

# DRAFT EIA / EMP REPORT

FOR

# OTTAKOVIL LIMEKANKAR QUARRY LEASE-2

## SITE DETAILS

Extent	57.36 Ha
Location	Ottakovil Village, Ariyalur Taluk and District, Tamil Nadu
Land Type	Patta Lands

## PRODUCTION DETAILS

Production	Limekankar-12,49,031 T, Topsoil - 6,66,150m <sup>3</sup> over 5 years
Ultimate Depth	2.75m ( 1.50m Top soil + 1.25m Lime Kankar)
Lease Period	5 years
Mining Method	Opencast Mining without drilling and blasting & simultaneous backfilling

## PROJECT DETAILS

ToR Reference	SEIAA-TN/F.No.10503/2023/SEAC/ToR-1671/2024 dated 08.02.2024
Baseline Studies	Winter Season (December 2023 – February 2024)

### **PROJECT PROPONENT**

## **THE RAMCO CEMENTS LIMITED**



Auras Corporate Center, V Floor, 98-A Radhakrishnan Salai,  
Mylapore, Chennai-600014.

### **CONSULTANT**

## **CREATIVE ENGINEERS & CONSULTANTS**

NABET ACCREDITED CONSULTANCY, NABL ACCREDITED TESTING LAB

9B/4, Bharathwajar Street, East Tambaram, Chennai-600059.

Ph: 044-22395170, Cell: 09444133619 Email : cecgiri@yahoo.com,



## **REVISIONS OF EIA/EMP REPORT**

<b>Revision number</b>	<b>Report Status</b>	<b>Date of submission</b>
00/JUN/24	Draft EIA /EMP Report	28.06.2024

Environmental Impact Assessment & Environmental Management Plan Report for Ottakovil Limekankar Quarry Lease-2 of The Ramco Cements Limited in S.F.Nos. 204/10, 204/11, 204/12, etc. over an area of 57.36Ha in Ottakovil Village, Ariyalur Taluk, Ariyalur District Tamil Nadu was prepared by Creative Engineers & Consultants and authorized for submission by Mr. P.Giri, CEO, of Creative Engineers & Consultants on 28.06.2024 after due review by the personnel and consultation with the proponent. Current Revision number of the EIA/EMP report is 00/JUN/24, signifying as per the revision mentioned in the above table that this is a draft EIA/EMP report.

Signature:

Date: 28.06.2024





# CREATIVE ENGINEERS & CONSULTANTS

(NABET ACCREDITED, NABL ACCREDITED TESTING LABORATORY,  
DEPARTMENT OF INDUSTRIES AND COMMERCE REGISTERED COMPANY)

## EIA Consultant Undertaking

[In compliance with MoEF Office Memorandum No. J-11013/41/2006-IA.II (I) dated 04.08.2009]

**Creative Engineers & Consultants** (CEC) is an NABL accredited testing Laboratory, and also NABET accredited Category–A environment consultancy organization for preparing EIA/EMP reports for the sectors Mining of minerals, Thermal power plants, Mineral Beneficiation & Cement plants.

CEC has been accredited by the National Accreditation Board for Education & Training (NABET), Quality Council of India for empanelment of EIA Consultants with accreditation valid upto 23.12.2026.

The Ramco Cements Limited received ToR under EIA Notification 2006 from SEIAA, Tamil Nadu vide their Letter SEIAA-TN/F.No.10503/2023/SEAC/ToR-1671/2024 dated 08.02.2024 for mining lease for Ottakovil Limekankar Quarry Lease-2 in S.F.Nos. 204/10, 204/11, 204/12, etc. over an area of 57.36Ha in Ottakovil Village, Ariyalur Taluk, Ariyalur District Tamil Nadu.

The prescribed TOR is complied with and incorporated in the EIA Report and submitted. This report is based on the information and data obtained from Approved Mining Plan, other records and data from the field study by CEC. The data generated and given in the EIA/EMP Report are factually correct. The sample analyses are carried out through CEC's laboratory.

