
Dy. TM Chemical

Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000000728F

LRI No:SEAAL22020117A	Date: 03-02-2022	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 28-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010265
Sample Name	Ambient Air	Sample Received on	29-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	30-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	03-02-2022

DETAILS OF SAMPLING

Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	28-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	52.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	31.3	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.85	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000000729F

LRI No:SEAAL22020118A

Date: 03-02-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 28-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010266
Sample Name	Ambient Air	Sample Received on	29-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	30-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	03-02-2022

DETAILS OF SAMPLING

Sampling Location	Karimbili Masjid	Date of Sampling	28-01-2022
Sampling Procedure	SEAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	53.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	27.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.01	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.88	Max 80

Remarks:

Shency Joy
Dy. TM Chemical

Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC54022200000219F

LRI No:SEAAL22010219A

Date: 10-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address
Mr. Arashak Ali E.K
 S/o Ali Moideen E.K
 Edathola Kottasseri, Malabar Manzil,
 Eranippadi, Kannamangalam P.O.,
 Malappuram District

Customer Reference
 Test Request dt: 04-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010040
Sample Name	Ambient Air	Sample Received on	05-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	06-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	10-01-2022

DETAILS OF SAMPLING

Sampling Location	Project site	Date of Sampling	04-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	49.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	28.4	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:

Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report

Laiju P. N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No:TC540222000000220F

LRI No:SEAAL22010220A

Date: 10-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address
Mr. Arashak Ali E.K
 S/o Ali Moideen E.K
 Edathola Kottasseri, Malabar Manzil,
 Eranippadi, Kannamangalam P.O.,
 Malappuram District

Customer Reference
 Test Request dt: 04-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010041
Sample Name	Ambient Air	Sample Received on	05-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	06-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	10-01-2022

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	04-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	60.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	28.4	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.45	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.85	Max 80

Remarks:

Shency Joy
 D. TM Chemical
 Checked by:



End of Report

Laiju P. N.
 Laboratory Head
 Authorized Signatory

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 Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC54022200000221F

LRI No:SEAAL22010221A

Date: 10-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 04-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010042
Sample Name	Ambient Air	Sample Received on	05-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	06-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	10-01-2022

DETAILS OF SAMPLING

Sampling Location	KP Store, Myladi	Date of Sampling	04-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	62.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	34.2	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.58	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.12	Max 80

Remarks:

End of Report

Shency Joy
Checked by: al



Laju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: sealab@gmail.com

TEST REPORT

ULR No:TC540222000000222F

LRI No:SEAAL22010222A

Date: 10-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 04-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010043
Sample Name	Ambient Air	Sample Received on	05-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	06-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	10-01-2022

DETAILS OF SAMPLING

Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	04-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	46.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	24.8	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.98	Max 80

Remarks:

Shency Joy
Checked by:



End of Report

Lajju P.N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000223F

LRI No:SEAAL22010223A

Date: 10-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 04-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010044
Sample Name	Ambient Air	Sample Received on	05-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	06-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	10-01-2022

DETAILS OF SAMPLING

Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	04-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	55.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	28.6	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.64	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3-12	Max 80

Remarks:

Shency Joy
Dr. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC54022200000224F

LRI No:SEAAL22010224A

Date: 10-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 04-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010045
Sample Name	Ambient Air	Sample Received on	05-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	06-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	10-01-2022

DETAILS OF SAMPLING

Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	04-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	48.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.4	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.95	Max 80

Remarks:

Shency Joy
By TM Chemical
Checked by:



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Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC54022200000225F

LRI No:SEAAL22010225A

Date: 10-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 04-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010046
Sample Name	Ambient Air	Sample Received on	05-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	06-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	10-01-2022

DETAILS OF SAMPLING

Sampling Location	Karimbili Masjid	Date of Sampling	04-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	41.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	20.6	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.98	Max 80

Remarks:

Shency Joy
Checked by:



End of Report

Laiju P.N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000263F

LRI No:SEAAL22010263A

Date: 14-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address
Mr. Arashak Ali E.K
 S/o Ali Moideen E.K
 Edathola Kottasseri, Malabar Manzil,
 Eranippadi, Kannamangalam P.O.,
 Malappuram District

Customer Reference
 Test Request dt: 07-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010061
Sample Name	Ambient Air	Sample Received on	08-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	10-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	14-01-2022

DETAILS OF SAMPLING

Sampling Location	Project site	Date of Sampling	07-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	50.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	29.2	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:

Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report

Laiju P. N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No:TC540222000000264F

LRI No:SEAAL22010264A

Date: 14-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address
Mr. Arashak Ali E.K
 S/o Ali Moideen E.K
 Edathola Kottasseri, Malabar Manzil,
 Eranippadi, Kannamangalam P.O.,
 Malappuram District

Customer Reference
 Test Request dt: 07-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010062
Sample Name	Ambient Air	Sample Received on	08-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	10-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	14-01-2022

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	07-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	60.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	28.9	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.52	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.98	Max 80

Remarks:

End of Report

Shency Joy
 Dr. TM Chemical
 Checked by:



Laiju P. N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No:TC540222000000265F

LRI No:SEAL22010265A

Date: 14-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 07-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010063
Sample Name	Ambient Air	Sample Received on	08-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	10-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	14-01-2022

DETAILS OF SAMPLING

Sampling Location	KP Store, Myladi	Date of Sampling	07-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	63.0	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	35.4	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.64	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.25	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000266F

LRI No:SEAAL22010266A

Date: 14-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 07-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010064
Sample Name	Ambient Air	Sample Received on	08-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	10-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	14-01-2022

DETAILS OF SAMPLING

Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	07-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	47.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	25.0	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.01	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.01	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P.N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC54022200000267F		
LRI No:SEAAL22010267A	Date: 14-01-2022	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 07-01-2022

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN22010065
Sample Name	Ambient Air	Sample Received on	08-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	10-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	14-01-2022

DETAILS OF SAMPLING			
Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	07-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	56.0	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	29.0	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.75	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.24	Max 80

Remarks:

Shency Joy
Dy. Checked by:



End of Report

Laju P.N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: sealab@gmail.com

TEST REPORT

ULR No:TC540222000000268F		
LRI No:SEAAL22010268A	Date: 14-01-2022	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 07-01-2022

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN22010066
Sample Name	Ambient Air	Sample Received on	08-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	10-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	14-01-2022

DETAILS OF SAMPLING			
Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	07-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	49.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	28.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.01	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P.N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000269F		
LRI No:SEAAL22010269A	Date: 14-01-2022	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 07-01-2022

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN22010067
Sample Name	Ambient Air	Sample Received on	08-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	10-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	14-01-2022

DETAILS OF SAMPLING			
Sampling Location	Karimbili Masjid	Date of Sampling	07-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	49.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	24.7	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.96	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.88	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000286F

LRI No:SEAAL22010286A

Date: 17-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 11-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010094
Sample Name	Ambient Air	Sample Received on	12-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	13-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	17-01-2022

DETAILS OF SAMPLING

Sampling Location	Project site	Date of Sampling	11-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS


Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	52.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	30.5	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



End of Report


Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: sealab@gmail.com

TEST REPORT

ULR No:TC540222000000287F

LRI No:SEAAL22010287A

Date: 17-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address
Mr. Arashak Ali E.K
 S/o Ali Moideen E.K
 Edathola Kottasseri, Malabar Manzil,
 Eranippadi, Kannamangalam P.O.,
 Malappuram District

Customer Reference
 Test Request dt: 11-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010095
Sample Name	Ambient Air	Sample Received on	12-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	13-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	17-01-2022

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	11-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	62.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	32.5	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.48	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.89	Max 80

Remarks:


Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report


Laiju P. N.
 Laboratory Head
 Authorized Signatory

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 Web: www.sealabs.in, E-mail: sealab@gmail.com

TEST REPORT

ULR No:TC540222000000288F

LRI No:SEAAL22010288A

Date: 17-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address
Mr. Arashak Ali E.K
 S/o Ali Moideen E.K
 Edathola Kottasseri, Malabar Manzil,
 Eranippadi, Kannamangalam P.O.,
 Malappuram District

Customer Reference
 Test Request dt: 11-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010096
Sample Name	Ambient Air	Sample Received on	12-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	13-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	17-01-2022

DETAILS OF SAMPLING

Sampling Location	KP Store, Myladi	Date of Sampling	11-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

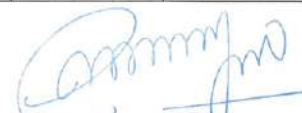
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	64.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	36.8	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.65	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.45	Max 80

Remarks:


Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report


Laiju P. N.
 Laboratory Head
 Authorized Signatory

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 Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000289F

LRI No:SEAAL22010289A

Date: 17-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address
Mr. Arashak Ali E.K
 S/o Ali Moideen E.K
 Edathola Kottasseri, Malabar Manzil,
 Eranippadi, Kannamangalam P.O.,
 Malappuram District

Customer Reference
 Test Request dt: 11-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010097
Sample Name	Ambient Air	Sample Received on	12-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	13-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	17-01-2022

DETAILS OF SAMPLING

Sampling Location	Yoosuf Pullat's Diary Farm	Date of Sampling	11-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS


Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	48.1	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.4	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.12	Max 80

Remarks:


Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report


Laiju P. N.
 Laboratory Head
 Authorized Signatory

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 Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC54022200000290F		
LRI No:SEAAL22010290A	Date: 17-01-2022	Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 11-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010098
Sample Name	Ambient Air	Sample Received on	12-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	13-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	17-01-2022

DETAILS OF SAMPLING

Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	11-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	58.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	28.2	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.68	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.45	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC54022200000291F

LRI No:SEAAL22010291A

Date: 17-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 11-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010099
Sample Name	Ambient Air	Sample Received on	12-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	13-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	17-01-2022

DETAILS OF SAMPLING

Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	11-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	50.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	29.6	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.98	Max 80

Remarks:


Shency Joy
Checked by:



End of Report


Lalju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000292F

LRI No:SEAAL22010292A

Date: 17-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 11-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010100
Sample Name	Ambient Air	Sample Received on	12-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	13-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	17-01-2022

DETAILS OF SAMPLING

Sampling Location	Karimbili Masjid	Date of Sampling	11-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	52.3	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	25.6	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.95	Max 80

Remarks:

Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report

Laiju P.N.
 Laboratory Head
 Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000350F

LRI No:SEAAL22010350A

Date: 20-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 14-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010126
Sample Name	Ambient Air	Sample Received on	15-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	17-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	20-01-2022

DETAILS OF SAMPLING

Sampling Location	Project site	Date of Sampling	14-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	52.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	30.9	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:

End of Report

Shency Joy
Dy. TM Chemical
Checked by:



Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000351F

LRI No:SEAAL22010351A

Date: 20-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 14-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010127
Sample Name	Ambient Air	Sample Received on	15-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	17-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	20-01-2022

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	14-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	63.1	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	33.0	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.50	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.91	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000352F		
LRI No:SEAAL22010352A	Date: 20-01-2022	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 14-01-2022

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN22010128
Sample Name	Ambient Air	Sample Received on	15-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	17-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	20-01-2022

DETAILS OF SAMPLING			
Sampling Location	KP Store, Myladi	Date of Sampling	14-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala


TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	64.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	36.9	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.65	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.48	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



End of Report


Laju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000353F		
LRI No:SEAAL22010353A	Date: 20-01-2022	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 14-01-2022


SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN22010129
Sample Name	Ambient Air	Sample Received on	15-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	17-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	20-01-2022

DETAILS OF SAMPLING			
Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	14-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	48.6	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.9	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.05	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.05	Max 80

Remarks:


Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report


Laiju P.N.
 Laboratory Head
 Authorized Signatory

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 Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000354F		
LRI No:SEAAL22010354A	Date: 20-01-2022	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 14-01-2022

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN22010130
Sample Name	Ambient Air	Sample Received on	15-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	17-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	20-01-2022

DETAILS OF SAMPLING			
Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	14-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	58.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	28.7	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.70	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.49	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P.N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000355F		
LRI No:SEAAL22010355A	Date: 20-01-2022	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 14-01-2022


SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN22010131
Sample Name	Ambient Air	Sample Received on	15-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	17-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	20-01-2022

DETAILS OF SAMPLING			
Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	14-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	51.0	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	30.2	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.00	Max 80

Remarks:


Shency Joy
 Dy. TM Chemical
 Checked by:



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 Laboratory Head
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TEST REPORT

ULR No:TC540222000000356F		
LRI No:SEAAL22010356A	Date: 20-01-2022	Page 1 of 1

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 14-01-2022

SAMPLE DETAILS			
Product Category	Atmospheric Pollution	Sample Code	EN22010132
Sample Name	Ambient Air	Sample Received on	15-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	17-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	20-01-2022

DETAILS OF SAMPLING			
Sampling Location	Karimbili Masjid	Date of Sampling	14-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	52.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	25.9	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.01	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.90	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



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Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000438F

LRI No:SEAAL22010438A

Date: 24-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address
Mr. Arashak Ali E.K
 S/o Ali Moideen E.K
 Edathola Kottasseri, Malabar Manzil,
 Eranippadi, Kannamangalam P.O.,
 Malappuram District

Customer Reference
 Test Request dt: 18-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010182
Sample Name	Ambient Air	Sample Received on	19-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	20-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	24-01-2022

DETAILS OF SAMPLING

Sampling Location	Project site	Date of Sampling	18-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	53.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	31.3	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:

Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report

Laiju P. N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No:TC540222000000439F

LRI No:SEAAL22010439A

Date: 24-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 18-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010183
Sample Name	Ambient Air	Sample Received on	19-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	20-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	24-01-2022

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	18-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS


Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	63.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	33.5	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.48	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.91	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



End of Report


Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000440F

LRI No:SEAAL22010440A

Date: 24-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 18-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010184
Sample Name	Ambient Air	Sample Received on	19-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	20-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	24-01-2022

DETAILS OF SAMPLING

Sampling Location	KP Store, Myladi	Date of Sampling	18-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	65.0	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	37.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.58	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.44	Max 80

Remarks:

Shency Joy
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000000441F

LRI No:SEAAL22010441A

Date: 24-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 18-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010185
Sample Name	Ambient Air	Sample Received on	19-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	20-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	24-01-2022

DETAILS OF SAMPLING

Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	18-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	49.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	27.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.03	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.10	Max 80

Remarks:

Shency Joy
Dy. TM Chemical

Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000442F

LRI No:SEAAL22010442A

Date: 24-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 18-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010186
Sample Name	Ambient Air	Sample Received on	19-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	20-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	24-01-2022

DETAILS OF SAMPLING

Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	18-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	59.1	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	29.0	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.65	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.44	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
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Authorized Signatory

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TEST REPORT

ULR No:TC540222000000443F

LRI No:SEAAL22010443A

Date: 24-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 18-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010187
Sample Name	Ambient Air	Sample Received on	19-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	20-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	24-01-2022

DETAILS OF SAMPLING

Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	18-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	51.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	30.6	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.09	Max 80

Remarks:

[Signature]

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

[Signature]

Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000000444F

LRI No:SEAL22010444A	Date: 24-01-2022	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 18-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010188
Sample Name	Ambient Air	Sample Received on	19-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	20-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	24-01-2022

DETAILS OF SAMPLING

Sampling Location	Karimbili Masjid	Date of Sampling	18-01-2022
Sampling Procedure	SEAL/ENL/GEN/SOP/02	Humidity	69%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS


Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	53.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.4	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	20.8	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.92	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



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Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No: TC54022200000561F

LRI No:SEAAL22010561A

Date: 28-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 21-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010199
Sample Name	Ambient Air	Sample Received on	22-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	24-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	28-01-2022

DETAILS OF SAMPLING

Sampling Location	Project site	Date of Sampling	21-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	53.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	31.5	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No: TC540222000000562F

LRI No:SEAAL22010562A

Date: 28-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 21-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010200
Sample Name	Ambient Air	Sample Received on	22-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	24-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	28-01-2022

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	21-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	63.6	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	33.8	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.40	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.88	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC54022200000563F

LRI No:SEAAL22010563A

Date: 28-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 21-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010201
Sample Name	Ambient Air	Sample Received on	22-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	24-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	28-01-2022

DETAILS OF SAMPLING

Sampling Location	KP Store, Myladi	Date of Sampling	21-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

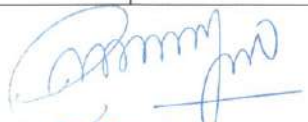
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	64.0	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	36.6	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.60	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.13	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



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Authorized Signatory

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TEST REPORT

ULR No: TC540222000000564F

LRI No:SEAAL22010564A

Date: 28-01-2022

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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 21-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010202
Sample Name	Ambient Air	Sample Received on	22-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	24-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	28-01-2022

DETAILS OF SAMPLING

Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	21-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	49.0	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.5	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.10	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.05	Max 80

Remarks:

Shency Joy

Shency Joy
Dy. TM Chemical

Checked by:



End of Report

Laiju P. N.

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000000565F

LRI No:SEAAL22010565A

Date: 28-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 21-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010203
Sample Name	Ambient Air	Sample Received on	22-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	24-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	28-01-2022

DETAILS OF SAMPLING

Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	21-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS


Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	59.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	29.4	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.68	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.12	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



End of Report


Laiju R.N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000000566F

LRI No:SEAAL22010566A

Date: 28-01-2022

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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 21-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010204
Sample Name	Ambient Air	Sample Received on	22-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	24-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	28-01-2022

DETAILS OF SAMPLING

Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	21-01-2022
Sampling Procedure	SEAL/ENL/GEN/SOP/02	Humidity	68%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	51.7	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	30.8	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.88	Max 80

Remarks:


Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report


Laiju P. N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No: TC540222000000567F

LRI No:SEAAL22010567A

Date: 28-01-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 21-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010205
Sample Name	Ambient Air	Sample Received on	22-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	24-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	28-01-2022

DETAILS OF SAMPLING

Sampling Location	Karimbili Masjid	Date of Sampling	21-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	53.6	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.2	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.10	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.85	Max 80

Remarks:

End of Report

Shency Joy
Dy. TM Chemical
Checked by:



Laiju P.N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No: TC540222000000652F

LRI No:SEAAL22020041A

Date: 01-02-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 25-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010234
Sample Name	Ambient Air	Sample Received on	27-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	27-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	01-02-2022

DETAILS OF SAMPLING

Sampling Location	Project site	Date of Sampling	25-01-2022
Sampling Procedure	SEAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	50.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	29.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:


Shency Joy
 Dy. TM, Chemical
 Checked by:



End of Report


Laiju P. N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No: TC540222000000653F

LRI No: SEAL22020042A	Date: 01-02-2022	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 25-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010235
Sample Name	Ambient Air	Sample Received on	27-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	27-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	01-02-2022

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	25-01-2022
Sampling Procedure	SEAL/ENL/GEN/SOP/02	Humidity	68%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

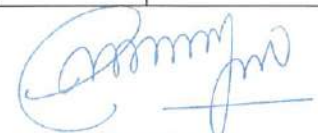
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	58.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.8	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.48	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.85	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



End of Report


Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000000654F

LRI No:SEAAL22020043A

Date: 01-02-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 25-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010236
Sample Name	Ambient Air	Sample Received on	27-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	27-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	01-02-2022

DETAILS OF SAMPLING

Sampling Location	KP Store, Myladi	Date of Sampling	25-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	62.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	34.8	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.50	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.10	Max 80

Remarks:

Shency Joy
Dy. TM Chemical

Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000000655F

LRI No:SEAL22020044A

Date: 01-02-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 25-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010237
Sample Name	Ambient Air	Sample Received on	27-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	27-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	01-02-2022

DETAILS OF SAMPLING

Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	25-01-2022
Sampling Procedure	SEAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	49.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.9	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.12	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.08	Max 80

Remarks:

End of Report

Shency Joy
Dy. TM Chemical
Checked by:



Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: sealab@gmail.com

TEST REPORT

ULR No: TC540222000000656F

LRI No:SEAAL22020045A

Date: 01-02-2022

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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 25-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010238
Sample Name	Ambient Air	Sample Received on	27-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	27-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	01-02-2022

DETAILS OF SAMPLING

Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	25-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	58.5	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	28.3	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.72	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.10	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No: TC540222000000657F

LRI No:SEAAL22020046A

Date: 01-02-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 25-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010239
Sample Name	Ambient Air	Sample Received on	27-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	27-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	01-02-2022

DETAILS OF SAMPLING

Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	25-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS


Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	52.1	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	31.2	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.90	Max 80

Remarks:


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Dy. TM Chemical
Checked by:



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TEST REPORT

ULR No: TC540222000000658F

LRI No:SEAAL22020047A

Date: 01-02-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 25-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010240
Sample Name	Ambient Air	Sample Received on	27-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	27-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	01-02-2022

DETAILS OF SAMPLING

Sampling Location	Karimbili Masjid	Date of Sampling	25-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	54.1	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	26.7	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.05	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.75	Max 80

Remarks:

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Dy. TM Chemical
Checked by:



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TEST REPORT

ULR No: TC540222000000723F

LRI No:SEAAL22020112A

Date: 03-02-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 28-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010260
Sample Name	Ambient Air	Sample Received on	29-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	30-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	03-02-2022

DETAILS OF SAMPLING

Sampling Location	Project site	Date of Sampling	28-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

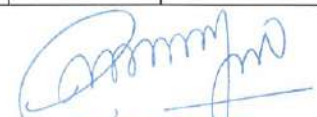
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	50.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	29.6	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	<2.00	Max 80

Remarks:


Shency Joy
 Dy. TM Chemical
 Checked by:



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Laiju P. N.
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TEST REPORT

ULR No: TC540222000000724F

LRI No:SEAAL22020113A

Date: 03-02-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 28-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010261
Sample Name	Ambient Air	Sample Received on	29-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	30-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	03-02-2022

DETAILS OF SAMPLING

Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	28-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	58.8	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	27.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.50	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.92	Max 80

Remarks:


Shency Joy
 Dy. TM Chemical
 Checked by:



End of Report


Laiju P. N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No: TC540222000000725F

LRI No:SEAAL22020114A

Date: 03-02-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 28-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010262
Sample Name	Ambient Air	Sample Received on	29-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	30-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	03-02-2022

DETAILS OF SAMPLING

Sampling Location	KP Store, Myladi	Date of Sampling	28-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS


Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	63.2	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	35.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.62	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.01	Max 80

Remarks:

End of Report


Shency Joy
Dy. TM Chemical
Checked by:




Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000000726F

LRI No:SEAAL22020115A

Date: 03-02-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 28-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010263
Sample Name	Ambient Air	Sample Received on	29-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	30-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	03-02-2022

DETAILS OF SAMPLING

Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	28-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%


SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS


Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	49.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	27.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.10	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.12	Max 80

Remarks:


Shency Joy
Dy. TM Chemical
Checked by:



End of Report


Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC54022200000727F

LRI No:SEAAL22020116A

Date: 03-02-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 28-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010264
Sample Name	Ambient Air	Sample Received on	29-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	30-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	03-02-2022

DETAILS OF SAMPLING


Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	28-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala


TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	58.9	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	28.4	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.65	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.12	Max 80

Remarks: 
Shency Joy
Dy. TM Chemical
Checked by:



End of Report


Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000000728F

LRI No:SEAAL22020117A	Date: 03-02-2022	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 28-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010265
Sample Name	Ambient Air	Sample Received on	29-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	30-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	03-02-2022

DETAILS OF SAMPLING

Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	28-01-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	52.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	31.3	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	<2.00	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	2.85	Max 80

Remarks:

Shency Joy
Dy. TM Chemical
Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000000729F

LRI No:SEAAL22020118A

Date: 03-02-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt: 28-01-2022

SAMPLE DETAILS

Product Category	Atmospheric Pollution	Sample Code	EN22010266
Sample Name	Ambient Air	Sample Received on	29-01-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	30-01-2022
Sampled by	Lab Authorized Sampler	Test Completed on	03-02-2022

DETAILS OF SAMPLING

Sampling Location	Karimbili Masjid	Date of Sampling	28-01-2022
Sampling Procedure	SEAL/ENL/GEN/SOP/02	Humidity	68%

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	NAAQ Standards
1	Particulate Matter, PM ₁₀	IS 5182 (Part 23):2006	µg/m ³	53.4	Max 100
2	Particulate Matter, PM _{2.5}	IS 5182 (Part 24):2006	µg/m ³	27.1	Max 60
3	Sulphur Dioxide as SO ₂	IS 5182 (Part 2): 2001 RA 2017	µg/m ³	2.01	Max 80
4	Oxides of Nitrogen as NO ₂	IS 5182 (Part 6): 2006 RA 2017	µg/m ³	3.88	Max 80

Remarks:

Shency Joy
Dy. TM Chemical

Checked by:



End of Report

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000001565F		
LRI No:SEAAL22030213A	Date: 04-03-2022	Page 1 of 2

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt : 25-02-2022

SAMPLE DETAILS			
Product Category	Water	Sample Code	WT22020141
Sample Name	Ground Water	Sample Received on	26-02-2022
Sample Conditions at Receipt	Fit for Analysis	Temperature @ Receipt	6°C
Sample Quantity & Packing	2L & 500ml Plastic Bottles	Test Commenced on	28-02-2022
Sampled by	Lab Authorized Sampler	Test Completed on	03-03-2022

DETAILS OF SAMPLING			
Sampling Location	Project site	Date of Sampling	25-02-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/01 & SEAAL/MBL/SOP/06	Sample Temperature	31 °C

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
1	Colour	IS 3025 (Part 4):1983 RA 2017	Hazen	1.00	Max 5
2	Odour	IS 3025 (Part 5):2018	---	Agreeable	Agreeable
3	Turbidity	IS 3025 (Part 10):1984 RA 2017	NTU	2.10	Max 1

Shency Joy
Dr. TM Chemical
Checked by:



Salini T. S.
Microbiologist
Authorized Signatory

Laiju P.N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000001565F		
LRI No:SEAL22030213A	Date: 04-03-2022	Page 2 of 2

TEST RESULTS- CHEMICAL PARAMETERS

Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
4	pH	IS 3025 (Part 11):1983 RA 2017	---	5.71	6.50 – 8.50
5	Conductivity	IS 3025 (Part 14):1984 RA 2019	µS/cm	101	---
6	Total Dissolved Solids	IS 3025 (Part 16):1984 RA 2017	mg/L	64.0	Max 500
7	Total Hardness as CaCO ₃	IS 3025 (Part 21):2009 RA 2019	mg/L	26.5	Max 200
8	Calcium as Ca	IS 3025 (Part 40):1991 RA 2019	mg/L	5.60	Max 75
9	Magnesium as Mg	IS 3025 (Part 46):1994 RA 2019	mg/L	2.98	Max 30
10	Chloride as Cl	IS 3025 (Part 32):1988 RA 2019	mg/L	15.9	Max 250
11	Total Alkalinity as CaCO ₃	IS 3025 (Part 23):1986 RA 2019	mg/L	16.1	Max 200
12	Iron as Fe	IS 3025 (Part 53):2003 RA 2019	mg/L	0.63	Max 1
13	Sulphate as SO ₄	IS 3025 (Part 24):1986 RA 2019	mg/L	1.77	Max 200

TEST RESULTS - BIOLOGICAL PARAMETERS

Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
1	Total Coliform Bacteria	IS 15185 : 2016	----	Absent/100 ml	Absent/100 ml
2	E coli	IS 15185 : 2016	----	Absent/100 ml	Absent/100 ml

Remarks:

End of Report

Shency Joy
Dy. TM Chemical
Checked by:



Salini T. S.
Microbiologist
Authorized Signatory

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000001567F		
LRI No:SEAAL22030215A	Date: 04-03-2022	Page 1 of 2

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasserri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt : 25-02-2022

SAMPLE DETAILS			
Product Category	Water	Sample Code	WT22020143
Sample Name	Ground Water	Sample Received on	26-02-2022
Sample Conditions at Receipt	Fit for Analysis	Temperature @ Receipt	6°C
Sample Quantity & Packing	2L & 500ml Plastic Bottles	Test Commenced on	28-02-2022
Sampled by	Lab Authorized Sampler	Test Completed on	03-03-2022

DETAILS OF SAMPLING			
Sampling Location	Anthaloos Mini Stadium, Arimbra	Date of Sampling	25-02-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/01& SEAAL/MBL/SOP/06	Sample Temperature	31 °C

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
1	Colour	IS 3025 (Part 4):1983 RA 2017	Hazen	1.00	Max 5
2	Odour	IS 3025 (Part 5):2018	---	Agreeable	Agreeable
3	Turbidity	IS 3025 (Part 10):1984 RA 2017	NTU	<0.1	Max 1

Shency Joy
Dy. TM Chemical
Checked by:



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Microbiologist
Authorized Signatory

Laiju P. N.
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TEST REPORT

ULR No:TC540222000001567F		
LRI No:SEAL22030215A	Date: 04-03-2022	Page 2 of 2

TEST RESULTS- CHEMICAL PARAMETERS


Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
4	pH	IS 3025 (Part 11):1983 RA 2017	---	5.66	6.50 – 8.50
5	Conductivity	IS 3025 (Part 14):1984 RA 2019	μS/cm	104	---
6	Total Dissolved Solids	IS 3025 (Part 16):1984 RA 2017	mg/L	65.0	Max 500
7	Total Hardness as CaCO ₃	IS 3025 (Part 21):2009 RA 2019	mg/L	26.5	Max 200
8	Calcium as Ca	IS 3025 (Part 40):1991 RA 2019	mg/L	5.60	Max 75
9	Magnesium as Mg	IS 3025 (Part 46):1994 RA 2019	mg/L	2.98	Max 30
10	Chloride as Cl	IS 3025 (Part 32):1988 RA 2019	mg/L	15.9	Max 250
11	Total Alkalinity as CaCO ₃	IS 3025 (Part 23):1986 RA 2019	mg/L	12.1	Max 200
12	Iron as Fe	IS 3025 (Part 53):2003 RA 2019	mg/L	0.15	Max 1
13	Sulphate as SO ₄	IS 3025 (Part 24):1986 RA 2019	mg/L	1.93	Max 200

TEST RESULTS - BIOLOGICAL PARAMETERS

Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
1	Total Coliform Bacteria	IS 15185 : 2016	----	Absent/100 ml	Absent/100 ml
2	E coli	IS 15185 : 2016	----	Absent/100 ml	Absent/100 ml

Remarks:

End of Report


Shency Joy
 Dy. TM Chemical
 Checked by:




Salini T. S.
 Microbiologist
 Authorized Signatory


Laiju P. N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No:TC540222000001568F		
LRI No:SEAAL22030216A	Date: 04-03-2022	Page 1 of 2

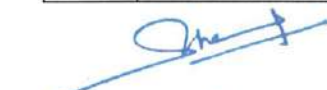
CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt : 25-02-2022

SAMPLE DETAILS			
Product Category	Water	Sample Code	WT22020144
Sample Name	Ground Water	Sample Received on	26-02-2022
Sample Conditions at Receipt	Fit for Analysis	Temperature @ Receipt	6°C
Sample Quantity & Packing	2L & 500ml Plastic Bottles	Test Commenced on	28-02-2022
Sampled by	Lab Authorized Sampler	Test Completed on	03-03-2022

DETAILS OF SAMPLING			
Sampling Location	KP Store, Myladi	Date of Sampling	25-02-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/01& SEAAL/MBL/SOP/06	Sample Temperature	31 °C

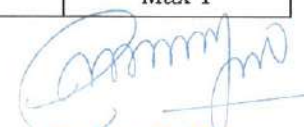
SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
1	Colour	IS 3025 (Part 4):1983 RA 2017	Hazen	1.00	Max 5
2	Odour	IS 3025 (Part 5):2018	---	Agreeable	Agreeable
3	Turbidity	IS 3025 (Part 10):1984 RA 2017	NTU	0.1	Max 1


Shency Joy
Dy. TM Chemical
Checked by:




Salini T. S.
Microbiologist
Authorized Signatory


Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000001568F		
LRI No:SEAL22030216A	Date: 04-03-2022	Page 2 of 2

TEST RESULTS- CHEMICAL PARAMETERS


Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
4	pH	IS 3025 (Part 11):1983 RA 2017	---	6.21	6.50 – 8.50
5	Conductivity	IS 3025 (Part 14):1984 RA 2019	µS/cm	494	---
6	Total Dissolved Solids	IS 3025 (Part 16):1984 RA 2017	mg/L	197	Max 500
7	Total Hardness as CaCO ₃	IS 3025 (Part 21):2009 RA 2019	mg/L	85.7	Max 200
8	Calcium as Ca	IS 3025 (Part 40):1991 RA 2019	mg/L	30.4	Max 75
9	Magnesium as Mg	IS 3025 (Part 46):1994 RA 2019	mg/L	1.98	Max 30
10	Chloride as Cl	IS 3025 (Part 32):1988 RA 2019	mg/L	53.9	Max 250
11	Total Alkalinity as CaCO ₃	IS 3025 (Part 23):1986 RA 2019	mg/L	48.2	Max 200
12	Iron as Fe	IS 3025 (Part 53):2003 RA 2019	mg/L	0.18	Max 1
13	Sulphate as SO ₄	IS 3025 (Part 24):1986 RA 2019	mg/L	2.38	Max 200

TEST RESULTS - BIOLOGICAL PARAMETERS

Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
1	Total Coliform Bacteria	IS 15185 : 2016	----	Absent/100 ml	Absent/100 ml
2	E coli	IS 15185 : 2016	----	Absent/100 ml	Absent/100 ml


Remarks:

End of Report


Shency Joy
 Dy. TM Chemical
 Checked by:




Salini T. S.
 Microbiologist
 Authorized Signatory


Laiju P. W.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No:TC540222000001569F		
LRI No:SEAAL22030217A	Date: 04-03-2022	Page 1 of 2

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt : 25-02-2022

SAMPLE DETAILS			
Product Category	Water	Sample Code	WT22020145
Sample Name	Ground Water	Sample Received on	26-02-2022
Sample Conditions at Receipt	Fit for Analysis	Temperature @ Receipt	6°C
Sample Quantity & Packing	2L & 500ml Plastic Bottles	Test Commenced on	28-02-2022
Sampled by	Lab Authorized Sampler	Test Completed on	03-03-2022

DETAILS OF SAMPLING			
Sampling Location	Yoosuf Pullat's Dairy Farm	Date of Sampling	25-02-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/01& SEAAL/MBL/SOP/06	Sample Temperature	31 °C

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
1	Colour	IS 3025 (Part 4):1983 RA 2017	Hazen	1.00	Max 5
2	Odour	IS 3025 (Part 5):2018	---	Agreeable	Agreeable
3	Turbidity	IS 3025 (Part 10):1984 RA 2017	NTU	7.90	Max 1

Shency Joy
Dy. TM Chemical
Checked by:



Salim T. S.
Microbiologist
Authorized Signatory

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT


ULR No:TC540222000001569F		
LRI No:SEAL22030217A	Date: 04-03-2022	Page 2 of 2

TEST RESULTS- CHEMICAL PARAMETERS					
Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
4	pH	IS 3025 (Part 11):1983 RA 2017	---	6.89	6.50 – 8.50
5	Conductivity	IS 3025 (Part 14):1984 RA 2019	µS/cm	474	---
6	Total Dissolved Solids	IS 3025 (Part 16):1984 RA 2017	mg/L	306	Max 500
7	Total Hardness as CaCO ₃	IS 3025 (Part 21):2009 RA 2019	mg/L	167	Max 200
8	Calcium as Ca	IS 3025 (Part 40):1991 RA 2019	mg/L	27.2	Max 75
9	Magnesium as Mg	IS 3025 (Part 46):1994 RA 2019	mg/L	23.8	Max 30
10	Chloride as Cl	IS 3025 (Part 32):1988 RA 2019	mg/L	12.9	Max 250
11	Total Alkalinity as CaCO ₃	IS 3025 (Part 23):1986 RA 2019	mg/L	155	Max 200
12	Iron as Fe	IS 3025 (Part 53):2003 RA 2019	mg/L	0.89	Max 1
13	Sulphate as SO ₄	IS 3025 (Part 24):1986 RA 2019	mg/L	8.09	Max 200

TEST RESULTS - BIOLOGICAL PARAMETERS					
Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
1	Total Coliform Bacteria	IS 15185 : 2016	----	Absent/100 ml	Absent/100 ml
2	E coli	IS 15185 : 2016	----	Absent/100 ml	Absent/100 ml


Remarks:

End of Report


Shency Joy
 Dy. TM Chemical
 Checked by:




Salini T. S.
 Microbiologist
 Authorized Signatory


Laiju P. N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No:TC540222000001570F

LRI No:SEAL22030218A

Date: 04-03-2022

Page 1 of 2

CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt : 25-02-2022

SAMPLE DETAILS

Product Category	Water	Sample Code	WT22020146
Sample Name	Ground Water	Sample Received on	26-02-2022
Sample Conditions at Receipt	Fit for Analysis	Temperature @ Receipt	6°C
Sample Quantity & Packing	2L & 500ml Plastic Bottles	Test Commenced on	28-02-2022
Sampled by	Lab Authorized Sampler	Test Completed on	03-03-2022

DETAILS OF SAMPLING

Sampling Location	Government Health Sub Centre, Kannamangalam	Date of Sampling	25-02-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/01& SEAAL/MBL/SOP/06	Sample Temperature	31 °C

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
1	Colour	IS 3025 (Part 4):1983 RA 2017	Hazen	1.00	Max 5
2	Odour	IS 3025 (Part 5):2018	---	Agreeable	Agreeable
3	Turbidity	IS 3025 (Part 10):1984 RA 2017	NTU	3.10	Max 1

Shency Joy
Dr. TM Chemical
Checked by:



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Microbiologist
Authorized Signatory

Laiju P. N.
Laboratory Head
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TEST REPORT


ULR No:TC540222000001570F		
LRI No:SEAL22030218A	Date: 04-03-2022	Page 2 of 2

TEST RESULTS- CHEMICAL PARAMETERS					
Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
4	pH	IS 3025 (Part 11):1983 RA 2017	---	7.01	6.50 – 8.50
5	Conductivity	IS 3025 (Part 14):1984 RA 2019	µS/cm	275	---
6	Total Dissolved Solids	IS 3025 (Part 16):1984 RA 2017	mg/L	178	Max 500
7	Total Hardness as CaCO ₃	IS 3025 (Part 21):2009 RA 2019	mg/L	87.7	Max 200
8	Calcium as Ca	IS 3025 (Part 40):1991 RA 2019	mg/L	21.6	Max 75
9	Magnesium as Mg	IS 3025 (Part 46):1994 RA 2019	mg/L	7.94	Max 30
10	Chloride as Cl	IS 3025 (Part 32):1988 RA 2019	mg/L	15.9	Max 250
11	Total Alkalinity as CaCO ₃	IS 3025 (Part 23):1986 RA 2019	mg/L	64.3	Max 200
12	Iron as Fe	IS 3025 (Part 53):2003 RA 2019	mg/L	0.68	Max 1
13	Sulphate as SO ₄	IS 3025 (Part 24):1986 RA 2019	mg/L	14.6	Max 200

TEST RESULTS - BIOLOGICAL PARAMETERS					
Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
1	Total Coliform Bacteria	IS 15185 : 2016	----	Absent/100 ml	Absent/100 ml
2	E coli	IS 15185 : 2016	----	Absent/100 ml	Absent/100 ml


Remarks:

End of Report


Shency Joy
 Dy. TM Chemical
 Checked by:




Salini T. S.
 Microbiologist
 Authorized Signatory


Laiju P.N.
 Laboratory Head
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TEST REPORT

ULR No:TC540222000001571F		
LRI No:SEAAL22030219A	Date: 04-03-2022	Page 1 of 2

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt : 25-02-2022

SAMPLE DETAILS			
Product Category	Water	Sample Code	WT22020147
Sample Name	Ground Water	Sample Received on	26-02-2022
Sample Conditions at Receipt	Fit for Analysis	Temperature @ Receipt	6°C
Sample Quantity & Packing	2L & 500ml Plastic Bottles	Test Commenced on	28-02-2022
Sampled by	Lab Authorized Sampler	Test Completed on	03-03-2022

DETAILS OF SAMPLING			
Sampling Location	Sub RTO Office, Kondotty	Date of Sampling	25-02-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/01& SEAAL/MBL/SOP/06	Sample Temperature	31 °C

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
1	Colour	IS 3025 (Part 4):1983 RA 2017	Hazen	1.00	Max 5
2	Odour	IS 3025 (Part 5):2018	---	Agreeable	Agreeable
3	Turbidity	IS 3025 (Part 10):1984 RA 2017	NTU	<0.1	Max 1

Shency Joy
Dy. TM Chemical
Checked by:



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Microbiologist
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Laiju P. N.
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TEST REPORT


ULR No:TC540222000001571F		
LRI No:SEAL22030219A	Date: 04-03-2022	Page 2 of 2

TEST RESULTS- CHEMICAL PARAMETERS					
Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
4	pH	IS 3025 (Part 11):1983 RA 2017	---	5.63	6.50 – 8.50
5	Conductivity	IS 3025 (Part 14):1984 RA 2019	µS/cm	360	---
6	Total Dissolved Solids	IS 3025 (Part 16):1984 RA 2017	mg/L	180	Max 500
7	Total Hardness as CaCO ₃	IS 3025 (Part 21):2009 RA 2019	mg/L	75.5	Max 200
8	Calcium as Ca	IS 3025 (Part 40):1991 RA 2019	mg/L	20.8	Max 75
9	Magnesium as Mg	IS 3025 (Part 46):1994 RA 2019	mg/L	5.46	Max 30
10	Chloride as Cl	IS 3025 (Part 32):1988 RA 2019	mg/L	39.9	Max 250
11	Total Alkalinity as CaCO ₃	IS 3025 (Part 23):1986 RA 2019	mg/L	34.2	Max 200
12	Iron as Fe	IS 3025 (Part 53):2003 RA 2019	mg/L	0.16	Max 1
13	Sulphate as SO ₄	IS 3025 (Part 24):1986 RA 2019	mg/L	6.42	Max 200

TEST RESULTS - BIOLOGICAL PARAMETERS					
Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
1	Total Coliform Bacteria	IS 15185 : 2016	----	Absent/100 ml	Absent/100 ml
2	E coli	IS 15185 : 2016	----	Absent/100 ml	Absent/100 ml


Remarks:

End of Report


Shency Joy
 Dy. TM Chemical
 Checked by:




Salini T. S.
 Microbiologist
 Authorized Signatory


Laiju P. N.
 Laboratory Head
 Authorized Signatory

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 Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000001572F		
LRI No:SEAAL22030220A	Date: 04-03-2022	Page 1 of 2

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt : 25-02-2022

SAMPLE DETAILS			
Product Category	Water	Sample Code	WT22020148
Sample Name	Ground Water	Sample Received on	26-02-2022
Sample Conditions at Receipt	Fit for Analysis	Temperature @ Receipt	6°C
Sample Quantity & Packing	2L & 500ml Plastic Bottles	Test Commenced on	28-02-2022
Sampled by	Lab Authorized Sampler	Test Completed on	03-03-2022

DETAILS OF SAMPLING			
Sampling Location	Karimbili Masjid	Date of Sampling	25-02-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/01& SEAAL/MBL/SOP/06	Sample Temperature	31 °C

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
1	Colour	IS 3025 (Part 4):1983 RA 2017	Hazen	1.00	Max 5
2	Odour	IS 3025 (Part 5):2018	---	Agreeable	Agreeable
3	Turbidity	IS 3025 (Part 10):1984 RA 2017	NTU	3.00	Max 1

Shency Joy
By: TM Chemical
Checked by:



Saini T. S.
Microbiologist
Authorized Signatory

Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000001572F		
LRI No:SEAAL22030220A	Date: 04-03-2022	Page 2 of 2

TEST RESULTS- CHEMICAL PARAMETERS

Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
4	pH	IS 3025 (Part 11):1983 RA 2017	---	6.48	6.50 – 8.50
5	Conductivity	IS 3025 (Part 14):1984 RA 2019	μS/cm	404	---
6	Total Dissolved Solids	IS 3025 (Part 16):1984 RA 2017	mg/L	260	Max 500
7	Total Hardness as CaCO ₃	IS 3025 (Part 21):2009 RA 2019	mg/L	122	Max 200
8	Calcium as Ca	IS 3025 (Part 40):1991 RA 2019	mg/L	28.8	Max 75
9	Magnesium as Mg	IS 3025 (Part 46):1994 RA 2019	mg/L	11.9	Max 30
10	Chloride as Cl	IS 3025 (Part 32):1988 RA 2019	mg/L	37.9	Max 250
11	Total Alkalinity as CaCO ₃	IS 3025 (Part 23):1986 RA 2019	mg/L	70.4	Max 200
12	Iron as Fe	IS 3025 (Part 53):2003 RA 2019	mg/L	0.43	Max 1
13	Sulphate as SO ₄	IS 3025 (Part 24):1986 RA 2019	mg/L	25.5	Max 200

TEST RESULTS - BIOLOGICAL PARAMETERS

Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
1	Total Coliform Bacteria	IS 15185 : 2016	----	Absent/100 ml	Absent/100 ml
2	E coli	IS 15185 : 2016	----	Absent/100 ml	Absent/100 ml

Remarks:


End of Report


Shency Joy
Dy. TM Chemical

Checked by:




Salini T. S.
Microbiologist
Authorized Signatory


Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000001557F

LRI No:SEAAL22030205A

Date: 04-03-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address
Mr. Arashak Ali E.K
 S/o Ali Moideen E.K
 Edathola Kottasseri, Malabar Manzil,
 Eranippadi, Kannamangalam P.O.,
 Malappuram District

Customer Reference
 Test Request dt : 25-02-2022

DETAILS OF MONITORING

Product Category	Atmospheric Pollution	Sample Code	EN22020292
Sample Name	Ambient Noise	Monitoring Commenced on	25-02-2022/ 06:00
Monitoring Location	Project Site	Monitoring Completed on	26-02-2022/ 06:00
Test Method	IS 9989:1981 RA:2008	Monitored by	Lab Authorized Sampler

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

MONITORING RESULTS - Leq

TIME	RESULTS dB(A)	TIME	RESULTS dB(A)	TIME	RESULTS dB(A)
06:00	33.4	14:00	44.7	22:00	32.3
07:00	35.8	15:00	45.1	23:00	32.1
08:00	39.6	16:00	46.1	24:00	34.4
09:00	42.7	17:00	46.4	01:00	35.1
10:00	44.7	18:00	41.6	02:00	34.8
11:00	47.5	19:00	38.5	03:00	35.4
12:00	45.1	20:00	35.1	04:00	34.4
13:00	44.4	21:00	34.7	05:00	36.1

TEST RESULTS- CHEMICALPARAMETERS

Sl. No.	PARAMETERS	UNIT	RESULT
1	Ambient Sound Level (Leq) Day Time (06:00 to 22:00)	dB(A)	43.2
2	Ambient Sound Level (Leq) Night Time (22:00 to 06:00)	dB(A)	34.8

Remarks:

End of Report


Shency Joy
 Dy. TM Chemical
 Checked by:




Laiju P. N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No: TC540222000001558F

LRI No: SEAL22030206A	Date: 04-03-2022	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt : 25-02-2022

DETAILS OF MONITORING

Product Category	Atmospheric Pollution	Sample Code	EN22020293
Sample Name	Ambient Noise	Monitoring Commenced on	25-02-2022/ 06:00
Monitoring Location	Anthaloos Mini Stadium, Arimbra	Monitoring Completed on	26-02-2022/ 06:00
Test Method	IS 9989:1981 RA:2008	Monitored by	Lab Authorized Sampler

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

MONITORING RESULTS - Leq

TIME	RESULTS dB(A)	TIME	RESULTS dB(A)	TIME	RESULTS dB(A)
06:00	35.8	14:00	48.0	22:00	34.7
07:00	38.4	15:00	48.3	23:00	34.0
08:00	42.4	16:00	49.4	24:00	36.5
09:00	45.8	17:00	49.8	01:00	37.2
10:00	48.0	18:00	44.6	02:00	36.9
11:00	50.9	19:00	41.3	03:00	37.6
12:00	48.3	20:00	37.6	04:00	36.5
13:00	47.6	21:00	37.2	05:00	38.3

TEST RESULTS- CHEMICALPARAMETERS

Sl. No.	PARAMETERS	UNIT	RESULT
1	Ambient Sound Level (Leq) Day Time (06:00 to 22:00)	dB(A)	46.4
2	Ambient Sound Level (Leq) Night Time (22:00 to 06:00)	dB(A)	36.9

Remarks:

End of Report

Shency Joy
Dy. TM Chemical
Checked by:



Laiju P.N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000001559F

LRI No:SEAAL22030207A	Date: 04-03-2022	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt : 25-02-2022

DETAILS OF MONITORING

Product Category	Atmospheric Pollution	Sample Code	EN22020294
Sample Name	Ambient Noise	Monitoring Commenced on	25-02-2022/ 06:00
Monitoring Location	KP Store, Myladi	Monitoring Completed on	26-02-2022/ 06:00
Test Method	IS 9989:1981 RA:2008	Monitored by	Lab Authorized Sampler

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

MONITORING RESULTS - Leq

TIME	RESULTS dB(A)	TIME	RESULTS dB(A)	TIME	RESULTS dB(A)
06:00	36.9	14:00	49.4	22:00	35.7
07:00	39.5	15:00	49.8	23:00	34.3
08:00	43.7	16:00	50.9	24:00	36.8
09:00	47.1	17:00	51.3	01:00	37.5
10:00	49.4	18:00	46.0	02:00	37.2
11:00	52.4	19:00	42.6	03:00	37.9
12:00	49.8	20:00	38.8	04:00	36.8
13:00	49.0	21:00	38.3	05:00	38.6

TEST RESULTS- CHEMICALPARAMETERS

Sl. No.	PARAMETERS	UNIT	RESULT
1	Ambient Sound Level (Leq) Day Time (06:00 to 22:00)	dB(A)	47.9
2	Ambient Sound Level (Leq) Night Time (22:00 to 06:00)	dB(A)	37.2

Remarks:

End of Report

Shency Joy
Dy. TM Chemical
Checked by:



Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000001560F

LRI No:SEAAL22030208A

Date: 04-03-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address
Mr. Arashak Ali E.K
 S/o Ali Moideen E.K
 Edathola Kottasseri, Malabar Manzil,
 Eranippadi, Kannamangalam P.O.,
 Malappuram District

Customer Reference
 Test Request dt : 25-02-2022

DETAILS OF MONITORING

Product Category	Atmospheric Pollution	Sample Code	EN22020295
Sample Name	Ambient Noise	Monitoring Commenced on	25-02-2022/ 06:00
Monitoring Location	Yoosuf Pullat's Diary Farm	Monitoring Completed on	26-02-2022/ 06:00
Test Method	IS 9989:1981 RA:2008	Monitored by	Lab Authorized Sampler

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

MONITORING RESULTS - Leq

TIME	RESULTS dB(A)	TIME	RESULTS dB(A)	TIME	RESULTS dB(A)
06:00	34.9	14:00	46.8	22:00	33.8
07:00	37.4	15:00	47.2	23:00	32.0
08:00	41.4	16:00	48.2	24:00	34.3
09:00	44.6	17:00	48.6	01:00	35.0
10:00	46.8	18:00	43.6	02:00	34.7
11:00	49.7	19:00	40.3	03:00	35.3
12:00	47.2	20:00	36.7	04:00	34.3
13:00	46.4	21:00	36.3	05:00	36.0

TEST RESULTS- CHEMICALPARAMETERS

Sl. No.	PARAMETERS	UNIT	RESULT
1	Ambient Sound Level (Leq) Day Time (06:00 to 22:00)	dB(A)	45.3
2	Ambient Sound Level (Leq) Night Time (22:00 to 06:00)	dB(A)	34.6

Remarks:

End of Report

Shency Joy
 Dy. TM Chemical
 Checked by:



Laiju P. W.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No: TC540222000001561F

LRI No:SEAAL22030209A

Date: 04-03-2022

Page 1 of 1

CUSTOMER DETAILS

Customer Name & Address
Mr. Arashak Ali E.K
 S/o Ali Moideen E.K
 Edathola Kottasseri, Malabar Manzil,
 Eranippadi, Kannamangalam P.O.,
 Malappuram District

Customer Reference
 Test Request dt : 25-02-2022

DETAILS OF MONITORING

Product Category	Atmospheric Pollution	Sample Code	EN22020296
Sample Name	Ambient Noise	Monitoring Commenced on	25-02-2022/ 06:00
Monitoring Location	Government Health Sub Centre, Kannamangalam	Monitoring Completed on	26-02-2022/ 06:00
Test Method	IS 9989:1981 RA:2008	Monitored by	Lab Authorized Sampler

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

MONITORING RESULTS - Leq

TIME	RESULTS dB(A)	TIME	RESULTS dB(A)	TIME	RESULTS dB(A)
06:00	36.8	14:00	49.3	22:00	35.6
07:00	39.4	15:00	49.6	23:00	36.2
08:00	43.6	16:00	50.8	24:00	38.8
09:00	47.0	17:00	51.2	01:00	39.5
10:00	49.3	18:00	45.9	02:00	39.2
11:00	52.3	19:00	42.4	03:00	39.9
12:00	49.6	20:00	38.7	04:00	38.8
13:00	48.9	21:00	38.2	05:00	40.7

TEST RESULTS- CHEMICALPARAMETERS

Sl. No.	PARAMETERS	UNIT	RESULT
1	Ambient Sound Level (Leq) Day Time (06:00 to 22:00)	dB(A)	47.7
2	Ambient Sound Level (Leq) Night Time (22:00 to 06:00)	dB(A)	39.2

Remarks:

End of Report

Shency Joy
 Dy. TM Chemical
 Checked by:



Laiju P. N.
 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No: TC540222000001562F

LRI No:SEAL22030210A	Date: 04-03-2022	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt : 25-02-2022

DETAILS OF MONITORING

Product Category	Atmospheric Pollution	Sample Code	EN22020297
Sample Name	Ambient Noise	Monitoring Commenced on	25-02-2022/ 06:00
Monitoring Location	Sub RTO Office, Kondotty	Monitoring Completed on	26-02-2022/ 06:00
Test Method	IS 9989:1981 RA:2008	Monitored by	Lab Authorized Sampler

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

MONITORING RESULTS - Leq

TIME	RESULTS dB(A)	TIME	RESULTS dB(A)	TIME	RESULTS dB(A)
06:00	37.5	14:00	50.3	22:00	36.4
07:00	40.2	15:00	50.7	23:00	37.1
08:00	44.5	16:00	51.9	24:00	39.7
09:00	48.0	17:00	52.2	01:00	40.5
10:00	50.3	18:00	46.8	02:00	40.1
11:00	53.4	19:00	43.3	03:00	40.9
12:00	50.7	20:00	39.5	04:00	39.7
13:00	49.9	21:00	39.0	05:00	41.6

TEST RESULTS- CHEMICALPARAMETERS

Sl. No.	PARAMETERS	UNIT	RESULT
1	Ambient Sound Level (Leq) Day Time (06:00 to 22:00)	dB(A)	48.8
2	Ambient Sound Level (Leq) Night Time (22:00 to 06:00)	dB(A)	40.1

Remarks:

End of Report

Shency Joy
Dy. TM Chemical
Checked by:



Laju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No: TC540222000001563F

LRI No:SEAAL22030211A	Date: 04-03-2022	Page 1 of 1
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt : 25-02-2022

DETAILS OF MONITORING

Product Category	Atmospheric Pollution	Sample Code	EN22020298
Sample Name	Ambient Noise	Monitoring Commenced on	25-02-2022/ 06:00
Monitoring Location	Karimbili Masjid	Monitoring Completed on	26-02-2022/ 06:00
Test Method	IS 9989:1981 RA:2008	Monitored by	Lab Authorized Sampler

SAMPLING SITE DETAILS

Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

MONITORING RESULTS - Leq

TIME	RESULTS dB(A)	TIME	RESULTS dB(A)	TIME	RESULTS dB(A)
06:00	35.9	14:00	48.1	22:00	34.8
07:00	38.5	15:00	48.5	23:00	33.2
08:00	42.6	16:00	49.6	24:00	35.6
09:00	45.9	17:00	50.0	01:00	36.3
10:00	48.1	18:00	44.8	02:00	35.9
11:00	51.1	19:00	41.4	03:00	36.6
12:00	48.5	20:00	37.7	04:00	35.6
13:00	47.7	21:00	37.3	05:00	37.3

TEST RESULTS- CHEMICALPARAMETERS

Sl. No.	PARAMETERS	UNIT	RESULT
1	Ambient Sound Level (Leq) Day Time (06:00 to 22:00)	dB(A)	46.6
2	Ambient Sound Level (Leq) Night Time (22:00 to 06:00)	dB(A)	35.9

Remarks:

End of Report

Shency Joy
Dy. TM Chemical
Checked by:



Laiju P.N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000001564F		
LRI No:SEAAL22030212A	Date: 04-03-2022	Page 1 of 2

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt : 25-02-2022

SAMPLE DETAILS			
Product Category	Pollution & Environment	Sample Code	EN22020299
Sample Name	Soil	Sample Received on	26-02-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	28-02-2022
Sample Quantity & Packing	500g & Plastic Bag	Test Completed on	03-03-2022
Sampled by	Lab Authorized Sampler	Information Provided by Customer	---

DETAILS OF SAMPLING			
Sample Source	Project site	Date of Sampling	25-02-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/08	Sample Temperature	31 °C

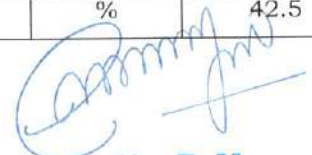
SAMPLING SITE DETAILS			
Re Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS				
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT
1	pH	IS 10158: 1982 RA 2014	---	6.02
2	Conductivity	IS 14767: 2000 RA 2016	µS/cm	85.0
3	Water Holding Capacity	SEAL/EN/SLS/SOP/01	%	60.0
4	Particle Size Distribution	Clay	%	38.6
		Sand	%	42.5


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Dy. TM Chemical

Checked by:




Laiju P. N.
Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000001564F		
LRI No:SEAAL22030212A	Date: 04-03-2022	Page 2 of 2

TEST RESULTS- CHEMICALPARAMETERS				
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT
	Silt	SEAL/EN/SLS/SOP/14	%	18.9
5	Organic Matter	IS 2720 Part 22:1992	%	0.32
6	Sodium as Na	USEPA 7000B:2009	%	0.10
7	Chlorides	SEAL/EN/SLS/SOP/08	%	0.12
8	Sulphur as SO ₄	IS 2720 Part 27: 1977	%	0.08
9	Total Kjeldahl Nitrogen (as N)	IS 14684 :1999 RA 2014	%	0.39
10	Available Potassium	SEAL/EN/SLS/SOP/03	meq/100g	52.6
11	Total Phosphorous (as P)	IS 10158: 1982 RA 2014	%	0.29

Remarks:

End of Report


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 Dy. TM Chemical

Checked by:





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 Laboratory Head
 Authorized Signatory

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TEST REPORT

ULR No:TC540222000003294F

LRI No:SEAAL22040907A	Date: 30-04-2022	Page 1 of 2
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt : 25-04-2022

SAMPLE DETAILS

Product Category	Pollution & Environment	Sample Code	EN22040361
Sample Name	Soil	Sample Received on	25-04-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	26-04-2022
Sample Quantity & Packing	500g & Plastic Bag	Test Completed on	29-04-2022
Sampled by	Lab Authorized Sampler	Information Provided by Customer	---

DETAILS OF SAMPLING

Sample Source	Anthaloos Mini Stadium, Arimbra	Date of Sampling	25-04-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/08	Sample Temperature	31 °C

SAMPLING SITE DETAILS

Re Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICALPARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	
1	pH	IS 10158: 1982 RA 2014	---	5.86	
2	Conductivity	IS 14767: 2000 RA 2016	µS/cm	122	
3	Water Holding Capacity	SEAL/EN/SLS/SOP/01	%	58.5	
4	Particle Size Distribution	Clay	SEAL/EN/SLS/SOP/14	%	34.0
		Sand	SEAL/EN/SLS/SOP/14	%	39.1

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Laboratory Head
Authorized Signatory

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TEST REPORT

ULR No:TC540222000003294F

LRI No:SEAAL22040907A

Date: 30-04-2022


Page 2 of 2

TEST RESULTS- CHEMICALPARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT
	Silt	SEAL/EN/SLS/SOP/14	%	26.9
5	Organic Matter	IS 2720 Part 22:1992	%	0.25
6	Sodium as Na	USEPA 7000B:2009	%	0.10
7	Chlorides	SEAL/EN/SLS/SOP/08	%	0.13
8	Sulphur as SO ₄	IS 2720 Part 27: 1977	%	0.09
9	Total Kjeldahl Nitrogen (as N)	IS 14684 :1999 RA 2014	%	0.31
10	Available Potassium	SEAL/EN/SLS/SOP/03	meq/100g	40.2
11	Total Phosphorous (as P)	IS 10158: 1982 RA 2014	%	0.18


Remarks:

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TEST REPORT

ULR No:TC540222000003295F

LRI No:SEAAL22040908A	Date: 30-04-2022	Page 1 of 2
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt : 25-04-2022

SAMPLE DETAILS

Product Category	Pollution & Environment	Sample Code	EN22040362
Sample Name	Soil	Sample Received on	25-04-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	26-04-2022
Sample Quantity & Packing	500g & Plastic Bag	Test Completed on	29-04-2022
Sampled by	Lab Authorized Sampler	Information Provided by Customer	---

DETAILS OF SAMPLING

Sample Source	KP Store, Myladi	Date of Sampling	25-04-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/08	Sample Temperature	31 °C

SAMPLING SITE DETAILS

Re Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT
1	pH	IS 10158: 1982 RA 2014	---	4.76
2	Conductivity	IS 14767: 2000 RA 2016	µS/cm	138
3	Water Holding Capacity	SEAL/EN/SLS/SOP/01	%	50.0
4	Particle Size Distribution	Clay	%	38.1
		Sand	%	42.5

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TEST REPORT

ULR No:TC540222000003295F		
LRI No:SEAAL22040908A	Date: 30-04-2022	Page 2 of 2

TEST RESULTS- CHEMICALPARAMETERS					
Sl. No.	PARAMETERS		TEST METHOD	UNIT	RESULT
		Silt	SEAL/EN/SLS/SOP/14	%	19.4
5	Organic Matter		IS 2720 Part 22:1992	%	0.20
6	Sodium as Na		USEPA 7000B:2009	%	0.09
7	Chlorides		SEAL/EN/SLS/SOP/08	%	0.11
8	Sulphur as SO ₄		IS 2720 Part 27: 1977	%	0.10
9	Total Kjeldahl Nitrogen (as N)		IS 14684 :1999 RA 2014	%	0.29
10	Available Potassium		SEAL/EN/SLS/SOP/03	meq/100g	52.5
11	Total Phosphorous (as P)		IS 10158: 1982 RA 2014	%	0.21

Remarks:

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TEST REPORT

ULR No:TC540222000003296F

LRI No:SEAAL22040909A	Date: 30-04-2022	Page 1 of 2
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt : 25-04-2022

SAMPLE DETAILS

Product Category	Pollution & Environment	Sample Code	EN22040363
Sample Name	Soil	Sample Received on	25-04-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	26-04-2022
Sample Quantity & Packing	500g & Plastic Bag	Test Completed on	29-04-2022
Sampled by	Lab Authorized Sampler	Information Provided by Customer	---

DETAILS OF SAMPLING

Sample Source	Yoosuf Pullat's Dairy Farm	Date of Sampling	25-04-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/08	Sample Temperature	31 °C

SAMPLING SITE DETAILS

Re Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala


TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	
1	pH	IS 10158: 1982 RA 2014	---	5.18	
2	Conductivity	IS 14767: 2000 RA 2016	μS/cm	92.0	
3	Water Holding Capacity	SEAL/EN/SLS/SOP/01	%	58.6	
4	Particle Size Distribution	Clay	SEAL/EN/SLS/SOP/14	%	37.2
		Sand	SEAL/EN/SLS/SOP/14	%	40.6


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TEST REPORT

ULR No:TC540222000003296F		
LRI No:SEAAL22040909A	Date: 30-04-2022	Page 2 of 2

TEST RESULTS- CHEMICALPARAMETERS				
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT
	Silt	SEAL/EN/SLS/SOP/14	%	22.2
5	Organic Matter	IS 2720 Part 22:1992	%	0.22
6	Sodium as Na	USEPA 7000B:2009	%	0.10
7	Chlorides	SEAL/EN/SLS/SOP/08	%	0.14
8	Sulphur as SO ₄	IS 2720 Part 27: 1977	%	0.10
9	Total Kjeldahl Nitrogen (as N)	IS 14684 :1999 RA 2014	%	0.28
10	Available Potassium	SEAL/EN/SLS/SOP/03	meq/100g	78.5
11	Total Phosphorous (as P)	IS 10158: 1982 RA 2014	%	0.22

Remarks:

End of Report


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TEST REPORT

ULR No:TC540222000003297F		
LRI No:SEAAL22040910A	Date: 30-04-2022	Page 1 of 2

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt : 25-04-2022

SAMPLE DETAILS			
Product Category	Pollution & Environment	Sample Code	EN22040364
Sample Name	Soil	Sample Received on	25-04-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	26-04-2022
Sample Quantity & Packing	500g & Plastic Bag	Test Completed on	29-04-2022
Sampled by	Lab Authorized Sampler	Information Provided by Customer	---

DETAILS OF SAMPLING			
Sample Source	Government Health Sub Centre, Kannamangalam	Date of Sampling	25-04-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/08	Sample Temperature	31 °C

SAMPLING SITE DETAILS			
Re Survey No.	104/2B-09, 104/2B-44	Re survey Block No-2	
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS - CHEMICAL PARAMETERS					
Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	
1	pH	IS 10158: 1982 RA 2014	---	5.02	
2	Conductivity	IS 14767: 2000 RA 2016	µS/cm	105	
3	Water Holding Capacity	SEAL/EN/SLS/SOP/01	%	52.5	
4	Particle Size Distribution	Clay	SEAL/EN/SLS/SOP/14	%	36.2
		Sand	SEAL/EN/SLS/SOP/14	%	39.5

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TEST REPORT

ULR No:TC540222000003297F

LRI No:SEAAL22040910A

Date: 30-04-2022

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TEST RESULTS- CHEMICALPARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT
	Silt	SEAL/EN/SLS/SOP/14	%	24.3
5	Organic Matter	IS 2720 Part 22:1992	%	0.30
6	Sodium as Na	USEPA 7000B:2009	%	0.09
7	Chlorides	SEAL/EN/SLS/SOP/08	%	0.10
8	Sulphur as SO ₄	IS 2720 Part 27: 1977	%	0.08
9	Total Kjeldahl Nitrogen (as N)	IS 14684 :1999 RA 2014	%	0.22
10	Available Potassium	SEAL/EN/SLS/SOP/03	meq/100g	60.8
11	Total Phosphorous (as P)	IS 10158: 1982 RA 2014	%	0.12

Remarks:

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TEST REPORT

ULR No:TC540222000003298F

LRI No:SEAAL22040911A	Date: 30-04-2022	Page 1 of 2
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt : 25-04-2022

SAMPLE DETAILS

Product Category	Pollution & Environment	Sample Code	EN22040365
Sample Name	Soil	Sample Received on	25-04-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	26-04-2022
Sample Quantity & Packing	500g & Plastic Bag	Test Completed on	29-04-2022
Sampled by	Lab Authorized Sampler	Information Provided by Customer	---

DETAILS OF SAMPLING

Sample Source	Sub RTO Office, Kondotty	Date of Sampling	25-04-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/08	Sample Temperature	31 °C

SAMPLING SITE DETAILS

Re Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT
1	pH	IS 10158: 1982 RA 2014	---	6.18
2	Conductivity	IS 14767: 2000 RA 2016	μS/cm	93.0
3	Water Holding Capacity	SEAL/EN/SLS/SOP/01	%	60.0
4	Particle Size Distribution	Clay	SEAL/EN/SLS/SOP/14	37.6
		Sand	SEAL/EN/SLS/SOP/14	42.1

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TEST REPORT

ULR No:TC540222000003298F

LRI No:SEAAL22040911A	Date: 30-04-2022	Page 2 of 2
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TEST RESULTS- CHEMICALPARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT
	Silt	SEAL/EN/SLS/SOP/14	%	20.3
5	Organic Matter	IS 2720 Part 22:1992	%	0.25
6	Sodium as Na	USEPA 7000B:2009	%	0.13
7	Chlorides	SEAL/EN/SLS/SOP/08	%	0.16
8	Sulphur as SO ₄	IS 2720 Part 27: 1977	%	0.09
9	Total Kjeldahl Nitrogen (as N)	IS 14684 :1999 RA 2014	%	0.32
10	Available Potassium	SEAL/EN/SLS/SOP/03	meq/100g	64.0
11	Total Phosphorous (as P)	IS 10158: 1982 RA 2014	%	0.16

Remarks:

End of Report

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TEST REPORT

ULR No:TC540222000003299F

LRI No:SEAAL22040912A	Date: 30-04-2022	Page 1 of 2
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CUSTOMER DETAILS

Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt : 25-04-2022

SAMPLE DETAILS

Product Category	Pollution & Environment	Sample Code	EN22040366
Sample Name	Soil	Sample Received on	25-04-2022
Sample Conditions at Receipt	Fit for Analysis	Test Commenced on	26-04-2022
Sample Quantity & Packing	500g & Plastic Bag	Test Completed on	29-04-2022
Sampled by	Lab Authorized Sampler	Information Provided by Customer	---

DETAILS OF SAMPLING

Sample Source	Karimbili Masjid	Date of Sampling	25-04-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/08	Sample Temperature	31 °C

SAMPLING SITE DETAILS

Re Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT	
1	pH	IS 10158: 1982 RA 2014	---	6.21	
2	Conductivity	IS 14767: 2000 RA 2016	µS/cm	146	
3	Water Holding Capacity	SEAL/EN/SLS/SOP/01	%	56.0	
4	Particle Size Distribution	Clay	SEAL/EN/SLS/SOP/14	%	37.6
		Sand	SEAL/EN/SLS/SOP/14	%	41.2
		Silt	SEAL/EN/SLS/SOP/14	%	21.2

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TEST REPORT

ULR No:TC540222000003299F

LRI No:SEAAL22040912A

Date: 30-04-2022

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TEST RESULTS- CHEMICALPARAMETERS

Sl. No.	PARAMETERS	TEST METHOD	UNIT	RESULT
5	Organic Matter	IS 2720 Part 22:1992	%	0.27
6	Sodium as Na	USEPA 7000B:2009	%	0.12
7	Chlorides	SEAL/EN/SLS/SOP/08	%	0.13
8	Sulphur as SO ₄	IS 2720 Part 27: 1977	%	0.10
9	Total Kjeldahl Nitrogen (as N)	IS 14684 :1999 RA 2014	%	0.24
10	Available Potassium	SEAL/EN/SLS/SOP/03	meq/100g	86.4
11	Total Phosphorous (as P)	IS 10158: 1982 RA 2014	%	0.14

Remarks:

End of Report


Shency Joy
Dy. TM Chemical

Checked by:




Laiju P. N.
Laboratory Head
Authorized Signatory

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Standard^S Environmental & Analytical Laboratories

Accreditation & Approval: NABL accredited Testing Laboratory as per ISO/IEC 17025:2017
vide Certificate No. TC - 5402 & "A" Grade Laboratory approved by KSPCB.

K.J. Tower, Pathalam, Udyogamandal P.O., Ernakulam-683 501, Tel. 0484-2546660, 93 87 27 24 02, 90 74 34 14 43
Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000001573F		
LRI No:SEAAL22030221A	Date: 04-03-2022	Page 1 of 2

CUSTOMER DETAILS	
Customer Name & Address	Mr. Arashak Ali E.K S/o Ali Moideen E.K Edathola Kottasserri, Malabar Manzil, Eranippadi, Kannamangalam P.O., Malappuram District
Customer Reference	Test Request dt : 25-02-2022

SAMPLE DETAILS			
Product Category	Water	Sample Code	WT22020149
Sample Name	Surface Water	Sample Received on	26-02-2022
Sample Conditions at Receipt	Fit for Analysis	Temperature @ Receipt	6°C
Sample Quantity & Packing	2L & 500ml Plastic Bottles	Test Commenced on	28-02-2022
Sampled by	Lab Authorized Sampler	Test Completed on	03-03-2022

DETAILS OF SAMPLING			
Sampling Location	Kadalundi River	Date of Sampling	25-02-2022
Sampling Procedure	SEAAL/ENL/GEN/SOP/01& SEAAL/MBL/SOP/06	Sample Temperature	31 °C

SAMPLING SITE DETAILS			
Re-Survey No.	104/2B-09, 104/2B-44 Re survey Block No-2		
Village	Kannamangalam	Taluk	Tirurangadi
District	Malappuram	State	Kerala

TEST RESULTS- CHEMICAL PARAMETERS					
Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
1	Colour	IS 3025 (Part 4):1983 RA 2017	Hazen	1.00	Max 5
2	Odour	IS 3025 (Part 5):2018	---	Agreeable	Agreeable
3	Turbidity	IS 3025 (Part 10):1984 RA 2017	NTU	0.60	Max 1

Shency Joy
Dr. TM Chemical
Checked by:



Salini T. S.
Microbiologist
Authorized Signatory

Laiju P. N.
Laboratory Head
Authorized Signatory

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Web: www.sealabs.in, E-mail: seaalab@gmail.com

TEST REPORT

ULR No:TC540222000001573F		
LRI No:SEAAL22030221A	Date: 04-03-2022	Page 2 of 2

TEST RESULTS- CHEMICAL PARAMETERS


Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
4	pH	IS 3025 (Part 11):1983 RA 2017	---	7.16	6.50 – 8.50
5	Conductivity	IS 3025 (Part 14):1984 RA 2019	μS/cm	142	---
6	Total Dissolved Solids	IS 3025 (Part 16):1984 RA 2017	mg/L	92.0	Max 500
7	Total Hardness as CaCO ₃	IS 3025 (Part 21):2009 RA 2019	mg/L	38.8	Max 200
8	Calcium as Ca	IS 3025 (Part 40):1991 RA 2019	mg/L	9.99	Max 75
9	Magnesium as Mg	IS 3025 (Part 46):1994 RA 2019	mg/L	4.47	Max 30
10	Chloride as Cl	IS 3025 (Part 32):1988 RA 2019	mg/L	24.9	Max 250
11	Total Alkalinity as CaCO ₃	IS 3025 (Part 23):1986 RA 2019	mg/L	28.1	Max 200
12	Iron as Fe	IS 3025 (Part 53):2003 RA 2019	mg/L	0.35	Max 1
13	Sulphate as SO ₄	IS 3025 (Part 24):1986 RA 2019	mg/L	2.30	Max 200

TEST RESULTS - BIOLOGICAL PARAMETERS

Sl.No.	PARAMETERS	TEST METHOD	UNIT	RESULT	Requirement as per Acceptable Limit of IS 10500 : 2012
1	Total Coliform Bacteria	IS 15185 : 2016	----	Absent/100 ml	Absent/100 ml
2	E coli	IS 15185 : 2016	----	Absent/100 ml	Absent/100 ml

Remarks:

End of Report


Shency Joy
 Dy. TM Chemical
 Checked by:




Salini T. S.
 Microbiologist
 Authorized Signatory


Laiju P. N.
 Laboratory Head
 Authorized Signatory

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 Web: www.sealabs.in, E-mail: seaalab@gmail.com

ANNEXURE 7
BIODIVERSITY
REPORT

2022

**Rapid Environmental Impact Assessment-
Fauna & Flora Assessment - Mr. Arshak Ali.
E. K, Re Survey Block No. 2, Re Survey No.
104/2B-09, 104/2B-44, Kannamangalam
Village, Tirurangadi Taluk, Malappuram
District. Mining area of 2.0144 Ha.**

June 2022
Rapid Environmental Impact Assessment- Mr. Arshak Ali. E. K. This document
contains 79 pages
5/18/2022



Rapid Environmental Impact Assessment - Fauna & Flora

Prepared for Mr. Arshak Ali. E. K, Re Survey Block No. 2, Re Survey No. 104/2B-09, 104/2B-44, Kannamangalam Village, Tirurangadi Taluk, Malappuram District. Mining area of 2.0144 Ha.

Prepared by Dr. K.S. Anoop Das & team, daksas@gmail.com, 09895471987, Biodiversity Assessment Team <https://anoopdas.in>

REIA report No 16/22/GEMS

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Only Mr. Arshak Ali. E. K or his designated representatives or relevant statutory authorities may use this document and only for the specific project for which this document was prepared. It should not be otherwise referenced without permission.

This document contains **79** pages.

Document history

Version	Description	Date	Authors/Contributors	Authorised/ Approved for issue
1.1 Draft	Site visits	27.04.2022 to 29.04.2022		
1.2 Draft	Manuscript preparation / Data analysis	14.05.2022 to 18.05.2022	Dr. K.S Anoop Das Dr. Prasanth Narayanan S Dr. B. Swamynathan Dr. Sangeeth Thekkan Mr. Arun George Mr. Sojan Thomas	
1.3 Print		18.05.2022	-do-	Final report for submission



Biodiversity Assessment Team

Consultancy No 16/22

18.05.2022

Certificate

This is to certify that, the information and data presented here is based on the fieldwork carried out by the biodiversity assessment team led by the undersigned for Granite Quarry- Mr. Arshak Ali. E. K, Re Survey Block No. 2, Re Survey No. 104/2B-09, 104/2B-44, Kannamangalam Village, Tirurangadi Taluk, Malappuram District. Mining area of 2.0144 Ha. The rapid assessment with standard protocol has been compiled and executed by the team. We certify the data presented here which is documented and verified by the experts in the relevant field.

Dr. K.S Anoop Das

Adjunct Scientist, Biodiversity Assessment Team, Wildlife Research and Conservation Trust, Anupallavi, Chungathara, Malappuram Dt, Kerala 679334, 09895471987 daksa@gmail.com, daksa@wrctindia.com

1. Introduction

Biodiversity, include all terrestrial and freshwater organisms – including plants, animals, and microbes at scales ranging from genetic diversity within populations to species diversity to community diversity across landscapes (CBD, 1992). Globally biodiversity is changing at an unprecedented rate, as a complex response at several human – induced and anthropogenic activities towards the environment (Vitousek, 1994, Pimm et. al. 1995). There is a necessity to take up proactive initiatives from local and regional level. The biodiversity inventory was undertaken to collect information that would help in developing site specific biodiversity conservation. In addition, the information collected would serve as a protocol, which would aid in demonstrating or exhibiting the status of the landscape of interest to the concerned stakeholders to undertake appropriate restoration measures. It is important to assess the biodiversity before it get disappeared (Reaka-Kudla et. al. 1996). In view of the importance of biodiversity, further to the response to the request from the proponent of the project, we have conducted the Rapid Biodiversity Assessment of the proposed region. The result of the Rapid Biodiversity Assessment is expected to yield results that can be crucial in the decision making process for a better management. The Flora & Fauna study forms a part of the environmental data generation for the preparation of Rapid Biodiversity Assessment report for the proposed project. Evaluation of impending development project-related ecological impact is an essential pre-requisite for protection of environment from further degradation. This necessitates determining the baseline status of Flora & Fauna.

2. Biodiversity assessment methods

The Rapid Biodiversity Assessment (RBA) provides information about individual flora and fauna species and the threatening processes to habitats, ecosystems and communities. It reviews existing information and the results of priority taxa and communities.

A major, systematic program of fauna survey has been undertaken during the preparation of this RBA. This survey was considered necessary because of the lack of fauna survey data

which was revealed in an initial data audit. Analysis of data involves the information identifying the flora and selected fauna groups in relation to different environmental strata across the site; and analysis of species and their responses to disturbance.

The RBA has focused primarily on the ecosystem and species levels of biodiversity because information about genetic variation within species is limited. Physical marking of biodiversity has been dealt with for flora alone, because of logical reasons. Floristic studies are dealt with, in detail in the second part of the RBA.

The biodiversity information presented here is intended to reflect the best understanding of the available information, including information obtained through data audit, expert scientific opinion, and analysis of available data. It also points to deficiencies in existing information. The data presented will be used in the development of the restoration plans, including configuration of the quarry closure, and in the formulation of management recommendations by the experts.

The study has covered the following aspects to appraise the biodiversity of the core zone (Table 1)

Table 1. Characteristics inspected in the study

Sl No	Floral component	Faunal elements
1	Plantations/Agro-forestry	Total listing of major faunal elements
2	Natural Vegetation/Forest type	Endangered Species / Endemic Species
3	Flora Identification- Trees	Wildlife Schedules
4	Flora Identification- Shrubs	Migratory Species
5	Flora Identification- Herbs	Migratory corridors or Paths
6	Flora Identification- Climbers	Breeding & Spawning Grounds

3. Objectives

The basic objectives of the assignment are to rationalize the protocol for an effective Biodiversity management plan for the proposed project area. This has been attempted by the following objectives

- Collection and synthesis of secondary information on the status of biodiversity in the study region.
- Undertake intensive field survey to assess the status of floral & faunal component in different habitats in the core and buffer areas of the project site.
- Identification and listing of flora and fauna which are important as per the Wildlife (Protection) Act 1972.
- Suggest Wildlife conservation (species specific/habitat specific) and management plan for the threatened (critically endangered & endangered species - schedule I) faunal species if any reported within the study area.
- To rapidly assess the biodiversity that has a significant conservation status and high ecological value that may be affected by the mining plan.
- To suggest scientific recommendations on the sustainable management for the establishment of proper mining based on the Rapid Biodiversity Assessment findings.

4. Study Area

We could not see any waterlogged area within the proposed area. No water bodies such as streams, channels of water pond etc. could be observed within the proposed site.

As it was difficult to access the full area within 10 kms of the project site, thus the similar habitats have been studied and the species likely to be present over the area are discussed in the report. At present, the surroundings of the proposed site were mainly covered by rubber plantation. We took total ten transects, around the proposed site (T1-T10). Transects were taken within the 10 Km radius of the proposed site.

The area is located in a typical interior village and is situated in slanting slope. A proper road to the proposed site was noted, which can afford all the transportation needs. The approach road is a rugged one. Most of the areas in the proposed site are occupied by invasive weeds and saplings of different trees. Overall vegetation of the site was below moderate level. Currently, the site is already a disturbed area. No residential area is seen within 500 meters of the site.

Floral and faunal diversity was assessed within 10 km radius around the proposed site. Ten transects were selected for rapid faunal and floral assessment. Transect method is used in the floral and faunal documentation at the buffer zone. The total area is divided into ten transects T1, T2, T3, T4, T5, T6, T7, T8, T9 and T10. The project site and the surrounding area of 10 km radius from the mining lease boundary does not have any protected areas such as National Parks or Wildlife Sanctuaries or Protected Forest. The index plan is given as **Figure 1**. The four quartiles of the study area is provided as **Figure 2**. The map of the site with the boundary is noted as **Figure 3** which included the core zone of the study area.

5. Methodology - Summary

Identification of vegetation in relation to the natural flora and crops was conducted through reconnaissance field surveys and onsite observations in core and buffer zone. The plant species identification was done based on the reference materials and also by examining the morphological characteristics and reproductive materials i.e. flowers, fruits and seeds. Land use pattern in relation to agriculture crop varieties were identified through physical verification of land and interaction with local villagers. Transect method is used in the floral documentation in the buffer zone. Six transects were selected for the study. Each transects were occupied within 10 km radius. For trees plots of (10x10-m), shrubs (5x5-m) and herbs (1x1-m) were used and recorded.

The faunal elements of core and buffer zone were identified by direct sightings or indirect evidences by recording occurrences such as holes, markings, hairs, spines, scats, pellets, droppings and quills (Menon 2003). Standard binocular was used for the observations. The authenticity of faunal elements occurrence was confirmed by interaction with the local people. Avifauna identification was done with pictorial descriptions of published literature. Information pertaining to existence of any migratory corridors and paths were obtained from local inhabitants. The status of each faunal element was determined and wildlife schedule category was ascertained as per the IUCN-Red Data Book and Indian Wildlife (Protection) Act, 1972.

The Birds, butterflies, reptiles and odonates were mainly focused during faunal assessment, in which transect method was employed for birds and butterflies. Transect is a path along which one counts and records the occurrence of an individual for study. A straight-line walk covering one km, within a time span of one hour to 30 minutes was carried out in each of the habitats. Each transects were occupied within the 10 km radius of the site. Bird species were recorded during the hours of peak activity 07 am to 12 am and evening 3.00 pm to 5.00 pm. Direct observations and bird calls used for bird documentation. Same transects were used for counting birds and butterflies. Opportunistic observations were made for Amphibians, reptiles and odonates. Presence of mammals were recorded by indirect signs. They were classified into species level as and when

possible. Recorded bird species were identified to species level using standard books (Ali & Ripley 1987, Grimmett et al., 2016).

5.1. Sampling

A stratified simple random sampling procedure was employed to obtain a sample from study area. The study area was further stratified in different land-use/ecosystems

5.2. Sampling Size

Keeping in mind both random sampling technique and covering all land use patterns for the study following sampling locations were chosen depending up on the area of the proposed site .

5.3. Timing of Study

The study was carried out during morning and evening hours, to cover the different activity phases for important species such as time taken for resting, feeding, hunting, and daily movements.

5.4 Observations from Sampling

The various observations relating to flora and fauna species are discussed in detail below, in separate sections.

5.5. Equipment/ References Used

- Canon Mark III Camera with 50-500mm lens– Snap shots taken
- Leica Binoculars (8x 20) to spot/identify species
- IUCN Red Data Book – <https://www.iucnredlist.org/species>
- Ornithological/Entomological/Herpetological/Mammalian catalogues and pictorial descriptions from various authors and websites are followed for species identification

Standard protocols were followed for fauna and flora surveys are as follows.

6. Part I Field sampling techniques

6.1 Observational methods- Mammals

We employed two types of observational methods for the recording of mammals: (1) direct observations, (2) indirect evidences by recording occurrences such as holes, markings, hairs, spines, scats, pellets, droppings and quills (Menon 2003). Photographs, including a scale reference, were used for identification confirmations, and localities were recorded with a handheld GPS unit. Sometimes indigenous knowledge (especially from locals) was also used to prepare a preliminary list of species and/or help with identification of signs.

6.2. Visual Encounter Survey (VES) - reptiles and amphibians

VES is a time-constrained sampling technique (Campbell and Christman, 1982; Corn and Bury, 1990). It needs a systematic search through an area or habitat for a prescribed time period (Campbell and Christman, 1982). The result of VES is measured against the time spent for search. VES technique is one of the simplest methods, and an appropriate technique for both inventory and monitoring Herpetofauna (Heyer et al. 1994).

6.3. Transect walk – Birds

Six transect lines with varying length (100m-300m) and fixed width (2m) were laid which cuts through the core and peripheral areas of proposed region. The transect surveys were conducted from 0700 to 1200 Hrs and 1500 to 1700 Hrs (Bibby et al. 2000). All avifauna found along these transects were recorded for analysing the data. Counts were conducted while there is no heavy rain, mist or strong wind.

6.4. Modified Pollard Walk – for Butterflies

The Modified Pollard Walk (Pollard 1977, 1993, Walpole 1999) using fixed width transect walk method were employed to investigate butterfly spatial distribution, diversity and abundance at the different survey sites as used in previous studies on tropical butterflies.

6.5. Multiple Stage Quadrat – Vegetation

A range of habitat or vegetation structure variables were measured using the standard sampling protocol called Multiple Stage Quadrat (Sykes and Horrill 1977). Sampling took place in all those area, which occupied an area with the major corners temporarily

demarcated with colour ribbons. Each site was located in the field with a compass and clinometer and subsequently latitude, longitude and elevation of the plot were recorded with a handheld Global Positioning System (Garmin 12XL).

7. Quartile Approach

In order to provide representative ecological status for the study area, Index plan of proposed site with in the 10-km buffer zone is provided as Figure 1. The area has been divided into four quartiles for biodiversity sampling, i.e., NE (Q-1), NW (Q-2) SW (Q-3) and SE (Q-4) is given as Figure 2. Each of the quartiles have been examined for representative flora on randomly sampled quadrats for trees (10x10-m), shrubs (5x5-m) and herbs (1x1-m) depending upon prevailing geographical conditions and bio-diversity aspects of study area. Map showing the project site and distance from the Ecosensitive Zone of Brahmagiri Wildlife Sanctuary is provided as Figure 3. A google earth view of proposed site and sourroundings is provided as Figure 4. A map of proposed core zone of the study area is provided as Figure 5. A schematic map describing areas where vegetation plots are laid is given in Figure 6.

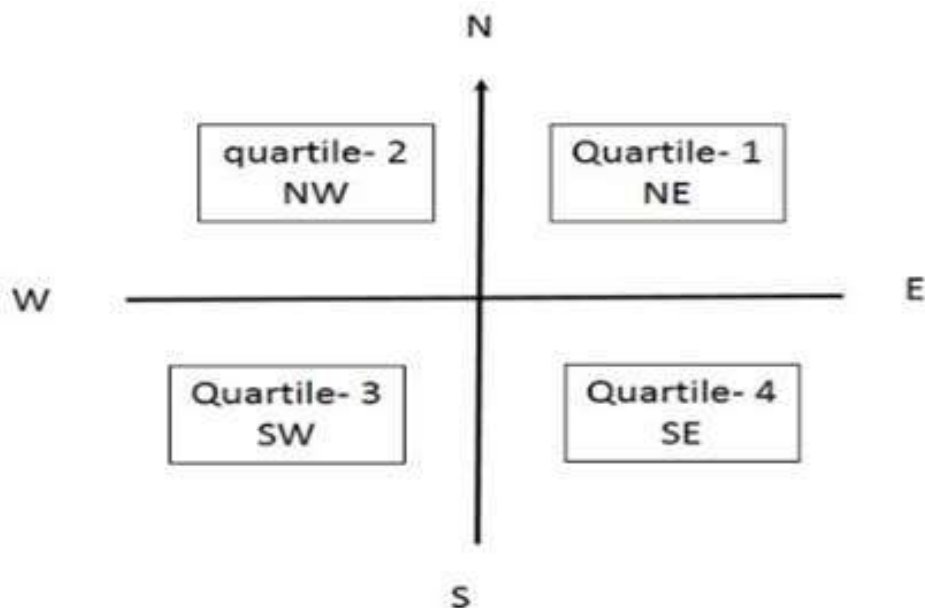


Figure 2. Four quartiles for biodiversity sampling

8. Part II Data Analysis

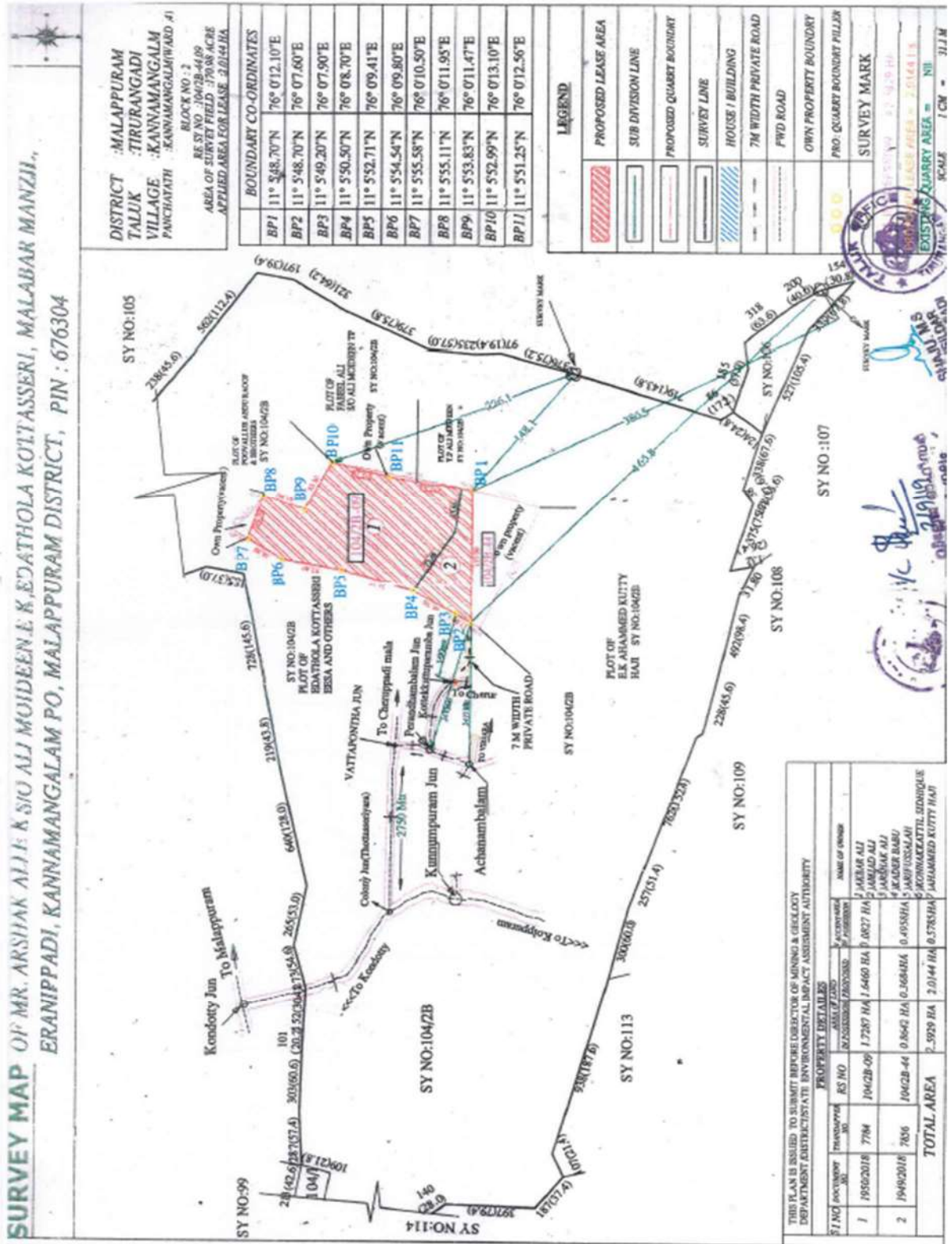
Because of differing sample sizes from landscapes, for species diversity, richness and evenness were calculated using the statistical package– Species Diversity & Richness (SDR) programme (Pisces conservation LTD). For comparisons of mean species diversity among the sites program BioDiversity Pro (McAleece et al. 1997) was used. We estimated diversity in terms of species richness and evenness, as well as using the Shannon-Weaver index, which combines richness and abundance into a single measure (Magurran 1988).