(P. Giri)

Chief Executive & EIA Coordinator

**Creative Engineers & Consultants**

Date: 28.06.2024

Annexure – VII

**Declaration by Experts contributing to the EIA Report for**

**Ottakovil Limekankar Quarry Lease-2 of The Ramco Cements Limited in S.F.Nos. 204/10, 204/11, 204/12, etc. over an area of 57.36Ha in Ottakovil Village, Ariyalur Taluk, Ariyalur District Tamil Nadu .**

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

EIA coordinator:


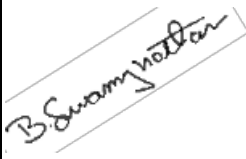
Name: **P.Giri**

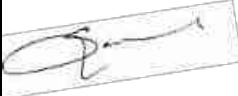
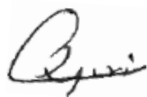



Signature and Date: 



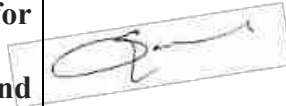

Period of involvement: **October 2023 onwards**


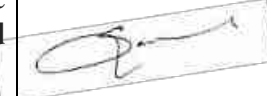

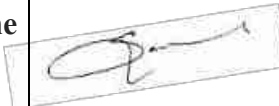
Contact information: **09444133619**

Functional area experts:

S. No.	Functional areas	Name of the expert/s	Involvement (period and task**)	Signature and date
1	AP*	P.Giri	<ul style="list-style-type: none"> <li>• Identification of baseline monitoring stations and study of the monitored data with respect to the applicable standards.</li> <li>• Identification of sources of air pollution comprising dust, gaseous emission due to mining &amp; other activities</li> <li>• Identification of Impacts &amp; suggestion of mitigation measures</li> </ul> <b>Period: October 2023 onwards</b>	
		B.Swamynathan	<ul style="list-style-type: none"> <li>• Data interpretation of Micro meteorological data for wind rose.</li> <li>• Identification of polluting source and suggestion of suitable mitigation measures.</li> </ul> <b>Period: December 2023 onwards</b>	

2	WP*	G.Sandhya	<ul style="list-style-type: none"> <li>• Study of the monitored data with respect to the applicable standards.</li> <li>• Identification of Water requirement &amp; Source</li> <li>• Preparation of water balance diagram</li> <li>• Identification of Water polluting sources</li> <li>• Impact of the project on the water quality, both surface and groundwater</li> <li>• Suggestion of Mitigation measures to control water pollution</li> </ul> <p>Period: December 2023 onwards</p>	
3	SHW*	P.Giri	<ul style="list-style-type: none"> <li>• Quantification of mineral &amp; waste from mining operation</li> <li>• Waste disposal method evaluation</li> <li>• Providing dump management plan</li> <li>• Providing Surface Runoff Management Structure Requirements.</li> <li>• Identification of Hazardous waste and its details of disposal</li> </ul> <p>Period: October 2023 onwards</p>	
4	SE*	R.Baburaj	<ul style="list-style-type: none"> <li>• Identification of villages in the study area and finalization of demographic profile of the villages within the study area.</li> <li>• Preparation of sections relevant to SE functional area in the EIA/EMP report</li> </ul> <p>Period: December 2023 onwards</p>	
5	EB*	B.Swamynathan	<ul style="list-style-type: none"> <li>• Perusal of existing data relevant to this project.</li> <li>• Studying the details of flora and fauna, separately for core, buffer zone and forest area based on primary field survey.</li> <li>• Identification of species , Indicating the Schedule of the fauna present in the study area</li> <li>• Assessment of impact on Biological environment and suggestion of mitigative measures</li> <li>• Collecting &amp; providing details of existing and proposed Green belt development /plantation in the core zone</li> </ul> <p>Period: December 2023 onwards</p>	
6	HG*	K.Shankar	<ul style="list-style-type: none"> <li>• 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</li> </ul>	

			<ul style="list-style-type: none"> <li>• Perusal of site specific ground water table details for the core zone and the study area.</li> <li>• Studied the hydrological aspects of surface and groundwater in study area</li> <li>• Study about impact on the hydrology due to mining operation</li> <li>• Suggesting mitigative measures like RWH for enhancement of ground water level</li> </ul> <p>Period: December 2023 onwards</p>	
7	GEO*	K.Shankar	<ul style="list-style-type: none"> <li>• Study of geology of the ML area and the surrounding areas.</li> <li>• Provide details about Mineral composition</li> </ul> <p>Period: December 2023 onwards</p>	
8	SC*	B.Swamynathan	<ul style="list-style-type: none"> <li>• Study of soil profile</li> <li>• Assessment of Impact on soil and suggesting plantation scheme.</li> </ul> <p>Period: December 2023 onwards</p>	
9	AQ*	G.Sandhya	<ul style="list-style-type: none"> <li>• Quantification of emission particulars</li> <li>• Air quality modelling for post project impact on the air quality prediction of the study area.</li> </ul> <p>Analysis of the Isopleth generated</p> <ul style="list-style-type: none"> <li>• Arriving at the post project concentration at the AAQ monitoring locations</li> <li>• Preparation of meteorological data in suitable form for input into the model</li> <li>• Simulation of model for generation of Isopleth and data interpretation.</li> <li>• Studying the impact on AAQ monitoring locations due to the generated emissions.</li> <li>• Preparation of sections relevant to AQ functional area in the EIA/EMP report.</li> </ul> <p>Period: December 2023 onwards</p>	
10	NV*	P.Giri	<ul style="list-style-type: none"> <li>• Identification of baseline monitoring stations and study of the monitored data with respect to the applicable standards.</li> <li>• Predict the noise level and vibration level due to proposed mining operation based on scientific evaluation.</li> <li>• Suggesting the Mitigation measures to control noise pollution, Suggesting the Mitigation measures to</li> </ul>	

			<p><b>control ground vibration</b>  <b>Period: October 2023 onwards</b></p>	
11	LU	<p><b>B.Swamynathan</b></p>	<ul style="list-style-type: none"> <li>• Collection of Remote sensing satellite data to study the land use pattern.</li> <li>• Primary field survey and limited field verification</li> <li>• Preparation of Land use map using Satellite data of the project area separately for the core zone and the buffer zone and providing the land use pattern.</li> </ul> <p><b>Period: December 2023 onwards</b></p>	
		<p><b>G.Sandhya – Team Member</b></p>	<p>Assisting the Expert in preparation of Land use map using Satellite data of the project area separately for the core zone and the buffer zone and providing the land use pattern.</p> <p><b>Period: February 2023 onwards</b></p>	
12	RH*	<p><b>K.Shankar</b></p>	<ul style="list-style-type: none"> <li>• Identified Major risks involved in the project Mitigation measures suggested to avoid risk.</li> <li>• Preparation of onsite and offsite emergency management plan</li> </ul> <p><b>Period: December 2023 onwards</b></p>	
		<p><b>G.Sandhya – Team Member</b></p>	<p>Assisting the Expert in identification of major risks involved in the project and mitigation measures for the same.</p> <p><b>Period: February 2023 onwards</b></p>	


\*One TM against each FAE may be shown

\*\*Please attach additional sheet if required

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

I, **P.Giri** hereby,confirm that the above mentioned experts prepared the EIA report for **Ottakovil Limekankar Quarry Lease-2 of The Ramco Cements Limited in S.F.Nos. 204/10, 204/11, 204/12, etc. over an area of 57.36Ha in Ottakovil Village, Ariyalur Taluk, Ariyalur District Tamil Nadu.**

I also confirm that EIA Coordinator (EC) has gone through the report, and the consultant organization shall be fully accountable for any misleading information. It is certified that no unethical practices, plagiarism involved in carrying out the work and external data / text has not been used without proper acknowledgement while preparing this EIA report.