Shannon-Wiener Index is defined and given by the following function: $H = -\sum[(p_i) \times \ln(p_i)]$

Where –

- p_i = proportion of total sample represented by species i . Divide no. of individuals of species i by total number of samples.
- S = number of species, = species richness
- $H_{max} = \ln(S)$ Maximum diversity possible
- E = Evenness = H/H_{max}

Figure 3. Map showing the project site



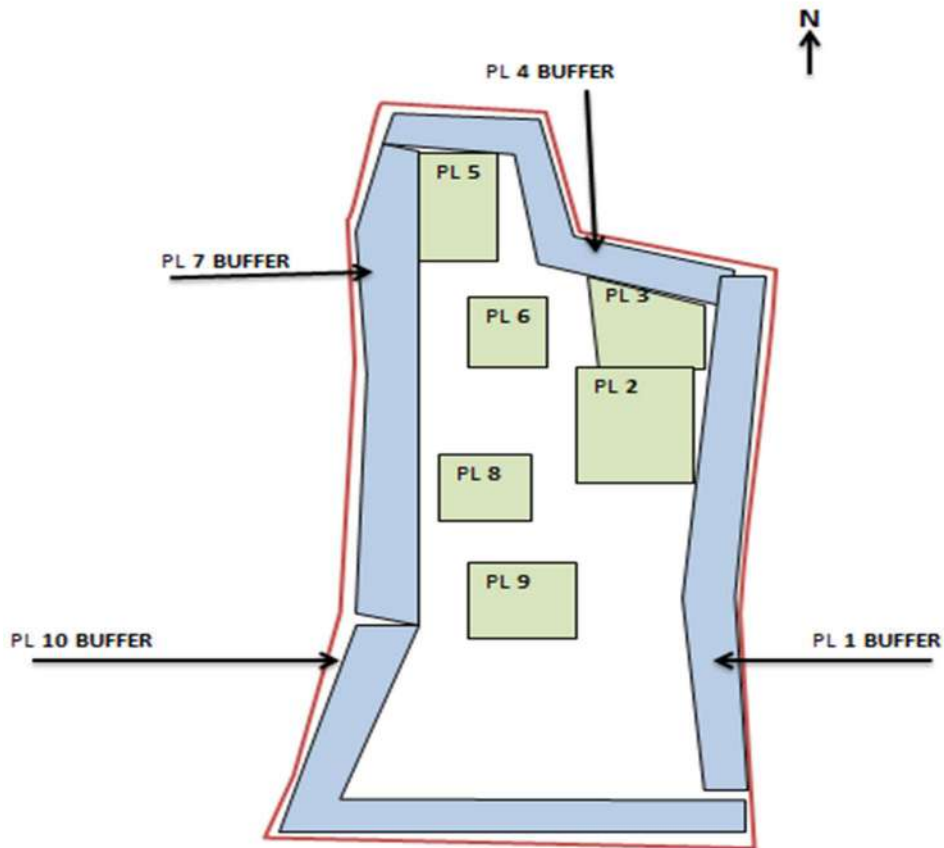


Figure 4. Schematic map of the areas where vegetation plots are laid, Green colored regions indicates the buffer zone (7.5 m safety zone)

8. RESULTS-FLORA



9.1 Plant Composition (CORE ZONE)

The vegetation of the study area was subdivided into 10×10 m plots for the analysis of tree composition, with a subdivision of this area into 5 m ×5 m and 1m ×1 m for analysis of shrub and herb composition randomly as per the standard methodology. Totally one hundred and ten species identified from the study area and the representation of these species' composition indicates that, this vegetation belongs to moist deciduous type of vegetation. Out of these, eighteen species are of trees (**Table 3**), twenty two of shrubs (**Table 5**), thirty nine species of herbs (**Table 6**) and thirty one species of climbers (**Table 7**) were noted.

The dominant tree species found in the study sites are *Macaranga peltata* and *Gliricidia sepium* (**Table 2**). Dominant species of herb noted in the area were *Microstachys chamaelea*, *Mimosa pudica*, *Heteropogon contortus*, *Pennisetum polystachyon*, *Melinis sps.* and *Oplismenus sps.*. The major shrubs observed in the area were *Chromolaena odorata*, *Flueggea leucopyrus*, *Ziziphus rugosa*, *Ficus hispida*, *Hyptis suaveolens*, *Triumfetta sps.* and *Urena lobata*. In the case of climber dominant species observed were *Mikania micrantha*, *Spatholobus sps.*, *Ziziphus oenoplia*, *Dioscorea wallichii*, *Acacia caesia*, *Acacia torta*, *Bauhinia scandens* and *Merremia vitifolia*. (**Figures 6,7,8, and 9**).

The proposed area for mining was in a remote village side and the area was the part of a sloppy land. The proposed site is having moist deciduous type of vegetation. Since it is the part of an abandoned quarry, vegetation in the area was negligible. Part of a rubber plantation is at one of the corners of the proposed site. No considerable vegetation could observe in the rubber plantation. Understory vegetation was negligible during the field visits. Some sort of natural vegetation can be seen in the core zone of the proposed site, but buffer zone possesses negligible vegetation. Trees other than Rubber are comparatively less in number within the proposed site and the area is dominated by shrubs and herbs. There are abundant numbers of seedlings and saplings of *Sterculia urens*, *Xylia xylocarpa*, *Grewia serrulata*, *Macaranga peltata* and *Lannea coromandelica* at one of the borderlines of the proposed area. No residential areas are seen within the prescribed limit of the proposed site.

Figure. 5. Habitat inside the core zone



Figure. 6. Habitat inside the core zone



Figure. 7. Habitat inside the core zone



Figure. 8. Habitat inside the core zone



Figure 9. Image describing plot number selected for vegetation analysis

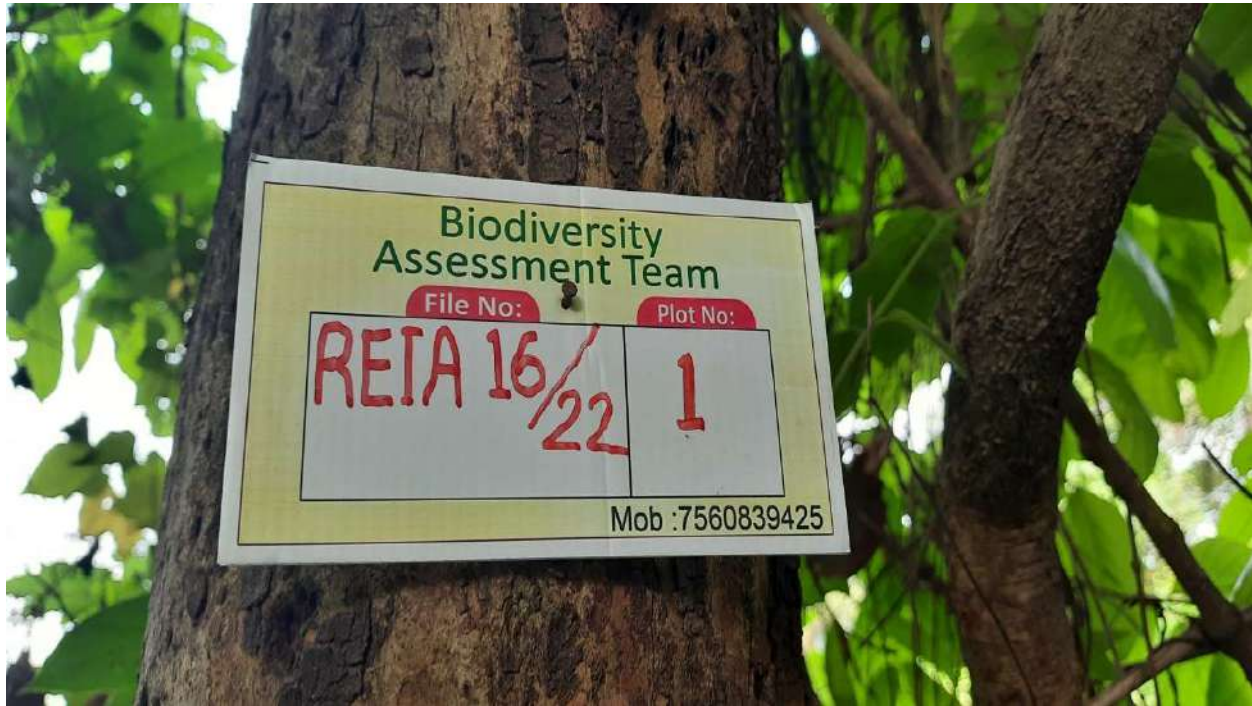


Figure 10. Image describing plot number selected for vegetation analysis



Table 2. List of trees recorded from the core zone (including 7.5 m safety zone)

Sl. No	SPECIES	No of individuals in each plot				TOTAL
		Plot 1 #	Plot 4 #	Plot 7 #	Plot 10 #	
1	<i>Macaranga peltata</i>	0	1	3	1	5
2	<i>Gliricidia sepium</i>	2	0	0	0	2
3	<i>Grewia serrulata</i>	0	0	1	1	2
4	<i>Xylia xylocarpa</i>	1	0	0	0	1
5	<i>Grewia tiliifolia</i>	2	0	0	0	2
6	<i>Cocos nucifera</i>	0	0	1	2	3
7	<i>Briedelia retusa</i>	0	0	0	1	1
8	<i>Tectona grandis</i>	0	0	2	0	2
9	<i>Dillenia pentagyna</i>	0	0	1	0	1
10	<i>Lagerstroemia speciosa</i>	1	0	0	0	1
11	<i>Leucaena leucocephala</i>	1	0	0	0	1
TOTAL		7	1	8	5	21

Table 3. Consolidated list of trees recorded from the core zone (including 7.5 m safety zone)

Sl. No.	Species	Family	Local Name	Total
1	<i>Macaranga peltata</i>	Euphorbiaceae	Vatta	9
2	<i>Gliricidia sepium</i>	Fabaceae (Papilionoideae)	Sheemakonna	8
3	<i>Grewia serrulata</i>	Tiliaceae		7
4	<i>Xylia xylocarpa</i>	Fabaceae (Mimosoideae)	Irupool	7
5	<i>Grewia tiliifolia</i>	Tiliaceae	Chadachi	6
6	<i>Santalum album</i>	Santalaceae	Chandanam	6
7	<i>Cocos nucifera</i>	Palmae	Thengu	5
8	<i>Sterculia urens</i>	Sterculiaceae		4
9	<i>Briedelia retusa</i>	Euphorbiaceae	Mulluvenga	3
10	<i>Tectona grandis</i>	Verbanaceae	Thekku	3
11	<i>Lannea coromandelica</i>	Anacardiaceae		2
12	<i>Careya arborea</i>	Lecythidaceae	Pezhu	1
13	<i>Dillenia pentagyna</i>	Dilleniaceae	Vazhapunna	1
14	<i>Lagerstroemia speciosa</i>	Lythraceae	Manimaruthu	1
15	<i>Leucaena leucocephala</i>	Fabaceae (Mimosoideae)		1
16	<i>Polyalthia cerasoides</i>	Annonaceae	Kanakam	1
17	<i>Schleichera oleosa</i>	Sapindaceae	Poovam	1
18	<i>Terminalia paniculata</i>	Combretaceae	Maruth	1

Table.4. List of trees to be removed from the core zone

Sl No	Category	Number of trees
1	Total trees from the sample plots (A)	67
2	Number of Rubber trees to be removed (B)	75
3	Trees other than Rubber, coconut, cashew (C)	6
4	Number of trees in the safety zone (D)	68
5	Number of trees to be removed for the project (A+B+C-D)	80

Table 5. List of shrubs recorded from the core zone

Sl. No.	Species	Family	Local name
1.	<i>Allophylus sps.</i>	Sapindaceae	
2.	<i>Bridelia stipularis</i>	Euphorbiaceae	
3.	<i>Callicarpa tomentosa</i>	Verbenaceae	Cheruthek
4.	<i>Canthium sps.</i>	Rubiaceae	Kara
5.	<i>Capsicum frutescens</i>	Solanaceae	Kanthari
6.	<i>Chromolaena odorata</i>	Asteraceae	Communist pacha
7.	<i>Crotalaria pallida</i>	Fabaceae (Papilionoideae)	Kilikki
8.	<i>Embelia tsjeriam-cottam</i>	Myrsinaceae	
9.	<i>Ficus hispida</i>	Moraceae	Therakam
10.	<i>Flueggea leucopyrus</i>	Euphorbiaceae	
11.	<i>Grewia abutilifolia</i>	Tiliaceae	
12.	<i>Helicteres isora</i>	Sterculiaceae	Idampiri
13.	<i>Hibiscus hispidissimus</i>	Malvaceae	Panchakam
14.	<i>Hyptis suaveolens</i>	Lamiaceae	Narippalla
15.	<i>Lantana camara</i>	Verbenaceae	Kongini
16.	<i>Memecylon sps.</i>	Melastomataceae	kaashavu
17.	<i>Osbeckia aspera</i>	Melastomataceae	Athiraani
18.	<i>Strachytarpheta urticifolia</i>	Verbenaceae	Narivalan
19.	<i>Thespesia lampas</i>	Malvaceae	Kattupoovarash
20.	<i>Triumfetta sps.</i>	Tiliaceae	Urpam
21.	<i>Urena lobata</i>	Malvaceae	Urpam
22.	<i>Ziziphus rugosa</i>	Rhamnaceae	Tholdali

Table 6. List of herbs recorded from the core zone

Sl. No.	Species	Family	Local name
1.	<i>Ageratum conyzoides</i>	Asteraceae	Appa
2.	<i>Alternanthera bettzickiana</i>	Amaranthaceae	
3.	<i>Alysicarpus hetrophyllus</i>	Fabaceae (Papilionoideae)	Nila-orila
4.	<i>Anisochilus carnosus</i>	Lamiaceae	Kattukoorka
5.	<i>Asystasia sps.</i>	Acanthaceae	
6.	<i>Blepharis maderaspatensis</i>	Acanthaceae	
7.	<i>Crassocephalum crepidioides</i>	Asteraceae	Appuppanthadi
8.	<i>Cyathula prostrata</i>	Amaranthaceae	Cherukadaladi
9.	<i>Lepidagathis sps.</i>	Acanthaceae	
10.	<i>Microstachys chamaelea</i>	Euphorbiaceae	
11.	<i>Mimosa pudica</i>	Fabaceae (Mimosoideae)	Thottavadi
12.	<i>Mitracarpus hirtus</i>	Rubiaceae	
13.	<i>Naregamia alata</i>	Meliaceae	Nilanarakam
14.	<i>Oldenlandia auricularia</i>	Rubiaceae	Tharthaval
15.	<i>Phaulopsis imbricata</i>	Acanthaceae	
16.	<i>Sida alnifolia</i>	Malvaceae	Kurumthotti
17.	<i>Sida cordata</i>	Malvaceae	
18.	<i>Spermacoce articularis</i>	Rubiaceae	
19.	<i>Spermacoce sps.</i>	Rubiaceae	Tharthaval
20.	<i>Vernonia sps.</i>	Asteraceae	Poovamkurunnu
21.	<i>Alloteropsis sps.</i>	Poaceae	
22.	<i>Aristida sps.</i>	Poaceae	
23.	<i>Axonopus compressus</i>	Poaceae	Buffalo grass
24.	<i>Brachiaria sps.</i>	Poaceae	
25.	<i>Curculigo orchoides</i>	Hypoxidaceae	Nilappana
26.	<i>Curcuma sps.</i>	Zingiberaceae	Koova
27.	<i>Cymbopogon sps.</i>	Poaceae	Theruvapullu

28.	<i>Cyperus sps.</i>	Cyperaceae	
29.	<i>Cyrtococcum sps.</i>	Poaceae	
30.	<i>Digitaria longiflora</i>	Poaceae	
31.	<i>Digitaria sps.</i>	Poaceae	
32.	<i>Eleusine indica</i>	Poaceae	
33.	<i>Heteropogon contortus</i>	Poaceae	
34.	<i>Ischaemum sps.</i>	Poaceae	
35.	<i>Melinis sps.</i>	Poaceae	
36.	<i>Murdannia sps.</i>	Commelinaceae	
37.	<i>Oplismenus sps.</i>	Poaceae	
38.	<i>Pennisetum pedicellatum</i>	Poaceae	Pothapullu
39.	<i>Pennisetum polystachyon</i>	Poaceae	Pothapullu

Table 7. List of of climbers recorded from the study core zone

Sl. No	Species	Family	Local Name
1.	<i>Acacia caesia</i>	Fabaceae (Mimosoideae)	Inja
2.	<i>Acacia torta</i>	Fabaceae (Mimosoideae)	Inja
3.	<i>Bauhinia scandens</i>	Fabaceae (Caesalpinioideae)	Nagavalli
4.	<i>Caesalpinia mimosoides</i>	Fabaceae (Caesalpinioideae)	Elimullu
5.	<i>Calycopteris floribunda</i>	Combretaceae	Pullani
6.	<i>Cissus latifolia</i>	Vitaceae	
7.	<i>Cissus repens</i>	Vitaceae	
8.	<i>Cosmostigma racemosm</i>	Asclepiadaceae	
9.	<i>Cyclea peltata</i>	Menispermaceae	Padakizhang
10.	<i>Dalbergia volubilis</i>	Fabaceae (Papilionoideae)	
11.	<i>Gymnema sylvestre</i>	Asclepadaceae	Chakarakolli
12.	<i>Hemidesmus indicus</i>	Periplocaceae	Naruneendi
13.	<i>Ipomoea obscura</i>	Convolvulaceae	Thiruthali
14.	<i>Jasminum coarctatum</i>	Oleaceae	Kattumulla
15.	<i>Merremia vitifolia</i>	Convolvulaceae	Manjakolambi
16.	<i>Mikania micrantha</i>	Asteraceae	Dhridharashtrappacha
17.	<i>Mimosa diplotricha</i>	Fabaceae (Mimosoideae)	Anathottavadi
18.	<i>Naravelia zeylanica</i>	Ranunculaceae	Vathakodi
19.	<i>Passiflora foetida</i>	Passiflorsceae	
20.	<i>Piper longum</i>	Piperaceae	Thippali
21.	<i>Piper nigrum</i>	Piperaceae	Kurumulak
22.	<i>Pueraria phaseoloides</i>	Fabaceae (Papilionoideae)	Kattupayar
23.	<i>Rourea minor</i>	Connaraceae	
24.	<i>Spatholobus sps.</i>	Fabaceae (Papilionoideae)	
25.	<i>Tiliacora acuminata</i>	Menispermaceae	
26.	<i>Tinospora sinensis</i>	Menispermaceae	Amrithu
27.	<i>Tylophora sps.</i>	Asclepiadaceae	

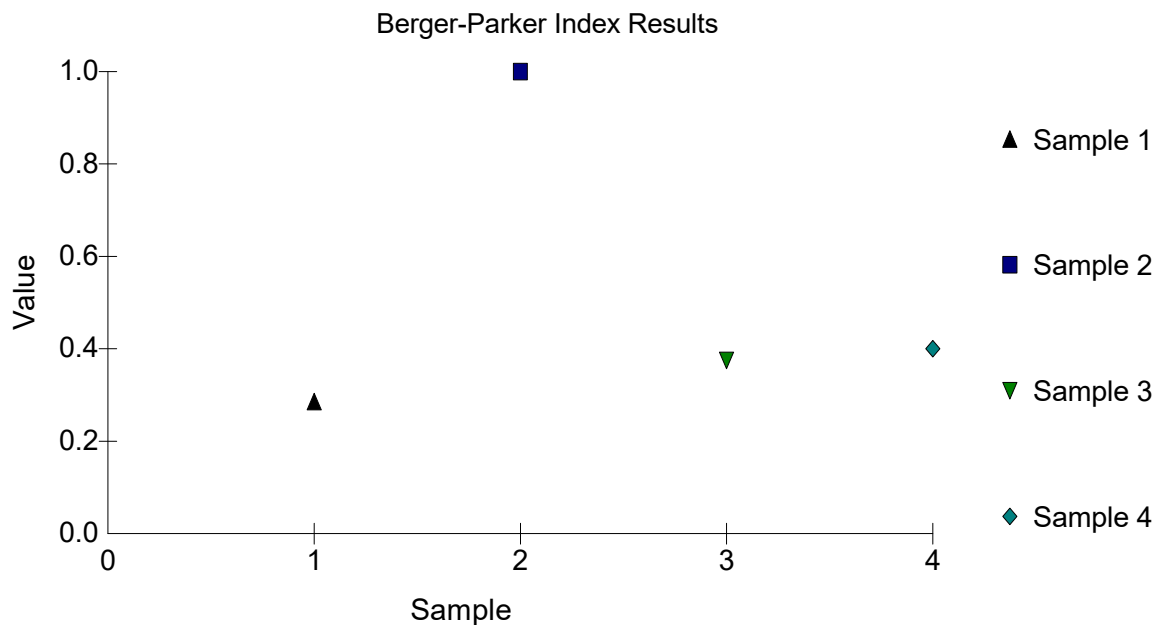
Table 8. Descriptive statistics of tree species in different plots in core area

	Mean Individuals	Standard Deviation	Total Individuals	Total Species	Maximum
Plot 1	0.636	0.809	7	5	2
Plot 2	0.091	0.302	1	1	1
Plot 3	0.727	1.009	8	5	3
Plot 4	0.455	0.688	5	4	2

Table 9. Berger-Parker Dominance (D) of tree species in different plots

Index	Plot 1	Plot 2	Plot 3	Plot 4
Berger-Parker Dominance (D)	0.286	1	0.375	0.4

Figure 13. Berger-Parker Dominance (D) of trees of the core area



9.2 Plant Composition with in 10 km buffer zone

The vegetation of the study area was subdivided into 10×10 m plots for the analysis of tree composition, with a subdivision of this area into 5 m ×5 m and 1m ×1 m for analysis of shrub and herb composition randomly as per the standard methodology. Totally one hundred and seventy six species identified from the buffer zone and the representation of these species' composition indicates that, this moist deciduous type vegetation. Out of these, forty two species are of trees **(Table 10)**, sixty species of **herbs (Table 13)**, thirty four species of shrubs **(Table 12)** and forty species of climbers **(Table 14)** were noted.

The adjoining areas of the proposed sites were Rubber plantations and other mining sites, hence the major plantation crop observed in the area are *Hevea brasiliensis*. Other dominant species of trees observed are *Cocos nucifera*, *Grewia tiliifolia*, *Macaranga peltata*, *Gliricidia sepium*, *Tectona grandis*, *Briedelia retusa*, *Dalbergia lanceolaria* and *Ficus racemosa* **(Table 11)**. Dominant species of shrubs observed in the area were *Alternanthera brasiliana*, *Chromolaena odorata*, *Clerodendrum infortunatum*, *Flueggea leucopyrus*, *Pseudarthria viscida*, *Hibiscus hispidissimus*, *Ficus hispida* and *Ziziphus rugosa*. The major climbers observed in the area were *Calycopteris floribunda*, *Cissus heyneana*, *Acacia caesia*, *Gymnema sylvestre*, *Mikania micrantha*, *Merremia vitifolia* and in the case of herbs dominant species observed were *Microstachys chamaelea*, *Mimosa pudica* and *Alternanthera bettzickiana*, *Axonopus compressus*, *Oplismenus sps.*, *Pennisetum pedicellatum*, *Pennisetum polystachyon*, *Ischaemum sps.*, *Cyrtococcum sps.*, and *Brachiaria sps.* were the common grass species observed in the area.

The proposed site for mining was a rocky land and the area has been invaded by weeds. The proposed site and its surroundings have been suffering disturbances for a long time. Consequences of such long term anthropogenic activities can be easily visible in and around the mining area. The proposed area consist a working quarry and a small part of a Rubber plantation. The area is having moist deciduous type of vegetation and the adjoining areas of the proposed site are plantations intermixed with natural vegetation and other mining areas. Vegetation within the proposed area was negligible. No characteristic vegetation observed within the proposed site. The proposed site is located in a slanting slope. The floral diversity of the adjoining areas of the site is showing a moderate level. The tree vegetation is showing high in number when comparing with herb, shrub and climbers.

North, south, east and west part of the proposed site have been divided into ten transects viz; (T1), (T2), (T3), (T4), (T5), (T6) (T7), (T8), (T9) and (T10).

From the transects (T1) which is taken along the east side boundary of the proposed site. Most of the area in this transect is showing Rubber plantation with thick understory. Diversity of trees in this transect is too low and the area is disturbed one. Trees other than Rubber are negligible here. There is a working quarry next to this transect, hence the area is extremely disturbed one. The proposed transect path is located in a slanting slope. The transect (T2) is taken along west portion of the proposed site. The transect is also a part of a abandoned farm land and an abandoned quarry. The area is also sloppy and rocky, diversity of plants are moderately high. The area also possesses forest like thick vegetation. There are numerous saplings and seedlings of many trees in the area and also the area has been used for planting *Cocos nucifera*. (T3) is located in the north-west part of the proposed site. This transect is also the part of a farmland with many trees. Patches of natural vegetation can be noticed in the starting portion of the transect path. The transect (T4), is located in the north side of the proposed site. It is a highly disturbed area, because there is a working quarry in the area. Vegetation is and is a highly disturbed area. The top area of this transect is showing some patches of natural vegetation. This area is sloppy. The transect (T5) is also located in the north-eastern parts of the proposed site. The transect path is completely intermixed with Rubber plantations. The area possesses thick understory. The weather was clear and sunny. The transects (T6) is located in the southern portion of the proposed site the area is adjacent to a working quarry and the area possesses heap of mining wastes and rocks. The area possesses moderate diversity of trees and poor understory growth. Transect (T7) is in the southern parts of the proposed area. it is also a part of an abandoned farm land and this is located bottom of hill. Coconut trees area dominant in the area. The transect (T8) is located in the south-western part of the proposed site. The transect path was a road in between other quarries and a crusher unit. There are many trees on both sides of the road and the area possesses moderate diversity in tree species. The area is disturbed with heavy dust particles for the approach road and from the crusher unit. There were water logged areas and heaps of soil and rubbles in the land. Invasive trees have been dominated the area.

Discriptive statistics of trees in ten transects were provided in the **Table 16**.

Table.10. . List of Trees observed from the study area in buffer zone.

Sl. No	Scientific Name	Family	Local Name	No of Individuals
1.	<i>Cocos nucifera</i>	Palmae	Thengu	54
2.	<i>Grewia tiliifolia</i>	Tiliaceae	Chadachi	26
3.	<i>Macaranga peltata</i>	Euphorbiaceae	Vatta	24
4.	<i>Gliricidia sepium</i>	Fabaceae (Papilionoideae)	Sheemakonna	19
5.	<i>Tectona grandis</i>	Verbenaceae	Thekku	18
6.	<i>Ficus racemosa</i>	Moraceae	Athi	14
7.	<i>Briedelia retusa</i>	Euphorbiaceae	Mulluvenga	12
8.	<i>Dalbergia lanceolaria</i>	Fabaceae (Papilionoideae)	Eetti	10
9.	<i>Bombax ceiba</i>	Bombacaceae	Elavu	8
10	<i>Hymenodictyon orixense</i>	Rubiaceae		8
11	<i>Areca catechu</i>	Palmae	Thengu	7
12	<i>Grewia serrulata</i>	Tiliaceae	Chadachi	7
13	<i>Ficus exasperata</i>	Moraceae	Parakam	6
14	<i>Phyllanthus emblica</i>	Euphorbiaceae	Nelli	6
15	<i>Santalum album</i>	Santalaceae	Chandanam	6
16	<i>Caryota urens</i>	Palmae	pana	5
17	<i>Pterocarpus marsupium</i>	Fabaceae (Papilionoideae)	Venga	5
18	<i>Xylia xylocarpa</i>	Fabaceae (Mimosoideae)	Irupool	5
19	<i>Albizia sps.</i>	Fabaceae (Mimosoideae)	Karivaka	4
20	<i>Mangifera indica</i>	Anacardiaceae	Mavu	4
21	<i>Terminalia paniculata</i>	Combretaceae	Maruth	4
22	<i>Dalbergia sissoides</i>	Fabaceae (Papilionoideae)	Eetti	3
23	<i>Schleichera oleosa</i>	Sapindaceae	Poovam	3
24	<i>Artocarpus heterophyllus</i>	Moraceae	Plavu	2
25	<i>Bauhinia malabarica</i>	Fabaceae (Caesalpinioideae)		2

26	<i>Lagerstroemia microcarpa</i>	Lythraceae	Vennilavu	2
27	<i>Moringa oleifera</i>	Moringaceae	Muringa	2
28	<i>Tamarindus indica</i>	Fabaceae (Caesalpinioideae)	Valanpuli	2
29	<i>Terminalia bellirica</i>	Combretaceae	Karimaram	2
30	<i>Trema orientalis</i>	Ulmaceae		2
31	<i>Albizia amara</i>	Fabaceae (Mimosoideae)	Karivaka	1
32	<i>Anacardium occidentale</i>	Anacardiaceae	Kashumavu	1
33	<i>Careya arborea</i>	Lecythidaceae	Pezhu	1
34	<i>Erythrina stricta</i>	Fabaceae (Papilionoideae)	Murikk	1
35	<i>Ficus tsjahela</i>	Moraceae	Kallal	1
36	<i>Lannea coromandelica</i>	Anacardiaceae	Karilavu	1
37	<i>Psidium guajava</i>	Myrtaceae	Pera	1
38	<i>Sterculia guttata</i>	Sterculiaceae		1
39	<i>Sterculia urens</i>	Sterculiaceae		1
40	<i>Terminalia elliptica</i>	Combretaceae	Karimaruth	1
41	<i>Vitex altissima</i>	Verbenaceae	Mayila	1
42	<i>Zanthoxylum rhetsa</i>	Rutaceae		1

Table.11. List of Trees observed from the study area in buffer zone.

Sl. No	SPECIES	No of individuals in each Transects								TOTAL
		Name of the transects								
		T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8	
1	<i>Cocos nucifera</i>	0	13	6	2	8	4	2	19	54
2	<i>Grewia tiliifolia</i>	0	2	4	6	7	2	0	5	26
3	<i>Macaranga peltata</i>	1	3	2	4	7	1	0	6	24
4	<i>Gliricidia sepium</i>	0	1	1	13	1	0	2	1	19
5	<i>Tectona grandis</i>	0	3	2	0	3	0	2	8	18
6	<i>Ficus racemosa</i>	0	1	0	2	0	6	1	4	14
7	<i>Briedelia retusa</i>	0	2	5	1	1	1	0	2	12
8	<i>Dalbergia lanceolaria</i>	0	0	3	2	0	1	0	4	10
9	<i>Bombax ceiba</i>	0	0	1	0	0	1	0	6	8
10	<i>Hymenodictyon orixense</i>	0	0	2	0	0	0	0	6	8
11	<i>Areca catechu</i>	0	0	0	0	7	0	0	0	7
12	<i>Grewia serrulata</i>	0	0	1	3	0	0	1	2	7
13	<i>Ficus exasperata</i>	0	0	0	1	4	0	0	1	6
14	<i>Phyllanthus emblica</i>	0	0	2	0	0	0	0	4	6
15	<i>Santalum album</i>	0	1	3	0	0	0	0	2	6
16	<i>Caryota urens</i>	0	0	0	2	0	0	2	1	5
17	<i>Pterocarpus marsupium</i>	0	1	1	0	0	0	0	3	5
18	<i>Xylia xylocarpa</i>	0	0	2	2	0	0	0	1	5
19	<i>Albizia sps.</i>	0	1	1	1	0	1	0	0	4
20	<i>Mangifera indica</i>	0	0	1	0	1	1	0	1	4
21	<i>Terminalia paniculata</i>	0	0	0	1	0	0	0	3	4
22	<i>Dalbergia sissooides</i>	0	1	1	0	0	0	0	1	3
23	<i>Schleichera oleosa</i>	0	1	0	1	1	0	0	0	3
24	<i>Artocarpus heterophyllus</i>	0	1	0	0	0	0	0	1	2
25	<i>Bauhinia malabarica</i>	0	0	0	0	1	0	1	0	2
26	<i>Lagerstroemia microcarpa</i>	0	0	0	2	0	0	0	0	2
27	<i>Moringa oleifera</i>	0	1	0	0	1	0	0	0	2
28	<i>Tamarindus indica</i>	0	0	0	0	0	0	0	2	2
29	<i>Terminalia bellirica</i>	0	0	0	0	2	0	0	0	2
30	<i>Trema orientalis</i>	0	1	0	0	1	0	0	0	2
31	<i>Albizia amara</i>	0	1	0	0	0	0	0	0	1
32	<i>Anacardium occidentale</i>	0	0	0	0	0	0	0	1	1
33	<i>Careya arborea</i>	0	0	0	1	0	0	0	0	1
34	<i>Erythrina stricta</i>	0	0	0	0	1	0	0	0	1
35	<i>Ficus tsjahela</i>	0	0	0	0	0	0	0	1	1
36	<i>Lannea coromandelica</i>	0	0	0	1	0	0	0	0	1
37	<i>Psidium guajava</i>	0	0	0	0	1	0	0	0	1

38	<i>Sterculia guttata</i>	0	0	1	0	0	0	0	0	1
39	<i>Sterculia urens</i>	0	0	1	0	0	0	0	0	1
40	<i>Terminalia elliptica</i>	0	0	0	0	0	0	0	1	1
41	<i>Vitex altissima</i>	0	0	0	0	0	1	0	0	1
42	<i>Zanthoxylum rhetsa</i>	0	0	0	0	0	0	0	1	1
TOTAL		1	34	40	45	47	19	11	87	284

Table.12. List of Shrubs observed from the study area at buffer zone

Sl. No.	Species	Family	Local name
1.	<i>Allophylus sps.</i>	Sapindaceae	
2.	<i>Alternanthera brasiliana</i>	Amaranthaceae	Chumalacheera
3.	<i>Antidesma sps.</i>	Euphorbiaceae	
4.	<i>Bridelia stipularis</i>	Euphorbiaceae	
5.	<i>Canthium sps.</i>	Rubiaceae	Kara
6.	<i>Capsicum frutescens</i>	Solanaceae	Kanthari
7.	<i>Catunaregam spinosa</i>	Rubiaceae	Malankara
8.	<i>Chromolaena odorata</i>	Asteraceae	Communist pacha
9.	<i>Clerodendrum infortunatum</i>	Verbenaceae	Peringalam
10.	<i>Coffea arabica</i>	Rubiaceae	Kappi
11.	<i>Dendrophthoe falcata</i>	Loranthaceae	Ithile
12.	<i>Desmodium motorium</i>	Fabaceae (Papilionoideae)	Indian telegraphic plant
13.	<i>Desmodium triquetrum</i>	Fabaceae (Papilionoideae)	Orila
14.	<i>Embelia tsjeriam-cottam</i>	Myrsinaceae	
15.	<i>Ficus hispida</i>	Moraceae	Therakam
16.	<i>Flueggea leucopyrus</i>	Euphorbiaceae	
17.	<i>Flueggea virosa</i>	Euphorbiaceae	
18.	<i>Grewia nervosa</i>	Tiliaceae	
19.	<i>Helicteres isora</i>	Sterculiaceae	Idampiri
20.	<i>Hibiscus hispidissimus</i>	Malvaceae	Panchakam

21.	<i>Hyptis suaveolens</i>	Lamiaceae	Narippalla
22.	<i>Lantana camara</i>	Verbenaceae	Kongini
23.	<i>Leea indica</i>	Leeaceae	Choriyan thali
24.	<i>Memecylon sps.</i>	Melastomataceae	kaashavu
25.	<i>Mussaenda frondosa</i>	Rubiaceae	Vellila
26.	<i>Osbeckia aspera</i>	Melastomataceae	Athiraani
27.	<i>Pseudarthritis viscida</i>	Fabaceae (Papilionoideae)	Moovila
28.	<i>Senna tora</i>	Fabaceae (Caesalpinioideae)	
29.	<i>Strachytarpheta urticifolia</i>	Verbenaceae	Narivalan
30.	<i>Thespesia lampas</i>	Malvaceae	Kattupoovarash
31.	<i>Triumfetta sps.</i>	Tiliaceae	Urpam
32.	<i>Urena lobata</i>	Malvaceae	Urpam
33.	<i>Ziziphus rugosa</i>	Rhamnaceae	Tholdali
34.	<i>Cycas circinalis</i>	Cycadaceae	Einthu

Table.13. List of Herbs observed from the buffer zone

Sl. No.	Species	Family	Local name
1.	<i>Ageratum conyzoides</i>	Asteraceae	Appa
2.	<i>Alternanthera bettzickiana</i>	Amaranthaceae	
3.	<i>Asystasia gangetica</i>	Acanthaceae	Creeping foxglove
4.	<i>Blumea</i> sps.	Asteraceae	
5.	<i>Cyathula prostrata</i>	Amaranthaceae	Cherukadaladi
6.	<i>Desmodium</i> sps.	Fabaceae (Papilionoideae)	
7.	<i>Desmodium triflorum</i>	Fabaceae (Papilionoideae)	Nilam parand
8.	<i>Elephantopus scaber</i>	Asteraceae	Anachuvadi
9.	<i>Lepidagathis</i> sps.	Acanthaceae	
10.	<i>Leucas aspera</i>	Lamiaceae	Thumba
11.	<i>Melochia corchorifolia</i>	Sterculiaceae	
12.	<i>Microstachys chamaelea</i>	Euphorbiaceae	
13.	<i>Mimosa pudica</i>	Fabaceae (Mimosoideae)	Thottavadi
14.	<i>Mitracarpus hirtus</i>	Rubiaceae	
15.	<i>Naregamia alata</i>	Meliaceae	Nilanarakam
16.	<i>Oldenlandia auricularia</i>	Rubiaceae	Tharthaval
17.	<i>Peperomia pellucida</i>	Piperaceae	Mashithanduchedi
18.	<i>Phaulopsis imbricata</i>	Acanthaceae	
19.	<i>Phyllanthus urinaria</i>	Euphorbiaceae	
20.	<i>Phyllanthus virgatus</i>	Euphorbiaceae	
21.	<i>Pogostemon</i> sps.	Lamiaceae	
22.	<i>Pouzolzia</i> sps.	Urticaceae	
23.	<i>Scoparia dulcis</i>	Plantaginaceae	
24.	<i>Sida alnifolia</i>	Malvaceae	Kurumthotti
25.	<i>Sida cordata</i>	Malvaceae	
26.	<i>Spermacoce</i> sps.	Rubiaceae	Tharthaval
27.	<i>Spilanthes radicans</i>	Asteraceae	Venapacha

28.	<i>Synedrella nodiflora</i>	Asteraceae	
29.	<i>Talinum portulacifolium</i>	Talinaceae	Sambar cheera
30.	<i>Tridax procumbens</i>	Asteraceae	
31.	<i>Viscum sps.</i>	Viscaceae	
32.	<i>Wedelia trilobata</i>	Asteraceae	Singapore daisy
33.	<i>Zornia sps.</i>	Fabaceae (Papilionoideae)	
34.	<i>Ananas comosus</i>	Bromeliaceae	Pineapple
35.	<i>Apluda mutica</i>	Poaceae	
36.	<i>Axonopus compressus</i>	Poaceae	Buffalo grass
37.	<i>Brachiaria sps.</i>	Poaceae	
38.	<i>Centotheca lappacea</i>	Poaceae	
39.	<i>Colocasia sps.</i>	Araceae	Chembu
40.	<i>Commelina benghalensis</i>	Commelinaceae	
41.	<i>Costus speciosus</i>	Costaceae	
42.	<i>Curculigo orchioides</i>	Hypoxidaceae	Nilappana
43.	<i>Curcuma sps.</i>	Zingiberaceae	Koova
44.	<i>Cyanotis arachnoidea</i>	Commelinaceae	
45.	<i>Cymbopogon sps.</i>	Poaceae	Theruvapullu
46.	<i>Cynodon sps.</i>	Poaceae	Karukappullu
47.	<i>Cyrtococcum oxphyllum</i>	Poaceae	
48.	<i>Digitaria sps.</i>	Poaceae	
49.	<i>Ischaemum sps.</i>	Poaceae	
50.	<i>Kyllinga sps.</i>	Cyperaceae	Muthangapullu
51.	<i>Melinis sps.</i>	Poaceae	
52.	<i>Musa paradisiaca</i>	Musaceae	Vazha
53.	<i>Oplismenus sps.</i>	Poaceae	
54.	<i>Paspalum conjugatum</i>	Poaceae	
55.	<i>Pennisetum pedicellatum</i>	Poaceae	Pothapullu
56.	<i>Pennisetum polystachyon</i>	Poaceae	Pothapullu

57.	<i>Setaria sps.</i>	Poaceae	
58.	<i>Themeda sps.</i>	Poaceae	
59.	<i>Therophonum sps.</i>	Araceae	
60.	<i>Zingiber zerumbet</i>	Zingiberaceae	Kattinji

Table.14 List of Climbers observed from the study area

Sl. No	Species	Family	Local Name
1.	<i>Abrus pulchellus</i>	Fabaceae (Papilionoideae)	
2.	<i>Acacia caesia</i>	Fabaceae (Mimosoideae)	Inja
3.	<i>Acacia torta</i>	Fabaceae (Mimosoideae)	Inja
4.	<i>Aristolochia indica</i>	Aristolochiaceae	Garudakodi
5.	<i>Cajanus sps.</i>	Fabaceae (Papilionoideae)	
6.	<i>Calycopteris floribunda</i>	Combretaceae	Pullani
7.	<i>Centrosema molle</i>	Fabaceae (Papilionoideae)	Kattupayar
8.	<i>Cissus heyneana</i>	Vitaceae	
9.	<i>Cissus latifolia</i>	Vitaceae	
10.	<i>Clitoria ternatea</i>	Fabaceae (Papilionoideae)	Sangupushpam
11.	<i>Connarus sps.</i>	Connaraceae	
12.	<i>Cosmostigma racemosm</i>	Asclepiadaceae	
13.	<i>Cryptolepis buchananii</i>	Periplocaceae	
14.	<i>Cyclea peltata</i>	Menispermaceae	Padakizhang
15.	<i>Dalbergia sps.</i>	Fabaceae (Papilionoideae)	
16.	<i>Diploclisia glaucescens</i>	Menispermaceae	
17.	<i>Dipolocyclus palmatus</i>	Cucurbitaceae	Neyyunni
18.	<i>Gymnema sylvestre</i>	Asclepadaceae	Chakarakolli
19.	<i>Hemidesmus indicus</i>	Periplocaceae	Naruneendi
20.	<i>Hewittia malabarica</i>	Convolvulaceae	
21.	<i>Ichnocarpus frutescens</i>	Apocynaceae	Palvalli
22.	<i>Ipomoea obscura</i>	Convolvulaceae	Thiruthali
23.	<i>Jasminum coarctatum</i>	Oleaceae	Kattumulla
24.	<i>Merremia umbellata</i>	Convolvulaceae	
25.	<i>Merremia vitifolia</i>	Convolvulaceae	Manjakolambi
26.	<i>Mikania micrantha</i>	Asteraceae	Dhridharashtappacha
27.	<i>Mimosa diplotricha</i>	Fabaceae (Mimosoideae)	Anathottavadi

28.	<i>Mucuna bracteata</i>	Fabaceae (Papilionoideae)	Kattanpayar
29.	<i>Naravelia zeylanica</i>	Ranunculaceae	Vathakodi
30.	<i>Passiflora foetida</i>	Passifloraceae	
31.	<i>Piper nigrum</i>	Piperaceae	Kurumulak
32.	<i>Pueraria phaseoloides</i>	Fabaceae (Papilionoideae)	Kattupayar
33.	<i>Rourea minor</i>	Connaraceae	
34.	<i>Tinospora sinensis</i>	Menispermaceae	Amrithu
35.	<i>Tylophora sps.</i>	Asclepiadaceae	
36.	<i>Xenostegia tridentata</i>	Convolvulaceae	Prasarani
37.	<i>Ziziphus oenoplia</i>	Rhamnaceae	Thodali
38.	<i>Dioscorea pentaphylla</i>	Dioscoreaceae	
39.	<i>Dioscorea wallichii</i>	Dioscoreaceae	Kattukizhangu
40.	<i>Smilax zeylanica</i>	Smilacaceae	Arikanni

Table 15. Berger-Parker Dominance (D) of tree species in different transects

Index	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Transect 6	Transect 7	Transect 8
Berger-Parker Dominance (D)	1	0.382	0.15	0.289	0.17	0.316	0.182	0.218

Table 16. Descriptive statistics of tree species in different transects from buffer zone

	Mean Individuals	Standard Deviation	Total Individuals	Total Species	Maximum
Transect 1	0.024	0.154	1	1	1
Transect 2	0.81	2.086	34	16	13
Transect 3	0.952	1.447	40	19	6
Transect 4	1.071	2.278	45	17	13
Transect 5	1.119	2.189	47	16	8
Transect 6	0.452	1.152	19	10	6
Transect 7	0.262	0.627	11	7	2
Transect 8	2.071	3.389	87	26	19

10. RESULTS- FAUNA



10. Fauna Summary

A total of Thirty four (34) species of birds, Forty seven (47) species of butterflies, four (4) species of mammals, four (4) species of reptiles, eight species of odonates, and five amphibians were recorded from the core zone. Whereas from the buffer zone, a total of Twenty three (23) species of birds, forty six (46) species of butterflies, five (5) species of

mammals, Six (6) species of reptiles, seven (7) species of odonates, and four species of amphibians were recorded.

10.1 Birds

A total of 34 species of birds with 141 individuals were recorded from core zone (Table 17) of which second transect had the high Shannon Wiener Diversity with (Table17, Figure 16). All these 34 species were coming under least concern (LC) category of IUCN. Most of them were common birds and forest dependent species. Only two species of raptor were recorded, which was listed as scheduled I based on Indian Wildlife Protection Act (IWPA, 1972) (Table 17). And these raptors are common in the forest edges of Kerala. Indian peafowl was also reported which is listed under schedule I of WPA- 1972. Local migratory bird species such as Brown breasted flycatcher (*Muscicapa muttui*) and Asian Brown Flycatcher (*Muscicapa dauurica*) were also reported from the area. Direct sightings and calls were used for bird identification. Species richness was high in transect five and two. Asian palm swift (*Cypsiurus balasiensis*) and Malabar parakeet (*Turdoides striata*) were most abundant in number.

A total of 24 species of birds with 81 individuals were recorded from buffer zone (Table 31) of which eighth transect had the high Shannon Wiener Diversity with 1.01 (Table17, Figure 16). All these 23 species were coming under least concern (LC) category of IUCN. Most of them were common birds and forest dependent species. Only one species, Shikra (*Accipiter badius*) of raptors was recorded, and is listed under schedule I of Indian Wildlife Protection Act (IWPA, 1972). Local migratory bird species, rusty tailed flycatcher (*Muscicapa ruficauda*) was also reported from the area. Direct sightings and calls were used for bird identification. Species richness was high in transect one and two. Common myna (*Acridotheres tristis*) was the most abundant in number.

A comparison on the birds present in the region and present study is provided as **Appendix 1.**

Table 17. Shannon Diversity (H) index of bird species in different transects

Index	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7	Sample 8
Shannon H'	0.894	0.864	0.853	0.85	0.928	0.796	0.847	1.01

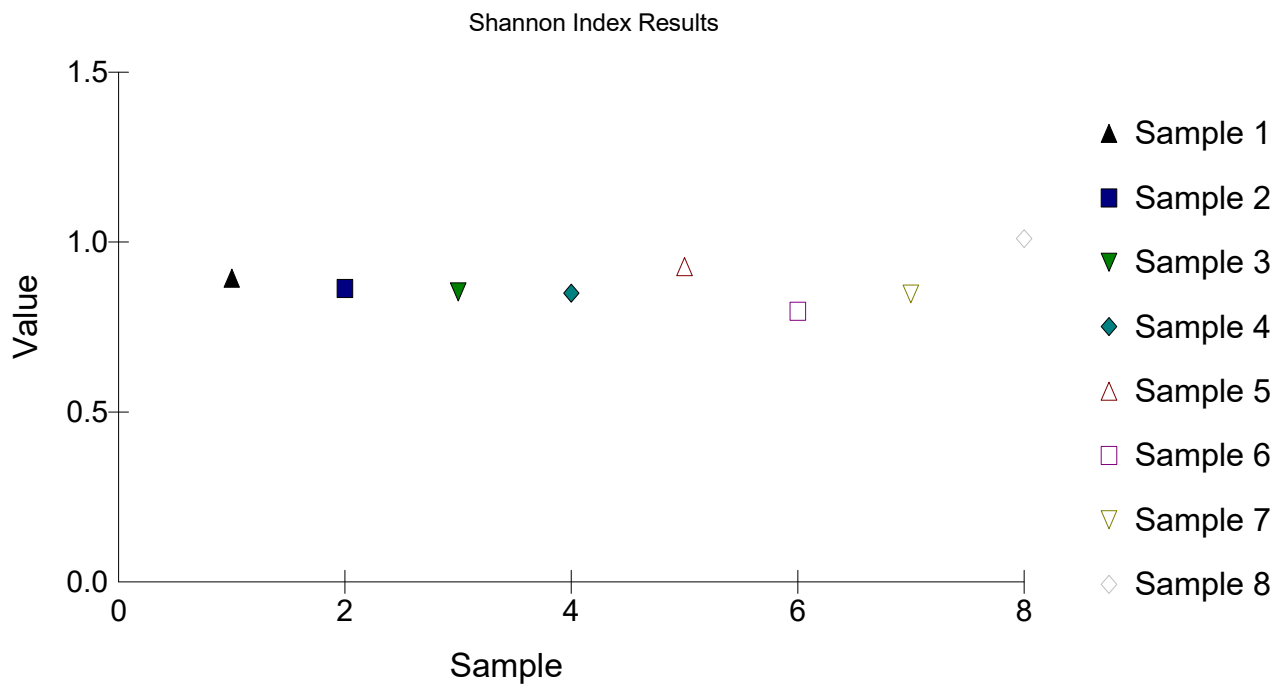


Figure 16. Shannon diversity index of birds in different transects

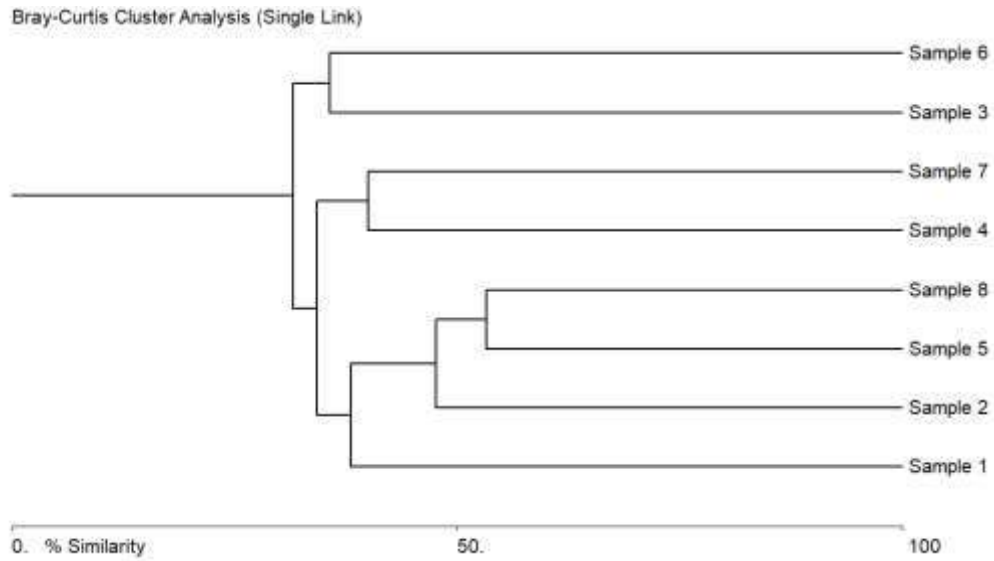


Figure 17. Bray Curtis Cluster diagram to show the similarity of birds at different sampling location

Table 18. Descriptive statistics of bird species in different transects

	Mean Individuals	Standard Deviation	Total Individuals	Total Species	Maximum
Transect 1	0.529	1.08	18	9	5
Transect 2	0.618	1.477	21	10	8
Transect 3	0.412	0.957	14	9	5
Transect 4	0.5	1.052	17	8	4
Transect 5	0.618	1.181	21	10	4
Transect 6	0.412	0.925	14	7	3
Transect 7	0.382	0.817	13	8	3
Transect 8	0.706	1.292	24	13	6

10.2 Butterflies

A total 46 species of butterflies were observed from the core zone area, which comprised of 126 individuals (Table 19). Twenty seven (27) species were reported from the buffer zone and all the species were listed as scheduled IV according to IWPA (1972). Tiny grass blue (*Zizula hylax*) was the most abundant to the buffer and core zones. Among these 46 species of butterflies, one was Western Ghats endemic - Southern bird wing (*Troides minos*), And the scheduled species is Crimson rose (*Pachliopta hector*) according to IWPA (1972) (Table 20). Some of the butterfly species were forest depended species.

Table 19. List of Butterflies species in the core zone.

Sl. No	Common Name	Scientific Name	IUCN	Total Count
1	Common jezebel	<i>Delias eucharis</i>	LC	3
2	Common Rose	<i>Pachliopta aristolochiae</i>	LC	3
3	Common Mormon	<i>Papilio polytes</i>	LC	2
4	Crimson Rose	<i>Pachliopta hector</i>	LC	2
5	Common wanderer	<i>Pareronia valeria</i>	LC	2
6	Southern Birdwing	<i>Troides minos</i>	LC	3
7	Great Eggfly	<i>Hypolimnas bolina</i>	LC	2
8	Common Grass Yellow	<i>Eurema hecabe</i>	LC	5
9	Psyche	<i>Leptosia nina</i>	LC	2
10	Blue mormon	<i>Papilio polymnestor</i>	LC	3
11	Chocolate Pansy	<i>Junonia iphita</i>	LC	2
12	Common crow	<i>Euploea core</i>	LC	2
13	Common emigrant	<i>Catopsilia pomona</i>	LC	3
14	Common albatross	<i>Appias albina</i>	LC	3
15	Angled castor	<i>Ariadne ariadne</i>	LC	2
16	Mottled emigrant	<i>Catopsilia pyranthe</i>	LC	3
17	Common wanderer	<i>Pareronia valeria</i>	LC	2
18	Tailed jay	<i>Graphium agamemnon</i>	LC	2

19	Striped tiger	<i>Danaus genutia</i>	LC	2
20	Common fourring	<i>Ypthima huebneri</i>	LC	7
21	Common evening brown	<i>Melantis leda</i>	LC	2
22	Dark evening brown	<i>Melantis phedima</i>	LC	3
23	Common sailer	<i>Neptis hylas</i>	LC	2
24	Tailed palmfly	<i>Elymnias caudata</i>	LC	1
25	Palni bushbrown	<i>Teligna davisoni</i>	LC	2
26	Common lascar	<i>Pantoporia hordonia</i>	LC	2
27	Common hedge blue	<i>Acytolepis puspa</i>	LC	5
28	Forget me not	<i>Catochrysops strabo</i>	LC	1
29	Pointed ciliate blue	<i>Anthene lycaenina</i>	LC	2
30	Lime blue	<i>Chilades lajus</i>	LC	3
31	Small cupid	<i>Chilades parrhasius</i>	LC	5
32	Psyche	<i>Leptosia nina</i>	LC	3
33	Small grass jewel	<i>Freyeria putli</i>	LC	6
34	Common fivering	<i>Ypthima baldus</i>	LC	3
35	Common cerulean	<i>Jamides celeno</i>	LC	2
36	Tiny grass blue	<i>Zizula hylax</i>	LC	10
37	Gram blue	<i>Euchrysops cnejus</i>	LC	6
38	Common awl	<i>Hasora badra</i>	LC	2
39	Common line blue	<i>Prosotas nora</i>	LC	6
40	Ciliate blue	<i>Anthene emolus</i>	LC	4
41	Common snow flat	<i>Tagiades japedus</i>	LC	1
42	Yamfly	<i>Loxura atymnus</i>	LC	2
43	Bush hopper	<i>Ampittia discorides</i>	LC	3
44	Chestnut angle	<i>Odontoptilum angulate</i>	LC	2
45	Rice swift	<i>Borbo cinnara</i>	LC	2
46	Chestnut bob	<i>Iambrix salsala</i>	LC	1

Table 20: List of Butterflies recorded in the buffer area

Sl. No	Common Name	Scientific Name	IUCN	Total Count
1	Chestnut bob	<i>Iambrix salsala</i>	LC	4
2	Common Rose	<i>Pachliopta aristolochiae</i>	LC	3
3	Common Mormon	<i>Papilio polytes</i>	LC	5
4	Crimson Rose	<i>Pachliopta hector</i>	LC	3
5	Common line blue	<i>Prosotas nora</i>	LC	11
6	Southern Birdwing	<i>Troides minos</i>	LC	1
7	Great Eggfly	<i>Hypolimnas bolina</i>	LC	4
8	Common Grass Yellow	<i>Eurema hecabe</i>	LC	7
9	Rice swift	<i>Borbo cinnara</i>	LC	4
10	Blue mormon	<i>Papilio polymnestor</i>	LC	3
11	Chocolate Pansy	<i>Junonia iphita</i>	LC	2
12	Common crow	<i>Euploea core</i>	LC	5
13	Psyche	<i>Leptosia nina</i>	LC	2
14	Striped tiger	<i>Danaus genutia</i>	LC	6
15	Tiny grass blue	<i>Zizula hylax</i>	LC	6
16	Gram blue	<i>Euchrysops cnejus</i>	LC	7
17	Gladeye bushbrown	<i>Mycalesis patina</i>	LC	8
18	Common fourring	<i>Ypthima huebneri</i>	LC	6
19	Common evening brown	<i>Melantis leda</i>	LC	3
20	Dark evening brown	<i>Melantis phedima</i>	LC	5
21	Common hedge blue	<i>Acytolepis puspa</i>	LC	9
22	Pointed ciliate blue	<i>Anthene lycaenina</i>	LC	4
23	Common baron	<i>Euthalia aconthea</i>	LC	2
24	Dark palm dart	<i>Telicota ancilia</i>	LC	3
25	Fulvous pied flat	<i>Pseudocoladenia dan</i>	LC	2
26	Common fivering	<i>Ypthima baldus</i>	LC	3
27	Common cerulean	<i>Jamides celeno</i>	LC	8

*LC=least concern

10.3 Odonates

A total of eight species of odonates were reported from core zone (Table 21) and seven species were identified from buffer zone (Table 22). Odonates diversity was low at the site which may be due to rainy weather as most of the odonates are active during clear weather. The habitat was well suited for odonates diversity. The presence of spring supporting their breeding, and the thick under growth near the spring provides shelter for proper moulting of larvae and the habitat provides a variety of small insects for their diet.

Table 21. List of odonates in the core zone

Sl No	Common Name	Scientific name	T1	T2	T3	T4	T5	T6
1	Ground skimmer	<i>Diplacodes trivialis</i>	1		1			2
2	Spread wing	<i>Lestes elatus</i>		2				1
3	Blue bush dart	<i>Copera vittata</i>			1			
4	Pied paddy skimmer	<i>Neurothemis tullia</i>		2		2	1	
5	Wandering glider	<i>Pantala flavescens</i>	3		7			3
6	Green striped slender dartlet	<i>Aciagrion occidentale</i>			1			
7	Red faced skimmer	<i>Orthretum chrysis</i>		1			1	
8	Granite ghost	<i>Macrodiplax cora</i>		2				

Table 22. List of odonates in the buffer zone

Sl No	Common Name	Scientific name	T1	T2	T3	T4	T5	T6
1	Ground skimmer	<i>Diplacodes trivialis</i>	1		1	2		
2	Blue bush dart	<i>Copera vittata</i>				2		1
3	Golden dartlet	<i>Ischnura aurora</i>		1				
4	Red faced skimmer	<i>Orthretum chrysis</i>					1	
5	Granite ghost	<i>Macrodiplax cora</i>			2			
6	Global wanderer	<i>Pantala flavescens</i>	3		1	6		
7	Common picture wing	<i>Rhyothemis variegata</i>		1			1	2

10.4 Mammals

A total of five species of mammals were reported from the core zone of the study area (Table 23) where as four were reported from the buffer zone (Table 24). In core zone, Indian flying fox (*Pteropus medius*), Wild boar (*Sus scrofa*), Indian Palm squirrel (*Funambulus palmarum*) and Indian grey Mongoose (*Herpestes edwardsii*) were sighted directly. Indian Crested Porcupine (*Hystrix indica*) was sighted indirectly. In buffer zone, Indian palm squirrel (*Funambulus palmarum*), Indian flying fox (*Pteropus medius*), and Indian Grey Mongoose (*Herpestes edwardsii*) sighted directly. The presence of species was confirmed by direct sight, indirect signs, or indirect evidences by recording occurrences such as holes, markings, hairs, spines, scats, pellets, droppings and quills. But all other four mammal species were scheduled according to IWPA, Indian Grey Mongoose (*Herpestes edwardsii*), was coming under the Schedule-II, Wild Boar (*Sus scrofa*), Indian flying fox (*Pteropus medius*) and Indian Crested Porcupine (*Hystrix indica*) are included under Schedule-III and Schedule-IV respectively. There may be a chance for other species such as bats and bandicoots etc.

Table 23. List of Mammals in the core area

Sl. No.	Common Name	Scientific Name	IUCN Status	WPA Schedule	Observation Type	Count
1	Indian Flying Fox	<i>Pteropus</i>	LC	VI	Direct	2
2	Wild boar	<i>Sus scrofa</i>	LC	III	Direct	4
3	Indian Crested Porcupine	<i>Hystrix indica</i>	LC	IV	Indirect-scat	
4	Indian grey Mongoose	<i>Herpestes edwardsii</i>	LC	IV	Direct	1
5	Indian Palm squirrel	<i>Funambulus palmarum</i>	LC	IV	Direct	3

Table 24. List of Mammals in the buffer zone study area

Sl. No.	Common Name	Scientific Name	IUCN Status	WPA Schedule	Observation Type	Count
1	Indian flying fox	<i>Pteropus medius</i>	LC	VI	Direct	1
2	Wild boar	<i>Sus scrofa</i>	LC	III	Indirect	
3	Indian Palm Squirrel	<i>Funambulus palmarum</i>	LC	IV	Direct	2
4	Indian grey Mongoose	<i>Herpestes edwardsii</i>	LC	IV	Direct	1

LC= Least Concern, * Species likely to be present, x= present

10.5 Reptiles

Total four species of reptiles were observed from the core zone (Table 25) and 4 species were reported from the buffer area (Table 26). All these recorded species were of least concern according to IUCN. The buffer zone of proposed site having well under growth and litter fall, they provide perfect habitat for reptiles. But heavy rain could have been a factor for less sighting. There may be a chance for other reptile species like Indian Flying Lizard, Ornate flying snake, Green Vine Snake, Gecko sp., Rat snake, etc

Table 25. List of Reptiles in the core area

	Scientific name	Common Name	Status	count	Remarks
1.	<i>Calotes versicolor</i>	Oriental garden lizard	LC	1	
2	<i>Eutropis carinata</i>	Keeled grass skink	LC	2	
3	<i>Psammophilus dorsalis</i>	Peninsular rock agama	LC	2	
4	<i>Cnemaspis</i>	Ground gecko	LC	2	

Table 26. List of Reptiles in the Study area (Buffer zone)

	Scientific name	Common Name	Status	count	Remarks
1.	<i>Calotes calotes</i>	Green forest lizard	LC	2	
2	<i>Eutropis carinata</i>	Keeled grass skink	LC	1	
3	<i>Calotes versicolor</i>	Oriental garden lizard	LC	2	
4	<i>Cnemaspis</i>	Ground gecko	LC	3	

NE= Not Evaluated, LC= Least Concern, * species likely to be present, x=Present

10.7 Amphibians

A total of four species of amphibians (Table 27) were sighted from the core zone. A total of three species of amphibians (Table 28) were sighted from the buffer zone and the listed species were non-threatened.

Table 27: List of amphibians recorded in the core zone

Sl.No.	Common name	Scientific name	IWPA
1	Common Indian Toad	<i>Duttaphrynus melanostictus</i>	
2	Minervarya sps.	<i>Minervarya sps.</i>	
3	Skittering frog	<i>Euphlyctus sp.</i>	
4	Common tree frog	<i>Pseudophilautus sp.</i>	

*Endemic to the Western Ghats

Table 28: List of amphibians recorded in the buffer zone

Sl.No.	Common name	Scientific name	IWPA
1	Common Indian Toad	<i>Duttaphrynus melanostictus</i>	
2	Skittering frog	<i>Euphlyctus sps.</i>	
3	Common tree frog	<i>Pseudophilatus sp.</i>	

*Endemic to the Western Ghats

11. Anticipated Environment Impact and Mitigation Measures for Biological Environment

11.1. Anticipated Impacts

Identification of all potential environmental impacts due to a project is an essential step of Environmental Impact Assessment. Mining activities are normally carried out over a long period. This also encourages development in the area, which adds to environmental degradation. Positive impacts on the socio-economic environment are expected to create employment opportunities and development of infrastructure such as roads, school, hospitals etc. The possible impacts on biological environment the regions are summerised in the Table 29.

Table 29. Significance of Impact on Biological Environment

Issues	Observations
Proximity to national park/wildlife sanctuary/reserve forest/mangroves/coastline/estuary/sea	There is no National Park, wildlife sanctuary or Biosphere Reserve within 10 km of the proposed site. The ecosensitive zone of Brahmagiri Wildlife Sanctuary is at a distance of 9.5 km from the proposed project. Brahmagiri Wildlife Sanctuary is at a distance of 17.83 kms from the proposed project site.
Activities of the project affects the breeding/nesting sites of birds and animals	There is no ecological sensitive area and the area is covered by rubber plantation, so there is no scope of breeding ground loss vulnerable for the proposed mining activities. There is a possibility of loss of habitat to a few. But since the surrounding areas are also vegetated with different tree/shrub/herb species, any loss of breeding/nesting sites are not expected. However the quarrying activity would impact the mining site. The present study recorded, that there could be a loss of 377 trees from the core zone while the operations are on. This loss will be compensated with planting trees in the other parts.
Located near an area populated by rare or endangered species	There is no rare/endangered plant species recorded within the core areas.
Proposed project restricts access to waterholes for wildlife	No wildlife corridors or migratory routes for wildlife lies within the core area. Thus project does not restrict access to waterholes for wildlife.

Issues	Observations
Proposed mining project impact on surface water quality that also provides water to wildlife	No effluent discharge is expected from the mine. No streams are passing through the core zone. Precautions are mentioned in the proposal for the mitigation measures suggested in the mining plan such as proper drainage, Silt Settling plants, and rain water harvesting ponds to ensure the discharge of only clarified water.
Proposed mining project could increase siltation that would affect nearby	Siltation within the mining area is well controlled by providing check dams, gully plugs, garland drains, retaining walls.
Risk off all/slip or cause death to wild animals due to project activities	There is no wildlife corridor or migratory route for wildlife lies within the core zone of the proposed Mine Lease area. Therefore there are less chances of Wildlife entering into the ML area. However, as per the requirement proper fencing shall be provided surrounding the pit area preventing any approach of wild animals into the area and also a retaining wall is provided surrounding the waste dump to arrest any landslide. Waste dump is also stabilized by concurrent afforestation. Further watch & ward is also provided to prevent any such incidence. Everything should be done as mentioned as proposed project proposal. Since there is no evidence of larger animals, there is no chance of such an accident. However, it is proposed to fence the area. In addition, retaining wall is also proposed for the dumping site.

Issues	Observations
The project releases effluents into a water body that also supplies water to wildlife	No effluents are released from the mine. The mine did not reach the depth of ground water. The storm water during rains are proposed to be treated through silt traps/check dams etc. Hence the quality of water downstream will not be affected. No wildlife dependence on the water is expected.
Mining project affects the forest-based livelihood/any specific forest product on which local livelihood depends	There is no report on forest dependency such as forest products by local community livelihood.
Project likely to affect migration routes	No such Wildlife corridors or migration routes exist within the ML area.
Project likely to affect flora of an area, which have medicinal value	No The proposed area is covered with rubber plantation
Forest land is to be diverted, has carbon high sequestration	No forestland is required to be diverted
The project likely to affect wetlands, fish breeding grounds, marine ecology	There is no effluent/water discharge from the mine. Therefore the project is not going to affect any wetlands or nearby areas.

11.2. Mitigation Measures

Conservation of nature and natural resources involves proper management of natural wealth, biological wealth and the habitats that sustain these resources. The need for conservation, preservation and management of biological diversity arises because of threats to natural terrestrial and aquatic ecosystems by anthropogenic activities. The mine lease area does not fall neither protected area nor Wildlife Sanctuary/reserve forest, so there is limited ecological destruction. But still we hereby suggest a biodiversity conservation and management plan for the region with the following objectives in mind:

- Preservation of natural habitats in the buffer zone and identification of areas that require special attention.
- To improve habitat conditions by taking up afforestation with local species of fruit yielding species, which attract faunal diversity and soil conservation measures.
- To create awareness regarding conservations, and ensure people's participation in the conservation efforts.

The following areas require special attention with reference to conservation and management of flora and fauna:

- Mine and its buffer zone
- Development of ex-situ area for conservation of important plant species

12. Environmental Management Plan for Biodiversity

Restoration measures at mining site:

From the core zone about 80 trees are to be removed from the project site (Table 4). Native species should be preferred for afforestation and reforestation measures in the region. It is very important to promote native species during reforestation/afforestation as they would be creating a sustainable and hospitable environment for the fauna too. List of native species to be planted are given in Table 30.

Table 30. Native tree to be planted in the green belt area

Sl.No.	Scientific name	Common name
1	<i>Syzygium cumini</i>	Njaval
2	<i>Pongamia pinnata</i>	Ung
3	<i>Holigarna arnottiana</i>	Cheru
4	<i>Mangifera indica</i>	Mavu
5	<i>Strychnos nux-vomica</i>	Kanjiram
6	<i>Artocarpus heterophyllus</i>	Plavu
7	<i>Artocarpus hirsutus</i>	Anjili
9	<i>Mimusops elengi</i>	Elanji

Some of the other rejuvenating plants would probably check the sound and air pollution are as follow,

Sl.No.	Scientific name of the shrub	Common name
1	<i>Thyrsostachys oliveri</i>	
2	<i>Memecylon sps.</i>	Kasavu
3	<i>Bambusa bambos</i>	
4	<i>Murraya paniculata</i>	Maramulla
5	<i>Bambusa vulgaris</i>	Manjamilli
6	<i>Bambusa tuldoides</i>	Buddha Belly Bamboo

Sl.No.	Scientific name of the herbs	Common name
1	<i>Cymbopogon sps</i>	Lemon grass
2	<i>Pennisetum purpureum</i>	
3	<i>Vetivera zizanoides</i>	Ramacham
4	<i>Chrysopogon nodulibarbis</i>	
5	<i>Pennisetum polystachyon</i>	
6	<i>Axonopus compressus</i>	Buffalo grass

Table 31. List of Bird species in the Core Zone

Sl. No	Species	Scientific Name	IUCN	WPA Schedule	Residential Status	T1	T2	T3	T4	T5	T6	T7	T8
1	Greater Coucal	<i>Centropus sinensis</i>	LC	IV	R	0	1	0	0	0	0	0	0
2	Large billed crow	<i>Covus macrorhynchos</i>	LC	IV	R	2	0	0	0	0	0	2	1
3	Shikra	<i>Accipiter badius</i>	LC	I	R	0	0	0	0	0	1	0	0
4	Rufous treepie	<i>Dendrocitta vagabunda</i>	LC	IV	R	1	0	0	0	0	0	0	1
5	White-cheeked Barbet	<i>Megalaima viridis</i>	LC	IV	R	0	1	0	0	2	0	1	0
6	Indian peafowl	<i>Pavo cristatus</i>	LC	I	R	2	0	0	1	0	0	0	0
7	Green bee eater	<i>Merops orientalis</i>	LC	IV	R	0	0	0	0	0	3	0	2
8	Common Tailor Bird	<i>Orthotomus sutorius</i>	LC	IV	R	0	0	0	1	0	0	0	0
9	Asian Palm swift	<i>Cypsiurus balasiensis</i>	LC	IV	R	0	8	5	0	4	3	0	6
10	Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	LC	IV	R	2	0	0	3	0	0	3	0
11	Greenish Warbler	<i>Phylloscopus trochiloides</i>	LC	IV	WM	0	0	1	0	0	0	0	0
12	Spotted dove	<i>Eudynamys scolopaceus</i>	LC	IV	R	0	2	0	0	1	0	1	2
13	Malabar parakeet	<i>Psittacula columboides</i>	LC	IV	R	0	2	0	4	0	0	3	0
14	Crested Serpent Eagle	<i>Muscicapa ruficauda</i>	LC	I	PM	0	0	1	0	0	1	0	0
15	Black rumped flameback	<i>Prinia socialis</i>	LC	IV	R	2	0	1	0	0	0	0	1

16	Common myna	<i>Acridotheres tristis</i>	LC	IV	R	0	2	0	0	0	3	0	0
17	Brown breasted flycatcher	<i>Muscicapa muttui</i>	LC	IV	M	0	0	1	0	1	0	0	0
18	Asian Brown Flycatcher	<i>Muscicapa dauurica</i>	LC	IV	M	0	1	0	0	1	0	1	0
19	Purple rumped sunbird	<i>Leptocoma zeylonica</i>	LC	IV	R	2	0	0	2	0	0	0	0
20	White throated kingfisher	<i>Halcyon pileata</i>	LC	IV	R	0	0	1	0	0	0	1	0
21	Jungle babbler	<i>Turdoides striata</i>	LC	IV	R	5	0	0	0	4	0	0	4
22	Greater racket tailed drongo	<i>Dicurus paradiseus</i>	LC	IV	R	0	2	0	0	3	0	0	1
23	Black hooded oriole	<i>Oriolus xanthornus</i>	LC	IV	R	1	0	0	0	1	0	0	0
24	Indian paradise flycatcher	<i>Terpsiphone paradisi</i>	LC	IV	R	0	0	1	0	0	0	0	0
25	Bronzed Drongo	<i>Dicurus leucophaeus</i>	LC	IV	R	1	0	0	3	0	2	0	1
26	Red vented bulbul	<i>Pycnonotus cafer</i>	LC	IV	R	0	1	0	0	3	0	0	2
27	Oriental magpie robin	<i>Copsychus saularis</i>	LC	IV	R	0	0	0	2	0	0	0	0
28	Brown shrike	<i>Lanius cristatus</i>	LC	IV	R	0	0	0	0	0	0	0	1
29	Golden fronted Leafbird	<i>Chloropsis aurifrons</i>	LC	IV	R	0	0	0	0	1	0	1	0
30	Ashy drongo	<i>Dicurus leucophaeus</i>	LC	IV	M	0	0	2	0	0	0	0	0
31	Common kingfisher	<i>Alcedo atthis</i>	LC	IV	R	0	0	0	0	0	0	0	1

32	Indian golden oriole	<i>Oriolus kundoo</i>	LC	IV	R	0	0	1	0	0	1	0	0
33	Pale billed flowerpecker	<i>Dicaeum erythrorynchus</i>	LC	IV	R	0	1	0	1	0	0	0	0
34	Black headed cuckooshrike	<i>Lalage melanoptera</i>	LC	IV	R	0	0	0	0	0	0	0	1

Transect=T1, T2, T3, T4, T5, T6, T7, T8; *R=resident, WM=Winter migrant, PM=Partial migrant, LC=least concern *Endemic to Western Ghat

14. Discussion

Proposed site possesses moderate diversity of fauna. It includes mainly birds, butterflies, reptiles, mammals and other invertebrates. In our present study, total 34 species of birds were identified. All reported species were least concern according to IUCN.

15. Conclusion

The proposed area for mining is located in a remote village side. The area is steep and the area is the part of an abandoned quarry. There are also few other quarries in the area, most of them are working quarries too. Lion's share of the proposed area has been covered with weeds. Hence diversity of plant components within the proposed area is too low and trees other than plantation crops are negligible. There are significant numbers of saplings of different trees within the proposed area and the adjoining areas are showing moderate diversity of natural vegetation which will not be disturbed by the mining activity. The proposed area possessed populations of invasive weeds and No RET species or any significant endemic species observed in the core zone. Hence the plant diversity observed in the core zone is insignificant. The core area does not show signs of a healthy habitat. No residential area is seen within 500 meters to the proposed site.

16. Recommendations

The proposed quarry will have an impact in the core zone. However with scientific mitigation measures, as suggested in the mining plan should be strictly followed to minimize the impact on the core zone and buffer zone of the project. The disturbance level should be maintained in minimum level. Safety measures as suggested in the proposal have to be followed to minimise the biodiversity loss caused by the mining process.

Bio Sketch of Authors

Dr. Anoop Das, is an Assistant Professor and head at Centre for Conservation Ecology & Department of Zoology, at M.E.S Mampad College, India. He serves as a Visiting Professor at the Leshan Normal University, China. He has written 70 publications in various national and international journals and has bagged more than 28 national and international grants/awards. He is a Member of IUCN/SSC - South Asian Invertebrate Specialist Group since 2016. He had carried out related field research works in United Kingdom, South Korea, United States of America, Germany, Austria, Czech Republic, China, Malaysia, Singapore, Thailand, Philippines, Indonesia and Sri Lanka.

Dr. Prasanth Narayanan S, is a Research Associate at Advanced Centre of Environmental Studied and Sustainable devolvement & Inter university centre of (Environmental sciences), MG University, Kottayam, Kerala. He has a Doctorate from the School of Environmental Sciences. He introduced five new earthworm taxa to science. He has written one book, 52 research articles in scientific journals, apart from number of popular articles in Malayalam magazines and presented 18 papers in national and international conferences.

Dr. Sangeeth Thekkan has a PhD degree in Botany from Bharathiar University, Tamil Nadu. He had worked as a Research Fellow at Kerala Forest Research Institute. He is a member of Indian Science Congress Association, International Society for Tropical Ecology and Indian Ecological Society. He has 21 international publications and 12 conference papers to his credit. He has been in the field of conservation for the past 14 years.

Mr. Sojan Thomas is a Research associate and final year PhD scholar at University of Calicut and has published widely in various national and international journals. He has been trained from various national and international agencies before he joined the team at Centre for conservation Ecology.

Mr. Shibu Anand

Shibu Anand is a PhD Scholar at Calicut University and he had completed his Master from the same University. Before joining the BAT he was associated with MES Mampad College. Shibu is with an experience of seven years in the related field.

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Mr. Rabeesh is a field assistant with two years of experience familiar with ecological assessment methods

References

- Abhilash P.C, Nandita Singh, V. P. Sylas, B. Ajay Kumar, John C. Mathew, R. Satheeshand A. P. Thomas 2008. Eco-distribution Mapping of Invasive Weed *Limnocharis flava* (L.) Buchenau Using Geographical Information System: Implications for Containment and Integrated Weed Management for Ecosystem Conservation. *Taiwania*, 53(1): 30-41. 2008
- Afthab Faisal K., Sreekumar E R., Patrick David, Praveen J., Silpa V Kumar & P O Nameer (2019). Bird Diversity of Periyar Tiger Reserve Southern Western Ghats, Kerala. Periyar Tiger Conservation Foundation, Bird Count India & Kerala Agricultural University. 67p.
- Ali, S., & Ripley, S. D. (1980). *Handbook of the birds of India and Pakistan, together with those of Bangladesh, Nepal, Bhutan, and Sri Lanka*. Oxford University Press.
- Ali, S., & Ripley, S. D. (1983). *Handbook of the birds of India and Pakistan (Compact Edition)*. Oxford University Press and BNHS, Mumbai. Ali, S. and SD Ripley (1995). *The Pictorial Guide to the Birds of Indian Sub-continent*. Oxford University Press and BNHS, Mumbai. Baskaran, ST (1992). *Sighting of Dusky Horned Owl*. *Newsletter for Birdwatchers*, 32(9), 10.
- Aneesh, K. S., Adarsh, C. K., & Nameer, P. O. (2013). Butterflies of Kerala Agricultural University (KAU) campus, Thrissur, Kerala, India. *Journal of Threatened Taxa*, 5(9), 4422-4440.
- Antony VT., AN Henry and Antony Kadavil. 2011. Biodiversity of flowering plants. *Sonali publication*. Pp 383.
- Chandrashekara, U. M. (2011). Conservation and management of sacred groves in Kerala. *Project funded by the Biodiversity Cell, Department of Forests and Wildlife, Government of Kerala. KFRI, Peechi, Kerala*.
- E bird .org (2020)
- Emiliyamma, K. G. (2005). On the Odonata (Insecta) fauna of Kottayam district, Kerala, India. *Zoos' Print Journal*, 20(12), 2108-2110.

- Grimmett, R., Inskipp, C., & Inskipp, T. (2016). *Birds of the Indian Subcontinent: India, Pakistan, Sri Lanka, Nepal, Bhutan, Bangladesh and the Maldives*. Bloomsbury Publishing.
- Grimmett, R., Inskipp, C., & Inskipp, T. (2016). *Birds of the Indian Subcontinent: India, Pakistan, Sri Lanka, Nepal, Bhutan, Bangladesh and the Maldives*. Bloomsbury Publishing.
- Jose, K, Sunil & Binsree, M. (2012). A study On the common butterflies of Kottayam District, Kerala.
- Jyothi, K. M., & Nameer, P. O. (2015). Birds of sacred groves of northern Kerala, India. *Journal of Threatened Taxa*, 7(15), 8226-8236.
- Krishna, M. P. Diversity Studies Of Birds In And Around Harangi Reservoir, Kodagu District, Central Western Ghats.
- Kumara, H. N., & Singh, M. (2004). Distribution and abundance of primates in rain forests of the Western Ghats, Karnataka, India and the conservation of *Macaca silenus*. *International Journal of Primatology*, 25(5), 1001-1018.
- Kunte, K., S. Sondhi, and P. Roy (Chief Editors) 2020. *Butterflies of India*, v. 2.88. Indian Foundation for Butterflies
- Narayanan, S. P., Thomas, A. P., & Sreekumar, B. (2011). Ornithofauna and its conservation in the Kuttanad wetlands, southern portion of Vembanad-Kole Ramsar site, India. *Journal of Threatened Taxa*, 1663-1676.
- Palot, M. J. (2015). A checklist of reptiles of Kerala, India. *Journal of Threatened Taxa*, 7(13), 8010-8022.
- Palot, M. J., Radhakrishnan, C., Balakrishna, V. C., & Kambrath, B. (2002). A report on the migration of butterflies in Aralam Wildlife Sanctuary, Kerala. *Zoo's Print J*, 17(2), 722.
- Praveen, J., & Nameer, P. O. (2009). Monitoring bird diversity in Western Ghats of Kerala. *Current Science*, 1390-1395.
- Praveen, J., & Nameer, P. O. (2009). Monitoring bird diversity in Western Ghats of Kerala. *Current Science*, 1390-1395.
- Roshnath, R., Divakar, N., Chandran, K., Valsarajn, D., & Jose, A. (2014). Heronry census, 2014 in Kannur district, Kerala. *Malabar Trogon*, 12, 9-13.

- Sarkar, V. K., Das, D. S., Balakrishnan, V. C., & Kunte, K. (2011). Validation of the reported occurrence of *Tajuria maculate*, the Spotted Royal butterfly (Lepidoptera: Lycaenidae), in the Western Ghats, southwestern India, on the basis of two new records. *Journal of Threatened Taxa*, 3(3), 1629-1632.
- Sashikumar, C., Vishnudas, C. K., Raju, S., & Vinayan, P. A. (2014). On Sálím Ali's trail: A comparative assessment of southern Kerala's avifauna after 75 years. *Indian Birds*, 9(2), 29-40.
- Shetty. B and K Vivekananthan. 1971. Studies on the vascular flora of Anaimudi and surrounding regions, Kottayam district, Kerala. *Nelumbo-Botanical survey of India* .13(1-2).
- Shinu, A. P., Chandy, M., & Aravind, N. P. (2013, November). A Preliminary Study on The Avi Fauna From The Wetlands of Kumarakom. In *23rd Swadeshi Science Congress*.
- Sivaram, M., Jayson, E. A., & Ramachandran, K. K. (2013). *Population estimation of major mammals in the forests of Kerala—2011* (No. 61). KFRI Extension Report.
- Sreedharan, T. P. (2004). *Biological Diversity of Kerala: A survey of Kalliasseri panchayat, Kannur district*. Kerala Research Programme on Local Level Development, Centre for Development Studies.
- Sreekumar, B. (ed.) 2001. Vembanad water bird count 2001. Kottayam, Kerala: Dept. of Forests and Wildlife, Kerala

Plate I: Avian fauna



Black rumped flameback



Purple rumped sunbird

Plate II: Reptiles



Rock agama



Cnemaspis sp

Plate 3: Butterflies and insects



Striped tiger



Blue Mormon

Plate IV: Images from the Buffer zone of the project sites



Plate 5

a: Image showing the landscape view of transect T-1 from different angles



Plate 5 b: Image showing the landscape view of transect T-2 from different angles



ANNEXURE 8

CER



CER PROPOSAL

2023-28

***PROPOSED CORPORATE ENVIRONMENT
RESPONSIBILITY FUND ASSESSMENT REPORT FOR THE
GRANITE BUILDING STONE QUARRY PROJECT OF
MR. ARSHAK ALI .E.K SITUATING AT
KANNAMANGALAM VILLAGE & PANCHAYATH,
THIRURANGADI TALUK, MALAPPURAM DISTRICT.***

INTRODUCTION

In order to execute an efficient activity regarding the Corporate Environment Responsibility (CER) a need analysis was conducted with a special reference to the people, who are in health institutions at Rural Areas of Kannamangalam Grama Panchayath, Kannamangalam Village and Thirurangadi Taluk in Malappuram District. The main objective of the study is to give a hand to the Project Proponent in materializing their commitment on CER. As per the Environment Impact Assessment (EIA) Notification of 2006, issued under the Environment Protection Act of 1986, Environment Clearance (EC) in respect of certain development projects and activities listed out in the Schedule to the Notification was made mandatory.

In order to have a transparency and uniformity while recommending CER by Expert Appraisal Committee (EAC) and State Level Expert Committee (SEAC), the Guidelines were issued along with the Notification. The activities proposed under CER shall be worked out based on the issues raised during the Special Need Assessment, R&R plan, EMP etc. Some of the activities which can be carried out in CER include providing Solar Panel Facilities, Solar Street Light Facilities, Rain Water Harvesting Systems, Drinking Water Purifiers, etc.

A Granite Building Stone Quarry project represented by its Owner & Authorized signatory **Mr. Arshak Ali .E.K** situating at **Kannamangalam Grama Panchayath limits with an extent of 2.0144 Ha under Re-Survey numbers 104/2B-09 & 104/2B-44** is responsible to implement the CER activities as noted, on behalf of the Panchayath. As such the CER activities are included by identifying the significant problem faced by the rural population of Kannamangalam Grama Panchayath. The main objective of this CER assessment is to understand the local problems faced by the community. This activity also aids in improving the inclusive development of the Society in general and the local Community of Kannamangalam Grama Panchayath in particular. The Project proponent with commitment towards Society and Environment will shoulder the said responsibility.

We have noted below the Activity details against CER with the estimated cost, which reflect the activities planned to be implemented at Kannamangalam Grama Panchayath of Malappuram District. The Project Proponent has created a Corporate Social Responsibility cell which consists of Medical Officer of Govt. Primary Health Centre, Kannamangalam which is the beneficiary and Project Proponent's team. All the proposed activities under CER are discussed in the committee and the decision to implement the activities will be taken as per the Project proposal noted below.

Corporate Environmental Responsibility cell members 2023-28

<p>Mr. Arshak Ali .E.K (Owner and authorized signatory)</p>	
<p>Dr. Sasikala (Medical Officer , Govt. Primary Health Centre, Kannamangalam)</p>	<p>FOI MO  മെഡിക്കൽ ഓഫീസർ പൊതു ആരോഗ്യ കേന്ദ്രം കന്നമംഗലം - 676374</p>
<p>Mr. Khader Babu.E.K (Partner)</p>	
<p>Mr. Akbar Ali (Coordinator)</p>	
<p>Mr. Amjad Ali (Quarry Incharge)</p>	
<p>Mr. Rafeeque.V.K (Office Incharge)</p>	

The CER committee has decided the following CER activity as part of this Environment Management plan.

Year	Project Brief description	Project Cost
2023-25	<p>As the part of Environment Management plan, Corporate Environmental responsibility cell decided to provides the following facilities to Govt. Primary Health Centre, Kannamangalam.</p> <ul style="list-style-type: none"> <u>Solar Panel Implementation :</u> The project proponent is ready to provide 5 KWp Hybrid solar panel facilities in Govt. Primary Health Centre, Kannamangalam in Kannamangalam Grama Panchayath. A 5 KWp hybrid solar system contains 15 solar panels of 335 Watt, MPPT charger controller unit, 8 solar tubular battery units of 150AH / 12V and a hybrid solar inverter of 5KW and other equipments. It will be helpful for the cold medicinal storage and other purposes during power failure time. Poor patients of Kannamangalam Grama Panchayath are the beneficiaries. Approximate cost for the project will be about 5,00,000 including its framework.  <ul style="list-style-type: none"> <u>Drinking water purifier facility:</u> The CER cell is decided to provide 3 drinking water purifier unit with normal and cool water facility in Govt. Primary Health Centre, Kannamangalam in Kannamangalam Grama Panchayath. Committee decided to provide BLUE STAR Stainless steel water cooler with 2 taps in which one tap always gives plain water and other tap has a cooling capacity of 40litters/hour. Both taps provides filtered water. Poor patients of Kannamangalam Grama Panchayath area the beneficiaries Approximate cost for the project will be about 3 * 40,000 = 1,20,000 rupees. 	5,00,000
2025-28	<p>Maintenance, project monitoring and additional works in provided facilities in Govt. Primary Health Centre, Kannamangalam as Solar panel framework painting and weather protection works, Battery unit maintenance and services, Solar panel system services, water purifier filter replacement etc..</p>	1,80,000
TOTAL		8,00,000

നമ്പർ: 263/2022

പ്രിന്റിംഗ്/പ്രിന്റിംഗ് കമ്മ്യൂണിറ്റി

തീയതി: 22/10/2022

പ്രിയരേ,
നവീനൻ മേനോൻ
പ്രിന്റിംഗ്/പ്രിന്റിംഗ് കമ്മ്യൂണിറ്റി
കമ്മ്യൂണിറ്റി

സീനിയർ,
അർജ്ജുൻ അരി ഇ.എ
എട്രോണിക്സ് മെന്റോർ (H)
എന്നിപ്പിടി, കമ്മ്യൂണിറ്റി 676304

Sub: സി.ഇ.അൻ ഡോസ് വിനിയോഗം നാമസമിതി
Ref: ശ്രീ. അർജ്ജുൻ അരി ഇ.എ 18/06/2022-ന് ഇട മെമ്പർമാർ
സമർപ്പിച്ച അപേക്ഷ

ഭരണസമിതിയുടെ സി.ഇ.അൻ ഡോസ് ഉപയോഗിച്ച
ഇട സമാഹരണത്തിൽ മെമ്പർമാർ പ്രവർത്തനം തുടർച്ചയായി അപേക്ഷിച്ചിട്ടു
രുന്ന. പ്രിന്റിംഗ്/പ്രിന്റിംഗ് കമ്മ്യൂണിറ്റി, ഭരണസമിതിയുടെ ഭരണസമിതിയുടെ
മെമ്പർമാർക്കുവേണ്ടി മെമ്പർമാർക്ക് സഹായം ലഭിക്കുന്നതിനായി
ഭരണസമിതിയുടെ സഹായം മെമ്പർമാർക്ക് അപേക്ഷിച്ചു നടപടി
എടുക്കുന്നതിനായി അപേക്ഷിച്ചിട്ടുണ്ട്.



For mo [Signature]
മെമ്പർമാർക്കുവേണ്ടി
പി.എച്ച്. സെക്രട്ടറി, കമ്മ്യൂണിറ്റി
പി.ഒ. കമ്മ്യൂണിറ്റി - 676304

We are ready to provide the above mentioned activities as part of our Corporate Environmental Responsibility to improve the inclusive development of the Society.

CONCLUSION:

Being Environmentally Responsible, we have taken our CER activities very seriously. We have thoroughly discussed the requirements of improving the conditions of Kannamangalam Grama Panchayath. We will ensure that the activities mentioned above will be properly implemented and regularly maintained and monitored.