Signature: 

Name: **P.Giri**

Designation: **Chief Executive**

Name of the EIA consultant organization: **Creative Engineers & Consultants, Chennai – 59**

NABET Certificate No. & Issue Date: **No- NABET/EIA/23-26/RA 0331 & date 23.12.2026**



## National Accreditation Board for Education and Training

# Certificate of Accreditation

### Creative Engineers and Consultants, Chennai

9B/4, Bharathwajar street, East Tambaram, Chennai, Tamil Nadu

The organization is accredited as **Category-A** under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA/EMP reports in the following Sectors-

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1.	Mining of minerals- opencast mining only	1	1 (a) (i)	A
2.	Thermal power plants	4	1 (d)	A
3.	Mineral beneficiation	7	2 (b)	A
4.	Cement plants	9	3 (b)	A


*Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated May 03, 2024, posted on QCI-NABET website.*

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/24/3250 dated May 24, 2024. The accreditation needs to be renewed before the expiry date by Creative Engineers and Consultants, Chennai following due process of assessment.

Issue Date  
May 24, 2024

Valid up to  
December 23, 2026



  
Mr. Ajay Kumar Jha  
(Sr. Director, NABET)

Certificate No.  
NABET/EIA/23-26/RA 0331

  
Prof (Dr) Varinder S Kanwar  
(CEO-NABET)

# **CONTENTS**



## **CONTENTS**

<b>S.No</b>	<b>PARTICULARS</b>	<b>PG NO.</b>
<b>TERMS OF REFERENCE &amp; ITS COMPLIANCE</b>		
A.	COPY OF TOR	--
B.	COMPLIANCE TO TOR POINTS	T-1
<b>EIA/ EMP REPORT- CHAPTERS</b>		
I	INTRODUCTION	1-1
II	PROJECT DESCRIPTION	2-1
III	DESCRIPTION OF ENVIRONMENT	3-1
IV	ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES	4-1
V	ANALYSIS OF ALTERNATIVES	5-1
VI	ENVIRONMENTAL MONITORING PROGRAMME	6-1
VII	ADDITIONAL STUDIES	7-1
VIII	PROJECT BENEFITS	8-1
IX	ENVIRONMENTAL COST BENEFIT ANALYSIS	9-1
X	ENVIRONMENTAL MANAGEMENT PLAN	10-1
XI	SUMMARY & CONCLUSION	11-1
XII	DISCLOSURE OF CONSULTANTS ENGAGED	12-1
<b>ADDITIONAL ENCLOSURES WITH EIA/EMP REPORT CHAPTERS</b>		
	ANNEXURES	A-1





## **CHAPTER-WISE CONTENTS**

<b>CHAPTER 1 INTRODUCTION</b>	<b>1-1</b>
1.1 PURPOSE OF THE REPORT:	1-1
1.2 IDENTIFICATION OF PROJECT & PROJECT PROPONENT:	1-2
1.3 BRIEF DESCRIPTION OF NATURE, SIZE, LOCATION & PROJECT IMPORTANCE	1-4
1.4 SCOPE OF THE STUDY:	1-5
1.5 LEGAL AND REGULATORY FRAMEWORK:	1-6
1.6 STRUCTURE OF THE EIA/EMP REPORT:	1-7
<b>CHAPTER 2 PROJECT DESCRIPTION</b>	<b>2-6</b>
2.1 TYPE OF PROJECT:	2-6
2.2 NEED & JUSTIFICATION FOR THE PROJECT:	2-6
2.3 LOCATION:	2-7
2.4 GEOLOGY:	2-21
2.5 SIZE AND MAGNITUDE OF THE OPERATION:	2-24
2.5.1 RESERVES:	2-25
2.5.2 MINING METHOD:	2-25
2.6 PROPOSED SCHEDULE FOR APPROVAL AND IMPLEMENTATION:	2-25
2.7 PROJECT DESCRIPTION:	2-26
2.8 DESCRIPTION OF MITIGATION MEASURES:	2-34
2.9 ASSESSMENT OF NEW & UNTESTED TECHNOLOGY:	2-34
2.10 CONCLUSION:	2-34
<b>CHAPTER 3 DESCRIPTION OF ENVIRONMENT</b>	<b>3-1</b>
3.1 GENERAL:	3-1
3.2 SOCIO-ECONOMIC CONFIGURATIONS OF THE AREA:	3-3
3.3 EXISTING ENVIRONMENTAL QUALITY	3-11
3.4 LAND ENVIRONMENT - LANDUSE & LAND COVER	3-29
3.5 BIOLOGICAL ENVIRONMENT:	3-36
3.6 HYDROGEOLOGICAL STUDY:	3-47