Mr. Arshak Ali.E.K



(Authorized signature)

Place: Kannamangalam

Date:

ANNEXURE 9
SITE
PHOTOGRAPHS



GPS Map
Camera Lite

Unnamed Road, Kannamangalam, Kerala 673638,
India

Latitude

11.09687168°

Local 10:59:55 AM

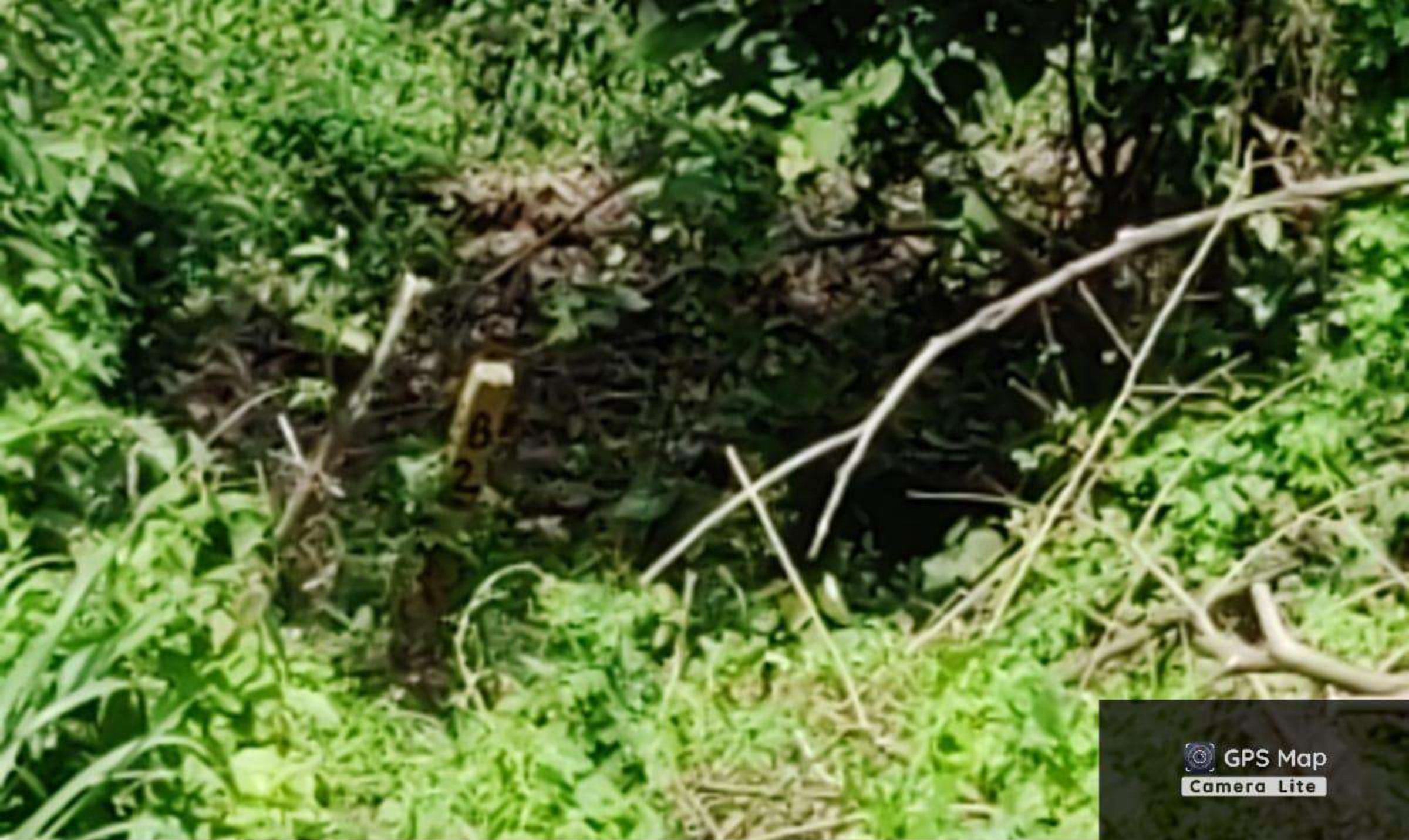
GMT 05:29:55 AM

Longitude

76.00328973°

Altitude 11.36 meters

Wednesday, 21.09.2022



GPS Map
Camera Lite

Unnamed Road, Kannamangalam, Kerala 673638,
India

Latitude

11.09699027°

Local 11:07:52 AM

GMT 05:37:52 AM

Longitude

76.00229703°

Altitude 11.36 meters

Wednesday, 21.09.2022



GPS Map
Camera Lite

32X3+X8V, Kannamangalam, Kerala 673638, India

Latitude

11.09857324°

Local 02:51:31 PM

GMT 09:21:31 AM

Longitude

76.00333793°

Altitude 221.13 meters

Tuesday, 13 Sep 2022



GPS Map
Camera Lite

32X3+X8V, Kannamangalam, Kerala 673638, India

Latitude

11.09873656°

Local 03:00:01 PM

GMT 09:30:01 AM

Longitude

76.00291207°

Altitude 209.12 meters

Tuesday, 13 Sep 2022



 GPS Map
Camera Lite

32X3+X8V, Kannamangalam, Kerala 673638, India

Latitude

11.09873269°

Local 03:02:52 PM

GMT 09:32:52 AM

Longitude

76.0029349°

Altitude 222.21 meters

Tuesday, 13 Sep 2022

ANNEXURE 10
MINING PLAN

**MINING PLAN
FOR
GRANITE (BUILDING STONE) QUARRY
(as per KMMCR 2015)**



**PROPONENT
ARSHAK ALI. E. K
EDATHOLA KOTTASSERI,
MALABAR MANZIL,
ERANIPPADI, KANNAMANGALAM. P.O.,
MALAPPURAM DISTRICT,
KERALA -676 304.**

**SITE AT
RE SURVEY NO: 104/2B-09,104/2B-44
RE SURVEY BLOCK NO -2
VILLAGE: KANNAMANGALAM, TALUK: THIRURANGADI,
DISTRICT: MALAPPURAM, STATE: KERALA.
LEASE AREA: 2.0144 HA**

**GEC MINING SOLUTIONS,
THIRUVANANTHAPURAM
EMAIL : gecminingsolutions@gmail.com**

This Mining Plan is Approved

**PREPARED BY
MAHESH. S,
RQP/BNG/338/2014/A
TC 31/580, NAVADEEPAM,
S.N NAGAR, HOUSE NO: 24,
PETTAH POST OFFICE,
TRIVANDRUM, KERALA.
PHONE : 91-9895051333**

[Signature]
9/2/24
GEOLOGIST
DIST. Office Of Mining & Geology
Mini Civil Station, Manjeri
Malappouram District



QUARRY OWNED BY ARSHAK ALI. E.K

EDATHOLA KOTTASSERI, MALABAR MANZIL, ERANIPPADI,
KANNAMANGALAM.P.O MALAPPURAM DISTRICT, KERALA - 676 304.

Date: 04-05-2021

To

The Geologist,
Department of Mining and Geology,
District Office, Malappuram, Kerala.

Respected Sir/Madam,

Sub: Submission of Mining Plan for approval of proposed Granite (Building Stone) Quarry site under B2 Category less than 5 Hectares

- Ref: 1) Site at Re Survey No. 104/2B-09,104/2B-44, Re Survey Block no. 2 in Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala.
2) Quarry/Mining Area: 2.0144 hectare
3) Proponent: Arshak Ali. E.K, residing at Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam. P.O, Malappuram District- 676 304.

With reference to the above subject, I am pleased to submit the Mining Plan with required Annexure for proposed Granite (Building Stone) Quarry with Quarry/Mining area of 2.0144hectare under category B2, at Re Survey No. 104/2B-09, 104/2B-44, Re Survey Block no. 2 in Kannamangalam Village, Tirurangadi Taluk, Malappuram District, and Kerala for your kind perusal.

I request you to kindly process our application and grant us the Mining plan approval at the earliest.

Thanking You,

Arshak Ali. E.K

- Enclosure: 1) Mining Plan with PMCP
2) Required Annexure



MINING PLAN
WITH
PROGRESSIVE MINE CLOSURE PLAN
FOR
GRANITE (BUILDING STONE) MINING
PROJECT

Minor Mineral

(Submitted under rule 53, 55 & 58 of Kerala Minor Mineral Concession Rules, 2015)

Village	:-	Kannamangalam
Taluk	:-	Tirurangadi
District	:-	Malappuram
State	:-	Kerala
Re Survey Block no	:-	2
Re Survey No	:-	104/2B-09,104/2B-44,
Application area	:-	2.0144Hectares
Working proposed	:-	Semi-mechanized open-cast
Land	:-	Private land

PROPOSED LEASE HOLDER

ARSHAK ALI. E.K,
EDATHOLA KOTTASSERI, MALABAR MANZIL,
ERANIPPADI, KANNAMANGALAM. P.O,
MALAPPURAM DISTRICT- 676 304.

PREPARED BY

MAHESH. S,
RQP/BNG/338/2014/A
TC 31/580, NAVADEEPAM,
S.N NAGAR, HOUSE NO: 24,
PETTAH POST OFFICE, TRIVANDRUM,
KERALA.
PHONE : 91-9895051333
EMAIL : gecminingsolutions@gmail.com



APPENDIX



QUARRY OWNED BY ARSHAK ALI. E.K

EDATHOLA KOTTASSERI, MALABAR MANZIL, ERANIPPADI,
KANNAMANGALAM.P.O MALAPPURAM DISTRICT, KERALA - 676 304.

AUTHORIZATION

I, Arshak Ali. E.K, Owner and authorized signatory hereby authorize **RQP, Mr. Mahesh. S** to prepare the Mining Plan and the PMCP as per rules and regulation of the Central/State Government, statutory organization, Court etc. for the proposed Granite (Building Stone) Quarry with Quarry/Mining area of 2.0144hectare under B2 category at Re Survey No. 104/2B-09, 104/2B-44, Re Survey Block no. 2 in Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala.

I request the District Geologist, Department of Mining & Geology, Malappuram District, Kerala to contact the RQP with given below address for any detailing and clarifications regarding the Mining Plan and PMCP of Granite (Building Stone) Quarry whom I have authorized and trusted to prepare the same.

RQP Address:

Shri. Mahesh. S,
RQP/BNG/338/2014/A
TC 31/580, Navadeepam,
S.N Nagar, House No: 24,
Pettah Post Office, Trivandrum,
Kerala.
PHONE : 91-9895051333
EMAIL : gecminingsolutions@gmail.com

Place: Kannamangalam
Date: 04-05-2021

Arshak Ali. E.K
Owner and Authorized Signatory



खननयोजना तैयार करने के लिए अर्हता प्राप्त व्यक्ति के रूप में मान्यता

प्रमाण पत्र

CERTIFICATE OF RECOGNITION AS QUALIFIED PERSON TO PREPARE MINING PLAN

(खनिज रिशायत नियमावली 1960 के नियम 22 सी के अंतर्गत)

(Under Rule 22C of Mineral Concession Rules, 1960)

श्री महेश एस. पुत्र श्री पी. सुरेन्द्रन पिल्लई, निवासी - टी.सी. - 31/580, नवदीपम, एस.एन. नगर, तामुक न. पेट्टा पोस्ट ऑफिस, त्रिवेन्द्रम, तालुक - त्रिवेन्द्रम, जिला - त्रिवेन्द्रम 695024, राज्य केरला, जिनका फोटो एवं हस्ताक्षर दिया गया है उनकी योग्यता तथा अनुभवों के संतोषजनक प्रमाण पत्र देने के एवज में एतद द्वारा खनिज रिशायत नियमावली 1960 के नियम 22 सी के अंतर्गत खनन योजना / खनन अभियोजना / उत्तरोत्तर-खान बंद/ अंतिम खान बंद करने की योजना तैयार करने के लिये अर्हता प्राप्त व्यक्ति के रूप में मान्यता दी जाती है.

Shri Mahesh S. son of Shri P.Surendran Pillal, resident of :-T.C 31/580,Navadeepam S.N Nagar, House No.-24, Pettah Post Office, Trivandrum, Taluk- Trivandrum,

District- Trivandrum-695024, State- Kerala whose Photograph and Signature is appended herewith having given satisfactory evidence of his qualifications & experience is hereby granted RECOGNITION under Rule 22C of the Mineral Concession Rules,1960 as a Qualified Person to prepare Mining Plan / Scheme of Mining / Progressive Mine Closure Plan / Final Mine closure plan.

उनका पंजीकरण क्रमांक/ His Registration Number is

आर.क्यू.पी./बैंग/338/2014/ए / RQP/BNG/338/2014/A

यह मान्यता दस वर्ष की अवधि के लिए वैध है जो दिनांक 01.07.2024 को समाप्त होगी।

The recognition is valid for a period of Ten Years, ending on 01.07.2024.

खनन योजना / खनन अभियोजना / उत्तरोत्तर खान बंद/ अंतिम खान बंद करने की योजना में यदि कोई गलत/झूठ सूचनाएँ दी गई हो तो उनका यह प्रमाण पत्र वापस ले लिया जाएगा।

Furnishing any wrong/false information in the Mining Plan/Scheme of Mining / PMCP / FMCP may lead to withdrawal of this certificate.

आर.क्यू. पी. के हस्ताक्षर / Signature of RQP

स्थान/Place: बैंगलोर/Bangalore

दिनांक/Date: 02.07.2014

Amann
02.07.14
क्षेत्रीय खान नियंत्रक/

Regional Controller of Mines
B. RAM MOHAN
क्षेत्रीय खान नियंत्रक
Regional Controller of Mines
भारतीय खान ब्यूरो
Indian Bureau of Mines
दिल्ली/बैंगलूर/BANGALORE



CERTIFICATE

I Mahesh. S hereby certify that:

1. "The provisions of Kerala Minor Mineral Concession Rules, 2015 have been observed in the Mining Plan including Progressive Mine Closure Plan for Granite (Building Stone) Quarry over an area of 2.0144 hectares in Village - Kannamangalam, Taluk - Tirurangadi & District - Malappuram, State- Kerala belonging to Shri. Arshak Ali. E.K, Malappuram District, Kerala and wherever specific permission is required, the lease holder will approach the concerned authorities of Department of Mining & Geology for obtaining the permission.
2. It is also certified that the provisions of Mines Act, Rules and Regulations made there under have been observed in the aforesaid Mining Plan including PMCP and wherever specific permissions are required, the Lease holder will approach the Director General of Mines Safety.
3. It is further certified that the aforesaid Mining Plan including PMCP is prepared as per the copies of the records and documents provided by the lease holder and information given as per discussions held with the lease holder.
4. It is also certified that the information furnished in the aforesaid Mining Plan including PMCP are true and correct to the best of my knowledge & belief and in case of default, the approval would be withdrawn.

Place: Kannamangalam

Date: 28-09-2021

Mahesh. S

RQP/BNG/338/2014/A

Validity: - 01-07-2024

MAHESH S.
MTech Applied Geology
RQP
RQP No: BNG/338/2014/A



QUARRY OWNED BY ARSHAK ALI. E.K

EDATHOLA KOTTASSERI, MALABAR MANZIL, ERANIPPADI,
KANNAMANGALAM.P.O MALAPPURAM DISTRICT, KERALA - 676 304.

CERTIFICATE

1. It is certified that the provisions of Mines Act, Rules and Regulations has been observed in preparing the Mining Plan including Progressive Mine Closure Plan at Re Survey No. 104/2B-09,104/2B-44, Re Survey Block no. 2 in Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala with Quarry/Mining area of 2.0144hectare for the proposed Granite (Building Stone) Quarry and wherever specific permissions are required, I will approach the Director of Mines Safety. Further the standards as prescribed by DGMS in respect of miner's health will be strictly implemented.
2. The Progressive Mine Closure Plan of Granite (Building Stone) Quarry at Re Survey No. 104/2B-09,104/2B-44, Re Survey Block no. 2 in Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala with Quarry/Mining area of 2.0144hectare complies with all the Statutory Rules, Regulations, Orders made by the Central or State Government, statutory organization, Court etc. and the same have been taken into consideration. Wherever any specific permission is required, I will approach the concerned authorities.

Place: Kannamangalam
Date: 04-05-2021

Arshak Ali. E.K
Owner and Authorized Signatory



QUARRY OWNED BY ARSHAK ALI. E.K

EDATHOLA KOTTASSERI, MALABAR MANZIL, ERANIPPADI,
KANNAMANGALAM.P.O MALAPPURAM DISTRICT, KERALA - 676 304.

DECLARATION

1. I, **Arshak Ali. E.K**, aged 27, S/o Ali Moideen. E.K, residing at Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam. P.O, Malappuram District- 676 304. also Owner and authorized signatory with Quarry/Mining area of 2.0144hectare under category B2, at Re Survey No. 104/2B-09, 104/2B-44, Re Survey Block no. 2 in Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala hereby declare that the Mining Plan including Progressive Mine Closure Plan has been prepared in full consultation with me and I understand its contents and agree to implement the same in accordance with the law and in case of default the approval would be withdrawn.
2. I, **Arshak Ali. E.K**, Owner and authorized signatory of Granite (Building Stone) Quarry further declare that during the pendency period of approval of the above said documents or thereafter if any changes occur in the name and address of mine, the same will be informed to the authorities promptly.

Place: Kannamangalam
Date: 04.05.2021

Arshak Ali. E.K
Owner and Authorized Signatory



QUARRY OWNED BY ARSHAK ALI. E.K

EDATHOLA KOTTASSERI, MALABAR MANZIL, ERANIPPADI,
KANNAMANGALAM.P.O MALAPPURAM DISTRICT, KERALA - 676 304.

UNDERTAKING

1. I, **Arshak Ali. E.K**, aged 27, S/o Ali Moideen. E.K, residing at Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam. P.O, Malappuram District- 676 304. also Owner and authorized signatory proposing Granite (Building Stone) Quarry with Quarry/Mining area of 2.0144hectare under category B2, at Re Survey No. 104/2B-09, 104/2B-44, Re Survey Block no. 2 in Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala hereby undertake that all the commitments so made in the aforesaid Mining Plan & PMCP by the RQP, **Mahesh. S** is deemed to have been made with my knowledge and consent and so such shall be acceptable to me and binding on me in all respects.
2. I, **Arshak Ali. E.K**, Owner and authorized signatory proposing Granite (Building Stone) Quarry with Quarry/Mining area of 2.0144hectare under category B2 at Re Survey No. 104/2B-09, 104/2B-44, Re Survey Block no. 2 in Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala hereby also undertake that all the measures proposed in this Mining plan and Progressive Mine Close Plan will be implemented in a time bound manner from the date of approval of this Mining plan and PMCP as proposed.

Place: Kannamangalam
Date: 04-05-2021

Arshak Ali. E.K
Owner and Authorized Signatory

**Mining Plan for Granite (Building Stone) Quarry of Arshak Ali. E.K at
Kannamangalam Village, Tirurangadi Taluk & Malappuram District, Kerala.**



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4	Geology, Exploration & Reserves	18
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8	Stacking of Mineral rejects and Disposal of waste	29
9	Use of Mineral	30
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LIST OF ANNEXURES

SL NO.	CONTENTS
1	Letter Of Intent
2	Possession Certificate
3	Tax Receipt
4	Consent from other land owners
5	Non Assignment Certificate and Demarcation Certificate
6	Single Owner Affidavit
7	ID Proof Of Authorized Signatory



LIST OF PLATES

PLATE NO.	TITLE	SCALE
1(A)	Key Plan	Not To Scale
1(B)	Route Map and vicinity map	Not To Scale
1(C)	Area Survey Sketch Signed By Tahsildar	1:3110
1(D)	Google Map showing Lease area	Not To Scale
1(E)	Digital Lease Plan	1:2000
2	Surface Plan	1:1500
3	Geological Plan & Section	1:1500
4	Development Plan & Section	1:1500
5	Year wise Excavation Plan & Section	1:1500
6	Reclamation Plan & Section	1:1500
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8	Progressive Mine Closure Plan & Section	1:1500
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CHAPTER - 1

INTRODUCTION

Charnockite is one of the most common rock types in the Geology of Kerala. Charnockites and other crystalline rockcites which are not suitable to be used as decorative and dimensional stones are classified in KMMCR as granite building stones.

Granite (Building Stone) is commonly used as Building, Construction and road material all over the state. The abundance of Granite (Building Stone) and its growing demand has prompted the entrepreneur to apply for the mining plan in this area.

This Mining plan is prepared for the proposed new quarry of Granite (Building Stone) mining project, which is situated at Re Survey No. 104/2B-09, 104/2B-44, Re Survey Block no. 2 in Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala for an area of 2.0144hectares in favor of Mr. Arshak Ali. E.K

As per Kerala Minor Minerals Concession Rules, 2015, approved Mining Plan (including Progressive Mine Closure Plan) is necessary for the quarrying lease, and the Mining Plan is to be duly certified by a RQP, recognized by Dept. of Mining & Geology, Government of Kerala/Indian Bureau of Mines. The information and data collection for preparing this Mining Plan has been obtained from the field visit, complete survey of lease area and from base line data collection done while preparing EMP.

Location of the Granite (Building Stone) quarry is prepared and attached. Area survey plan approved by the tahsildar.

The lease area is a private land and comprises in Re Survey No. 104/2B-09, 104/2B-44, Re Survey Block no. 2 in Kannamangalam Village, Tirurangadi Taluk, Malappuram District, Kerala for an area of 2.0144hectares. Letter Of Intent, Possession Certificates, Tax Receipts, Non Assignment certificate & Demarcation certificate & Consent from other land owners are enclosed as Annexure - 1, 2, 3, 4,& 5 etc.



CHAPTER - 2

2.0 GENERAL

S. No.	Particulars	
1.	General	
(a)	Name of the Lessee	Mr. Arshak Ali
	Address	Edathola Kottasseri, Malabar Manzil, Eranippadi, Kannamangalam. P.O, Malappuram District- 676 304.
	District	Malappuram
	State	Kerala
b.	Status of the Lessee	Private Individual Owner
c.	Mineral which are Occurring in the area and which the Lessee intends to mine	Granite (Building Stone) - (Minor Minerals)
d.	Period for which the Quarry lease is proposed to be applied	Proposed lease for 10 years
e.	Name of the RQP preparing the mining plan	
	Name	Shri. Mahesh. S
	Address	TC 31/580, Navadeepam, S.N Nagar, House No: 24, Pettah Post Office, Trivandrum, Kerala.
	Phone	91-9895051333
	E-mail	gecminingsolutions@gmail.com
	Registration No.	RQP/BNG/338/2014/A
	Date of grant	02-07-2014
	Valid Up to	1-07-2024

Mining Plan for Granite (Building Stone) Quarry of Arshak Ali. E.K at Kannamangalam Village, Tirurangadi Taluk & Malappuram District, Kerala.



f) **NAME OF THE PROSPECTION AGENCY:- Mahesh. S (RQP)**

Reg.No. RQP/BNG/338/2014/A

Address of RQP: TC 31/580, Navadeepam,

S.N Nagar, House No: 24,

Pettah Post Office, Trivandrum,

Kerala.

The lease area has been prospected by the Dept. of Mining & Geology, Government of Kerala and based on the deposits available, the area is proposed for quarrying /mining with lease for the extraction of Granite (Building Stone).

The RQP has carried out a topographical survey and other field work. On the above survey and field observations, a geological plan and section were prepared and annexed as Plate No. 3.



CHAPTER - 3

3.1 LOCATION AND ACCESSIBILITY

a) DETAILS OF AREA:

The key plan of the lease area has been given in Plate No. 1(A).

The details of the land covered in the lease area are below:

- 1- State : Kerala
- 2- District : Malappuram
- 3- Taluk : Tirurangadi
- 4- Village : Kannamangalam
- 5- Re Survey no : 104/2B-09,104/2B-44,
- 6- Re Survey Block No : 2
- 7- Lease area : 2.0144hectares
- 8- Whether the area is recorded to be in forest: No
- 9- Ownership/occupancy : Private owned land with Rocky land.
- 10- Existence of public road/ railway line, if any nearby and approximate distance: is as under :-

3.2 INFRASTRUCTURE

Following infrastructure facilities are available in lease area:-

S. No.	Name	Distance	Direction
		(From Lease Boundary)	
Nearest Railway Station			
1	Parappanangadi railway station	21 km	SW
Nearest Airport			
2	Calicut international Airport	15 km	NW
Nearest Highway			
3	Nediyiruppu NH 966	6km	NW
Electric line			

Mining Plan for Granite (Building Stone) Quarry of Arshak Ali. E.K at Kannamangalam Village, Tirurangadi Taluk & Malappuram District, Kerala.



4	Manjergara - Perandakkal	500m	SW
Telephone			
5	Kannamangalam Granite Crusher	1 Km	SW
Water			
6	Bore well	700m	SW
Dispensary			
7	PHC Kannamangalam	5 km	SW
Post office			
8	Kannamangalam West	5 km	SW
Education			
9	PPTMY HSS Cherur	5km	SW
Police Station			
10	Vengara police station	7km	S

3.3 WATER

The total water requirement is about 3.5KLD in which 0.5KLD is for domestic uses, 1.5KLD for dust suppression and 1.5KLD for plantation purposes and will be sourced from Bore well.

a. The geographical location of the mine with respect to the pillar boundary of the lease area is given below:-

Latitude (N)	11° 5'48.70"N to 11° 5'55.58"N
Longitude (E)	76° 0'7.60"E to 76° 0'13.10"E

Table 3.3 Present Land use pattern:

S. No.	Particulars	Present Area
1.	Pits	-
2.	Road	0.085
3.	Building	-
4.	Un-worked Area	1.9294
Total		2.0144

b. **General location and vicinity map:** The general location and vicinity map showing area boundaries and proposed access routes has been shown in Plate No. 1(B).



CHAPTER - 4

4.0 GEOLOGY AND EXPLORATION

4.1 TOPOGRAPHY

Topographically, the lease area and its surroundings is an elevated terrain with quarry land covered with native trees, shrubs, herbs, grass, climbers, bushes, rubber etc. The highest elevation of the lease area is 190m MSL and lowest is 70m MSL. As the proposed area is hillock, the drainage of the lease area is towards South West direction. No habitants are located in the lease area.

4.2 REGIONAL GEOLOGY

Based on the study of different section available in the area a tentative stratigraphic has been arrived at which is given below:-

Age	Thickness (in m)	Lithounits
QUATERNARY	1-15	Soil and Alluvium
	1-10	Beach sand and sand bars
	1-2	Black sticky clay and mud with shell
	4-5	Teri sands and laterite pebble bed
	8-10	Polymitic pebble bed with grit and clay
-----Unconformity-----		
TERTIARY		
WARKALLI	1-2	Sandstones with clay beds
2-3	Lignite associated with beds of pluish	
green clay kalnadu clay		
-----Unconformity-----		
PRECAMBRIAN	Crystalline	
Rock	Intrusives	Pegmatite and
quartz viens		
	Dolerite - gabbro	
Dharwars		
Charnockite -Khondalite		

(*Secondary Source: - Geological Survey of India-www.gsi.gov.in)



4.3 LOCAL GEOLOGY

The local geology belongs to the regional geology. Main rock type in the study area is charnockite. At places where they are exposed, the charnockite is medium to coarse grained with dark grey quartz. The soil & over burden thickness varies from average 1.2m to 0.7m topographically, the area is undulating.

4.4 GENERAL DESCRIPTION OF FORMATIONS:-

The details of the pits observed to estimate the top soil and overburden from the proposed area is given below:-

Particulars	Pit - 1
Top soil (thickness in m.)	1.2
Over burden (thickness in m.)	0.7

4.5 GEOLOGICAL SECTION:

Geological Plan and Section has been drawn at middle of the lease area in Plate No 3. The section line along which the geological plan and section has been prepared has been shown in Plate No. 3. The Section has been drawn across the strike of the host rock.

4.6 DETAILS OF EXPLORATION:-

Since it's a new quarry, pits are made.

4.7 METHOD OF ESTIMATION OF RESERVES:-

The following points have been considered while calculating the reserves of stone.

- 1- The reserves of minerals have been estimated by using the method of preparation of sections and applying the influence of such sections to limited distance and multiplying it by width.
- 2- Based on the actual geological mapping and cross section preparation, the proved reserve has been taken.
- 3- The specific gravity of minerals has been taken as 2.5 i.e. 1 m³ of mineral in situ = 2.5Tonne



**Mining Plan for Granite (Building Stone) Quarry of Arshak Ali. E.K at
Kannamangalam Village, Tirurangadi Taluk & Malappuram District, Kerala.**

4.8 RESERVES OF MINERALS

The reserves of minerals have been calculated and the geological and mineable reserves have been given in table no. 4.1.

4.9 SUMMARY OF GEOLOGICAL & MINEABLE RESERVES

In this area the Granite (Building Stone) exposures are bordering to the lease boundary. The mineable reserves are arrived after deducting the reserves locked in mines safety slope along with boundary in compliance with mineral concession rules.

The quantity of such kind of reserves is arrived as following:-

Table 4.1 - Mineable Reserves Estimation

BLOCKED					MINEABLE					
BENCH	M2	M	DENSITY	TON		BENCH	M2	M	DENSITY	TON
					A-A1					
70-75	851	55.5	2.5	118076		70-75	138	48	2.5	16560
75-80	793	55.5	2.5	110029		75-80	196	48	2.5	23520
80-85	735	55.5	2.5	101981		80-85	254	48	2.5	30480
85-90	702	55.5	2.5	97402.5		85-90	255	48	2.5	30600
90-95	668	55.5	2.5	92685		90-95	242	48	2.5	29040
95-100	635	55.5	2.5	88106.3		95-100	229	48	2.5	27480
100-105	604	55.5	2.5	83805		100-105	214	48	2.5	25680
105-110	569	55.5	2.5	78948.8		105-110	202	48	2.5	24240
110-115	531	55.5	2.5	73676.3		110-115	193	48	2.5	23160
115-120	476	55.5	2.5	66045		115-120	197	48	2.5	23640
120-125	428	55.5	2.5	59385		120-125	198	48	2.5	23760
125-130	396	55.5	2.5	54945		125-130	182	48	2.5	21840
130-135	369	55.5	2.5	51198.8		130-135	161	48	2.5	19320
135-140	334	55.5	2.5	46342.5		135-140	142	48	2.5	17040
140-145	303	55.5	2.5	42041.3		140-145	129	48	2.5	15480
145-150	266	55.5	2.5	36907.5		145-150	119	48	2.5	14280
150-155	212	55.5	2.5	29415		150-155	124	48	2.5	14880
155-160	148	55.5	2.5	20535		155-160	137	48	2.5	16440
160-165	113	55.5	2.5	15678.8		160-165	122	48	2.5	14640
165-170	88	55.5	2.5	12210		165-170	97	48	2.5	11640
170-175	63	55.5	2.5	8741.25		170-175	73	48	2.5	8760
175-180	38	55.5	2.5	5272.5		175-180	48	48	2.5	5760

**Mining Plan for Granite (Building Stone) Quarry of Arshak Ali. E.K at
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180-185	14	55.5	2.5	1942.5		180-185	32	48	2.5	3840
185-190	-	55.5	2.5			185-190	17	48	2.5	2040
				1295370						444120
					B-B1					
80-85	629	60	2.5	94350		80-85	85	52.5	2.5	11156.3
85-90	576	60	2.5	86400		85-90	138	52.5	2.5	18112.5
90-95	522	60	2.5	78300		90-95	192	52.5	2.5	25200
95-100	494	60	2.5	74100		95-100	189	52.5	2.5	24806.3
100-105	465	60	2.5	69750		100-105	174	52.5	2.5	22837.5
105-110	434	60	2.5	65100		105-110	163	52.5	2.5	21393.8
110-115	399	60	2.5	59850		110-115	151	52.5	2.5	19818.8
115-120	359	60	2.5	53850		115-120	145	52.5	2.5	19031.3
120-125	308	60	2.5	46200		120-125	149	52.5	2.5	19556.3
125-130	247	60	2.5	37050		125-130	163	52.5	2.5	21393.8
130-135	188	60	2.5	28200		130-135	177	52.5	2.5	23231.3
135-140	164	60	2.5	24600		135-140	156	52.5	2.5	20475
140-145	139	60	2.5	20850		140-145	137	52.5	2.5	17981.3
145-150	114	60	2.5	17100		145-150	114	52.5	2.5	14962.5
150-155	87	60	2.5	13050		150-155	93	52.5	2.5	12206.3
155-160	64	60	2.5	9600		155-160	71	52.5	2.5	9318.75
160-165	38	60	2.5	5700		160-165	49	52.5	2.5	6431.25
165-170	16	60	2.5	2400		165-170	26	52.5	2.5	3412.5
170-175	-	60	2.5	-		170-175	12	52.5	2.5	1575
				786450						312900

SECTION	BLOCKED RESERVE (MT)	MINEABLE RESERVE (MT)	GEOLOGICAL RESERVE (MT)
A-A1	1295370	444120	1739490
B-B1	786450	312900	1099350
TOTAL	2081820	757020	2838840



CHAPTER- 5

5.1 MINING

This section outlines current mining method, estimated production on yearly basis, methods of current production and proposed changes if any and list of mining equipment.


A) PROPOSED MINING METHOD

The proposed method of mining will be Semi mechanized open cast mining. The basic mining techniques adopted will be uses of machines. For the systematic working of open cast mines, the main development work will be the forming of systematic benching. The height of bench will not be kept more than 5.0m at a time and the width of the benches will be always kept safe according to provisions. The mining will be done with the help of tools such as drills, jack-hammer, compressors, excavators, rock breaker etc. The targeted annual production of Granite (Building Stone) is about 75,000MT.

Table 5.1: Year wise production of Granite (Building Stone) for five years of mine

Year	Benches	Minerals (MT)
I	155-160,160-165,165-170,170-175,175-180,180-185,185-190	75,000
II	145-150,150-155,155-160	75,000
III	135-140,140-145	75,000
IV	125-130,130-135	75,000
V	115-120,120-125	75,000
VI	110-115,115-120	75,000
VII	100-105,105-110	75,000
VIII	95-100,100-105	75,000
IX	85-90,90-95	75,000
X	70-75,75-80,80-85,85-90	75,000
	TOTAL	7,50,000

Drilling: The excavation of mineral is proposed by excavators. The mineral is fractured and easily exploitable by rock breaker and excavators. The hard strata are proposed to excavate after drilling and blasting.



Mining Plan for Granite (Building Stone) Quarry of Arshak Ali. E.K at Kannamangalam Village, Tirurangadi Taluk & Malappuram District, Kerala.

Blasting: The controlled blasting is proposed by adopting all the safety measures as per “MMR 1961” and with the permission of DGMS. In this area for fragmentation of the rock, the blasting will be conducted. Multiple blast holes of 1.0 to 1.5 m depth will be drilled with the help of 32 mm drill rod, Jack Hammer and Air Compressor of 100 Cfm capacity.

It is estimated about 100g of explosives per hole is required. About 10-15 holes per blast are proposed. Therefore, the requirement of explosives will be about 1.5 kg/blast.

Loading and Transportation: Loading of mineral will be done by excavator and will be sent to the crusher located outside the lease area for sizing. Trucks / Tippers of 10T will be used for transportation of mineral from mine site. It is expected that 28-30 trips will be required to transport on daily basis. For this, movement of truck per hour will be 3-4only. Thus, the impact due to movement of trucks from the mine will be marginal.

B) Composite Plan and Year wise Section - Proposed working Plan and Sections for next 10years are attached.

C) Plan Showing pit layouts, Dumps; Sub-grade Mineral stack etc. - The proposed development year wise working is shown in plate. The Sub grade mineral and waste will be stacked in side and boundary barrier of lease area. The 5% marketable mineral will be sub grade, which is saleable in the rainy season when production of mineral is very low due to rain. So there is no as such need of permanent stacking of sub grade mineral. The temporary stacking site of sub grade mineral shown in proposed year-wise development plan.


D) Proposed Rate of Production and Expected Life of Mine-

The proposed rate of production for the mine is 75,000 MTA. As per mineable reserves, life of mine is 10 years.

E) Opencast Mines

Salient Features of Mode of working-

The mining will be done open cast Semi mechanized. The working will be done by forming benches of 5.0m (Average) height. The proposals of mining for the next five year workings are given in the table. The Granite (Building Stone) production will be started from the first



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year. The systematic working of open cast mines, the main development work will be the forming of systematic benching. The height of bench will not be kept more than 5.0m at a time and the width of the benches will be always kept safe according to provisions. The Mining will be done with the help of tools such as drills, jack-hammer, compressors, excavators etc. Loading of material will be done with the help of shovel and excavators at face and at stock yard. The truck / tipper will be used for transportation of material from mine to the destination. The cost of the material is directly dependent on the size of the material mined. First Rock bench will be opened by removal of Soil / Over Burden and then Stone will be mined out either by labour or with the help of Excavators/Rock Breaker.

Production proposed in five years

Total Stone will excavated in 5years =3, 75, 000MT

(F) Extent of Mechanization -

Machines will be deployed as per requirement to meet production target. Brief details of machinery are as follows:-

(i) Drilling Machines

Sr. No.	Machine Type	Required No. of M/c	Size/Capacity
1.	Excavator	2	210 DP
2.	Rock Breaker	1	1500 HP
3.	Compressor	2	-
4.	Tippers/Trucks	4	10T
5.	Jack hammer	2	32 mm
6.	DG set	1	-

(ii) Loading Equipment

Mechanical loading equipment such as shovel and excavators will be used for removal and loading of the mineral at face and stock yard.

Mining Plan for Granite (Building Stone) Quarry of Arshak Ali. E.K at Kannamangalam Village, Tirurangadi Taluk & Malappuram District, Kerala.



(iii) Haulage and Transport Equipment

a) Haulage within mining leasehold: Loading of Stone will be done with the help of Excavators at face and stock yard. Stone gitti are loaded manually in the truck.

Transport from Mine head to destination: The truck will be used for transportation of Stone and Stone Ballast from mine site to destination.

Conceptual Mining plan:

The final slope angle will be 45°.

Post Mining Reclamation Plan including afforestation.

Plantation at 3 m. x 3 m. grid will be done. Trees will be planted every year. Saplings of local plants will be planted as per the consultation of the local Forests Department Officers.



CHAPTER-6

6.0 BLASTING

BROAD BLASTING PARAMETERS

Following are the parameters which is used

Depth of Hole - 1.0 m to 1.3 m

Diameter of hole - 32 mm

Spacing between holes - 1 m

BLASTING PATTERN:

The blasting pattern entirely depends on the situation of the joints present in the rocks. The drilling is done as per the requirement of the rock fragmentation with desired production of mineral.

TYPE OF EXPLOSIVE TO BE USED

Only class 2 and class 6 explosive is proposed for use as given below:-

SL.NO	NAME AND DESCRIPTION	CLASS & DIVISION	SUB-DIVISION (IF ANY)
1	Nitrate Mixture	2,0	0
2	Safety Fuse	6,1	0
3	Delay Detonator	6,3	0
4	Electric Detonators	6,3	0

STORAGE OF EXPLOSIVE

Considering low consumption, a 150kg magazine exists for storing the explosive. The controlled blasting is proposed by adopting all the safety measures as per "MMR 1961" and with the permission of DGMS. Blasting will be performed as per requirement on the face. The explosives are supplied by authorized dealers and the blasting will be carried out under personal supervision of DGMS approved Blaster/Mate.

Importance of Controlled Blasting in mining:

- Reduced noise
- Fly Rock and
- Vibration.

Mining Plan for Granite (Building Stone) Quarry of Arshak Ali. E.K at Kannamangalam Village, Tirurangadi Taluk & Malappuram District, Kerala.



- It is very safe to use in rainy season because it is Non- Electric Detonator
- And it is ecofriendly method of blasting.
- NONEL Blasting method will also give good fragmentation.

PRECAUTIONS:

- a. Proper and safe storage of explosives in approved and Licensed Magazine.
- b. Proper, safe and careful handling and use of explosives by competent Blasters having Blaster's Certificate of Competency issued by DGMS.
- c. Proper security system to prevent theft/ pilferage, unauthorized entry into Magazine area and checking authorized persons to prevent carrying of match box, lights, mobile phones, cigarette etc.
- d. The explosives of class 2 will be used in their original cartridge packing and such cartridge shall not be cut to remove explosive for making cartridge of different size.
- e. Detonators will be conveyed in special containers. These will not be carried with other explosives.
- f. The holes which have been charged with explosives will not be left unattended till blasting is completed.
- g. Before starting charging, clear audible warning signals by Sirens will be given so that people nearby can take shelter.
- h. Blasting operations will be carried out in day times only at designated hours as in this project the mining operations are proposed to be carried out in the day time only.



CHAPTER-7

7.0 MINE DRAINAGE

7.1 Topography:

Topographically, the lease area and its surroundings is an elevated terrain with quarry land covered with native trees, shrubs, herbs, grass, climbers, bushes etc. The highest elevation of the lease area is 190m MSL and lowest is 70m MSL. As the proposed area is hillock, the drainage of the lease area is towards South West direction. No inhabitants are located in the lease area.

7.2 Rain Fall:

The average annual rainfall of the district is 2952 mm. Out of this, major rainfall contribution is from SW monsoon followed by the NE.

7.3 Water Table:

There is no prominent nalla or river flowing within the lease area. The ground water depths were observed from the available nearby sources. The observation made during the field studies are varying between 10m to 15m below the exiting ground level.



CHAPTER-8

8.0 STACKING OF MINERAL REJECTS AND DISPOSAL OF WASTE

8.1 Nature and Quality of Top-Soil and overburden to be generated

8.1.1 Top Soil

A total quantity of 19617cu.m of topsoil is proposed to be removed during the mining operations. The topsoil excavated from the quarry will be dumped separately at pre-determined place and subsequently will be utilized in spreading over reclaimed areas for plantation. Precautions will be taken to limit the height of the topsoil dump to 5 to 6 meters in order to preserve its fertility. It will be suitably protected from soil erosion and infertility by planting fodder grass and leguminous plants during temporary storage.

8.1.2 Overburden

About 11443cu.m of overburden will be generated throughout the mine life. This waste will be utilized within the pit for lying of haul roads. At the end use, overburden can be reutilized as soil base for plantation.

Table.No:8.0: Year wise removal of Top Soil & Overburden Quantity

YEAR	TOPSOIL (CU.M.)	OVERBURDEN (CU.M.)	AREA (HA.)
I-VII	19617	11443	0.4 (OUTSIDE)

CHAPTER-9

8.0 USE OF MINERALS

The material produced from the quarry is transported to the crusher units and sold to the consumers which are finally consumed locally for road (State Highway & National Highway) & building construction works.



CHAPTER-10

10.0 SITE SERVICES AND EMPLOYMENT POTENTIAL

There is no infrastructure available in the mine area.

The total number of employees including skilled and un-skilled workers is 20 which include workers for mine and ancillary unit. The details of the staff and workmen employed in the mine are given below:-

Table.No:10.0 Team Of Quarry Operation

TOTAL TEAM OF QUARRY OPERATION		
Sr. No.	NAME OF THE POST	NOS.
1	HIGHLY SKILLED	2
2	SKILLED	4
3	SEMI-SKILLED	8
4	UN- SKILLED	6
	TOTAL	20

“The medical facility & other benefits to be provided for the miner’s health in accordance with the law”. As per Mines Rule-1955, periodical medical examination thereafter of every person employed in the mine at intervals of not more than five years will be arranged. The said examination shall be so arranged over a period of five years that one fifth of the persons employed at the mine undergo the examination every year.



CHAPTER-11

11.0 MINERAL PROCESSING

11.0 Processing / Beneficiation of the minerals mined: Granite obtained from the proposed quarry material is transported to the crusher unit situated outside the lease area, for crushing, processing / beneficiation needed is sizing and screening / sorting only. The scope of processing of Granite to upgrade the quality is therefore practically limited to size reduction and screening.

11.2 Disposal method for tailings or waste from the processing plant: There is no need of any chemical treatment and so no chemical or other waste will not be generated and there will be no cause for effluent discharge.

11.3 A flow sheet or schematic diagram of the processing procedure: No processing of mineral is planned in the lease area, only size reduction and screening will be done with the help of crusher and screening machineries outside the lease area.

11.4 Quantity and type of chemicals used in the processing plant: Not applicable. Mineral is being crushed and sorted with the help of crusher and screening machineries, hence no chemicals are used.

11.5 Quantity and type of chemicals stored. Not applicable and use of chemicals is not envisaged.

11.6 Quantity (cu.m. per day) of water required for mining and processing and sources of supply of water. Disposal of water and extent of recycling: Total 3.5KLD of water is required, for plantation - 1.5KLD, Dust Suppression - 1.5 KLD and for Domestic purpose - 0.5KLD. This will be obtained from bore well. No significant waste water will be generated and so no proposal of recycling of wastewater.



CHAPTER-12

12.0 ENVIRONMENTAL MANAGEMENT PLAN

Environment Management Plan is a systematic programme which includes environment impact assessment, planning for offsetting the ill effects of development, implementing the programme for resource management, development planning, and close control over day-to-day operations, regular monitoring and auditing of environmental performance.

Collection of base line information is essential which serve as a guide to determine how the future development will affect the environment compared to the present base line status.

12.0 (A) BASE LINE INFORMATION:-

Most of the useful base line information has been collected in the field which are very helpful in preparation of this mining plan which is as given below:-

12.0 (A) (i) EXISTING LAND USE PATTERN:-

Existing land use pattern has been described for land use in lease area, core zone and buffer zone separately.

12.0 (A) (ii) LAND USE IN LEASEAREA:-

The land in the lease area is private own land. Part of the proposed land is generally hillock. The remaining land in the proposed land is mostly covered with native trees, shrubs, herbs, grass, climbers, bushes etc.

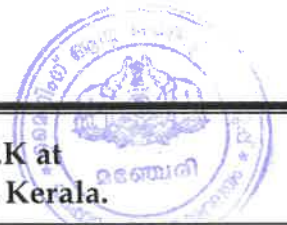
12.0 (A) (iii) LAND USE IN CORE ZONE:-

Land, in core zone i.e. 500 m around the lease area is generally hillock.

12.0 (A) (iv) LAND USE IN BUFFER ZONE:-

Area around the lease area within a radius of 10 km is dominated by hillocks and other area is covered with Rubber tree, Coconut tree, Vatta tree plantation. The water body is flowing far away from the mine boundary.

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In addition to above, there are villages, panchayat roads, perennial water body, power transmission line and telephone lines etc. in this zone.

12.0 (A) (v) DEGRADATION OF LAND & CHANGE OF PROFILE-IMPACT ON LAND USE:-

There will be no change on existing land use in the lease area and there will not be any change in buffer zone.

12.0 (A) (vi) WATER REGIME:-

In the buffer zone, there is no prominent nalla or river flowing within the lease area. The ground water depths were observed from the available nearby sources. The observation made during the field studies are varying between 10m to 15m below the exiting ground level.

12.0 (A) (vii) RAINFALL:-

The average annual rainfall of the district is 2952 mm. Out of this, major rainfall contribution is from SW monsoon followed by the NE.

12.0 (A) (viii) QUALITY OF AIR:-

Quality of present ambient air is within the permissible limit of CPCB norms.

12.0 (A) (ix) FLORA:-

Part of the proposed land is mostly covered with native trees, shrubs, herbs, grass, climbers, bushes etc.

12.0 (A) (x) FAUNA:-

There is no wild life in core zone, buffer zone and lease area. The barren and agricultural lands with urban activities all around the area do not provide favorable home land to wild fauna. The details studies were carried out and are provided.

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12.0 (A) (xi) AMBIENT NOISE LEVEL:-

Mining will be by semi-mechanized opencast method so no significant increase in noise level is expected.

12.0 (A) (xii) CLIMATIC CONDITIONS:-

The district has more or less the same climatic conditions prevalent elsewhere in the State viz. dry season from December to February and hot season from March to May, the South-West monsoon from June to September and the North East monsoon from October to December. The average annual rainfall of the district is 2952mm. Out of this, major rainfall contribution is from SW monsoon followed by the NE. The South West monsoon is usually very heavy and nearly 80% of the rainfall is received during this season. NE monsoon contributes nearly 20%.

12.0 (A) (xiii) HUMAN SETTLEMENT:-

There is no human settlement within 200m radius from the proposed site.

12.0 (A) (xiv) PUBLIC BUILDING, PLACES OF WORSHIP AND MONUMENTS:-

There are no public buildings, places of monuments within 200m of applied area.

12.0 (A) (xv) LOCATION OF SAMPLING STATIONS:-

Location of sampling stations has been selected and results obtained from site.

11.0 (A) (xvi-a) DOES AREA (PARTLY OR FULLY) FALL UNDER NOTIFIED AREA UNDER WATER (PREVENTION & CONTROL OF POLLUTION) ACT, 1974:-

No

12.0(A)(xvi-b)ENVIRONMENT IMPACT ASSESSMENT STATEMENT DESCRIBING THE IMPACT OF MINING AND BENEFICIATION ON ENVIRONMENT OVER THE NEXT 5 YEARS :-

There will not be any significant impact of mining on environment due to various mitigation measures.

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12.0 (B) LAND USE:-

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

S. No.	Land Use Category	Pre-Operational (Ha.)	Operational (Ha.)	Post-Operational (Ha.)
1	Top Soil Dump	Nil	0.4 (Outside)	-
2	Over burden	Nil		
3	Excavation	Nil	0.8216(0.80ha Reclaimed by plantation)	1.4501 (Reclaimed by plantation)
4	Road	0.085	0.095	0.095
5	Built Up Area	-	-	-
6	Drainage	-	-	-
7	Green belt	-	0.4693	0.4693
8	Undisturbed Area	1.9294	0.6285	-
Total		2.0144	2.0144	2.0144

12.0(B) (i) BASE LINE DATA:-

The base line data of the existing environment around the applied area has been undertaken with respect to the following:-

- 1-Ambient air quality
- 2-Water quality
- 3- Soil quality
- 4-Noise

12.0(B) (ii) AMBIENT AIR QUALITY:-

Quality of present ambient air is within permissible limit. There is no industrial activity in and around the lease area.

The mining has been proposed by semi-mechanized open cast method. Water spraying will be done on haul/service roads, mining area, loading and unloading places etc. There will not be any significant impact on ambient air quality.

12.0(B) (iii) WATER QUALITY:-

Drinking water is made available from bore well drilled 700m away from the site at the south west direction of the site.

12.0(B) (iv) NOISE LEVEL:-

Since mining has been proposed as semi-mechanized open cast method, the noise level will be within permissible limit.

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12.0(B) (v) VIBRATION LEVELS (DUE TO BLASTING)

The only source of ground vibrations is due to blasting operations. Based on the ground vibration studies made earlier proper care will be taken during blasting operations.

12.0(B) (vi) WATER REGIME:-

There is no natural water body in the lease area. Mining operation will terminate much before the water table and there is no intersection.

12.0(B) (vii) SOCIO-ECONOMICS:-

The mining in the region will open the gates for socio-economic upliftment of the area and the area in and around the lease area. People will either be employed in the mines getting reasonable wages or will be self-employed in the ancillary work of mining. At the same time people will be getting better facilities of communication and amenities due to mining activities in the region.

12.0(B) (viii) HISTORICAL MONUMENTS ETC.:-

There are no historical monuments within 200m of applied area, hence there will not be any affect on historical monuments.

12.0 (C) ENVIRONMENT MANAGEMENT PLAN

12.0 (C) (i) TEMPORARY STORAGE AND UTILISATION OF TOP SOIL:-

Topsoil Management

A total quantity of 19617 cu. m. of topsoil is proposed to be removed during the mining operations. The topsoil excavated from the quarry will be dumped separately at pre-determined place and subsequently will be utilized in spreading over reclaimed areas for plantation. Precautions will be taken to limit the height of the topsoil dump to 5 to 6 meters in order to preserve its fertility and shelf life. It will be suitably protected from soil erosion and infertility by planting fodder grass and leguminous plants during temporary storage.

Overburden Management

About 11443 cu. m. of overburden will be generated throughout the mine life. This waste will be utilized within the pit for lying of haul roads. At the end use, overburden can be reutilized as soil base for plantation.



12.0(C) (ii) YEAR WISE PROPOSALS FOR RECLAMATION OF LAND AFFECTED BY ABANDONED QUARRIES AND OTHER MINING ACTIVITIES DURING FIRST FIVEYEARS:-

As the mining will progress, the areas where ultimate pit depth is reached, backfilling will be started. This will be reducing the transportation of overburden and waste outside the pit area.

12.0 (C) (iii) EXTENT OF BACKFILLING AND RECONTOURING:-

There is proposal of backfilling and re-contouring during the next five years of this mining plan.

12.0(C)(iv)ALTERNATE USE OF UNFILLED/PARTIALLY FILLED/EXCAVATIONS/ROAD SIDES/SLOPES AND MINE:-

The reclaimed area may also be considered for plantation to develop green belts.

12.0 (C) (v) USE OF ABANDONED QUARRIES/PITS PROPOSED TO BE USED AS RESERVOIR ETC:-

Abandoned pits will be utilized for water storage during rainy season. This water will be utilized for irrigation and plantation etc. It will also help in recharging the ground water.

12.0 (C) (vi) PROGRAMME FOR AFFORESTATION:-

The year wise programme of eco-restoration for the life of mine, about 225-250 trees will be planted in an area of 0.4693 ha.

Biological reclamation / ecological restoration for the mined area by plantation of the species as per the time schedule suggested below: -

First Six months	--	Herbs & grass
Next Six months	--	Shrubs
Next Six months onwards	--	Trees

Selection of species is based on High Dust Capturing, Soil Holding Capacity, ground water recharge capacity etc. More focus is given for medicinal plants.

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12.0 (C) (vii) PLANTATION PROGRAMME:-

- (i) Plantation along the boundary of the lease area i.e. within 7.5 m barrier of the lease area boundary has been proposed which will help to improve the environment and ecology.
- (ii) Plantation will be done around offices, road side and fencing boundary etc.

12.0 (C) (xiv) SPECIES TO BE PLANTED:-

Further afforestation programme up to conceptual plan period will be similar to the above five years programme which will be repeated every three years.

12.0 (C) (xv) POST PLANTING CARE:-

Post planting care is most essential for healthy growth of vegetation. This will comprise:-

- (i) Replacement of casualties at the first opportunity itself.
- (ii) Weeding monthly for first two months and later on six monthly.
- (iii) Irrigation fortnightly from October to March, once in 10 days between April and June.
- (iv) Soil working, Manuring, mulching etc. twice in a year.
- (v) Protection from grazing cattle etc.

12.0 (C) (xviii) TREATMENT AND DISPOSAL OF WATER FROM MINE:-

There will not be any disposal of water from the mine and hence no treatment of water is required. The mines working have been proposed quite above the ground water table.

MEASURES FOR MINIMISING ADVERSE EFFECTS ON WATER REGIME:-

There is no natural water body in the leased area. The garland drains / check dam will be built around the dump to channelize runoff water through settling ponds.

12.0 (C) (xix) PROTECTIVE MEASURES FOR GROUND VIBRATIONS / AIR BLAST CAUSED BY BLASTING:-

The controlled blasting is proposed by adopting all the safety measures as per "MMR 1961" and with the permission of DGMS.



In this area for fragmentation of granite the blasting will be conducted. Multiple blast holes of 1.0 to 1.5 m depth will be drilled with the help of 32 mm drill rod, Jack Hammer and Air Compressor of 100 cfm capacity.

It is estimated about 250g of explosives per hole is required. About 10-15 holes per blast are proposed. Therefore, the requirement of explosives will be about 1.5 kg/ blast.

12.0 (C) (xx) MEASURES FOR PROTECTING HISTORICAL MONUMENTS:-

Since there are no historical monuments within 200m of applied area, no measures for protecting of these monuments are required

12.0 (C) (xxi) REHABILITATION OF HUMAN SETTLEMENTS LIKELY TO BE DISTURBED DUE TO MINING ACTIVITY:-

The mining activity will be confined to areas away from human settlements. No population will be affected by mining activities and as such the question of rehabilitation of the people displaced by mining operations does not arise.

12.0 (C) (xxii) SOCIO-ECONOMIC BENEFITS ARISING OUT OF MINE:-

It is expected that mining can boost the gross economic production of the area other than industrial activities. It provides new avenues of direct or indirect employment and business. These coupled with growth in infrastructural facilities results in improved socio-economic prospects.

The mining in the region will open the gates for socio-economic upliftment of the area. People will be employed in the mines and will be self-employed in the ancillary works. People will be getting better facilities of communication and amenities due to mining activities in the region.

12.0 (D) ENVIRONMENTAL MONITORING:-

An environment protection cum afforestation cell has been proposed. It will be responsible for implementing the proposed measures and monitor the progress of implementation and reinforce them wherever necessary.

12.0 (D) (i) LAND USE MANAGEMENT:-

(i) Topsoil Management

Topsoil is proposed to be removed during the mining operations. The topsoil excavated from the quarry will be dumped separately at pre-determined place and

Mining Plan for Granite (Building Stone) Quarry of Arshak Ali. E.K at Kannamangalam Village, Tirurangadi Taluk & Malappuram District, Kerala.

subsequently will be utilized in spreading over reclaimed areas for plantation. Precautions will be taken to limit the height of the topsoil dump to 5 to 6 meters in order to preserve its fertility. It will be suitably protected from soil erosion and infertility by planting fodder grass and leguminous plants during temporary storage

(ii) Overburden Management

Overburden will be generated throughout the mine life. This waste will be utilized within the pit for lying of haul roads. At the end use, Overburden can be reutilized as soil base for plantation.

(iii) End Land Use Plan

As a result of phase wise working of the pit area will be reclaimed by leaving a storage pit at the end of mining operation.

12.0(D) (ii) MANAGEMENT OF MINING ENVIRONMENT DEGRADATION (GENERAL):-

Following control measures will be taken to abate the deteriorating impact on environment and improving the same. For affective management of this, a few persons will be exclusively provided who will be responsible for implementing the control measures and to monitor the progress of implementation of these measures in order to minimize environmental degradation.

12.0(D) (iii) SOLID WASTE MANAGEMENT:-

The mine waste proposed is to be stocked in the dump area specially provided for the purpose. Care will be taken in selecting the site for the stacking yards for the stacking purpose. It will be located in a secure place and having solid base and on a non-used zone. These dump yards have been protected by toe walls. The toe walls will be constructed during first year period. The height of these dumps will also be restricted and benched.

12.0(D) (v) MONITORING OF AIR BORNE DUST:-

Vegetation cover will help in restricting the spread of dust in surrounding area. The bushes and scrubs will also act as barriers for arresting spread of dust there.



In the mine, dust is generated mostly by plying of tractor/trucks. Air borne dust generated by plying of trucks can be considerably reduced by sprinkling water on roads. A tanker of about 1000 liters capacity will be deployed for this purpose especially in the dry seasons.

12.0(D) (vi) MANAGEMENT OF NOISE PROBLEM:-

Source of noise pollution have already been dealt.

To reduce the noise caused by machineries and equipments at the mine, mufflers of adequate size and capacity shall be provided with equipments at the mine.

Chief sources of noise pollution in the mine will be vehicle.

Based on LOI practice, in Directorate General of Mines Safety circular no.-158 (Tech.) of 1975, noise standards have been recommended. According to this, there is a warning limit value of 85 db (A) by which the danger of hearing impairment and deafness may result from unprotected ear.

Personnel protective equipment have to be used if there are single isolated out bursts of noise which can go above 130 db (A) impulse or 120 db (A). Noise from trucks can be reduced by using mufflers of adequate size and strength and better maintenance of the equipments.

Noise will not be the problem as the mining has been proposed by semi-mechanized open cast method.

12.0(D) (vii) MANAGEMENT OF GROUND VIBRATIONS:-

The only source of ground vibration is due to blasting operation. Based on the Ground Vibration study studies made earlier, proper care will be taken during blasting operation.

12.0(D) (viii) MANAGEMENT OF LAND SLIDE PROBLEM:-

The final pit slope is kept at not steeper than 45° which is not likely to cause any problem in respect of slope stability. Thus there is no likelihood of any landslide at any stage in future.

12.0(D) (ix) MANAGEMENT OF HUMAN SETTLEMENT PROBLEM:-

The mining activity will be confined to remote area away from human settlements. No population will be affected by such mining activities. As such the question of rehabilitation of the people displaced by mining operations does not arise.

Mining Plan for Granite (Building Stone) Quarry of Arshak Ali. E.K at Kannamangalam Village, Tirurangadi Taluk & Malappuram District, Kerala.



12.0(D) (ix) MANAGEMENT OF HUMAN SETTLEMENT PROBLEM:-

The mining activity will be confined to remote area away from human settlements. No population will be affected by such mining activities. As such the question of rehabilitation of the people displaced by mining operations does not arise.

12.0(D) (x) MANAGEMENT OF WILD LIFE HABITAT:-

No specific management is proposed because there is no wildlife, sanctuary etc. within the study area.

12.0(D) (xi) MANAGEMENT OF FLORA:-

Existing flora will be improved by plantation of trees.

12.0(D) (xii) MANAGEMENT OF TOP OVERBURDEN:-

Top overburden will be stored in the nonuse zone and this waste will be utilized within the pit for lying of haul roads. At the end use, Overburden can be reutilized as soil base for plantation.

12.0(D) (xiii) MANAGEMENT OF CROPPING PATTERN:-

No management is specifically being proposed because of any apparent adverse impact on cropping pattern due to mining.

12.0(D) (xiv) WATER COURSES, SPRINGS ETC. MANAGEMENT THEREOF:-

Not Applicable.

12.0(D) (xv) MANAGEMENT OF SOCIO-ECONOMIC PROBLEMS:-

The mine is situated in a remote area, where the socio-economic status of the people is not satisfactory. There are no industries in the area. There will be positive impact on socio-economic conditions of the area due to mining. The mining operations in such remote places would provide direct and indirect employment to local people.



12.0(D) (xvi) CLIMATE-MANAGEMENT FOR IMPROVEMENT:-

Proposed plantation will improve present climatic conditions. This will be continuously monitored by environment management cell.

Arshak Ali. E.K
(Applicant)

Mahesh. S
RQP/BNG/338/2014/A

MAHESH S.
MTech Applied Geology
RQP
RQP No: BNG/338/2014/A



CHAPTER – 13

MINING PLAN WITH

PROGRESSIVE

MINE

CLOSURE PLAN



Mining Plan for Granite (Building Stone) Quarry of Arshak Ali. E.K at Kannamangalam Village, Tirurangadi Taluk & Malappuram District, Kerala.

1.0 INTRODUCTION

(a) Name & Address of lessee:

Arshak Ali. E.K
Edathola Kottasseri,
Malabar Manzil, Eranippadi,
Kannamangalam. P.O,
Malappuram District- 676 304.

(b) Location of the lease area:

District and State : Malappuram, Kerala
Tehsil : Tirurangadi
Village : Kannamangalam

(c) Extent of the Lease Area

Type of Land	Lease Area (in hect.)
Private Land	2.0144

(d) Present Land Use Pattern:

S. No.	Particulars	Present Area (in Ha.)
1.	Pits	Nil
2.	Road	0.085
3.	Drainage / Pond	Nil
4.	Un-worked Area	1.9294
5.	Infrastructure	-
Total		2.0144



Mining Plan for Granite (Building Stone) Quarry of Arshak Ali. E.K at Kannamangalam Village, Tirurangadi Taluk & Malappuram District, Kerala.

(e) Method of mining

Mining is carried out by open cast semi mechanized method. As per the mining lease area and geological formation of the mining lease area, the manual mining is proposed to achieve the annual targeted production.

(f) Mineral processing operation:

Sorting of mineral has been carried out manually. No other processes of mineral processing have been proposed in the mining lease area.

Mining Plan for Granite (Building Stone) Quarry of Arshak Ali. E.K at
Kannamangalam Village, Tirurangadi Taluk & Malappuram District, Kerala.



1.1 Closure Plan Preparations

A. NAME, ADDRESS AND REGISTRATION NUMBER OF THE RECOGNISED PERSONS WHO PREPARED THE PROGRESSIVE CLOSURE PLAN

Name of RQP- **Mahesh. S**

Reg.No. RQP/BNG/338/2014/A

Validity: 01-07-2024

Address of RQP: TC 31/580, Navadeepam,
S.N Nagar, House No: 24,
Pettah Post Office, Trivandrum,
Kerala.
Mobile No: 91-9895051333
Email: - gecminingsolutions@gmail.com

Executing Agency

Arshak Ali. E.K

(Applicant)



Mining Plan for Granite (Building Stone) Quarry of Arshak Ali. E.K at Kannamangalam Village, Tirurangadi Taluk & Malappuram District, Kerala.

2.0 MINE DESCRIPTION:

GEOLOGY AND EXPLORATION

2.1 TOPOGRAPHY

Topographically, the lease area and its surroundings is an elevated terrain with quarry land covered with native trees, shrubs, herbs, grass, climbers, bushes etc. The highest elevation of the lease area is 190m MSL and lowest is 70m MSL. As the proposed area is hillock, the drainage of the lease area is towards South West direction. No habitants are located in the lease area.

2.2 REGIONAL GEOLOGY

Based on the study of different section available in the area a tentative stratigraphic has been arrived at which is given below:-

Age	Thickness (in m)	Lithounits
QUATERNARY	1-15	Soil and Alluvium
1-10		Beach sand and sand bars
1-2		Black sticky clay and mud with shell
4-5		Teri sands and laterite pebble bed
8-10		Polymitic pebble bed with grit and clay
-----Unconformity-----		
TERTIARY		
WARKALLI	1-2	Sandstones with clay beds
2-3		Lignite associated with beds of pluish green clay kalnadu clay
-----Unconformity-----		
PRECAMBRIAN	Crystalline	
Rock	Intrusives	Pegmatite and quartz viens
	Dolerite - gabbro	
Dharwars		
Charnockite -Khondalite		

(*Secondary Source: - Geological Survey of India-www.gsi.gov.in)



2.3 LOCAL GEOLOGY

The local geology belongs to the regional geology. Main rock type in the study area is charnockite. At places where they are exposed, the charnockite is medium to coarse grained with dark grey quartz. The soil & over burden thickness varies from average 1.2m to 0.7m topographically, the area is undulating.

2.4 GENERAL DESCRIPTION OF FORMATIONS:-

The details of the pits observed to estimate the top soil and overburden from the proposed area is given below:-

Particulars	Pit - 1
Top soil (thickness in m.)	1.2
Over burden (thickness in m.)	0.7

2.5 GEOLOGICAL SECTION:

Geological cross section has been drawn at middle of the lease area in Plate No. 3. The section line along which the geological section has been prepared has been shown in Plate No. 3. The Section has been drawn across the strike of the host rock.

2.6 DETAILS OF EXPLORATION:-

Since it's a new quarry, pits are made.

2.7 METHOD OF ESTIMATION OF RESERVES:-

The following points have been considered while calculating the reserves of stone.

- 1- The reserves of minerals have been estimated by using the method of preparation of sections and applying the influence of such sections to limited distance and multiplying it by width.
 - 2- Based on the actual geological mapping and cross section preparation, the proved reserve has been taken.
 - 3- The specific gravity of minerals has been taken as 2.5 i.e. 1 m³ of mineral in situ = 2.5Tonne



Mining Plan for Granite (Building Stone) Quarry of Arshak Ali. E.K at Kannamangalam Village, Tirurangadi Taluk & Malappuram District, Kerala.

2.8 RESERVES OF MINERALS

The reserves of minerals have been calculated and the geological and mineable reserves have been given in table no. 2.1.

2.9 SUMMARY OF GEOLOGICAL & MINEABLE RESERVES

In this area the Granite (Building Stone) exposures are bordering to the lease boundary. The mineable reserves are arrived after deducting the reserves locked in mines safety slope along with boundary in compliance with mineral concession rules.

The quantity of such kind of reserves is arrived as following:-

Table 2.1 - Mineable Reserves Estimation

BLOCKED					MINEABLE					
BENCH	M2	M	DENSITY	TON		BENCH	M2	M	DENSITY	TON
					A-A1					
70-75	851	55.5	2.5	118076		70-75	138	48	2.5	16560
75-80	793	55.5	2.5	110029		75-80	196	48	2.5	23520
80-85	735	55.5	2.5	101981		80-85	254	48	2.5	30480
85-90	702	55.5	2.5	97402.5		85-90	255	48	2.5	30600
90-95	668	55.5	2.5	92685		90-95	242	48	2.5	29040
95-100	635	55.5	2.5	88106.3		95-100	229	48	2.5	27480
100-105	604	55.5	2.5	83805		100-105	214	48	2.5	25680
105-110	569	55.5	2.5	78948.8		105-110	202	48	2.5	24240
110-115	531	55.5	2.5	73676.3		110-115	193	48	2.5	23160
115-120	476	55.5	2.5	66045		115-120	197	48	2.5	23640
120-125	428	55.5	2.5	59385		120-125	198	48	2.5	23760
125-130	396	55.5	2.5	54945		125-130	182	48	2.5	21840
130-135	369	55.5	2.5	51198.8		130-135	161	48	2.5	19320
135-140	334	55.5	2.5	46342.5		135-140	142	48	2.5	17040
140-145	303	55.5	2.5	42041.3		140-145	129	48	2.5	15480
145-150	266	55.5	2.5	36907.5		145-150	119	48	2.5	14280
150-155	212	55.5	2.5	29415		150-155	124	48	2.5	14880
155-160	148	55.5	2.5	20535		155-160	137	48	2.5	16440
160-165	113	55.5	2.5	15678.8		160-165	122	48	2.5	14640
165-170	88	55.5	2.5	12210		165-170	97	48	2.5	11640
170-175	63	55.5	2.5	8741.25		170-175	73	48	2.5	8760
175-180	38	55.5	2.5	5272.5		175-180	48	48	2.5	5760



Mining Plan for Granite (Building Stone) Quarry of Arshak Ali. E.K at Kannamangalam Village, Tirurangadi Taluk & Malappuram District, Kerala.

180-185	14	55.5	2.5	1942.5		180-185	32	48	2.5	3840
185-190	-	55.5	2.5			185-190	17	48	2.5	2040
				1295370						444120
					B-B1					
80-85	629	60	2.5	94350		80-85	85	52.5	2.5	11156.3
85-90	576	60	2.5	86400		85-90	138	52.5	2.5	18112.5
90-95	522	60	2.5	78300		90-95	192	52.5	2.5	25200
95-100	494	60	2.5	74100		95-100	189	52.5	2.5	24806.3
100-105	465	60	2.5	69750		100-105	174	52.5	2.5	22837.5
105-110	434	60	2.5	65100		105-110	163	52.5	2.5	21393.8
110-115	399	60	2.5	59850		110-115	151	52.5	2.5	19818.8
115-120	359	60	2.5	53850		115-120	145	52.5	2.5	19031.3
120-125	308	60	2.5	46200		120-125	149	52.5	2.5	19556.3
125-130	247	60	2.5	37050		125-130	163	52.5	2.5	21393.8
130-135	188	60	2.5	28200		130-135	177	52.5	2.5	23231.3
135-140	164	60	2.5	24600		135-140	156	52.5	2.5	20475
140-145	139	60	2.5	20850		140-145	137	52.5	2.5	17981.3
145-150	114	60	2.5	17100		145-150	114	52.5	2.5	14962.5
150-155	87	60	2.5	13050		150-155	93	52.5	2.5	12206.3
155-160	64	60	2.5	9600		155-160	71	52.5	2.5	9318.75
160-165	38	60	2.5	5700		160-165	49	52.5	2.5	6431.25
165-170	16	60	2.5	2400		165-170	26	52.5	2.5	3412.5
170-175	-	60	2.5	-		170-175	12	52.5	2.5	1575
				786450						312900

SECTION	BLOCKED RESERVE (MT)	MINEABLE RESERVE (MT)	GEOLOGICAL RESERVE (MT)
A-A1	1295370	444120	1739490
B-B1	786450	312900	1099350
TOTAL	2081820	757020	2838840



Mining Plan for Granite (Building Stone) Quarry of Arshak Ali. E.K at Kannamangalam Village, Tirurangadi Taluk & Malappuram District, Kerala.

3.0 CLOSURE PLAN

3.1 Mined-Out Land:

At the end of mining Plan period about 2.0144ha area will be disturbed in form of pit, road and green belt. Life of the mine is 10 years. The proposal for reclamation or rehabilitation of mined out land with manner in which the actual site of the pit will be restored for future use is given below:

Sr. No.	Land Use Category	Pre Operational (Ha.)	Operational (Ha.)	Post-Operational (Ha.)
1	Top Soil Dump	Nil	0.4 (Outside)	-
2	Over burden	Nil		
3	Excavation	Nil	0.8216(0.80 ha Reclaimed by plantation)	1.4501 (Reclaimed by plantation)
4	Road	0.085	0.095	0.095
5	Built Up Area	-	-	-
6	Township Area	Nil	Nil	Nil
7	Afforestation	Nil	-	-
8	Reclamation (Backfilled)	Nil	Nil	Nil
9	Green belt	-	0.4693	0.4693
10	Processing	Nil	Nil	Nil
11	Drainage / pond	Nil	-	-
12	Undisturbed Area	1.9294	0.6285	-
Total		2.0144	2.0144	2.0144

Towards the closure activity plantation at the end of Plan Period is as follows:

ACTIVITY	First	Second	Third	Fourth	Fifth
PLANTATION (NO. OF PLANTS)	50	50	50	50	50

3.2 Water quality management:

Surface water: -

There is no surface water body within lease area and hence impact of mining on surface water will not take place.

Ground water quality: -Mining will not take place up to the water table and there will be no intersection, hence there will be no impact on ground water. Therefore, its quality will remain unchanged. No ground water management is required.

3.3 Air Quality management

Mining operation is of small scale so air pollution due to dust will be negligible. Water sprinklers are proposed on haul road once in a day especially during dry seasons. The drilling and blasting, excavation and loading shall not be done during high wind.

3.4 Waste management

About 11443 cu. m. of overburden will be generated throughout the mine life. This waste will be utilized within the pit for lying of haul roads. At the end use, Overburden can be reutilized as soil base for plantation.

3.5 Top Soil Management

A total quantity of 19617 cu. m. of topsoil is proposed to be removed during the mining operations. The topsoil excavated from the quarry will be dumped separately at pre-determined place and subsequently will be utilized in spreading over reclaimed areas for plantation. Precautions will be taken to limit the height of the topsoil dump to 5 to 6 meters in order to preserve its fertility. It will be suitably protected from soil erosion and infertility by planting fodder grass and leguminous plants during temporary storage.



Mining Plan for Granite (Building Stone) Quarry of Arshak Ali. E.K at Kannamangalam Village, Tirurangadi Taluk & Malappuram District, Kerala.

3.6 Tailing Dam Management:

Not Applicable.

3.7 Infrastructure

No infrastructure is proposed to develop inside the lease area.

3.8 Disposal of Mining Machinery

Machines will be deployed as per requirement to meet production target. The question of disposal of mining machinery does not arise as the closure plan is progressive in nature. Brief details of machinery are as follows:-

(i) Drilling Machines

Sr. No.	Machine Type	Required Number
1.	Excavator	2
2.	Rock Breaker	1
3.	Compressor	2
4.	Tippers/Trucks	4
5.	Jack hammer	2
6.	DG set	1

3.9 Safety & Security

Safety measures will be implemented to prevent access to surface opening excavations as per mines Act 1952. This is a small-scale open cast mine and so only some part of the area will be the working zone. The area shall be fenced with proper gates which shall be guarded by security personals.

3.10 Disaster Management and Risk Assessment

Open cast mining method is adopted in this mine. If the benches are made with proposed height and width no risk will be there. Even then if any minor or major



accident happens, the mines staffs having First Aid facilities with first aid box with all the necessary medicines etc to give the first aid treatment at the site and will arrange a vehicle immediately to reach the nearest hospital which is situated 2 km from the site. If any disaster happens the lessee is capable to meet such eventualities.

Care and Maintenance during temporary discontinuance

During the temporary discontinuance the working place will be fenced completely and a board of discontinuance will be displayed at the main entrance of the working place.

4.0 Economic Repercussions of closure of mine and Manpower retrenchments.

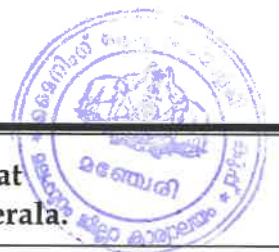
In case of the closure of the mine, there will be a plan for the voluntary retirement scheme as per rules.

5.0 Time scheduling for abandonment:

As per mineable reserves, the life of the mine is around 10 years as on now hence no scheduling for abandonment operations are proposed.

6.0 Abandonment Cost

Abandonment is not proposed during five years of Mining operation. But implementation of waste management like retaining wall and afforestation is proposed as continuous process. Cost of these is around Rs. 1,00,000 per year.



Mining Plan for Granite (Building Stone) Quarry of Arshak Ali. E.K at Kannamangalam Village, Tirurangadi Taluk & Malappuram District, Kerala.

7.0 Table Indicating Broken Up Areas at the End of Progressive Stage.

Sr. NO	Head	Area put on use at start of Plan. (In Ha.)	Additional requirement during Plan period. (In Ha.)	Total (In Ha.)	Area considered as fully reclaimed & rehabilitated (In Ha.)	Net area considered for calculation (In Ha.)
1.	Area under mining	0.000	0.8216	0.8216	1.2501	1.2501
2.	Storage for top soil	0.0000	0.15 (Outside)	0.15 (Outside)	0.0	0.0
3.	Overburden /dump	0.0000	0.15 (Outside)	0.15 (Outside)	0.0	0.0
4.	Mineral storage	0.0000	0.0000	0.0000	0.0000	0.0000
5.	Infrastructure Workshop, administrative Building etc.)	0.0	0.0	0.0	0.0	0.0
6.	Road	0.085	0.01	0.095	0.095	0.095
7.	Green Belt	0.0000	0.4693	0.4693	0.4693	0.4693
8.	Drainage/ pond	0.0000	0.2	0.2	0.2	0.2
9.	Effluent Treatment Plan	0.0000	0.0000	0.0000	0.0000	0.0000
10.	Mineral Separation Plan	0.0000	0.0000	0.0000	0.0000	0.0000
11.	Afforestation	0.0000	0.0	0.0	0.0	0.0
12.	Undisturbed Area	1.9294	0.5135	0.4285	0.000	0.000
GRAND TOTAL		2.0144	2.0144	2.0144	2.0144	2.0144

Mining Plan for Granite (Building Stone) Quarry of Arshak Ali. E.K at Kannamangalam Village, Tirurangadi Taluk & Malappuram District, Kerala.

7.0 PLANS, SECTIONS etc.

All relevant plans & sections have been enclosed.

1. Key Map
2. Route Map & Vicinity Map
3. Area Survey Sketch
4. Google Map showing Lease area
5. Digital Lease Plan
6. Surface Plan
7. Geological Plan & Section
8. Development Plan & Section
9. Year wise Excavation Plan (PMCP) & Section
10. Reclamation Plan & Section
11. Environmental Plan
12. Progressive Mine Closure Plan & Section
13. Drainage Runoff Plan

Place: Trivandrum

Date: 28.09.2021



Mahesh. S

RQP/BNG/338/2014/A

Validity: - 01-07-2024



GEOLOGIST
DIST. Office Of Mining & Geology
Mini Civil Station, Manjeri
Malappuram District

MAHESH S.
MTech Applied Geology
RQP
RQP No: BNG/338/2014/A

ANNEXURE 11
DISTRICT SURVEY
REPORT



GOVERNMENT OF KERALA

DISTRICT SURVEY REPORT OF MINOR MINERALS (EXCEPT RIVER SAND)

MALAPPURAM DISTRICT

Prepared as per
Environment Impact Assessment (EIA) Notification, 2006 issued
under Environment (Protection) Act 1986
by

DEPARTMENT OF MINING AND GEOLOGY
www.dmg.kerala.gov.in

November, 2016
Thiruvananthapuram

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DISTRICT SURVEY REPORT OF MINOR MINERALS

MALAPPURAM DISTRICT

(This report is to be submitted along with application for Environmental Clearance (EC) for mining of all minor minerals except river sand)

1 Introduction

Malappuram district forms part of Malabar region of Kerala, which is predominantly a land of hills and valleys. Malappuram literally means an elevated place on the top of hills. The district has a unique place in the geological history in view of the fact that Laterite, first identified in the area near Angadippuram by Francis Buchanan is the type area of Laterite. The district lies between North latitudes 10° 40' and 11° 32' and East longitude 75° 50' and 76° 36'.

The *Nilgiris* of Tamil Nadu in the east and Lakshadweep Sea in the west provide natural boundaries. In the north it is bounded by Kozhikode and Wayanad districts and in the south by Palakkad and Trichur districts. The district has a geographical area of 3550 sq.km, which is 9.13 % of the total area of the State.

In 2011, Malappuram had population of 4,110,956 of which male and female were 1,961,014 and 2,149,942 respectively. There was an increase of 13.39 percent in the population compared to population as per 2001. The initial provisional data suggest a density of 1,158 in 2011 compared to 1,021 of 2001. Malappuram ranks 3rd in the area and first in the population of the State. Out of the total population 55.81% (2,294,473) is in the rural area and the rest (1,816,483) is in the urban area. Malappuram contributes 12.31% of the total population of the state.

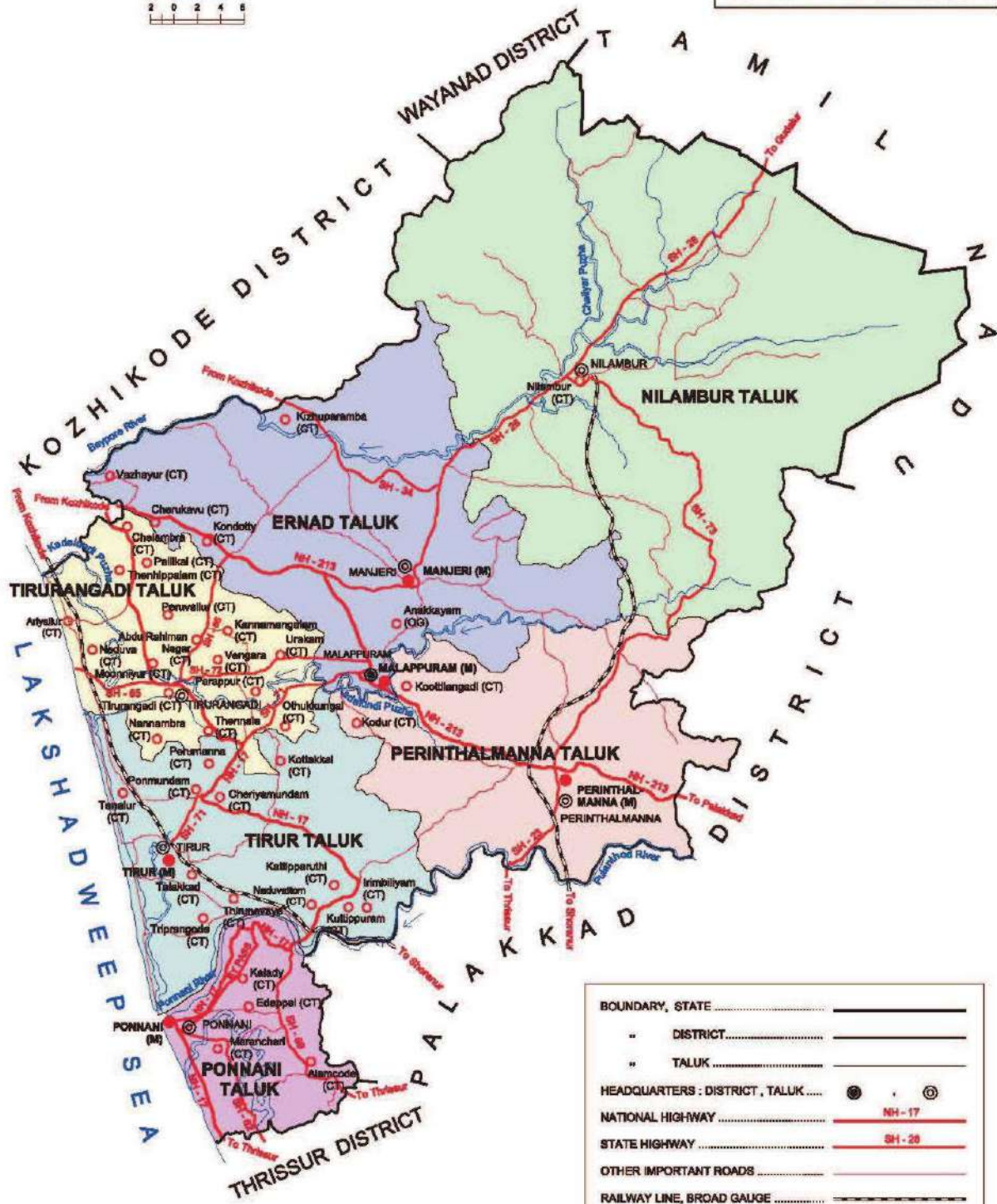
The district is accessible by air, rail and road. The Kozhikode airport is situated near Kondotty in the district. The Kanyakumari-Mangalore-Mumbai broad gauge railway line passes through the western parts of the district. There is another branch rail line to Nilambur from Shornur (Palakkad district). The NH 17 which connects Cochin and Mangalore passes through the western portion of the district.

The Headquarters of the district is at Malappuram. The district has two Revenue Divisions with Headquarters at Perinthalmanna and Tirur. There are 6 taluks namely Ernad (Headquarters at Manjeri), Perinthalmanna, Tirur, Ponnani, Nilambur and Tirurangadi (Headquarters at Parappanangadi), 15 blocks, 100 panchayats and 150 villages. There are 7 Municipalities namely Malappuram, Kottakkal, Ponnani, Perinthalmanna, Tirur, Manjeri and Nilambur.

INDIA
KERALA
MALAPPURAM DISTRICT



NUMBER OF TALUKS.....	: 6
▪ STATUTORY TOWNS	: 5
▪ CENSUS TOWNS	: 39
▪ OUT GROWTHS	: 1
▪ VILLAGES	: 63
TOTAL AREA OF THE DISTRICT	: 3560 Sq. Km.



BOUNDARY, STATE	—————
“ DISTRICT	—————
“ TALUK	—————
HEADQUARTERS : DISTRICT , TALUK	● ○
NATIONAL HIGHWAY	NH - 17
STATE HIGHWAY	SH - 26
OTHER IMPORTANT ROADS	—————
RAILWAY LINE, BROAD GAUGE	—————
RIVER AND STREAM	~~~~~
STATUTORY TOWN / CENSUS TOWN & OUT GROWTH	● ○

2 Drainage and Irrigation

Malappuram district is mainly drained by the *Kadalundi River*, *Chaliyar River* and *Bharathapuzha* (locally known as Ponnani River). Of these rivers, only *Chaliyar* and *Bharathapuzha* are perennial and all others get dried up in summer and hence

Malappuram district is drought prone. The *Kadalundi River* is formed by the confluence of its two main tributaries viz; the *Olipuzha* and the *Veliyar*. The *Olipuzha* takes its origin from 'the *Cherakkobban Mala*' (1160 m amsl) and the *Veliyar* originates from the forest of the '*Erattakomban Mala*' (1190 m amsl). The *Kadalundi River* is 130 km long with a drainage area of 1274 sq. km. The river joins the Lakshadweep Sea at about 5 km south of the Chaliyar river mouth.

The *Chaliyar River*, one of the major rivers of the State, originates from the Ilambalari Hills in Nilgiri district of Tamil Nadu (2066 m amsl). The river flows along the northern boundary of Malappuram district through Nilambur, Mambad, Edavanna, Areakode and Feroke. It joins the Lakshadweep Sea near Beypore. The river is 169 km long with a drainage area of 2535 sq. km in Kerala State.

The *Bharathapuzha* or the Ponnani River is the second longest river of Kerala, originating from the Anamalai Hills (1964 m amsl) in the Western Ghats. The river below the confluence of Bharathapuzha and Gayathripuzha is called the Ponnani River. It flows through the districts of Palakkad, Malappuram and Trichur and drains into the Lakshadweep Sea near Ponnani town in Malappuram district.

The drainage pattern of the three rivers in the district is generally dendritic. Tidal effects are experienced in places such as Vallikkunnu and Tirurangadi, which are 6 to 8 km away from the coast. Analysis of the drainage characteristics of the two basins reveals that Kadalundi river is a fourth order stream, the Ponnani river is fifth order stream and the Chaliyar river is a seventh order stream.

3 Rainfall and climate

The district has more or less the same climatic conditions prevalent elsewhere in the State viz. dry season from December to February and hot season from March to May, the South-West monsoon from June to September and the North-East monsoon from October to December. The normal rainfall of the district is 2793.3 mm. Out of this, major rainfall contribution is from SW monsoon followed by the NE monsoon. The South West monsoon is usually very heavy and nearly 73.5% of the rainfall is received during this season. NE monsoon contributes nearly 16.4% and March to May summer rain contributes nearly 9.9% and the balance 0.2% is accounted for during January and February months.

4 Meteorological parameters

4.1 Temperature

The climate is generally hot and humid. March and April months are the hottest and January and February months are the coldest. The maximum temperatures ranges from 28.9 to 36.2°C and the minimum temperatures range from 17.0 to 23.4°C. The temperature starts rising from January and reaches the peak in the month of March and April and then decreases during the monsoon month and again rising from September onwards.

4.2 Wind

The wind is predominant from east as well as west during morning and evening hours. The wind speed is more during December to February months. It ranges from 2.9 to 7.2 km per hour.

4.3 Humidity

The relative humidity ranges from 84 to 94 % during morning hours. The humidity is more during the peak monsoon months from June to September.

4.4 Geology

From the exposure pattern of the rock types, the district can be divided into two geological belts: (i) Charnockite group of rocks covering a major part and (ii) Migmatite Complex towards the east. Wayanad group is represented by small bodies of meta-ultramafites (tal-tremolite schist, talc-pyroxene-garnet schist, banded magnetite quartzite) and high-grade schist and gneiss (hornblende-biotite schist and gneiss+garnet with amphibolite band) which extends into Tamil Nadu where it is known as Sathyamangalam Group. The rocks of Peninsular Gneissic Complex, represented by granite gneiss and hornblende-biotite gneiss, form the next younger sequence. They have a very limited distribution near the eastern boundary. They have a very limited distribution near the eastern boundary, extending into the adjacent district where they are known as Bhawani Group. A linear band of granite gneiss NE of Perinthalmanna and a large body of hornblende-biotite gneiss east of Manjeri are prominent units. Charnockit Group includes charnockite/charnockite gneiss, having the largest areal distribution, followed in decreasing order of abundance by banded magnetite quartzite, pyroxene granulite, amphibolite/hornblende granulite and pyroxenite, which occur as concordant as well as discordant bands, lenses, layers and enclaves both within charnockite as well as within gneisses of Migmatite Complex. The Migmatite Complex is represented by biotite-hornblende gneiss (or hornblende-biotite gneiss) and quartzo-feldspathic

gneiss/garnet-biotite gneiss with enclaves of garnet-sillimanite gneiss+graphite distributed mostly in the central and northeastern part. Pegmatite and quartz veins constitute the acid intrusives, whereas gabbro and dolerite are basic intrusives. Near the coast, isolated cappings of Neogene Warkalli sediments comprising grit and clay beds are noticed. Lateritisation is widespread, at places attaining a thickness of more than 10m. Extensive plateaus with laterite ‘mesas’ are common in the area. Angadipuram (west of Perinthalmanna), the type locality of laterite falls in this district. Quaternary unconsolidated sediments are restricted to the coastal plain. They have been classified into different morpho-stratigraphic units based on their lithic content and environment of formation. Guruvayur Formation (palaeo-marine), Periyar Formation (fluvial), Viyyam Formation (fluvio-marine) and Kadappuram Formation (marine) (*Figure 1*). The geology of the district given above may be read with the “Geology of Kerala” which is given as Annexure 1 for better understanding of geological succession and stratigraphic sequence.

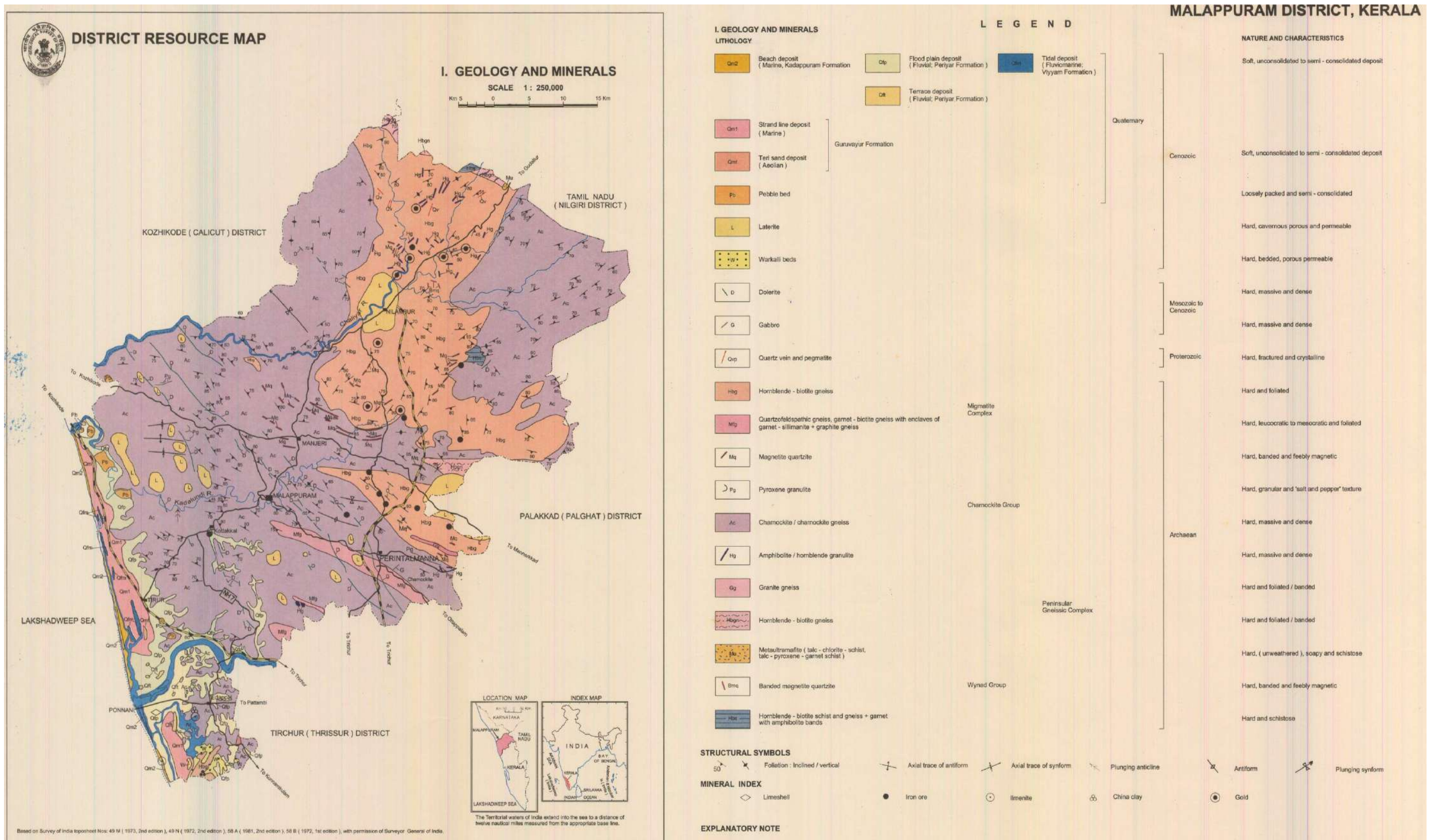


Figure 1: Geology and mineral resources of Malappuram. (Source: District Resource map, Malappuram district, Geological Survey of India)

5 Geomorphology

Geomorphologically the district can be divided into three physiographic units from west to east viz. coastal plain (less than 7.5 m amsl), mid land (7.5 – 75 m amsl) and highland (above 75 m amsl) or hilly terrain. The coastal plains extend as a narrow stretch of land lying along the coast from Kadalundi Nagaram in the north to Ponnani in the south. It exhibits depositional landforms of marine, fluvial and fluvio-marine origin. Palaeo-beach ridges suggestive of marine regression in the Quaternary period are well developed in the coastal tract. It becomes very narrow towards north of Tirur and the maximum width is seen along Chauravallam - Tirurangadi area. The area lying between the coastal plain in the west and the high ranges in the east is occupied by midlands. This is the most prominent physiographic unit of the district. The midland region is relatively wide with elevations ranging between 200 and 300m. It is a denudational terrain characterised by flat-topped laterite capped flats, mesas, interfluves, hills, mounds and spurs interspersed by narrow valleys as well as wide alluvial valleys and flood plain. Geomorphological studies in this region have brought out remnants of four palaeoplanation surfaces. Around 550m, 350-400m, 150-230m and 45-130m above msl. Of these the first two surfaces only have accordance of summits with relicts of laterite, whereas the latter two have extensive and plateau-type remnants with thick laterite profile. The hilly region in the east is more than 600m high. The terrain is characterised by hills and narrow incised valleys representing structural cum denudational landforms. This is characterized by flat topped hillock with steep 'U' shaped valleys and ridges. The valley forms potential area for agriculture including paddy, arecanut, vegetable, banana and coconut. The hill tops are generally barren and covered by thick and compact laterite. The eastern parts of the district are characterized by steep hills, gorges and escarpments. The elevation of the hill ranges goes up to 1127 m amsl. Most of the high lands are occupied by forests. Chaliyar puzha is the major river draining the northern part, Kadalundi puzha drains the central part, while the lower reaches of Ponnani puzha drain the coastal tract in the south (*Figure 2*).

6 Land Use

Broadly, four types of landuse can be seen in the district. A large part of the area, especially the coastal tract and the midland areas come under arable land, used for cultivation of different crops, both irrigated and non-irrigated. The coastal tracts are densely inhabited. Forests are seen along the east and north, forming part of tropical evergreen forest supporting a variety of plant and animal life. Cashew and rubber are the main commercial crops of the area. The thick laterite 'duricrust' capping the hillocks generally does not support any vegetation, hence such areas are demarcated as wasteland (*Figure 3*).

7 Soil types

On the basis of morphological and physico-chemical properties, the Soil Survey Division of Department of Agriculture, Govt. of Kerala has classified the soils of the district into the following types

Soils of the low lands (Alluvial soil)

Those are mainly seen along the coastal plains and valleys. The soils range from exclusively drained to moderately/well drained sand to sandy clay in nature.

Soils of Mid/Up lands (Lateritic soil)

These are mostly lateritic soil, and is seen along the mid land portion of the district. These are deep to very deep, well drained, and gravelly to clayey.

Soils of Central Sahyadri (Hydromorphic soil)

These are deep moderate, well drained and clayey soils with high gravel content. Erosion is moderate to severe. Hard laterites with rock out crops are present.

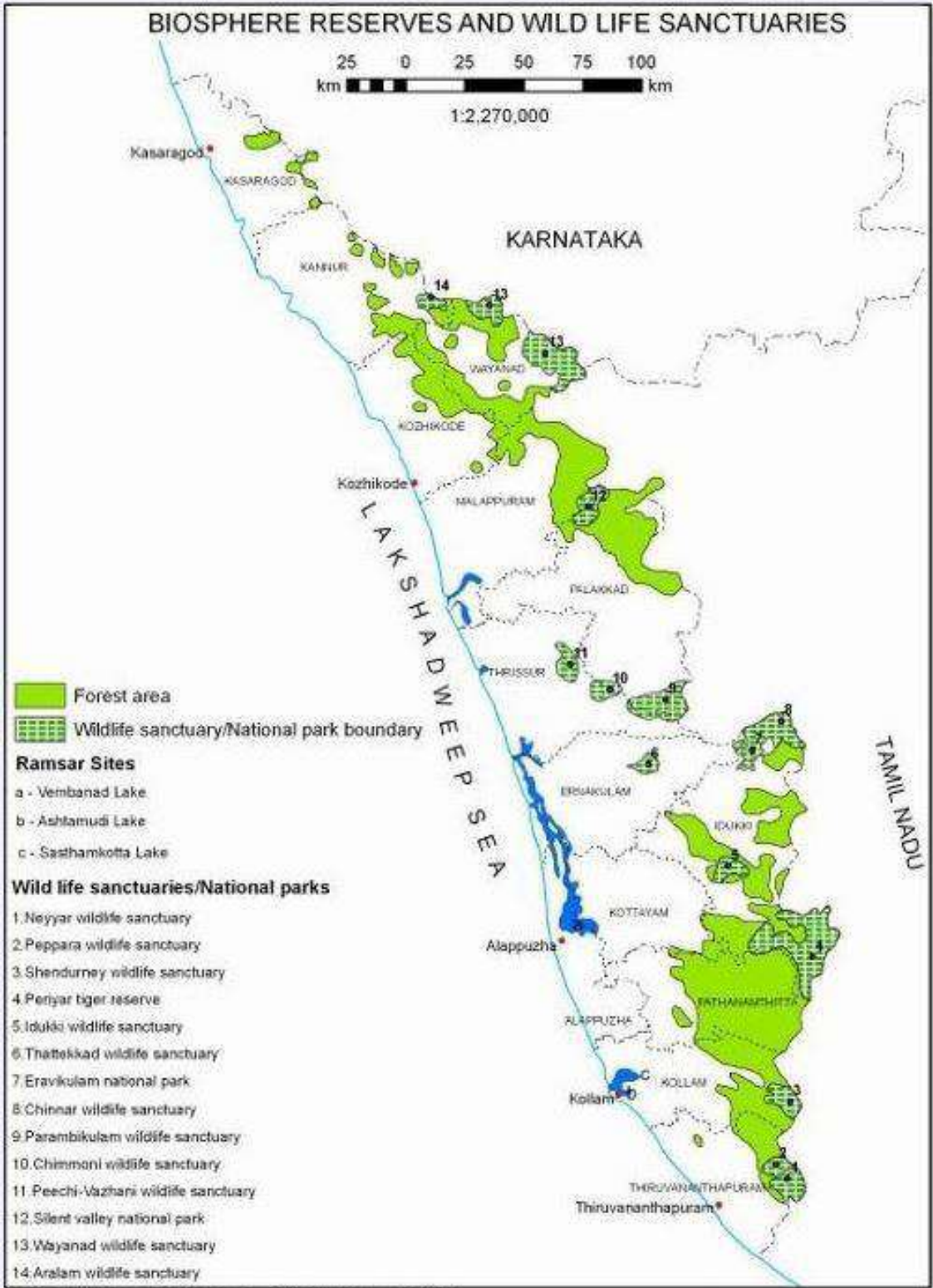
Soils of eastern part of Malappuram (Forest loamy soil)

These soils are deep or very deep and well drained with loamy to clayey textures and having fairly high gravel content.

8 Forest

The district has a total forest area of 1,03,417 hectares, i.e.,28.47% of total geographical area. The major forest area is concentrated in Nilambur and Wandoor blocks and Melattur in the Western Ghats. Of the forests, 80% is deciduous and the rest is evergreen. Teak, rosewood, venteak, choropin, mahogoni, etc. are the important trees. Other varieties like kulamavu and villapine are used in the plywood industry. Bamboo is extensively grown in all parts of the forest. The district has also several man made plantations, mainly of teak. A mammoth effort under the Nilgiri Biosphere Project is underway to protect and regenerate the natural forests. Afforestation is also being done under the Wasteland Development Programme.

Elephants, deers, tigers, blue monkeys, dears, boars, rabbits etc. are found in the forests along with a variety of birds and reptiles. Forests are the main source of raw material for a number of wood-based industrial units. Besides timber, firewood and green manure, forest produces like honey, medicinal herbs, spices etc. are collected. Minor forest produces are collected by the tribals. A Girijan Society functions for ensuring fair prices for collected items and for arranging supply of essential commodities to the tribal families. Bamboo for pulp factories is mainly supplied from Nilambur forests. The forests are protected by two forest divisions- Nilambur North and Nilambur South. The social forestry division promotes planting of trees outside forest lands, for protecting the forests.



Source : Department of Forests, Govt. of Kerala, 2010.

9 Groundwater scenario

The coastal plain with alluvial soil and high precipitation is a potential aquifer, suitable for filter point and tube wells. In the midland area with thick laterite cover open dug wells are ideal for tapping water for domestic needs. However, the valleys with alluvial deposit are highly potential for groundwater development. In the foothills of the mountains characterised by undulating topography, only valleys yield good groundwater. Some of the fracture zones or lineaments are also potential, but bore wells are site specific. The mountainous terrain in the east is generally unsuitable for groundwater development (*Figure 4*).

Hydrogeologically, the aquifer system in the district can be broadly divided into Crystalline aquifers (fractured basement rock aquifers), Laterite aquifers, Lateralized sedimentary (Tertiary) aquifers and Alluvial aquifers. Crystalline and Laterite aquifers constitute major part (85%) of the district.

10 Natural hazards

The area comes under zone III and indicates moderate seismicity (*Figure 5*).

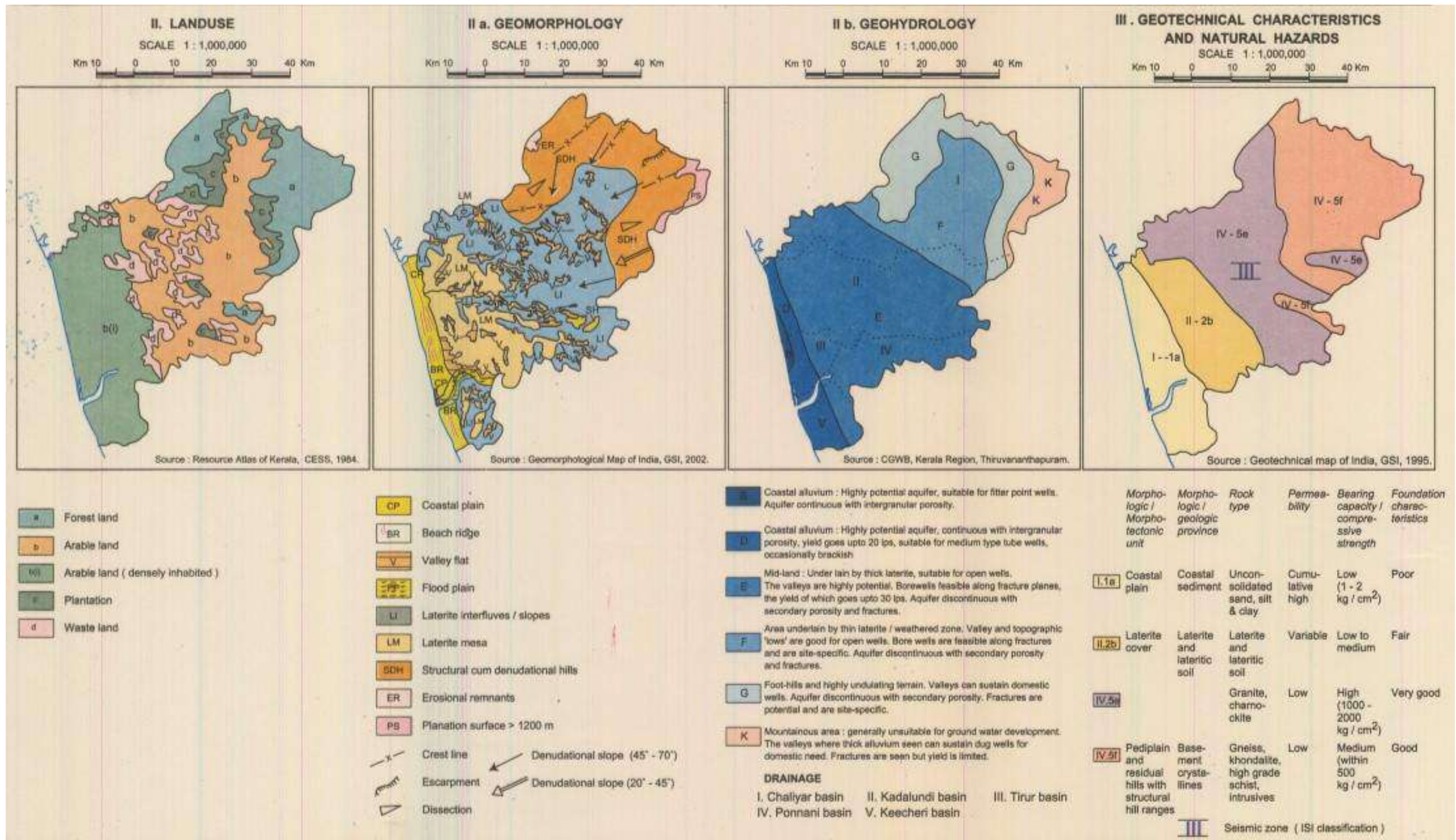


Figure 3: Landuse of Malappuram. (Source: District Resource map, Malappuram district, Geological Survey of India)

Figure 2: Geomorphology of Malappuram. (Source: District Resource map, Malappuram district, Geological Survey of India)

Figure 4: Geohydrology of Malappuram. (Source: District Resource map, Malappuram district, Geological Survey of India)

Figure 5: Geotechnical characteristics and natural hazards map of Malappuram. (Source: District Resource map, Malappuram district, Geological Survey of India)

11 Mineral Resources

11.1 Major minerals

The economic minerals reported from the district are iron ore, gold, clay limeshell etc. Good deposits of iron ore (magnetite) occur at Korattimala. Both primary and secondary (placer) gold are reported from the district. Kappil, Mankada, Kadannamanna, Valambuur and Maruda areas are known for occurrence of primary gold associated with quartz veins traversing the Archaean metamorphic rocks. Placer gold (gravels) is reported from Nilambur valley along the channels and traces of Chaliyar puzha, Punnapuzha, Pandi puzha, Karakkod puzha and Maradi puzha. Both china clay and tile clay deposits occur in the district. China clay formed by insitu weathering of gneiss and charnockite and also sedimentary origin associated with the Warkalli Beds are present. These clay deposits are seen along the flood plains. The alluvium near Ponnani is rich in lime shell. The beach sands south of Ponnani show high content of ilmenite.

11.2 Minor Minerals

11.2.1 Ordinary Earth

Ordinary earth is the common name used for the soils. Soil is made up of three main components – minerals that come from rocks below or nearby, organic matter which is the remains of plants and animals that use the soil, and the living organisms that reside in the soil. The proportion of each of these is important in determining the type of soil that is present. But other factors such as climate, vegetation, time, the surrounding terrain, and even human activities (eg. farming, grazing, gardening, landscaping, etc.), are also important in influencing how soil is formed and the types of soil that occur in a particular landscape. The formation of soils can be seen as a combination of the products of weathering, structural development of the soil, differentiation of that structure into horizons or layers, and lastly, of its movement or translocation. In fact, there are many ways in which soil may be transported away from the location where it was first formed. Soils represent one of the most complex and dynamic natural systems and are one of the three major natural resources, other than air and water. Knowledge of their chemical, physical and biological properties is a prerequisite both for sustaining the productivity of the land, e.g. agriculture, and for conservation purposes. Soil is an integral part of a terrestrial ecosystem and fulfills numerous functions including the capacity to generate biomass and the filtering or buffering activities between the atmosphere and the groundwater in the biosphere. Soils have many important functions. Perhaps the best appreciated is the function to support the growth of agricultural and

horticultural crops. Soil is the mainstay of agriculture and horticulture, forming as it does the medium in which growth and ultimately the yield of food producing crops occurs. Farmers and gardeners have worked with their soils over many centuries to produce increasing amounts of food to keep pace with the needs of a burgeoning world population. The soil's natural cycles go a long way in ensuring that the soil can provide an adequate physical, chemical and biological medium for crop growth. As well as being essential to agriculture, horticulture, forestry and natural and semi-natural systems, soil also plays an important role for our fauna. The soil itself contains millions of organisms, the exact nature and role of which we are still trying to determine. Undoubtedly, the soil flora and fauna play a vital role in cycles which are fundamental to the ability of the soil to support natural and semi-natural vegetation without additions of fertilizer and other support mechanisms. They breakdown plant debris, take in components from the atmosphere, aerate the soil together with many other functions that make the soil such an important medium.

Classification of soils (ordinary earth) commonly found in the district

The topo-lithosequence along with variation in rainfall, temperature and alternate wet and dry conditions particularly from the western coast to high ranges in the east and swift flowing rivers lead to the development of different types of natural vegetation and soil. The soils can be broadly grouped into coastal alluvium, mixed alluvium, acid saline, kari, laterite, red, hill, black cotton and forest soils. Soil map given below may be referred to find out its occurrences.

Coastal Alluvium

These soils of marine origin are identified along the coastal plains and basin lands as a narrow strip. The elevation of the coastal area is generally below 5m MSL. The area has high water table and in some areas reaches above the surface during rainy season. The soils of the coastal plains are very deep with sandy texture. The texture generally ranges from sand to loamy sand with greyish brown to reddish brown and yellowish red colour. Sand content ranges from 80% and clay up to 15%. Even though these soils have high water table, the water holding capacity is poor due to the predominance of sand. Coconut is the major crop in the area. Cashew and other fruit trees are also grown.

Mixed Alluvium

These soils are developed from fluvial sediments of marine, lacustrine and riverine sediments or its combinations. They occur below 20m MSL in the lowland plains, basins, valleys and along the banks of major rivers. The mixed alluvium is mainly noticed close to coastal alluvium, Kuttanad and adjacent area and kole lands of Thrissur district. The soils are frequently flooded and submerged. The soils of depressions and broad valleys are subject to occasional flooding and stagnation. The ground water table of these soils is generally high and it reaches above the surface

during rainy season. A wide variation in texture is noticed in these soils. Sandy clay loam to clay is the predominant texture. Sandy loam soils are also met with. Light grey to very dark brown is the common colour of the soil. Paddy, other annuals and seasonal crops like banana, tapioca and vegetables are grown here.

Laterite soil

Laterite and laterite soil are the weathering products of rock in which several course of weathering and mineral transformations take place. This involves removal of bases and substantial loss of combined silica of primary minerals. In laterite and laterite soils, over acidic rocks, induration and zonation are more pronounced. This induration is greater if the iron content is higher. These soils mainly occur in the midlands and part of lowlands at an elevation of 10 to 100m above MSL as a strip between the coastal belt and hilly mid-upland. The area comprises of mounds and low hills with gentle to steep slopes. Laterite soils are generally suitable for most of the dry land crops. It is mainly cultivated with coconut, arecanut, banana, tapioca, vegetables, yams, pepper, pineapple, fruit trees etc. The percentage of gravel content in the soil and reduced soil depth limits the choice of crops. In laterite outcropped area with shallow soils, only cashew can be grown with vegetables.

Hill Soil

The hill soils mostly occur above an elevation of 80m MSL. The area is hilly and has highly dissected denudational hills, elongated ridges, rocky cliffs and narrow valleys. The general slope range is above 10%. The texture of these soils generally ranges from loam to clay loam with average gravel content of 10 to 50%. In addition, stones and boulders are noticed in the subsoil. These soils have reddish brown to yellowish red/strong brown colour. Generally, increase in clay content is noticed down the profile. The depth of the soil varies considerably from 60 to 200 cm depending on erodability of soil and past erosion. These soils are mostly friable and subject to heavy soil erosion. The area is suitable for all dry land crops like rubber, coconut, arecanut and fruit trees based on the topography. Crops such as banana, pepper, pineapple, vegetables can be grown in foot slopes.

Forest Soil

These soils are developed from crystalline rocks of Archaean age under forest cover. They occur along the eastern part of the State, generally above an elevation of 300m above MSL. The area is hilly and mountainous with steep slopes, escarpments, elongated rocky summits and narrow 'V' shaped valleys. The depth of the soil varies considerably depending on erosion and vegetative cover. The soils are generally immature due to slow weathering process. Rocky outcrops and stones are noticed on the surface. Gneissic boulders under different stages of weathering are

noticed in the subsoil. The texture of the soil ranges from sandy clay loam to clay with reddish brown to very dark brown colour. Forest trees, shrubs and grasses are grown here.

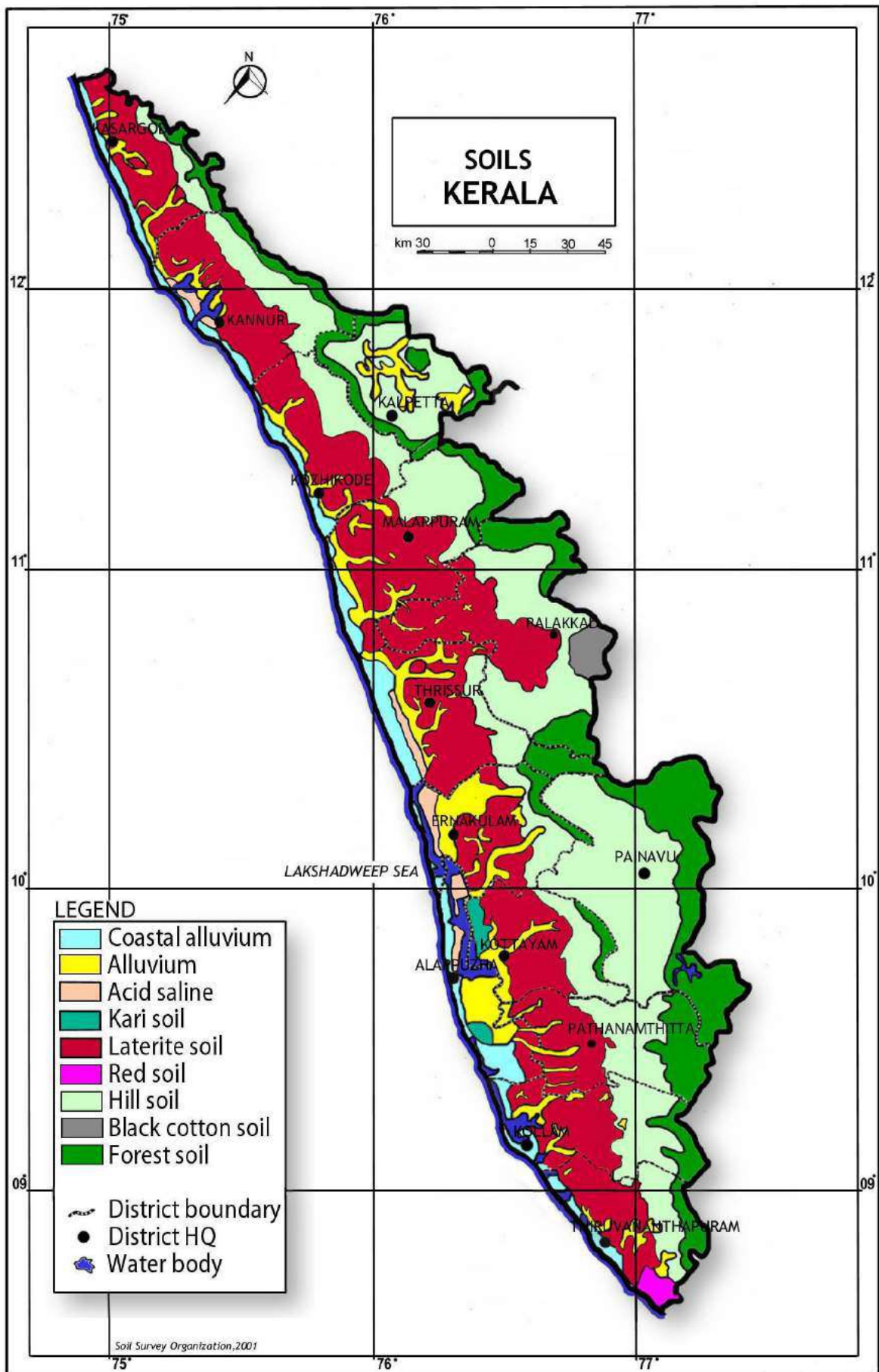


Figure 5: Soils of Kerala

Mining of ordinary earth

Usually ordinary earth is mined for levelling of ground for construction of buildings. Since ordinary earth is very important to mankind, it is not wise to mine ordinary earth for filling purposes alone. However, for the construction of roads and other infrastructure, ordinary earth is mined after obtaining quarrying permit from the Department of Mining and Geology. Mining and transporting ordinary earth/soil without the permission of Department of Mining and Geology is an offence. Department issues pass for transport of ordinary earth. Dealer's license is not issued for ordinary earth as it is not considered as a mineral mined for commercial purposes.

11.2.2 Ordinary Clay (tile/brick clay)

Clays and clay minerals occur under a fairly limited range of geological conditions and are produced by weathering of silicate minerals containing calcium, magnesium, sodium, or potassium reacting with carbonic acid, carbonates, and bicarbonates. These soluble products are removed by ground water, while the remaining elements, aluminium, silicon, and oxygen combine with water to produce stable clay minerals. The environment of formation include soil horizons, continental and marine sediments, geothermal fields, volcanic deposits, and weathering rock formations. Extensive alteration of rocks to clay minerals can produce relatively pure clay deposits that are of economic interest. Clay formed at the site of the parent rock is known as primary or residual clay; the one carried away or transported and deposited elsewhere is known as secondary clay. For obvious reasons, the former is purer with less impurity (5%–15%), while the latter may contain mica, quartz, and iron oxide as impurities. Geological factors such as conditions at the time of deposition and post-depositional changes have an important influence on the properties of sediment.

Buildings and utensils made of clay date back to the earliest periods of man's civilized development, and the use of clay is intimately associated with his history. Tile and brick kilns are closely associated with Kerala's culture and traditional architecture, which is continued in modern buildings as well.

In Kerala, tile/brick clay occurs in the wetlands/paddy fields in the lowlands and midlands. The clay extracted is used for a variety of purposes such as manufacture of roofing, flooring, and decorative tiles, wire cut (mechanically made) and ordinary bricks (manually made), and pottery wares. Studies carried out in clay mining areas of Kerala have proved that unprecedented increase in the development needs of the state and the subsequent increase in the resource extraction scenarios, especially that of clay mining, have led to rapid degradation of the wetlands (paddy fields), which is significantly reflected in the declining agricultural productivity of the state.

Mining of clays several meters below the prescribed levels, water draining from the unaffected paddy lands into the adjacent mine pits, and subsequent pumping of water for further mining impose severe problems on the hydrological regime, lowering the water table and creating severe water shortage problems in the mining areas. The additional expenditure incurred to meet the freshwater requirements of the people living in areas adjacent to mining sites is increasing year after year, which undermines the short-term economic benefits of resource extraction.

Tile and brick clay mining and its processing provide employment opportunities to a considerable section of the people in the midland and lowland areas of Kerala. Adding to this, thousands of labourers in the construction industry also indirectly depend on the products manufactured from these clays. Under these circumstances and also with respect to the demand incurred, complete restriction of extraction activities does not prove to be viable.

In the study report published by National Center for Earth Science Studies on the impact of clay mining, following recommendations were given with respect to tile/brick clay mining:

“It is of imminent importance to regulate random mining from the paddy fields/wetlands of Kerala by allowing only location-specific resource extraction under well-conceived guidelines. It is also crucial to limit the extraction of tile and brick clays to meet indigenous and local demand only. This is to save the prime agricultural land and also to increase the rice production in the area. The depth of mining should be demarcated so as to regulate mining with respect to the water table condition in the summer season. Also, adequate measures are to be taken to regenerate the natural ground water table using the stored water in the clay mine pits for irrigating the agricultural crops of the hinterland areas. This will enhance the net agricultural productivity of the area in addition to saturating the aquifer systems in the hinterlands. Awareness creation among the public about the adversities of clay mining and as well as the economic benefits of using clay bricks for construction purposes will serve in the protection of our wetlands/paddy fields. Recycling of building materials should also be considered in order to reduce mining of tile and brick clays. The abandoned clay mine areas left behind as fallow lands or water logged areas can be used for productive purposes such as fish farm ponds or irrigation ponds that promise some utility to the society. Also, suitable guidelines should be framed to streamline the tile and brick clay mining activities of the state on an eco-friendly basis.”

The Kerala Conservation of Paddy Land and Wetland Act, 2008 and Rules made thereunder which was enacted for conservation of paddy land and wetlands of Kerala imposes restrictions in mining of tile/brick clays in such areas. The said Act and Rules are implemented by Revenue Department. In addition, Government have setup District Expert Committee to monitor and control the mining activities of ordinary clay. In Kerala Minor Mineral Concession Rules 2015, it is mandated that

No Objection Certificate from the District Collector concerned, based on the recommendation of the District Expert Committee constituted by the Government in this regard, is to be produced by the applicant in the case of application for extraction of ordinary clay. In addition, Bank guarantee from any Nationalized or Scheduled Bank at the rate of Rs. 300/- (Rupees three hundred only) per cubic metre for the purpose of reclamation of pits that will be formed after quarrying in the area permitted, in respect of application for extraction of ordinary clay. Based on the request of the entrepreneurs working in tile/brick clay based industry, Government have instructed the Department of Mining and Geology to carry out survey to identify the mineable tile/brick clay deposits of Kerala and the work in this respect is progressing.

11.2.3 Ordinary Sand

In Kerala Minor Mineral Concession Rules, 2015, the ordinary sand is defined as sand used for non-industrial purpose. This includes both river sand and sand excavated from inland areas like palaeo-channels. Since a separate Act has been enacted by Government of Kerala namely, The Kerala Protection of River Banks and Regulation of Removal of Sand Act, 2001 (hereafter referred to as Sand Act, 2001) and since the mining of river sand is controlled by Revenue Department by virtue of the powers conferred by the said Act and the Rules made thereunder, the Department of Mining and Geology now regulates the mining of sand which do not comes under the purview of Sand Act, 2001.

The ordinary sand (other than river sand) occurs in the palaeo-channels. The word palaeo-channel is formed from the words “palaeo” or “old,” and channel; i.e., a palaeo-channel is an old channel. Palaeo-channels are deposits of unconsolidated sediments or semi-consolidated sedimentary rocks deposited in ancient, currently inactive river and stream channel systems. These are typical riverine geomorphic features in a location representing drainage streams, rivers, rivulets which were flowing either ephemeral or perennial during the past time and now stands either buried or lost or shifted due to tectonic, geomorphologic, anthropogenic process/activities, as well as climatic changes. When a channel ceases to be part of an active river system, it becomes a palaeo-channel. In order to tap the ordinary sand occurring in palaeo-channels, the Department entrusted the study of identification of palaeo-channels in major river basins of Kerala to Geological Survey of India (GSI). GSI resorted to remote sensing studies using satellite imageries and delineated some of the palaeo-channels. However, since such deposits falls in paddy land/wetlands of Kerala, it is difficult to extract such sand on account of restrictions imposed by various Acts and Rules.

The Kerala Conservation of Paddy Land and Wetland Act, 2008 and Rules made thereunder which was enacted for conservation of paddy land and wetlands of Kerala imposes restrictions in mining

of ordinary sands occurring in wetlands and paddy fields. The said Act and Rules are implemented by Revenue Department. In addition, Government have setup District Expert Committee to monitor and control the mining activities of ordinary sand. In Kerala Minor Mineral Concession Rules 2015, it is mandated that No Objection Certificate from the District Collector concerned, based on the recommendation of the District Expert Committee constituted by the Government in this regard, is to be produced by the applicant in the case of application for extraction of ordinary sand. In addition, Bank guarantee from any Nationalized or Scheduled Bank at the rate of Rs. 300 (Rupees three hundred only) per cubic metre for the purpose of reclamation of pits that will be formed after quarrying in the area permitted, in respect of application for extraction of ordinary sand.

The mining of ordinary sand from palaeo-channels also cause some environmental concerns. Since sand is a good aquifer, the mining of aquifer system poses threat to ground water availability in surrounding areas. However in certain cases, the mining of such sand from paddy lands increase the productivity of paddy as excess sand in the paddy lands are not good for paddy.

In Kerala, due to shortage of river sand and ordinary sand occurring in palaeo-channels, the construction industry now uses manufactured sand obtained by crushing of crystalline rocks.

It may be noted that since the Revenue Department is taking care of all types of mining activities related to river sand and since sand auditing and other studies are carried out under the aegis of the Revenue Department, this report shall not be used for the purpose of obtaining prior environmental clearance for mining of river sand.

11.2.4 Laterite

Laterite is a soil and rock type rich in iron and aluminium, and is commonly considered to have formed in hot and wet tropical areas. Nearly all laterites are of rusty-red coloration, because of high iron oxide content. They develop by intensive and long-lasting weathering of the underlying parent rock. Tropical weathering is a prolonged process of chemical weathering which produces a wide variety in the thickness, grade, chemistry and ore mineralogy of the resulting soils. The majority of the land area containing laterites is between the tropics of Cancer and Capricorn.

Angadipuram Laterite is a National Geological Monument identified in Angadipuram town in Malappuram district. The special significance of Angadipuram to laterites is that it was here that Dr. Francis Buchanan-Hamilton, a professional surgeon, gave the first account of this rock type, in his report of 1807, as "indurated clay", ideally suited for building construction. This formation falls outside the general classification of rocks namely, the igneous, metamorphic, or sedimentary rocks but is an exclusively "sedimentary residual product". It has a generally pitted and porous

appearance. The name laterite was first coined in India, by Buchanan and its etymology is traced to the Latin word "letritis" that means bricks. This exceptional formation is found above parent rock types of various composition namely, charnockite, leptynite, anorthosite and gabbro in Kerala. The laterite profiles in different types of rocks vary depending on the composition of parent rock. For example in Charnockites, the thickness of the profile ranges from 2 m to 10 m with humus zone on the top with thin pebbly zone (with ferruginous pellets in clayey matrix), underlain by vermicular laterite with tubular cavities of various shapes and size filled with kaolinitic clay. This is followed by thin layer of lithomarge. Further below completely weathered, partly weathered or fresh parent rock occur. In some places one can see hard duricrust at the top.

The mineralogical study of laterites reveals that all the silicate minerals have been transformed to a mixture of goethite, hematite and kaolinite in laterite samples developed over charnockite. Further studies revealed that pyroxenes have been altered to goethite while feldspars gave rise to kaolinite. Quartz is cracked, eroded and disintegrated. Monazite and Zircons are found as accessory minerals.

Laterite and bauxite show a tendency to occur together. Aluminous laterites and ferruginous bauxites are quite common. The most common impurity in both is silica. Laterite gradually passes into bauxite with decrease in iron oxide and increase in aluminium oxide. The laterite deposits may be described on the basis of the dominant extractable minerals in it: (i) aluminous laterite (bauxite), (ii) ferruginous laterite (iron ore), (iii) manganiferous laterite (manganese ore), (iv) nickeliferous laterite (nickel ore) and (v) chromiferous laterite (chrome ore). Laterite with $Fe_2O_3:Al_2O_3$ ratio more than one, and $SiO_2:Fe_2O_3$ ratio less than 1.33 is termed as ferruginous laterite, while that having $Fe_2O_3:Al_2O_3$ ratio less than one and $SiO_2:Al_2O_3$ ratio less than 1.33 is termed as aluminous laterite. Laterite can be considered as poly-metallic ore as it is not only the essential repository for aluminium, but also a source of iron, manganese, nickel and chromium. Furthermore, it is the home for several trace elements like gallium and vanadium which can be extracted as by-products.

In Kerala laterites are extracted as building stones which are used for construction of building. Laterite as a building stone possesses one advantage that it is soft when quarried and can be easily cut and dressed into blocks and bricks which on exposure to air become hard. In addition, laterite (aluminous laterite) is extracted for industrial purposes (for eg. Cement industry). In addition to aluminous laterite, bauxites are also mined in Kerala. Hence, while granting mineral concession for laterite it is necessary to carry out the chemical analysis to establish whether the mineral is bauxite or aluminous laterite.

11.2.5 Granite Dimension Stone and Granite (building stone)

For administrative purpose the hard crystalline rocks which do not have any economic minerals are classified as granite dimension stones and granite (building stones). The definition given in the Kerala Minor Mineral Concession Rules 2015 is as follows:-

‘Granite dimension stones include all types of granites, dolerite, charnockite, leptynite and other crystalline rocks of Acid, Intermediate, basic and ultra basic groups of igneous and metamorphic origin which are suitable for cutting to pre-determined sizes, polishing, carving and amenable for making value-added products in decorative monumental and ornamental fields of industry as a high-value item. Granite (building stone) include all those group of rocks specified above which are not suitable for using as dimension stones as specified therein, but can be used as ordinary building stones, road metal, rubble and ballasts after breaking into irregular pieces by blasting or otherwise as low value item. The Rules insists that the rocks having the quality of granite dimension stone shall not be quarried for granite building stone as these two types of rocks have different values/royalties’.

The major granite dimension stone occurrence in the district forms part of Charnockite-Khondalite belt and has colour ranging from pale green with mottled red, bluish green with cordierite, deep dark green, greyish white. Charnockite is largely used as a building stone.

All Archaean and Proterozoic rocks of Kerala (refer section on Geology of Kerala) which are not listed above as granite dimension stone falls under the category of granite (building stone) and are found below ordinary earth/laterites/and other sedimentary rocks. In some cases such rocks are exposed as hillocks without any overburden.

12 Details of minor mineral concessions

Permission for mining will be granted on case to case basis on ascertaining the availability at the site and only if conditions stipulated in the KMMC Rules 2015 are satisfied (The reader may refer the KMMC Rules 2015 available in the website www.dmg.kerala.gov.in for more details in this regard). The concession will be granted only if other statutory licenses like Environmental Clearance, Explosive Licence, consent to operate issued by State Pollution Control Board, NOC issued by Revenue Department (as the case may be), Dangerous and Offensive Trade Licence issued by Local Self Government Institutions, NOC related to Coastal Regulation Zone (as the case may be), NOC issued by Forest (as the case may be) etc. The mineral concession will not be granted in the ecologically sensitive areas, ecological fragile zones etc.

Table1: Details of revenue collection for the period 2013-'14, 2014-'15 and 2015-'16

Royalty ABSTRACT 13-14																								
	Apl Fee				D L			RMCU	CRPS		Arr. Rty.		Royalty Shedule 1					S R					TOTAL	
Month	Granite	Laterite	Clay	OE	DL GBS.	D L Clay	D/L Sand	RMCU	Granite	Laterite	Granite.	Laterite	Granite	LAT majr	Rty Clay	R Sand	O E	GR.	Laterite	clay	O E	Comp	O D	
April	4800	11600	1000	2000	593000		80000	0	1175000	760000	138200	0	25600	0	107130	686480	147350	530	660	50	120	408264	0	4141784
May	4200	9200	0	1200	76000		16000	0	970000	575000	14070	0	17664	0		5220	257100	410	510		40	266800	0	2213414
June	4400	11000	0	1200	66000	22000	0		1140000	790000		145000	43500	0		652620	307604	400	680		60	190000	31001	3405465
July	2000	3000		200	55000	0	0	0	550000	170000	11392	0	33800	0	0	42400	2000	360	150	0	10	281000	3270500	4421812
August	3400	7400	0	400	15000	0	0	0	450000	545000	6750	0	8000	0	0	391520	27240	250	490	0	10	379650	0	1835110
September	3400	10800	0	400	6000	0	0		625000	750000	0	35000	24205	0	55000	480600	42200	210	490	0	30	215000		2248335
October	1200	11000	0	600	22000	0	0	0	375000	730000	206750	0	49452	0	0	928040	26800	250	600	0	30	510000	1260	2862982
November	1800	14800	0	1000	11000	0	0	0	385000	984000	12210	0	12800	0	0	1250	93200	190	850	0	60	557200	2117	2077477
December	600	2000		200	0	0	0	0	225000	110000	1163400	0	82000	0	0	0	125000	90	100	0	10	300000		2008400
January	5600	12600	0	1200	40000	0	0	0	1325000	815000	13000	0	31008	0	0	0	75060	540	750	0	40	170000	875	2490673
February	4200	8200	0	3000	0	0	0	0	1305000	525000	875	0	16000	0	0	0	173800	470	490	0	50	318000		2355085
March	6000	18000	0	800	476000	6000	0	5600000	1275000	1060000	0	0	42800	0	2200	0	72800	460	1000	0	0	230000		8791060
Others								1000																1000
TOTAL	41600	119600	1000	12200	1360000	28000	96000	5601000	9800000	7814000	1566647	180000	386829	0	164330	3188130	1350154	4160	6770	50	460	3825914	3305753	38852597

Royalty ABSTRACT 14-15																								
	Apl Fee				D L			rmcu	CRPS		Arr. Rty.		Royalty Shedule 1					S R					TOTAL	
Month	Granite	Laterite	Clay	OE	Reg.Fee	DL Apl.	D/L Fee	RMCU	Granite	Laterite	Granite.	Laterite	Granite	LAT majr	Rty Clay	O E	GR.	Laterite	clay	O E	Comp	O D		
April	7800	7400	0	0	0	0	490000	150000	2000000	410000	23230	0	16000	0	0	360000	650	380	0	0	212430	0	3677890	
May	9600	7600	200	0	0	0	322400	0	2030000	435000	0	0	30944	0	16000	0	820	400	10	0	533700	0	3386674	
June	5400	12600	0	0	0	0	95000	0	1440000	865000	1750	0	58000	19883	0	0	720	760	0	0	421600	0	2920713	
July	200	1000	0	0	0	0	97000	0	330000	170000	2827	197000	14592	63288	122220	69000	140	150	0	0	280000	630400	1977817	
August	0	0	0	0	0	0	27000	0	0	0	43000	0	73600	101012	178020	0	0	0	0	0	104980	0	527612	
September	3200	3000	600	0	0	0	18000	0	160000	125000	41992	0	51500	132791	16000	11320	50	100	0	0	101600	0	665153	
October	3000	10400	200	0	0	0	8000	0	830000	730000	3672	0	35200	0	26000	0	564	660	0	0	540920	0	2188616	
November	1800	13400	200	0	0	0	31000	0	345000	980000	2408	0	24000	35840	23300	46850	150	870	0	10	468792	0	1973620	
December	1200	4200	0	200	0	0	25000	0	290000	415000	165292	140780	113600	224000		63130	270	300	0	0	452312	0	1895284	
January	1000	0	0	200	0	0	67000	0	0	95000	33264	0	125800	268800	0	156560	427	0	0	10	162800	1042060	1952921	
February	0	0	0	0			162500	600000	300000	0	0	0	100000	110992	48000	669758	40	0	0	0	150600		2141890	
March	0	1000	0	0	36000	16000	358000	11800000	0	0	209386	0	501200	537600	92560	670370	0	0	0	0	181720	2413480	16817316	
Others							18000															2000	20000	
TOTAL	33200	60600	1200	400	36000	16000	1718900	12550000	7725000	4225000	526821	337780	1144436	1494206	522100	2046988	3831	3620	10	20	3611454	4087940	40145506	

Royalty ABSTRACT 15-16

Month	Apl Fee				D L			rmcu	CRPS		Arr. Rty.		Royalty Shedule 1				S R				DR/LT-DL	
	Granite	Laterite	Clay	OE	Reg.Fee	DL Apl.	D/L Fee	RMCU	Granite	Laterite	Granite.	Laterite	Granite	LAT majr	Rty Clay	O E	GR.	Laterite	clay	O E		
April	6000	44000			12000	12000	710000	100000	415600	4223040	41886		37500	179760		32640		210			80240	5894876
May	50000	107000	2000		17000	10500	456000		4425000	9675000	3883151	832880	333600	360080	64000	406438	500	1200		10	512865	21137224
June	26000	43000			11000	4000	168000	4050000	2225000	3610000	570938		24000	358400		841112	620	450			131000	12063520
July	13000	41000			3000	2500	152000	500000	1620000	3600000	824511	113860	110400	179200		123655	150	490			407600	7691366
August	1000	3000			3000	1500	88000			315000	351486		24000	358400		25706		40			896852	2067984
September		49000			6000	1500	126000	4150000	75000	4470000	300000	543560	260000	654380		504895	110	560			267710	11408715
October	12000	43000			2000	3000	166000	100000	1625000	3685000	283223	75600	662400	798336	21760	182023	130	450			1084800	8744722
November	20000	51000			7000	2500	97600	200000	1625000	4790000	350308	101250	0	231616		183028	430	1165			1492400	23081 9176378
December	17000	51000			7000	3500	92000	3450000	4775000	5025000	793027	110700	164400	441440	40000	455262	1550	3050			1402900	16832829
January	18000				1000	2000	88000		1125000	1575000	896536	27000	36000		40000	387304	750	1050		50	681800	26000 4905490
February	15000	37000		1000	3000	3500	120000	1000000	780000	3075000	663484	346500	602400	433900	248120	484556	1450	1700			696600	8513210
March	13000	40000			10000	9500	516000	3950000	2235000	2775000	256350	75600	104000	577632		395395	700	1700			1467100	12426977
Others																						0
TOTAL	191000	509000	2000	1000	82000	56000	2779600	17500000	20925600	46818040	9214900	2226950	2358700	4573144	413880	4022014	6390	12065	0	60	9121867	49081 120863291

Table 2b: List of Quarrying Lease granted for Granite building stone

Sl no	Concession holder's name and address	Concession no.	Mineral	Survey no	Village	Thaluk	District	Area(ha)	Valid from	Valid to	Whether attached to RMCU	Remarks
1	M/s Poabson Granites Products p(Ltd),Thelakkad(po),Perinthalmanna,Malappuram	576/2002-03/711/M3/2001 dtd 14/2/03	Granite Building Stone	59/2	Kariavattom	Perinthalmanna	Malappuram	11.07 Acres(4.4800 hr)		01/05/2015	Yes	Expired on 1/5/2015
2	M/s Poabson Granites Products p(Ltd),Thelakkad(po),Perinthalmanna,Malappuram	575/2002-03/710/M3/2003 dtd 14/2/2013	Granite Building Stone	59/2	Kariavattom	Perinthalmanna	Malappuram	4.67 Acres(1.8898 hr)	02/05/2003	01/05/2015	Yes	Expired on 1/05/2015
3	M/s Malabar Aggrigates p(Ltd),Ozhukkur(po),Malappuram	510/2004-05/8253/M3/2004 dtd 17/11/2004	Granite Building Stone	36/4 & 36/1	Morayur	Eranad	Malappuram	0.7452 hr	29/11/04	28/11/2014	no	Expired on 28/11/14
4	M/s Othayi Granites p(Ltd),Perakamanna(po),Othayi	570/2004-05/8954/M3/2004 dtd 9/12/2004	Granite Building Stone	193/1,193/2,173	Edavanna	Eranad	Malappuram	6.50 Acres(2.6305 hr)	29/12/04	28/12/2016	Yes	
5	M/s AL Madeena Granites Metals & Crescent Industries,Pannippara(po)	813/2004-05/1618/M3/2006 dtd 10/3/2005	Granite Building Stone	218pt	Edavanna	Eranad	Malappuram	5.3480 hr	18/3/05	17/3/2015		Expired on 17/3/2015
6	A.Jamal Mohammed,Mg:partner,Aranchikkal Granites unit,Pathapiriyam(po)	668/2005-06/1618/M3/2006 dtd 22/2/2006	Granite Building Stone	111/1pt,113/1pt,217	Edavanna Perakamanna	Eranad	Malappuram	14.425 hr	08/03/2006	07/03/2018	Yes	
7	Mg:partner,Thomarappara Bricka & Metals,Panambilav	126/2007-08/3739/M3/2007 dtd 30/5/2007	Granite Building Stone	6,1	Vettilappara	Eranad	Malappuram	1.6188 hr	13/6/07	12/06/2017	Yes	
8	M.C.Mayin Haji,Mg :Director Calicut Granites(Pvt)(Ltd),Kannamvettikav(po)	100/2007-08/3483/M3/2008 dtd 17/5/2007	Granite Building Stone	266/1,2(243/1,2,242/1)	Cherukav	Eranad	Malappuram	2.63 hr	28/5/07	27/5/2017	Yes	
9	K.A.Abraham,M/s Poabson Granites Products Ltd,Thelakkad(po),Perinthalmanna	65//2007-08/2310/M3/2013 dtd 14/2/2003	Granite Building Stone	59/2	Kariavattom	Perinthalmanna	Malappuram	5.0263 hr	06-06-2007	05/06/2017	Yes	
10	P.M.Alavi Haji,PWD Contractor,Melmury,Malappuram	321/2007-08/6371/M3/2007 dtd 17/8/2007	Granite Building Stone	221	Melmuri	Eranad	Malappuram	1.2221 hr	31/8/07	30/8/2017	no	
11	A.M.Muhammed Ali,Mg:partner,Mubarak Granites,Chathallo or(po)	268/2007-08/6021/M3/2007 dtd 20/7/2007	Granite Building Stone	96pt,94pt	Perakamanna	Eranad	Malappuram	1.9953 hr	09-05-2007	08/05/2017	Yes	
12	V.Moideen Mg:partner,VKH Hollow Bricks,Muthuvalloor(po),Kondotty	454/2007-08/8239/M3/2007 dtd 17/10/2007	Granite Building Stone	158/2 Block8	Pulikkal	Eranad	Malappuram	0.5970 hr	26/10/07	25/10/2017	no	

13	VKM Stone Crusher	837/2007-08/824/M3/2007 dtd 18/2/2008	Granite Building Stone	81	Kannamangalam	Thirurangadi	Malappuram	01.5 hr	23/2/08	22/2/2018	no	
14	K.Kunhimoyin,Mg:partner,Friends Crusher,Valillapuzha(po)	631/2007-08/8745/M3/2007 dtd 27/11/2008	Granite Building Stone	49/2 Block 21/3	Keezhuparamba	Eranad	Malappuram	0.8200 hr	19/12/07	18/12/2017	yes	
15	Eranad Granites pvt,Ltd,Vellila(po)	15/2008-09/3505/M3/2008 dtd 4/4/2010	Granite Building Stone	3,3	Mankada	Perinthalmanna	Malappuram	0.8094 hr	25/4/08	24/4/2018	No	
16	V.Abdurahiman,Mg:partner,Bismi Granites Industries,Chathallur(po)	175/2008-09/5826/M3/2008 dtd 17/6/2008	Granite Building Stone	354/1pt&354/1-1	Perakamanna	Eranad	Malappuram	2.80894 hr	07-04-2008	06/04/2018	Yes	
17	M.M.Azad,Mg:partner,M/s Malabar Bricks metals,Poovathikkal(po),Areacode	176/2008-09/5828/M3/2008 dtd 17/6/08	Granite Building Stone	53/2	Urgattiri	Eranad	Malappuram	2.9600 hr	07-04-2008	06/04/2018	yes	
18	Nasli Muhammed,S/o Marakkari Haji,Mg:partner,Majestic Granites,Kallarattikal(po),Malappuram	204/2010-11/6864/M32010 dtd 28/6/2010	Granite Building Stone	8,2	Vetilappara	Eranad	Malappuram	1.6188 hr	13/6/07	12/06/2017	No	
19	V.M.Kunhali,Mg:partner,Chaliyar stone crusher,Pullippadam,Mambad	204/10-11/3196/M3/201 dtd 28/6/10	Granite Building Stone	93/pt	Pullippadam	Nilambur	Malappuram	1.2500 hr	21/7/2010	20/7/2020	No	
20	V.P.Thrimathi,Mg:partner,M/s Associate Engg: & cemikals,Thavanoor,Kuzhimanana	590/10-11/6864/10 dtd 7/12/10	Granite Building Stone	221/1	Muthuvallur	Eranad	Malappuram	8.9180 hr	10/12/2010	09/12/2020	No	
21	O.Muhammed Shareef,Mg:Director,M/s portland Granites p(Ltd),Pulikkal(po)	548/10-11/9135/M3/2010 dtd 26/11/10	Granite Building Stone	169/1,2,3,4,168/2,3,13,171/3 &171/8	Pulikkal	Eranad	Malappuram	5.8528 hr	06/12/2010	05/12/2020	Yes	
22	P.P.Veeran,Mg:partner,Cherupara,Granites,Vetilappara,Areacode	55/11-12/3270/M3/11 dtd 3/5/11	Granite Building Stone	8,2	Vetilappara	Eranad	Malappuram	1.2141 hr	16/5/11	15/5/2021	No	
23	P.K.Muhammed Asharaf,Mg:partner,Hi-Tec metals,Naduvakkad,Oorakkam, Melmuri	439/11-12/7485/M3/2011 dtd 12/10/11	Granite Building Stone	1/1(BI.37),278/pt(BI.36)165/2(BI.56)	Oorakkam,Nedi yiripp,Morayur	Thirurangadi,Eranad	Malappuram	6.166 hr	17/10/11	16/10/2023	yes	
24	V.M.Suresh kumar,Soorya shoba Engg:	559/11-12/7875/M3/2011 dtd 22/11/11	Granite Building Stone	266/2,266/3	Cherukav	Eranad	Malappuram	2.71 hr	12-06-2011	12-05-2021	No	
25	Jose.MP,Mg:partner,Thazhekkode Stands,Madathikkuzhi(h),Kinginimattam,Kolancheri	775/2011-12/133/M3/2012 dtd 8/2/12	Granite Building Stone	1,2	Thazhekkode	Perinthalmanna	Malappuram	2.5 hr	18/2/12	17/2/2022	No	
26	PMR Granites India p(Ltd),3/322,PM Arcade,Melmuri(po)(PM.Abdul Shukkur Puliyil madasseri,h)	38/2014-15/2875/M3/2014 dtd 29/4/14	Granite Building Stone	Bl.27,200/1,202/1,2,3,4,5	Urgattiri	Eranad	Malappuram	5.5373 hr	12/05/2014	11/05/2026	No	
27	M/s Areecode Granites Private Limited,K P /100c,Vakkallur P O Malappuram,673644	579/2014-15/8727/M3/2014 Dtd Tvm.20/11/2014	Granite Building Stone	213 214 215	Kavanoor	Ernad	Malappuram	4.2695 h	03/12/2014	02/12/2024	yes	

28	N Abdul Rasheed,Mg Partner,Nalakath Granites,Valambur P O,Pattikkad via,679325	588/2014-15/10110/M3/2014 Dtd 25/11/2014	Granite Building Stone	13/1 1/1	Kariavattam Valambur	Perinthalmanna	Malappuram	1.9 h 0.6398 h Total 2.54 H	03/12/2014	02/12/2024	yes	n
29	T S Jaleel Managing Partner m/s Malabar Granite ,Kannamvettikavu Pulikkal-673637 Malappuram	688/2014-15/11442/M3/2014 Dtd 01 /01/2015	Granite Building Stone	266/2	Cherukav	Kondotty	Malappuram	04.3297 H	02-02-2015	17/12/2022	No	
30	K Muhammed Akbar M/s Oorgam Metals(LTD) Diya Mahal Pookkottur	924/15-16 3186/M3/15 dt 26/3/15	Granite Building Stone	34/2,30/2/2 30/2/3,20/7,20/1	Oorakkam	Thirurangadi	Malappuram	5.3527 H	14/05/2015	13/05/2025	no	
31	Abdul Nazeer M/s Pullippadam Metal And Metal Sands Pvt Ltd.Karukamannil House West Kodur XVIII/62 Kodu P.o Malappuram,	95/15-16/4611/M3/2015 dt 8/5/2015	Granite Building Stone	1/pt	Pulippadam	Nilambur	Malappuram	4.74 Hect	25/05/2015	24/05/2027	no	
32	K M Ameer,Kilinakkod Rock Products,Cheroor P O ,Malappuram DT.	261/2015-16/5950/m3/2015 dtd8/7/2015	Granite Building Stone	25/pt	Ooragam	Thirurangadi	Malappuram	3.5412 Hectar	13-Jul-15	12-Jul-25	no	
33	M/s Poabson Granite Products Pvt. Ltd., Thelakkad,Perinthalmanna	369/2015-16/M3/2015 Dtd.07/08/2015	Granite Building Stone	59/2	Kariavattam	Perinthalmanna	Malappuram	4.4696 Hect	24-Aug-15	23-Aug-20	yes	

Table 2c: List of Quarrying Permit granted under CRPS for Granite building stone

Sl no.	Concession holder's name and address	Concession no.	Mineral	Survey no.	Village	Taluk	District	Area(ha)	Valid from	Valid to	Consolidated royalty(Rs)	Lease no(if applicable)
1	V P Abdulla Elite Granite And Hollow Brikcks K V Kav Malappuram	1/2015-16 /Gr/Dom/m- 810/15 dtd8/5/2015	Granites	180/6	Pulikkal	Kondotty	Malappuram	14.56 Ares	05-08-2015	05-07-2016	150000	NA
2	M Kunhamutti M D .Chaliyar Granite PVT ltd Kayalam Kozhikkode	2/2015- 16/Gr/Dom/m/ 933/15 dtd 11/5/2015	Granites	177/7	Pulikkal	Kondotty	Malappuram	15 Ares	05-11-2015	05-10-2016	150000	NA
3	Ahammed Harshad Chakkeeri House Cheroor P.O	3/2015- 16/Gr/Dom/m/ 785/15 dtd 11/5/2015	Granites	425	Kannamangalam	Thirurangadi	Malappuram	20 Ares	05-11-2015	05-10-2016	150000	NA
4	P Abdul Nazar S/o Abdurahiman Poovathikkal House Pattikkad	4/2015- 16/Gr/Dom/m/ 955/15 dtd 13/5/2015	Granites	137/10	Valambur	perinthelmana	Malappuram	10 Ares	13/5/2015	05-12-2016	75000	NA
5	K V Anwar MG .Director Modern Distropolis Anakkayam	5/2015- 16/Gr/Dom/m/ 774/15 dtd 15/5/2015	Granites	171/1	Anakkayam	Eranad	Malappuram	21.6 Cents	15/5/2015	14/05/2016	18000	NA
6	Binu Cheriyan Thakkirikkal House Chelad Kothamangalam	6/2015- 16/Gr/Dom/m/ 824/15 dtd 15/5/2015	Granites	101/6	Edayur	Tirur	Malappuram	1 Acre 40.46 ares	15/5/2015	14/5/2016	70000	NA
7	M E Mohanan Hi -Grip Graniyes Vazhayur	7/2015- 16/Gr/Dom/m/ 784/15 dtd 15/5/2015	Granites	155/3	Vazhayoor	Kondotty	Malappuram	1.25 Acre	15/5/2015	14/10/2015	240000	NA
8	N Muhammedali S/o Hamza Naramthodi House Pattikkad	8/2015- 16/Gr/Dom/m/ 1093/15 dtd 18/5/2015	Granites	34/1A	Karivattam	perinthelmana	Malappuram	10 Ares	18/5/2015	17/5/2016	75000	NA
9	V Moideen S/o Kunhalan Haji Veerasan House Chullippara Valakkulam	9/2015- 16/Gr/Dom/m/ 786/15 dtd 20/5/2015	Granites	172/1	Pulikkal	Kondotty	Malappuram	15 Ares	20/5/2015	19/5/2016	150000	NA
10	V Moideen VKH Stone Crusher Muthuvallur Kondotty	10/2015- 16/Gr/Dom/m/ 787/15 dtd 20/5/2015	Granites	158/1	Pulikkal	Kondotty	Malappuram	10 Ares	20/5/2015	19/5/2016	75000	NA
11	K V Muhammadali Ernad Granite Industries Pandallur P.o	11/2015- 16/Gr/Dom/m/ 1076/15 dtd 20/5/2015	Granites	387/1	Pandallur	Eranad	Malappuram	15 Ares	20/5/2015	19/5/2016	150000	NA

12	Kalodi Muhammed Kalodi House Kallar Mangalam P O Malappuram	12/2015- 16/Gr/ Dom/m- 908/15 dt 22/5/15	Granites	282 BL no.45	Anakkayam	Eranad	Malappuram	20.24 Ares	22/5/2015	21/5/2016	300000	NA
13	Jailabuddine S/o Muhammed Haneefa VMR Jamsheena Manzil Puthanangadi	13/2015- 16/Gr/ Dom/m- 1117/15 dt 25/5/15	Granites	215/1A	Perinthalmanna	Thazhekkode	Malappuram	10 Ares	25/5/2015	24/5/2016	75000	NA
14	P R Ashokan MG.Partner Manjeri Granite Manjeri	14/2015- 16/Gr/ Dom/m- 1187/15 dt 25/5/15	Granites	31/1	Anakkayam	Eranad	Malappuram	40.47 Ares	25/5/2015	24/5/2016	700000	NA
15	N Abdul Nazar Nettakal House Perumanna Kozhikkode	15/2015- 16/Gr/ Dom/m- 1131/15 dt 27/5/15	Granites	180/1/2	Pulikkal	Kondotty	Malappuram	15 Ares	27/5/2015	26/5/2016	150000	NA
16	N Abdul Nazar Nettakal House Perumanna Kozhikkode	16/2015- 16/Gr/ Dom/m- 927/15 dt 27/5/15	Granites	29/3,29/4	Pulikkal	Kondotty	Malappuram	15 Ares	27/5/2015	26/5/2016	150000	NA
17	Pullancheri Granite Industries Pullancheri Manjeri P.O	17/2015- 16/Gr/ Dom/m- 770/15 dt 27/5/15	Granites	168/B4,5	Anakkayam	Eranad	Malappuram	40.47 Ares	27/5/2015	26/5/2016	700000	NA
18	Sakeer P S/o Moideen Palliyil Pallikkuth House Memuri P.O	18/2015- 16/Gr/ Dom/m- 943/15 dt 27/5/15	Granites	32/1	Payyanad	Eranad	Malappuram	10 Ares	27/5/2015	26/5/2016	75000	NA
19	P K Abdulla Koya Mg.Director Beeta Granites Pvt.Ltd	19/2015- 16/Gr/ Dom/m- 813/15 dt 29/5/15	Granites	266/2 B No.	Cherukavu	Kondotty	Malappuram	14 Ares	29/5/2015	28/5/2016	150000	NA
20	V P Shareef Pallikkara House Payyanad ,Manjeri	20/2015- 16/Gr/ Dom/m- 826/15 dt 29/5/15	Granites	413/4A	Payyanad	Eranad	Malappuram	13 Ares	29/5/2015	28/5/2016	150020	NA
21	Anwar T P S/o Moyin kutti Thacha Paramban House Mundengara	21/2015- 16/Gr/ Dom/m- 1159/15 dt 29/5/15	Granites	96/3,4	Edvanna	Eranad	Malappuram	15 Ares	29/5/2015	28/5/2016	150000	NA
22	A.C.Abdurahiman S/o Aboobacker Haji, Mattil House, Peruvallur, Kondotty.	103/2015-16/ Gr/DOM/M- 2774/15 dtd.21/12/15	Granites	269/1 pt	Nediyiruppu	Kondotty	Malappuram	9.72 Ares	21/12/2015	20/12/2016	75000	N.A.
23	Aboobacker S/o Hamza Ambalaparamban House Parambur ,Pattikkad	23/2015- 16/Gr/ Dom/m- 970/15 dt 01/06/15	Granites	42/1	Keeahattur	perinthelmann	Malappuram	10 Ares	06-01-2015	31/5/2016	75000	NA

24	Muhammadali S/o Moideen Palathingal House Keezhattoor	24/2015- 16/Gr/ Dom/m- 1024/15 dt 01/06/15	Granites	55/6	Keeahattur	perinthelmana	Malappuram	15 Ares	06-01-2015	31/5/2016	150000	NA
25	K M Ali Kutty Malattippara House Valiyaparamb P.O	25/2015- 16/Gr/ Dom/m- 1086/15 dt 01/06/15	Granites	181/1B BL No.8	Pulikkal	Kondotty	Malappuram	15 Ares	06-01-2015	31/5/2016	150000	NA
26	T P Abdul Hameed Thoomath Puthur Peediyekkal House Kannamangalam	26/2015- 16/Gr/ Dom/m- 1097/15 dt 03/06/15	Granites	105	Kannamangalam	Thirurangadi	Malappuram	15 Ares	06-03-2015	06-02-2016	150000	NA
27	Usman V K S/o Alavi Velliyam Kallan House Koottilangadi	27/2015- 16/Gr/ Dom/m- 819/15 dt 03/06/15	Granites	1	Narukara	Eranad	Malappuram	15 Ares	06-03-2015	06-02-2016	150000	NA
28	A .M Muhammedali Mubaraq Granites West Chathallur	28/2015- 16/Gr/ Dom/m- 1386/15 dt 05/06/15	Granites	95/PT Bl No. 70	Perakamanna	Eranad	Malappuram	80.97 Ares	06-05-2015	06-04-2016	700000	NA
29	Abdul Nazar N Nettakal House Perumanna Kozhikkode	29/2015- 16/Gr/ Dom/m- 1405/15 dt 05/06/15	Granites	30/3 BL No.8	Pulikkal	Kondotty	Malappuram	10 Ares	06-05-2015	06-04-2016	75000	NA
30	P Abdulla Palliyalil House Vellila, mankada	30/2015- 16/Gr/ Dom/m- 855/15 dt 06/06/15	Granites	93/1	Vadakkangara	perinthelmana	Malappuram	15 Ares	06-06-2015	06-05-2016	150000	NA
31	KP Aboobacker Kangattu Puthanveettil House Vadakkangara P.O	31/2015- 16/Gr/ Dom/m- 707/15 dt 06/06/15	Granites	126/6,65	Mankada	perinthelmana	Malappuram	14.2 Ares	06-06-2015	06-05-2016	150000	NA
32	M K Najeeb S/o Hassainar Mannengal Kannemthodi House Pulamanthole	32/2015- 16/Gr/ Dom/m- 1289/15 dt 22/06/15	Granites	85	Pulamanthole	perinthelmana	Malappuram	10 Ares	22/6/2015	21/06/2016	750000	NA
33	Kuttiman Haji Payambrott House Pulikkal P.O Malappuram	33/2015- 16/Gr/ Dom/m- 928/15 dt 22/06/15	Granites	177/8	Pulikkal	Kondotty	Malappuram	10 Ares	22/6/2015	21/6/2016	75000	NA
34	K P Abbas Ali S/o alavikutty Haji Karimbin thodi House Valiyaparam	34/2015- 16/Gr/ Dom/m- 1246/15 dt 22/06/15	Granites	130/1,2, 320/Pt	Pulikkal	Kondotty	Malappuram	10 Ares	22/6/2015	21/6/2016	700000	NA
35	K P Abbas Ali S/o alavikutty Haji Karimbin thodi House Valiyaparam	35/2015- 16/Gr/ Dom/m-	Granites	320/pt	Pulikkal	Kondotty	Malappuram	15 Ares	22/6/2015	21/6/2016	150000	NA

		1271/15 dt 22/06/15										
36	K.Sakeer Hussain S/o Kuttimoideen Haji, Kudalil House, Parammalangadi.	36/2015- 16/Gr/ Dom/m- 1992/15 dt 03/07/15	Granites	1/1 A	Pulamanthole	Perinthalmanna	Malappuram	10 Ares	07-03-2015	07-02-2016	75000	NA
37	Muhammed Haneefa S/o Muhammed Kutti Haji, Kari House, Chirayil.P.O.	114/2015-16/ Gr/DOM/M- 1606/15 dtd.22/1/16	Granites	269/1	Nediyiruppu	Kondotty	Malappuram	13.75 Ares	22/1/2016	20/1/2017	150000	N.A.
38	Muhammed Haneefa S/o Muhammed Kutti Haji, Kari House, Chirayil.P.O.	115/2015-16/ Gr/DOM/M- 1607/15 dtd.22/1/16	Granites	270/1	Nediyiruppu	Kondotty	Malappuram	9.71 Ares	22/1/2016	20/1/2017	75000	N.A.
39	P.V.Ajesh, S/o Velayudhan, Dwaraka, Cherooppa, Kozhikode	39/2015- 16/Gr/ Dom/m- 1135/15 dt 08/07/15	Granites	186/1	Pulikkal	Kondotty	Malappuram	15 Ares	07-08-2015	07-07-2016	150000	NA
40	P.V.Ajesh, S/o Velayudhan, Dwaraka, Cherooppa, Kozhikode	40/2015- 16/Gr/ Dom/m- 1363/15 dt 08/07/15	Granites	187/pt	Pulikkal	Kondotty	Malappuram	10 Ares	07-08-2015	07-07-2016	75000	NA
41	P.T.Ashraf Mg.Partner, Al Jouf Granite Metals, Poovathikkal	41/2015- 16/Gr/ Dom/m- 844/15 dt 08/07/15	Granites	Bl.27- 184/	Urangattiri	Ernad	Malappuram	40.47Ares	07-08-2015	07-07-2016	700000	NA
42	K.V.Moideenkoya, Mg.Partner, New Pannipara Bricks&Metals. P.O.Pannipara.	42/2015- 16/Gr/ Dom/m- 1420/15 dt 10/07/15	Granites	12/1/1,1/2,1/3	Perakamanna	Ernad	Malappuram	60.7 Ares	07-10-2015	25/6/2016	700000	NA
43	K.M.Alikutty, Malattippara House, Valiyaparamb, Pulikkal.	43/2015- 16/Gr/ Dom/m- 1087/15 dt 10/07/15	Granites	317/3	Pulikkal	Kondotty	Malappuram	10 Ares	07-10-2015	25/6/2016	75000	NA
44	K.C.Janardhana Raja S/o Parameswaran Bhattathiripad, Kadannamanna Kovilakam, Kadannamanna, Mankada	44/2015- 16/Gr/ Dom/m- 861/15 dt 13/07/15	Granites	96/1 A	Mankada	Perinthalmanna	Malappuram	9.72 Ares	13/7/2015	06-12-2016	75000	NA
45	P.Abbas S/o muhammed Haji Verilakattil, Muthuparamb.	45/2015- 16/Gr/ Dom/m- 1385/15 dt 13/07/15	Granites	96/1 A	Mankada	Perinthalmanna	Malappuram	9.72 Ares	13/7/2015	06-12-2016	75000	NA

46	T.P.Abdul Hameed, Thumbath Puthen Peediyekkal House, Kannamangalam.	131/2015-16/Gr/DOM/M-1496/15 dtd.14/3/16	Granites	250/pt, 151/pt	Nediyiruppu	Kondotty	Malappuram	48.60 Ares	14/3/2016	13/3/2017	700000	N.A.
47	Sivasankaran.M.P.S/o Navu, Mampatta Palliyalil House, Kadannamanna.	47/2015-16/Gr/Dom/m-862/15 dt 4/9/15	Granites	65, 126/6	Mankada	Perinthalmanna	Malappuram	10 Ares	23/9/2015	22/9/2016	75000	NA
48	M.E.Mohanan High Grip Granite, Vazhayoor.	54/2015-16/Gr/Dom/m-784/15 dt 14/10/15	Granites	155/3	Vazhayoor	Kondotty	Malappuram	50 Ares	14/10/2015	13/08/2016	480000	NA
49	M.K.Moosakutty, Mg.Partner, Rahmath Granite Crusher, Pannipara.	64/2015-16/Gr/Dom/m-783/15 dt 14/10/15	Granites	7/3 pt, 4/1	Karakunnu	Ernad	Malappuram	40.47 Ares	19/10/2015	18/10/2016	700000	
50	P.C.Abdurahiman, Kalpakavadi House, Valavannur.P.O.	66/2015-16/Gr/Dom/M-2370/15 dt 21/10/15	Granites	160	Valavannur	Tirur	Malappuram	9.71 Ares	21/10/2015	20/10/2016	75000	NA
51	P.K.Abdurahiman S/o Aboobacker, Poolakunnan House, Narukara.	67/2015-16/Gr/Dom/M-1428/15 dt 21/10/15	Granites	168	Anakkayam	Ernad	Malappuram	14.58 Ares	21/10/2015	20/10/2016	150000	NA
52	P.P.Abdurahman, Mg.Partner, Palliparamban House, (Karakamanna Metals) Keezhuparamb.	76/2015-16/Gr/DOM/M-939/15 dtd.28/10/15	Granites	130/pt	Pullipadam	Nilambur	Malappuram	48.67 Ares	28/10/2015	27/10/2016	700000	NA
53	Muhammed Ibrahim,S/o Moideenkutti Haji, Palakkan House, Pookkottur.	82/2015-16/Gr/DOM/M-842/15 dtd.12/11/15	Granites	Q2-1065/pt	Melmuri	Ernad	Malappuram	9.71 Ares	11-12-2015	11-11-2016	75000	NA
54	K.M.Koyamu, Managing Partner, Chirayil Granites, Kondotty, Chirayil.	133/2015-16/Gr/DOM/M-108/16 dtd.18/3/16	Granites	178/15	Nediyiruppu	Kondotty	Malappuram	30 cents	18/3/2016	17/3/2017	150000	N.A.
55	K.P.Muhammed S/o Alavi Haji, Kanniparambil House, Munniyoor.	85/2015-16/Gr/DOM/M-2593/15 dtd.18/11/15	Granites	332	Karakunnu	Ernad	Malappuram	9.71 Ares	18/11/2015	17/11/2016	75000	NA
56	Kunhumammed Haji, S/o Kunhippu Haji, Vazhathodi House, Cherukara.	86/2015-16/Gr/DOM/M-2442/15 dtd.25/11/15	Granites	7/7	Elamkulam	Perinthalmanna	Malappuram	19.61 Ares	25/11/2015	24/11/2016	150000	NA
57	K.Jayaprakash S/o Mavunni, Kottarathil House, Kannamvettikavu.	87/2015-16/Gr/DOM/M-2357/15 dtd.27/11/15	Granites	266/2 pt	Cherukavu	Kondotty	Malappuram	46.53 Ares	27/11/2015	26/11/2016	700000	NA

58	N P Abdul Azeez, Managing Director, Manjeri Bricks & Metals, Pullancheri.	88/2015-16/ Gr/DOM/M- 2658/15 dtd.30/11/15	Granites	281/2	Anakkayam	Ernad	Malappuram	40.47 Ares	30/11/2015	29/11/2016	700000	NA
59	K.P.Muhammed Basher, Kolamkadavath House, Mattathur.	37/2015- 16/Gr/ Dom/m- 839/15 dt 06/07/15	Granites	B.37-251/1	Ooragam	Thirurangadi	Malappuram	10 Ares	07-06-2015	07-05-2016	75000	NA
60	K.Malathy, D/o Velayudhan, Kottarathil House, Kannamvettikavu.	91/2015-16/ Gr/DOM/M- 1719/15 dtd.2/12/15	Granites	266/2	Kannamvettikavu	Thirurangadi	Malappuram	40.47 Ares	12-02-2015	12-01-2016	700000	N.A.
61	E.K.Khader Babu S/o Moideen Haji, Suhara Manzoil, Kannamangalam.	92/2015-16/ Gr/DOM/M- 1772/15 dtd.2/12/15	Granites	104/2 A	Kannamangalam	Thirurangadi	Malappuram	40.51 Ares	12-02-2015	12-01-2016	700000	N.A.
62	N.Abdurahiman, Mg.Partner, Al-Madeena Hollow Bricks, Payyanad.	94/2015-16/ Gr/DOM/M- 2656/15 dtd.4/12/15	Granites	359	Payyanad	Ernad	Malappuram	9.71 Ares	12-04-2015	12-03-2016	75000	N.A.
63	Chakkeeri Shaik Abdulla S/o Ahammed Kutti, Chakkeeri House, Cheroor.	95/2015-16/ Gr/DOM/M- 2377/15 dtd.9/12/15	Granites	425	Kannamangalam	Thirurangadi	Malappuram	9.72 Ares	12-09-2015	12-08-2016	75000	N.A.
64	T.P.Abdul Hameed, Thumbath Puthen Peediyekkal House, Kannamangalam.	96/2015-16/ Gr/DOM/M- 2874/15 dtd.16/12/15	Granites	104/2 B	Kannamangalam	Thirurangadi	Malappuram	36 Cents	16/12/2015	15/12/2016	150000	N.A.
65	P.Abbas S /o Muhammed Haji, Verilakkatu House, Valiyaparamb.	97/2015-16/ Gr/DOM/M- 1098/15 dtd.16/12/15	Granites	180/7	Pulikkal	Kondotty	Malappuram	36 Cents	16/12/2015	15/12/2016	150000	N.A.
66	P.Sivasankaran, S/o Kunhiraman Nair, Pothalakkal House, Naduvath.P.O.	98/2015-16/ Gr/DOM/M- 1599/15 dtd.18/12/15	Granites	319/ pt	Thiruvalli	Nilambur	Malappuram	6.67 Ares	18/12/2015	17/12/2016	75000	N.A.
67	E.K.Abdul Azeez, E.K.C.Granite Kannamangalam.	101/2015-16/ Gr/DOM/M- 1276/15 dtd.21/12/15	Granites	1/-	Kannamangalam	Thirurangadi	Malappuram	36 Cents	21/12/2015	20/12/2016	150000	N.A.
68	K.P.Aboobacker S/o Abu Haji, Kangattu Puthen Veettil House, Vadakkangara.	102/2015-16/ Gr/DOM/M- 2435/15 dtd.21/12/15	Granites	65	Mankada	Perinthalmanna	Malappuram	9.71 Ares	21/12/2015	20/12/2016	75000	N.A.
69	K.P.Muhammed Basher, Kolamkadavath House, Mattathur.	38/2015- 16/Gr/ Dom/m- 870/15 dt 06/07/15	Granites	276/1	Ooragam	Thirurangadi	Malappuram	14.5 Ares	07-06-2015	07-05-2016	150000	NA
70	Abdul Azeez S/o Kunhipokker, Palakkan House, Melmuri.	104/2015-16/ Gr/DOM/M- 1530/15 dtd.23/12/15	Granites	Bl.8- 1562/pt	Melmuri	Ernad	Malappuram	14.57 Ares	23/12/2015	22/12/2016	150000	N.A.

71	Muhammed Shareef S/o Moideen, Kuttikkadan House, Athavanad.	105/2015-16/Gr/DOM/M-1842/15 dtd.28/12/15	Granites	371/2	Athavanad	Tirur	Malappuram	19.42 Ares	28/12/2015	27/12/2016	150000	N.A.
72	C.P.KuttuS/o Saithalu, Chakkali Parambil House, Thirunavaya.	106/2015-16/Gr/DOM/M-1604/15 dtd.28/12/15	Granites	371/1	Athavanad	Tirur	Malappuram	48 Cents	28/12/2015	27/12/2016	150000	N.A.
73	Abdul Majeed.P., Mg.Partner, Manjeri Blue Metals, Amayoor.	108/2015-16/Gr/DOM/M-812/15 dtd.30/12/15	Granites	Bl.67 110/1	Karakunnu	Ernad	Malappuram	40.47 Ares	30/12/2015	29/12/2016	700000	N.A.
74	P.Abdul Azeez, Aal Ameen Crusher, Melmuri.	109/2015-16/Gr/DOM/M-1580/15 dtd.1/1/16	Granites	Q2-1065	Melmuri	Ernad	Malappuram	40.47 Ares	01-01-2016	31/12/2016	700000	N.A.
75	Abdulsalam.K.T., Shamil Granites, Irivetti, Thottilangadi.P.O.	110/2015-16/Gr/DOM/M-863/15 dtd.1/1/16	Granites	524/2	Kavanoor	Ernad	Malappuram	9.72 Ares	01-01-2016	31/12/2016	75000	N.A.
76	Saidalavi.C.S/o Muhammed, Chemmala House, Pulpatta.	111/2015-16/Gr/DOM/M-1500/15 dtd.11/1/16	Granites	355	Pulpatta	Ernad	Malappuram	9.72 Ares	01-11-2016	01-10-2017	75000	N.A.
77	Kunhamad.K.Kilinakkod Rock Products Pvt. Ltd, Cheror	46/2015-16/Gr/Dom/m-1871/15 dt 4/9/15	Granites	24/3	Ooragam	Thirurangadi	Malappuram	0.9586 Hectares	09-04-2015	09-03-2016	240000	NA
78	K.Liyakkathali, Karuthedath House, Chathangottupuram.	113/2015-16/Gr/DOM/M-1259/15 dtd.22/1/16	Granites	323/1	Thiruvalli	Nilambur	Malappuram	9.71 Ares	22/1/2016	20/1/2017	75000	N.A.
79	P.Muhammadali S/o Ahammed, Parancheri House, Aravankara, Pookkottur.	83/2015-16/Gr/DOM/M-1478/15 dtd.13/11/15	Granites	55	Ooragam	Thirurangadi	Malappuram	19.42 Ares	13/11/2015	11-12-2016	150000	NA
80	Basil Paul, Mg.Partner, Popular Sand & Metals, Ooragam, Melmuri.	90/2015-16/Gr/DOM/M-1115/15 dtd.2/12/15	Granites	42/2	Ooragam	Thirurangadi	Malappuram	1 Acre (40.46 Ares)	12-02-2015	12-01-2016	700000	N.A.
81	P.Abbas S/o muhammed Haji Verilakattil, Muthuparamb.	116/2015-16/Gr/DOM/M-806/15 dtd.25/1/16	Granites	31/3	Pulikkal	Kondotty	Malappuram	9.71 Ares	25/1/2016	24/1/2017	75000	N.A.
82	Kunnummal Ali S/o Muhammed, Kunnummal House, Iringallur.P.O.	117/2015-16/Gr/DOM/M-2420/15 dtd.29/1/16	Granites	20/	Panakkad	Kondotty	Malappuram	9.71 Ares	29/1/2016	28/1/2017	75000	N.A.
83	Veeran S/o Muhammed haji, Kalathil House, Odamala, Cherukara.P.O.	118/2015-16/Gr/DOM/M-1331/15 dtd.29/1/16	Granites	1/	Anamangad	Perinthalmanna	Malappuram	24 cents	29/1/2016	28/1/2017	75000	N.A.

84	Mubasheer.V.K., S/o Muhammadali Vaithalakkuzhi House, Cherooppa.	118/2015-16/Gr/DOM/M-1331/15 dtd.29/1/16	Granites	180/ 3	Pulikkal	Kondotty	Malappuram	9.60 Ares	29/1/2016	28/1/2017	75000	N.A.
85	K.P.Abbassali, S/o Alavikutty, Karimbinthodi House, Valiyaparamb.P.O.	120/2015-16/Gr/DOM/M-1401/15 dtd.1/2/16	Granites	180/1, 2	Pulikkal	Kondotty	Malappuram	9.6 Cents	02-01-2016	31/1/2017	75000	N.A.
86	K.Ganeshan S/o Kandaswami, Kanichangottil House, Pannippara.P.O.	121/2015-16/Gr/DOM/M-1321/15 dtd.3/2/16	Granites	Bl.68- 222/2	Perakamanna	Ernad	Malappuram	14.57 Ares	02-03-2016	02-02-2017	150000	N.A.
87	O.P.Narayanan, S/o Kuttikoru, Ottuppara House, Pannippara	122/2015-16/Gr/DOM/M-1322/15 dtd.3/2/16	Granites	105/1	Edavanna	Ernad	Malappuram	9.72 Ares	02-03-2016	02-02-2017	75000	N.A.
88	Jose Kutti, S/o Joseph, Kochangadiyil House, Koorad.	123/2015-16/Gr/DOM/M-2950/15 dtd.8/2/16	Granites	517/pt	Wandoor	Nilambur	Malappuram	9.71 Ares	02-08-2016	02-07-2017	75000	N.A.
89	K.Abdul Harshad S/o Ahammedkutti, Kunnekkadan House, Chirayil.	124/2015-16/Gr/DOM/M-1507/15 dtd.10/2/16	Granites	105	Kannamangalam	Thirurangadi	Malappuram	9.71 Ares	02-10-2016	02-09-2017	75000	N.A.
90	M.K.Najeeb S/o Hassainar, Mannengal Kannamthodi, Pulamanthole	125/2015-16/Gr/DOM/M-2777/15 dtd.17/2/16	Granites	1/1 B	Pulamanthole	Perinthalmanna	Malappuram	24 Cents	17/2/2016	16/2/2017	75000	N.A.
91	Veerankutti Poothanari, S/o Andirahiman Haji, Pulpatta.	126/2015-16/Gr/DOM/M-1523/15 dtd.17/2/16	Granites	307/3	Pulpatta	Pulpatta	Malappuram	14.56 Ares	17/2/2016	16/2/2017	150000	N.A.
92	V.T.Abdurahiman, S/o Muhammed, Valiyathodi House, Ooragam Melmuri.	112/2015-16/Gr/DOM/M-1660/15 dtd.11/1/16	Granites	57/5	Ooragam	Thirurangadi	Malappuram	24 Cents	01-11-2016	01-10-2017	75000	N.A.
93	P.Abbas S/o muhammed Haji Verilakattil, Muthuparamb.	128/2015-16/Gr/DOM/M-1472/15 dtd.4/3/16	Granites	317/1, 2	Pulikkal	Kondotty	Malappuram	14.56 Ares	03-04-2016	03-03-2017	150000	N.A.
94	A.P.Siddique S/o Muhammed Haji, Aparambil House, Parammalangadi.	129/2015-16/Gr/DOM/M-1467/15 dtd.14/3/16	Granites	104/1	Kuruva	Perinthalmanna	Malappuram	9.71 Ares	14/3/2016	13/3/2017	75000	N.A.
95	M.Musthafa S/o Hydru, Murikkumkadan House, Padinhattumuri.	130/2015-16/Gr/DOM/M-2393/15 dtd.14/3/16	Granites	379/1	Elamkur	Ernad	Malappuram	9.72 Ares	14/3/2016	13/3/2017	75000	N.A.
96	Kunhahammedkutti Director, Kilinakkod Rock Products Kilinakkod, Cheroor.P.O.	127/2015-16/Gr/DOM/M-270/15 dtd.17/2/16	Granites	B.37-24-3	Ooragam	Thirurangadi	Malappuram	0.95 Hector	17/2/2016	16/2/2017	480000	N.A.

97	Muhammed Nazar, S/o Muhammed, Kangattuparakkal House, Vadakkangara.	132/2015-16/Gr/DOM/M-2523/15 dtd.18/3/16	Granites	1 /-	Mankada	Perinthalmanna	Malappuram	24 cents	18/3/2016	17/3/2017	75000	N.A.
98	Abdurahiman Chelamadathil House Chathangottuppuram	22/2015-16/Gr/Dom/m-1208/15 dt 29/5/15	Granites	145/13PT	Porur	Nilambur	Malappuram	14.57 Ares	29/5/2015	28/5/2016	150000	NA
99	K.Ayoobkhan, S/o Muhammed, Kizhisseri House, Velliancheri.P.O.	134/2015-16/Gr/DOM/M-213/16 dtd.21/3/16	Granites	40	Edapatta	Ernad	Malappuram	10 Ares	21/3/2016	20/3/2017	75000	N.A.
100	M.M.Said Anwar S/o Muhammed Haji, Parakkulangara House, Muthuvallur.	135/2015-16/Gr/DOM/M-2778/15 dtd.23/3/16	Granites	1/-	Kannamangalam	Thirurangadi	Malappuram	1.2 Ares	23/3/2016	22/3/2017	700000	N.A.
101	E.K.Abdul Azeez, E.K.C.Granite Kannamangalam.	136/2015-16/Gr/DOM/M-1277/15 dtd.28/3/16	Granites	1/-	Kannamangalam	Thirurangadi	Malappuram	9.71 Ares	23/3/2016	22/3/2017	75000	N.A.