## **CHAPTER 4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION**

<b>MEASURES</b>	<b>4-1</b>
4.1 GENERAL	4-1
4.2 AIR ENVIRONMENT:	4-1
4.3 WATER ENVIRONMENT:	4-10
4.4 NOISE AND VIBRATION:	4-13
4.5 LAND ENVIRONMENT:	4-16
4.6 BIOLOGICAL ENVIRONMENT:	4-17
4.7 SOCIO ECONOMIC ENVIRONMENT:	4-24
4.8 OCCUPATIONAL HEALTH AND SAFETY:	4-30
4.9 LOGISTICAL SYSTEM:	4-33
4.10 WASTE MANAGEMENT:	4-35

## **CHAPTER 5 ANALYSIS OF ALTERNATIVES** **5-1**

5.1 ALTERNATE TECHNOLOGY:	5-1
5.2 ALTERNATE SITE:	5-1

## **CHAPTER 6 ENVIRONMENTAL MONITORING PROGRAMME** **6-1**

6.1 GENERAL	6-1
6.2 MONITORING SCHEDULES FOR VARIOUS PARAMETERS	6-1
6.3 LEGISLATIVE AND REGULATORY FRAME WORK:	6-2
6.4 ENVIRONMENTAL MONITORING COST:	6-8

## **CHAPTER 7 ADDITIONAL STUDIES** **7-1**

7.1 GENERAL:	7-1
7.2 PUBLIC HEARING:	7-1
7.3 RISK ASSESSMENT:	7-1
7.4 REHABILITATION AND RESETTLEMENT (R & R) PLAN:	7-4
7.5 MINE CLOSURE PLAN:	7-4

## **CHAPTER 8 PROJECT BENEFITS** **8-1**





<b>CHAPTER 9 ENVIRONMENTAL COST BENEFIT ANALYSIS</b>	<b>9-1</b>
<b>CHAPTER 10 ENVIRONMENTAL MANAGEMENT PLAN</b>	<b>10-1</b>
10.1 INTRODUCTION:	10-1
10.2 COMPONENTS OF THE ENVIRONMENTAL MANAGEMENT PLAN:	10-1
10.3 ENVIRONMENTAL POLLUTION CONTROL COST:	10-11
10.4 CONCLUSION:	10-12
<b>CHAPTER 11 SUMMARY &amp; CONCLUSION</b>	<b>11-1</b>
11.1 INTRODUCTION:	11-1
11.2 SALIENT FEATURES OF THE PROJECT:	11-2
11.3 EXISTING ENVIRONMENTAL SCENARIO:	11-4
11.4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES:	11-8
11.5 ENVIRONMENTAL MONITORING PROGRAMME:	11-15
11.6 ADDITIONAL STUDIES:	11-15
11.7 CONCLUSION:	11-16
<b>CHAPTER 12 DISCLOSURE OF CONSULTANTS ENGAGED</b>	<b>12-1</b>

### **LIST OF FIGURES**

Figure 1.1: Site Vicinity Map.....	1-2
Figure 2.1: Location Map .....	2-7
Figure 2.2: Approachability Map.....	2-8
Figure 2.3: Village Map .....	2-9
Figure 2.4: Lease Plan .....	2-13
Figure 2.5: Surface Plan .....	2-14
Figure 2.6: Satellite Imagery Showing Corner Co-ordinates of the Project Area.....	2-15
Figure 2.7: Details of features within 300m .....	2-18
Figure 2.8: Geological Plan & Cross Section.....	2-23
Figure 2.9: Geological Cross Section .....	2-24