Table 2d: List of Quarrying Permit granted under CRPS for Laterite Building Stone

SI no.	Concession holder's name and address	Concession no.	Mineral	Survey no.	Village	Taluk	District	Area(ha)	Valid from	Valid to	Consolidated royalty(Rs)
1	Faisal A c Akayi Cholakkal House Pang South P.O	01/2015-16/Lt/Dom/m-815/15 Dt 20/04/2015	Laterite	157/7	Kuruva	Perinthalmanna	Malappuram	10 Ares	20/04/2015	19/04/2016	75000
2	V K Ibrahim Velladath Kurukayil house Edayur North P.O	02/2015-16/Lt/Dom/m/794/15 dt 20/04/2015	Laterite	21	Kuruvambalam	Perinthalmanna	Malappuram	10 Ares	20/04/2016	19/04/2016	75000
3	P Mujeeb S/o Veeran kutty Areppara House Puthur Pallikkal P.O	03/2015-16/Lt/Dom/M 859/15 dt 22/04/2015	Laterite	416/1	Pallikkal	Kondotty	Malappuram	10 Ares	22/04/2015	21/04/2016	75000
4	Achuthan Nair Ambalakkatt House Edayur North P.o	4/2015-16 Dom/M/ 843/15 dtd22/04/2015	Laterite	162/3	Irimbiliyam	Tirur	Malappuram	10 Ares	22/04/2015	21/04/2016	75000
5	Ajmal Thaha S/o Ali Kakkattu Chakkumthodi House Cheruvayoor P.O	05/2015-16/Lt/Dom/m-838/15 dtd 22/04/2015	Laterite	226/1	Vazhakkad	Kondotty	Malappuram	10 Ares	22/04/2015	21/04/2016	75000
6	Hassan Kutty Pezhungattil House Cheekode P.O	06/2015-16/Lt/Dom/m-831/15 dtd 22/04/2015	Laterite	167/18	Cheekode	Kondotty	Malappuram	10 Ares	22/04/2016	21/04/2017	75000
7	Muhammed T S/o Veeran haji Thayyil Melathra House Makkarapparamb P.O	07/2015-16/Lt/Dom/m-835/15 dtd 23/04/2015	Laterite	51/5	Vadakkangara	Perinthalmanna	Malappuram	9.72 Ares	23/04/2015	22/04/2016	75000
8	Abdurahiman K S/o Ahammed Ambalapparambil House Chembrakkattur P .O Areacode , Pin:673639	08/2015-16/Lt/Dom/m-836/15 dtd 23/04/2015	Laterite	50/4	Kuzhimanna	Kondotty	Malappuram	9.72 Ares	23/04/2015	22/04/2016	75000
9	Shihabudheen K S/o Ummer Manjikkal House Chembrakkattur Areacode	09/2015-16/Lt/Dom/m-837/15 dtd 23/04/2015	Laterite	88/18	Kuzhimanna	Kondotty	Malappuram	9.71 Ares	23/04/2015	22/04/2016	75000

10	V C Muhammed Kutty Vadake Cholakkal House Ullanam North P.O Pin:676303	10/2015- 16/Lt/Dom/m- 868/15 dtd 27/04/2016	Laterite	101	Peruvallur	Kondotty	Malappuram	10 Ares	27/04/2015	26/04/2016	75000
11	K P Sreedharan S/o Velukutti Sree Nilayam Palikkal	11/2015- 16/Lt/Dom/m- 903/15 dtd 27/04/2015	Laterite	322/1	Cheekode	Kondotty	Malappuram	10 Ares	27/04/2015	26/04/2016	75000
12	M C Ibrahim Palekkattu Kundil House Olamathil P.O	12/2015- 16/Lt/Dom/m- 935/15 dtd 27/04/2015	Laterite	72/6	Vettikkattiri	Eranad	Malappuram	10 Ares	27/04/2015	26/04/2016	75000
13	P . Muhammed Thadathil House Ugraparam P.O	13/2015- 16/Lt/Dom/m- 823/15 dtd 27/04/2015	Laterite	32/B1 Sy No.1/1	Areacode	Eranad	Malappuram	10 Ares	27/04/2015	26/04/2016	75000
14	Mujeeb Rahman Koradan House Chengottur P.o	14/2015- 16/Lt/Dom/m- 866/15 dtd 27/04/2015	Laterite	496/3,4	Kuruva	Perinthalmanna	Malappuram	20 Ares	27/04/2015	26/04/2016	150000
15	Chekkutty Vellakkanakath House Karekkad P.O	15/2015- 16/Lt/Dom/m- 945/15 dtd 27/04/2015	Laterite	251/9	Kuruva	Perinthalmanna	Malappuram	20 Ares	27/04/2015	26/04/2016	150000
16	Ismail Chalakkathodi House Mongam P.O	16/2015- 16/Lt/Dom/m- 886/15 dtd 27/04/2015	Laterite	59/A	Morayur	Kondotty	Malappuram	10 Ares	27/04/2015	26/04/2016	75000
17	Hussain V K Valakkundil House Kadambode P.O Pandallur pin:676521	17/2015- 16/Lt/Dom/m- 262/15 dtd 27/04/2015	Laterite	83/3	Pandallur	Eranad	Malappuram	10 Ares	27/04/2015	26/04/2016	75000
18	Baiju K S S/o Bani K V Kalan Paramabath House Kundur P O	18/2015- 16/Lt/Dom/m- 929/15 dtd 29/04/2015	Laterite	102/1	Kuruva	Perinthalmanna	Malappuram	20 Ares	29/04/2015	28/04/2016	150000
19	Muhammed Kutty Veshnam Para House Edayur P.O	19/2015- 16/Lt/Dom/m- 934/15 dtd 29/04/2015	Laterite	251/9	Kuruva	Perinthalmanna	Malappuram	10 Ares	29/04/2015	28/04/2016	75000

20	Abu Thahir S/o Kunhali kutty Pandikkadavath House Oorakam Melmuri	20/2015- 16/Lt/Dom/m- 988/15 dtd 29/04/2015	Laterite	Q18/1158	Melmuri	Eranad	Malappuram	10 Ares	29/04/2015	28/04/2016	75000
21	Abu Thahir S/o Kunhali kutty Pandikkadavath House Oorakam Melmuri	21/2015- 16/Lt/Dom/m- 911/15 dtd 29/04/2015	Laterite	138/7	Koottilangadi	Perinthalmanna	Malappuram	10 Ares	05-04-2015	05-03-2016	75000
22	K Muhammed Kaithara House Kavanoor	22/2015- 16/Lt/Dom/m- 1022/15 dtd04/05/2015	Laterite	109/1,2	Payyanad	Eranad	Malappuram	10 Ares	05-04-2015	05-03-2016	75000
23	Sirajuddin E K Eriyakkalam House Pookkottur P.O	23/2015- 16/Lt/Dom/m- 865/15 dtd 04/05/2015	Laterite	5/2	Mankada	Perinthalmanna	Malappuram	10 Ares	05-04-2015	05-03-2016	75000
24	Muhammed Basheer Varikkodan House Randathani P.o	24/2015- 16/Lt/Dom/m- 910/15 dtd 04/05/2015	Laterite	1	Edayur	Tirur	Malappuram	10 Ares	05-04-2015	05-03-2016	75000
25	Abdul Rafeeque S/o Muhammed Cheriyambadan Kudukkil House Valiyaparamb	25/2015- 16/Lt/Dom/m- 1013/15 dtd 04/05/2015	Laterite	25/1	Muthuvallur	Kondotty	Malappuram	10 Ares	05-04-2015	05-03-2016	75000
26	Alavi Oorakkottil House Vellila P.o	26/2015- 16/Lt/Dom/m- 851/15 dtd 04/05/2015	Laterite	5/2	Mankada	Perinthalmanna	Malappuram	10 Ares	05-04-2015	05-03-2016	75000
27	Sulaiman Muduvatta House Palikkal P.O	27/2015- 16/Lt/Dom/m- 869/15 dtd 04/05/2015	Laterite	5/1	Mankada	Perinthalmanna	Malappuram	10 Ares	05-04-2015	05-03-2016	75000
28	Aboobacker T V Thottupadath Valappil House Alangode P.O	28/2015- 16/Lt/Dom/m- 957/15 dtd 04/05/2015	Laterite	332/1B	Naduvattam	Tirur	Malappuram	10 Ares	05-04-2015	05-03-2016	75000
29	Ali Mammad P S/o Moideen Akkara House Valluvambram	29/2015- 16/Lt/Dom/m- 985/15 dtd 04/05/2015	Laterite	268/1pt	Morayur	Kondotty	Malappuram	10 Ares	05-04-2015	05-03-2016	75000

30	K M Saidalavi S/o Kunhappukutty Haji Manayil House Mundakkal	30/2015- 16/Lt/Dom/m- 976/15 dtd 04/05/2015	Laterite	17/1	Muthuvallur	Kondotty	Malappuram	10 Ares	05-04-2015	05-03-2016	75000
31	T A Aboobacker Thazhe Ayyangal House Mundakkal	31/2015- 16/Lt/Dom/m- 976/15 dtd 04/05/2015	Laterite	23/2	Muthuvallur	Kondotty	Malappuram	10 Ares	05-04-2015	05-03-2016	75000
32	P Basheer S/o Muhammed Vellaram Parakkal House Olamathil P.O	32/2015- 16/Lt/Dom/m- 904/15 dtd 04/05/2015	Laterite	Q17-1022	Melmuri	Eranad	Malappuram	10 Ares	05-04-2015	05-03-2016	75000
33	Chandrababu Mannavakkal House Olamathil P.o	33/2015- 16/Lt/Dom/m- 857/15 dtd 04/05/2015	Laterite	Q17- 1024	Melmuri	Eranad	Malappuram	10 Ares	05-04-2015	05-03-2016	75000
34	P V Unnimoyin S/o Ahammed Kutty Pattakkal Vadakkayil House Vilayil PO	34/2015- 16/Lt/Dom/m- 902/15 dtd 04/05/2015	Laterite	298/4	Cheekode	Kondotty	Malappuram	10 Ares	05-04-2015	05-03-2016	75000
35	Shihabudheen S/o Beeran Cholayil House Vilayil P.o	35/2015- 16/Lt/Dom/m- 913/15 dtd 04/05/2015	Laterite	320/10	Cheekode	Kondotty	Malappuram	10 Ares	05-04-2015	05-03-2016	75000
36	Ubaid K S/o Mammu Kuriyedath House Kadampuzha P.o	36/2015- 16/Lt/Dom/m- 1077/15 dtd 04/05/2015	Laterite	458/3	Ponmala	Tirur	Malappuram	20 Ares	05-04-2015	05-03-2016	150000
37	P Abdu rahman Palisseri house Ernad P.O	37/2015- 16/Lt/Dom/m- 848/15 dtd 04/05/2015	Laterite	5/2,4/3	Mankada	Perinthalmanna	Malappuram	10 Ares	05-04-2015	05-03-2016	75000
38	Sainudheen S/o Koyakutti Ponnet House Cheror P.O	37/2015- 16/Lt/Dom/m- 971/15 dtd 06/05/2015	Laterite	152/1	Kannamangalam	Thirurangadi	Malappuram	10 Ares	05-06-2015	05-05-2016	75000
39	V P Siddiqueu haji S/o Moideen Valaparamban House Karulayi	39/2015- 16/Lt/Dom/m- 1030/15 dtd 06/05/2015	Laterite	66/8pt	Wandoor	Nilamabur	Malappuram	10 Ares	05-06-2015	05-05-2016	75000

40	Muhammed P Palapra House Pandallur P.o	40/2015- 16/Lt/Dom/m- 853/15 dtd 06/05/2015	Laterite	4/3,5/1,2	Mankada	Perinthalmanna	Malappuram	10 Ares	05-06-2015	05-05-2016	75000
41	Muhammed Abdul Liyakkath S/o Chekku Haji Koorimannil Kazhukkunnummal House Kadambode P.o	41/2015- 16/Lt/Dom/m- 804/15 dtd 06/05/2015	Laterite	168/pt	Anakkayam	Eranad	Malappuram	10 Ares	05-06-2015	05-05-2016	75000
42	M Chandran Mandalath House Oorakam Melmuri	42/2015- 16/Lt/Dom/m- 854/15 dtd 06/05/2015	Laterite	132/pt	Oorakam	Thirurangadi	Malappuram	10 Ares	05-06-2015	05-05-2016	75000
43	Muhammed Nazar M K S/o Moosa Mathari Kunnath House Kadambode P.o 676521	43/2015- 16/Lt/Dom/m- 1036/15 dtd 06/05/2015	Laterite	77/1	Pandallur	Eranad	Malappuram	10 Ares	05-06-2015	05-05-2016	75000
44	Ibrahim Kutti Kuruvambra House Pulpatt	44/2015- 16/Lt/Dom/m- 860/15 dtd 06/05/2015	Laterite	4/3	Mankada	Perinthalmanna	Malappuram	10 Ares	05-06-2015	05-05-2016	75000
45	Haneefa P K S/o Alavikutti Poodamkuttiyil House Peruvallur	45/2015- 16/Lt/Dom/m- 1073/15 dtd 06/05/2015	Laterite	62/4	Peruvallur	Thirurangadi	Malappuram	10 Ares	05-06-2015	05-05-2016	75000
46	Abdul Hakkim Panampuzha Mannamthodi House Melmuri P.o	46/2015- 16/Lt/Dom/m- 1009/15 dtd 06/05/2015	Laterite	35	Panakkad	Eranad	Malappuram	10 Ares	05-06-2015	05-05-2016	75000
47	Abdul Rasheed S/o Kunhimammed Parakadavath House Kottakkal	47/2015- 16/Lt/Dom/m- 901/15 dtd 06/05/2015	Laterite	166/3	Irimbiliyam	Tirur	Malappuram	20 Ares	05-06-2015	05-05-2016	150000
48	P Musthafa S/o Abdul Khadar Puthukulangara padi House Mannoor P.O Kadalundi via	48/2015- 16/Lt/Dom/m- 847/15 dtd 06/05/2015	Laterite	28/5	Kondotty	Kondotty	Malappuram	10 Ares	05-06-2015	05-05-2016	75000

49	Kunhimammed K S/o Moideen Kutti Kanneth House Cheroor P.o	49/2015- 16/Lt/Dom/m- 997/15 dtd 06/05/2015	Laterite	389	Kannamangalam	Thirurangadi	Malappuram	10 Ares	05-06-2015	05-05-2016	75000
50	Choyikkutti Alias Manu kkuttan Edam veed Pallikkal	50/2015- 16/Lt/Dom/m- 993/15 dtd 06/05/2015	Laterite	240/5	Chelambra	Kondotty	Malappuram	10 Ares	05-06-2015	05-05-5016	75000
51	Alavi Haji S/o Muhammed Haji Mathari Meleveetil Hosue Kadambode P.o	51/2015- 16/Lt/Dom/m- 954/15 dtd 08/05/2015	Laterite	77/1	Pandallur	Eranad	Malappuram	10 Ares	05-08-2015	05-07-2016	75000
52	Abdul Noufal S/o Veeran Eriyakkalam House Pookkottur P.o	52/2015- 16/Lt/Dom/m- 922/15 dtd 08/05/2015	Laterite	Q19-1550	Melmuri	Eranad	Malappuram	10 Ares	8/5//2015	05-07-2016	75000
53	Noorudheen S/o Musthafa Madakkal House Valavannur	53/2015- 16/Lt/Dom/m- 1077/15 dtd 08/05/2015	Laterite	458/3	Ponmala	Tirur	Malappuram	10 Ares	05-08-2015	05-07-2016	75000
54	Shaji K S/o Kunhi Moideen Kaliyath House Irimbiliyam	54/2015- 16/Lt/Dom/m- 1099/15 dtd 08/05/2015	Laterite	4/3	Mankada	Perinthalmanna	Malappuram	10 Ares	05-08-2015	05-07-2016	75000
55	K Abdul Salam S/o Hydros keyath Hosue Pookkottur P.O	55/2015- 16/Lt/Dom/m- 969/15 dtd 08/05/2015	Laterite	553/1A1B	Malappuram	Eranad	Malappuram	10 Ares	05-08-2015	05-07-2016	75000
56	P P Abdul Jaleel Palliyali peediyekkal House Melmuri P.O	56/2015- 16/Lt/Dom/m- 1047/15 dtd 11/05/2015	Laterite	395	Pookkottur	Eranad	Malappuram	10 Ares	05-11-2015	05-10-2016	75000
57	K P Nasheed S/o Hamza Kangattu Parakkal Vadakkangara	57/2015- 16/Lt/Dom/m- 1121/15 dtd 11/05/2015	Laterite	138/1	Koottilangadi	Perinthalmanna	Malappuram	10 Ares	05-11-2015	05-10-2016	75000
58	P N Faisal S/o Moosa Palempadiyan House Koottilangadi P.o	58/2015- 16/Lt/Dom/m- 1120/15 dtd 11/05/2015	Laterite	138/1	Koottilangadi	Perinthalmanna	Malappuram	20 Ares	05-11-2015	05-10-2016	150000

59	Abdul Hakheem S/o Moosa Haji Panampuzha Mannamthodi H Melmuri	59/2015- 16/Lt/Dom/m- 1075/15 dtd 11/05/2015	Laterite	5/2	Mankada	Perinthalmanna	Malappuram	20 Ares	05-11-2015	05-10-2016	150000
60	Mammad M S/o Moosa Moyikkal House Mariyad P.O	60/2015- 16/Lt/Dom/m- 1074/15 dtd 11/05/2015	Laterite	Q17-1024	Melmuri	Eranad	Malappuram	10 Ares	08-11-2015	05-10-2016	75000
61	Muhammed Sulaiman Alangadan House Choonur Chengottur P.O	61/2015- 16/Lt/Dom/m- 912/15 dtd 11/05/2015	Laterite	341/1B2	Kuruva	Perinthalmanna	Malappuram	20 Ares	05-11-2015	05-10-2016	150000
62	Abdul Nazar C M S/o Moideen Kutti Cholakkal Melethil House Athipatta Edaayur	62/2015- 16/Lt/Dom/m- 923/15 dtd 13/05/2015	Laterite	411/4	Edayur	Tirur	Malappuram	10 Ares	13/5/2015	05-12-2016	75000
63	Moideen Kutty S/o Kunhi kammu Maliyekkal House Edayur P.o	63/2015- 16/Lt/Dom/m- 856/15 dtd 13/05/2015	Laterite	290	Edayur	Tirur	Malappuram	10 Ares	13/5/2015	05-12-2016	75000
64	Abdul Samad S/o Komu Haji Panakkath House Kannamangalam P.O	64/2015- 16/Lt/Dom/m- 1025/15 dtd 13/05/2015	Laterite	154/2B	Kannamangalam	Thirurangadi	Malappuram	10 Ares	13/5/2015	05-12-2016	75000
65	K Babu S/o Krishnana nair Kandiyil House kayalam Kozhikkode	65/2015- 16/Lt/Dom/m- 980/15 dtd 13/05/2015	Laterite	464/1	Vazhakkad	Kondotty	Malappuram	10 Ares	13/5/2015	05-12-2016	75000
66	Kunhimammed Vathukattil House Edayur North P.o	66/2015- 16/Lt/Dom/m- 840/15 dtd 13/05/2015	Laterite	241/1	Moorkanad	Perinthalmanna	Malappuram	10 Ares	13/5/2015	05-12-2016	75000
67	K V Abdul Rasak Kalluvalappil House Edayur P.O	67/2015- 16/Lt/Dom/m- 839/15 dtd 13/05/2015	Laterite	110/1	Edayur	Tirur	Malappuram	10 Ares	13/5/2015	05-12-2016	75000
68	Shihabudheen S/o Alavi Poozhithara House Pang South	68/2015- 16/Lt/Dom/m- 1139/15 dtd 13/05/2015	Laterite	240/A	Moorkanad	Perinthalmanna	Malappuram	20 Ares	13/5/2015	05-12-2016	75000
69	Abdul Hakkim S/o Muhammed Haji Ennakkod House Pulpatta	69/2015- 16/Lt/Dom/m- 892/15 dtd 13/05/2015	Laterite	1024	Melmuri	Eranad	Malappuram	10 Ares	13/5/2015	05-12-2016	75000

70	Abdul Abdul Rasak M P S/o Muhammed Pallikkuthi chalil House Kavanoor P.o	70/2015- 16/Lt/Dom/m- 1043/15 dtd 15/05/2015	Laterite	BL 58 355/7	Pulpatta	Eranad	Malappuram	10 Ares	15/5/2015	14/5/2016	75000
71	Arumughan Cholakkal House Kolathur P.o	71/2015- 16/Lt/Dom/m- 867/15 dtd 15/05/2015	Laterite	290/9	Moorkanad	Perinthalmanna	Malappuram	10 Ares	15/5/2015	14/5/2016	75000
72	Noorul Hassan S/o Abdurahiman Mundakapparambil House Irivetti	72/2015- 16/Lt/Dom/m- 1134/15 dtd 15/05/2015	Laterite	56/2	Kavanoor	Eranad	Malappuram	10 Ares	15/5/2015	14/5/2016	75000
73	A P Saidalavi S/o Athraman Kutty Adangan Paravan House Kavanoor	73/2015- 16/Lt/Dom/m- 1023/15 dtd 15/05/2015	Laterite	144/pt	Kavanoor	Eranad	Malappuram	10 Ares	15/5/2015	14/5/2016	75000
74	Haridasan Pallikkara S/o Imbichi Pallikkara House Parambil Peedika	74/2015- 16/Lt/Dom/m- 972/15 dtd 15/05/2015	Laterite	154/2A	Kannamangalam	Thirurangadi	Malappuram	20 Ares	15/5/2015	14/5/2016	150000
75	Abdul Salam S/o Kammu kutti Palakkal House Karippur	75/2015- 16/Lt/Dom/m- 1049/15 dtd 15/05/2015	Laterite	151/1A1	Peruvallur	Thirurangadi	Malappuram	10 Ares	15/5/2015	14/5/2016	75000
76	P Muhammed S/o Kunhalan Pathunr House Pookkottur	76/2015- 16/Lt/Dom/m- 1116/15 dtd 15/05/2015	Laterite	BL 59 229	Pulpatta	Eranad	Malappuram	10 Ares	15/5/2015	14/5/2016	75000
77	Kunhi Muhammed S/o Abu Thulunadan House Kurumbathur	77/2015- 16/Lt/Dom/m- 1125/15 dtd 15/05/2015	Laterite	292/2B	Kuttippuram	Tirur	Malappuram	10 Ares	15/5/2015	14/5/2016	75000
78	K k Shoukath Ali S/o Kunhu Muhammed Karuvakunnan House Oorangattiri	78/2015- 16/Lt/Dom/m- 1129/15 dtd 15/05/2015	Laterite	BL 21 113/2	Kizhuparamb	Eranad	Malappuram	10 Ares	15/5/2015	14/5/2016	75000
79	Kunhammed K M s/o Abdulla kutti Karaparamban House Pang P.O	79/2015- 16/Lt/Dom/m- 1127/15 dtd 15/05/2015	Laterite	251/6A	Kuruva	Perinthalmanna	Malappuram	14 Cent	15/5/2015	14/5/2016	75000

80	KunhiMuhammad S/o Mammutti Cheladan Chalu Valappil H Karekkad	80/2015- 16/Lt/Dom/m- 1130/15 dtd 15/05/2015	Laterite	495/7,8,9	Kuruva	Perinthalmanna	Malappuram	9.1 Ares	15/5/2015	14/5/2016	75000
81	Noufal S/o Hameed Vadake chalil House Thottada	81/2015- 16/Lt/Dom/m- 1041/15 dtd 15/05/2015	Laterite	208	Kannamangalam	Thirurangadi	Malappuram	20 Ares	15/5/2015	14/5/2016	150000
82	Musthafa K S/o Muhammed Kizhakkethil House Indianoor	82/2015- 16/Lt/Dom/m- 1042/15 dtd 15/05/2015	Laterite	93/2	Ponmala	Tirur	Malappuram	10 Ares	15/5/2015	14/5/2016	75000
83	M Hamsz haji S/o Muhammed Haji Mulanhippulan House Indianoor	83/2015- 16/Lt/Dom/m- 982/15 dtd 15/05/2015	Laterite	BL 41 413/3	Ponmala	Tirur	Malappuram	10 Ares	15/5/2015	14/5/2016	75000
84	T K Ahammed Kutti Thirunnavaya Kalathil house Pazhoor Kuttippuram	84/2015- 16/Lt/Dom/m- 897/15 dtd 15/05/2015	Laterite	364/1,2	Naduvattam	Tirur	Malappuram	10 Ares	15/5/2015	14/5/2016	75000
85	Shihabudheen S/o Muhammed Puthukkudi House A R Nagar P.O	85/2015- 16/Lt/Dom/m- 982/15 dtd 18/05/2015	Laterite	413/3 BL 41	Ponmala	Tirur	Malappuram	20 Ares	18/5/2015	17/5/2016	150000
86	Jafar Sadiqe S/o Moideen kutti Haji Karippa Palliyali House Kuzhimanna	86/2015- 16/Lt/Dom/m- 1034/15 dtd 18/05/2015	Laterite	BL 30 29/3	Kavanoor	Eranad	Malappuram	10 Ares	18/5/2015	17/5/2016	75000
87	2	87/2015- 16/Lt/Dom/m- 1221/15 dtd 18/05/2015	Laterite	152/2A	Kannamangalam	Thirurangadi	Malappuram	10 Ares	18/5/2015	17/5/2016	75000
88	C Salim S/o Aboobacker Choorakkuth House Keezhattor	88/2015- 16/Lt/Dom/m- 977/15 dtd 18/05/2015	Laterite	149/1A1	melattur	Perinthalmanna	Malappuram	10 Ares	18/5/2015	17/5/2016	75000
89	V K Basheer S/o Abu Vettekkodan House Poonthavanam	89/2015- 16/Lt/Dom/m- 906/15 dtd 18/05/2015	Laterite	13/8	Valambur	Perinthalmanna	Malappuram	10 Ares	18/5/2015	17/5/2016	75000
90	N Narayanan S/o Ayyappan Naduvakkad House Elayur	90/2015- 16/Lt/Dom/m- 1128/15 dtd 18/05/2015	Laterite	BL 29 56/2pt	Kavanoor	Eranad	Malappuram	10 Ares	18/5/2015	17/5/2016	75000

91	M P Suhair S/o Ahammed Kutti Palliyalil House Puthur Pallikkal House	91/2015- 16/Lt/Dom/m- 1239/15 dtd 18/05/2015	Laterite	BL 9 212/2	Pulikkal	Kondotty	Malappuram	10 Ares	18/5/2015	17/5/2016	75000
92	Ashraf K M Kiliyamannil House Pang South P.O Malappuram	92/2015- 16/Lt/Dom/m- 984/15 dtd 18/05/2015	Laterite	73	Edayur	Tirur	Malappuram	10 Ares	18/5/2015	17/5/2016	75000
93	Unnikrishnan P P S/o Velayudhan Pandarapparambil House Kadampuzha	93/2015- 16/Lt/Dom/m- 1008/15 dtd 18/05/2015	Laterite	210/1A	Kuruvambalam	Perinthalmanna	Malappuram	10 Ares	18/5/2015	17/5/2016	75000
94	K V Siddique S/o Moidutty Kaliyar Vattath House Valiyakunnu	94/2015- 16/Lt/Dom/m- 905/15 dtd 18/05/2015	Laterite	210/1A	Irimbiliyam	Tirur	Malappuram	10 Ares	18/5/2015	17/5/2016	75000
95	E Pradeesh S/o Subrahmanian Itteppadan House Pang Malappuram	95/2015- 16/Lt/Dom/m- 974/15 dtd 18/05/2015	Laterite	100/1	Kuruva	Perinthalmanna	Malappuram	10 Ares	18/5/2015	17/5/2016	75000
96	Fayis Thaikadan S/o Haneefa Thaikadan Thaikadan House Indianoor Pin: 676503 Malappuram	96/2015- 16/Lt/Dom/m- 1011/15 dtd 20/05/2015	Laterite	BL 42 92/1	Ponmala	Tirur	Malappuram	15.37 Ares	20/5/2015	19/5/2016	150000
97	Muhammed Rafeeqe Chungath House Thirurkkad P.O Pin:679321 Malappuram	97/2015- 16/Lt/Dom/m- 936/15 dtd 20/05/2015	Laterite	106/7	Vadakkangara	Perinthalmanna	Malappuram	10 Ares	20/5/2015	19/5/2016	75000
98	C k Mirshad S/o Aboobacker Choorali kunnath House Valillapuzha	98/2015- 16/Lt/Dom/m- 1037/15 dtd 20/05/2015	Laterite	204/1	Oorngattiri	Eranad	Malappuram	10 Ares	20/5/2015	19/5/2016	75000
99	M Najumudheen S/o Soopy Narangatt House Karipoor	99/2015- 16/Lt/Dom/m- 1180/15 dtd 20/05/2015	Laterite	BL 11 238/2	Pallikkal	Kondotty	Malappuram	10 Ares	20/5/2015	19/5/2016	75000
100	Theyyambattil Musthafa S/o Moideen Kutty Theyyambattil House Punnathala	100/2015- 16/Lt/Dom/m- 1085/15 dtd 20/05/2015	Laterite	194/1	Athavanad	Tirur	Malappuram	20 Ares	20/5/2015	19/5/2016	150000

101	Majeed S/o Kunhu Muhammed Kambran House Kuttoor North P.o	101/2015- 16/Lt/Dom/m- 1145/15 dtd 20/05/2015	Laterite	45	Kannamangalam	Thirurangadi	Malappuram	10 Ares	20/5/2015	19/5/2016	75000
102	C K Assanar S/o Kunhimammed Haji Chevidikkunna House Pandikkad	102/2015- 16/Lt/Dom/m- 983/15 dtd 20/05/2015	Laterite	379/1	Vettikkattiri	Eranad	Malappuram	10 Ares	20/5/2015	19/5/2016	75000
103	Abdul Hameed P S/o Alavi Puthalath House Olakara P.O	103/2015- 16/Lt/Dom/m- 1178/15 dtd 20/05/2015	Laterite	152/1	Kannamangalam	Thirurangadi	Malappuram	10 Ares	20/5/2015	19/5/2016	75000
104	Paleri Sajid S/o Kunhu Muhammed Paleri House Oorakam Melmuri	104/2015- 16/Lt/Dom/m- 1260/15 dtd 20/05/2015	Laterite	387/1A	Kannamangalam	Thirurangadi	Malappuram	10 Ares	20/5/2015	19/5/2016	75000
105	Abdul Majeed S/o Kunhalavi Kambrath House Kadampuzha	105/2015- 16/Lt/Dom/m- 1124/15 dtd 20/05/2015	Laterite	80/1A	Melmuri	Tirur	Malappuram	10 Ares	20/5/2015	19/5/2016	75000
106	Yahiya Kaliyar Vattath House Valiyakunnu Valancheri	106/2015- 16/Lt/Dom/m- 849/15 dtd 20/05/2015	Laterite	1	Edayur	Tirur	Malappuram	10 Ares	20/5/2015	19/5/2016	75000
107	K V Ishak S/o Muhammed Kanniyath Vellamkath House Pulpatta	107/2015- 16/Lt/Dom/m- 1237/15 dtd 22/05/2015	Laterite	517/1/4	Oorangattiri	Eranad	Malappuram	10 Ares	22/5/2015	21/5/2016	75000
108	Abdul Gafoor P t S/o Asees Peerakkathodi House Perassannur	108/2015- 16/Lt/Dom/m- 1001/15 dtd 22/05/2015	Laterite	534	Kuttippuram	Tirur	Malappuram	10 Ares	22/5/2015	21/5/2016	75000
109	Habeeb Rahman S/o Aliamu Kundipparuthi House Perassannur	109/2015- 16/Lt/Dom/m- 1000/15 dtd 22/05/2015	Laterite	533/1	Kuttippuram	Tirur	Malappuram	10 Ares	22/5/2015	21/5/2016	75000
110	E .Siddique S/o Chekkutti Eleyedath House Vettam, Pallippuram	110/2015- 16/Lt/Dom/m- 996/15 dtd 22/05/2015	Laterite	533/1	Kuttippuram	Tirur	Malappuram	10 Ares	22/5/2015	21/5/2016	75000

111	Mammu M S/o Kunhimammed Machincheri House Edayur North P.O	111/2015- 16/Lt/Dom/m- 1205/15 dtd 22/05/2015	Laterite	237/1	Edayur	Tirur	Malappuram	10 Ares	22/5/2015	21/5/2016	75000
112	E. Ahammed S/o Saithalavi Edathatt House Pallikkal	112/2015- 16/Lt/Dom/m- 2215/15 dtd 22/05/2015	Laterite	208	Kannamangalam	Thirurangadi	Malappuram	10 Ares	22/5/2015	21/5/2016	75000
113	Shoukthali S/o Hyder Kalleppuram House Pallikkal	113/2015- 16/Lt/Dom/m- 1254/15 dtd 22/05/2015	Laterite	208	Kannamangalam	Thirurangadi	Malappuram	10 Ares	22/5/2015	21/5/2016	75000
114	Khaleefa S/o Alavi kutty Paravakkal House Oorakam Memluri	114/2015- 16/Lt/Dom/m- 1018/15 dtd 22/05/2015	Laterite	1147 Q 18	Melmuri	Eranad	Malappuram	10 Ares	22/5/2015	21/5/2016	75000
115	Muhammed Akbar P P S/o Muhammed Haji Parappurath House Omachapuzha	115/2015- 16/Lt/Dom/m- 1255/15 dtd 22/05/2015	Laterite	50/2	Ozhur	Tirur	Malappuram	9 Ares	22/5/2015	21/5/2016	75000
116	Ajayakumar K V Kaippuda Malayil House Parambil Peedika	116/2015- 16/Lt/Dom/m- 1254/15 dtd 22/05/2015	Laterite	229/1	Pallikkal	Tirur	Malappuram	10 Ares	22/5/2015	21/5/2016	75000
117	Muhammed Asharf K P S/o Moideen Koya Kalianathop paramb House Puthur Pallikkal	117/2015- 16/Lt/Dom/m- 1282/15 dtd 22/05/2015	Laterite	199/1A	Kannamangalam	Thirurangadi	Malappuram	10 Ares	22/5/2015	21/5/2016	75000
118	P Moideen Koya S/o Ali Paloth House P.O Pallikkal	118/2015- 16/Lt/Dom/m- /15 dtd 22/05/2015	Laterite	101	Peruvallur	Thirurangadi	Malappuram	8.09 Ares	22/5/2015	21/5/2016	75000
119	Sudheesh P S/o Sathyapalan Panathil House Cheroor	119/2015- 16/Lt/Dom/m- 1294/15 dtd 25/05/2015	Laterite	380/1	Kannamangalam	Thirurangadi	Malappuram	5 Ares	25/5/2015	24/5/2016	75000
120	Siddique P T Panathodi House Valamcheri	120/2015- 16/Lt/Dom/m- 325/15 dtd 25/05/2015	Laterite	1	Irimbiliyam	Tirur	Malappuram	10 Ares	25/5/2015	24/5/2016	75000
121	K M Mammad Kutty S/o Hassan Kutti Kuttikavil House Valiyaparamb	121/2015- 16/Lt/Dom/m- 1236/15 dtd 25/05/2015	Laterite	141/5 BI No. 9	Pulikkal	Kondotty	Malappuram	10 Ares	25/5/2015	24/5/2016	75000

122	Sharafudeen S/o Muhammed Kazhakkunnummal House Pullancheri, Manjeri	122/2015- 16/Lt/Dom/m- 1295/15 dtd 25/05/2015	Laterite	112/1 BI No. 51	Manjeri	Eranad	Malappuram	10 Ares	25/5/2015	24/5/2016	75000
123	Yoosafali N P S/o Alavi Kutti Nharappulan House Oorakam Kizhmuri	123/2015- 16/Lt/Dom/m- 1312/15 dtd 25/05/2015	Laterite	44/1 BI No. 38	Ooragam	Thirurangadi	Malappuram	10 Ares	25/5/2015	24/5/2016	75000
124	Muhammed Asharaf K S/o Abdulla Kunnath House Malayamma P.O	124/2015- 16/Lt/Dom/m- 1089/15 dtd 25/05/2015	Laterite	556/ BI No. 31	Areacode	Eranad	Malappuram	10 Ares	25/5/2015	24/5/2016	75000
125	P Abdul Kareem S/o Rayin Kutty Ambala Kulambad Puthur Pallikkal	125/2015- 16/Lt/Dom/m- 1320/15 dtd 25/05/2015	Laterite	181	Kannamangalam	Thirurangadi	Malappuram	15.78 Ares	25/5/2015	24/5/2016	75000
126	Abdul Rasak S/o Alavi Kutti Pananiath House Thrikkalangode	126/2015- 16/Lt/Dom/m- 1211/15 dtd 25/05/2015	Laterite	274/10	Elankur	Eranad	Malappuram	10 Ares	25/5/2015	24/5/2016	75000
127	M Hameed S/o Moideen Kutti Melethil House Valiyakunnu	127/2015- 16/Lt/Dom/m- 1332/15 dtd 27/05/2015	Laterite	150/2	Kattipparuthi	Tirur	Malappuram	10 Ares	27/5/2015	26/5/2016	75000
128	P P Ibrahim S/o Hamsa Puliyampatta House Valancheri	128/2015- 16/Lt/Dom/m- 1190/15 dtd 27/05/2015	Laterite	380/1c	Kuttippuram	Tirur	Malappuram	10 Ares	27/5/2015	26/5/2016	75000
129	Saithalavi S/o Hassainar Pariyath House Kottakkal Kuttippuram	129/2015- 16/Lt/Dom/m- 1237(A)/15 dtd 27/05/2015	Laterite	492/4 BI No. 39	Kottakkal	Tirur	Malappuram	10 Ares	27/5/2015	26/5/2016	150000
130	A Ayyappan Sreesailam Kummunipparamn	130/2015- 16/Lt/Dom/m- 1359/15 dtd 27/05/2015	Laterite	54/1	Kannamangalam	Thirurangadi	Malappuram	20 Ares	27/5/2015	26/5/2016	150000
131	E K Abdu S/o Muhammed Iriya Kalathil House Pookkottur	131/2015- 16/Lt/Dom/m- 1193/15 dtd 27/05/2015	Laterite	Q 18 1177	Melmuri	Eranad	Malappuram	10 Ares	27/5/2015	26/5/2016	75000
132	E K Abdu S/o Muhammed Iriya Kalathil House Pookkottur	132/2015- 16/Lt/Dom/m- 1194/15 dtd 27/05/2015	Laterite	Q 19 1551	Melmuri	Eranad	Malappuram	19 Ares	27/5/2015	26/5/2016	150000

133	Muhammed Shareef Thekkancheri Parakkalathil House Perumanna	133/2015- 16/Lt/Dom/m- 820/15 dtd 29/05/2015	Laterite	295	Irimbiliyam	Tirur	Malappuram	9.7 Ares	29/5/2015	28/5/2016	75000
134	Muhammed Rafeeqe S/o Muhammed Kooliyodan House Mullampara	134/2015- 16/Lt/Dom/m- 1287/15 dtd 29/05/2015	Laterite	138/1, 139	Koottilangadi	Perinthalmanna	Malappuram	10 Ares	29/5/2015	28/5/2016	75000
135	Sadiqe P N S/o Yoosaf Palembidiyan House Koottilangadi	135/2015- 16/Lt/Dom/m- 1266/15 dtd 01/06/2015	Laterite	140/1	Koottilangadi	Perinthalmanna	Malappuram	10 Ares	06-01-2015	31/5/2016	75000
136	M Hussain S/o Muhammed Madakkan House Kottakkal	136/2015- 16/Lt/Dom/m- 1336/15 dtd 01/06/2015	Laterite	332/15	Kottakkal	Tirur	Malappuram	10 Ares	06-01-2015	31/5/2016	75000
137	Hamza S/o Muhammed Kuzhikkadan House Pandallur P.o	137/2015- 16/Lt/Dom/m- 1044/15 dtd 01/06/2015	Laterite	91/2	Pandallur	Eranad	Malappuram	10 Ares	06-01-2015	31/5/2016	75000
138	Aboobacker Mullappalli House Pazhamallur P.O	138/2015- 16/Lt/Dom/m- 925/15 dtd 01/06/2015	Laterite	76/2	Kuruva	Perinthalmanna	Malappuram	5.7 Ares	06-01-2015	31/5/2016	75000
139	Abbas M T S/o Hamza Malleerithodi House Pang South	139/2015- 16/Lt/Dom/m- 1081/15 dtd 01/06/2015	Laterite	251/10	Kuruva	Perinthalmanna	Malappuram	10 Ares	06-01-2015	31/5/2016	75000
140	Mayin Kutti S/o Rayin Kutti Ambalukulambad House Puthur Pallikkal	140/2015- 16/Lt/Dom/m- 1328/15 dtd 03/06/2015	Laterite	163/1	Kuzhimanna	Kondotty	Malappuram	10 Ares	06-03-2015	06-02-2016	75000
141	K Mammad S/o Veeravunni Kolathumad Puthur pallikkal	141/2015- 16/Lt/Dom/m- 1233/15 dtd 03/06/2015	Laterite	BI No. 10 316/1	Pallikkal	Kondotty	Malappuram	04 Ares	06-03-2015	06-02-2016	75000
142	Abdurahiman K C S/o Muhammed Kutti Kaniyath Cholayil House Pulikkal	142/2015- 16/Lt/Dom/m- 1430/15 dtd 03/06/2015	Laterite	BI No. 9 9/9	Pulikkal	Kondotty	Malappuram	10 Ares	06-03-2015	06-02-2016	75000

143	Anwar Sadiqe Kuzhimabattilo House Cheruvayur	143/2015- 16/Lt/Dom/m- 1369/15 dtd 03/06/2015	Laterite	Bl No. 13 ,65/2	Muthuvallur	Kondotty	Malappuram	10 Ares	06-03-2015	06-02-2016	75000
144	Abdul Salam S/o Usman Karat House Thachinganadam	144/2015- 16/Lt/Dom/m- 1273/15 dtd 03/06/2015	Laterite	44/3	Nenmini	Perinthalmanna	Malappuram	10 Ares	06-03-2015	06-02-2016	75000
145	Aliyamu S/o Kunhumoideen Pullattil House Kadampuzha	145/2015- 16/Lt/Dom/m- 1140/15 dtd 03/06/2015	Laterite	79	Melmuri	Eranad	Malappuram	10 Ares	06-03-2015	06-02-2016	75000
146	Ismail K M Kiliyamannil House Pang South P.O	146/2015- 16/Lt/Dom/m- 1431(A)/15 dtd 03/06/2015	Laterite	118 66/2	Pulamanthole	Perinthalmanna	Malappuram	10 Ares	06-03-2015	06-02-2016	75000
147	Sameeh K M Kiliyamannil House Pang South P.O	147/2015- 16/Lt/Dom/m- 1335(A)/15 dtd 03/06/2015	Laterite	251/17B	Kuruva	Perinthalmanna	Malappuram	10 Ares	06-03-2015	06-02-2016	75000
148	K M Muhammadali Kiliyamannil House Pang South	148/2015- 16/Lt/Dom/m- 1301/15 dtd 03/06/2015	Laterite	251/17 B	Kuruva	Perinthalmanna	Malappuram	10 Ares	06-03-2015	06-02-2016	75000
149	Ayoob T S/o Avaran Pattamarthodi House Edayur P.O	149/2015- 16/Lt/Dom/m- 1396(A)/15 dtd 03/06/2015	Laterite	151	Irimbiliyam	Tirur	Malappuram	10 Ares	06-03-2015	06-02-2016	75000
150	Usman A K S/o Moidu Haji Ayilakkara House Thachinganadam	150/2015- 16/Lt/Dom/m- 1396/15 dtd 05/06/2015	Laterite	592/pt	Payyanad	Eranad	Malappuram	10 Ares	06-05-2015	06-04-2016	75000
151	C P Muhammed Choorappilan House Manjeri	151/2015- 16/Lt/Dom/m- 1249/15 dtd 05/06/2015	Laterite	47/5	Koottilangadi	Perinthalmanna	Malappuram	10 Ares	06-05-2015	06-04-2016	75000
152	M P.Riyas S/o Assainar Madari Palliyalil House Kadambode	152/2015- 16/Lt/Dom/m- 1396/15 dtd 05/06/2015	Laterite	91/4	Pandallur	Eranad	Malappuram	10 Ares	06-05-2015	06-04-2016	75000
153	Sulaiman K S/o Muhammed Kadakkodan House Thozhuvanoor	153/2015- 16/Lt/Dom/m- 1372/15 dtd 05/06/2015	Laterite	251/17B	Kuruva	Perinthalmanna	Malappuram	10 Ares	06-05-2015	06-04-2016	75000

154	Suneesh A Athippambath House Kumminippamb	154/2015- 16/Lt/Dom/m- 1371/15 dtd 06/06/2015	Laterite	65/8	Cherukavu	Kondotty	Malappuram	10 Ares	06-06-2015	06-05-2016	75000
155	V P Siddique Haji S/o Kunhimoyin Valampambath House Karulayi	155/2015- 16/Lt/Dom/m- 1432/15 dtd 06/06/2015	Laterite	90/pt	Pullipadam	Nilamabur	Malappuram	10 Ares	06-06-2015	06-05-2016	75000
156	K P Saidalavi S/o Ali Vilakkathil House Colony Road Kondotty	156/2015- 16/Lt/Dom/m- 1142/15 dtd 06/06/2015	Laterite	BI No.37 132/pt	Ooragam	Thirurangadi	Malappuram	10 Ares	06-06-2015	06-05-2016	75000
157	Abdusamad Kari S/o Muhammed Kari House Nediyiruppu	157/2015- 16/Lt/Dom/m- 1402/15 dtd 06/06/2015	Laterite	100/9	Morayur	Kondotty	Malappuram	10 Ares	06-06-2015	06-05-2016	75000
158	K Shajahan S/o Muhammed Kuttikkattil House Chembakkuth	158/2015- 16/Lt/Dom/m- 1357/15 dtd 06/06/2015	Laterite	BI No. 75 85/13	Thiruvali	Nilamabur	Malappuram	10 Ares	06-06-2015	06-05-2016	75000
159	M K Muhammadali S/o Alavi Kutti Thekkumpambil Pambil Peedika	159/2015- 16/Lt/Dom/m- 1179/15 dtd 06/06/2015	Laterite	70/2	Thennala	Thirurangadi	Malappuram	10 Ares	06-06-2015	06-05-2016	75000
160	Ibrahim Kutti Kalleth Karuvalappil House Kadampuzha	160/2015- 16/Lt/Dom/m- 1262/15 dtd 06/06/2015	Laterite	17/1	Kattipparuthi	Tirur	Malappuram	10 Ares	06-06-2015	06-05-2016	75000
161	Abdurasak S/o Mayin Kutti Kambrath House Ponmala	161/2015- 16/Lt/Dom/m- 1475/15 dtd 06/06/2015	Laterite	Q 18 1174	Melmuri	Eranad	Malappuram	20 Ares	06-06-2015	06-05-2016	75000
162	Abu Thaahir P K S/o Kunhali Kutti Ooragam , Melmuri	162/2015- 16/Lt/Dom/m- 1476/15 dtd 06/06/2015	Laterite	Q 18 1174	Melmuri	Eranad	Malappuram	10 Ares	06-06-2015	06-05-2016	75000
163	O. Velayudhan S/o Thami Odengattil Vadakkumpuram	163/2015- 16/Lt/Dom/m- 1480/15 dtd 06/06/2015	Laterite	219/1	Edayur	Tirur	Malappuram	10 Ares	06-06-2015	06-05-2016	75000
164	K M Abdulla S/o Veeran Moideen Madathil House Valiyapamb	164/2015- 16/Lt/Dom/m- 1458/15 dtd 22/06/2015	Laterite	193/1pt	Muthuvallur	Kondotty	Malappuram	10 Ares	22/6/2015	21/6/2016	75000

165	Noushad S/o Muhammed Kanhirathingal Valiyaparamb	165/2015- 16/Lt/Dom/m- 1456/15 dtd 22/06/2015	Laterite	202/1	Muthuvallur	Kondotty	Malappuram	10 Ares	22/6/2015	21/6/2016	75000
166	Siraj K S/o Muhammed Kalathingal House Vallikkapatta	166/2015- 16/Lt/Dom/m- 1418/15 dtd 22/06/2015	Laterite	8/1B	Mankada	Perinthalmanna	Malappuram	20 Ares	22/6/2015	21/6/2016	75000
167	Pareekutti Haji M K Mannengal Kannamthodi House Pulamanthole	167/2015- 16/Lt/Dom/m- 1238/15 dtd 22/06/2015	Laterite	63/5	Pulamanthole	Perinthalmanna	Malappuram	10 Ares	22/6/2015	21/6/2016	75000
168	Abdul Kareem S/o Kunhimammed Chalattil Kalladithodi Melmuri	168/2015- 16/Lt/Dom/m- 1370/15 dtd 22/06/2015	Laterite	1141/pt	Melmuri	Eranad	Malappuram	10 Ares	22/6/2015	21/6/2016	75000
169	Dasan.K.P.S/o Chekkutty, Cholayil House, Areacode.P.O.	169/2015- 16/Lt/Dom/m- 926/15 dtd 29/06/2015	Laterite	Bl.21, 50/4	Keezhuparamb	Eranad	Malappuram	10 Ares	29/6/2015	28/6/2016	75000
170	Abdul Jaleel.V.T., S/o Muhammed, Vadakkethodika, Pulpatta.	170/2015- 16/Lt/Dom/m- 1568/15 dtd 30/06/2015	Laterite	310/2	Pulpatta	Eranad	Malappuram	10 Ares	30/6/2015	29/6/2016	75000
171	Muhammed Shafi.M.S/o Ahammed Kutty, Puthiya veettil House, Kadambod.	171/2015- 16/Lt/Dom/m-1292 /15 dtd 30/06/2015	Laterite	24/1	Pandallur	Eranad	Malappuram	10 Ares	30/6/2015	29/6/2016	75000
172	Shihabuddin, S/o Hamza, Mannamkada House , Nellikuth;	172/2015- 16/Lt/Dom/m-1527 /15 dtd 30/06/2015	Laterite	152/4	Payyanad	Eranad	Malappuram	10 Ares	30/6/2015	29/6/2016	75000
173	V.P.Abdurahiman, S/o Marakkar, Valiyapeediyekkal House,Chattiparamb	173/2015- 16/Lt/Dom/m-1471 /15 dtd 01/07/2015	Laterite	9/7	Ponmala	Tirur	Malappuram	10 Ares	01/07/015	30/6/2016	75000
174	P.T.Anilkumar, Parammalthodi House, Vadakkunpuram	174/2015- 16/Lt/Dom/m-1299 /15 dtd 01/07/2015	Laterite	219/1	Edayur	Tirur	Malappuram	20 Ares	01/07/015	30/6/2016	150000
175	P.Muneer S/o Mammad, Valancheri kunnath,House, Thrippanachi, Palakkad.P.O.Malappuram Dist.	175/15- 16/Lt/Dom/m-1311 /15 dtd 01/07/2015	Laterite	100/4	Panthallur	Eranad	Malappuram	10 Ares	01/07/015	30/6/2016	75000

176	P.Anwar S/o Muhammed, Noorengal House, Melmuri.	176/15-16/Lt/Dom/m-1526 /15 dtd 01/07/2015	Laterite	Q.18-1176	Melmuri	Eranad	Malappuram	10 Ares	01/07/015	30/6/2016	75000
177	Kunhayamu.K.S/o Moideenkutty, Karengal House, Edayur.	177/15-16/Lt/Dom/m-1368 /15 dtd 01/07/2015	Laterite	219/2A	Edayur	Tirur	Malappuram	20 cent (8.09 Ares)	01/07/015	30/6/2016	75000
178	Paramewsaran S/o Krishnan Nair, Palliyalil House, Vadakkumbram.P.O.	178/15-16/Lt/Dom/m-1147 /15 dtd 01/07/2015	Laterite	418/1	Edayur	Tirur	Malappuram	10 Ares	01/07/015	30/6/2016	75000
179	Sakeer Hussain S/o Veerankutti, Kappungal House, Keezhattoor.	179/15-16/Lt/Dom/m-1300 /15 dtd 01/07/2015	Laterite	51/2	Nenmini	Perinthalmanna	Malappuram	10 Ares	01/07/015	30/6/2016	75000
180	V.T.Akbar S/o Muhammed, Valiyathoei House, Poonthanam.P.O.	180/15-16/Lt/Dom/m-1455 /15 dtd 01/07/2015	Laterite	13/8	Valambur	Perinthalmanna	Malappuram	10 Ares	01/07/015	30/6/2016	75000
181	Moideenkutti S/o Muhammed, Karikkuzhi House, Valiyaparamb.	181/15-16/Lt/Dom/m-1462 /15 dtd 03/07/2015	Laterite	144/6	Pulikkal	Kondotty	Malappuram	10 Ares	03/07/015	07-02-2016	75000
182	T.C.Aboobacker, S/o Unnikoya, Chembra House, P.O.Pulikkal.	182/15-16/Lt/Dom/m-1713 /15 dtd 03/07/2015	Laterite	Bl.6- 265	Vazhayoor	Kondotty	Malappuram	10 Ares	03/07/015	07-02-2016	75000
183	Muhammed Rafi, S/o Mammad, Melepeediyekkal House, Vadakkumbtam .	183/15-16/Lt/Dom/m-1210/15 dtd 03/07/2015	Laterite	219/1	Edayur	Tirur	Malappuram	10 Ares	03/07/015	07-02-2016	75000
184	Ahammed Villan S/o Abdulla Haji, Villan House, Chappanangadi	184/15-16/Lt/Dom/m-1339/15 dtd 03/07/2015	Laterite	108/1B, 1A	Kodur	Perinthalmanna	Malappuram	10 Ares	03/07/015	07-02-2016	75000
185	Shamsul Haque S/o Moosa, Kuzhukkattil, Valakulam.P.O.	185/15-16/Lt/Dom/m-1600/15 dtd 03/07/2015	Laterite	61/2 A	Keezhattoor	Perinthalmanna	Malappuram	10 Ares	03/07/015	07-02-2016	75000
186	Muhammed Haris, S/o Said Muhammed, V.M.R.House, Perinthalmanna.	186/15-16/Lt/Dom/m-999/15 dtd 03/07/2015	Laterite	66/1	Pulamanthole	Perinthalmanna	Malappuram	10 Ares	03/07/015	07-02-2016	75000

187	Sooraj Babu, S/o Muhammed Kunhippa, Pothukattil House, Pariyapuram.	187/15-16/Lt/Dom/m-1045/15 dtd 03/07/2015	Laterite	75/	Pulamanthole	Perinthalmanna	Malappuram	10 Ares	03/07/015	07-02-2016	75000
188	C.T.Nazar, S/O Abdulla, Chunangattuthodi.	188/15-16/Lt/Dom/m-1192/15 dtd 03/07/2015	Laterite	5/7	Kuruvambalam	Perinthalmanna	Malappuram	10 Ares	03/07/015	07-02-2016	75000
189	Kunhimoideenkutty S/o Muhammed, Ulleerithodi House, Karekkad.	189/15-16/Lt/Dom/m-1459/15 dtd 06/07/2015	Laterite	73	Edayur	Tirur	Malappuram	6.5 Ares (16 Cemt)	07-06-2015	07-05-2016	75000
190	Kunheethu S/o Pareedutti, Konnakattil, Vadakkumbram.	190/15-16/Lt/Dom/m-1291/15 dtd 06/07/2015	Laterite	73	Edayur	Tirur	Malappuram	10 Ares	07-06-2015	07-05-2016	75000
191	Abdul Rasheed S/o Kunhi Muhammed, Parakkadavath, Kottakkal.	191/15-16/Lt/Dom/m-1206/15 dtd 06/07/2015	Laterite	389/1	Kottakkal	Tirur	Malappuram	20 Ares	07-06-2015	07-05-2016	150000
192	K.P.Muhammed Kutti S/o Alavi, Mundath House, Anthiyoorkunnu.	192/15-16/Lt/Dom/M-1547/15 dtd 06/07/2015	Laterite	Q18-1158	Melmuri	Eranad	Malappuram	10 Ares	07-06-2015	07-05-2016	75000
193	U.T.Muhammed Kutti Ulleerithodi House, Karekkad.P.O.	193/15-16/Lt/Dom/M-1003/15 dtd 06/07/2015	Laterite	73	Edayur	Tirur	Malappuram	10 Ares	07-06-2015	07-05-2016	75000
194	Rafeeq.P.K.S/o Kammu, Perinkalleri House, Karippur.P.O.	194/15-16/Lt/Dom/M-1662/15 dtd 08/07/2015	Laterite	Bl.11-240/2	Pallikkal	Kondotty	Malappuram	10 Ares	07-08-2015	07-07-2016	75000
195	K.Kunhimoideen S/o Komu, Kandamkari House, Puthoor Pallikkal.	195/15-16/Lt/Dom/M-1457/15 dtd 08/07/2015	Laterite	202/1 pt	Muthuvallur	Kondotty	Malappuram	10 Ares	07-08-2015	07-07-2016	75000
196	MuhammedKutti S/o Kunhimoideenkutti Mulanhipulakkal House, Indianoor	196/15-16/Lt/Dom/M-1082/15 dtd 08/07/2015	Laterite	323 (Bl.40)	Kottakkal	Tirur	Malappuram	10 Ares	07-08-2015	07-07-2016	75000
197	M.Kunhunneen S/o Alavikutti, Mulanhipulakkal House, Indianoor.	197/15-16/Lt/Dom/M-1257/15 dtd 08/07/2015	Laterite	325/7	Kottakkal	Tirur	Malappuram	10 Ares	07-08-2015	07-07-2016	75000

198	KoyappuKottaran S/o Kunhi Muhammed, Kottaran House, Indianoor.	198/15-16/Lt/Dom/M-1256/15 dtd 08/07/2015	Laterite	320/	Kottakkal	Tirur	Malappuram	10 Ares	07-08-2015	07-07-2016	75000
199	Yousafali.T.S/o Muhammed, Tharayil House, Pazhamallur.	199/15-16/Lt/Dom/M-1204/15 dtd 08/07/2015	Laterite	291/2	Moorkanad	Perinthalmanna	Malappuram	10 Ares	07-08-2015	07-07-2016	75000
200	P.Abdulla S/o Muhammed, Pulparambil House, Cheruvayoor.	200/15-16/Lt/Dom/M-1566/15 dtd 10/07/2015	Laterite	272	Vazhakkad	Kondotty	Malappuram	10 Ares	07-10-2015	07-09-2016	75000
201	K.T.Abdul Salam S/o Ahammed Kutty, Kolathodi House, Olavattur.P.O.	201/15-16/Lt/Dom/M-1570/15 dtd 10/07/2015	Laterite	B.-19- 230/1/2	Vazhakkad	Kondotty	Malappuram	10 Ares	07-10-2015	07-09-2016	75000
202	Muhammed Iqbal S/o Abdurahiman Kutti, Manakka Padikkal House, Thrikkanapuram.	202/15-16/Lt/Dom/M-1133/15 dtd 10/07/2015	Laterite	414/1 B	Thavanur	Ponnani	Malappuram	10 Ares	07-10-2015	07-09-2016	75000
203	Veerankutty Haji, S/o Moosa kutti Haji, Veettikkalthodi Hose, Puliyakkod.	203/15-16/Lt/Dom/M-1274/15 dtd 10/07/2015	Laterite	Bl.33- 344/9	Kuzhimanna	Kondotty	Malappuram	10 Ares	07-10-2015	07-09-2016	75000
204	T.P.Hassan S/o Muhammed Kutti, Thazhathe Peediyekkal House, Kadampuzha.	204/15-16/Lt/Dom/M-1055/15 dtd 10/07/2015	Laterite	181/	Melmuri	Tirur	Malappuram	10 Ares	07-10-2015	07-09-2016	75000
205	Rasheed S/o Pokku, Parangodath House, Valavannur.	205/15-16/Lt/Dom/M-1406/15 dtd 10/07/2015	Laterite	418/1	Edayur	Tirur	Malappuram	10 Ares	07-10-2015	07-09-2016	75000
206	Unni.K.S/o Kunhikkari, Kanukulath Madu, Peruvallur.	206/15-16/Lt/Dom/M-1668/15 dtd 10/07/2015	Laterite	141/1(BI.9)	Peruvallur	Thirurangadi	Malappuram	10 Ares	07-10-2015	07-09-2016	75000
207	Shaju.P.S/o Ayyappunni, Punathil House, Kadakad.	207/15-16/Lt/Dom/M-1664/15 dtd 10/07/2015	Laterite	141/1(BI.9)	Peruvallur	Thirurangadi	Malappuram	10 Ares	07-10-2015	07-09-2016	75000
208	Girish Babu, S/o Damodaran Nair, Kallingalthodi, Ooragam Melmuri.	208/15-16/Lt/Dom/M-1718/15 dtd 13/07/2015	Laterite	142/5	Pookkottur	Eranad	Malappuram	10 Ares	13/7/2015	07-12-2016	75000

209	Moidu.M.S/o Kinhithu Molla, Manikkamthodi House, Kunakavu.P.O.	209/15-16/Lt/Dom/M-1306/15 dtd 13/07/2015	Laterite	17	Elamkulam	Perinthalmanna	Malappuram	10 Ares	13/7/2015	07-12-2016	75000
210	N.C.Rajesh, S/ Velayudhan Kutti, Ayodhya House, Puthoor Pallikkal	210/15-16/Lt/Dom/M-1283/15 dtd 13/07/2015	Laterite	Bl.11/ 26/2-2	Pallikkal	Kondotty	Malappuram	10 Ares	13/7/2015	07-12-2016	75000
211	Muhammed Rafeeq S/o Abdul Khader, Pulloor Valappil House, Kappur, Palaghat.	211/15-16/Lt/Dom/M-1529/15 dtd 13/07/2015	Laterite	260/4	Alankod	Ponnani	Malappuram	6 Cent	13/7/2015	07-12-2016	75000
212	Smt.Saifunneesa, Karumannil House, Iringallur, Vengara.	212/15-16/Lt/Dom/M-1582/15 dtd 15/07/2015	Laterite	414/13	Ponmala	Tirur	Malappuram	10 Ares	15/7/2015	14/7/2016	75000
213	Usman Kutti S/o Alavikutti Thanikkal House, Kadampuzha.	213/15-16/Lt/Dom/M-1562/15 dtd 15/07/2015	Laterite	102/3	Kuruva	Perinthalmanna	Malappuram	10 Ares	15/7/2015	14/7/2016	75000
214	Abdusamad S/o Komu Hajai, Panakkath House, Kannamangalam.P.O.	214/15-16/Lt/Dom/M-1717/15 dtd 15/07/2015	Laterite	154/2 A	Kannamangalam	Thirurangadi	Malappuram	10 Ares	15/7/2015	14/7/2016	75000
215	Azeez.M.S/o Moidu, Manhalingal House, Vazhenkada.	215/15-16/Lt/Dom/M-1460/15 dtd 20/07/2015	Laterite	379/1	Aliparamb	Perinthalmanna	Malappuram	10 Ares	20/7/2015	19/7/2016	75000
216	Azeez.M.S/o Moidu, Manhalingal House, Vazhenkada.	216/15-16/Lt/Dom/M-1461/15 dtd 20/07/2015	Laterite	379/1	Aliparamb	Perinthalmanna	Malappuram	10 Ares	20/7/2015	19/7/2016	75000
217	Aabdul Salam, S/o Hudrose, Keyath House, Pookkottur.	217/15-16/Lt/Dom/M-1657/15 dtd 20/07/2015	Laterite	122-	Kodur	Perinthalmanna	Malappuram	10 Ares	20/7/2015	19/7/2016	75000
218	P.Musthafa S/o Ayamu Haji, Pallikkara House, Chengottur.	218/15-16/Lt/Dom/M-932/15 dtd 20/07/2015	Laterite	383/1A1	Kuruva	Perinthalmanna	Malappuram	20 Ares	20/7/2015	19/7/2016	150000
219	Hussain S/o Muhammed Haji, Mulanhippulan House, Indiannoor	219/15-16/Lt/Dom/M-1415/15 dtd 20/07/2015	Laterite	325/7	Kottakkal	Tirur	Malappuram	9.3 Ares	20/7/2015	19/7/2016	75000

220	E.K.Aboobacker S/o Abdurahiman, Eanthenkuzhiyan House, Pulpatta.P.O.	220/15-16/Lt/Dom/M-1714/15 dtd 24/08/2015	Laterite	54/1	Vadakkangara	Perinthalmanna	Malappuram	10 Ares	24/8/2015	23/8/2016	75000
221	Muhammed Musthafa S/o Abdul Khader, Mallekkattu Purayil House, Aikkarapadi.	221/15-16/Lt/Dom/M-1739/15 dtd 24/08/2015	Laterite	331/5 (Bl.16)	Cheekode	Kondotty	Malappuram	10 Ares	24/8/2015	23/8/2016	75000
222	P.C.Abdurahiman, Kalpakavadi House, Valavannur.	222/15-16/Lt/Dom/M-1790/15 dtd 24/08/2015	Laterite	108/1	Cheriyamundam	Tirur	Malappuram	10 Ares	24/8/2015	23/8/2016	75000
223	Mujeeb.P.P.S/o Muhammed Haji, Pallattil House, Nellikuth.	223/15-16/Lt/Dom/M-1551/15 dtd 25/08/2015	Laterite	8/1 A	Mankada	Perinthalmanna	Malappuram	10 Ares	25/8/2015	24/8/2016	75000
224	Shaji.A.K.S/o Kunhappu, Adhikarimanammal Kuriyedath House, P.O.Vallikunnu.	224/15-16/Lt/Dom/M-1861/15 dtd 26/08/2015	Laterite	41/2	Peruvallur	Thirurangadi	Malappuram	6 Ares	26/8/2015	25/8/2016	75000
225	M.P.Suhair S/oAhammedkutty, Palliyalil House, P.O.Puthoor Pallikka.	225/15-16/Lt/Dom/M-1817/15 dtd 26/08/2015	Laterite	207/1	Pallikkal	Kondotty	Malappuram	10 Ares	26/8/2015	25/8/2016	75000
226	Ishak.P., S/o Kunhimammed, Pattungal House, Pandallur.	226/15-16/Lt/Dom/M-1636/15 dtd 01/09/2015	Laterite	84/5	Pandallur	Ernad	Malappuram	08.71 Ares	09-01-2015	30/8/2016	75000
227	Muhammed Nechiyan S/o Veeran, Nechiyan House, Olavattoor.P.O.	227/15-16/Lt/Dom/M-1355/15 dtd 01/09/2015	Laterite	215	Panakkad	Ernad	Malappuram	9.71 Ares	09-01-2015	30/8/2016	75000
228	shafeeq Thayyil ,s/o Alavi, thayyil house ,pazhamallur po	228/15-16/Lt/Dom/M-1374/15 dtd 04/09/2015	Laterite	41/2,4	Kuruva	Perinthalmanna	Malappuram	10 Ares	04-09-2015	03-09-2016	75000
229	K.P Sreedaran, sree Nilayam ,pallikkal po	229/15-16/Lt/Dom/M-1558/15 dtd 04/09/2015	Laterite	280/6	Cheekode	Kondotty	Malappuram	24 Cents	04-09-2015	03-09-2016	75000
230	Mujeebrahman ,vadakkepeediyekkal house ,vadakkumbram po	230/15-16/Lt/Dom/M-1302/15 dtd 04/09/2015	Laterite	362/4	Melmuri	Tirur	Malappuram	10 Ares	04-09-2015	03-09-2016	75000

231	Mp ,Haneefa ,s/o Muhammed, meleppediyekkal house ,vadakkumbram po.	231/15-16/Lt/Dom/M-1584/15 dtd 04/09/2015	Laterite	218/1	Edayur	Tirur	Malappuram	10 Ares	09-04-2015	09-03-2016	75000
232	saifunnesa ,karukamannil house, Iringaloor po	232/15-16/Lt/Dom/M-1564/15 dtd 04/09/2015	Laterite	390/1	Kottakkal	Tirur	Malappuram	10 Ares	09-04-2015	09-03-2016	75000
233	muhammed Iqbal S/o moidheenkutty, Eranjithodi house, Mankada po	233/15-16/Lt/Dom/M-1007/15 dtd 04/09/2015	Laterite	61/2	Mankada	Perinthalmanna	Malappuram	10 Ares	09-04-2015	09-03-2016	75000
234	Afsal N. s/o Usman ,Neermunda house, Meppadam	234/15-16/Lt/Dom/M-1845/15 dtd 04/09/2015	Laterite	87/1	Thiruvalli	Nilamabur	Malappuram	10 Ares	09-04-2015	09-03-2016	75000
235	Alavikutti .p s/o kunhipokker, palliyil house,pang po	235/15-16/Lt/Dom/M-1766/15 dtd 07/09/2015	Laterite	1/1A	Pulamanthole	Perinthalmanna	Malappuram	10 Ares	09-07-2015	09-06-2016	75000
236	Basheer p ,s/o Muhammed,vellaramparakkal house, mongum po	236/15-16/Lt/Dom/M-1366/15 dtd 07/09/2015	Laterite	Q 17-1025	Melmuri	Ernad	Malappuram	10 Ares	09-07-2015	09-06-2016	75000
237	Rasheedali, s/o, Chekkumuhammed ,ottakanjirathingal house,Kuzhimanna po.	237/15-16/Lt/Dom/M-1366/15 dtd 07/09/2015	Laterite	483/1/1	Vazhakkad	Kondotty	Malappuram	20 Ares	09-07-2015	09-06-2016	150000
238	kuttai, s/o velayuldahan ,thekkathparambu house, olavattur po.	238/15-16/Lt/Dom/M-1050/15 dtd 07/09/2015	Laterite	222/1	Pulikkal	Kondotty	Malappuram	10 Ares	09-07-2015	09-06-2016	75000
239	Ahdul sathar .s/o Moidheen kutti,, Edampurath house, chruvayoor po	239/15-16/Lt/Dom/M-1078/15 dtd 07/09/2015	Laterite	01-Jun	vettilapara	Ernad	Malappuram	10 Ares	09-07-2015	09-06-2016	75000
240	Hussain s/o Aboobacker ,kariparambath house ,kadampuzha po	240/15-16/Lt/Dom/M-1141/15 dtd 07/09/2015	Laterite	263	Melmuri	Tirur	Malappuram	10 Ares	09-07-2015	09-06-2016	75000
241	cheenikkal Komu, s/o Muhammed kutti ,cheenikkal house, Indianoor po.	241/15-16/Lt/Dom/M-1503/15 dtd 07/09/2015	Laterite	227/6	Kottakkal	Tirur	Malappuram	9.5 Ares	09-07-2015	09-06-2016	75000

242	K ,Hamza ,s/o ,Uneenkutty, kunnath house ,vellila po.	242/15-16/Lt/Dom/M-1095/15 dtd 07/09/2015	Laterite	378/1,2 ,392/1	Aliparamb	Perinthalmanna	Malappuram	10 Ares	09-07-2015	09-06-2016	75000
243	KPC .Ibrabim ,s/o Aboobacker ,parakottil house ,Neeleswaram ,mukkam .	243/15-16/Lt/Dom/M-1431/15 dtd 07/09/2015	Laterite	193/3	Kavanoor	Ernad	Malappuram	10 Ares	09-07-2015	09-06-2016	75000
244	Noushad ,s/o Avarankutti, karuthedath house, Indianoor po	244/15-16/Lt/Dom/M-1844/15 dtd 07/09/2015	Laterite	314	Kottakkal	Tirur	Malappuram	10 Ares	09-07-2015	09-06-2016	75000
245	Ibrahim ,s/o ,Avarankutti, karuthedath house, Indianoor,	245/15-16/Lt/Dom/M-1765/15 dtd 07/09/2015	Laterite	284/1	Kottakkal	Tirur	Malappuram	10 Ares	09-07-2015	09-06-2016	75000
246	Abdurahman ,K, s/o Ummer ,padinjarekundil house, Trippanach po.	246/15-16/Lt/Dom/M-2049/15 dtd 07/09/2015	Laterite	76/24	Narukara	Ernad	Malappuram	10 Ares	09-09-2015	09-06-2016	75000
247	Noorudheen S/o Musthafa Madakkal House Valavannur	247/15-16/Lt/Dom/M-2058/15 dtd 09/09/2015	Laterite	21	karuvambalam	Perinthalmanna	Malappuram	10 Ares	09-07-2015	09-06-2016	75000
248	sidhique pallipuram ,s/o Pocker, pallipuram ,Indianoor po	248/15-16/Lt/Dom/M-1565/15 dtd 11/09/2015	Laterite	227/6	Kottakkal	Tirur	Malappuram	20 Ares	09-11-2015	09-10-2016	150000
249	Hamzakutti cp, s/o Husasin, chundampatta house, Thootha po	249/15-16/Lt/Dom/M-1603/15 dtd 11/09/2015	Laterite	221	pathaikkara	Perinthalmanna	Malappuram	10 Ares	09-11-2015	09-10-2016	75000
250	Balu thekkinkattil ,s/o Balakrishanan ,thekkinattil house, kadannamanna po	250/15-16/Lt/Dom/M-2124/15 dtd 11/09/2015	Laterite	01-May	Mankada	Perinthalmanna	Malappuram	9.72 Ares	09-11-2015	09-10-2016	75000
251	Mehaboobrahman ,s/o ,Moosa ,kottakkadan house ,kizhuparambu po	251/15-16/Lt/Dom/M-2092/15 dtd 14/09/2015	Laterite	289/13,14	Kizhuparamb	Ernad	Malappuram	10 Ares	14/9/2015	13/9/2016	75000
252	Manniachalil Ibrahim ,s/o kunhalan ,manniachalil house, Olamathil po.	252/15-16/Lt/Dom/M-1635/15 dtd 14/09/2015	Laterite	Q-17-1005	Melmuri	Ernad	Malappuram	10 Ares	14/9/2015	13/9/2016	75000

253	Ashkar Ali PK ,s/o ,Ahammedkutti,pattakkan kunithala house, cheekod po.	253/15-16/Lt/Dom/M-2057/15 dtd 14/09/2015	Laterite	298/3	Cheekode	Kondotty	Malappuram	10 Ares	14/9/2015	13/9/2016	75000
254	vellangara Balakrishnan ,s/o knuhipuravan ,vellangara house, kannamangalam po	254/15-16/Lt/Dom/M-1670/15 dtd 16/09/2015	Laterite	199/1A	Kannamangalam	Thirurangadi	Malappuram	12 Cents	16/9/2015	15/9/2016	75000
255	Muhammed kp ,s/o ,Rayin mammad, kadakkulath pookkattu house, puthoor pallikkal	255/15-16/Lt/Dom/M-1856/15 dtd 16/09/2015	Laterite	341/2	Pallikkal	Kondotty	Malappuram	9.04 Ares	16/9/2015	15/9/2016	75000
256	Safia ,w/o ,kanneth Muhammed,Areekkan house, cheroor po	256/15-16/Lt/Dom/M-1781/15 dtd 16/09/2015	Laterite	56/2	Kannamangalam	Thirurangadi	Malappuram	20 Ares	16/9/2015	15/9/2016	150000
257	CH . Shareef s/o , Aboobacker, cholakkath house, Indianoor, kottakkal	257/15-16/Lt/Dom/M-1609/15 dtd 16/09/2015	Laterite	240 A	Moorkanad	Thirurangadi	Malappuram	20 Ares	16/9/2015	15/9/2016	150000
258	Muraleedharan, s/o velu,machingal house, vadkkumbram po	258/15-16/Lt/Dom/M-1209/15 dtd 16/09/2015	Laterite	219/2 ,219/1	Edayur	Tirur	Malappuram	8.9 Ares	16/9/2015	15/9/2016	75000
259	Ummerali, s/o Koyakutti, thathrampalli house, Indianoor po	259/15-16/Lt/Dom/M-2069/15 dtd 16/09/2015	Laterite	12	Melmuri	Tirur	Malappuram	10 Ares	16/9/2015	15/9/2016	75000
260	Anilkumar ,s/o ,Govindan Nair,vadakkumthani house, vallikkunnu po	260/15-16/Lt/Dom/M-2036/15 dtd 16/09/2015	Laterite	487/1	vallikkunnu	Thirurangadi	Malappuram	10 Ares	16/9/2015	15/9/2016	75000
261	Muhammed Navas ,s/o ,saidhalavi ,Anthoor house, moorkkanad, po	261/15-16/Lt/Dom/M-1666/15 dtd 16/09/2015	Laterite	292/2A,2B	Kuttippuram	Tirur	Malappuram	10 Ares	16/9/2015	15/9/2016	75000
262	Abdul shafeeq mp. s/o Alavi kurikkal ,mancheri puthen peediyekkal house ,Thamarasseri po	262/15-16/Lt/Dom/M-2093/15 dtd 16/09/2015	Laterite	160/1	Payyanad	Tirur	Malappuram	18 Cents	16/9/2015	15/9/2016	75000

263	T. veeramn Haji, s/o ,Moosa Haji, Tharakan house ,Thrikkalangod po	263/15-16/Lt/Dom/M-2150/15 dtd 16/09/2015	Laterite	7-1,1	Pulikkal	Kondotty	Malappuram	10 Ares	16/9/2015	15/9/2016	75000
264	Abdul Fathah ,s/o, muhammed muslilyar ,paloli house, valiyakkunu po	264/15-16/Lt/Dom/M-1540/15 dtd 18/09/2015	Laterite	295	Irimbiliyam	Tirur	Malappuram	10 Ares	18/9/2015	17/9/2016	75000
265	V.K Basheer ,s/o, Abu ,vettekkodan house ,poonthavanam po	265/15-16/Lt/Dom/M-2068/15 dtd 18/09/2015	Laterite	52/3	Nenmini	Perinthalmanna	Malappuram	10 Ares	18/9/2015	17/9/2016	75000
266	Moidheen kutti, s/o Hamza ,Thayyan house ,koottilangadi, po	266/15-16/Lt/Dom/M-2063/15 dtd 18/09/2015	Laterite	53/3A	Vadakkangara	Perinthalmanna	Malappuram	10 Ares	18/9/2015	17/9/2016	75000
267	Muhammed EC ,s/o Pokker Haji,Elathola house ,koottilangadi ,	267/15-16/Lt/Dom/M-1843/15 dtd 18/09/2015	Laterite	55/1c	kuruva	Perinthalmanna	Malappuram	10 Ares	18/9/2015	17/9/2016	75000
268	Moidhu, s/o ,Kunhikkammu ,cholakkal house ,Kunnakkavu po	268/15-16/Lt/Dom/M-1213/15 dtd 23/09/2015	Laterite	1/2	Elamkulam	Perinthalmanna	Malappuram	5.36 Ares	23/9/2015	22/9/2016	75000
269	Abdul Shukkoor, Yaakki Paramban, Yakki ParambilHouse, Keezhuparamb.	269/15-16/Lt/Dom/M-2083/15 dtd 25/09/2015	Laterite	14.8	Keezhuparamb	Ernad	Malappuram	5.98 Ares	25/9/2015	24/9/2016	75000
270	Abdurahiman S/o Moideenkutty Haji, Kalluvalappil House, Indianoor.	270/15-16/Lt/Dom/M-1581/15 dtd 28/09/2015	Laterite	208/7	Kodur	Perinthalmanna	Malappuram	10 Ares	28/9/2015	27/9/2016	75000
271	Muhammed S/o Valiya Alavi, Poonthala House, Kadambod.	271/15-16/Lt/Dom/M-2067/15 dtd 28/09/2015	Laterite	90/1	Pandallur	Ernad	Malappuram	10 Ares	28/9/2015	27/9/2016	75000
272	Muhammed.T.S/o Veeran Haji, Thayyil Melethra House, Makkaraparamb.	272/15-16/Lt/Dom/M-2246/15 dtd 28/09/2015	Laterite	51/5	Vadakkangara	Perinthalmanna	Malappuram	10 Ares	28/9/2015	27/9/2016	75000
273	Mohanan Maniyanveettil House, S/o Velayudhan, Maniyanveettil House, Kottakkal.	273/15-16/Lt/Dom/M-2155/15 dtd 28/09/2015	Laterite	331/3	Kottakkal	Tirur	Malappuram	15 cents	28/9/2015	27/9/2016	75000

274	Muhammed.V.P.S/o Ali , Parammal House, Pulpatta.	274/15- 16/Lt/Dom/M- 2079/15 dtd 28/09/2015	Laterite	173/3	Kavanoor	Ernad	Malappuram	10 Ares	28/9/2015	27/9/2016	75000
275	Abdul Salam S/o Kunhalankutty, Karikuzhi Variyath House, P.O.Valiyaparamb.	275/15- 16/Lt/Dom/M- 2110/15 dtd 28/09/2015	Laterite	243/3	Pulikkal	Kondotty	Malappuram	9.72 Ares	28/9/2015	27/9/2016	75000
276	N.Narayanan S/o Ayyappan, Naduvakad, Elayoor.P.O.	276/15- 16/Lt/Dom/M- 2131/15 dtd 30/09/2015	Laterite	135/2	Poroor	Nilamabur	Malappuram	9.72 Ares	30.9.2015	29.9.2015	75000
277	Habeeb Rahman S/o Abdul Salam, Palakkal House, Karippoor.	277/15- 16/Lt/Dom/M- 2184/15 dtd 5/10/2015	Laterite	216/9	Pallikkal	Kondotty	Malappuram	9.72 Ares	10-05-2015	10-04-2015	75000
278	Babu S/o Divakaran, Cheruparakkal Purayil, Vazhakkad.	278/15- 16/Lt/Dom/M- 2257/15 dtd 5/10/2015	Laterite	289/19	Keezhuparamb	Ernad	Malappuram	19.42 Ares	10-05-2015	10-04-2016	150000
279	Suresh Babu S/o Arumughan, Velumbilakuzhi House, Cherugayoor.	279/15- 16/Lt/Dom/M- 2182/15 dtd 5/10/2015	Laterite	315/2	Vazhakkad	Ernad	Malappuram	19.43 Ares	10-05-2015	10-04-2016	150000
280	Abdul Hameed S/o Moidu, Palora House, Valancheri.	280/15- 16/Lt/Dom/M- 1305/15 dtd 5/10/2015	Laterite	533/1	Kuttippuram	Tirur	Malappuram	4.15 Ares	10-05-2015	10-04-2016	75000
281	Jouhar.K. S/o Alavi, Kattakath House, Kadampuzha.	281/15- 16/Lt/Dom/M- 2102/15 dtd 6/10/2015	Laterite	7/2	Mankada	Perinthalmanna	Malappuram	9.72 Ares	10-06-2015	10-05-2016	75000
282	Abbas.K.S/o Muhammed, Kalangottil House, Valiyaparamb.	282/15- 16/Lt/Dom/M- 2189/15 dtd 6/10/2015	Laterite	333/2/1	Oorakam	Thirurangadi	Malappuram	19.42 Ares	10-06-2015	10-05-2016	150000
283	Musthafa Thaikadan, S/o Muhammed Kutti, Thaikkadan House, P.O.Indianoor.	283/15- 16/Lt/Dom/M- 2065/15 dtd 6/10/2015	Laterite	404/3	Kottakkal	Tirur	Malappuram	9.51 Ares	10-06-2015	10-05-2016	75000
284	Latheef Nambrambath S/o Saidalavi, Nambrambath House,Valancheri.	284/15- 16/Lt/Dom/M- 1335/15 dtd 7/10/2015	Laterite	21-	Irimbilyam	Tirur	Malappuram	16.59 Ares	10-07-2015	10-06-2016	150000

285	Muhammed Shafi S/o Kunhalavi, Kuttikkadan House, Valancheri.	285/15-16/Lt/Dom/M-1334/15 dtd 7/10/2015	Laterite	21-	Irimbiliyam	Tirur	Malappuram	9.71 Ares	10-07-2015	10-06-2016	75000
286	Muhammed Ashraf S/o Moosa Master, Thekkil House, East Kodur.	286/15-16/Lt/Dom/M-2154/15 dtd 7/10/2015	Laterite	102/2	Kodur	Perinthalmanna	Malappuram	9.72 Ares	10-07-2015	10-06-2016	75000
287	Muhammed Musthafa S/o Koyakutti, Pullan Kulavan House, Chattiparamb.	287/15-16/Lt/Dom/M-2157/15 dtd 7/10/2015	Laterite	102/2	Kodur	Perinthalmanna	Malappuram	9.72 Ares	10-07-2015	10-06-2016	75000
288	Hassan S/o VeeranKutty, Pullankulavan House, Chattiparamb.	288/15-16/Lt/Dom/M-1695/15 dtd 7/10/2015	Laterite	359/3, 383/9	Kuruva	Perinthalmanna	Malappuram	9.71 Ares	10-07-2015	10-06-2016	75000
289	Ahammed Kutti S/o Muhammed, Mullapalli House, Pazhamalloor.	289/15-16/Lt/Dom/M-2097/15 dtd 7/10/2015	Laterite	16/1	Kodur	Perinthalmanna	Malappuram	9.72 Ares	10-07-2015	10-06-2016	75000
290	Abbas Ali, Kanakkayil House, Chengottur.	290/15-16/Lt/Dom/M-2180/15 dtd 7/10/2015	Laterite	284/2	Ponmala	Tirur	Malappuram	19.43 Ares	10-07-2015	10-06-2016	150000
291	Abdul Noufal S/o Veeran Eriyakkalam House Pookkottur P.o	291/15-16/Lt/Dom/M-2256/15 dtd 7/10/2015	Laterite	Q 18- 1158	Melmuri	Ernad	Malappuram	19.42 Ares	10-07-2015	10-06-2016	150000
292	Muhammed S/o Mammatty, Manayil House, Kuzhimanna.	292/15-16/Lt/Dom/M-2186/15 dtd 7/10/2015	Laterite	289/ 3	Keezhuparamb	Ernad	Malappuram	4.86 Ares	10-07-2015	10-06-2016	75000
293	Sajid S/o Muhammed, Pandarathodi House, Chengottur.	293/15-16/Lt/Dom/M-2064/15 dtd 7/10/2015	Laterite	B.41-286/9	Ponmala	Tirur	Malappuram	9.70 Ares	10-07-2015	10-06-2016	75000
294	Moideen S/o Kuhalavi, Kanakkayil House, Pang Chandi.	294/15-16/Lt/Dom/M-2120/15 dtd 7/10/2015	Laterite	166	Kuruva	Perinthalmanna	Malappuram	9.71 Ares	10-07-2015	10-06-2016	75000
295	Abbas.M.T., Malleerithodi House, Pang South.P.O., Kolathur(via)	295/15-16/Lt/Dom/M-2099/15 dtd 7/10/2015	Laterite	251/17 A	Kuruva	Perinthalmanna	Malappuram	19.43 Ares	10-07-2015	10-06-2016	150000

296	Aachuthan Nair, S/o Raman Nair, Ambalakkatt House, Edayur North.P.O.	296/15-16/Lt/Dom/M-2034/15 dtd 9/10/2015	Laterite	43	pathaikkara	Perinthalmanna	Malappuram	9.73 Ares	10-09-2015	10-08-2016	75000
297	Ayoob S/o Kuhalan Kutti Haji, Koorimannil Pathiyil House, Payyanad.	297/15-16/Lt/Dom/M-2070/15 dtd 9/10/2015	Laterite	152/1	Payyanad	Ernad	Malappuram	9.71 Ares	10-09-2015	8/10/201	75000
298	Sameer, Thayattu Chira S/o Muhammed, Othukungal.	298/15-16/Lt/Dom/M-1207/15 dtd 9/10/2015	Laterite	380/1 C	Kuttippuram	Tirur	Malappuram	9.71 Ares	10-09-2015	10-08-2016	75000
299	M.Chandran, S/o Ayyappan, Mandalath House, P.O.Oorakam.	299/15-16/Lt/Dom/M-2122/15 dtd 9/10/2015	Laterite	132/pt	Oorakam	Thirurangadi	Malappuram	9.71 Ares	10-09-2015	10-08-2016	75000
300	Alavi S/o Veerankutty, Oorakattil House, Vellila.	300/15-16/Lt/Dom/M-2187/15 dtd 12/10/2015	Laterite	7/ 6	Mankada	Perinthalmanna	Malappuram	9.71 Ares	10-12-2015	10-11-2016	75000
301	Muhammed Ashraf S/o Veeran Haji, Kilikkottu Thodiyil House, Mongam.	301/15-16/Lt/Dom/M-2158/15 dtd 12/10/2015	Laterite	132/pt	Pandallur	Ernad	Malappuram	9.72 Ares	10-12-2015	10-11-2016	75000
302	Abu.P. S/o Muhammed, Pookkayil House, Theyyala.	302/15-16/Lt/Dom/M-2048/15 dtd 12/10/2015	Laterite	180	Melmuri	Tirur	Malappuram	9.71 Ares	10-12-2015	10-11-2016	75000
303	K.Abdul Rasak S/o Mayin Kutti, Kambrath House, Ponmala.	303/15-16/Lt/Dom/M-2293/15 dtd 14/10/2015	Laterite	63/1/4	Muthuvallur	Kondotty	Malappuram	19.42 Ares	14/10/2015	13/10/201	150000
304	P.Shamsuddin, S/o Alavikutty, Permpalli House, Ponmala.P.O.	304/15-16/Lt/Dom/M-2292/15 dtd 14/10/2015	Laterite	63/1/4, 64/1	Muthuvallur	Kondotty	Malappuram	19.42 Ares	14/10/2015	13/10/2016	150000
305	Jafar S/o Abdul Khader, Karuppan Veetil House, Perassanur.P.O.	305/15-16/Lt/Dom/M-1771/15 dtd 14/10/2015	Laterite	38//1 B	Kuttippuram	Tirur	Malappuram	9.71 Ares	14/10/2015	13/10/2016	75000
306	Ishak Thattayil S/o Mayin Kutty, Thattayil House, Parimbalam.	306/15-16/Lt/Dom/M-2311/15 dtd 16/10/2015	Laterite	B.45-249	Anakayam	Ernad	Malappuram	9.72 Ares	16/10/2015	15/10/2016	75000

307	Aboobacker Siddique S/o Koyaakutty, Thathrampalli House, Indianoor.P.O.	307/15-16/Lt/Dom/M-2228/15 dtd 16/10/2015	Laterite	228/2 B	Melmuri	Tirur	Malappuram	9.71 Ares	16/10/2015	17/10/2016	75000
308	Muhammedkutty.V.C.S/o Aboobacker, Parakkad House, Ullanam North P.O.	308/15-16/Lt/Dom/M-2385/15 dtd 16/10/2015	Laterite	141/1	Peruvallur	Thirurangadi	Malappuram	8.09 Ares	16/10/2015	17/10/2016	75000
309	Moideenkoya S/o Ali, Karattupurayil House, P.O.Pallikkal.	309/15-16/Lt/Dom/M-2384/15 dtd 16/10/2015	Laterite	141/1	Peruvallur	Thirurangadi	Malappuram	8.09 Ares	16/10/2015	17/10/2016	75000
310	Sharafuddin.C. S/o Ibrahim, Choorangodan House, Pang South.	310/15-16/Lt/Dom/M-2125/15 dtd 19/10/2015	Laterite	41/ 4	Kuruva	Perinthalmanna	Malappuram	9.71 Ares	19/10/2015	18/10/2016	75000
311	Saheerali S/o Hamza Kurikkal, Ovumpurath House, Kolaparamb.	311/15-16/Lt/Dom/M-2066/15 dtd 19/10/2015	Laterite	131/1	Pandallur	Ernad	Malappuram	9.72 Ares	19/10/2015	18/10/2016	75000
312	Jafar.K.S/o Muhammed, Keyath House, Velloore.P.O.	312/15-16/Lt/Dom/M-2335/15 dtd 19/10/2015	Laterite	206/4	Pallikkal	Kondotty	Malappuram	7.28 Ares	21/10/2015	20/10/2016	75000
313	Shahul Hameed S/o Moideen Kutty Hajai, Pangottu House, Pallikkal.P.O.	313/15-16/Lt/Dom/M-2334/15 dtd 21/10/2015	Laterite	1/1 A	Pulamantole	Perinthalmanna	Malappuram	19.42 Ares	21/10/2015	20/10/2016	150000
314	Ibrahimkutty S/o Mammadissa, Karuvambra House, Pulpatta.	314/15-16/Lt/Dom/M-2315/15 dtd 21/10/2015	Laterite	27/2	Mankada	Perinthalmanna	Malappuram	9.71 Ares	21/10/2015	20/10/2016	75000
315	Muhammed Ashraf Kadavath, Kadavath House, Kanmanam.P.O.	315/15-16/Lt/Dom/M-2218/15 dtd 21/10/2015	Laterite	251/17 B	Kuruva	Perinthalmanna	Malappuram	9.71 Ares	21/10/2015	20/10/2016	75000
316	C.Jayesh S/o Ayyappan, Cheruthodi House, Pulpatta.P.O.	316/15-16/Lt/Dom/M-1561/15 dtd 28/10/2015	Laterite	47/5	Kottilangadi	Perinthalmanna	Malappuram	9.71 Ares	28/10/2015	27/10/2016	75000
317	K.Sunilkumar, S/o Chekku, Kariyathankuzhi House, Cheruvayoor.P.O.	317/15-16/Lt/Dom/M-2183/15 dtd 28/10/2015	Laterite	Bl.19 - 314/pt	Vazhakkad	Kondotty	Malappuram	19.42 Ares	28/10/2015	27/10/2016	150000

318	P.k Haneefa ,s/o Alavikutty ,poothamkuttiyil house ,po .peruvallur	318/15-16/Lt/Dom/M-2526/15 dtd 2/11/2015	Laterite	425/9	Peruvallur	Thirurangadi	Malappuram	10 Ares	11-02-2015	11-01-2016	75000
319	A. Muhammadali ,s/o Alavi .Mandiveetil ,pang , po	319/15-16/Lt/Dom/M-2152/15 dtd 4/11/2015	Laterite	103/1	kuruva	Perinthalmanna	Malappuram	9.71 Ares	11-04-2015	11-03-2016	75000
320	Muhammed Shareef .s/o Riyas .Kundil house ,kadampuzha po	320/15-16/Lt/Dom/M-2185/15 dtd 4/11/2015	Laterite	73	Edayur	Tirur	Malappuram	9.71 Ares	11-04-2015	11-03-2016	75000
321	K. Hydru .s/o Alavi,kunnath attuparakkal house ,pookottur po	321/15-16/Lt/Dom/M-2514/15 dtd 4/11/2015	Laterite	324/2	Morayur	Kondotty	Malappuram	9.71 Ares	11-04-2015	11-03-2016	75000
322	Abdul Azeez ,kiliyamannil house ,pang south .po	322/15-16/Lt/Dom/M-2518/15 dtd 4/11/2015	Laterite	251/17A	kuruva	Perinthalmanna	Malappuram	9.71 Ares	11-04-2015	11-03-2016	75000
323	Muhammed Rafeequ e, s/o Abdu ,Kandappurath house ,kunnapadi .po	323/15-16/Lt/Dom/M-1365/15 dtd 6/11/2015	Laterite	17	Elamkulam	Perinthalmanna	Malappuram	9.71 Ares	11-06-2015	11-05-2016	75000
324	Aboobacker ,s/o Muhammed ,pulparambil house ,cheruvayur .po	324/15-16/Lt/Dom/M-2421/15 dtd 6/11/2015	Laterite	207/pt	Pulikkal	Kondotty	Malappuram	9.71 Ares	11-06-2015	11-05-2016	75000
325	Majeed,s/o .Muhammed ,kuruniyan house ,Mattathoor .p0	325/15-16/Lt/Dom/M-2429/15 dtd 6/11/2015	Laterite	89/2	Ponmala	Tirur	Malappuram	9.71 Ares	11-06-2015	11-05-2016	75000
326	Gireesh.P.S/o Velayudhan, Pallath House, Karekkad.	326/15-16/Lt/Dom/M-2123/15 dtd 9/11/2015	Laterite	100/2	Kattiparuthy	Tirur	Malappuram	19.43 Ares	11-09-2015	11-08-2016	150000
327	Ali Bava S/o Moideenkutty, Karimil House, Irimbilyam.	327/15-16/Lt/Dom/M-2127/15 dtd 9/11/2015	Laterite	218/2	Edayur	Tirur	Malappuram	9.71 Ares	11-09-2015	11-08-2016	75000
328	Anilkumar S/o Sankaran Paramlthodi House, Vadakkumbram.	328/15-16/Lt/Dom/M-2308/15 dtd 11/11/2015	Laterite	418/1	Edayur	Tirur	Malappuram	9.71 Ares	11-11-2015	11-10-2016	75000

329	P.Kunhimammed , Palliyalil House, Kuttipuram.	329/15-16/Lt/Dom/M-2309/15 dtd 11/11/2015	Laterite	418/1	Edayur	Tirur	Malappuram	9.71 Ares	11-11-2015	11-10-2016	75000
330	Sunil, S/o Thankammu, Kambath House, Vadakkumpuram.	330/15-16/Lt/Dom/M-1148/15 dtd 11/11/2015	Laterite	219/1,2	Edayur	Tirur	Malappuram	9.71 Ares	11-11-2015	11-10-2016	75000
331	K.P.Moosakutti S/o Muhammed Haji, Kudukkil Pottammal House, Valiyaparamab.	331/15-16/Lt/Dom/M-2633/15 dtd 13/11/2015	Laterite	244/3	Pallikkal	Thirurangadi	Malappuram	9.71 Ares	13/11/2015	11-12-2016	75000
332	Sudheesh S/o Parameswaran, Palliyalil House, Vadakkumpuram.	332/15-16/Lt/Dom/M-2114/15 dtd 13/11/2015	Laterite	218/1	Edayur	Tirur	Malappuram	9.71 Ares	13/11/2015	11-12-2016	75000
333	Satheesh S/o Velu, Vallathukuzhi House, Pulpatta.P.O.	333/15-16/Lt/Dom/M-1572/15 dtd 13/11/2015	Laterite	35/2	Paayyanad	Ernad	Malappuram	9.71 Ares	13/11/2015	11-12-2016	75000
334	Rajan.M. S/o Chathu, Mattayil House, P.O.Pang Chandi.	334/15-16/Lt/Dom/M-2434/15 dtd 13/11/2015	Laterite	251/9	Kuruva	Perinthalmanna	Malappuram	9.71 Ares	13/11/2015	11-12-2016	75000
335	C.T.Abdulla, S/o Muhammed Yoosaf, Chunangattuthodi House, Valancheri.	335/15-16/Lt/Dom/M-2510/15 dtd 13/11/2015	Laterite	418/1	Edayur	Tirur	Malappuram	9.71 Ares	13/11/2015	11-12-2016	75000
336	Eraniyan Abdurahiman S/o Alavikutti, Eraniyan House, Kadampuzha.	336/15-16/Lt/Dom/M-1163/15 dtd 13/11/2015	Laterite	251/9	Kuruva	Perinthalmanna	Malappuram	9.71 Ares	13/11/2015	11-12-2016	75000
337	Shaji Parappuram S/o Alavikutti, Parappuram House, Chengottur.	337/15-16/Lt/Dom/M-2331/15 dtd 16/11/2015	Laterite	219/1	Edayur	Tirur	Malappuram	19.42 Ares	16/11/2015	15/11/2016	150000
338	Aliyamu S/o Muhammed, Thaikkottil House, Vazhenkada.	338/15-16/Lt/Dom/M-2129/15 dtd 16/11/2015	Laterite	383/6, 7	Alipapramb	Perinthalmanna	Malappuram	9.71 Ares	16/11/2015	15/11/2016	75000
339	Zainuddin S/o Muhammed, Cheriyaarambil House, Morayur.	339/15-16/Lt/Dom/M-2445/15 dtd 16/11/2015	Laterite	46	Kannamangalam	Thirurangadi	Malappuram	9.71 Ares	16/11/2015	15/11/2016	75000

340	Abdul shafeeq mp. s/o Alavi kurikkal ,mancheri puthen peediyekkal house ,Nellikuth.	340/15-16/Lt/Dom/M-2291/15 dtd 16/11/2015	Laterite	760/1	Payyanad	Ernad	Malappuram	8.09 Ares	16/11/2015	15/11/2016	75000
341	Ahammed.O.P.S/o Muhammed, Athramkad House, Valluvambram.	341/15-16/Lt/Dom/M-1510/15 dtd 16/11/2015	Laterite	243/pt	Pulpatta	Ernad	Malappuram	9.71 Ares	16/11/2015	15/11/2016	75000
342	Siraj.k.S/o Muhammed, Kalathungal House, Vallikkapatta.	342/15-16/Lt/Dom/M-2548/15 dtd 18/11/2016	Laterite	8/1 B	Mankada	Perinthalmanna	Malappuram	29.13 Ares	18/11/2015	17/11/2016	300000
343	Muhammed Abdurahiman S/o Moideen Haji, Pariparamban House, A.R.Nagar.P.O.	343/15-16/Lt/Dom/M-2512/15 dtd 18/11/2015	Laterite	210/1 A	Irimbiliyam	Tirur	Malappuram	9.72 Ares	18/11/2015	17/11/2016	75000
344	Khalid, S/o Rayinkutty, Kokkaramuchi, Chettupalathingal, Omanur.	344/15-16/Lt/Dom/M-2519/15 dtd 18/11/2015	Laterite	140/1/1	Cheekode	Kondotty	Malappuram	9.71 Ares	18/11/2015	17/11/2016	75000
345	Hussain.C., S/o Muhammed Kutti, Chammengott House, Ramanattukara.	345/15-16/Lt/Dom/M-2529/15 dtd 21/11/2015	Laterite	300/1	Melmuri	Tirur	Malappuram	9.71 Ares	21/11/2015	20/11/2016	75000
346	M.Madhu S/o Velu, Nambiattil House, Puthoor Pallikkal..P.O	346/15-16/Lt/Dom/M-2332/15 dtd 21/11/2015	Laterite	288/3	Edavanna	Ernad	Malappuram	9.71 Ares	21/11/2015	20/11/2016	75000
347	E.K.Aboobacker S/o Abdurahiman, Eanthenkuzhiyan House, Pulpatta.P.O.	347/15-16/Lt/Dom/M-2549/15 dtd 25/11/2015	Laterite	51/7	Vadakkangara	Perinthalmanna	Malappuram	9.71 Ares	25/11/2015	24/11/2016	75000
348	Faisal, Akayicholakkal House, Pang South.	348/15-16/Lt/Dom/M-2515/15 dtd 25/11/2015	Laterite	7/5	Moorkanad	Perinthalmanna	Malappuram	9.71 Ares	25/11/2015	24/11/2016	75000
349	Ansar S/o Abdurahima, Kanniyam House, Karuvambram.	349/15-16/Lt/Dom/M-2555/15 dtd 25/11/2015	Laterite	5/2	Mankada	Perinthalmanna	Malappuram	9.71 Ares	25/11/2015	24/11/2016	75000
350	T.C.Aboobacker, S/o Unnikoya, Chembra House, P.O.Pulikkal.	350/15-16/Lt/Dom/M-2698/15 dtd 25/11/2015	Laterite	265	Vazhayoor	Kondotty	Malappuram	19.20 Ares	25/11/2015	24/11/2016	150000

351	Thoppasseri Chandran, Makkatt Kizhakkil House, Velimukku South.P.O.	351/15- 16/Lt/Dom/M- 2699/15 dtd 25/11/2015	Laterite	B.8-254/1	Peruvallur	Kondotty	Malappuram	19.42 Ares	25/11/2015	24/11/2016	150000
352	Muhammed Rafeeq S/o Ummer, Pulakkal House, Aripra.P.O.	352/15- 16/Lt/Dom/M- 2431/15 dtd 25/11/2015	Laterite	1-	Keezhattoor	Perinthalmanna	Malappuram	9.71 Ares	25/11/2015	24/11/2016	75000
353	Satheesan.B. S/o Bhaskaran, Neekampurath House, Pantheerankavu.P.O.	353/15- 16/Lt/Dom/M- 2430/15 dtd 25/11/2015	Laterite	338/1	Vazhakkad	Kondotty	Malappuram	24 Cents	25/11/2015	24/11/2016	75000
354	Ali Mammad P S/o Moideen Palakkal Palliyali Akkara House Valluvambram	354/15- 16/Lt/Dom/M- 2623/15 dtd 25/11/2015	Laterite	132/2	Pandallur	Ernad	Malappuram	19.43 Ares	25/11/2015	24/11/2016	150000
355	Nameer Kalathingal S/o Hussain, Shamna Manzil, Morayur.P.O.	355/15- 16/Lt/Dom/M- 2381/15 dtd 25/11/2015	Laterite	160/1	Payyanad	Ernad	Malappuram	9.71 Ares	25/11/2015	24/11/2016	75000
356	Muhammed Ashraf Malayil, Malayil House, Thachinganad.	356/15- 16/Lt/Dom/M- 2624/15 dtd 25/11/2015	Laterite	90/2 B, 90/1	Nenmini	Perinthalmanna	Malappuram	24 cents	25/11/2015	24/11/2016	75000
357	P.K.Dasan Namboodiri, S/o Damodaran Namboodiri, Vrindavanam, Vaniyambalam.	357/15- 16/Lt/Dom/M- 2626/15 dtd 25/11/2015	Laterite	21/1 pt	Poroor	Nilamabur	Malappuram	9.72 Ares	25/11/2015	24/11/2016	75000
358	Abdul Saleem, S/o Moyinkutty Musliar, Cheemadan House, Nallamthanni.P.O.	358/15- 16/Lt/Dom/M- 2675/15 dtd 25/11/2015	Laterite	469/2	Mampad	Nilamabur	Malappuram	9.72 Ares	25/11/2015	24/11/2016	75000
359	Muhammadali.M.K.S/o Alavikutti, Thekkumpurath House, Parambil Peedika.P.O.	359/15- 16/Lt/Dom/M- 2528/15 dtd 25/11/2015	Laterite	70/2	Thennala	Thirurangadi	Malappuram	24 cents	25/11/2015	24/11/2016	75000
360	V.M.Sarafuddin, S/o Saithalavi, Vattamanil House, Perassannur.	360/15- 16/Lt/Dom/M- 1477/15 dtd 25/11/2015	Laterite	380/1 C	Kuttipuram	Tirur	Malappuram	380/1 C	25/11/2015	24/11/2016	75000

361	Shanavas.P.S/o Muhammed, Pathur House, Puthuparamb, Edarikode(via)	361/15-16/Lt/Dom/M-2655/15 dtd 27/11/2015	Laterite	140/1	Edarikode	Thirurangadi	Malappuram	17.7 cents	27/11/2015	26/11/2016	75000
362	E.Ahamed S/o Saidalavi, Edathat House, Pallikkal.P.O.	362/15-16/Lt/Dom/M-2659/15 dtd 27/11/2015	Laterite	208	Kannamangalam	Thirurangadi	Malappuram	9.72	27/11/2015	26/11/2016	75000
363	K.Shoukathali, S/o Hyder, Kalleppuram House, Pallikkal.	363/15-16/Lt/Dom/M-2660/15 dtd 27/11/2015	Laterite	208	Kannamangalam	Thirurangadi	Malappuram	9.72	27/11/2015	26/11/2016	75000
364	P.P.Abdul Jaleel S/o Abdu, Palliyali Peediyekkal House, P.O.Melmuri.	364/15-16/Lt/Dom/M-2732/15 dtd 27/11/2015	Laterite	143/1	Ponmala	Tirur	Malappuram	48 Cents	27/11/2015	26/11/2016	150000
365	Abdu S/o Kunhayamu, Kodappana House, Amminikkad.	365/15-16/Lt/Dom/M-2653/15 dtd 27/11/2015	Laterite	1-	Kuruvambalam	Perinthalmanna	Malappuram	9.73 Cents	27/11/2015	26/11/2016	75000
366	Abdulla.K. S/o Muhammed, Kappikuzhiyil House, Kadambod,	366/15-16/Lt/Dom/M-2673/15 dtd 27/11/2015	Laterite	249	Anakkayam	Ernad	Malappuram	9.73 Ares	27/11/2015	26/11/2016	75000
367	Usman.K. S/o Unneenkutty, Kunnath House, Vellila.P.O.	367/15-16/Lt/Dom/M-1770/15 dtd 27/11/2015	Laterite	106/4	Angadipuram	Perinthalmanna	Malappuram	24 Cents	27/11/2015	26/11/2016	75000
368	K.Ibrahim S/o Ahamed Haji, Karivattath House, Edarikkod.	368/15-16/Lt/Dom/M-2773/15 dtd 27/11/2015	Laterite	379	Kottakkal	Tirur	Malappuram	18.90 Ares	27/11/2015	26/11/2016	150000
369	E.Ahamed S/o Saidalavi, Edathat House, Pallikkal.P.O.	369/15-16/Lt/Dom/M-2768/15 dtd 01/12/2015	Laterite	208	Kannamangalam	Thirurangadi	Malappuram	37.65 Ares	12-01-2015	30/11/2016	150000
370	Ashik Abdulla, S/o Kunhimammed , Appada House, Ayoor.	370/15-16/Lt/Dom/M-2242/15 dtd 02/12/2015	Laterite	297/4	Kottakkal	Tirur	Malappuram	9.45 Ares	12-02-2015	02-06-2016	45360
371	Noushad Paramban S/o Hussain, Paramban House, Chappanangadi.	371/15-16/Lt/Dom/M-2103/15 dtd 02/12/2015	Laterite	151/8	Kottakkal	Tirur	Malappuram	9.36 Ares	12-02-2015	12-01-2016	75000

372	Abdul Munas.M. S/o Moidu, Maniyarayil House, Vadakkangara.	372/15-16/Lt/DOM/M-2511/15 dtd 02/12/2015	Laterite	57/22	Valambur	Perinthalmanna	Malappuram	9.71 Ares	12-02-2015	12-01-2016	75000
373	Aboobacker Kannan Kunnan, S/o Moideen Kutti, Kannankunnan House, Pattarkadav	373/15-16/Lt/DOM/M-2810/15 dtd 02/12/2015	Laterite	161	Panakkad	Ernad	Malappuram	9.71 Ares	12-02-2015	12-01-2016	75000
374	Kunhimoideenkutty S/o Hamza, Mulanhipulakka House, Indiannoor.	374/15-16/Lt/DOM/M-2516/15 dtd 02/12/2015	Laterite	327/2	Kottakkal	Tirur	Malappuram	19.3 Ares	12-02-2015	12-01-2016	150000
375	Shoukathali S/o Saidalikutti, Pookkunnumal House, Mampad.	375/15-16/Lt/DOM/M-2639/15 dtd 02/12/2015	Laterite	109/4	Mampad	Nenmini	Malappuram	9.72 Ares	12-02-2015	12-01-2016	75000
376	Ahammedkutty.K.K.S/o Eantheen, Kollarkuzhiyil House, Kallarmangalam.	376/15-16/Lt/DOM/M-2374/15 dtd 04/12/2015	Laterite	190/2	Athavanad	Tirur	Malappuram	19.42 Ares	12-04-2015	12-03-2016	150000
377	Subaiir S/o Hassainar, Pariyarth House, Kottakkal.	377/15-16/Lt/DOM/M-2769/15 dtd 04/12/2015	Laterite	120 A /1	Puzhakattiri	Perinthalmanna	Malappuram	19.42 Ares	12-04-2015	12-03-2016	150000
378	Hamza.M. S/o Muhammed Haji, Mulanhipulan House, Indianoor.	378/15-16/Lt/DOM/M-2715/15 dtd 04/12/2015	Laterite	413/3	Ponmala	Tirur	Malappuram	48 cents	12-04-2015	12-03-2016	150000
379	Koyappu Kottaram, S/o Kunhimammed, Kottaram House, Indianoor.	379/15-16/Lt/DOM/M-2716/15 dtd 04/12/2015	Laterite	413/3	Ponmala	Tirur	Malappuram	48 cents	12-04-2015	12-03-2016	150000
380	Muhammed Shihab S/o Moidu, Cheenadan Alangod, Edayur.	380/15-16/Lt/DOM/M-2149/15 dtd 07/12/2015	Laterite	173/7	Kuruva	Perinthalmanna	Malappuram	8.9Ares(22 cents)	12-07-2015	12-06-2016	75000
381	Muhammed Musthafa S/o Kunhalan Kutti, Chirutha paramban House, Vattallur.P.O.	381/15-16/Lt/DOM/M-2678/15 dtd 07/12/2015	Laterite	3/3, 3/4	Kuruva	Perinthalmanna	Malappuram	19.43 Ares	12-07-2015	12-06-2016	150000
382	Ibrahim Pulikkal S/o Muhammed, Pulikkal House, Kadampuzha.	382/15-16/Lt/DOM/M-2764/15 dtd 07/12/2015	Laterite	228/2 B	Melmuri	Tirur	Malappuram	9.71 Ares	12-07-2015	12-06-2016	75000

383	Moosa.C.K., S/o Muhammed, Kannadi Kuzhiyil House, Vazhayoor.	383/15-16/Lt/DOM/M-2556/15 dtd 07/12/2015	Laterite	65/5	Vazhayoor	Kondotty	Malappuram	9.70 Ares	12-07-2015	12-06-2016	75000
384	Ratheesh.K.P. S/o Velayudhan, Kolippara House, Kadampuzha.	384/15-16/Lt/DOM/M-2765/15 dtd 07/12/2015	Laterite	99/5	Ponmala	Tirur	Malappuram	9.71 Ares	12-07-2015	12-06-2016	75000
385	Muhammed Ashraf.C.P., S/o Moideen, Chakkiparamban House, Chattiparamb.	385/15-16/Lt/DOM/M-2333/15 dtd 07/12/2015	Laterite	108/1 A	Kodur	Perinthalmanna	Malappuram	9.71 Ares	12-07-2015	12-06-2016	75000
386	Abdul Latheer W/o Mammadeesa Haji, Neerangattu House, Pallikkal.	386/15-16/Lt/DOM/M-2697/15 dtd 07/12/2015	Laterite	636/11,13,14,10	Vallikunnu	Thirurangadi	Malappuram	9.71 Ares	12-07-2015	12-06-2016	75000
387	Sainudheen S/o Koyakutti Ponneth House Cheror P.O	387/15-16/Lt/DOM/M-2380/15 dtd 07/12/2015	Laterite	152/1	Kannamangalam	Thirurangadi	Malappuram	19.42 Ares	12-09-2015	12-08-2016	150000
388	Balan S/o Kottan, Akkarammal House, Kuzhimanna.	388/15-16/Lt/DOM/M-2557/15 dtd 09/12/2015	Laterite	134	Kodur	Perinthalmanna	Malappuram	19.43 Ares	12-09-2015	12-08-2016	150000
389	Haneefa.P.K.S/o Alavikutty, Puttekkadan House, Peruvallur.	389/15-16/Lt/DOM/M-2948/15 dtd 09/12/2015	Laterite	418/3	Kannamangalam	Thirurangadi	Malappuram	6.81 Ares	12-09-2015	12-08-2016	75000
390	Sakeeb Pullanippuram S/o Hamza, Pullanippuram, Marakkara.	390/15-16/Lt/DOM/M-2378/15 dtd 09/12/2015	Laterite	Bl.88, 104/1	Kuruva	Perinthalmanna	Malappuram	21 Cents	12-09-2015	12-08-2016	75000
391	Saravanam, S/o Sankaran, Kunnekatt House, Pariyapuram.	391/15-16/Lt/DOM/M-2772/15 dtd 09/12/2015	Laterite	251/9	Kuruva	Perinthalmanna	Malappuram	9.60 Cents	12-09-2015	12-08-2016	75000
392	Shamsuddin S/o saidalavi, Madathil Parambil House, Chemrakkattur.	392/15-16/Lt/DOM/M-2992/15 dtd 11/12/2015	Laterite	98/1/1	Edavanna	Ernad	Malappuram	8.86 Ares	12-11-2015	12-10-2016	75000
393	P.Shihabuddin S/o Kunhu Muhammed, Pulath House, Vaniyambalam.	393/15-16/Lt/DOM/M-2828/15 dtd 11/12/2015	Laterite	285/2	Wandoor	Nilambur	Malappuram	9.71 Ares	12-11-2015	12-10-2016	75000

394	Sulfikkar Ali.P.P.S/o Hussain Puthen Peedika House, Anchachavidi.P.O.	394/15-16/Lt/DOM/M-2827/15 dtd 11/12/2015	Laterite	225/3	Wandoor	Nilambur	Malappuram	9.71 Ares	12-11-2015	12-10-2016	75000
395	Jamal, S/o Moideen, Vakkayil House, Vadakkumpuram.	395/15-16/Lt/DOM/M-2128/15 dtd 11/12/2015	Laterite	213/3	Moorkkanad	Perinthalmanna	Malappuram	19.42 Ares	12-11-2015	12-10-2016	150000
396	Manoj.P.S/o Subramanyan, Pallath House, Kadampuzha.	396/15-16/Lt/DOM/M-2160/15 dtd 11/12/2015	Laterite	428	Edayur	Tirur	Malappuram	9.71 Ares	12-11-2015	12-10-2016	75000
397	Abdul Basith S/o Abdul Rasak, Pulliyil Madasseri House, Melmuri.P.O.	397/15-16/Lt/DOM/M-2607/15 dtd 15/12/2015	Laterite	1558 (Bl.Q8)	Melmuri	Ernad	Malappuram	9.74 Ares	15/12/2015	14/12/2016	75000
398	Abdul Jaleel.M. S/o Muhammed, Mecheri House, Chembrasserri.	398/15-16/Lt/DOM/M-2766/15 dtd 15/12/2015	Laterite	2826/7	Poroor	Nilambur	Malappuram	9.72 Ares	15/12/2015	14/12/2016	75000
399	Aabdussalam Manakkadavan S/o Saidalavi, Pattayil House, Pallikkal.P.O.	399/15-16/Lt/DOM/M-3044/15 dtd 15/12/2015	Laterite	214/4	Pulikkal	Kondotty	Malappuram	17 Cents	15/12/2015	14/12/2016	75000
400	Murugan S/o Thirumalai, Mothakkal House, P.O.Pang Chandi.	400/15-16/Lt/DOM/M-2842/15 dtd 16/12/2015	Laterite	11/3 B	Koottilangadi	Perinthalmanna	Malappuram	16 Cents	16/12/2015	15/12/2016	75000
401	Shihabuddin, S/o Aalavi, Poozhithara House, Pang South.	401/15-16/Lt/DOM/M-2379/15 dtd 16/12/2015	Laterite	120/A 1	Puzhakkattiri	Perinthalmanna	Malappuram	19.35 Ares	16/12/2015	15/12/2016	150000
402	Haneefa.A.S/o Eantheen, Angadan House, Venniyoor.	402/15-16/Lt/DOM/M-2760/15 dtd 18/12/2015	Laterite	87	Marakkara	Tirur	Malappuram	21 Cents	18/12/2015	17/12/2016	75000
403	Kunhimammed, S/o Mammatty, Chenadan Chalu Veettil House, Karekkad.	403/15-16/Lt/DOM/M-2600/15 dtd 18/12/2015	Laterite	157/1	Kuruva	Perinthalmanna	Malappuram	9.71 Ares	18/12/2015	17/12/2016	75000
404	Muhammed Abdul Liyakkath S/o Chekku Haji, Koorimannil Kaikkunnummal House, Kadambod.P.O.	404/15-16/Lt/DOM/M-2947/15 dtd 18/12/2015	Laterite	83/2	Pandallur	Ernad	Malappuram	9.72 Ares	18/12/2015	17/12/2016	75000

405	Rajeev.E.R., S/o Ramdas, Eriyad House, Iringallur	405/15-16/Lt/DOM/M-2952/15 dtd 18/12/2015	Laterite	450/2	Ponmala	Tirur	Malappuram	9.71 Ares	18/12/2015	17/12/2016	75000
406	Ismail, Annachampalli House, Thalakkadathur.P.O., Tirur	406/15-16/Lt/DOM/M-2329/15 dtd 18/12/2015	Laterite	210/1	Melmuri	Tirur	Malappuram	9.71 Ares	18/12/2015	17/12/2016	75000
407	Aajaykumar.K.V.S/o Vasu, Kaippada Malayil House, Parambil Peedika.	407/15-16/Lt/DOM/M-2875/15 dtd 18/12/2015	Laterite	315/1	Peruvallur	Thirurangadi	Malappuram	315/1	18/12/2015	17/12/2016	150000
408	Muhammedkutty, Veshnampara House, Edayur.P.O.	408/15-16/Lt/DOM/M-2446/15 dtd 18/12/2015	Laterite	251/9	Kuruva	Perinthalmanna	Malappuram	9.72 Ares	21/12/2015	20/12/2016	75000
409	Hussain.M. S/o Muhammed Haji, Mulanhipulan House, Indianoor.	409/15-16/Lt/DOM/M-2770/15 dtd 21/12/2015	Laterite	325/7	Kottakkal	Tirur	Malappuram	14.5 Cents	21/12/2015	20/12/2016	75000
410	Abdullakutty.M.P., S/o Muhammed, Machingapurayi House, Cheruvayoor.	410/15-16/Lt/DOM/M-2677/15 dtd 21/12/2015	Laterite	67	Vazhakkad	Kondotty	Malappuram	9.71 Ares	21/12/2015	20/12/2016	75000
411	Noushad.N. S/o Hassan Koya, Nharal House, Cheekod.	411/15-16/Lt/DOM/M-1470/15 dtd 21/12/2015	Laterite	Bl.27- 72/2	Urangattiri	Ernad	Malappuram	9.72 Ares	21/12/2015	20/12/2016	75000
412	Abdullakutti S/o Mammad, Paliyamkunnath House, Kadambod.	412/15-16/Lt/DOM/M-2375/15 dtd 23/12/2015	Laterite	566/ 1 B	Payyanad	Ernad	Malappuram	24 Cents	23/12/2015	22/12/2016	75000
413	K.Shamsuddin S/o Muhammed Haji, Kunnath House, Edayur North.	413/15-16/Lt/DOM/M-3046/15 dtd 23/12/2015	Laterite	240 A	Moorkkanad	Perinthalmanna	Malappuram	24 Cents	23/12/2015	22/12/2016	75000
414	Shihab.K.S/o Muhammed, Kundil House, Kadampuzha.	414/15-16/Lt/DOM/M-3045/15 dtd 23/12/2015	Laterite	396/2	Edayur	Tirur	Malappuram	24 Cents	23/12/2015	22/12/2016	75000
415	K.P.Velayudhan S/o Kotha, Kallingal Parambil House, Valancheri.	415/15-16/Lt/DOM/M-3106/15 dtd 23/12/2015	Laterite	1/1 A	Pulamanthole	Perinthalmanna	Malappuram	24 Cents	23/12/2015	22/12/2016	75000

416	Muhammed Basheer S/o Kammukutti, Chodayil House, Pulikkal.P.O.	416/15-16/Lt/DOM/M-2159/15 dtd 28/12/2015	Laterite	205/1	Palikkal	Kondotty	Malappuram	7.28 Ares	28/12/2015	27/12/2016	75000
417	K.P.Sreedharan, S/o Velukutti, Sree Nilayam, Pulikkal.P.O.	417/15-16/Lt/DOM/M-3124/15 dtd 28/12/2015	Laterite	320/10	Cheekod	Kondotty	Malappuram	48 Cents	28/12/2015	27/12/2016	150000
418	Abdurahim, S/o Muhayuddin, Pazhayedathil House, Cheruvayoor.	418/15-16/Lt/DOM/M-2696/15 dtd 28/12/2015	Laterite	243/3	Pulikkal	Kondotty	Malappuram	9.72 Ares	28/12/2015	27/12/2016	75000
419	Abdul Hameed S/o Alavi, Puthalath House, Olakara.	419/15-16/Lt/DOM/M-3222/15 dtd 30/12/2015	Laterite	152/1	Kannamangalam	Thirurangadi	Malappuram	9.72 Ares	30/12/2015	29/12/2016	75000
420	Jamshan Abdunafi.TT.D/o Muhammed Haneefa, Thacheeri Padikkal Thazhath, Cheroor.P.O.	420/15-16/Lt/DOM/M-3102/15 dtd 30/12/2015	Laterite	152/1	Kannamangalam	Thirurangadi	Malappuram	24 Cents	30/12/2015	29/12/2016	75000
421	Thomas, S/o Yohannan, Alancheri House, Palachuvad.P.O.	421/15-16/Lt/DOM/M-2776/15 dtd 30/12/2015	Laterite	7/ 5	Moorkkanad	Perinthalmanna	Malappuram	24 Cents	30/12/2015	29/12/2016	75000
422	M.Sivadasan, S/o Karunakaran, Mattayil House, Kurumbathur.	422/15-16/Lt/DOM/M-3178/15 dtd 30/12/2015	Laterite	288	Kurumbathur	Tirur	Malappuram	9.71 Ares	30/12/2015	29/12/2016	75000
423	Muhammeekutti.V.C.S/o Aboobacker, Parakkat House, Ullanam.P.O.	423/15-16/Lt/DOM/M-3239/15 dtd 1/1/2016	Laterite	208	Kannamangalam	Thirurangadi	Malappuram	19.42 Ares	01-01-2016	31/12/2017	150000
424	Sameer.T., S/o Moyin, Thondiyil House, Kappil.P.O.	424/15-16/Lt/DOM/M-3104/15 dtd 1/1/2016	Laterite	124/1	Mampad	Nilambur	Malappuram	9.72 Ares	01-01-2016	31/12/2017	75000
425	Gangadharan S/o Rarichankutti, Malayil House, Kannenkara.	425/15-16/Lt/DOM/M-2640/15 dtd 6/1/2016	Laterite	6/ 1 pt	Vettilappara	Ernad	Malappuram	9.71 Ares	01-06-2016	01-05-2017	75000
426	Rinesh.P.K. S/o Ramachandran, Puthukulangara, Kodur.P.O.	426/15-16/Lt/DOM/M-3130/15 dtd 11/1/2016	Laterite	99/1	Ponmala	Tirur	Malappuram	9.2 Ares	01-11-2016	01-10-2017	75000

427	Balakrishnan S/o Kunhiperunthan, Vellangara House, Kannamangalam.	427/15-16/Lt/DOM/M-2580/15 dtd 11/1/2016	Laterite	199/2	Kannamangalam	Thirurangadi	Malappuram	24 Cents	01-11-2016	01-10-2017	75000
428	Ayoob S/o Avarankutti, Thangal Parambil House, Thavanoor.	428/15-16/Lt/DOM/M-1807/15 dtd 11/1/2016	Laterite	60	Edayur	Tirur	Malappuram	9.71 Ares	01-11-2016	01-10-2017	75000
429	Pugalenthi.R. S/o Rathinam, Kariaparambath House, Kadampuzha.	429/15-16/Lt/DOM/M-3129/15 dtd 11/1/2016	Laterite	326/2	Ponmala	Tirur	Malappuram	9.6 Ares	01-11-2016	01-10-2017	75000
430	Siddique Kalodi, S/o Kunhippu, Kalodi House, Karipol.	430/15-16/Lt/DOM/M-3128/15 dtd 11/1/2016	Laterite	34/4 A	Kattiparuthi	Tirur	Malappuram	9.9 Ares	01-11-2016	01-10-2017	75000
431	Noushad, S/o Muhammed Kutti, Kottampara Chakkingal House, Edayur.	431/15-16/Lt/DOM/M-1808/15 dtd 11/1/2016	Laterite	60	Edayur	Tirur	Malappuram	9.71 Ares	01-11-2016	01-10-2017	75000
432	Shamsuddin.P.P.S/o Abdulla, Pathodi Parasser House, Vilayil.P.O.	432/15-16/Lt/DOM/M-3246/15 dtd 13/1/2016	Laterite	175/2	Keezhuparamb	Ernad	Malappuram	24 Cents	13/1/2016	01-12-2017	75000
433	Rasheed Thaikkadan, Thaikkadan House, Kottakkal.	433/15-16/Lt/DOM/M-3173/15 dtd 13/1/2016	Laterite	32/1/1	Kottakkal	Tirur	Malappuram	9.45 Ares	13/1/2016	01-12-2017	75000
434	#NAME?										
435	K.Muhammadali, S/o Mayin Haji, Karimungal House, Mongam.	435/15-16/Lt/DOM/M-1816/15 dtd 15/1/2016	Laterite	B.46 - 14/6	Pandallur	Ernad	Malappuram	9.71 Ares	15/1/2016	14/1/2017	75000
436	V.T.Moideenkutty S/o Muhammed, Vellamkunnan Thanikkal, Pulpatta.	436/15-16/Lt/DOM/M-2545/15 dtd 18/1/2016	Laterite	51/7	Vadakkangara	Perinthalmanna	Malappuram	9.71 Ares	18/1/2016	17/1/2017	75000
437	Firozkhan S/o Moideen, Mulanhipulakkal House, Indianoor.	437/15-16/Lt/DOM/M-3276/15 dtd 18/1/2016	Laterite	210/1, 2	Kottakkal	Tirur	Malappuram	9.39 Ares	18/1/2016	17/1/2017	75000

438	Muhammed Shafi, S/o Kunheethu, Mullappalli House, Koottilangadai.	438/15-16/Lt/DOM/M-87/15 dtd 18/1/2016	Laterite	138/1	Koottilangadi	Perinthalmanna	Malappuram	9.71 Ares	18/1/2016	17/1/2017	75000
439	P.T.Anilkumar, Parammalthodi House, Vadakkunpuram	439/15-16/Lt/DOM/M-3242/15 dtd 20/1/2016	Laterite	380/1 C	Kuttipuram	Tirur	Malappuram	9.71 Ares	20/1/2016	19/1/2017	75000
440	Manikandan, S/o Shanmuhun, Manjagatt House, Eruvakkod.	440/15-16/Lt/DOM/M-3241/15 dtd 20/1/2016	Laterite	380/1 C	Kuttipuram	Tirur	Malappuram	9.71 Ares	20/1/2016	19/1/2017	75000
441	Abdul Jaleel, Palliyil Peediyekkal House, P.O.Melmuri.	441/15-16/Lt/DOM/M-3018/15 dtd 20/1/2016	Laterite	395	Pookottur	Ernad	Malappuram	48 Cents	20/1/2016	19/1/2017	150000
442	Moideenkuty, Maliyekkal House, S/o Kunhikammu, Edayur.P.O.	442/15-16/Lt/DOM/M-3084/15 dtd 22/1/2016	Laterite	296/1	Irimbilyam	Tirur	Malappuram	9.71 Ares	22/1/2016	21/01/2017	75000
443	Kunhimammed S/o Abdu, Thulunadan House, Kurumbathoor.	443/15-16/Lt/DOM/M-92/16 dtd 27/1/2016	Laterite	292/2 B	Irimbilyam	Tirur	Malappuram	9.71 Ares	27/1/2016	26/1/2017	75000
444	Faris.K.M., S/o Aboobacker, Kiliyamannil House, Pang South.P.O.	444/15-16/Lt/DOM/M-175/16 dtd 27/1/2016	Laterite	251/17 B	Kuruva	Perinthalmanna	Malappuram	19.42 Ares	27/1/2016	26/1/2017	150000
445	Sharafuddeen S/o Alavikutti, Achayithodi House, Puzhakattiri.	445/15-16/Lt/DOM/M-18/16 dtd 27/1/2016	Laterite	18	Koottilangadi	Perinthalmanna	Malappuram	18	27/1/2016	26/1/2017	75000
446	Muhammed Shafi, S/o Saidalavi, Nechiyan House, Olamathil.P.O.	446/15-16/Lt/DOM/M-3243/16 dtd 27/1/2016	Laterite	264	Payyanad	Ernad	Malappuram	24 Cents	27/1/2016	26/1/2017	75000
447	Noushad.P.K. S/o Aboobacker, Pattarkadavan House, P.O.Kodur.	447/15-16/Lt/DOM/M-2771/16 dtd 29/1/2016	Laterite	458/ 6 B	Kuruva	Perinthalmanna	Malappuram	9.71 Ares	29/1/2016	28/1/2017	75000
448	Achuthan Nair Ambalakkatt House Edayur North P.o	448/15-16/Lt/DOM/M-26/16 dtd 01/02/2016	Laterite	43/	Pathaikkara	Perinthalmanna	Malappuram	24 Cents	02-01-2016	31/1/2017	75000

449	Abdul Basheer S/o Alavikutty, Machingal House, Pulpatta.	449/15-16/Lt/DOM/M-2775/15 dtd 03/02/2016	Laterite	7/5	Moorkkanad	Perinthalmanna	Malappuram	25 Cents	02-03-2016	02-02-2017	75000
450	Hussain Thaikkadan S/o Aboobacker Haji, Thaikkadan House, Indianoor.P.O.	450/15-16/Lt/DOM/M-42/16 dtd 03/02/2016	Laterite	Bl.42- 89/1	Ponmala	Tirur	Malappuram	9.61 Ares	02-03-2016	02-02-2017	75000
451	Mahesh S/o Sivasankaran, Vattakandathil House, Pullancheri.	451/15-16/Lt/DOM/M-195/16 dtd 03/02/2016	Laterite	112/1	Manjeri	Ernad	Malappuram	24 Cents	02-03-2016	02-02-2017	75000
452	Abdul Latheef, Mankulangara House, Melmuri.	452/15-16/Lt/DOM/M-261/16 dtd 03/02/2016	Laterite	Bl.14 - 64/3	Muthuvalloor	Kondotty	Malappuram	19.48 Ares	02-03-2016	02-02-2017	150000
453	Mattummal Sharafuddin, S/o Kunheethu, Mattummal House, Randathani.	453/15-16/Lt/DOM/M-88/16 dtd 03/02/2016	Laterite	283	Kottakkal	Tirur	Malappuram	9.60 Ares	02-03-2016	02-02-2017	75000
454	Ashraf Unni S/o Kutti Hassan, Puthan Peediyekkal House, Kadampuzha.	454/15-16/Lt/DOM/M-159/16 dtd 05/02/2016	Laterite	180	Melmuri	Tirur	Malappuram	24 Cents	02-05-2016	02-04-2017	75000
455	Faisal .P.N.S/o Moosa, Palempadiyan Nedumkalathil House, Koottilangadi.	455/15-16/Lt/DOM/M-208/16 dtd 08/02/2016	Laterite	138/1	Kottilangadi	Perinthalmanna	Malappuram	48 Cents	02-08-2016	02-07-2017	150000
456	Majeed S/o Kunhimammed, Kambran House, Kuttoor.P.O.	456/15-16/Lt/DOM/M-128/16 dtd 08/02/2016	Laterite	45	Kannamangalam	Thirurangadi	Malappuram	24 Cents	02-08-2016	02-07-2017	75000
457	Abdullakutti S/o Kunhalassan Haji, Pullatt House, Kannamangalam.P.O.	457/15-16/Lt/DOM/M-91/16 dtd.08/02/2016	Laterite	154/1 A	Kannamangalam	Thirurangadi	Malappuram	48 Cents	02-08-2016	02-07-2017	150000
458	Siddique S/o Saidutty, Therolo Pottammal House, Pantheeramkav, Calicut - 19	458/15-16/Lt/DOM/M-126/16 dtd.08/02/2016	Laterite	469/5, 14	Vazhakkad	Kondotty	Malappuram	24 Cents	02-08-2016	02-07-2017	75000
459	Shaji, S/o Ayyappunni, Punathil House, Kodakkad.	459/15-16/Lt/DOM/M-308/16 dtd.08/02/2016	Laterite	165	Kannamangalam	Thirurangadi	Malappuram	24 Cents	02-08-2016	02-07-2017	75000

460	Sarafuddin.M.S/o Muhammed Kutti, Mulanhipulakkal House, P.O.Indianoor.	460/15-16/Lt/ DOM/M-3275/15 dtd.10/02/2016	Laterite	105/1 A	Kuruva	Perinthalmanna	Malappuram	24 Cents	02-10-2016	02-09-2017	75000
461	Aboobacker.C.S/o Moideenkutty, Chullila Valappil House, Kadancheeri.	461/15-16/Lt/ DOM/M-2284/15 dtd.10/02/2016	Laterite	415/2	Thavanur	Ponnani	Malappuram	24 Cents	02-10-2016	02-09-2017	75000
462	Moideenkoya S/o Ali, Karattapurayil House, P.O.Pallikkal.	462/15-16/Lt/ DOM/M-324/16 dtd.10/02/2016	Laterite	208	Kannamangalam	Thirurangadi	Malappuram	19.42 Ares	02-10-2016	02-09-2017	150000
463	Nasheed Ameen S/o Abdul Azeez, Palakkan House, Melmuri.	463/15-16/Lt/ DOM/M-428/16 dtd.17/02/2016	Laterite	143/3, 6	Ponmala	Tirur	Malappuram	24 Cents	17/2/2016	16/2/2017	75000
464	N.Abdulla S/o Ahammed Haji, Nambikunnnan House, Mariyad.	464/15-16/Lt/ DOM/M-427/16 dtd.17/02/2016	Laterite	143/3, 6	Ponmala	Tirur	Malappuram	9.71 Ares	17/2/2016	16/2/2017	75000
465	Abdul Majeed .N., Nechikattil House, Indianoor.	465/15-16/Lt/ DOM/M-212/16 dtd.19/02/2016	Laterite	45/4 A	Melmuri	Tirur	Malappuram	24 cents	19/2/2016	18/2/2017	75000
466	K.Bhavada, S/o Parameswaran Namboodiri, PNK Mana, Sukapuram.	466/15-16/Lt/ DOM/M-3235/15 dtd.19/02/2016	Laterite	70/2	Vattamkulam	Ponnani	Malappuram	24 Cents	19/2/2016	18/2/2017	75000
467	Abdul Hakkim S/o Muhammed Haji, Ennakkad House, Pulpatta.	467/15-16/Lt/ DOM/M-266/16 dtd.19/02/2016	Laterite	243/pt	Pulpatta	Ernad	Malappuram	24 Cents	19/2/2016	18/2/2017	75000
468	Balakrishnan S/o Velayudhan, Kariadathukunnu, Pallikkal.P.O.	468/15-16/Lt/ DOM/M-39 /16 dtd.19/02/2016	Laterite	140/9	Cheekod	Kondotty	Malappuram	19.43 Ares	19/2/2016	18/2/2017	150000
469	Hameed S/o Hydru, Chalappurath House, Alanallur, Edathanattukara.	469/15-16/Lt/ DOM/M-2336 /15 dtd.19/02/2016	Laterite	88/5	Keezhattoor	Perinthalmanna	Malappuram	24 Cents	19/2/2016	18/2/2017	75000
470	Muhammed Rafeeq Chungath, S/o Marakkara, Chungath, Tirurkad.	470/15-16/Lt/ DOM/M-346 /16 dtd.19/02/2016	Laterite	74/5	Vadakkangara	Perinthalmanna	Malappuram	9.71 Ares	19/2/2016	18/2/2017	75000
471	Abbas Ali.K. S/o Eantheen Haji, Kanakkayil House, Chengottur.P.O.	471/15-16/Lt/ DOM/M-258 /16 dtd.19/02/2016	Laterite	66/ 1	Puzhakattiri	Perinthalmanna	Malappuram	48 Cents	19/2/2016	18/2/2017	150000

472	Abbas Ali.K. S/o Eantheen Haji, Kanakkayil House, Chengottur.P.O.	472/15-16/Lt/ DOM/M-284 /16 dtd.19/02/2016	Laterite	240/A	Moorkkanad	Perinthalmanna	Malappuram	9.71 Ares	19/2/2016	18/2/2017	75000
473	Muneer.V.S/o Hamza, Varikkodan House, Kodur.	473/15-16/Lt/ DOM/M-2524 /15 dtd.19/02/2016	Laterite	413/3	Ponmala	Tirur	Malappuram	9.71 Ares	19/2/2016	18/2/2017	75000
474	Shihabuddin.M.S/o Moideen, Pudevalli House, Karekkad.	474/15-16/Lt/ DOM/M-8 /16 dtd.19/02/2016	Laterite	413/3	Ponmala	Tirur	Malappuram	9.55 Ares	19/2/2016	18/2/2017	75000
475	Usmankutti, S/o Alavikutti, Thanikkal House, Kadampuzha.	475/15-16/Lt/ DOM/M-2527 /15 dtd.22/02/2016	Laterite	64/1	Pulamanhole	Perinthalmanna	Malappuram	48 cents	22/2/2016	21/2/2017	150000
476	Siddique.K.S/o Muhammed Kutti, Kambran Hose, Kottakkal.	476/15-16/Lt/ DOM/M- 158 /16 dtd.22/02/2016	Laterite	178/4	Ponmala	Tirur	Malappuram	24 cents	22/2/2016	21/2/2017	75000
477	BeeranSs/o Muhammed Haji, Thoombath House, Edarikkod.	477/15-16/Lt/ DOM/M- 2762 /15 dtd.22/02/2016	Laterite	394/9	Kottakkal	Tirur	Malappuram	9.54 Cents	22/2/2016	21/2/2017	75000
478	Moideen S/o Pocker Haji, Kuzhikkattu Cholakkal House, Peruvallur.	478/15-16/Lt/ DOM/M- 40 /16 dtd.24/02/2016	Laterite	374/2	Peruvallur	Thirurangadi	Malappuram	21 cents	24/2/2016	23/2/2017	75000
479	Haridasan Pallikkara S/o Imbichi Pallikkara House Parambil Peedika	479/15-16/Lt/ DOM/M- 129 /16 dtd.24/02/2016	Laterite	154/2 A, 2 B	Kannamangalam	Thirurangadi	Malappuram	48 Cents	24/2/2016	23/2/2017	150000
480	Saleem.K.P. S/o Ali, Kallee Parambil House, Kunnapalli.	480/15-16/Lt/ DOM/M- 194 /16 dtd.24/02/2016	Laterite	221	Pathaikkara	Perinthalmanna	Malappuram	24 Cents	24/2/2016	23/2/2017	75000
481	Mammu M S/o Kunhimammed Machincheri House Edayur North P.O	481/15-16/Lt/ DOM/M- 3085 /15 dtd.26/02/2016	Laterite	109	Edayur	Tirur	Malappuram	24 Cents	26/2/2016	25/2/2017	75000
482	Usmankutti, S/o Alavikutti, Thanikkal House, Kadampuzha.	482/15-16/Lt/ DOM/M- 3236/15 dtd.2/3/2016	Laterite	232/2	Melmuri	Tirur	Malappuram	40.5 Cents	03-02-2016	03-01-2017	150000
483	Abdul Kareee S/o Rayinkutti, Ambalikulambad House, Puthoor Pallkkal.	483/15-16/Lt/ DOM/M- 513/16 dtd.2/3/2016	Laterite	188/4	Kannamangalam	Thirurangadi	Malappuram	9.72 Cents	03-02-2016	03-01-2017	75000

484	P.Musthafa S/o Abdul Khader, Puthukulangarappadi, Mannur.	484/15-16/Lt/DOM/M- 426/16 dtd.2/3/2016	Laterite	50/2	Kannamangalam	Thirurangadi	Malappuram	24 Cents	03-02-2016	03-01-2017	75000
485	Abu Thahir S/o Kunhali kutty Pandikkadavath House Oorakam Melmuri	485/15-16/Lt/DOM/M-387/16 dtd.2/3/2016	Laterite	47/5	Koottilangadi	Perinthalmanna	Malappuram	9.63 Ares	03-02-2016	03-01-2017	75000
486	Muhammed Yasin S/o sainudheen, Thalappil House, Pang Chandi.	486/15-16/Lt/DOM/M-113/16 dtd.2/3/2016	Laterite	157/7	Kuruva	Perinthalmanna	Malappuram	24 Cents	03-02-2016	03-01-2017	75000
487	Ayoob.P.T.S/o Avaran, Pattammarthodi House, Irimbiliyam.	487/15-16/Lt/DOM/M-347/16 dtd.4/3/2016	Laterite	210/1 A	Irimbiliyam	Tirur	Malappuram	9.71 Ares	03-04-2016	03-03-2017	75000
488	JafarS/o Alavikutti, Paraparambil House, Karekkad.	488/15-16/Lt/DOM/M-3078/15 dtd.4/3/2016	Laterite	1/	Edayur	Tirur	Malappuram	9.71 Ares	03-04-2016	03-03-2017	75000
489	Kamalahassan S/o Bhaskaran, Palamkulangara House, pulikkal.	489/15-16/Lt/DOM/M-89/16 dtd.4/3/2016	Laterite	243/3	Pulikkal	Kondotty	Malappuram	9.60 Ares	03-04-2016	03-03-2017	75000
490	Abdul Hakkim S/o Muhammed Haji, Ennakkad House, Pulpatta.	490/15-16/Lt/DOM/M-600/16 dtd.9/3/2016	Laterite	249/2	Morayur	Kondotty	Malappuram	249/2	03-09-2016	03-08-2017	75000
491	UmmerS/oAboobacker, Kunnathodi House, Vallikkapatta.	491/15-16/Lt/DOM/M-192/16 dtd.9/3/2016	Laterite	14/4	Koottilangadi	Perinthalmanna	Malappuram	24 Cents	03-09-2016	03-08-2017	75000
492	V.Abdul Majeed, S/o Moosa, Valluvambali, Vellayur.	492/15-16/Lt/DOM/M-3105/15 dtd.9/3/2016	Laterite	100/6	Pandallur	Ernad	Malappuram	9.72 Ares	03-09-2016	03-08-2017	75000
493	Shihabuddin S/o Alavi, Poozhithara House, P.O.Pang South	493/15-16/Lt/DOM/M-348/16 dtd.11/3/2016	Laterite	251/9	Kuruva	Perinthalmanna	Malappuram	9.71 Ares	03-11-2016	03-10-2017	75000
494	Chandra Babu.M.S/o Nagan, Manarkkal House, Olamathil.P.O.	494/15-16/Lt/DOM/M-285/16 dtd.11/3/2016	Laterite	243/pt	Pulpatta	Ernad	Malappuram	24 Cents	03-11-2016	03-10-2017	75000
495	Aliyamu Pulattil S/o Kunhimoideen, Pullattil House, Kadampuzha.	495/15-16/Lt/DOM/M-210/16 dtd.17/3/2016	Laterite	79	Melmuri	Tirur	Malappuram	8.8 Ares	17/3/2016	16/3/2017	75000
496	Saifuddin S/o Moideen kutty, Padinhattu parambil , Peruvallur.	496/2015-16/Lt/DOM/M-444/16 dtd.18/3/2016.	Laterite	208	Kannamangalam	Thirurangadi	Malappuram	24 Cents	18/3/2016	17/3/2017	75000

497	Faisal Babu S/o Muhammed, Nechikkadan House, Kadambod.	497/2015-16/Lt/DOM/M-563/16 dtd.21/3/2016.	Laterite	100/5	Pandallur	Ernad	Malappuram	9.72 Cents	21/3/2016	20/3/2017	75000
498	Shamsuddeenkutty S/o Koyakutti, Parappurath Palliyali House, Puthukkod.	498/2015-16/Lt/DOM/M-697/16 dtd.21/3/2016.	Laterite	351/3	Vazhayoor	Kondotty	Malappuram	12 Cents	21/3/2016	20/3/2017	75000
499	Abdul Gafoor S/o Muhammadali, Illippurath House, Puthukkod.	499/2015-16/Lt/DOM/M-698/16 dtd.21/3/2016.	Laterite	351/2	Vazhayoor	Kondotty	Malappuram	9.72 Ares	21/3/2016	20/3/2017	75000
500	E.Ahammed, Edathatt House, Pallikkal.P.O.	500/2015-16/Lt/DOM/M-695/16 dtd.21/3/2016.	Laterite	208	Kannamangalam	Thirurangadi	Malappuram	24 Cents	21/3/2016	20/3/2017	75000
501	Musthafa.N.S/o Kunhalavi, Nundath House, Chappanangadi.	501/2015-16/Lt/DOM/M-773/16 dtd.21/3/2016.	Laterite	66/1	Puzhakattiri	Perinthalmanna	Malappuram	24 Cents	21/3/2016	20/3/2017	75000
502	Ashraf.M. S/o Koyaa.M., Kozhisserimad, Puthoor Pallikkal.	502/2015-16/Lt/DOM/M-695/16 dtd.21/3/2016.	Laterite	424/16	Peruvallur	Thirurangadi	Malappuram	5.9 Ares	21/3/2016	20/3/2017	75000
503	Muhammed Rafi.K.S/o Ahammed Koya, Chakkumthodika, Pallikkal.P.O.	503/2015-16/Lt/DOM/M-666/16 dtd.21/3/2016.	Laterite	152/ 2 A	Kannamangalam	Thirurangadi	Malappuram	19.43 Ares	21/3/2016	20/3/2017	150000
504	V.K.Chekkutty S/o Kutti Avaran, Vellakkanakath, Karekkad.	504/2015-16/Lt/DOM/M-448/15 dtd.23/3/2016.	Laterite	251/6 B	Kuruva	Perinthalmanna	Malappuram	9.7 Ares	23/3/2016	22/3/2017	75000
505	Abdul Noufal.E.K. S/o Veeran, Eriyakkalam House, Pookkottur.	505/2015-16/Lt/DOM/M-403/16 dtd.23/3/2016.	Laterite	35	Panakkad	Ernad	Malappuram	9.71 Ares	23/3/2016	22/3/2017	75000
506	Shaji S/o Karikutty, Puliyodan House, Kumminiparamb.	506/2015-16/Lt/DOM/M-442/15 dtd.23/3/2016.	Laterite	180/	Kannamangalam	Thirurangadi	Malappuram	19.42 Ares	23/3/2016	22/3/2017	150000
507	P.Abdul Rasheed S/o Kunhumammed, Parakkadavath House, Kottakkal.	507/2015-16/Lt/DOM/M-2084/15 dtd.28/3/2016.	Laterite	166/3	Irimbiliyam	Tirur	Malappuram	19.40 Ares	28/3/2016	27/3/2017	150000

508	John.C.T. S/o Thomas, Chirathodi Housel Palankara.P.O.	508/2015- 16/Lt/DOM/M- 776/16 dtd.28/3/2016.	Laterite	65/pt	Nilambur	Nilambur	Malappuram	9.71 Ares	28/3/2016	27/3/2017	75000
509	Shafeeqe Thayyil, Thayyil House, Pazhamallur.	509/2015- 16/Lt/DOM/M- 344/16 dtd.28/3/2016.	Laterite	135/1	Kodur	Perinthalmanna	Malappuram	9.72 Ares	28/3/2016	27/3/2017	75000
510	Chinmayan S/o Chandukutty, Thattalath House, Manasseri.P.O.	510/2015- 16/Lt/DOM/M- 344/16 dtd.28/3/2016.	Laterite	6/ 1	Vettilapara	Ernad	Malappuram	9.71 Ares	28/3/2016	27/3/2017	75000
511	Muhammed N.K.. S/o Hamza, Naikath House, Koottil, Mankada.	511/2015- 16/Lt/DOM/M- 775/16 dtd.28/3/2016.	Laterite	59/1	Mankada	Perinthalmanna	Malappuram	9.71 Ares	28/3/2016	27/3/2017	75000
512	Muhammed Rafeeq, Kooliyodan House, Mallampara, Manjeri	512/2015- 16/Lt/DOM/M- 499/16 dtd.30/3/2016.	Laterite	138/1	Koottilangadi	Perinthalmanna	Malappuram	9.71 Ares	30/3/2016	29/3/2017	75000
513	Suresh Babu.K.P.S/o Arumughan, Velumbilankuzhi House, Cheruvayoor.	513/2015- 16/Lt/DOM/M- 355/16 dtd.30/3/2016.	Laterite	188/3	Cheekod	Kondotty	Malappuram	9.71 Ares	30/3/2016	29/3/2017	75000
514	Abdul Basith S/o Abdul Rasak, Pulliyil Madasseri House, Melmuri.P.O.	514/2015- 16/Lt/DOM/M- 694/16 dtd.30/3/2016.	Laterite	155 (Q 8)	Melmuri	Ernad	Malappuram	19.42 Ares	30/3/2016	29/3/2017	150000
515	Abdul Basith S/o Abdul Rasak, Pulliyil Madasseri House, Melmuri.P.O.	515/2015- 16/Lt/DOM/M- 696/16 dtd.30/3/2016.	Laterite	1558/2	Melmuri	Ernad	Malappuram	9.74 Ares	30/3/2016	29/3/2017	75000

Table 2e: List of Registered Metal Crusher Units - RMCU

Sl no	Concession holder's name and address	Concession no.	Mineral	Survey no	Village	Thaluk	No.of secondary crushers	Valid from	Valid to	Consolidated royalty(Rs)	Lease number(s)
1	M/s Poabson Granites Products p(Ltd),Thelakkad(po),Perinthalmanna,Malappuram	85/2015-16/RMCU/MLMP/3366/M3/2015	Granite Building Stone	59/2	Kariavattom	Perinthalmanna	4	30/03/2015	31/03/2016	12,00,000	1)No.575/2002-03/710/M3/03 dtd 14/2/03,(2)No.576/2002-03/711/M3/03 dtd 14/2/03,(3)No.65/2007-08/2310/M3/07 dtd 3/5/07
2	Mg:partner,Thomarappara Bricks & Metals,Panambilavu P.O, Areacode Malappuram ,Pin:673639	53/2015-16/RMCU/MLMP/3225/M3/2015	Granite Building Stone	6/1pt	Vetilappara	Eranad	3	28/03/2015	31/03/2016	4,50,000 + 4,50,000	No.126/2007-08/3739/M3/07 dtd 30/5/07
3	M.C.Mayin Haji,Mg :Director Calicut Granites(Pvt)(Ltd), Pullithody House P.O Nallalam ,Calicut Dt.	31/2015-16/RMCU/MLMP/3215/M3/2015	Granite Building Stone	266/1,2part	Cherukavu	Eranad	3	27/03/2015	31/03/2016	4,00,000	No.100/2007-08/3483 /M3/07 dtd 17/5/07
4	A M. Mohammedali Managing Partner Mubaraq Granite Chathallur P.O, Edavanna Malappuram Dist pin: 676541	03/2015-16/RMCU/MLMP/2825/M3/2015	Granite Building Stone	96pt,94pt(Block no.70)	Perakamanna	Eranad	2	18/03/2015	31/03/2016	3,00,000	No.268/2007-08/6021/M3/07 dtd 20/7/07
5	K.Kunhimoyin Managing Partner M/S Friends Crushers Valillapuzha ,Areacode Malappuram Dist.	11/2015-16/RMCU/MLMP/3018/M3/2015	Granite Building Stone	49/2pt Block 21	Keezhuparamba	Eranad	2	26/03/2015	31/03/2016	2,00,000	No.631/2007-08/8745/M3/07 dtd 27/11/07
6	V.Abdurahiman, Managing partner,Bismi Granites Industries, Kizhake Chathallur(po) Edavanna,Malappuram	131/2015-16/RMCU/MLMP/3573/M3/2015	Granite Building Stone	354/1	Perakamanna	Eranad	2	04-04-2015	31/03/2016	2,00,000	No.175/2008-9/5826/M3/08 dtd 17/6/08
7	M.M.Azad,Managing partner, M/s Malabar Bricks metals, Poovathikkal P.O,,Areacode Malappuram	132/2015-16/RMCU/MLMP/3583/M3/2015	Granite Building Stone	83/2	Urngettiri	Eranad	2	04-04-2015	31/03/2016	2,00,000	No.176/2008-09/5828/M3/08 dtd 17/6/08

8	O.Muhammed Shareef, Managing Director,M/s port land Granites p(Ltd), Pulikkal, Olavattur P.O Malappuram Dist. Pin:673638	45/2015- 16/RMCU/MLMP/ 3314/M3/2015	Granite Building Stone	171/8	Pulikkal	Eranad	4	28/3/2015	31/3/2016	5,00,000	No.548/2010-11/9135/ M3/12 dtd 26/11/12
9	P.K.Muhammed Asharaf, Managing Partner Hi-Tech Metals Naduvakkad,Oorakkam, Melmuri P.O, Malappuram - 676519	01/2015- 16/RMCU/MLMP/ 2504/M3/2015	Granite Building Stone	8/2unit	Oorakkam	Thirurangadi	3	03-11-2015	31/3/2016	4,00,000	No.439/2011-12/7485/ M3/11 dtd 12/10/11
10	N. Abdul Rasheed Nalakath House Perinthalmanna,Malappuram	114/2015- 16/RMCU/MLMP/ 3457/M3/2015	Granite Building Stone	13/1	Kariavattom	Perinthalmanna	1	31/3/2015	31/3/2016	4,00,000	No.588/214-15/1011/ M3/2014 dtd 25/11/2014
11	M/S Aranhikkal Granite Unit Pathappiriyam P.O Malappuram Dist. Pin:676123	26/2015- 16/RMCU/MLMP/ 3189/M3/2015	Granite Building Stone	113/pt	Edavanna	Eranad	3	26/03/2015	31/03/2015	7,00,000	No.668/2005- 06/1618/M3/06 dtd 22/2/06
12	Areacode Granited Pvt.Ltd Vakkaloor,Kavanoor P.O Malappuram Dist.	106/2015- 16/RMCU/MLMP/ 3456/M3/2015	Granite Building Stone	2,10,213	Kavanoor	Eranad	2	31/3/2015	31/3/2016	1,00,000 +1,00,000	No.579/214- 2015/8727/M3/2014 dtd 20/11/2014

Table 2f: List of Dealer's License granted for Granite building stone

<i>Sl no</i>	<i>Concession holder's name and address</i>	<i>Concession no.</i>	<i>Mineral</i>	<i>Survey no</i>	<i>Village</i>	<i>Thaluk</i>	<i>District</i>	<i>Area(ha)</i>	<i>Valid from</i>	<i>Valid to</i>	<i>Quantity</i>	<i>DL Fee(Rs)</i>
1	Abdul Salam E V Chernad Metal Works Valiyad Kooriyad	47/2014-15 Gr/Dom/m-2421/14 dtd 2/2/15	Granites Metal	271/3,8	Vengara	Thirurangadi	Malappuram	0.30 Acre	21/1/2015	31/03/2016	13500MT	25000
2	M P Muhammed Kutty S/o Khadar Haji Mullappali House Pang South P.o	48/2015-16/Gr/Dom/m-139/14 dtd02/02/2015	Granites Metal	256/6A,6B	Kuruva	perinthalmanna	Malappuram	80 cent	02-02-2015	31/3/2016	13500MT	25000
3	P Sakeer S/o Moideen P Puliyil Pallikkuth House Pang South P.O	49/2014-15/Gr/Dom/m 234/15 dtd 4/2/15	Granites Metal	Q 19,1262/pt	Melmuri	Eranad	Malappuram	34 Cent	02-04-2015	31/3/2016	10000MT	18000
4	P V Ajeash Dhowrakha Cheruppa, Kozhikkode	50/2014-15/Gr/Dom/m 172/15 dtd 6/2/16	Granites Metal	159/1,171/9	Pulikkal	Kondotty	Malappuram	25 Cent	02-06-2015	31/3/2016	13500MT	25000
5	Muhammed Iqbal MG.Partner Pulancheri Granites Industries	51/2014-15/Gr/Dom/m 267/15 dtd 9/2/15	Granites Metal	168	Anakkayam	Eranad	Malappuram	1 Acre	02-09-2015	31/3/2016	6000Mt	10000
6	V. P Moideen Kutti V P M-Sand Edayur P.O , Pookkattiri	52/2014-15/Gr/Dom/m 337/15 dtd 23/2/15	Granites Products	201/1,2	Edayur	Tirur	Malappuram	50 Cent	23/2/2015	22/2/2016	20000MT	80000
7	T .Saidalavi Haji Thayyil House Athavanad , Thirunavaya	53/2014-15/Gr/Dom/m 378/15 dtd 4/3/2015	Granites Products	168/1	Athavanad	Tirur	Malappuram	23 Cent	03-04-2015	03-03-2016	20000Mt	8000
8	V K Mubasheer Chengott Stone Crusher Vazhayoor	54/2014-15/Gr/Dom/m 493/15 dtd16/3/2015	Mineral Products GBS	167/2	Vazhayoor	Kondotty	Malappuram	28.34 Ares	16/3/2015	15/3/2016	2000MT	8000
9	Suresh Babu K Kolothodi House Kodur P.o	55/2014-15/Gr/Dom/m 522/15 dtd 18/3/2015	Mineral Products GBS	539/8,9	Malappura,	Eranad	Malappuram	27.84 Cents	18/3/2015	17/3/2016	2000MT	8000

10	MM Ummer Nazeera Granites Puthukkod P.O	56/2014- 15/Gr/Dom/m 544/15 dtd 20/3/2015	Mineral Products GBS	368/pt	Vazhayoor	Eranad	Malappura m	35 Cent	20/3/2015	19/3/2016	2000MT	8000
11	V P Shareef Pallikkara House Payyanad, Manjeri	57/2014- 15/Gr/Dom/m 542/15 dtd 23/3/2015	Granite Buliding Stone Mineral Products	385/1	Payyannad	Manjeri	Malappura m	10 Cent	23/3/2015	22/3/2016	5000Mt	20000
12	K Midun Vazhakode Stone Crusher Poovathikkal P.o	58/2014- 15/Gr/Dom/m 557/15 dtd 23/3/2015	Granite Buliding Stone Mineral Products	109/2	Oorangattiri	Eranad	Malappura m	24 Cent	23/3/2015	22/3/2016	5000Mt	20000
13	K P Ibrahim Kangattu Puthan Veettil Vadakkangara P.O	59/2014- 15/Gr/Dom/m 556/15 dtd 23/3/2016	Granite Buliding Stone Mineral Products	75/1B1	Vadakkangara	perinthalmanna	Malappura m	30 Cent	23/3/2015	22/3/2016	5000MT	20000
14	P T Abdul Azeez Al- Ameen Rubbles Vazhayoor P.O	60/2014- 15/Gr/Dom/m 572/15 dtd 23/3/2015	Granite Buliding Stone Mineral Products	371/16	Vazhayoor	Kondotty	Malappura m	10 Cent	23/3/2015	22/3/2016	2000MT	8000
15	V Althaf MG. Partner SS Granites Vazhayoor	61/2014- 15/Gr/Dom/m 558/15 dtd 23/3/2015	Granite Buliding Stone Mineral Products	136/7,8 145/1	Vazhayoor	Kondotty	Malappura m	25 Cents	23/3/2015	22/3/2016	3000MT	12000
16	T P Noushad Hindusthan Crusher Company Kannamangalam	62/2014- 15/Gr/Dom/m 577/15 dtd 23/3/2015	GBS Products	104/2A	Kannamangalam	Thirurangadi	Malappura m	59 Cent	23/3/2015	22/3/2016	8000MT	32000
17	P.Veeran Kutti Poothanari House Palpatta P.O	63/2014- 15/Gr/Dom/m 574/15 dtd 25/3/2015	GBS Mineral Products	55/1	Pulppatta	Eranad	Malappura m	20 Cent	25/3/2015	24/3/2016	2500MT	10000
18	K t Jaffar Vadakkayil House Thottilangadi P.o Areacode	64/2014- 15/Gr/Dom/m 601/15 dtd 25/3/2015	GBS Mineral Products	350/1,2	Payyannad	Eranad	Malappura m	1 Acre	25/3/2015	24/3/2016	2000MT	8000

19	M A Abdul Kareem Managing Partner Hajer Industries Pazhoor P.O	65/2014- 15/Gr/Dom/m 590/15 dtd 25/3/2015	GBS Mineral Products	361	Naduvattam	Tirur	Malappura m	65 Cent	25/3/2015	24/3/2016	6000MT	24000
20	Sajeev M A MG. Partner Palikkal Granites Chirayil P.O	66/2014- 15/Gr/Dom/m 449/15 dtd 25/3/2015	GBS Mineral Products	148/4	Nediyirippu	Kondotty	Malappura m	50 Cent	25/3/2015	24/3/2016		40000
21	U. Abdul Kareem Managing Partner U K Granites Edayur North	67/2014- 15/Gr/Dom/m 609/15 dtd 26/3/2015	GBS Mineral Products	428	Edayur	Tirur	Malappura m	33.24 Cent	26/3/2015	25/3/2016	10000M T	40000
22	Siddique P V K M Granite Puthukkod	68/2014- 15/Gr/Dom/m 605/15 dtd 27/3/2015	GBS Mineral Products	355/4,1 368/pt	Vazhayoor	Kondotty	Malappura m	59 Cent	27/3/2015	26/3/2016	4000MT	16000
23	K C Veeran Kutti Firos Granite Industries Anthoor Kunnu Palikkal P.O	69/2014- 15/Gr/Dom/m 578/15 dtd 27/3/2015	GBS Mineral Products	236/1	Palikkal	Kondotty	Malappura m	61 cent	27/3/2015	26/3/2016	5000MT	20000
24	P k Samaddin Brothers Stone Crusher Oorangattiri P.O	70/2014- 15/Gr/Dom/m 649/15 dtd 30/3/2015	GBS Mineral Products	144/pt	Oorangattiri	Eranad	Malappura m	55.5 cent	30/3/2015	29/3/2016	5000MT	20000
25	Suresh C Cheriyamundath Crusher Karekkad P.O Edayur	71/2014- 15/Gr/Dom/m 646/15 dtd 30/3/2015	GBS Mineral Products	98	Edayur	Tirur	Malappura m	1.23 Cents	30/3/2015	29/3/2016	5000MT	20000
26	A .Jamal Muhammed Mg. Partner Brothers Granites Metals Palappatta	72/2014- 15/Gr/Dom/m 672/15 dtd 31/3/2015	GBS Mineral Products	111/6/2	Perakamanna	Eranad	Malappura m	64 Cent	31/3/2015	30/3/2016	10000M T	40000
27	A. Jamala Muhammed (Aranhikkal) Al- Madeen Granite Metal and Cement Industries Thuvvakkad	73/2014- 15/Gr/Dom/m 654/15 dtd 31/3/2015	GBS Mineral Products	218	Perakamanna	Eranad	Malappura m	66.6 Cents	31/3/2015	30/3/2016	2000MT	8000
28	Muhammed Shafeeq Kuruniyan House Mattathur, Othukkungal	01/2015- 16/Gr/Dom/m 645/15 dtd 01/04/2015	Granite Mineral Products	307/14	Othukkungal	Thirurangadi	Malappura m	12.5 cent	04-01- 2015	31/3/2016	2000MT	8000

29	T P Ali Moideen Gulfar Granite Industries Kannamanagalam ,Malappuram	02/2015- 16/Gr/Dom/m 659/15 dtd 06/04/2015	Granite Mineral Products	41/1,2,,3	Kannamangalam	Thirurangadi	Malappura m	26 Cent	04-06- 2015	04-05- 2016	8000MT	
30	T P Ali Moideen Gulfar Granite Industries Kannamanagalam ,Malappuram	03/2015- 16/Gr/Dom/m 658/15 dtd 06/04/2015	Granite Mineral Products	35/1A,B1B/1G	Kannamangalam	Thirurangadi	Malappura m	60 Cent	04-06- 2015	04-05- 2016		32000
31	P K Ashraf QRB Crusher Unit Vazhayoor P.o	04/2015- 16/Gr/Dom/m 720/15 dtd 06/04/2015	Granite Buliding Stone Commerca l Products	15/28	Vazhayoor	Kondotty	Malappura m	50 Cent	04-06- 2015	04-05- 2016	2000MT	8000
32	K P Abbas Ali Cheerathodi House Valiyaparamb	05/2015- 16/Gr/Dom/m 719/15 dtd 06/04/2015	Granite Buliding Stone Commerca l Products	274/1	Palikkal	Kondotty	Malappura m	41 Cent	04-06- 2015	04-05- 2016	5000MT	20000
33	M E Mohanan High Grip Grnites Vazhayoor	06/2015- 16/Gr/Dom/m 664/15 dtd 06/04/2015	Granite Buliding Stone Commerca l Products	155/1	Vazhayoor	Kondotty	Malappura m	50 Cent	04-06- 2015	04-05- 2016	10000M T	40000
34	V Moideen VKH Hollow Bricks Stone Crusher Muthuvallur	07/2015- 16/Gr/Dom/m 693/15 dtd 06/04/2015	Granite Buliding Stone Commerca l Products	216/8,7,10	Muthuvallur	Kondotty	Malappura m	50 Cent	04-06- 2015	04-05- 2016	5000 MT	20000
35	V Moideen V K M Stone Crusher Cheroor Vengara	08/2015- 16/Gr/Dom/m 694/15 dtd 06/04/2016	Granite Buliding Stone Commerca l Products	80/1C,82/2B 82/1, 80/1C/c	Kannamangalam	Thirurangadi	Malappura m	25 Cent	04-06- 2015	04-05- 2016	5000MT	20000
36	V P Abdulla Elite Granite and Hollow Bricks K v Kav ,Palikkal	09/2015- 16/Gr/Dom/m 699/15 dtd 06/04/2015	GBS Prouducts	197/5	Cherukav	Kondotty	Malappura m	22 Cent	04-06- 2015	04-05- 2016	5000MT	20000
37	A C Abdurahiman AA Crashing Unit Peruvallur	10/2015- 16/Gr/Dom/m 663/15 dtd 06/04/2015	GBS Prouducts	119/1,2	Peruvallur	Thirurangadi	Malappura m	40 cent	04-06- 2015	04-05- 2016	5000 MT	20000

38	K P Sulaiman Haji Kannipparambil House Munniyoor P.O Pin: 673639	11/2015- 16/Gr/Dom/m 731/15 dtd 08/04/2015	GBS Prouducts	332	Kavanoor	Eranad	Malappura m	70 Cent	04-08- 2015	04-07- 2016	8000MT	32000
39	M K Moosa Kutti Haji MG. Partner Rahmath Granite Crusher ,Pannippara	12/2015- 16/Gr/Dom/m 728/15 dtd 09/04/2015	GBS Prouducts	7/3pt	Karakkunnu	Eranad	Malappura m	50 Cent	04-09- 2015	04-08- 2016	5000MT	20000
40	K k Abdul Majeed Managing Partner Anzar Granite Industries Kannamangalam-676335	13/2015- 16/Gr/Dom/m 732/15 dtd 10/04/2015	GBS Prouducts	76/1	Kannamangalam	Thirurangadi	Malappura m	1.04 Acre	04-10- 2015	04-09- 2016	5000MT	20000
41	P Sakaria Pullatt House Kannamangalam	14/2015- 16/Gr/Dom/m 730/15 dtd 10/04/2015	GBS Prouducts	36/1	Kannamangalam	Thirurangadi	Malappura m	31 Cent	10/4/2001 5	04-09- 2016	5000MT	20000
42	P K Muhammad Kutti MG. Partner Karippur Granite Industries Karippur P.O Pin:673638	15/2015- 16/Gr/Dom/m 735/15 dtd 10/04/2015	GBS Prouducts	246/1	Palikkal	Kondotty	Malappura m	40 Cent	04-10- 2015	04-09- 2016	6000MT	24000
43	E. Ummer Bava Easakkanakath Down Hill ,Malappuram	16/2015- 16/Gr/Dom/m 761/15 dtd16/04/2015	GBS Prouducts	203/1 204/3	Karakkunnu	Eranad	Malappura m	24.50 cent	16/4/2015	15/4/2016	5000MT	20000
44	Sabna Vikas Vikas Granites Kannamvettikav	17/2015- 16/Gr/Dom/m 722/15 dtd 16/04/2015	GBS Prouducts	253/10,11,12,1 3	Cherukav	Kondotty	Malappura m	35 Cent	16/4/2015	15/4/2016	5000MT	20000
45	V Ibrahim Haji Vazhathodi House Cherukave P.o	18/2015- 16/Gr/Dom/m 729/15 dtd 17/04/2015	GBS Prouducts	7/7	Elamkulam	perinthalmanna	Malappura m	25 Cent	17/4/2015	16/4/2016	3500MT	14000
46	V Abdurahiman Mg. Partner Akkod Granite Vazhayoor	19/2015- 16/Gr/Dom/m 803/15 dtd 17/04/2015	GBS Prouducts	104/1pt	Vazhayoor	Kondotty	Malappura m	1.20 acre	17/4/2015	16/4/2016	10000M T	40000
47	V Sajeer Babu K P Granite Unit Thavanoor ,Kizhisseri	20/2015- 16/Gr/Dom/m 773/15 dtd 17/04/2015	GBS Prouducts	421/7	Kuzhimanna	Kondotty	Malappura m	61.77 cent	17/4/2015	16/4/2016	5000MT	20000

48	P Mammadu Pullatt House Kannamanagalam	21/2015- 16/Gr/Dom/m 802/15 dtd 20/04/2015	GBS Products	110/2	Edayur	Tirur	Malappura m	90.Cent	20/4/2015	19/4/2016	4000MT	16000
49	O R Sadanandan MD. Vallikkad Granite Nellippallil P.O Palghat	22/2015- 16/Gr/Dom/m 765/15 dtd 20/04/2015	GBS Products	132/2	Pulikkal	Kondotty	Malappura m	74 cent	20/4/2015	19/4/2016	2000MT	8000
50	Ibrahim Palliyali Rahmath Manzil Moonniyyor P.o	23/2015- 16/Gr/Dom/m 827/15 dtd 20/04/2015	Granite Buliding Stone Products	132/27	Cherukav	Kondotty	Malappura m	88 Cent	20/4/2015	19/4/2016	5000MT	20000
51	A Siddique Athinikkal House Thirunnavaya	24/2015- 16/Gr/Dom/m 808/15 dtd 20/04/2015	Granite Buliding Stone Products	138/1	Kurumbathur	Tirur	Malappura m	10 Cent	20/4/2015	19/4/2016	2500MT	10000
52	Abdul Salam C Cheriyampurath Thirunnavaya P.O	25/2015- 16/Gr/Dom/m 807/15 dtd 20/04/2015	Granite Buliding Stone Products	418/1	Kottakkal	Tirur	Malappura m	15 Cent	20/4/2015	19/4/2016	2500MT	10000
53	A Siddique Athinikkal House Thirunnavaya	26/2015- 16/Gr/Dom/m 807/15 dtd 20/04/2015	Granite Buliding Stone Products	379/9	Thirunnavaya	Tirur	Malappura m	10 Cent	20/4/2015	19/4/2016	2500MT	10000
54	Yusaf Haji Bharathi Granite Industries Apparambil House Parammalangadi P.O	27/2015- 16/Gr/Dom/m 733/15 dtd 20/04/2015	Granite Buliding Stone Products	309	Athavanad	Tirur	Malappura m	1 Acre	20/4/2015	19/4/2016	4000MT	16000
55	Kanneth Kunhahammed MG.Partner Kanneth Industies Cheroor P.O	28/2015- 16/Gr/Dom/m 817/15 dtd 20/04/2015	Granite Buliding Stone Products	462/4	Kannamangalam	Thirurangadi	Malappura m	83 Cent	20/4/2015	19/4/2016	13500M T	54000
56	Abdul Azees E K E K C Crusher Kannamangalam	29/2015- 16/Gr/Dom/m 756/2015 dt22/4/2015	Granite Buliding Stone Products	1	Kannamangalam	Thirurangadi	Malappura m	50 Cent	22/4/2015	21/4/2016	10000M T	40000
57	Kabeer P Premer Infra Granite Chirayil ,Kondotty	30/2015- 16/Gr/Dom/m 858/15 dtd 22/04/2015	Granite Buliding Stone Products	152/1	Nediyirippu	Kondotty	Malappura m	50 Cent	22/4/2015	21/4/2016	5000MT	20000
58	M P Shamsuddin M P House Pulikkal P.O	31/2015- 16/Gr/Dom/m 890/15 dtd 24/04/2015	Granite Buliding Stone Products	251/4	Cherukav	Kondotty	Malappura m	17 Cent	24/4/2015	23/4/2016	5000MT	20000

59	T P Abu Crescent Grnaite Industries Kannamvettikav	32/2015- 16/Gr/Dom/m 755/15 dtd 27/04/2015	Granite Buliding Stone Products	172/3	Cherukav	Kondotty	Malappura m	62 Cent	27/4/2015	26/4/2016	5000MT	20000
60	Shahila Am Directar Thekkin chuvad Granite PVT Ltd	33/2015- 16/Gr/Dom/m 1035/15 dtd 4/5/2015	Granite Buliding Stone Products	218/1,2,3	Kizhiparamb	Eranad	Malappura m	1.35 Acre	05-04- 2015	05-03- 2016	10000M T	20000
61	M P Muhamme Mundampurath House Perumanna P.O	34/2015- 16/Gr/Dom/m 1026/15 dtd 07/5/2015	Granite Buliding Stone Products	227/6,206/2	Vazhayoor	Kondotty	Malappura m	15 Cent	05-07- 2015	05-06- 2016	6000MT	24000
62	V P Abdul Rasak Ideal Building Meterial and Job Works Pallikkal	35/2015- 16/Gr/Dom/m 1156/15 dtd13/5/2015	Granite Buliding Stone Products	147/14	Palikkal	Kondotty	Malappura m	75 cent	13/5/2015	05-12- 2016	3000MT	12000
63	E K Ali moideen Malabar Mechine metals Kannamangalam	36/2015- 16/Gr/Dom/m 1177/15 dtd 13/5/2015	Granite Buliding Stone Products	185/5,189	Kannamangalam	Thirurangadi	Malappura m	1.21 Acre	13/5/2015	05-12- 2016	12000Mt	48000
64	P Suhara Angadippram Blue Metals Valambur Anagadippuram	37/2015- 16/Gr/Dom/m 1188/15 dtd 15/5/2015	Granite Buliding Stone Products	101/4	Valambur	perinthalmanna	Malappura m	79 Cent	15/5/2015	14/5/2016	4000MT	16000
65	Elayedath Amina Vadakkayil House Thottilangadi	38/2015- 16/Gr/Dom/m 1189/15 dtd 15/5/2015	Granite Buliding Stone Products	524/1,2,3	Kavanoor	Eranad	Malappura m	48 Cent	15/5/2015	14/5/2016	3000MT	12000
66	Shamon PS S/o Sajad Puthukkodan H Rayon puram P.O	39/2015- 16/Gr/Dom/m 1189/15 dtd 15/5/2015	Granite Buliding Stone Products	415/1	Kuzhimanna	Kondotty	Malappura m	20 Cent	15/5/2015	14/5/2016	6000MT	24000
67	Muhammed Babu Chalil House Hi-Rock M-Sand Edappatta P.O	40/2015- 16/Gr/Dom/m 1227/15 dtd 18/5/2015	Granite Buliding Stone Products	233/2(BL 43)	Edappatta	perinthalmanna	Malappura m	25 Cent	18/5/2015	17/5/2016	4000MT	16000
68	Noufal S/o Moideen Theikkedath House Kalikavu -676525	41/2015- 16/Gr/Dom/m 1281/15 dtd 22/5/2015	Granite Buliding Stone Products	233/2/2	Thiruvalli	Nilambur	Malappura m	12 Cent	22/5/2015	21/5/2016	3000MT	12000
69	Muhammed Shameem P Safiya Manzil Nediyrrippu P.O pin:673638	42/2015- 16/Gr/Dom/m 1308/15 dtd 25/5/2015	Granite Buliding Stone Products	18/7 BI No.5	Vazhayoor	Kondotty	Malappura m	40 cent	25/5/2015	24/5/2016	5000MT	20000

70	P Abu MG.Partner City Metals Manjeri	43/2015- 16/Gr/Dom/m 1286/15 dtd 25/5/2015	Granite Buliding Stone Products	32/1	Payyannad	Eranad	Malappura m	40 cent	25/5/2015	24/5/2016	8000MT	32000
71	E K Ahmmmed Koya Edayadi Kummanthodi House Velimukku	44/2015- 16/Gr/Dom/m1313/1 5 dtd 25/5/2015	Granite Buliding Stone Products	298/1 2B RS No.415	Munniyoor	Thirurangadi	Malappura m	54 cent	25/5/2015	24/5/2016	6000MT	24000
72	M Abdul Rasheed Rock Field Industries Chirayil P.O	45/2015- 16/Gr/Dom/m1315/1 5 dtd 25/5/2015	Granite Buliding Stone Products	150/7,8,9	Nediyirippu	Kondotty	Malappura m	80 cent	25/5/2015	24/5/2016	4000MT	16000
73	K C Kammukutti Baniyas Granite Industries Kadampuzha	46/2015- 16/Gr/Dom/m1314/1 5 dtd 25/5/2015	Granite Buliding Stone Products	29 BI No.26	Thozhuvannoor	Tirur	Malappura m	1.33 Acre	25/5/2015	24/5/2016	12000M T	48000
74	C Muhammadali Mg. Partner C &K Granite Industries Chirayil P.O	47/2015- 16/Gr/Dom/m1279/1 5 dtd 25/5/2015	Granite Buliding Stone Products	BI No. 36 149/3,148/1	Nediyirippu	Kondotty	Malappura m	50 Cent	25/5/2015	24/5/2016	10000M T	40000
75	P Kunhumammed Mg. Partner PM Crusher Metals Karuvambram	48/2015- 16/Gr/Dom/m1353/1 5 dtd 27/5/2015	Granite Buliding Stone Products	186/1	Narukara	Eranad	Malappura m	1 Acre	27/5/2015	26/5/2016	4000MT	16000
76	Abdul Aziz C K Mg. Director Cheroor Bricks & Sands Cheroor P.o	49/2015- 16/Gr/Dom/m1333/1 5 dtd 27/5/2015	Granite Buliding Stone Products	58	Kannamangalam	Thirurangadi	Malappura m	30 Cent	27/5/2015	26/5/2016	10000M T	40000
77	P M Muhammed Vettilappara Bricks & Metals	50/2015- 16/Gr/Dom/m1416/1 5 dtd 29/5/2015	Granite Buliding Stone Products	8/2	Vettilappara	Eranad	Malappura m	50 Cent	06-01- 2015	31/5/2016	5000MT	20000
78	C Abdul Saleem Mg. Partner Aroor Granites Olavattur P.O	51/2015- 16/Gr/Dom/m1399/1 5 dtd 01/6/2015	Granite Buliding Stone Products	117/1/2	Pulikkal	Kondotty	Malappura m	10 Cent	06-01- 2015	31/5/2016	2000MT	8000
79	Surkkathulla S/o Aboobacker Haji Kuttasseri House Poovathikkal	52/2015- 16/Gr/Dom/m1515/1 5 dtd 06/6/2015	Granite Buliding Stone Products	219/3 BI No. 21	Kizhuparamba	Eranad	Malappura m	10 Cent	06-06- 2015	5/6/52016	3000MT	12000
80	Kunhimoideen P S/o Muhammed Poolakkal House Parappur	53/2015- 16/Gr/Dom/m1473/1 5 dtd 06/6/2015	Granite Buliding Stone Products	262/12	Parappur	Thirurangadi	Malappura m	10 Cent	06-06- 2015	05-05- 2016	2000MT	8000

81	AbduSalam P Parathappoyil House Kalanthodi Nair Kuzhi P.O	54/2015- 16/Gr/Dom/m1583/1 5 dtd 24/6/2015	Granite Buliding Stone Products	72/1,2 BI No. 75	Kannamangalam	Thirurangadi	Malappura m	16 Cent	24/6/2015	23/6/2016	10000M T	40000
82	K M Ameer MD. Brothers Crusher Pvt Ltd Kilinakkode P.o Vengara	55/2015- 16/Gr/Dom/m1642/1 5 dtd 24/6/2015	Granite Buliding Stone Products	23/2,83/2/1,BI No. 37	Ooragam	Thirurangadi	Malappura m		24/6/2015	23/6/2016	15000Mt	60000
83	Sindhu V p Kavumpurath House Eravimangalam P.O Cherukara	56/2015- 16/Gr/Dom/m1543/1 5 dtd 26/6/2015	Granite Buliding Stone Products	89/1,2,3,4	Pathaikara	perinthalmanna	Malappura m	20 Cent	26/6/2015	25/6/2016	2000MT	8000
84	P.Kunjumammed,palilye t metals,Hajiarpalli ,po	57/2015- 16/Gr/Dom/m- 1672/15 dtd 29-06- 2015	Granite Buliding Stone Products	1/1B	chungam,melmur i	Eranad	Malappura m	1 Acre	29/6/2015	28/6/2016	3000MT	12000
85	PT .Ashraf ,managing partenr ,Al- Jauf Granite metals ,vahzakkad,poothikkal.Po	58/2015- 16/Gr/Dom/m1735/1 5 dtd 30/7/2015	Granite Buliding Stone Products	184/(B1.27)	oorganttiri	Eranad	Malappura m	50 Cent	30/7/2015	29/7/2016	4000 MT	16000
86	T.Mohandas ,thalhamvalli house,NIIT PO.	59/2015- 16/Gr/Dom/m1736/1 5 dtd 3/7/2015	Granite Buliding Stone Products	25Pt	wandoor	Nilambur	Malappura m	16.9 Ares	07-03- 2015	07-02- 2016	10000M T	40000
87	Ahammedkutty,Allungal house ,Kannamangalam,	60/2015- 16/Gr/Dom/m1280/1 5 dtd 3/7/2015	Granite Buliding Stone Products	51/2	Kannamangalam	Thirurangadi	Malappura m	25 Cent	07-03- 2015	07-02- 2016	8500MT	34000
88	Muhammed Shafeeq Kuruniyan House Mattathur, Othukkungal	61/2015- 16/Gr/Dom/m1671/1 5 dtd 8/7/2015	Granite Buliding Stone Products	Q13-2035	Melmuri	Eranad	Malappura m	4.56 Ares	07-08- 2015	07-07- 2016	2000MT	8000
89	Asif Delicious ,silmi house,Edavanna po	62/2015- 16/Gr/Dom/m1787/1 5 dtd 10/7/2015	Granite Buliding Stone Products	326/1,2BI.73	Edavanna	Eranad	Malappura m	1.95 Acre	07-10- 2015	07-09- 2016	12000 MT	48000

90	TP. Saithalavi,s/o, Aboobacker,Tharammal parambil house ,Thanaloor	63/2015-16/Gr/Dom/m1793/15 dtd 20/7/2015	Granite Buliding Stone Products	208	Kattiparuthi,	Tirur	Malappuram	2 Acre	20/7/2015	19/7/2016	5000MT	20000
91	TP.Abdul shookur,s/o Aboobacker,tharammal parambil house,Thanalur,	64/2015-16/Gr/Dom/m1952/15 dtd 12/8/2015	Granite Buliding Stone Products	160	valavannur	Tirur	Malappuram	20.69 Ares	20/7/2015	19/7/2016	5000MT	20000
92	MA. Joseph,s/o Antony,Maladath house,Kundur PO ,Thrissur	65/2015-16/Gr/Dom/m1573/ dtd 21/8/2015	Granite Buliding Stone Products	B.87.113/1	Kodur	perinthalmanna	Malappuram	15 Cent	08-12-2015	08-11-2016	6000MT	24000
93	Kunheedukutti,s/o Veerankutti,chirakkal house ,vadakkumbram po	66/2015-16/Gr/Dom/m1573/15 dtd 21/8/2015	Granite Buliding Stone Products	297/5,2	Kattiparuthi,		Malappuram	24 Cent	21/8/2015	20/8/2016	6000MT	24000
94	Kunheedukutti,s/o Veerankutti,chirakkal house ,vadakkumbram po	67/2015-16/Gr/Dom/m2001/15 dtd 21/8/2015	Granite Buliding Stone Products	138/2	Kattiparuthi,	Tirur	Malappuram	29 Cents	21/8/2015	20/8/2016	2000MT	8000
95	Managing partner , K M ,Koyamu ,chirayil Granites Industries ,chirayil po. Kondotty.	68/2015-16/Gr/Dom/M - 2047/15 dtd 01/9/2015	Granite Buliding Stone Products	184/1	Nediyirippu	Kondotty	Malappuram	1 Acre	09-01-2015	30/8/2016	12000MT	48000
96	Sajeer Moyin, Parasser House, Kumaranallur.P.O.,	69/2015-16/Gr/Dom/M - 2137/15 dtd 01/9/2015	Granite Buliding Stone Products	273/3	Thiruvalli	Nilambur	Malappuram	30 Cents	14/9/2015	13/9/2016	3000 MT	12000
97	Abdurahiman, Paramban House, Munduparamb.	70/2015-16/Gr/Dom/M - 2212/15 dtd 28/9/2015	Granite Buliding Stone Products	Q 07-1561	Melmuri	Ernad	Malappuram	22 cents	28/9/2015	27/9/2016	4000 MT	16000
98	K.P.Ibrahim, KangattuPuthenveettil House, Vadakkangara.	71/2015-16/Gr/Dom/M - 2346/15 dtd 9/10/2015	Granite Buliding Stone Products	Q14-2002	Melmuri	Ernad	Malappuram	7.03 Ares	10-09-2015	8.10.2016	3000 MT	12000
99	KannanKulavan Kunhimuhammd, Kannankulavan House, Puliyyakkod.P.O.	72/2015-16/Gr/Dom/M - 2409/15 dtd 16/10/2015	Laterite	28/3	Kuzhimanna	Kondotty	Malappuram	06.57 Ares	16/10/2015	15/10/2016	15000 MT	60000

100	M.P.Sivasankaran S/o Navu, Mampatta Palliyali House, Kadannamanna.	73/2015-16/Gr/Dom/M - 2411/15 dtd 16/10/2015	Granite Buliding Stone Products	97/2 B	Mankada	perinthalmanna	Malappuram	25 Cents	16/10/2015	15/10/2016	3000 MT	12000
101	Subair.T.P. Thalikaparambil House, Kuttipuram.P.O.	74/2015-16/Gr/Dom/M - 2072/15 dtd 16/10/2015	Granite Buliding Stone Products	352/2	Naduvattam	Tirur	Malappuram	10 cents	16/10/2015	15/10/2016	4000 MT	16000
102	Ali Bava, Kizhakke Parambil House, Kuttippuram.	75/2015-16/Gr/Dom/M - 2369/15 dtd 16/10/2015	Granite Buliding Stone Products	363	Naduvattam	Tirur	Malappuram	10 cents	16/10/2015	15/10/2016	4000 MT	16000
103	Managing partner , Blue Stone Crusher, Oorakam Melmuri.	76/2015-16/Gr/Dom/M - 2369/15 dtd 16/10/2015	Granite Buliding Stone Products	300/2	Oorakam	Thirurangadi	Malappuram	20 cents	26/10/2015	25/10/2016	10000 MT	40000
104	V.Ibrahim Haji, Vazhathodi House, Cherukara.P.O.	77/2015-16/Gr/Dom/M - 2508/15 dtd 2/11/2015	Granite Buliding Stone Products	7/7	Elamkulam	perinthalmanna	Malappuram	25 cents	11-02-2015	11-01-2016	5000 MT	20000
105	Shihabuddin S/o Muhammed kutti, Puzhakkal House, Ponnundam.	78/2015-16/Gr/Dom/M - 2603/15 dtd 6/11/2015	Granite Buliding Stone Products	289/18	Ponmundam	Tirur	Malappuram	8.24 cents	11-06-2015	11-05-2016	2000 MT	8000
106	P.E.Aboobacker Haji, PEBS Stone Crusher, Valiyaparamb, Mambram.	79/2015-16/Gr/Dom/M - 2595/15 dtd 6/11/2015	Granite Buliding Stone Products	35/1 A	A.R.Nagar	Thirurangadi	Malappuram	1 Acre	11-06-2015	11-05-2016	6000 MT	24000
107	P.K.Jaleel, Best Villa, Master Avenue Road, Thrissur.	80/2015-16/Gr/Dom/M - 2559/15 dtd 11/11/2015	Granite Buliding Stone Products	310/6	Thrikkandiyoor	Tirur	Malappuram	36 cents	11-11-2015	11-10-2016	3000 MT	12000
108	P.Muhammadali, Parancheeri Houe, Aravankara, Pookkootoor.	81/2015-16/Gr/Dom/M - 2559/15 dtd 11/11/2015	Granite Buliding Stone Products	Bl.56 / 378/pt	Morayur	Kondotty	Malappuram	50 cents	13/11/2015	11-12-2016	5000 MT	20000
109	Saidalavi.Pulikkal House, Nediyruppu.P.O.	82/2015-16/Gr/Dom/M - 2552/15 dtd 13/11/2015	Granite Buliding Stone Products	449/4	Kondotty	Kondotty	Malappuram	5 cents	13/11/2015	11-12-2016	3000 MT	12000

110	K.B.Abdurahiman, Mg.Partner, Madeena Granite, Elad.P.O.	83/2015-16/Gr/Dom/M - 2839/15 dtd 7/12/2015	Granite Buliding Stone Products	1/1	Perinthalmanna	Elamkulam	Malappuram	1 Acre	12-07-2015	12-06-2016	3000 MT	12000
111	Shameem.P., Paingeeri House, Kolathur.P.O.	84/2015-16/Gr/Dom/M - 2958/15 dtd 9/12/2015	Granite Buliding Stone Products	345/ 8	Perinthalmanna	Moorkkanad	Malappuram	11.75 cents	12-09-2015	12-08-2016	2000 MT	8000
112	Abdurahim.K.P.S/o Kunhimarackar, Kunnath Parambil House, Perumanna.	85/2015-16/Gr/Dom/M - 3022/15 dtd 11/12/2015	Granite Buliding Stone Products	232/1	Thirurangadi	Edarikkod	Malappuram	10 Cents	12-11-2015	12-10-2016	2000 MT	8000
113	Faisal.K.P., Kuppiyan House, Okkal.P.O.	86/2015-16/Gr/Dom/M - 3021/15 dtd 11/12/2015	Granite Buliding Stone Products	99/ 7	Kondotty	Cherukavu	Malappuram	20 Cents	12-11-2015	12-10-2016	2000 MT	8000
114	Shahul Hameed, Chenath House, Kuttippala.	87/2015-16/Gr/Dom/M - 2672/15 dtd 11/12/2015	Granite Buliding Stone Products	44/2	Tirur	Perumanna	Malappuram	8.09 Ares	12-11-2015	12-10-2016	2000 MT	8000
115	Muhammed Yasin, Kuniyil House, Kannattippadi.	88/2015-16/Gr/Dom/M - 3224/15 dtd 28/12/2015	Granite Buliding Stone Products	60/1	Thirurangadi	Vengara	Malappuram	30 Cents	28/12/2015	27/12/2016	5000 MT	20000
116	Muhammed Faisal, Valiyamannil Granites, Naduvattam.P.O.	89/2015-16/Gr/Dom/M - 3248/15 dtd 30/12/2015	Granite Buliding Stone Products	155/5 B 2	Tirur	Naduvattam	Malappuram	1 Acre	30/12/2015	29/12/2016	2000 MT	8000
117	Nisab.P.,Thachampatt House, Kolathur.P.O.	90/2015-16/Gr/Dom/M - 3247/15 dtd 1/1/2016	Granite Buliding Stone Products	34/8	Perinthalmanna	Puzhakattiri	Malappuram	24 cents	01-01-2016	31/12/2016	2000 MT	8000
118	Hamsath Ali, Naduvath Kalathil House, Koottilangadi.	91/2015-16/Gr/Dom/M - 7/16 dtd 6/1/2016	Granite Buliding Stone Products	21/8	Perinthalmanna	Koottilangadi	Malappuram	15.75 Cents	6/1/2016	01-05-2017	3000 MT	12000
119	Abdul Azeez, Managing Director, Grand Stone Metals Pvt. Ltd; Kannamangalam.	92/2015-16/Gr/Dom/M - 11/16 dtd 6/1/2016	Granite Buliding Stone Products	21/2	Thirurangadi	Kannamangalam	Malappuram	30 Cents	6/1/2016	01-05-2017	12000 MT	48000
120	Adnan Mandris, Managing Partner, Vadakkumbram Granite Crusher, Karekkad.	93/2015-16/Gr/Dom/M - 110/16 dtd 15/1/2016	Granite Buliding Stone Products	362/4, 363	Tirur	Melmuri	Malappuram	1.68 Hectares	15/1/2016	14/1/2017	5000 MT	20000

Table 2g: List of short-term quarrying permits granted for ordinary clay

Sl no	Concession holder's name and address	Concession no.	Mineral	Survey no	Village	Thaluk	District	Area(ha)	Valid from	Valid to	Quantity(MT)	Royalty(Rs)
1	Sri. Kunjimarakkal haji ,s/o kutti hassan , nambrath house ,valancheri 9446230936	01/2014-15/OC/DOM/M-3223/12 Dtd 19/05/2014	Ordinary Clay	37/2A	Irimbilyam	Tirur	malappuram	10 Cents	19/05/2014	18/06/2014	1600MT	16000/- Ch. 142 Dt 11/08/2014 ST Mji.
2	Sri KV Krishnakumar,Kunnathully house ,Ayyanthole,Trissur 9961541114	02/2014-15/OC/DOM/M-12/2013 Dtd 04/08/2014	Ordinary Clay	86	Pullippadam	Nilambur	malappuram	10 Cents	08-04-2014	30/08/2014	1600 MT	11000/-Ch.97 Dt,24/4/13 . Rs 5000/- .Dt31/07/2014
3	Sri KV Krishnakumar,Kunnathully house ,Ayyanthole,Trissur 9961541114	03/2014-15/OC/DOM/M-12/2013 Dtd 19/09/2014	Ordinary Clay	86	Pullippadam	Nilambur	malappuram	10 Cents		13/10/14	1600 MT	200/ 17/9/14 ,ch 211 ,16000 /, ch 19dt 19/9/14
4	Sri KV Krishnakumar,Kunnathully house ,Ayyanthole,Trissur 9961541114	04/2014-15/OC/DOM/M-12/2013 Dtd 5/11/2014	Ordinary Clay	86	Pullippadam	Nilambur	malappuram	10 Cents	11-05-2014	23/11/14	800MT	200/ch 2588 dtd 1/11/14, 12800/,dtd 5/11/14 ch ,521
5	Sri KV Krishnakumar,Kunnathully house ,Ayyanthole,Trissur 9961541114	05/2014-15/OC/DOM/M-3223/2012 Dtd 14/3/2014	Ordinary Clay	37/2 A	Irimbilyam	Tirur	malappuram	7 cent	14/11/2014	23/11/14	1050 MT	2///ch.169 dtd.13/11/14 10500/ dtd.14/11/14 ch.212
6	VT Arif,s/o Kunhimoidheen,vennathodika H,po Edavanna	06/2014-15/OC/DOM/M-3370/2013 Dtd 19/01/2015	Ordinary Clay	144/3	Edavanna	Ernad	malappuram	10 Cents	19/01/2015	16/02/2015	1600 MT	16000/ chalan no .124 dtd 19/01/2015,48000 chalan no .230 dtd 5/01/2015

References

1. District Resource Map, Malappuram district, Kerala. Published by Geological Survey of India.
2. Detailed Information on Bauxite in India Geological Survey of India. 1994. Retrieved from http://www.portal.gsi.gov.in/gsiDoc/pub/DID_Bauxite_WM.pdf
3. Rajan, T. N. and Anil Kumar, P. S. 2005. Geology and Mineral Resources of the States of India Part IX – Kerala. Geological Survey of India Miscellaneous Publication No. 30.
4. Sreenath G. 2013. Ground Water Information Booklet of Malappuram district, Kerala. Technical Reports: Series ‘D’. Central Ground Water Board.
5. www.kerervis.nic.in
6. www.keralasoils.gov.in
7. www.dmg.kerala.gov.in
8. www.stateofkerala.in

Geology of Kerala

Physiography

Physiographically the state can be divided into four domains from east to west, viz., the Western Ghats, the foothills, the midland and the coastal low-land.

Western Ghats

The hill ranges of the Western Ghats rise to an altitude of over 2500m above the MSL and the crest of the ranges marks the inter-state boundary in most of the places. A breach in the continuity of the ranges marks the Palghat Gap with a sinistral shift of 50 km between the shifted crests. The Wynad plateau and the Munnar (10°57'00": 77°31'00") upland fall within this zone.

Foothills

The foothills of the Western Ghats comprise the rocky area from 200 to 600m above MSL. It is a transitional zone between the high-ranges and midland.

Midland region

This forms an area of gently undulating topography with hillocks and mounds. Laterite capping is commonly noticeable on the top of these hillocks. The low, flat-topped hillocks forming the laterite plateau range in altitude from 30-200m and are observed between coastal low-land and the foothills.

Coastal low-land

Coastal low-land is identified with alluvial plains, sandy stretches, abraded platforms, beach ridges, raised beaches, lagoons and estuaries. The low-land and the plains are generally less than 10m above MSL.

Rivers

Kerala is drained by 44 rivers, many of which originate from the Western Ghats. Except Kabini, Bhavani and Pambar which are east-flowing, the rest of rivers are west-flowing and join the Arabian Sea. A few of them drain into the backwaters. Most important rivers (with their length in km in parenthesis) of the state, are Chandragiri(105), Valapatnam (110), Achankovil (120) Kallada (121), Muvattupuzha (121), Chalakudy (130), Kadalundi(130), Chaliyar (169), Pampa (176), Bharathapuzha (209) and Periyar (244).

Geology

Geologically, Kerala is occupied by Precambrian crystallines, acid to ultra basic intrusives of Archaean to Proterozoic age, Tertiary (Mio-Pliocene) sedimentary rocks and Quaternary sediments of fluvial and marine origin (Fig.I). Both the crystallines and the Tertiary sediments have been extensively lateritised.

Based on the detailed studies by GSI during the last three decades, the following stratigraphic sequence has been suggested.

	Quaternary (Q)	Pebble bed Kadappuram Formation (marine) Periyar Formation (fluvial) Viyam Formation (fluvio-marine) Guruvayur Formation (Palaeo-marine) Laterite
	Mio-Pliocene (N12) (Tertiary Tt)	Warkalli Formation (Sandstone and clay with lignite intercalations) Quilon Formation (Fossiliferous limestone and calcareous marl).
	Mesozoic (61-144Ma.)	Gabbro / Dolerite dykes
P	Younger granites (550-390Ma)	Alkali granites, granite, Granophyres and other acid intrusives
R		
O	Chamockites (younger) (550Ma)	Massive chamockite, incipient chamockite, Cordierite chamockite
T		
E	Ultrabasic/basics (Younger) (700-600Ma)	Perinthatta anorthosite, Kartikulam gabbro, Adakkathodu gabbro, Begur diorite
R		
O	Basic Intrusives (2100-1600Ma)	Agali- Anakkatti dykes
Z		
O	Migmatite/gneiss/older granitoid (PGC II) (Ptm) (2500-2200Ma)	Gamet-biotite - gneiss with associated migmatites, quartzo-felspathic gneiss, homblende gneiss, homblende-biotite gneiss, quartz-mica gneiss
I	Vengad (APtv) Group	Quartz-mica schist and quartzite, conglomerate
C		
A	Chamockite (older) (Ac) 2600Ma	Mafic granulite, pyroxene granulite, Banded magnetite quartzite and gneissic chamockite
R		Quartzite, mafic granulite, calc-granulite gamet- biotite-sillimanite-cordierite gneiss, gamet-biotite- gneiss, leptynite
C	Khondalite Group (Ak)	
H	Peninsular Gneissic Complex (PGC I) (Ap) (3000Ma)	Foliated granite, homblende gneiss, pink granite gneiss, biotite gneiss
A	Layerd ultrabasic - basic Complex (3100- 3000Ma)	Peridotite, dunite, pyroxenite, anorthosite
E		
A	Wynad Schist Complex (Aw) (3200Ma)	Talc-tremolite schist, fuchsite quartzite, amphibolite, calc granulite, quartz sericite schist, kyanite quartzite, gamet - sillimanite gneiss/ schist, magnetite quartzite, kyanite mica schist
N		

Base not recognised

The Archaeans

Rocks of Archaean Era encompass a wide spectrum of litho-assemblages ranging from khondalite, charnockite, gneiss and meta-sedimentary rocks occupying the Western Ghats including the foothill region. The Khondalite and Charnockite Group are correlated with the Eastern Ghat Supergroup based on the overall similarity in lithology and geochronology.

Wynad Supracrustals

The meta-sedimentary, and ultramafic rocks occurring in the Wynad District generated keen interest among the GSI geologists in 1970s. The high-grade Wynad supracrustal rocks are correlated with the Sargur Schist Complex of the Karnataka (Nair, *et al*, 1975; Adiga, 1980). The schistose rocks are characterised by intense deformation, medium to high-grade metamorphism, migmatitisation and lack of sedimentary structures. The schist complex consists of meta-ultramafites, schist, meta-pelites, meta-pyroxenite, serpentinite, talc-tremolite rock and amphibolite.

The meta-sedimentaries occur as thin linear bodies within the migmatites. These consist of pelites, psammopelites and quartzites. The predominant rock types are corundum- mica schist, kyanite schist, quartz- mica schist and iron stone.(Anil Kumar *et al*,1993).

These rocks occur as narrow arcuate belts, lenses, and other forms of enclaves within Peninsular gneisses and charnockite. The group can be divided into medium-to low- grade metasedimentary rocks and meta-mafic and meta-ultramafic rocks. The lithology of the high-grade schists consist of quartz-mica schist with kyanite, quartz-sericite schists, quartzites, magnetite quartzite, fuchsite quartzite and meta-ultramafites. Their contact with the surrounding gneisses are concordant due to later co-folding. Several linear belts of such high-grade schists and ultramafite enclaves occur as isolated bands within the granulite and gneissic terrain of Kasaragod and Kannur districts.

Layered ultrabasic- basic complex

Remnants of layered basic- ultrabasic complex are reported from Attappadi area(Nambiar 1982). The ultramafics are represented by meta-pyroxenite, meta-dolerite, peridotite with chromite and meta-gabbro (Lahiri *et al*, 1975). The anorthosite of Attappadi is only a few metre thick. Occurrences are around Narsimukku, Pudur and Melmulli areas. An east-west trending narrow lenticular body of serpentinitised dunite is reported from Punalur mica mine belt.

A minor body (200 m long and 10-15m wide) of anorthosite was reported within pyroxene-granulite-charnockite terrain from Katanjari *parambu* of Kasargod district (Adiga, 1979).

Another dismembered layered igneous complex consisting of alternate layers of peridotite and pyroxenite within charnockite was traced around Panathadi area of Kannur District (Adiga, 1980).

Peninsular Gneissic Complex- I (PGC-I)

The rocks of Peninsular Gneissic Complex (PGC) are exposed in the northern parts of Kerala adjoining Karnataka . This consists of a heterogeneous mixture of granitoid materials. The equivalent rocks of PGC in Kerala include hornblende-biotite gneiss (sheared), biotite-hornblende gneiss, foliated granite and pink granite gneiss. Granite gneiss is exposed along the intra-State boundary of Palakkad District as well as in Idukki District. Pink granite gneiss, though widespread, is best developed in Devikolam (10°04'00": 77°06'30"), and Udumbanchola (10°00'00":77°15'00") areas of Idukki District.

This consists of gneisses showing preponderance of either hornblende or biotite. The percentage of hornblende and biotite varies from place to place. This can be traced from Manantoddy to further northwest upto the west coast. West of Manantoddy, the rock is hornblende gneiss. It shows coarse granulitic to gneissic texture and is composed of hornblende, feldspar, quartz, pyroxene, biotite and garnet. Alkali feldspar shows alteration to clay and sericite. Biotite is mainly secondary after hornblende.

Around Mahe and Thalasseri, the biotite gneiss(Nair *et al.*, 1974) is medium-grained and gneissose rock consisting of alternate layers of mafics and felsics.

Khondalite Group

The Khondalite Group of rocks include calc-granulites, quartzite and para-gneisses of pelitic parentage. Para-gneisses are ubiquitous and are well-developed in the southern part of the state, particularly, in Thiruvananthapuram and Kollam districts. Calc-granulite and quartzite occur as bands within the para-gneisses and amidst the Charnockite Group and migmatitic gneisses.

Calc-granulite

Calc-granulite occurs as linear bands mainly in the eastern part of Kollam and Thiruvananthapuram District, northeast and east of Munnar in Idukki district and in parts of Palakkad District. The rock is generally medium to coarse-grained, inequigranular and granoblastic in texture. It consists of diopside and plagioclase. Minerals like wollastonite, scapolite, calcite, garnet, spinel, sphene, quartz and apatite are also present in different proportions.

Quartzite

Quartzite occurs as linear bands amidst the khondalitic gneiss, charnockite and migmatitic gneisses. These bands are exposed between Pathanamthitta (9°15'45": 76°47'00"), and Muvattupuzha (9°59'00": 76°35'00") in Ernakulam District. The rock is coarse-grained and generally white in color with a brownish coating on the weathered surface. It consists of granular quartz with subordinate feldspar, garnet and iron oxide.

Garnetiferous biotite-sillimanite gneiss

Garnetiferous biotite- sillimanite gneiss is well-developed in the southern part of the state. It occurs in close association with the migmatitic gneisses, charnockite and charnockite gneisses, mostly as weathered outcrops. Sillimanite- rich bands occur alternating with garnet - rich portions or with quartzo-feldspathic layers. Rutile and iron oxides are the common accessory minerals.

Charnockite Group

Charnockite Group shows great diversity in lithology comprising pyroxene granulite, hornblende pyroxenite, magnetite quartzite, charnockite and hypersthene-diopside gneisses and cordierite gneiss. Charnockite and charnockitic gneiss have preponderance over all other crystalline rocks covering 40 -50% of the total area of the State. The charnockites are well-exposed in the central and northern parts of Kerala including the high-hills of the Western Ghats. Charnockite has lesser predominance in Thiruvananthapuram and Kollam districts. In Attappady, the Bhavani Shear Zone is limited by the charnockite massif of the Nilgiri plateau on the north. Though the interrelationship of the Charnockite and the Khondalite is not clear, in many places there are intercalations rather than interlayering of one with the other. In Palakkad District, the Khondalite Group of rocks structurally overlie the charnockite. The occurrence of pyroxene granulite as fine and linear bodies within the charnockite of Tirur, suggests that charnockite is a product of migmatization of pyroxene granulite (Vidyadharan and Sukumaran, 1978). Charnockite and charnockitic gneiss consist of quartz, feldspar and biotite. Garnet-bearing variants are also observed. The basic charnockite is more granulitic and contains clino- and ortho- pyroxenes, feldspar, biotite and garnet whereas the acid variety (alaskite/ enderbite) is greenish black, coarse-grained, massive to poorly foliated rock consisting of quartz, feldspar and pyroxenes. Basic charnockite has low- potash feldspar and more clinopyroxene. This is devoid of garnet and graphite, but shows a little amount of biotite (Chacko, 1922). Due to the polygenetic nature of the rock, geochemical and

mineralogical variations do exist between charnockites reported from Kerala. In the Periyar valley region, in Idukki and Kottayam districts, pyroxenite and alaskite constitute the Charnockite Group (Nair, and Selvan, 1976).

The available age data indicate that the massive charnockites are older and their ages range between 2155 and 2930 ± 50 Ma (Soman, 1997).

Also charnockite has been subjected to retrogression and migmatization.

Archaean to Palaeo-Proterozoic

Vengad Group

A succession of schistose rocks in parts of Tellicherry taluk in Kannur district is described as Vengad Group of rocks (Nair, 1976). The Vengad Group comprises of basal conglomerate, quartzite and quartz-mica schist. The contacts are highly gradational. The conglomerate shows graded bedding and quartzite shows current-bedding.

An angular unconformity marked by conglomerate horizon extending from Kuthuparamba ($11^{\circ}49'30''$: $75^{\circ}34'00''$) to Vengad ($11^{\circ}53'30''$: $75^{\circ}32'00''$) in Kannur district, separates the younger quartz-mica schist and quartzite from the older schistose and gneissic rocks. The lithology consists of basal oligomictic conglomerate, quartzite, quartz-biotite-muscovite schist and biotite quartzite. The schists are exposed over an area of 300 sq km having a lensoidal shape with its longer axis trending in NW-SE direction. The basement rock is gneissic or migmatitic with relicts of high-grade schists, ultramafites and quartzites of the Wynad Schist Complex. Four major occurrences of conglomerate are noticed in a NW-SE direction over a length of 10 km.

Lack of migmatization, presence of primary structures and low-grade metamorphic minerals characterize these rocks.

Migmatite\ Gneiss\ Granitoid (PGC-II)

Quartzo-feldspathic gneiss

Migmatite includes variety of gneissic rocks which are next in importance to charnockite as a dominant litho-assemblage. Quartzo-feldspathic gneiss occurring along the contact zone between garnet-biotite gneiss and garnet-sillimanite gneiss of Thiruvananthapuram area represents an original intrusive phase. It is a feebly foliated, fine-grained, leucocratic granulitic

rock occurring in close association with garnet-sillimanite gneiss and garnet-biotite gneiss with gradational contact relationship in the southern parts of Kerala. The origin of this rock is attributed to stress-induced injection of acid materials into the host rocks (Nageswara Rao and Raju, 1970).

Garnet- biotite gneiss

Garnet-biotite gneiss is well-developed in the northeastern parts of Kollam and Thiruvananthapuram districts. This carries inclusions of pyroxene granulite and disseminations of graphite at many places (Jacob, 1965). It consists of quartz, microperthite, biotite, plagioclase and graphite. This rock also occurs in the northern parts of Palakkad District in close association with khondalite, charnockite and hornblende gneiss. These rocks are subsequently formed by retrogression and migmatization of the Khondalite Group.

East of Kottayam and Idukki districts, light grey, pink garnet-bearing biotite gneiss is widely seen. It is a gneissic granulite. The presence of biotite and concentration of garnet in layers give the rock a banded appearance. (GSI, 1995).

Hornblende gneiss, hornblende-biotite gneiss, quartz- mica gneiss

These rock types occur within the migmatites and associated retrograded charnockite. The naming is purely based on the preponderance of the minerals and these rocks occur in the Periyar valley area east of Thodupuzha. (Nair and Selvan, 1976). These medium-grained, foliated, banded rocks consist of alternate layers rich in hornblende or biotite. Bands of coarse to medium-grained light grey to pink granite traverse these rocks. Hornblende- biotite gneiss showing lit par lit relationship with the granite gneisses is the dominant rock type in the Periyar valley. This is admixed with contorted bands and enclaves of pyroxene granulite, calc-granulite and hornblende- biotite granulite. These are highly deformed.

In the Palakkad gap area, these gneisses occur over a large area, showing migmatitic structures such as agmatites, nebulites, schlierens, ptygmatic folds, quartzo-feldspathic neosomes and ferromagnesian palaeosomes. (Muraleedharan and Raman, 1989).

Proterozoic

Basic intrusives

Basic dyke emplacements within the Archaean crystalline rocks of Kerala are spread throughout the entire length and breadth of the state. Of these, dolerite dyke occurring north of the Palakkad gap had given Proterozoic age whereas in the south this dyke is of Phanerozoic

age. The older basic dykes are metamorphosed along with the country rocks and are now recognised as epidiorite and amphibolite. Another set of dykes, apparently post-dating the regional metamorphic event are subjected to thermal metamorphism. Clouding and sericitisation of feldspars and uralitisation of pyroxenes are common in such dykes. In the absence of chronological data such dykes are considered to be of Proterozoic age. Most of the dykes are vertical in disposition and are traced as linear features. *En-echelon* pattern of some dyke swarms suggests that magmatic intrusion was controlled by shearing of the host rock., Mineralogically, the dykes are made up mostly of plagioclase feldspar and pyroxene(augite and aegirine-augite) with magnetite, apatite and olivine as accessories. The ENE-WSW dolerite dyke swarm of Agali- Anakkati area in Palakkad District within the Bhavani Shear zone showed in isotopic age from 1900 to 2000 Ma (Radhakrishna and Mathew Joseph, 1993). The rock is highly jointed and altered (Jacob, 1965). Similar basic intrusive bodies are traced in the Achankovil shear zone in Vazhamuttam (9°14'00":76°46'40"), Kulasekhara pettah (9°16'00":76°47'45") (Thomas Mathai *et al*, 1984). Sheet-like bodies of fine to medium-grained, dark coloured meta-gabbro occurs in Periyamuli (11°13'00"; 76°43'00") for about 20 km in ENE-WSW direction, Karuvarai (11°04'00"; 76°32'30") and few gabbro bodies south of Thuvapattu (11°06'30"; 76°44'45") in Attapady valley, Palakkad district. Meta-gabbro forms small hillocks east of Payyanam (10°31'00"; 76°21'00"), southwest of Kainur (10°36'00"; 76°09'00") and Chemmannur (10°41'00"; 76°01'00"), Vaga (10°35'00"; 76°06'00") and Arthat (10°37'00"; 76°03'00") in Trichur District (Mahadevan, 1962).

Dykes in north Kerala show , NW-SE, NE-SW and NNW-SSE trends. Host rocks are charnockite, gneisses and supracrustals(Radhakrishna *et al* 1991). Dykes are mainly dolerite but occasional meta-gabbro or meta-norite are also traced. In Agali- Anaikatti area of the Attapadi- Bhavani shear zone, dykes are confined within a 20-25km wide zone and extend from west of Agali to eastward for about 100km following a ENE-WSW direction.(Radhakrishna, *et al*, 1999).

The rock consists of 95% calcic plagioclase, 5% clinopyroxenes and subordinate amounts of magnetite. There are a number of concordant and discordant basic intrusive of dolerite and gabbro,meta-gabbro, meta-norite, meta-pyroxenite and anorthositic gabbro. These are not mappable and are seen in Pappinpra (11°06'20", 76°05'56") Velli(11°04'00":76°07'45"),

Kalpetta (11°04'12":76°05'32"). An extensive basic diorite has been mapped over an area of 25 sq km at Panavalli (11°53'30", 76° 2'30"; Nair, *et al* 1976).

The rock is composed predominantly of calcic plagioclase (95%) rest clinopyroxene with subordinate amount of magnetite. Another relatively small body of anorthosite is around Kalivalli (11°51'30"; 76°12'30") in south Wynad taluk, Wynad District.

Ultrabasic/ basic intrusive (younger)

Perinthatta Anorthosite

A major elliptical body of anorthosite spread over an area of more than 50 sq.km is reported from Perinthatta (12°10'00":75°17'30"; Vidyadharan *et al*, 1977). The anorthosite is with a very irregular border and a tongue-like projection into the country rock of charnockite and pyroxene granulite of Kannur District. The anorthosite is coarse to very coarse-grained, and shows variations from pure anorthosite to gabbroic anorthosite and gabbro from the centre to the periphery suggestive of zoning. The modal composition corresponds to nearly 95% plagioclase (An₅₈₋₇₂) and <10% clinopyroxene, apatite, calcite and magnetite. The gabbroic variants have more of mafics.

The structural configuration suggests that the anorthosite was emplaced in synformal structure as a phacolith. The flow-banding in anorthosite indicates its syntectonic emplacement. The Perinthatta anorthosite is assigned a Proterozoic age.

Ezhimala gabbro-granophyre complex

The major high-relief feature proximal to the Perinthatta anorthosite is constituted by the gabbro-granophyre Complex (Nair and Vidyadharan, 1982). The granophyre massif is fringed by the gabbro to the east and south. The Bavali fault running north of the complex is presumed to have dismembered the body from the Perinthatta anorthosite. Locally, the gabbro has anorthositic differentiates within it. Veins of granophyre traverse the gabbro at places give rise to breccia-like structures. The granophyre shows a sharp contact with the gabbro into which it intrudes. Rapakivi structure is observed within the granophyre. According to Nair and Vidyadharan (1982) rocks of Ezhimala complex display bimodal character with conspicuous basic and silicic components.

Kartikulam and Karraug Gabbro

Two gabbro bodies namely Kartikulam gabbro and Karraug gabbro are located northeast of Manantoddy bordering the Karnataka (Nair *et al*, 1975). The gabbro body at Kartikulam

occupies an area of about 45 sq.km. with an elliptical shape within the gneissic terrain. The actual contact with the gneiss is concealed but it is believed to be sharp. At many places, the gabbro is agmatized by coarse quartzo-feldspathic material.

The gabbro is coarse-grained and of uneven texture consisting essentially of plagioclase and pyroxene. Variation to anorthositic composition is noticed. The plagioclase is of labrodorite composition and shows alteration to sericite at places (Rema Warriar and Venkataraman, 1986). The pyroxenes are uraltized to varying degrees.

The Karraug gabbro body is located east of it and south of the Kabini River. It shows similar features as that of the Kartikulam gabbro. The rock shows phenocrysts of feldspar set in a fine matrix of flaky minerals.

Adakkathodu gabbro

At Adakkathodu (12°31'35"; 75°10'25"), northwest of Manantoddy, a 8 km long meta-gabbro, is intrusive into the basement gneisses on three sides and the Wynad schists in the east. It occurs proximal to the Bavali fault/lineament. It encloses, patches of quartz-sericite schists and biotite gneiss. (Nair *et al*, 1975). The rock is mesocratic to melanocratic, medium to coarse grained consisting mainly of pyroxene and plagioclase. The rock shows sub-ophitic texture and consists of enstatite and intermediate plagioclase of andesine-labrodorite composition (Nair *et al*, 1976). While the gabbro bodies of Kartikulam and Karraug to the east are olivine-bearing, the Adakkathodu gabbro is enstatite-bearing. Olivine, augite and zoned feldspars are recorded from the eastern body while the western body is enstatite-bearing, without the zoning in feldspar.

Begur diorite

An extensive basic diorite body (25 sq.km.) has been traced north of Manantoddy in the Begur Reserve Forest (Nair, *et al*, 1976). It extends from Thirunelli to the Karnataka State border. The southern contact is with augen gneisses indicating emplacement along shear zones while the northern one with sillimanite gneisses. Aplite and dolerite veins are seen traversing the rock mostly parallel to the regional foliation. The rock is mesocratic to melanocratic, coarse-grained and consists of pink to grey feldspar, hornblende and biotite.

The rock is feebly gneissic and at places porphyritic (Rema Warriar and Venkataramana, 1986). The phenocrysts are mostly plagioclase. Mafics at times swerve round the phenocrysts

giving rise to augen structure. Hornblende is altered to biotite and chlorite. Accessories include epidote, apatite, zoisite and opaques.

The diorite shows tholeiitic characteristics. The diorite is considered as a transitional rock from the gabbro with which it is spatially associated in the nearby area with the plagioclase become more sodic.

Charnockites [younger]

The area south of Palakkad exposes charnockite over large areas. The charnockites are represented by acid micropertitic charnockite and intermediate gneissic charnockite occurring in association with garnetiferous biotite gneiss and khondalite (Narayanaswamy and Purna Lakshmi, 1967). Massive charnockites are developed on a regional scale and occur as mappable litho-units (Raju and Gopalakrishnan, 1972), around Nedumangad. The massive charnockites in majority of the cases are acid and intermediate in composition. The rock is medium to coarse-grained and shows xenoblastic texture. It is composed of quartz, feldspar, pyroxenes, garnet and graphite with accessories like biotite, zircon, apatite and monazite.

Small patches, lenses or veins of charnockite occur in the gneisses of amphibolite facies in the Thiruvananthapuram area (Nageswara Rao and Raju, 1970). Here, the incipient charnockites are thought to have formed by transformation of paragneisses. (Hansen *et al*, 1987; Santosh *et al*, 1990). A few dominant varieties of incipient charnockites have been categorized by Ravindra Kumar and Chacko (1986) on the basis of their mode of occurrence, association and chemical processes involved in their development. At Kottavattom, north of Thiruvananthapuram, the charnockite consisting of quartz, K-feldspar, plagioclase, biotite, garnet and orthopyroxene as essential minerals and graphite, zircon, ilmenite, monazite, apatite, rutile and magnetite as accessory minerals are products of transformation of gneisses into coarse-grained charnockites along a system of conjugate fractures and foliation planes. (Saritha and Santosh, 1996).

Cordierite or Charnockite Gneiss

Cordierite bearing large linear zones of charnockites were reported around Pathanamthitta (Nageswara Rao and Jacob, 1967) area. Cordierite charnockites or orthopyroxene-garnet-cordierite bearing gneisses (Sinha Roy *et al*, 1984; Santosh, 1987) occur as discontinuous bodies in the northern parts of Thiruvananthapuram and in selected stretches further south around Koliakode. The rock is composed of cordierite, orthopyroxene, plagioclase, K-feldspar, spinel and quartz and a little garnet and biotite.

The growth of cordierite and orthopyroxene took place concomitantly during the conversion of gneisses to charnockites. At Nellikala in Pathanamthitta, the cordierite occurs as anhedral grains of variable sizes in the charnockites (Nandakumar, 1996).

Younger granites

The granites and its variants occur around Chengannur in Alappuzha and Pathanamthitta districts, Munnar in Idukki District, Peralimala in Kannur district and Kalpetta and Ambalavayal in Wynad District. Many of these granites occur as later emplacements along crustal fractures and faults. The Achenkovil – Tamraparni tectonic zone, the Attapadi shear zone, Bavali shear zone and the Moyar shear zone are all marked by granitic emplacements

Ambalavayal granite

The Ambalavayal (11°37'15"; 76 °03'30") granite having an oval shape covers an area of 50 sq.km. The granite is light pink in color and is composed of quartz, pink feldspar, hornblende and biotite. The pegmatites traversing the granite show occasional flakes of molybdenite. The Amabalavayal granite occurring in the proximity of the Bavali lineament is thought to be emplaced during its reactivation. The granite is intrusive into the hornblende-biotite gneiss (migmatite) and the Wynad Supracrustals (Anilkumar *et al*, 1993). Four types of granites are recorded, viz. foliated granite, pink granite, grey granite and aplitic granite.

The foliated granite consists of quartz, microcline, orthoclase, plagioclase, biotite, hornblende, chlorite, calcite and zircon. The pink granite is a medium-grained consisting of quartz, microcline, plagioclase, sericite, chlorite, apatite, rutile, zircon and biotite. The grey granite is a medium-to fine-grained rock consisting of quartz, microcline, sericite, biotite, chlorite and calcite. The aplitic granite is a very fine-grained massive rock consisting of quartz, microcline, orthoclase, plagioclase, sericite, biotite, calcite, chlorite, apatite and opaques.

K-Ar age of Ambalavayal granite (560 ± 30 Ma, Nair, *et al*, 1985) is lower than Rb-Sr age (595 ± 20 m.a Santhosh *et al*, 1986), but is higher than that of U-Pb-age (505 ± 20 ma, Odom, 1982). The reason for this variation in the date may be attributed to the different techniques adopted and also to the presence of biotite of multiple generation.

Munnar granite

The Munnar (10°05'00"; 77°05'00") granite with an areal extent of 50 sq km is an E-W trending irregular body emplaced within the migmatite and apophyses extend into the surrounding gneisses. The granite dated to be 740 ± 30 m.y (Odom, 1982) is traversed by pegmatite, aplite

and quartz veins. Three types of granite are recorded. Foliated granite, Coarse pink granite and medium grey granite. The foliated granite consists of stringers and streaks of mafics consisting of biotite, hornblende, chlorite and magnetite alternating with felsics consisting of quartz and potash feldspar. Potash feldspar is predominantly orthoclase. The closely spaced foliations are persistent but discontinuous. This granite forms a domal structure south of Munnar. It has a sharp contact with the migmatite. Coarse pink granite consists of pink feldspar, quartz and a little amount of mafics. Mafics are biotite, sphene and hornblende. Medium grained grey granite, consists of quartz, feldspar, biotite, chlorite, zircon, sphene, epidote, calcite and sericite.

Major element data of Munnar granites do not show any significant variation amongst the three granites. Content of iron is more in medium grey granite and foliated granite. Different variation diagrams reveal a slight tendency towards alkali granite. The foliated granite shows more percentage of orthoclase than the other two granites. (Nair and Anil Kumar, 1990)

Ezhimala granophyre – granite complex

A prominent granophyre body forms the hill known as Ezhimala, covering an area of 20 sq km in Kannur District. The granophyre is associated with gabbro and granite and is traversed by dolerite dykes. Two types of granophyres have been deciphered; coarse-grained leucocratic one and medium-grained one with more mafics. Drusy type, confined to higher elevation contain numerous vug lines with secondary minerals like quartz and calcite. Rocks of Ezhimala Complex display bimodal character with conspicuous basic and silicic components and total lack of rocks of intermediate composition typical of anorogenic suites (Nair and Vidyadharan, 1982). The granophyre is pink to ash grey coloured, massive, fine to coarse-grained, holocrystalline with equigranular texture. The granites are of two types. The major light pink granite with less of mafics show gradational relationships with the more greyish porphyritic variant (Varadan and Venkataraman, 1976).

Granophyre shows a typical granophyric intergrowth of quartz and feldspar forming the ground mass with phenocrysts of potash feldspar and some zoned plagioclase. The groundmass is totally of orthoclase. Augite is the chief ferro-magnesium mineral. Accessories include apatite, sphene, epidote, calcite and magnetite. Texturally the rock shows variation from coarse-grained leucocratic types with less mafics in the southern portion of the hill and medium to coarse grained type towards northern parts.

Minor outcrops of rapakivi granites are recorded within the granophyres of Ezhimala Complex. Anorthosites of Perinthatta and Kadannappally and granite, granophyre of Ezhimala together form the Ezhimala Complex. The light pink granite with less mafics is the major variety showing a gradational relationship with the more greyish porphyritic variety. The porphyritic variety, at places, shows rapakivi structure. The porphyritic granite shows mantled feldspar megacrysts. This variety grades into porphyritic granites without mantled feldspar and at higher levels grades into granophyre. The granite contains 60% of orthoclase feldspar, 5-10% of plagioclase, 20-25% of quartz with 4% of biotite, epidote, magnetite and fluorite. The low initial Sr_{87}/Sr_{86} ratio indicate that the rocks have a relatively minor amount of older sialic material. The Rb-Sr age of the granophyre is estimated to be 678 m.y (Nair and Vidyadharan, 1982). The Ezhimala Complex lies in close proximity to the Bavali lineament suggesting reactivation along the lineament and intrusion of the body.

Kalpatta granite

The Kalpatta ((11°36'15";76°05'15")) granite is an oval- shaped intrusive into the Wynad schist and covers an area of 44 sq km (Rao and Varadan, 1967). The rock is grey coloured, medium-grained, homogenous biotite granite and has sharp contact with the country rock. A feeble foliation is imparted to the granite at places by biotite flakes. Xenoliths of amphibolite / hornblende gneiss are visible near the periphery. Irregular veins of pegmatite / aplite traverse the granite and also the enclaves. The K-Ar age of the biotite from the Kalpatta granite is dated as 512 ± 30 m.a (Nair *et al*, 1985) and 527 m.a (GSI). Presence of enclaves and absence of significant replacement textures along with the geochemical characteristics assign a magmatic parentage for the granite. The proximity of the pluton to the Bavali lineament probably suggests intrusion along this fracture.

Three types of granites such as coarse grained biotite-granite, fine grained biotite granite, and porphyritic granite are mapped on the basis of texture, colour and mode of occurrence. Coarse-grained granite is a massive bluish grey rock with large xenoblasts of quartz and feldspars. The accessories include biotite, zircon, apatite and sphene. Blastesis of feldspar and sphene are common. Microcline, orthoclase, and plagioclase are seen as the major feldspar. Plagioclase composition varies from albite to oligoclase. This rock is exposed in Trikkaiappetta (11°35'04":76°08'41":), Manikkunnu (11°35'41":76° 07'09"), Kuttamangalam (11°30'08":76°07'11":) (Anilkumar *et al*, 1993).

Fine biotite-granite is a fine grained massive rock exposed around Muttimala (76°06'38":11°37'06"). It consists of orthoclase, quartz, microcline, biotite, sericite, zircon, sphene, apatite and opaques. Myrmekitic quartz is recorded. Pophyritic granite consists of myrmekitic quartz, microcline, sericite and biotite. Very coarse grained biotite with included crystals of orthoclase, microcline and albite are common. Except for the texture, all the three granites show similar characters (Anilkumar, *et al* 1993). Based on Rb-Sr dating, Kalpatta granite is dated 765 Ma (Odom 1982).

Chengannur granite

The Chengannur (9°18'45"; 76°31'00") granite in Pathanamthitta District is an oval shaped body with the long axis trending in east-west direction covering an area of 15 sq.km in and around Chengannur. The granite is intrusive into the charnockite gneisses. The body is emplaced close to the Achankovil shear zone. K-Ar date of the hornblende indicates an age of 550 m.a (Soman *et al*, 1983). The Chengannur granite is inferred to be a post kinematic granite of magmatic parentage.

Two types of granites are recorded. One is medium-grained pink granite and the other is coarse-grained grey granite. The former consists of quartz, perthitic feldspar, plagioclase, biotite, hornblende, apatite and zircon. The composition of plagioclase varies from albite to oligoclase. Microcline perthite is also seen. The coarse grained grey granite consists of perthite, plagioclase, hornblende, biotite, quartz with occasional occurrence of hypersthene,apatite and zircon. Hornblende and biotite are less common by occurred minerals than hypersthene. Relicts of hypersthene are also seen. This granite may be a product of granitisation of charnockite. K₂O content always exceeds that of Na₂O. The high SiO₂,high alkali, high Fe/Mg ratio, high values of Gallium indicate that the granite belongs to alkali type. It might have an origin from recycled and rehydrated continental crust. (Nair and Anil Kumar,1990).

Peralimala granite

The Peralimala (11°09'19":75°38'46") alkali granite is a linear intrusive body emplaced along the axial trace of a mega fold in EW direction. Peralimala intrusive body occurs as a diatreme of alkali composition with a maximum linear extension of 15 km and a width of 3 km. Based on colour, texture, composition and mode of occurrence four types of granites are identified. These are pink gneissic granite, porphyritic granite, grey granite and pink granite. Pink alkali granite is a coarse-grained rock consisting of microcline, orthoclase, plagioclase, quartz,

hornblende, epidote, aegirine, sphene, calcite, perthite and apatite. Quartz is present in only subordinate amounts. Feldspar content is very high. The preferred orientation of feldspar gives a crude alignment. At Perumpunna, (75°44'00":11°55'28") pink gneissic granite shows preferred orientation of biotite and pyroxene. The porphyritic granite occurs as a lensoidal body containing quartz, feldspar, pyroxene and hornblende. Feldspar forms the phenocrysts in a matrix of quartz-feldspar and mafics. Grey granite is a coarse- to medium- grained rock with microcline, quartz, orthoclase, perthite, hornblende and zoisite. Light grey granite is a medium-grained rock consisting of microcline, orthoclase, plagioclase (albite to oligoclase), epidote, aegirine, hornblende and rutile. The major element chemistry of the granite do not show much variation. The pink granite shows high content of potash. A negative correlation for K₂O content with respect to SiO₂ is very pronounced for pink granite owing to its alkaline nature. Barium and strontium show very high values for Peralimala granite. (Anilkumar *et al*,1993).

Sholayur granite

The Sholayur (11°04'15";76°42'00") granite, is exposed around Kuttiyadikal Mala (11°01'52":76°42'00") and Vachchpathi (11°04'15":76°44'00"). It is a homophanous medium-grained, pink coloured granite, consisting of quartz, orthoclase, microcline, oligoclase, perthite, aegirine augite, biotite, hornblende and sphene. In some places, calcite, apatite, sericite are also observed. The schlierens mark the contact zone of the granites with the host rock. This granite is emplaced within the Wynad supracrustals. SiO₂ varies from 58.76 to 73%, Al₂O₃ 14% to 17%, Na₂O 1.8% to 2.4% and K₂O 0.8 to 1.5%. The distribution of SiO₂ is highly non-uniform within the same type of granite. The pink granite is becoming alkali granite at places.(Anil Kumar and Nair,1992).

Intermediate intrusives

The syenite body at Mannapra (10°30'00";76°32'00") is exposed as an elongated NW-SE trending body covering an area of 8 sq km in Thrissur District. The syenite intrusive, makes sharp contact with the charnockite near the charnockite-migmatite contact. The rock is medium to coarse- grained at its peripheries and tends to be coarse-grained towards the centre. Mineralogically, the rock is composed of alkali feldspar, orthopyroxene, clinopyroxene and amphibole with minor amounts of plagioclase, biotite and opaques. A small syenite (Angadimugar syenite) body is located in Kumbala village (12°35'15"; 76°07'00") and about 20 km east of Kumbala in Kasaragod District. The intrusive body has an elliptical outline and covers an area of 5 sq km. The body is intrusive into the Khondalite Group and encloses

enclaves of amphibolite in the peripheral parts. The rock is medium to coarse grained, light grey and massive.

Mesozoic intrusives

Basic intrusives

Basic intrusives in Kerala, mainly represented by dyke swarms in NNW-SSE to NW-SE trend, cut across all the metamorphic rocks and the earlier structural trends. Their unmetamorphosed nature and stratigraphic relation with the country rocks prompted their correlation to the Deccan Trap volcanism.

The basic dykes have been emplaced into the migmatites and charnockite in NNW-SSE to NW-SE and ENE-WSW directions along distensional and shear fractures respectively. Dolerite dykes of Kerala are mostly quartz tholeiites rarely clinotholeiite. The basic dykes of Pathanamthitta ($9^{\circ}15'45''$: $76^{\circ}45'30''$) are genetically unrelated types. These dykes have not undergone any internal differentiation during intrusion.

The variation in the chemistry of individual dykes may be due to the cogenetic differential sequence. Dolerite dykes intrude the country rocks at an angle greater than 80° . The dolerite dykes of Kuttuparamba ($11^{\circ}49'30''$: $75^{\circ}34'00''$) in Kannur District shows cross cutting relationship with all the formations. The basic dykes of Vamanapuram ($8^{\circ}43'00''$: $76^{\circ}54'00''$) are either gabbroic or doleritic intruding the gneissic rocks. These are trending NNE to SSW and NNW to SSE directions and are unmetamorphosed. Mineralogically all these dykes show more or less same composition except the meta-dolerites. Variation in the trace elements like Ti, Zr can be attributed to the differential degree of partial melting of the mantle material. (Nair and Gopala Rao, 1989).

The unmetamorphosed Idamalayar gabbroic dyke with a NNW-SSE trend is traced for over 80 km in the central part of Kerala. The rock is mesocratic, medium-grained, porphyritic and is composed of plagioclase (andesine to labradorite), hornblende and opaques. The reported age of 75 m.y for the Idamalayar dyke (Subramaniam, 1976) links it in time-relationship with Deccan Trap volcanism.

The NNW-SSE trending leucogabbro dykes in central Kerala dated by whole rock K-Ar method gave an age of 81 ± 2 m.y and the NW-SE trending dolerite dyke 69 ± 1 m.y. The dolerite dykes are thought to have represented the feeder system for Deccan Trap volcanic sequences (Radhakrishna *et al*, 1994).

Basic dykes of Pathanamthitta area yielded ages of 99 Ma to 117 Ma and there are dykes which have yielded ages 104 ± 5 Ma, $127 \pm$ Ma and $476 \pm$ Ma. These wide variations may be due to a protracted history of emplacement and the effect of Eocambrian to palaeozoic tectonothermal events affecting this region (Sinha Roy and Ramakrishnan, 1983.)

In Thiruvananthapuram District, Anakudi and Nedumannur dolerite dykes are dated by K-Ar method and the whole rock ages are 104 ± 5 Ma and 127 ± 2 Ma respectively (Sinha Roy and Ramakrishnan, 1983).

Tertiary Sedimentary rocks

Mio-Pliocene sedimentary rocks are fairly widespread in the southern coastal belt, their remnants being noticeable in the central and northern coastal areas. These sedimentary rocks consist of a series of variegated clay and sandstones with lenticular seams of lignite, known as Warkalli Formation, underlain by more compact marly sands with shell fragments and thin horizons of limestone (Quilon Formation).

The Tertiary sediments have a gentle dip towards west. The Warkalli Formation extends in a narrow belt from Thiruvananthapuram ($8^{\circ}28'30''$: $76^{\circ}57'20''$) to Kasaragod ($12^{\circ}30'00''$: $74^{\circ}59'00''$) between coastal and midland regions with intervening promontories of the crystalline rocks. The Quilon Formation is mainly seen at Paravur ($08^{\circ}48'00''$: $76^{\circ}40'00''$) Padappakkara ($08^{\circ}58'30''$: $76^{\circ}38'00''$) and some other places around Kollam and Alappuzha districts.

Quilon Formation

The Quilon Formation consisting of fossiliferous shell limestone alternating with thick beds of sandy clays and calcareous clays have been reported from Padappakkara (type locality), Nedumgolam, Edavai ($8^{\circ}45'20''$: $76^{\circ}42'00''$) and Varkala ($8^{\circ}44'00''$: $76^{\circ}43'00''$) and Cherthala ($9^{\circ}41'00''$: $76^{\circ}20'00''$) along the west coast of Kerala. The Quilon limestone contains numerous fossils of foraminifera, corals, echinoids and molluscs. The Lower Miocene age for lower stratigraphic horizons and the Upper Miocene age for the topmost beds of the Quilon Formation indicate the lower and upper age limits of these marine sediments. The predominance of black clays, sandstone, bluish grey brackish water shell limestone and nodular limestone clearly indicate deposition in a lagoonal condition.

Warkalli Formation

The Warkalli Formation of Mio-Pliocene age extends all along the Kerala coast. The type section of the Warkalli Formation described by King (1882) is from the sea cliff at Varkala. The exposed section at Varkala cliff is 28-30 m thick consisting of unconsolidated sands of variegated clays, white plastic clays, and carbonaceous sandy clays enclosing impersistent seams and lenses of lignite. The carbonaceous clays and lignite are often impregnated with nodules of marcasite.

Fairly thick beds of carbonaceous clays with lignite seams occur around Nadayara kayal, Tamarakulam (9°08': 76°37'), Puliur (9°18'00": 76°35'00"), Payangadi (12°00'20": 75°15'40"), Nileswaram (12°15'00": 75°07'00"), Kanhangad (12°17'40': 75°05'00") and in the cliff sections near Cheruvathur (12°13'00": 75°09'50"). The most characteristic feature of the Warkalli Formation is the impersistent nature of the constituent beds, suggestive of shallow basin margin deposits.

Laterite

Kerala is the home of the laterite as it was first named by the Dutch traveller, Buchanan 1807. Laterite is widespread in its distribution in the midland region of Malappuram, Kannur and Kasaragod districts where it forms well-defined mesas. The Archaean crystalline rocks and the Tertiary sedimentary rocks are extensively lateritised. The laterite has wide areal distribution in the State and occurs at all levels upto 2000 m, height though mostly restricted to an altitude of 50-150 m above MSL. in the coastal and midland region. A few bauxitic patches also occur within the laterites. The thickness of laterite cappings varies from a few metres to 50 metre at places. At Chovvara (8°21'30"; 77°01'30") in Thiruvananthapuram District and Chattannur (8°50'30"; 76°46'30") and Kundara (8°57'00": 76°40'30") in Kollam District, a zone of about 2 m thick bauxite is recognised at the contact between the crystallines and the overlying sedimentary rocks. The overlying sedimentary column is also blanketed by laterite of varying thickness. The bauxite at the base of the sedimentaries indicates an earlier pre-Warkalli spell of lateritisation. Further, the erosional features on the top part of the bauxite horizon corroborates the antiquity of the earlier spell of lateritisation (Mallikarjuna and Kapali, 1980).

Generally, the laterite after the crystalline rocks is compact and the top crust moderately indurated. The dark brown crust passes downward to pink and buff coloured soft laterite. Quartz veins, joints and fractures can be traced from the top to the bottom of the laterite profile. The laterite profile over pyroxene granulites, meta-ultramafites and gneisses are characterised by relict foliation that conforms to those of the subjacent rocks which indicate the *insitu* nature

of the laterite. Porous and spongy texture is discernible in laterites, after meta-ultramafites. Laterite after the Tertiary sedimentaries is well indurated at the top for about 2 to 5 m. Downwards, the profile grades into soft laterite with remnants of gritstone and culminates into a zone of variegated clay.

Quaternary sediments

Recent to sub-Recent sediments of coastal sands, sticky black clay with carbonized wood, silty alluvium and lagoonal deposits are observed mostly in the low-lying areas from Kollam (11°27'00": 75°40'30") to Ponnani and between Kannur (11°51'30":75°21'45") and Nileswaram (12°15'30":75°08'16"). Alluvium is observed along the major river valleys. At places, along coastal tracts, there are raised sandy beaches composed of fine grained reddish sandy loam known as "terri" sands. Palaeo-beach ridges alternate with marshy lagoonal clay in the coastal area.

The sandy stretches are widest between Alappuzha (9°30': 76°20') and Kottayam (9°35': 76°31'), upto 25 km inland from the shoreline. The Quaternaries of the coastal plain have been classified into (i) the Guruvayur Formation representing the earlier strandline deposits with an elevation of 5-10 m; (ii) the Viyyam Formation of tidal plain deposits; (iii) Periyar Formation being mainly of fluvial deposits and (iv) the Kadappuram Formation representing the beach deposits (Krishnan Nair, 1989).

A pebble bed is traced in Valapattanam and Taliparamba river banks in Kannur district. It is exposed south of Valapattanam (11°55'30": 75 °21'30"), Kambil maloth (11°58':75 °24'), Morazha (11 °58'30": 75°20'30") and Arathiparamba (12°06'00": 75°15'30"). The size of the pebbles ranges in dimension from 4.5 cm x 3 cm to 7 cm x 3 cm with occasional cobbles of size 13 cm x 12 cm. The base of the pebble bed is generally 20 to 40 m above MSL and at places, the pebble bed directly rests over the basement rocks. The pebbles are mostly of quartz and rarely of granite and pyroxene granulite. The distribution of the pebble bed along the major river banks demonstrate it to be flood plain deposits, probably of early Quaternary period (Nair *et al*, 1976). In Malappuram and Kozhikode districts, the pebble bed is traced in the riverine terraces at Mavur (11°17'45":75°59'00"), Cheruvannur (11°12'8": 75°49'35") and Chellepparambu (11°14'30":75°59'00"). In Thiruvananthapuram District, the Quaternary pebble bed occurs at an elevation of 45 to 50 m above MSL at Pothenkode (8°37'00": 76°48'56"), Idaikode (8°40'11":76°50'49"), Attingal (8°41'49": 76°48'56") and Andoorakonam (8°36'00": 76°52'30").

Submerged upright tree trunks have been reported from a number of places in the coastal area of Kottayam and Alappuzha districts, indicating neotectonic reactivation in the area. Carbon dating of a sample from the submerged forest at Iravimangalam indicate an age of 7050 ± 130 B.P (Pawar *et al*, 1983).

Structure

The structural grain of the southern Peninsula is controlled mainly by the NNW-SSE trending near longitudinal Dharwarian trend which had folded all earlier structures. Since Kerala State falls in the western limb of the mega-structure almost all the rock distribution is aligned in NW-SE direction. However, detailed structural studies carried out in selected parts of the Kerala (Nair and Nair, 2001) had shown that (a) the earliest folds (F_1) which are represented both on mesoscopic and megascopic scale are tight appressed folds of asymmetrical nature which had given rise to axial plane foliations with characteristic platy mineral alignments (b) the F_2 folds on these foliations (post-folial) are open symmetrical and have developed mainly on megascopic scale and control the disposition of the major lithologies. (c) Subsequent folds (F_3) which deform F_1 and F_2 axial plane traces are broad folds on mega-scale identified with the longitudinal Dharwarian trends and (d) a broad swerve on these Dharwarian trends in ENE-WSW is also decipherable (Fig.2).

Detailed analysis of the remote sensing data had revealed the presence of a number of significant lineament patterns in WNW-ESE, NW-SE, NNW-SSE, NNE-SSW and ENE-WSW directions (Nair, 1990). Mega and intermediate lineaments in WNW-ESE were originally crustal fractures and shears which got sealed or obliterated by a number of igneous emplacements of alkali granite, syenite, gabbro, anorthosite, granophyre etc. The emplacements along the Bavali lineament and those along the Achenkovil lineament both of which trending in this direction had given ages ranging from 500 – 678 Ma. Hence they are identified to be the oldest lineament. The Bavali lineament forms the western termination of the Moyar shear. The NW-SE trending lineaments constitute mega lineaments and coincide with the basic dykes occurring throughout the length and breadth of the state. These dykes have given ages ranging from 61 to 144 Ma. The NNW-SSE trending lineaments are generally intermediate lineaments and are attributed to fractures, faults and major joint patterns in the area. It is recognized that the NNW-SSE trending lineaments define a weak zone along which the west coast evolved by faulting. The eastern limit of the Tertiary basin is found restricted along this lineament direction. These lineaments occurring along the west coast are be active as suggested by the progradation of the coast west of these lineaments (Nair, 1987). The

lineaments in NNE-SSW are prominent and are identified with major fractures and this together with those in NNW-SSE are taken to constitute a conjugate system of faults in a N-S compressive regime due to the collision of the Indian plate. The ENE-WSW trending lineaments are intermediate lineaments and are well- developed in the northern parts of the Kerala . Since these lineaments truncate other lineaments as evidenced especially in the coastal stretches it is considered the youngest. Many a recent tremors reported are aligned in this direction and hence considered neotectonically active.

Metamorphism

The Precambrian crystalline rocks of Kerala are chiefly metapelites, charnockites with associated gneisses and granulites, schistose rocks with distinct metapelitic and metamafic / ultramafic affinity and granitic derivatives which include the Peninsular gneisses and migmatites. Except the Wynad schists and the Vengad group, the bulk of the crystalline rocks show granulite to upper amphibolite facies of metamorphism. Wynad schist displays a prograde amphibolite facies metamorphism and the retrogression of these rocks leads to lower amphibolite facies metamorphism. The vast charnockite belt occurring on either side of the Wynad schist belt, in north Kerala, shows petrographic evidences of prograde and retrograde reactions (Nambiar, 1996). The rocks of the Vengad Group show greenschist to lower amphibolite facies of prograde metamorphism. The older intrusive bodies show effects of incipient metamorphism, marked by clouding of feldspar and bending of twin lamellae.

Recent investigations on the pressure – temperature range for the formation of characteristic mineral suits within the metamorphic rocks provide a fair idea on the poly-metamorphic history of the rock suits. Rocks of the Khondalite belt of south Kerala indicate a temperature range of 650 to 850°C and pressures 5 to 6 kb (Srikantappa *et al*, 1985). In the Thiruvananthapuram area, the temperature at the peak of metamorphism indicated by the mineral assemblages of the calc-silicate rocks is about 830°C at 5 K bar considering the vapour absent garnet forming equilibria (Satish Kumar and Santosh, 1996). The scapolite equilibria indicates a peak metamorphic temperature of above 800°C. Stable isotopes in the marble bands suggest that there was no pervasive infiltration of external fluids. Local infiltration of external carbonic fluid took place during decomposition. Synthesis of such data from different lineament/shear bound segments in Kerala indicate varying metamorphic conditions and uplift history. It is also summerised that there is a progressive decline in the uplift of different segments from north to south (Soman, 1997).

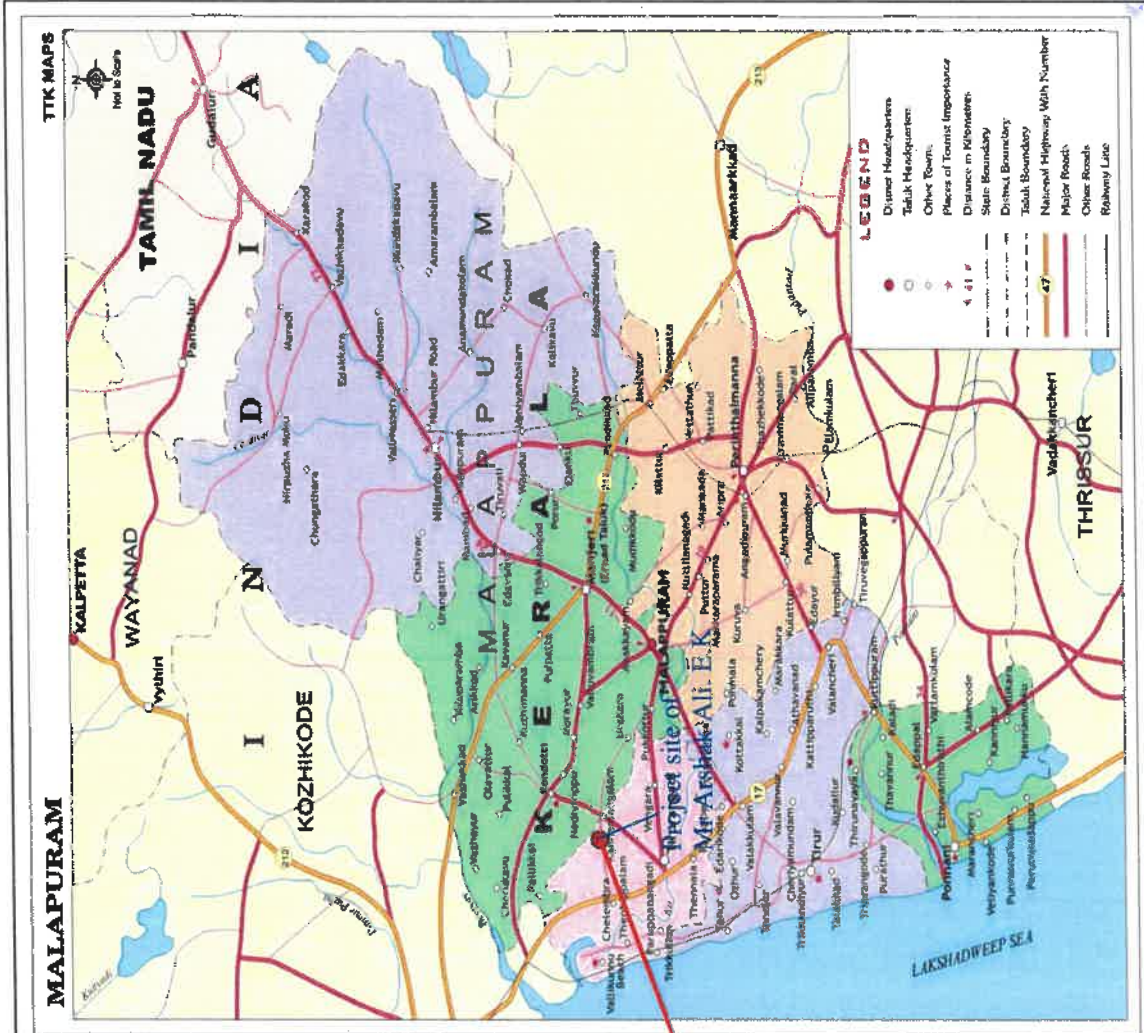
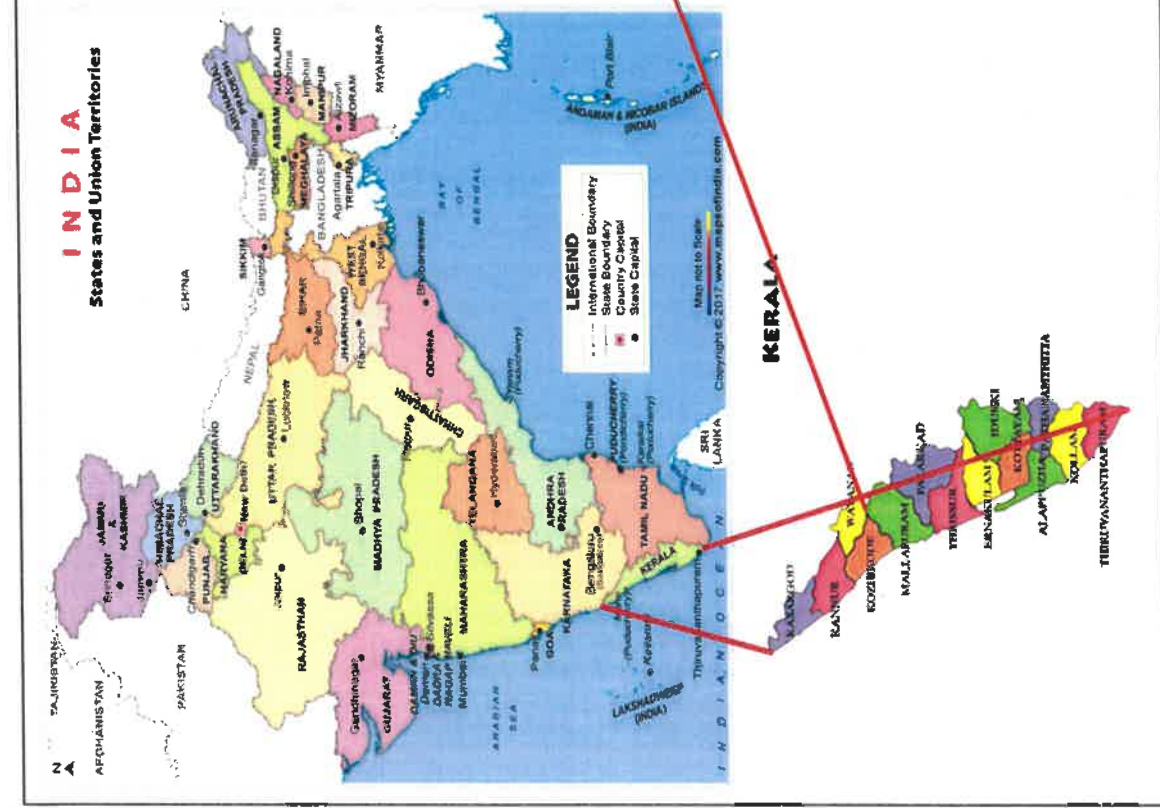
 **SUSTAINABLE DEVELOPMENT GOALS**





PLATE

GRANITE (BUILDING STONE) QUARRY PROJECT SITE OF MR ARSHAK ALI. E.K KEY PLAN OF MINE AREA



Re-SY.No :- 104/2B-09, 104/2B-44,
TALUK :- TIRURANGADI
STATE :- KERALA

EXTENT :- 2.0144 Ha
VILLAGE :- KANNAMANGALAM
DISTRICT :- MALAPPURAM

PLATE.NO :- 1(A)
NOT TO SCALE

GRANITE (BUILDING STONE) QUARRY PROJECT SITE OF MR ARSHAK ALI. E.K ROUTE MAP & VICINITY MAP OF MINE AREA



PLATE NO :- 1(B)

NOT TO SCALE

EXTENT :- 2.0144 Ha

VILLAGE :- KANNAMANGALAM

DISTRICT :- MALAPPURAM

Re-SY.No :- 104/2B-09, 104/2B-44,

TALUK :- TIRURANGADI

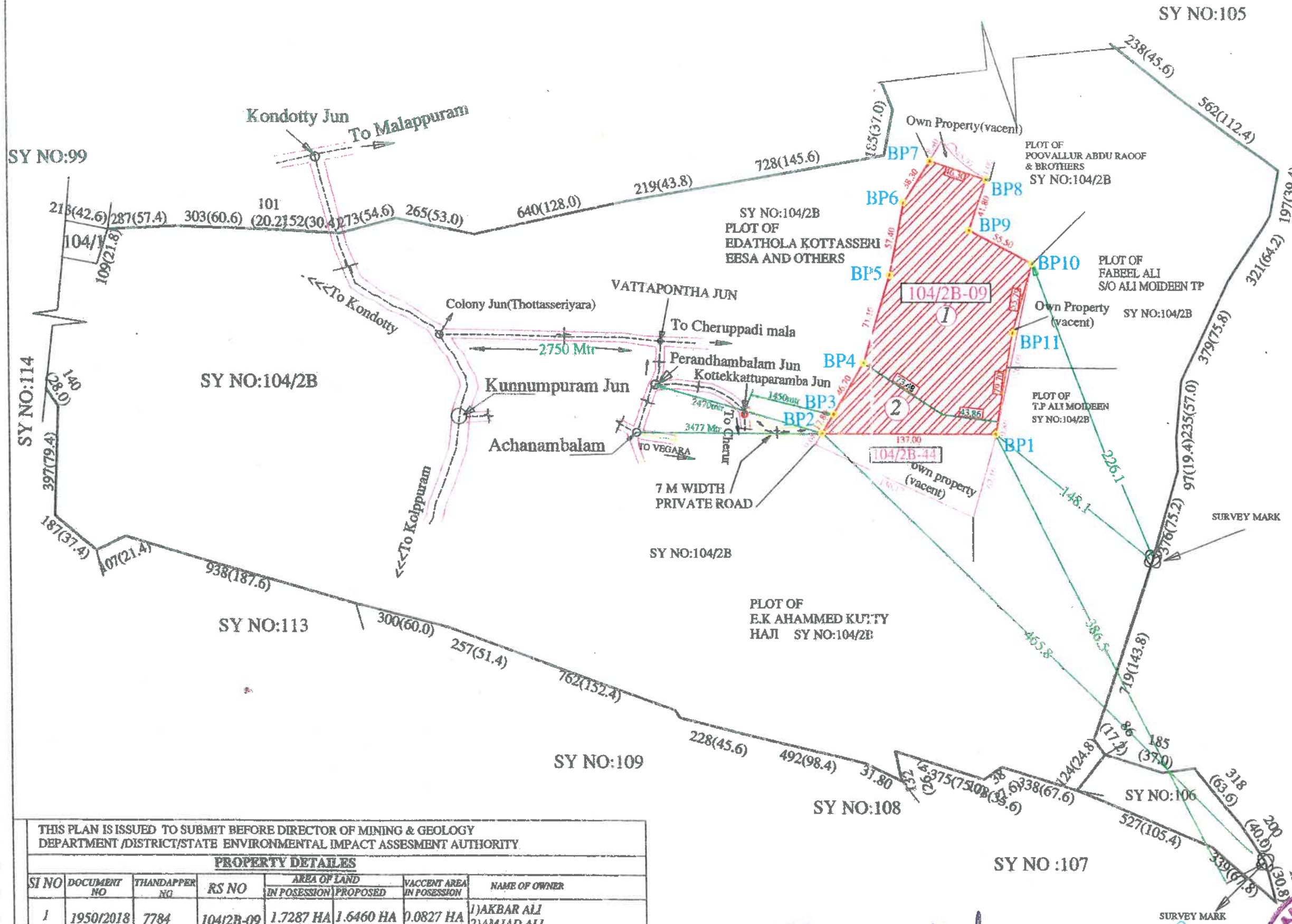
STATE :- KERALA



SURVEY MAP OF MR. ARSHAK ALI E K, S/O ALI MOIDEEN E K, EDATHOLA KOTTASSERI, MALABAR MANZIL, ERANIPPADI, KANNAMANGALAM PO, MALAPPURAM DISTRICT, PIN : 676304



DISTRICT : MALAPPURAM
 TALUK : TIRURANGADI
 VILLAGE : KANNAMANGALM
 PANCHAYATH : KANNAMANGALM(WARD) :
 BLOCK NO : 2
 RE SY NO : 104/2B-44,09
 AREA OF SURVEY FIELD : 170.98 ACRE
 APPLIED AREA FOR LEASE : 2.0144 HA



BOUNDARY CO-ORDINATES		
BP1	11° 5'48.70"N	76° 0'12.10"E
BP2	11° 5'48.70"N	76° 0'7.60"E
BP3	11° 5'49.20"N	76° 0'7.90"E
BP4	11° 5'50.50"N	76° 0'8.70"E
BP5	11° 5'52.71"N	76° 0'9.41"E
BP6	11° 5'54.54"N	76° 0'9.80"E
BP7	11° 5'55.58"N	76° 0'10.50"E
BP8	11° 5'55.11"N	76° 0'11.95"E
BP9	11° 5'53.83"N	76° 0'11.47"E
BP10	11° 5'52.99"N	76° 0'13.10"E
BP11	11° 5'51.25"N	76° 0'12.56"E

LEGEND	
	PROPOSED LEASE AREA
	SUB DIVISION LINE
	PROPOSED QUARRY BOUNDRY
	SURVEY LINE
	HOUSE / BUILDING
	7M WIDTH PRIVATE ROAD
	PWD ROAD
	OWN PROPERTY BOUNDRY
	PRO: QUARRY BOUNDRY PILE
	SURVEY MARK

THIS PLAN IS ISSUED TO SUBMIT BEFORE DIRECTOR OF MINING & GEOLOGY DEPARTMENT /DISTRICT/STATE ENVIRONMENTAL IMPACT ASSESMENT AUTHORITY.

PROPERTY DETAILS

SI NO	DOCUMENT NO	THANDAPPER NG	RS NO	AREA OF LAND		VACCENT AREA IN POSSESSION	NAME OF OWNER
				IN POSSESSION	PROPOSED		
1	1950/2018	7784	104/2B-09	1.7287 HA	1.6460 HA	0.0827 HA	1)AKBAR ALI 2)AMJAD ALI 3)ARSHAK ALI
2	1949/2018	7856	104/2B-44	0.8642 HA	0.3684 HA	0.4958 HA	4)KADER BABU 5)ARIFUSSALAH 6)KONNAKATTIL SIDHIQUE 7)AHAMMED KUTTY HAJI
TOTAL AREA				2.5929 HA	2.0144 HA	0.5785 HA	

Handwritten signatures and stamps, including a purple circular stamp and a blue rectangular stamp with the name 'SHAJU. M.S. SILDAR'.

PROPOSED LEASE AREA	= 2.5929 HA
EXISTING QUARRY AREA	= Nil
SCALE	1 CM = 31.1 M

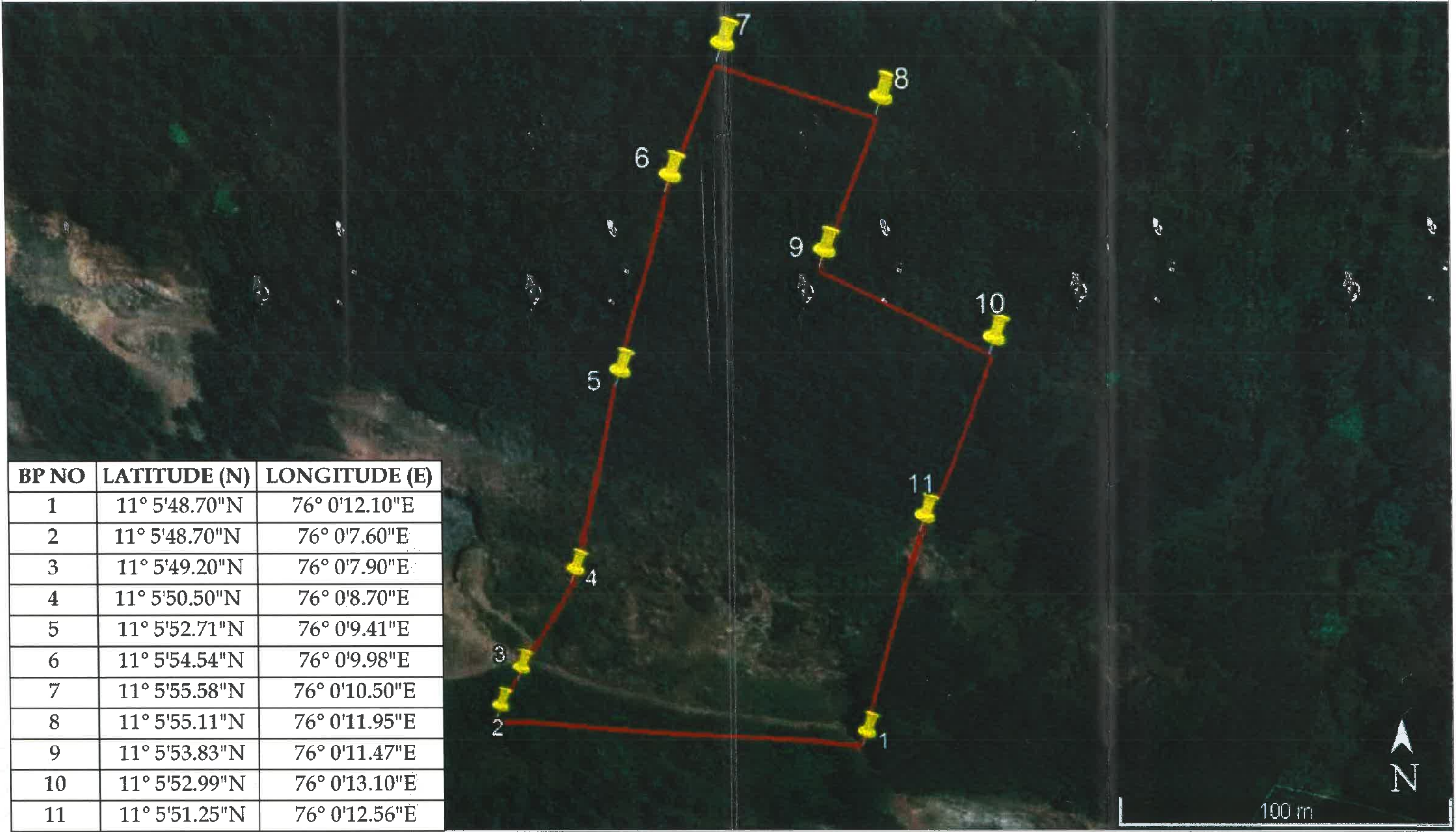
**GRANITE (BUILDING STONE)
QUARRY OWNED BY:-
ARSHAK ALI. E. K**

GOOGLE MAP SHOWING LEASE AREA

PLATE :- 1(D)

RE-SY No :- 104/2B-09,
104/2B-44
EXTENT :- 2.0144 Ha
STATE :- Kerala

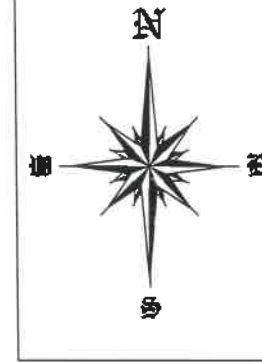
VILLAGE :- Kannamangalam
TALUK :- Tirurangadi
DISTRICT :- Malappuram



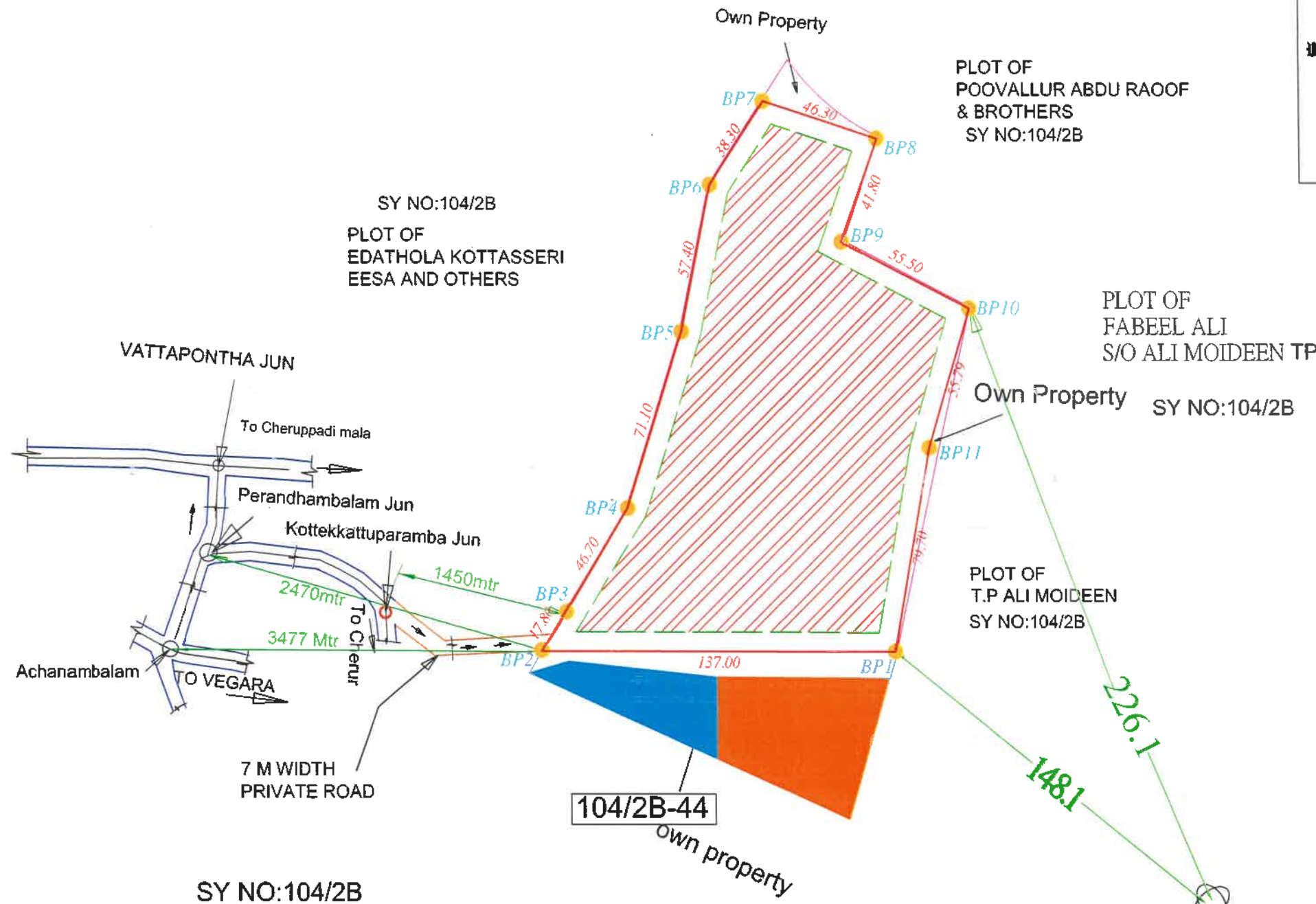
BP NO	LATITUDE (N)	LONGITUDE (E)
1	11° 5'48.70"N	76° 0'12.10"E
2	11° 5'48.70"N	76° 0'7.60"E
3	11° 5'49.20"N	76° 0'7.90"E
4	11° 5'50.50"N	76° 0'8.70"E
5	11° 5'52.71"N	76° 0'9.41"E
6	11° 5'54.54"N	76° 0'9.98"E
7	11° 5'55.58"N	76° 0'10.50"E
8	11° 5'55.11"N	76° 0'11.95"E
9	11° 5'53.83"N	76° 0'11.47"E
10	11° 5'52.99"N	76° 0'13.10"E
11	11° 5'51.25"N	76° 0'12.56"E

DIGITAL LEASE PLAN

PLATE -1(E)



- PROPOSED LEASE AREA
- PROPOSED MINING AREA
- 7.5 M BUFFER ZONE
- OVER ALL BOUNDARY
- MAIN ROAD
- QUARRY ROAD
- BOUNDARY STONE
- OVERBURDEN DUMPING YARD*
- TOP SOIL DUMPING YARD*
- SURVEY STONE



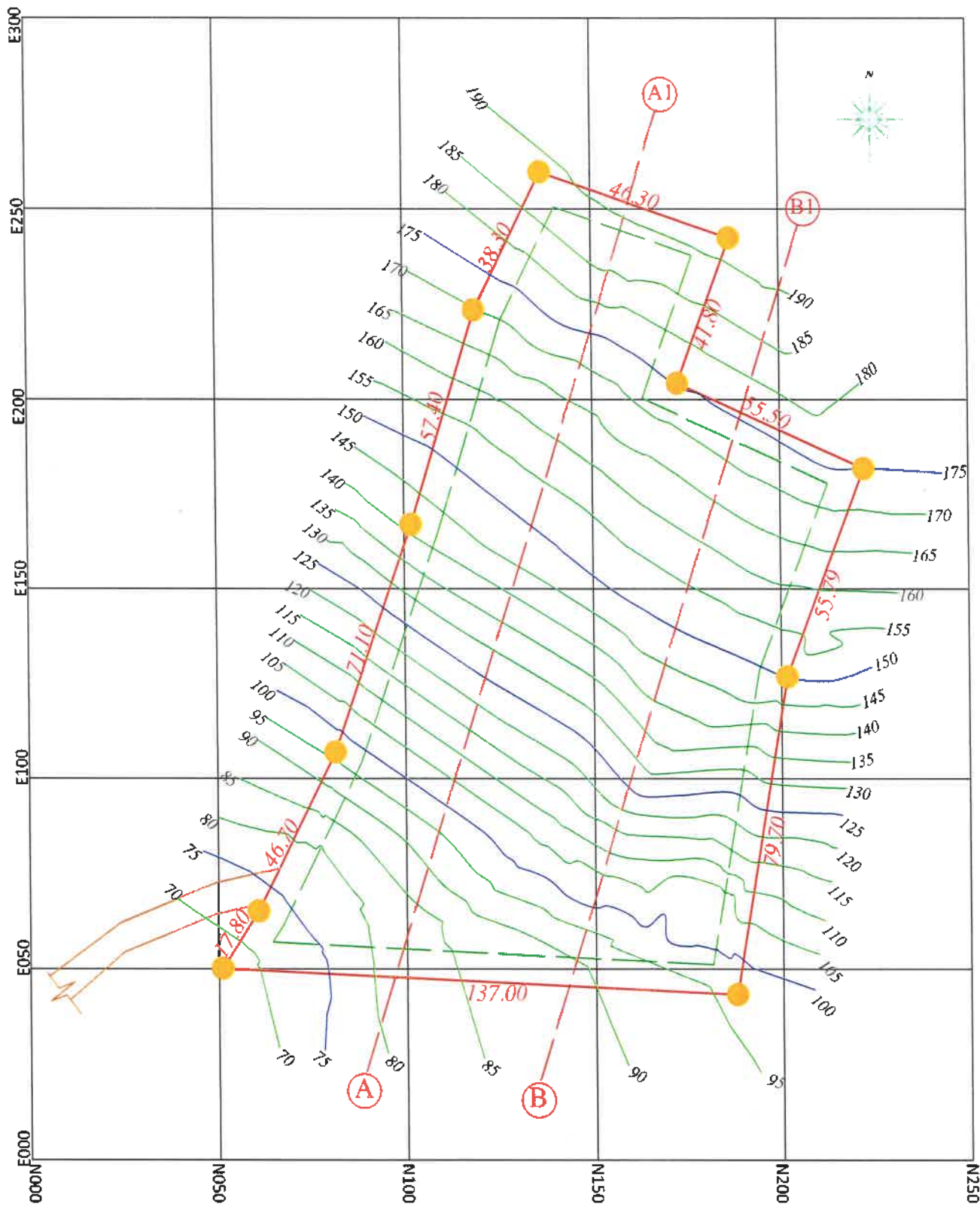
DIGITAL LEASE PLAN

GRANITE (BUILDING STONE) QUARRY OWNED BY :- ARSHAK ALI. E. K

Village :- Kannamangalam
 Taluk :- Tirurangadi
 District :- Malappuram
 State :- Kerala
 Re-Survey Block No :- 2
 Re-Survey number :- 104/2B-09,104/2B-44
 Overall area :- 2.5929 Ha
 Proposed lease Area :- 2.0144 Ha
 Buffer Area :- 0.4693 Ha
 Mining Area :- 1.5451 Ha
 Scale :- 1:2000

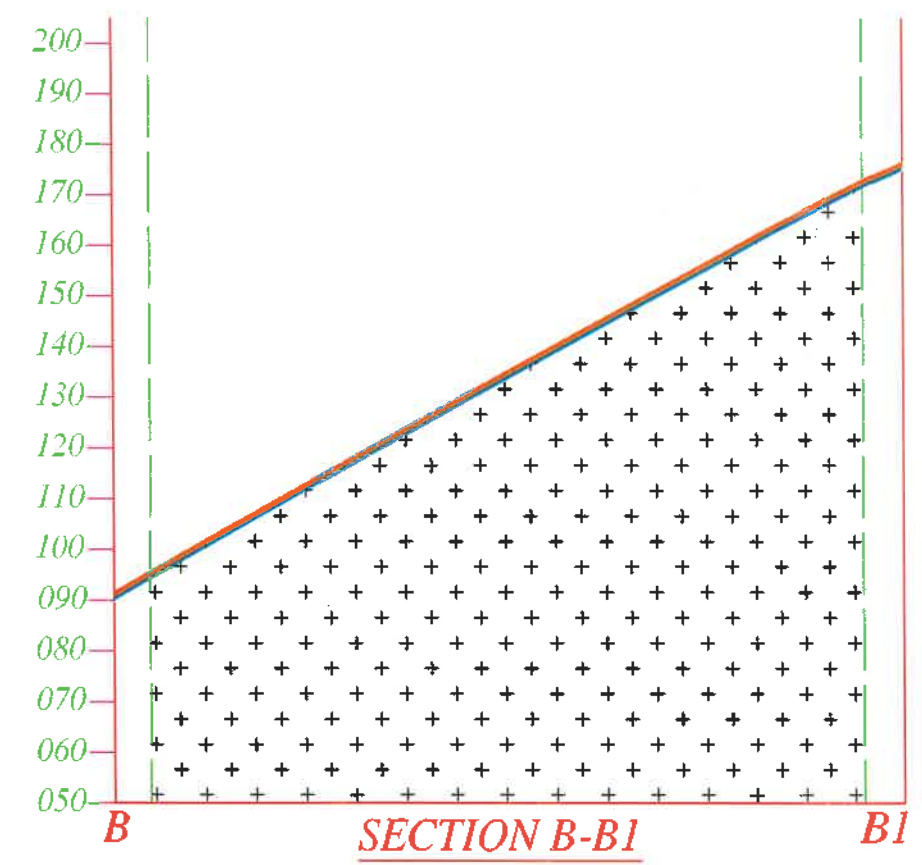
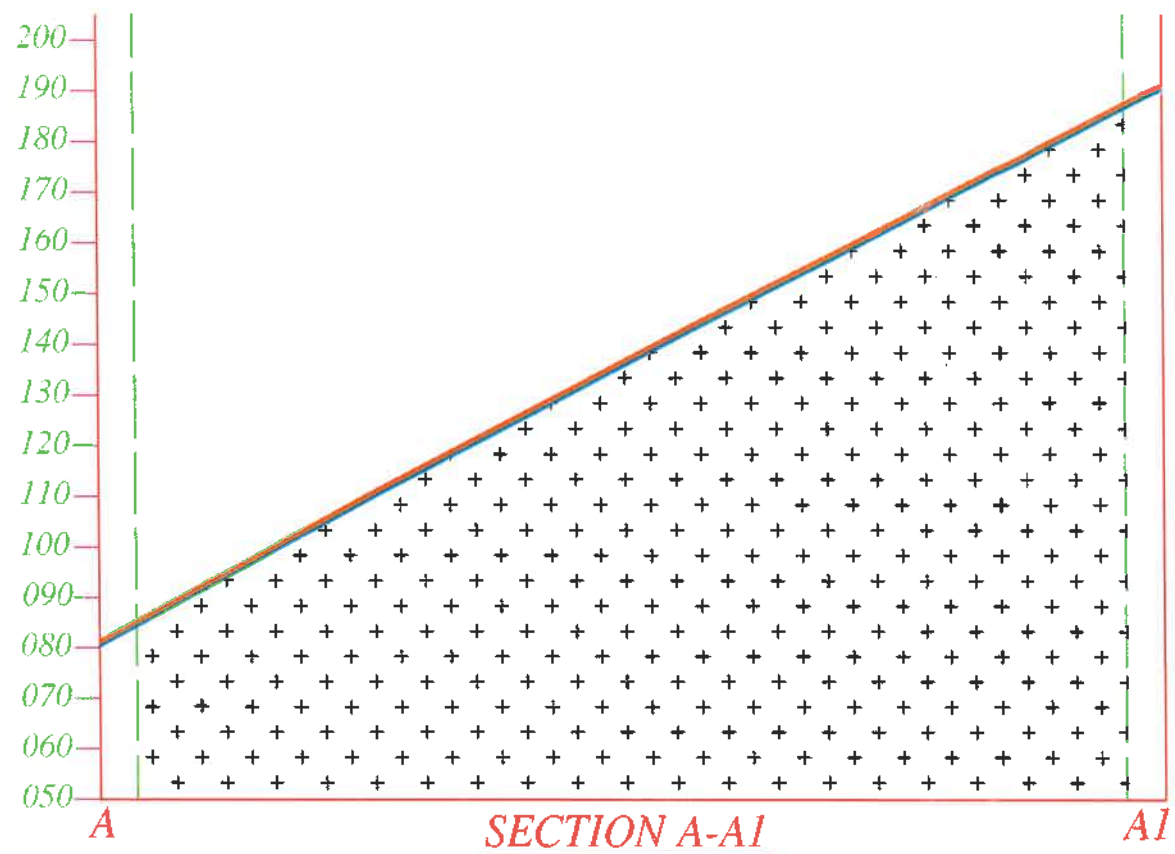
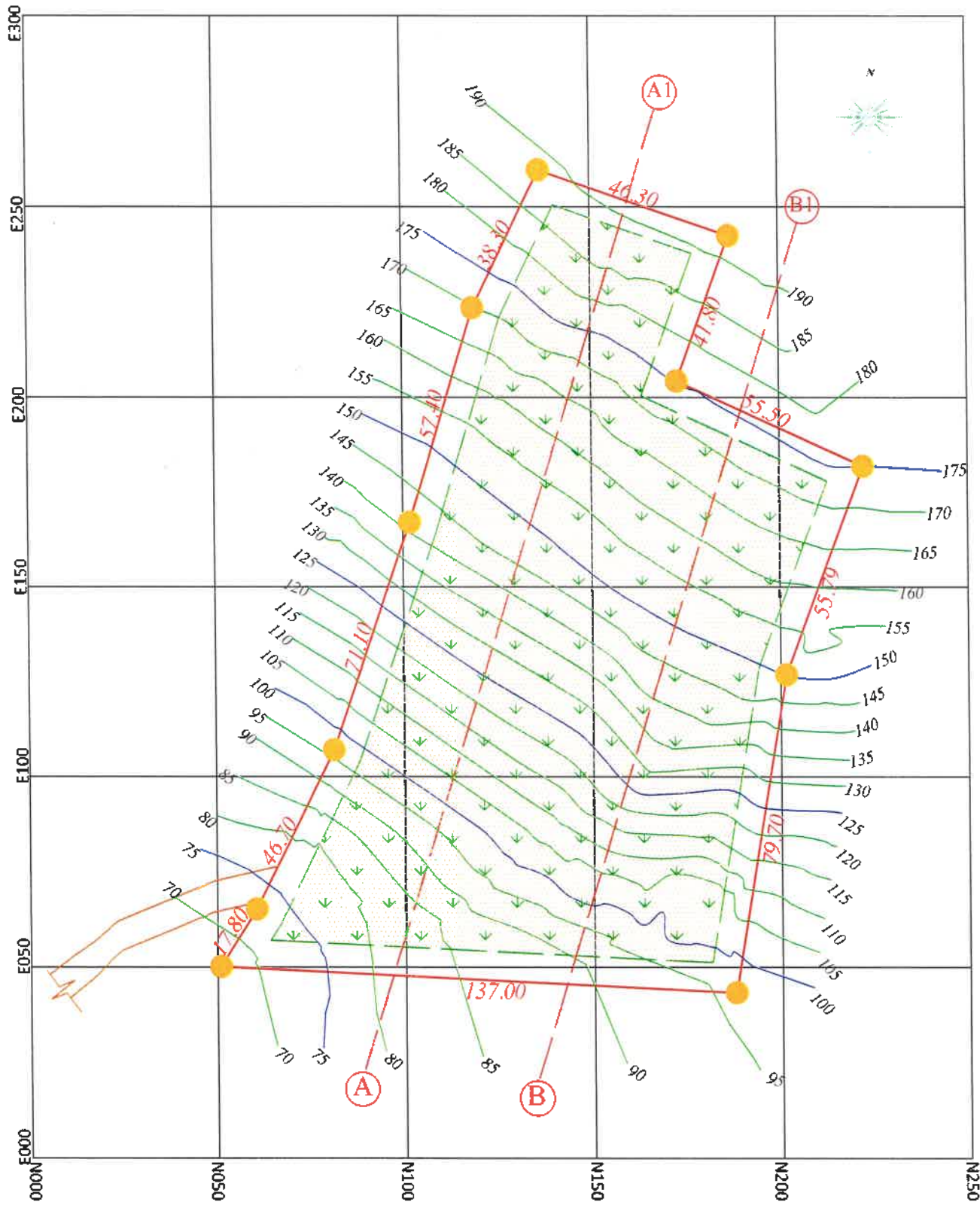
BP NO	LATITUDE (N)	LONGITUDE (E)
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2	11° 5'48.70"N	76° 0'7.60"E
3	11° 5'49.20"N	76° 0'7.90"E
4	11° 5'50.50"N	76° 0'8.70"E
5	11° 5'52.71"N	76° 0'9.41"E
6	11° 5'54.54"N	76° 0'9.98"E
7	11° 5'55.58"N	76° 0'10.50"E
8	11° 5'55.11"N	76° 0'11.95"E
9	11° 5'53.83"N	76° 0'11.47"E
10	11° 5'52.99"N	76° 0'13.10"E
11	11° 5'51.25"N	76° 0'12.56"E

Plan Prepared by :-
MAHESH S.
 Recognized Qualified Person (RQP),
 (RQP No - RQP/BNG/338/2014/A)
 Thiruvananthapuram District, Kerala



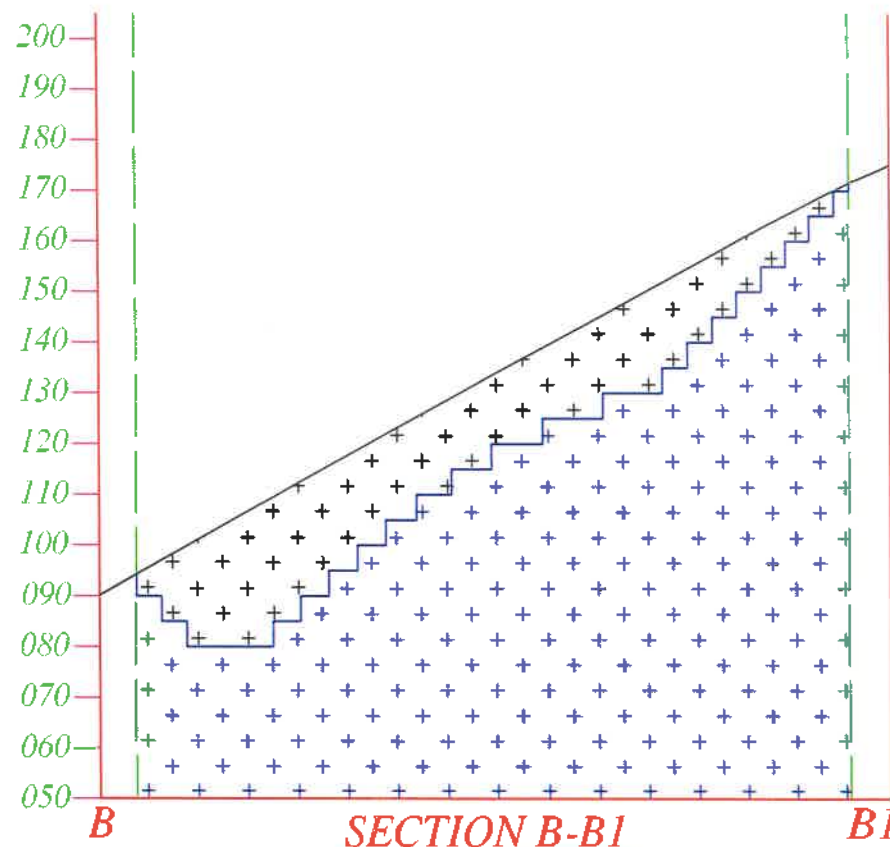
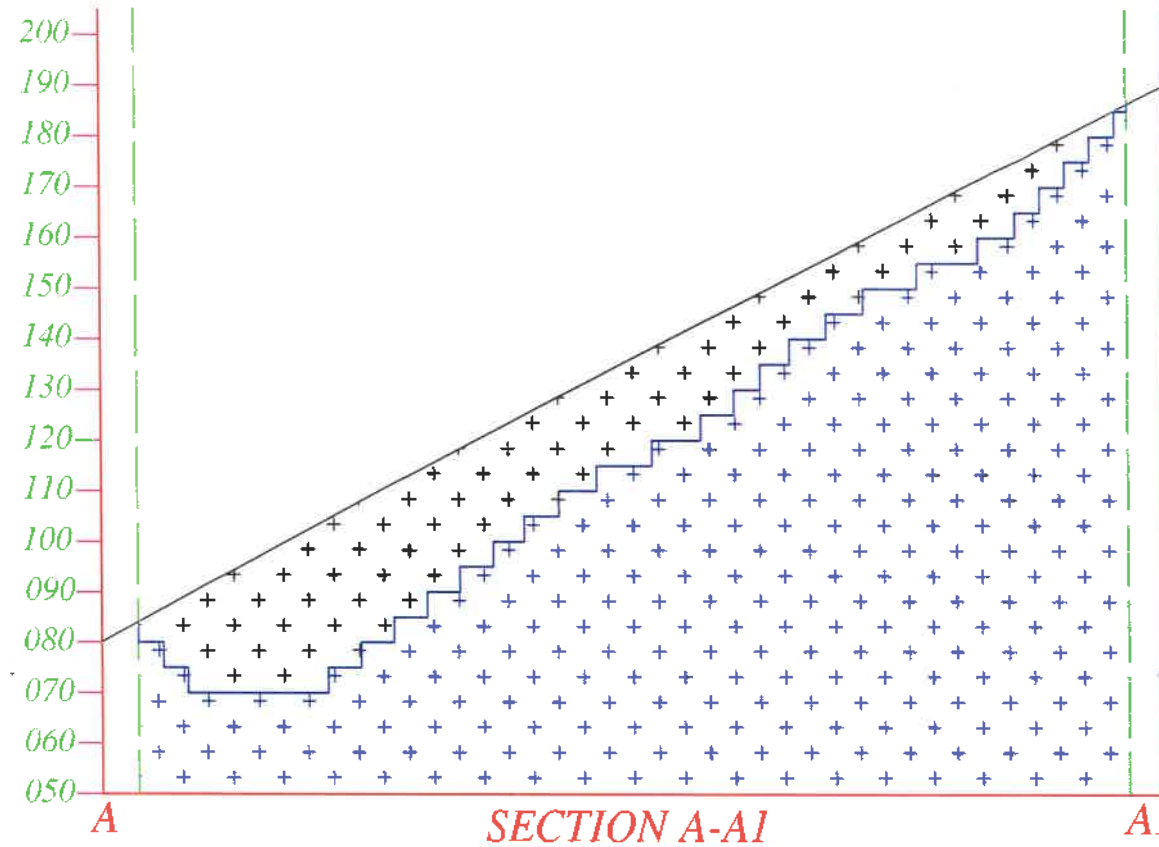
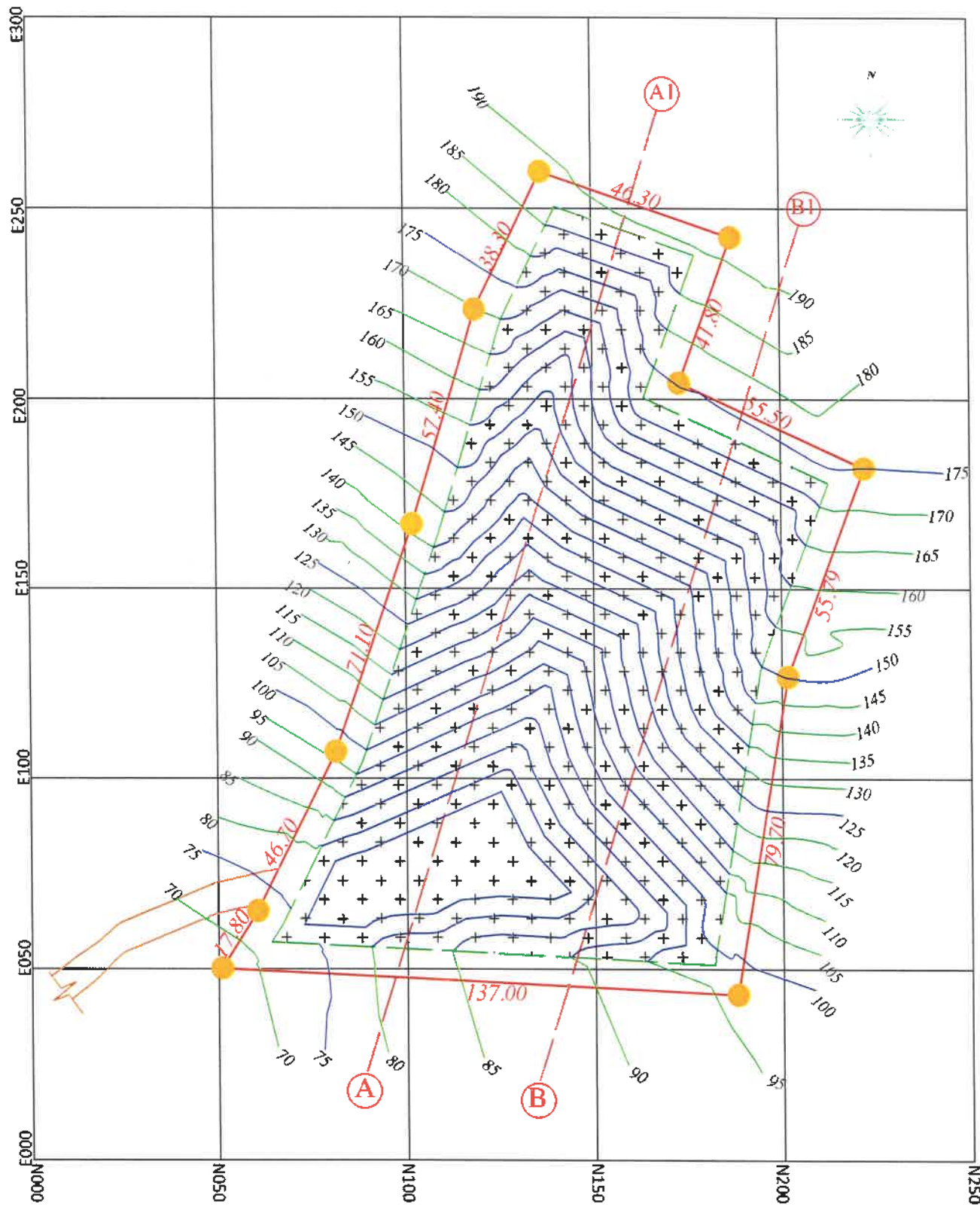
LEGEND	
	LEASE BOUNDARY
	7.5 m BUFFER ZONE
	QUARRY ROAD
	BOUNDARY STONE
	CONTOUR LINE
	SECTION LINE
GRANITE (BUILDING STONE) QUARRY OWNED BY:- ARSHAK ALI. E. K	
SURFACE PLAN	
EXTENT	:- 2.0144 Ha
RE-SY No	:- 104/2B-09, 104/2B-44
VILLAGE	:- Kannamangalam
TALUK	:- Tirurangadi
DISTRICT	:- Malappuram
STATE	:- Kerala
MAHESH. S Recognized Qualified Person (RQP), (RQP No - RQP/BNG/338/2014/A) Thiruvananthapuram District, Kerala	
SCALE - 1:1500	PLATE NO.: 2

MAHESH. S.
M.Tech Applied Geology
RQP
RQP No: BNG/338/2014/A



LEGEND	
	LEASE BOUNDARY
	7.5 m BUFFER ZONE
	QUARRY ROAD
	BOUNDARY STONE
	CONTOUR LINE
	SECTION LINE
	SOIL & OB
	GRASS
	GRANITE
GRANITE (BUILDING STONE) QUARRY OWNED BY:- ARSHAK ALI. E. K	
GEOLOGICAL PLAN & SECTION	
EXTENT	:- 2.0144 Ha
RE-SY No	:- 104/2B-09, 104/2B-44
VILLAGE	:- Kannamangalam
TALUK	:- Tirurangadi
DISTRICT	:- Malappuram
STATE	:- Kerala
MAHESH. S Recognized Qualified Person (RQP), (RQP No - RQP/BNG/338/2014/A) Thiruvananthapuram District, Kerala	
SCALE - 1:1500	PLATE NO.: 3

MAHESH S.
M.Tech Applied Geology
RQP
RQP No: BNG/338/2014/A



LEGEND	
	LEASE BOUNDARY
	7.5 m BUFFER ZONE
	QUARRY ROAD
	CONTOUR LINE
	BOUNDARY STONE
	SECTION LINE
	MINEABLE
	BLOCKED
	WORKING BENCH

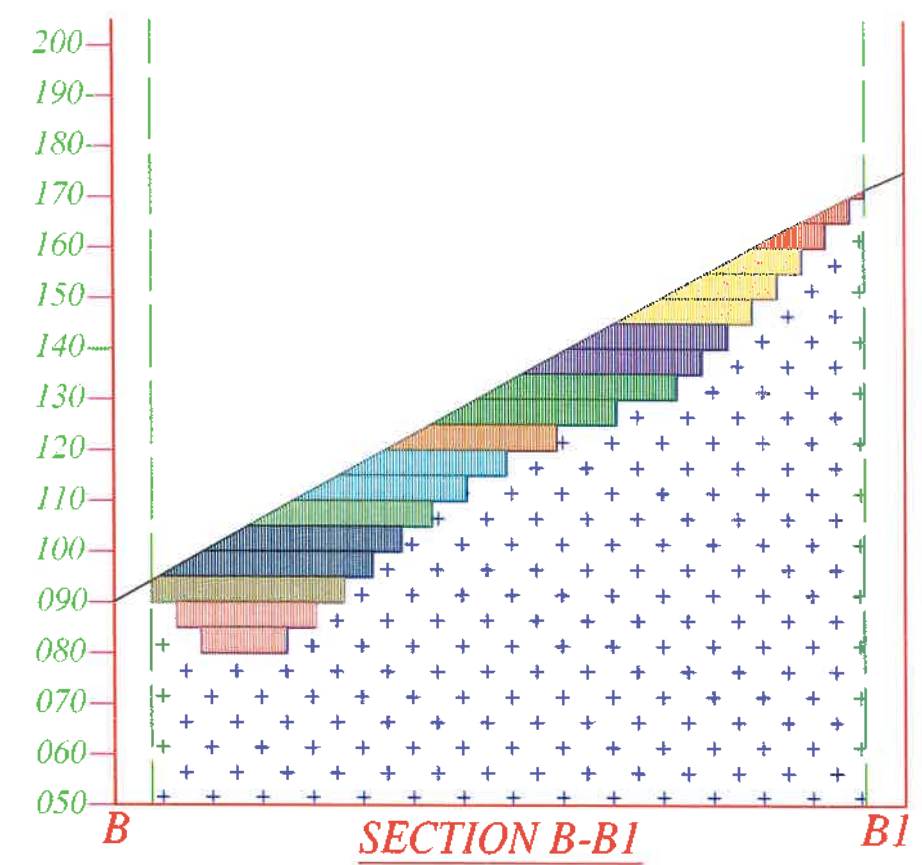
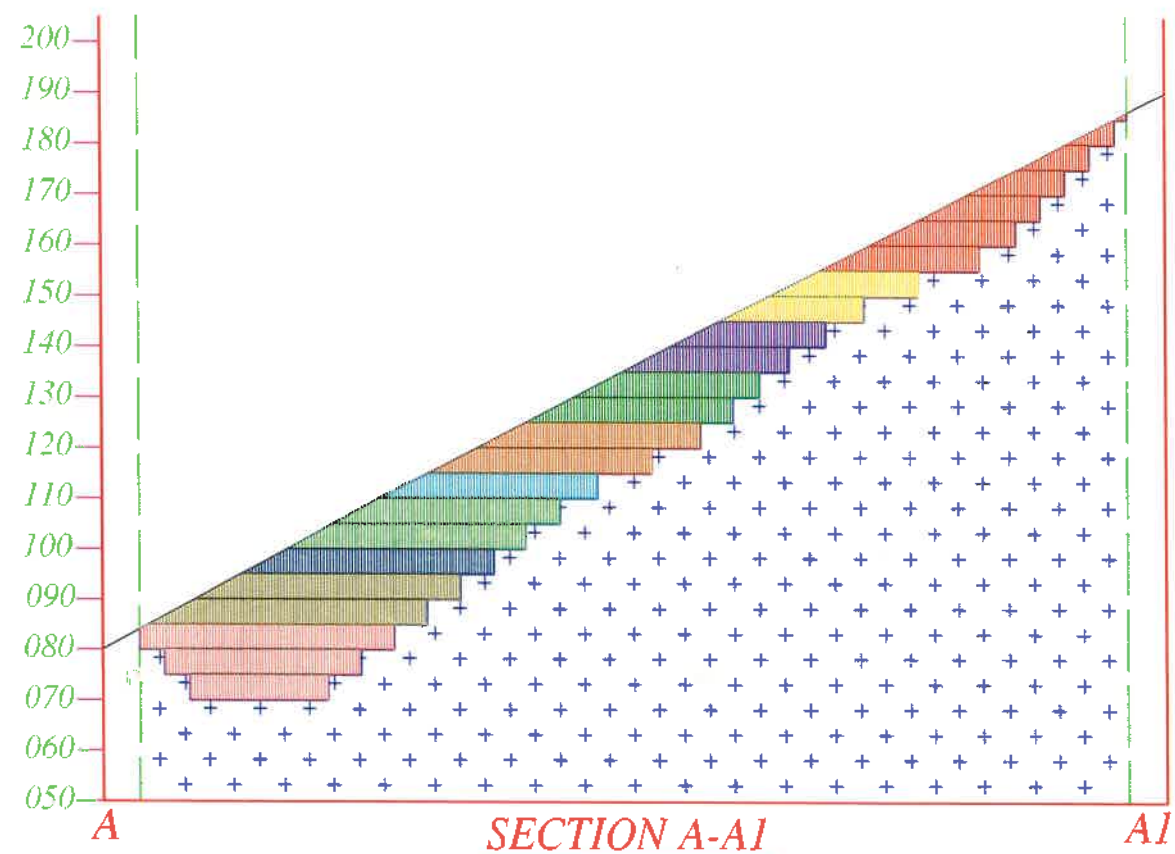
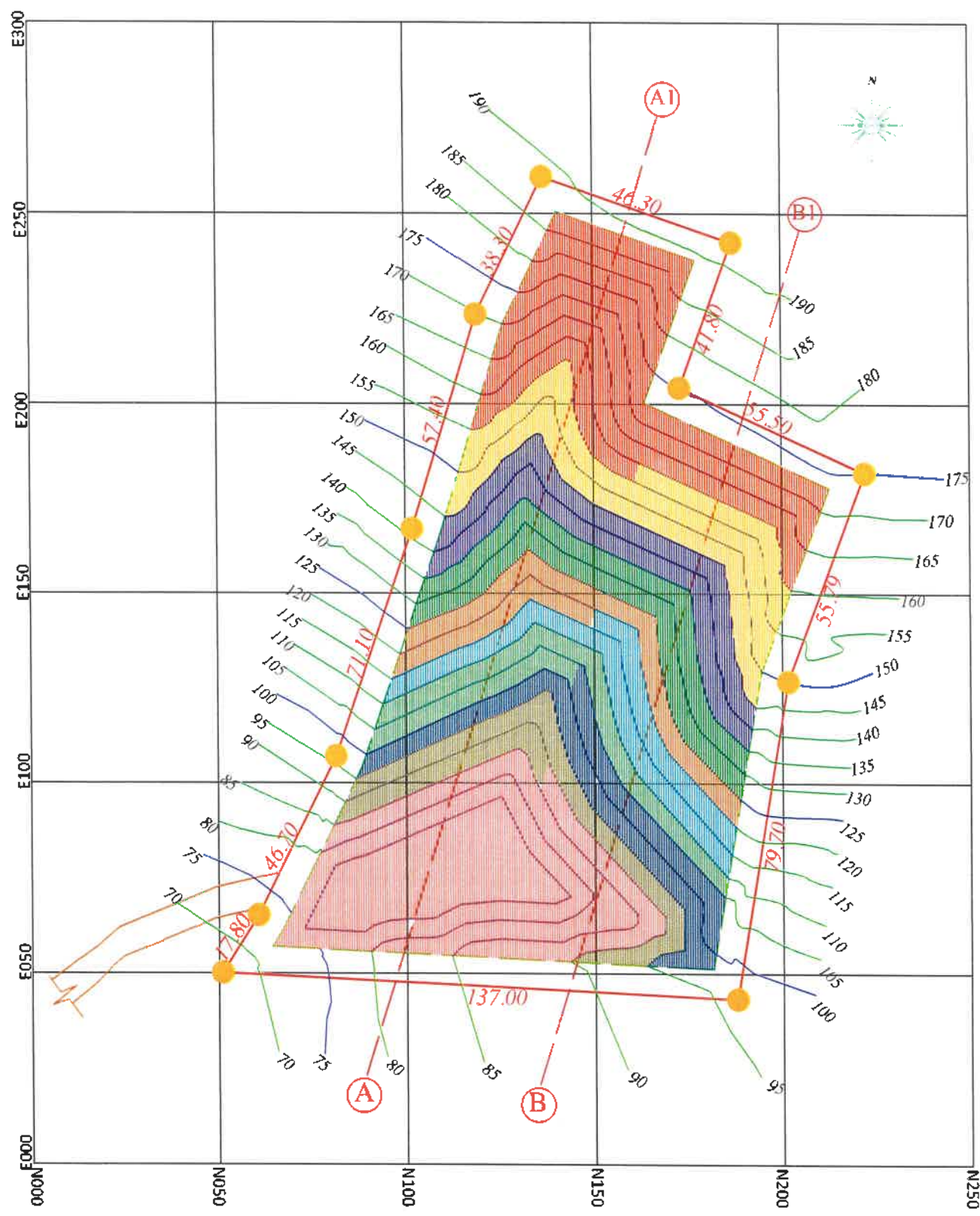
GRANITE (BUILDING STONE) QUARRY OWNED BY:-
ARSHAK ALI. E. K

DEVELOPMENT PLAN & SECTION
 EXTENT :- 2.0144 Ha
 RE-SY No :- 104/2B-09,
 104/2B-44
 VILLAGE :- Kannamangalam
 TALUK :- Tirurangadi
 DISTRICT :- Malappuram
 STATE :- Kerala

MAHESH. S
 Recognized Qualified Person (RQP),
 (RQP No - RQP/BNG/338/2014/A)
 Thiruvananthapuram District, Kerala

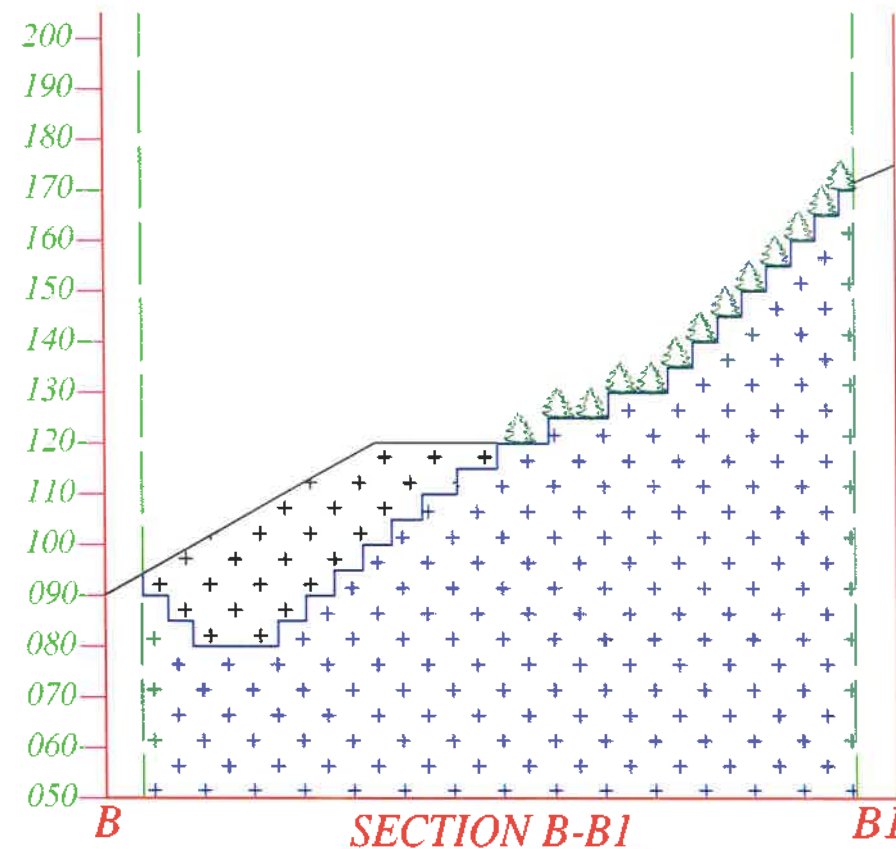
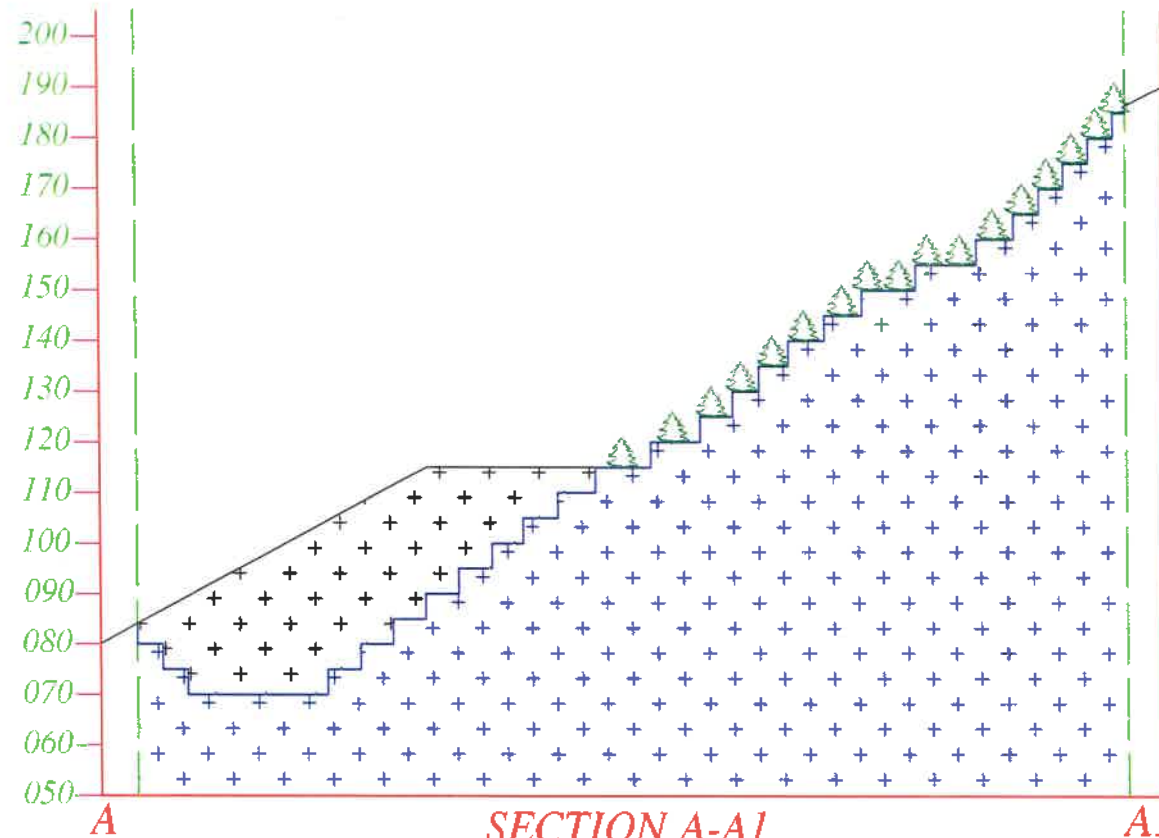
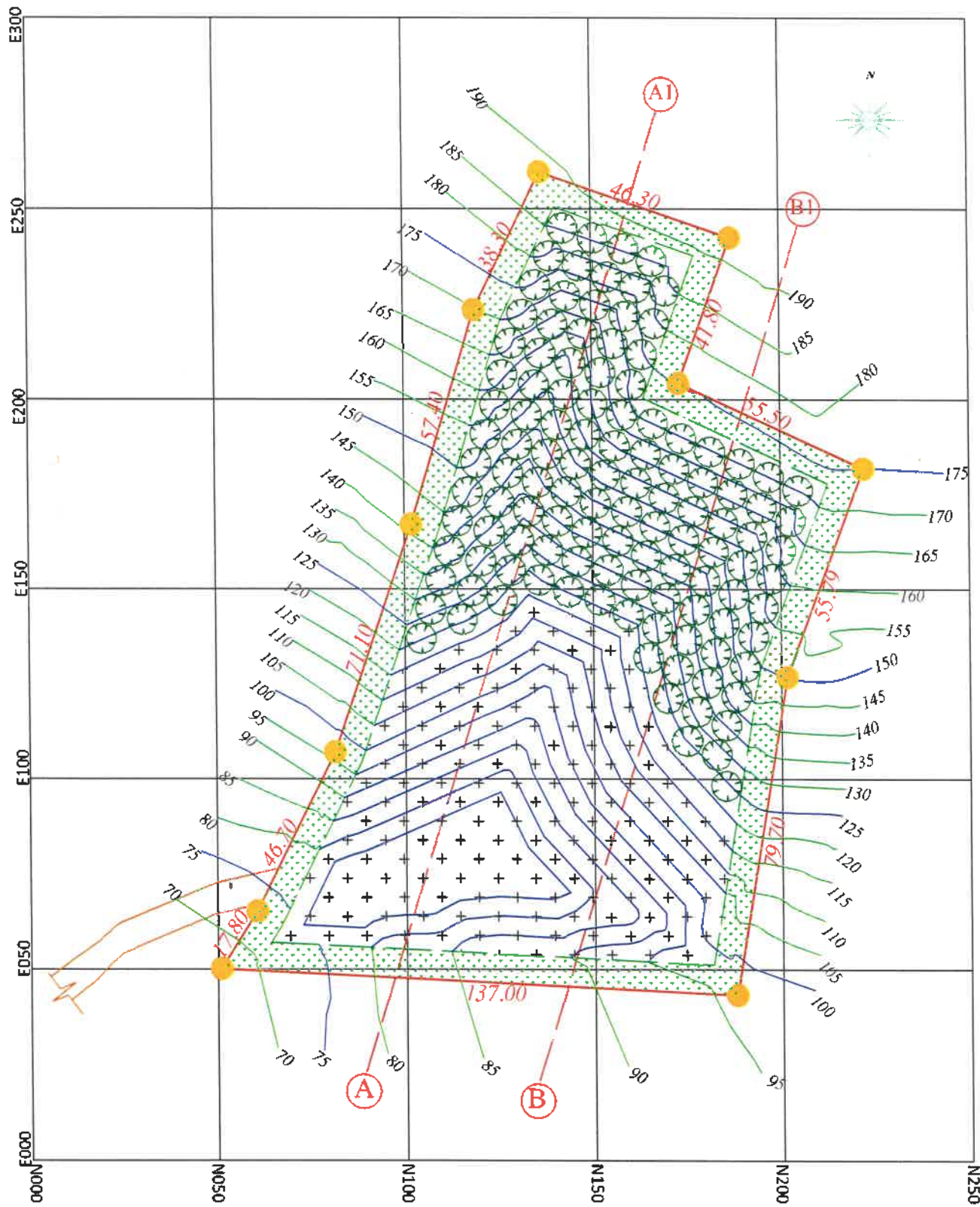
SCALE - 1:1500 PLATE NO.: 4

MAHESH S.
 MTech Applied Geology
 RQP
 RQP No: BNG/338/2014/A



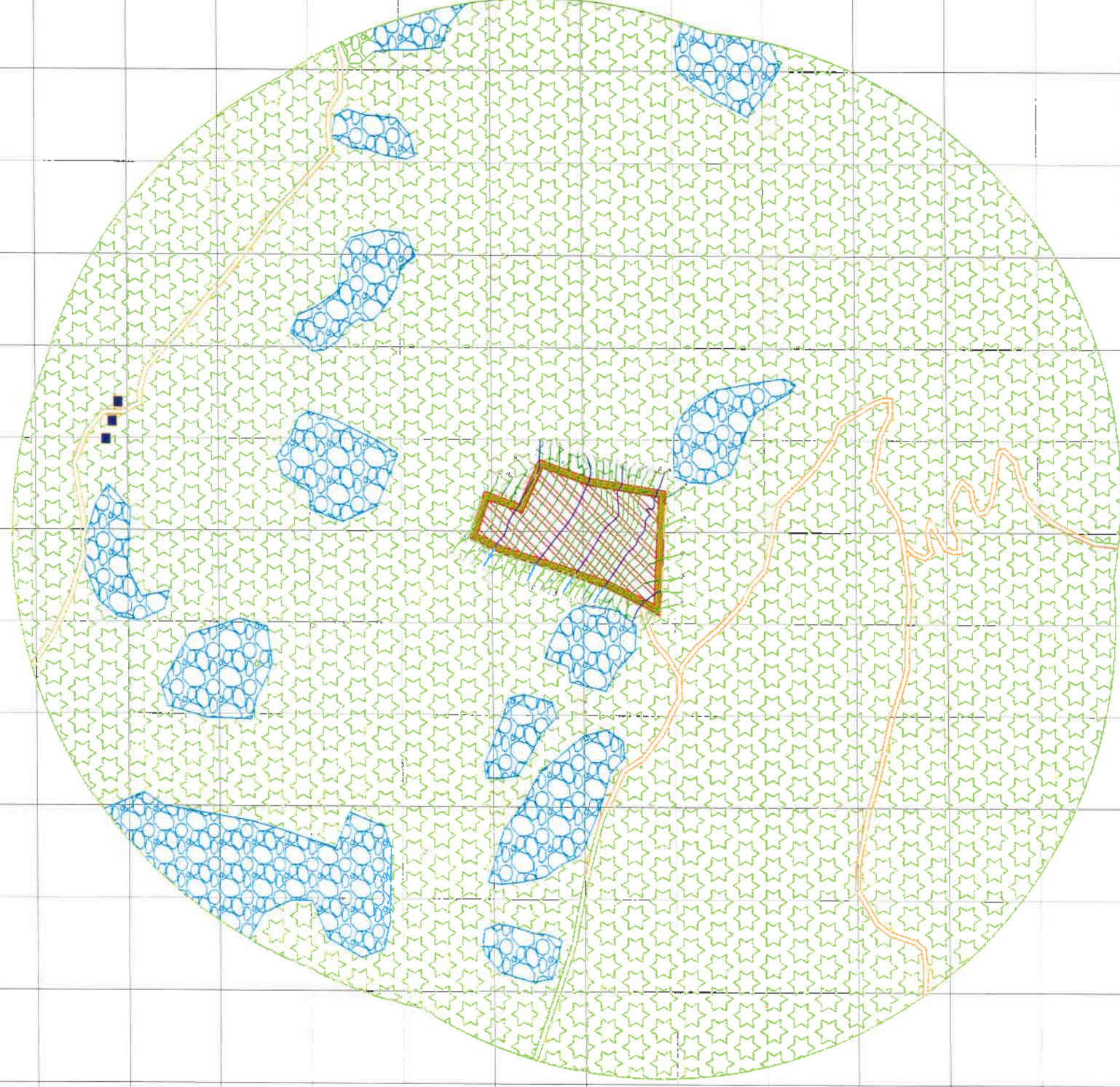
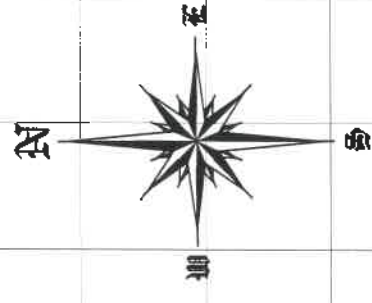
LEGEND	
	LEASE BOUNDARY
	7.5 m BUFFER ZONE
	QUARRY ROAD
	SECTION LINE
	CONTOUR LINE
	BOUNDARY STONE
	BLOCKED
	WORKING BENCH
	1st YEAR MINING AREA
	2nd YEAR MINING AREA
	3rd YEAR MINING AREA
	4th YEAR MINING AREA
	5th YEAR MINING AREA
	6th YEAR MINING AREA
	7th YEAR MINING AREA
	8th YEAR MINING AREA
	9th YEAR MINING AREA
	10th YEAR MINING AREA
GRANITE (BUILDING STONE) QUARRY OWNED BY:- ARSHAK ALI. E. K	
YEARWISE EXCAVATION PLAN & SECTION	
EXTENT	:- 2.0144 Ha
RE-SY No	:- 104/2B-09, 104/2B-44
VILLAGE	:- Kannamangalam
TALUK	:- Tirurangadi
DISTRICT	:- Malappuram
STATE	:- Kerala
MAHESH. S Recognized Qualified Person (RQP), (RQP No - RQP/BNG/338/2014/A) Thiruvananthapuram District, Kerala	
SCALE - 1:1500	PLATE NO.: 5

MAHESH S.
M.Tech Applied Geology
RQP
RQP No: BNG/338/2014/A



LEGEND	
	LEASE BOUNDARY
	7.5 m BUFFER ZONE
	QUARRY ROAD
	CONTOUR LINE
	BOUNDARY STONE
	SECTION LINE
	MINEABLE
	BLOCKED
	WORKING BENCH
	PLANTATION
GRANITE (BUILDING STONE) QUARRY OWNED BY:- ARSHAK ALI. E. K	
RECLAMATION PLAN & SECTION	
EXTENT	:- 2.0144 Ha
RE-SY No	:- 104/2B-09, 104/2B-44
VILLAGE	:- Kannamangalam
TALUK	:- Tirurangadi
DISTRICT	:- Malappuram
STATE	:- Kerala
MAHESH. S. Recognized Qualified Person (RQP), (RQP No - RQP/BNG/338/2014/A) Thiruvananthapuram District, Kerala	
SCALE - 1:1500	PLATE NO.: 6

MAHESH S.
MTech Applied Geology
RQP
RQP No: BNG/338/2014/A



LEGEND:-

SYMBOL	DESCRIPTION
	PROPOSED LEASE AREA
	BUFFER ZONE
	MINING AREA
	CONTOUR LINES
	MIXED VEGETATION
	EXISTING QUARRY
	SERVICE ROAD
	OUTER BUFFER

**GRANITE (BUILDING STONE)
QUARRY OWNED BY:-
ARSHAK ALI. E. K**

VILLAGE :- Kuvannangalam	DISTRICT :- Malappuram
TALUK :- Thiruvangadi	STATE :- Kerala
EXTENT :- 2.0144 Ha	TOTAL AREA :- 2.5929 Ha
SCALE - 1:6000	RE-STY No - 104/2B-09, 104/2B-44

TITLE

ENVIRONMENTAL PLAN

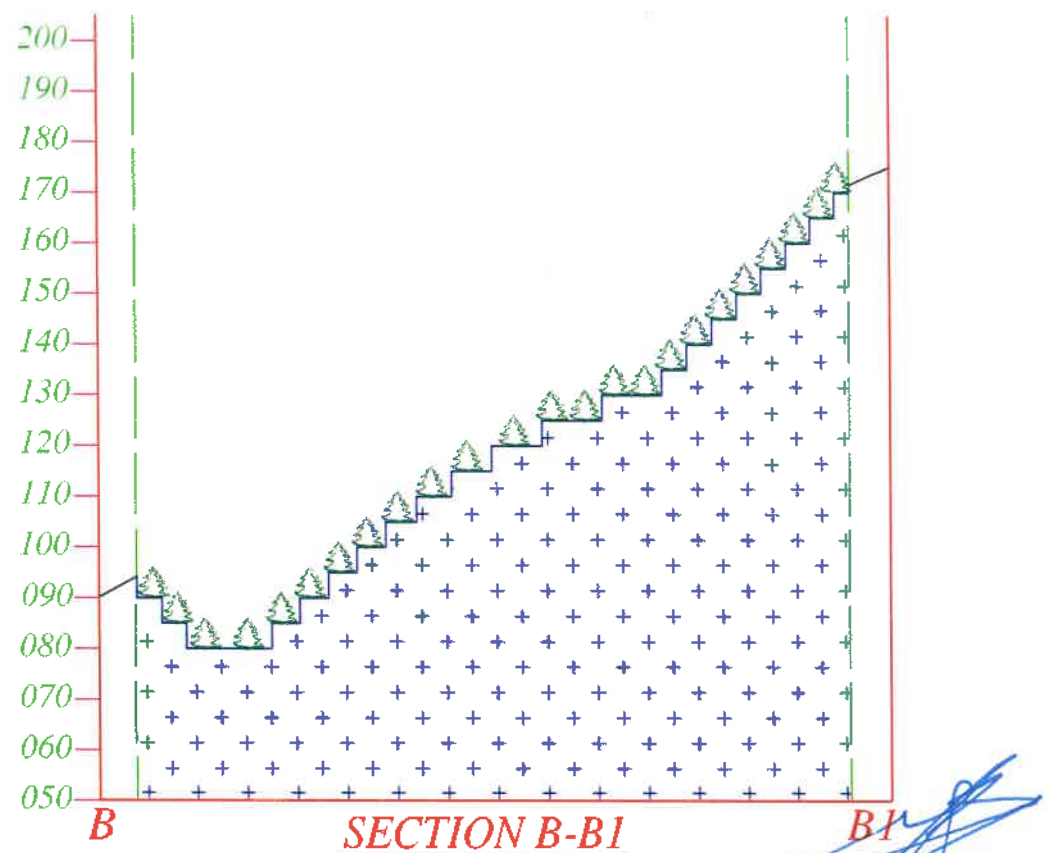
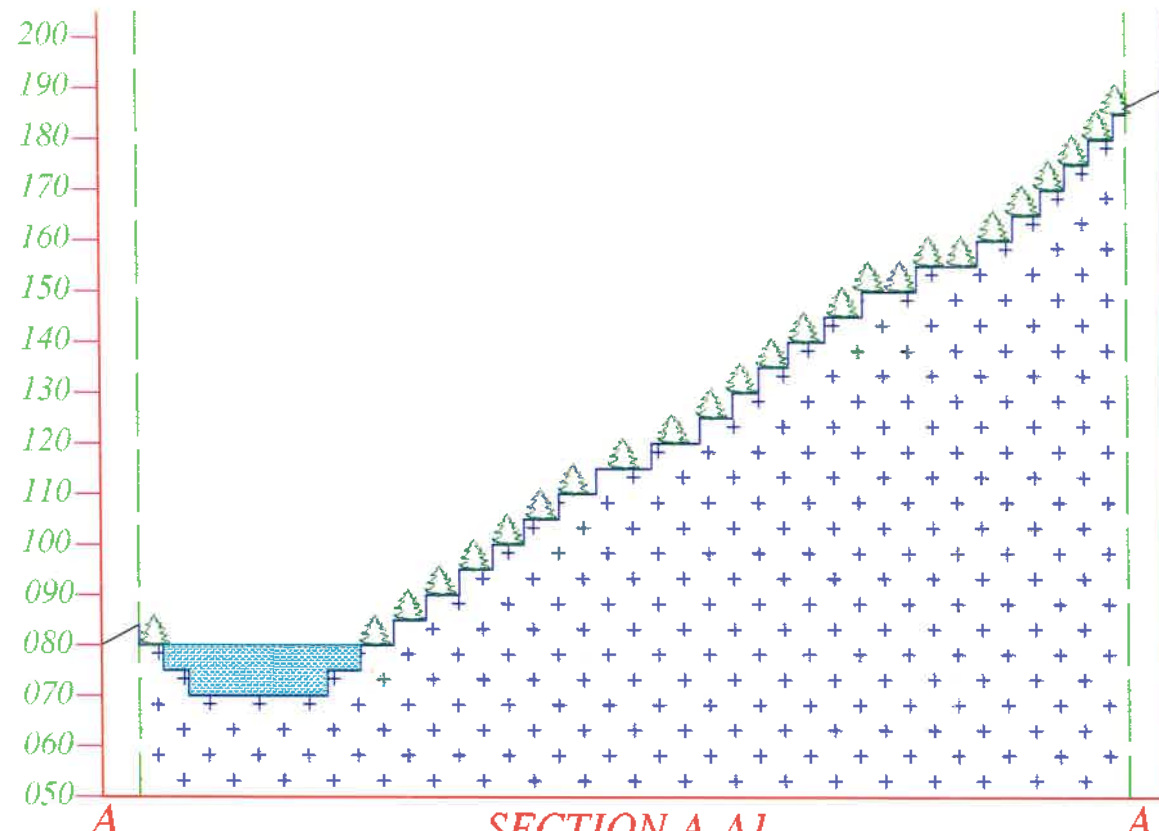
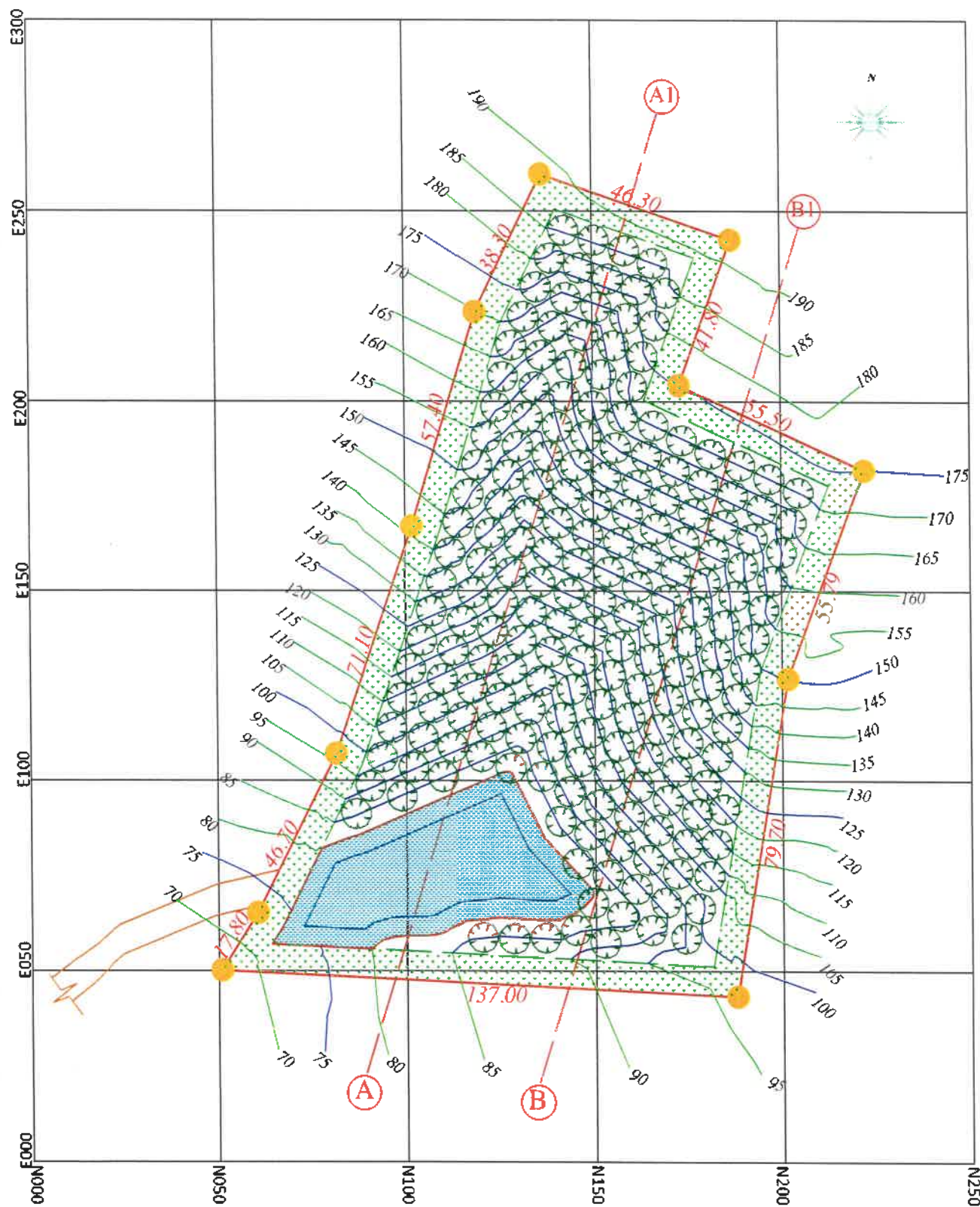
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PLATE :-7

MAHESH S.
MTEch Applied Geology
RQP

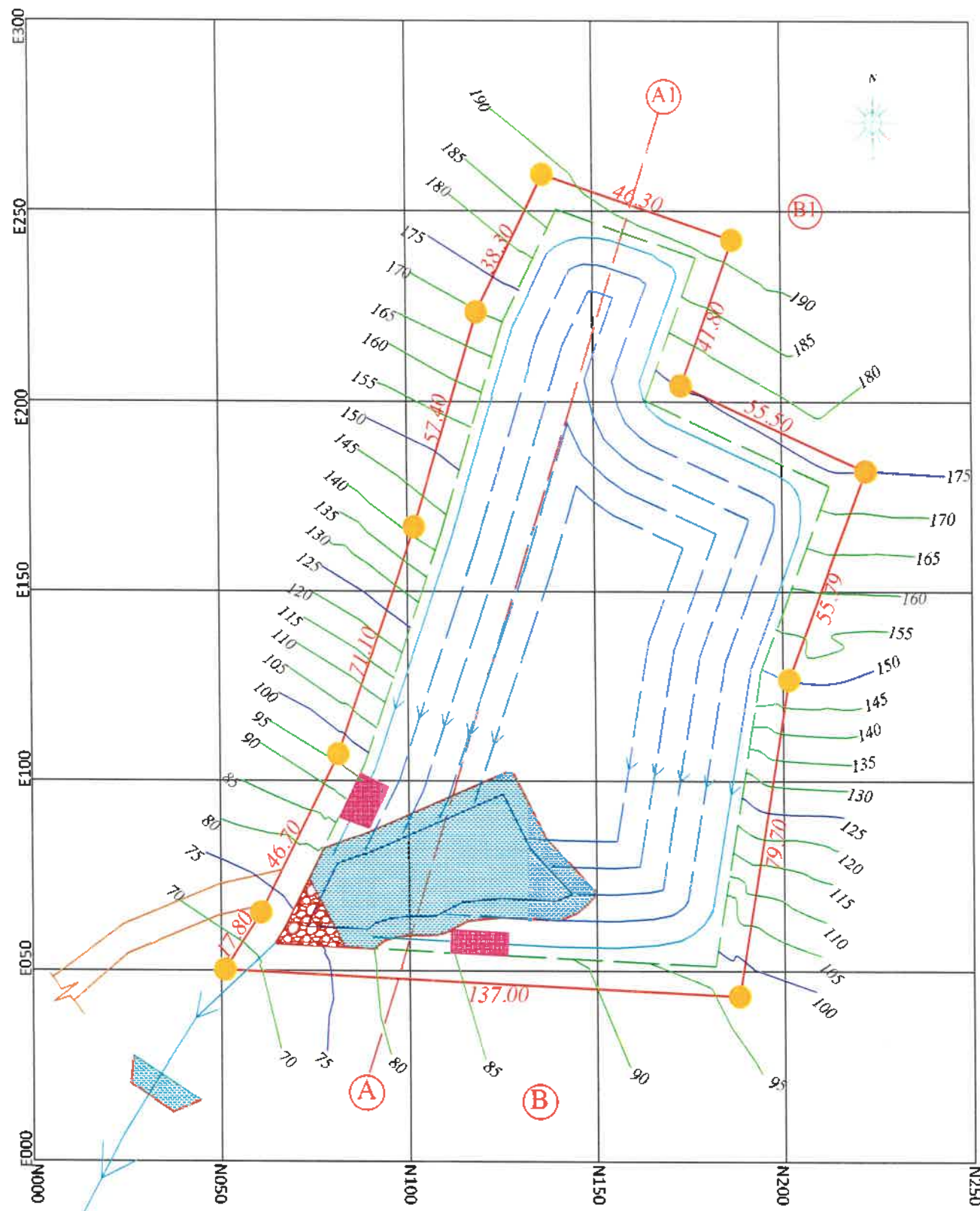
RQP No: BNG/338/2014/A





LEGEND	
	LEASE BOUNDARY
	7.5 m BUFFER ZONE
	QUARRY ROAD
	SECTION LINE
	CONTOUR LINE
	BOUNDARY STONE
	BLOCKED
	WATER STORAGE PIT
	WORKING BENCH
	PLANTATION
GRANITE (BUILDING STONE) QUARRY OWNED BY:- ARSHAK ALI. E. K PROGRESSIVE MINE CLOSURE PLAN & SECTIONS	
EXTENT	:- 2.0144 Ha
RE-SY No	:- 104/2B-09, 104/2B-44
VILLAGE	:- Kannamangalam
TALUK	:- Tirurangadi
DISTRICT	:- Malappuram
STATE	:- Kerala
MAHESH. S Recognized Qualified Person (RQP), (RQP No - RQP/BNG/338/2014/A) Thiruvananthapuram District, Kerala	
SCALE - 1:1500	PLATE NO.: 8

MAHESH S.
 Mtech Applied Geology
 RQP
 RQP No: BNG/338/2014/A



LEGEND	
	LEASE BOUNDARY
	7.5 m BUFFER ZONE
	QUARRY ROAD
	CONTOUR LINE
	BOUNDARY STONE
	GARLAND DRAINS
	DRAINAGE WAY
	SEASONAL THODU
	WATER STORAGE PIT
	SEDIMENTATION PIT
	SILT TRAP
	SETTLING POND

GRANITE (BUILDING STONE)
 QUARRY OWNED BY:-
 ARSHAK ALI. E. K

DRAINAGE RUNOFF PLAN

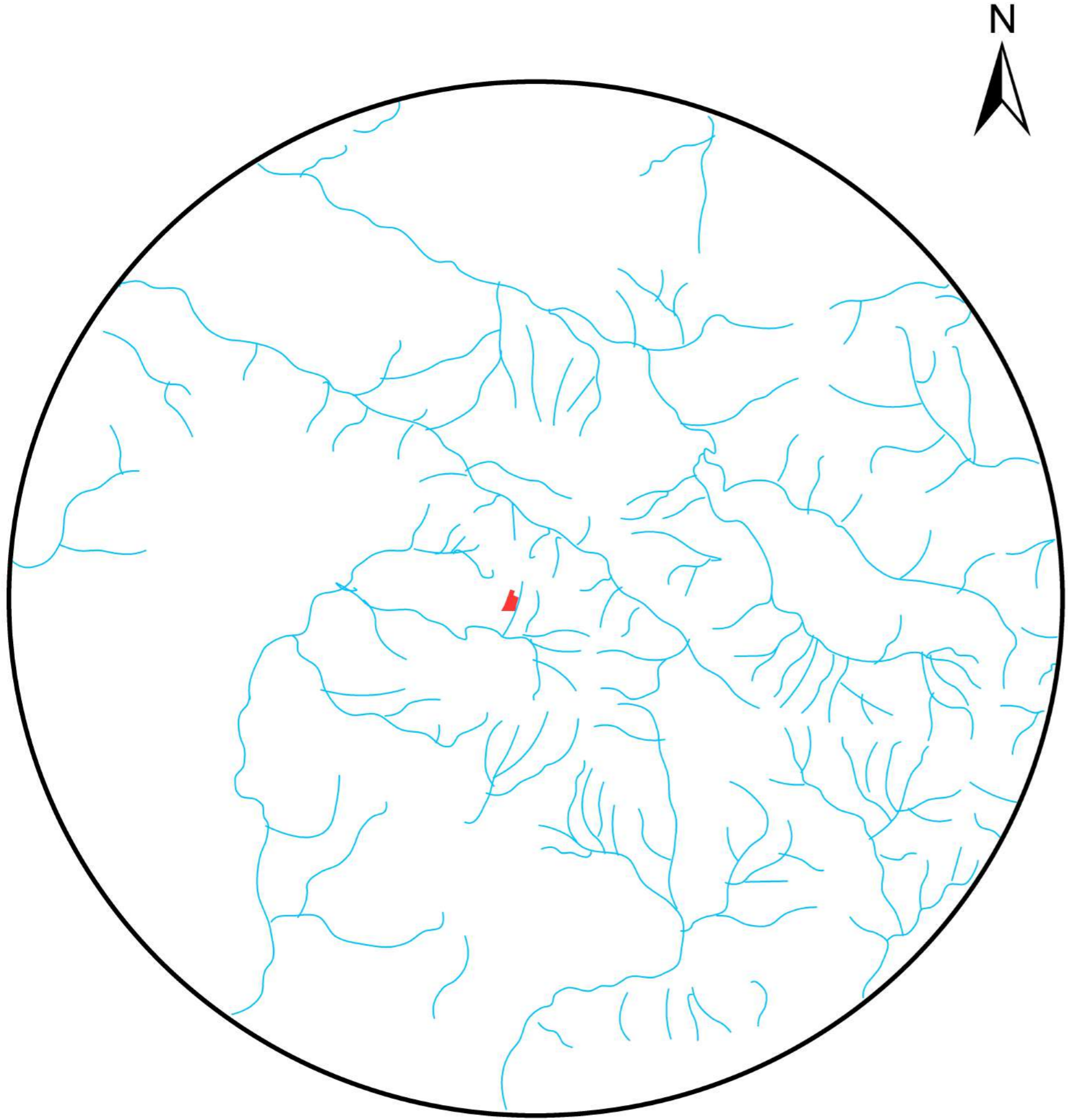
EXTENT :- 2.0144 Ha
 RE-SY No :- 104/2B-09,
 104/2B-44
 VILLAGE :- Kannamangalam
 TALUK :- Tirurangadi
 DISTRICT :- Malappuram
 STATE :- Kerala

MAHESH. S
 Recognized Qualified Person (RQP) ,
 (RQP No - RQP/BNG/338/2014/A)
 Thiruvananthapuram District, Kerala

SCALE - 1:1500 PLATE NO.: 9

Signature
 1/12/21
GEOLOGIST
 DIST. Office Of Mining & Geology
 Mini Civil Station, Malappuram
 Malaapuram District

Signature
MAHESH S.
 MTech Applied Geology
 RQP
 RQP No: BNG/338/2014/A



Arshak Ali Building Stone Quarry

5 km Drainage Map

- Legend**
- **Project Site**
 - 5 km Radius**
 - **Drainage**

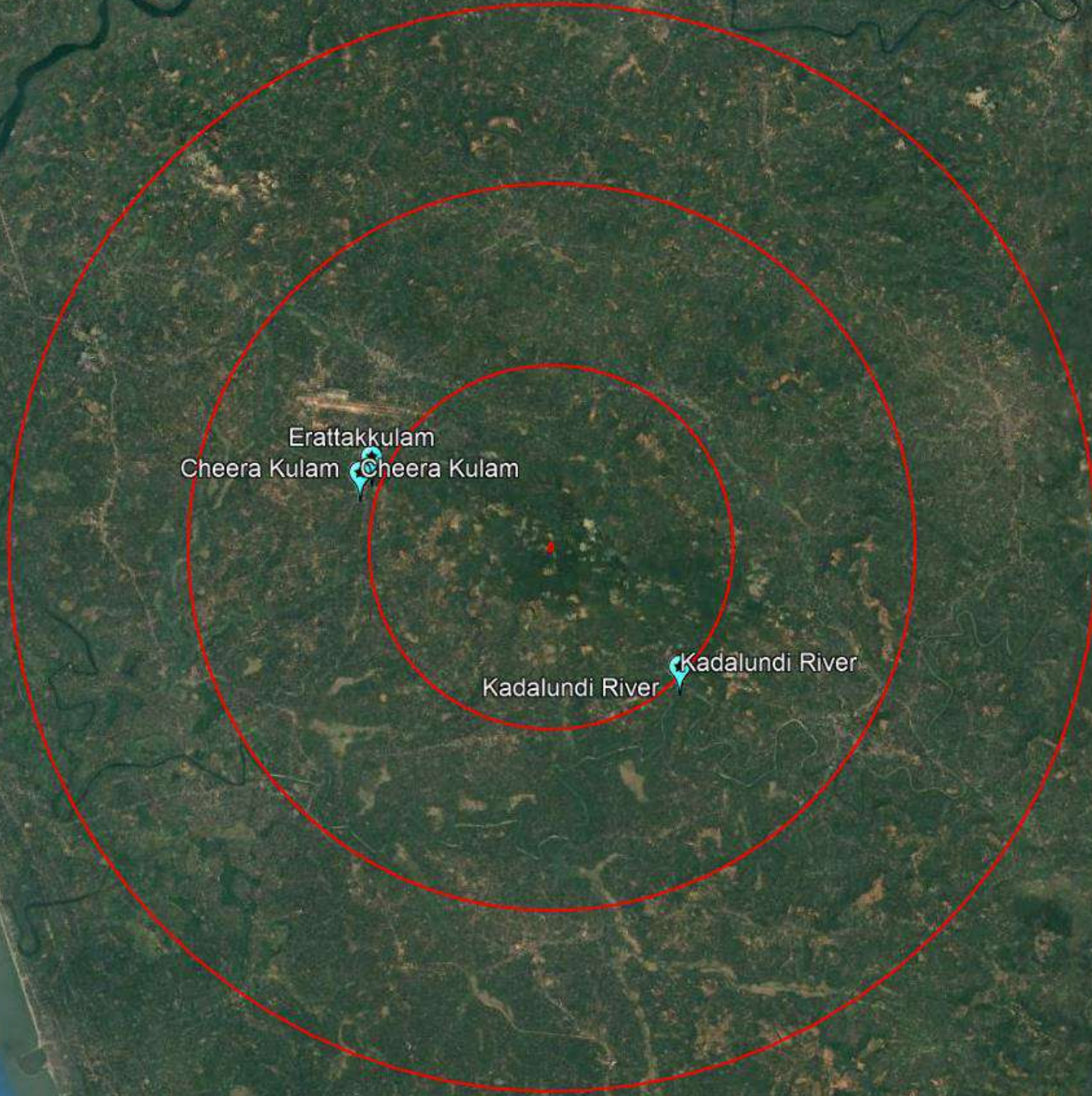


Data Source: Survey of India Toposheets

Arshak Ali E.K

Granite Building Stone Quarry

Legend



Erattakkulam
Cheera Kulam

Kadalundi River

Google Earth

Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Image © 2023 Airbus

Image © 2023 Maxar Technologies



7 mi

Arshak Ali Building Stone Quarry

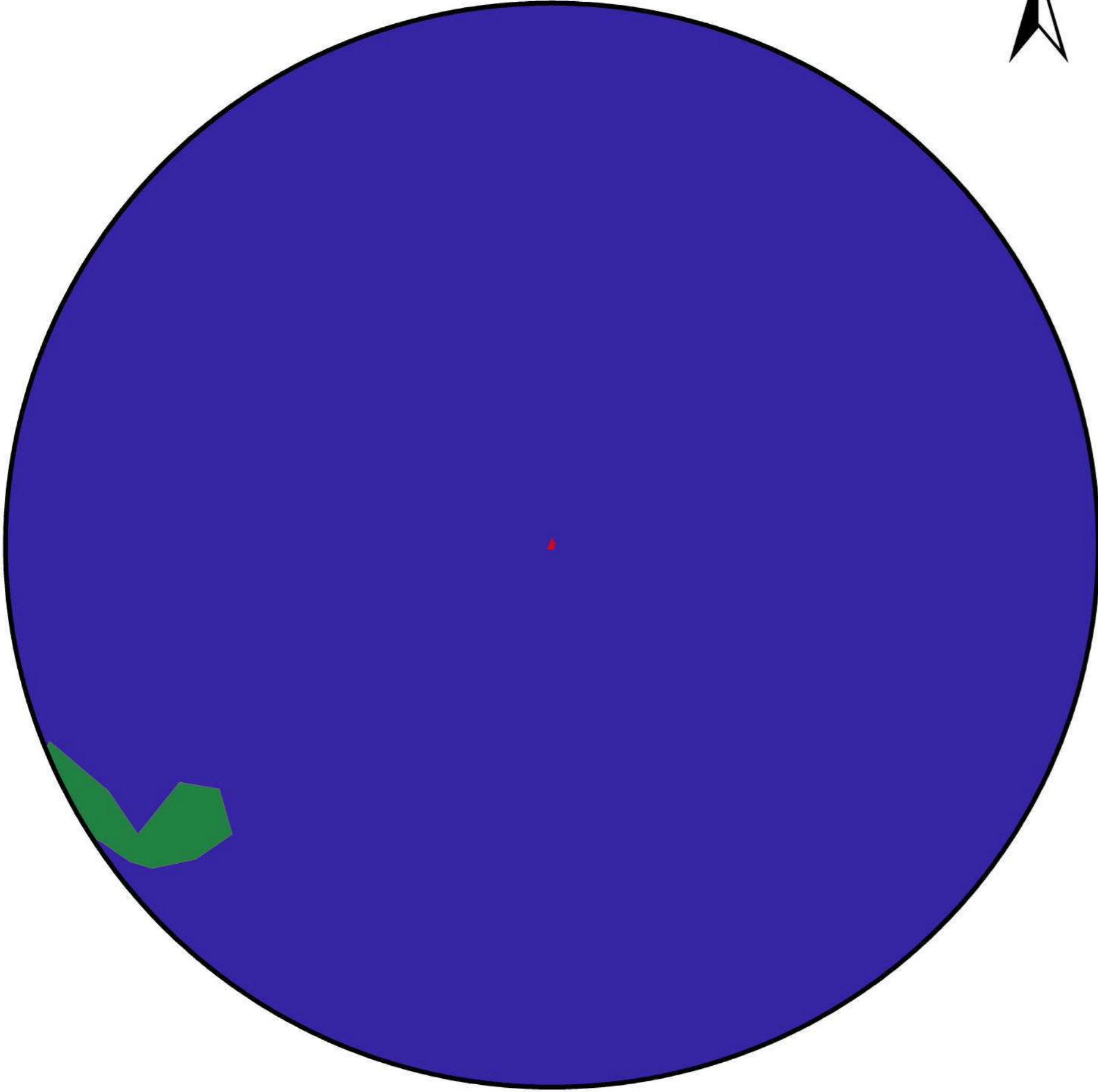
10 km Geology Map

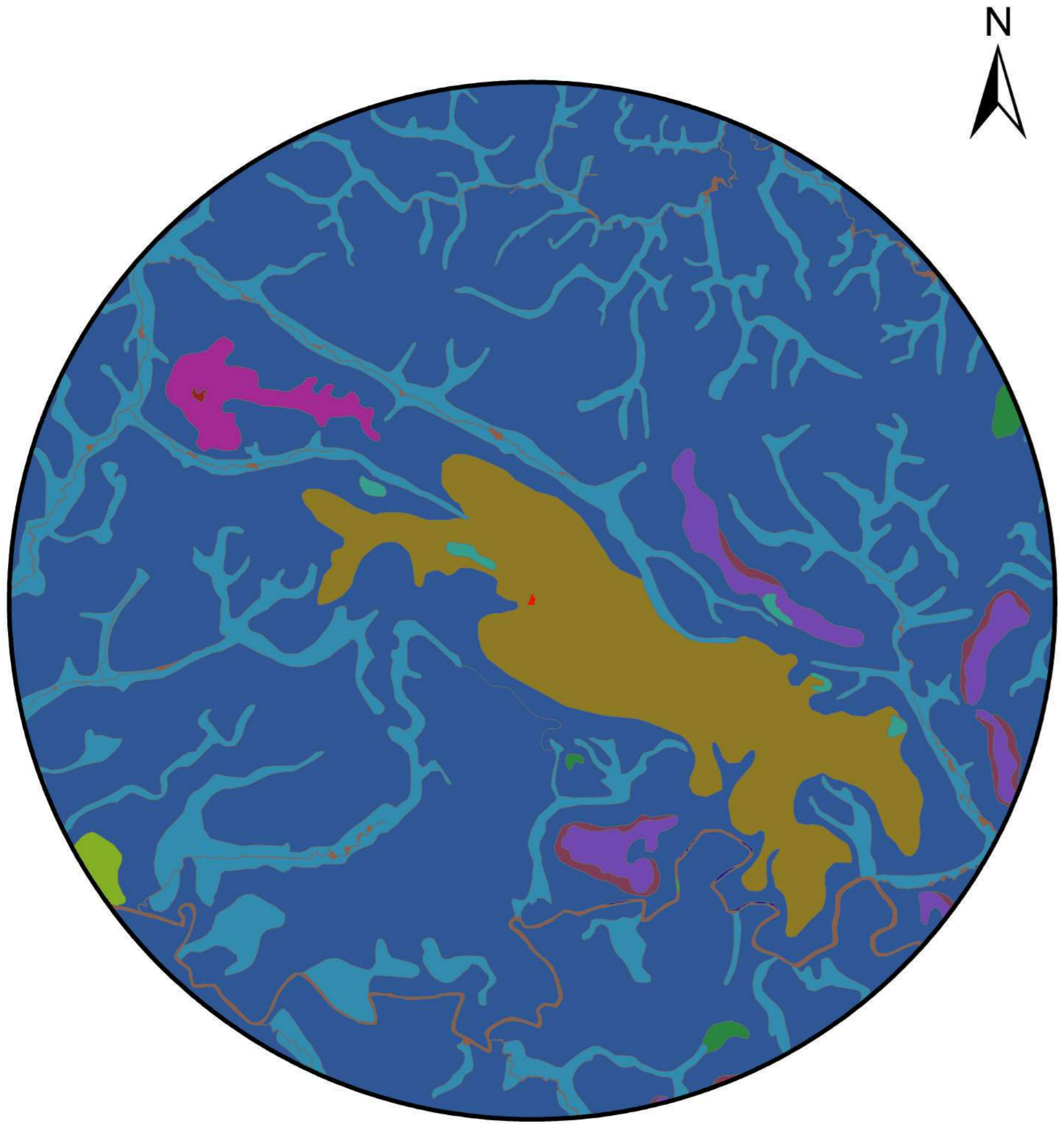
- Legend
- Project Site
 - 10 km Radius

GEOLOGY

- CHARNOCKITE GNEISSIC COMPLEX
- UNDIFF.FLUVIAL / AEOLIAN SEDIMENTS

Data Source: Geological Survey of India





Arshak Ali Building Stone Quarry

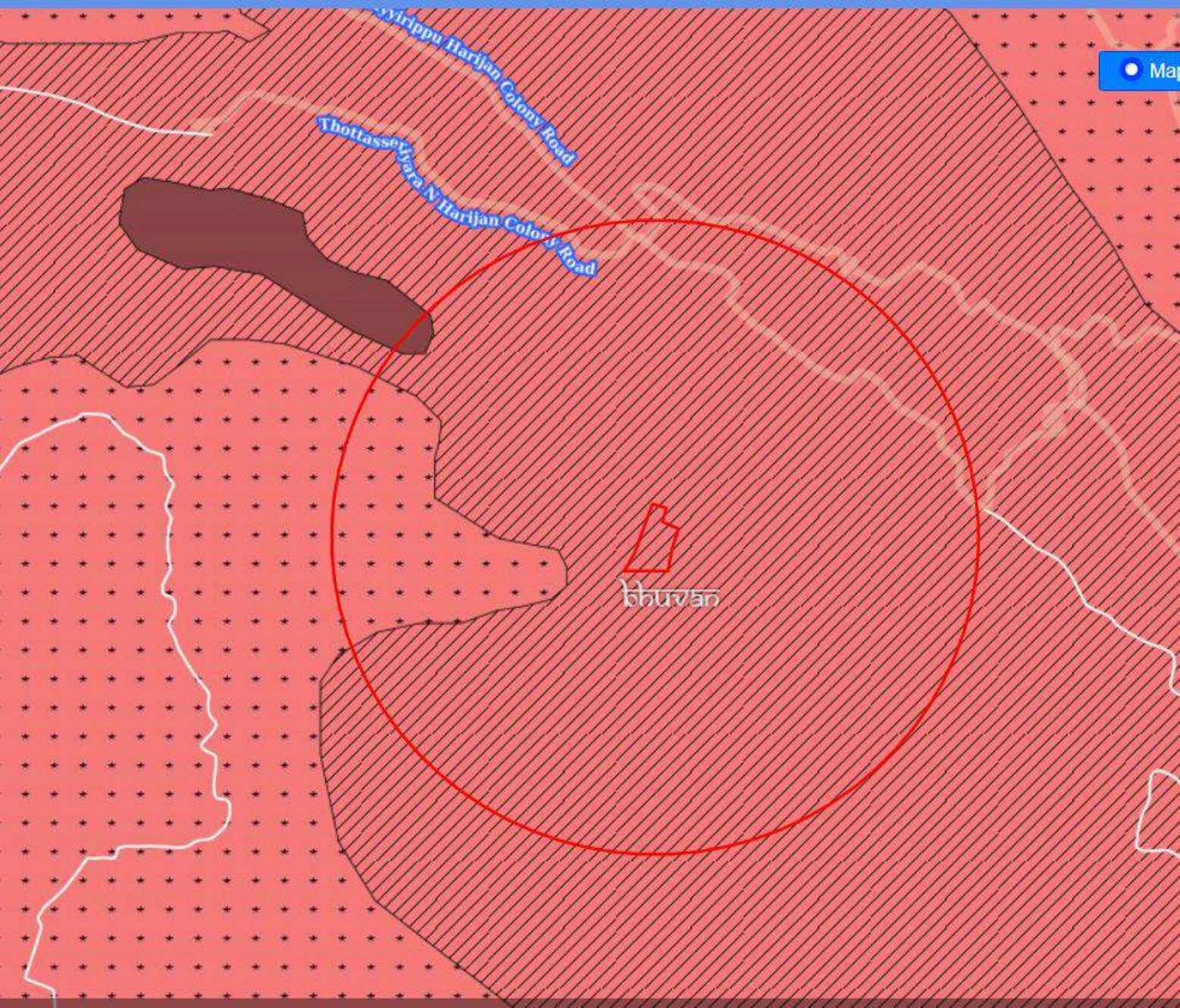
10 km Geomorphology Map

Legend ■ **Project Site**
□ **10 km Radius**

- GEOMORPHOL**
- Active Quarry
 - AntOri - Anthropogenic Terrain
 - Channel Bar
 - DenOri - Moderately Dissected Hills and Valleys
 - FluOri - Active Flood plain
 - Plateau Top
 - Point Bar
 - Residual Mound
 - Rolling Plain
 - Scarp
 - Valley Fill
 - WatBod - Pond
 - WatBod - River

Data Source: Geological Survey of India





Syrappa Harijan Colony Road
Thottassevara N Harijan Colony Road

Khorasan

Map

Satellite

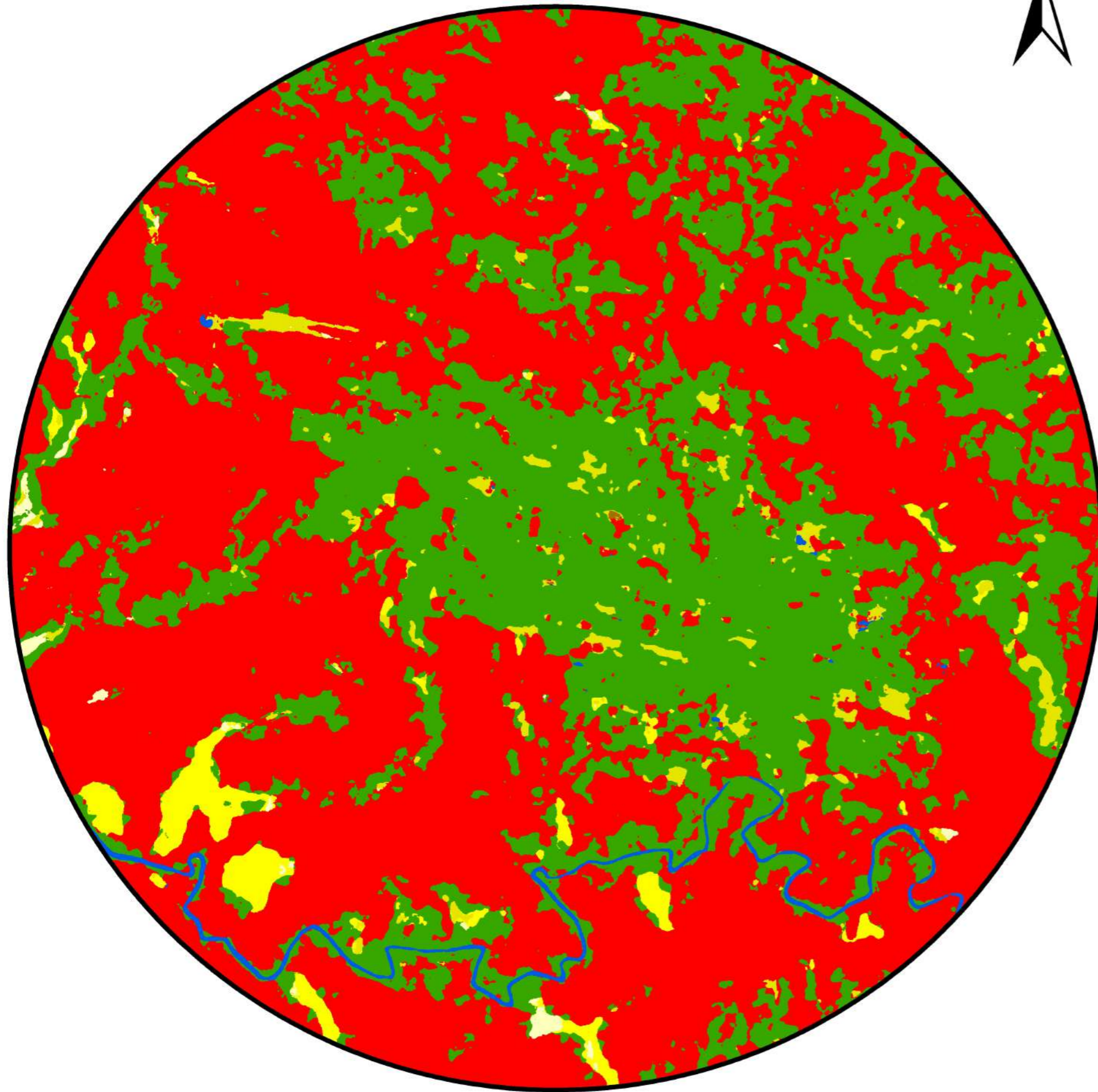
Thottasseyara N Harijan Colony Road

Thottasseyara N Harijan Colony Road



Thottasseyara

Jamia
Al
Hind
Al
Islamiyya
PG
Block



Arshak Ali Building Stone Quarry

10 km Landuse Map

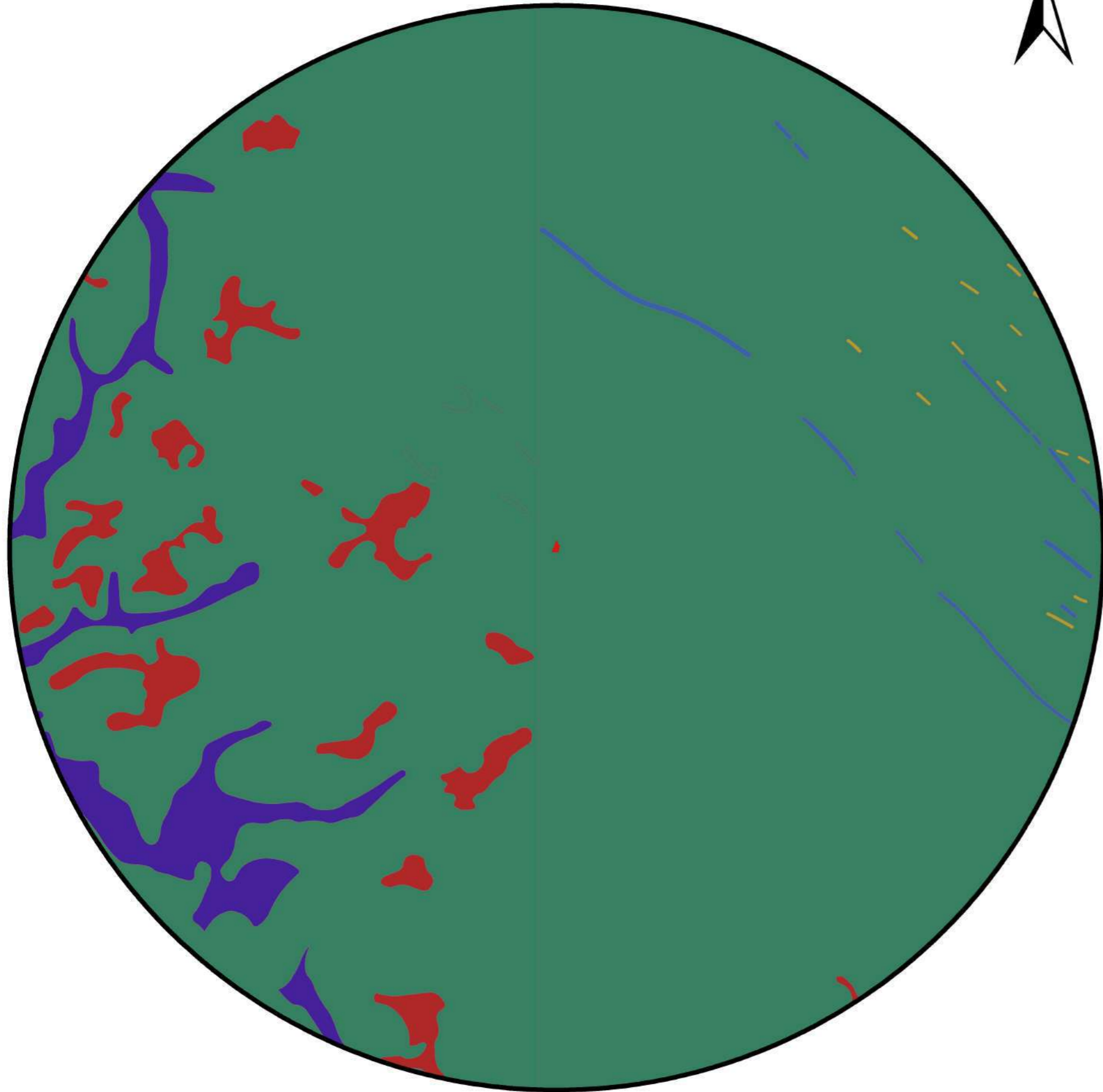
- Legend**
- Project Site
 - 10 km Radius

LULC Classification

- Waterbody
- Plantation
- Grass
- Crop Land
- Scrub/Shrub
- Builtup Land
- Barren Land

Data Source: Sentinel 2,
USGS Earth Explorer

4 2 0 4 Kilometers



Arshak Ali Building Stone Quarry

10 km Lithology Map

- Legend**
- **Project Site**
 - **10 km Radius**

LITHOLOGIC

- **ACID TO INTERMEDIATE CHARNOCKITE**
- **BANDED IRON FORMATION**
- **GABBRO**
- **LATERITE**
- **SAND (ACTIVE CHANNEL)**

Data Source: Geological Survey of India





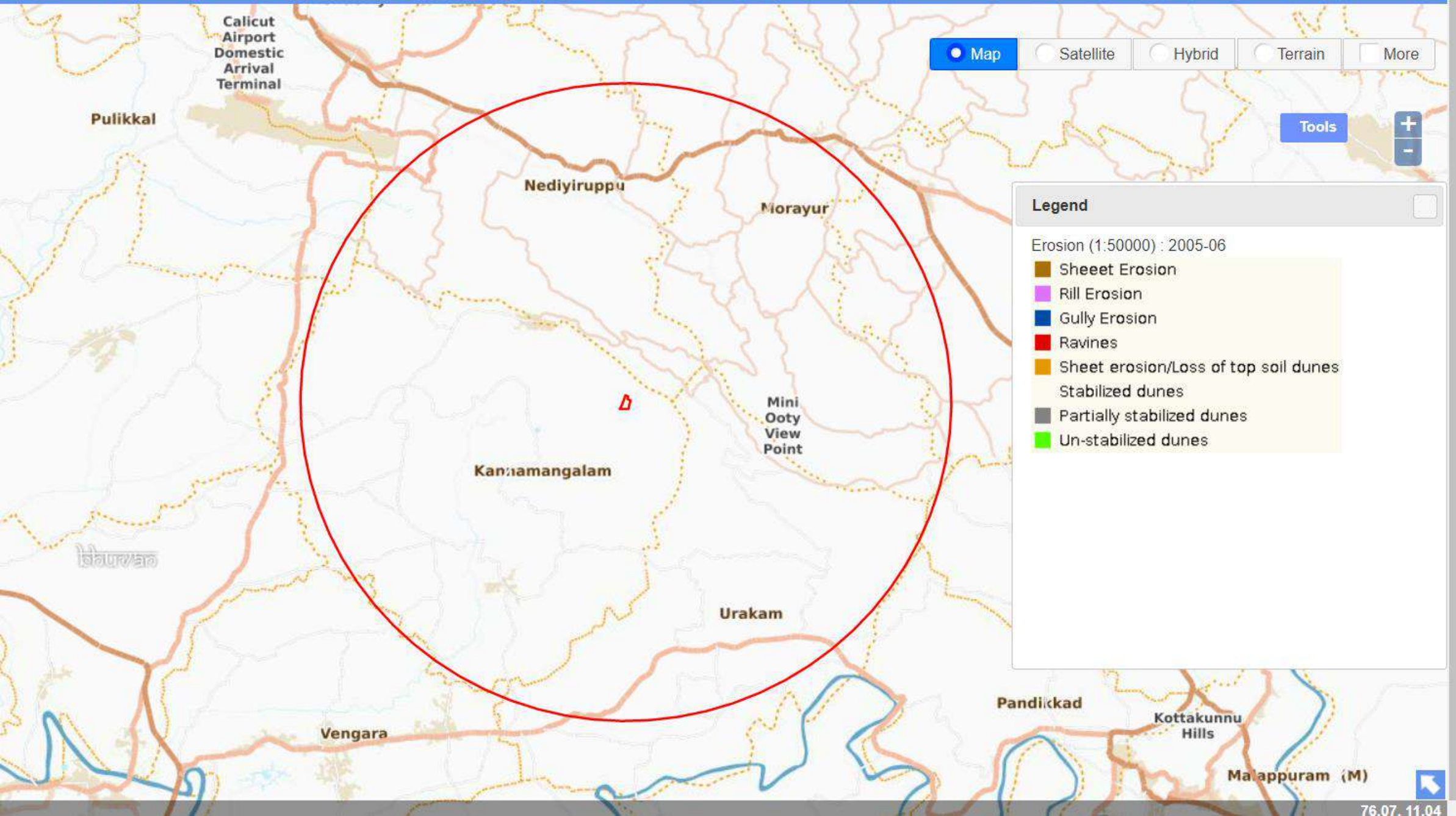
Arshak Ali Building Stone Quarry

10 km Socio Economic Map

Legend ■ **Project Site**
□ **10 km Radius**

- | | |
|----------------|--------------|
| ANAKKAYAM | NEDIYIRUPPU |
| KANNAMANGALAM | OTHUKKUNGAL |
| KAVANNOOR | PANDIKKAD |
| KODUR | PARAPPUR |
| KODUVAYUR | PERUVALLUR |
| KONDOTTY | POOKKOTTUR |
| KOTTAKKAL | PULIKKAL |
| KUZHIMANNA | PULPATTA |
| MALAPPURAM (M) | THENHIPPALAM |
| MELMURI | THENNALA |
| MORAYUR | TIRURANGADI |
| MUTHUVALLUR | URAKAM |
| NARUKARA | VENGARA |





Arshak Ali Building Stone Quarry

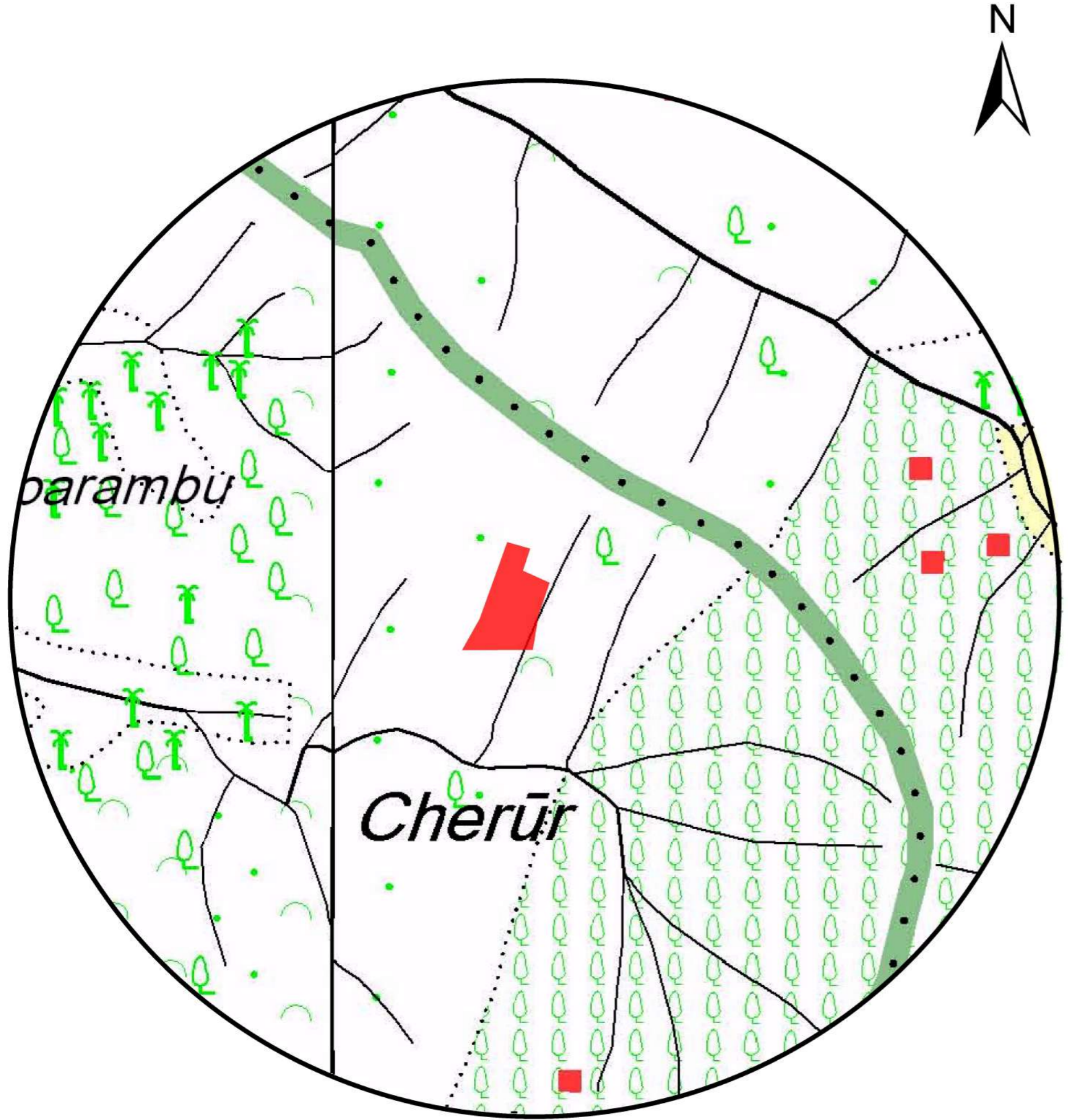
1 km Topographic Map

Legend ■ Project Site 1 km Radius

CONVENTIONAL SYMBOLS

Express highway: with toll; with bridge; with distance stone			
Roads, metalled: according to importance			
Roads, double carriageway: according to importance			
Unmetalled road. Cart-track. Pack-track with pass. Foot-path			
Streams: with track in bed; undefined. Canal			
Dams: masonry or rock-filled; earthwork. Weir			
River: dry with water channel; with island & rocks. Tidal river			
Submerged rocks. Shoal. Swamp. Reeds			
Wells: lined; unlined. Tube-well. Spring. Tanks: perennial; dry			
Embankments: road or rail; tank. Broken ground			
Railways, broad gauge: double; single with station; under constr.			
Railways, other gauges: double; single with distance stone; do.			
Mineral line or tramway. Kiln. Cutting with tunnel			
Contours with sub-features. Rocky slopes. Cliffs			
Sand features (1) flat (2) sand-hills(permanent). (3) dunes(shifting)			
Towns or Villages: inhabited; deserted. Fort			
Huts: permanent; temporary. Tower. Antiquities			
Temple. Chhatra. Church. Mosque. Idgâh. Tomb. Graves			
Lighthouse. Lightship. Buoys: lighted; unlighted. Anchorage			
Mine. Vine on trellis. Grass. Scrub			
Palms: palmyra; other. Plantain. Corifer. Bamboo. Other trees			
Areas: cultivated; wooded. Surveyed tree			
Boundary, International			
„ state: demarcated; undemarcated			
„ district; subdivision; tehsil or tāluk; forest			
Boundary pillars: surveyed; unlocated			
Heights, triangulated: station; point; approximate			
Bench-mark: geodetic; tertiary; canal			
Post office. Telegraph office. Overhead tank			
Rest house or Inspection bungalow. Circuit house. Police station			
Camping ground. Forest: reserved; protected			
Spaced names: administrative; locality or tribal			
Hospital. Dispensary. Veterinary: Hospital / Dispensary			
Aerodrome. Helipad. Tourist site			
Power line: with pylons surveyed; with poles unsurveyed			

Data Source: Survey of India Toposheets



0.35 0.175 0 0.35 Kilometers