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

Figure 2.10: Yearwise Plan (Year 1) .....	2-27
Figure 2.11: Yearwise Plan (Year 2) .....	2-28
Figure 2.12: Yearwise Plan (Year 3) .....	2-29
Figure 2.13: Yearwise Plan (Year 4) .....	2-30
Figure 2.14: Yearwise Plan (Year 5) .....	2-31
Figure 2.15: Yearwise Cross Section .....	2-32
Figure 2.16: Conceptual Plan .....	2-33
Figure 3.1: Study Area Map .....	3-2
Figure 3.2: Demographic Structure in Buffer Zone .....	3-5
Figure 3.3: Cyclone Prone Areas .....	3-12
Figure 3.4: Seismic Zone Map of India .....	3-13
Figure 3.5: Total Rainfall .....	3-15
Figure 3.6: Average Annual Rainfall .....	3-15
Figure 3.7: Average Wind Rose .....	3-17
Figure 3.8: Ambient Air Quality Study Stations .....	3-19
Figure 3.9: Ambient Air Quality Data .....	3-20
Figure 3.10: Location of Water Sampling Stations .....	3-22
Figure 3.11: Location of Noise Sampling Stations .....	3-25
Figure 3.12: Noise Level Data .....	3-26
Figure 3.13: Location of Soil Sampling Stations .....	3-28
Figure 3.14 : Landsat 9 Satellite Data of the Study Area .....	3-31
Figure 3.15: Map Showing Land Use Categories around 10km Buffer .....	3-33
Figure 3.16: Landuse within the Buffer Zone Area .....	3-35
Figure 3.17: Important Value Index For Trees in PIZ .....	3-40
Figure 3.20: Drainage Map .....	3-47
Figure 3.21: Geology Map .....	3-48
Figure 3.22: Geomorphology Map .....	3-49
Figure 3.23: Lithology Map .....	3-50





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

Figure 3.24: Soil Map .....	3-51
Figure 4.1: Isopleth of GLC Prediction for PM <sub>10</sub> .....	4-7
Figure 4.2: Isopleth of GLC Prediction for PM <sub>2.5</sub> .....	4-8
Figure 4.3: Water Balance Diagram .....	4-10
Figure 4.4:Authenticated Wildlife Map .....	4-20
Figure 4.5:Conceptual Plan.....	4-23
Figure 4.6: Transport Route .....	4-34
Figure 10.1:ISO 9001:2015 Certificate .....	10-2
Figure 10.2: ISO 14001:2015 Certificate .....	10-3
Figure 10.3: ISO 45001:2018 Certificate .....	10-4
Figure 10.4: ISO 50001:2018 Certificate .....	10-5
Figure 10.5: Organization Chart.....	10-6

**LIST OF TABLES**

Table 1.1: Screening of Schedule 1(a) Projects .....	1-1
Table 1.2: Identification of project.....	1-3
Table 1.3:Statutory Clearances.....	1-3
Table 1.4: Cement Plants and their capacity .....	1-4
Table 1.5: Identification of Project Proponent.....	1-4
Table 1.6: Brief Description of Nature of project .....	1-4
Table 1.7: Location of the project .....	1-5
Table 2.1: Description of approach.....	2-8
Table 2.2: Present Land Use.....	2-10
Table 2.3: Safety Distance .....	2-10
Table 2.4: Details of Features within 300m radius.....	2-19
Table 2.5:Stratigraphic Succession .....	2-21
Table 2.6: Geological and Mineable Reserves .....	2-25
Table 2.7: Details of Equipments .....	2-25
Table 2.8: Proposed Schedule of Implementation .....	2-26







**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

Table 2.9: Yearwise Production .....	2-26
Table 2.10: Yearwise Development.....	2-26
Table 2.11: Land use breakup.....	2-32
Table 2.12: Project Requirements .....	2-33
Table 3.1: Type of Baseline Data .....	3-1
Table 3.2: Environmental Setting of the Study Area .....	3-3
Table 3.3: Social, Economic and Demographic Profile of the Study Area.....	3-4
Table 3.4: Primary Schools in the Buffer Zone Rural Villages .....	3-7
Table 3.5: Education Facility Availability.....	3-8
Table 3.6: Healthcare Amenities Availability.....	3-8
Table 3.7: Infrastructure Facilities .....	3-8
Table 3.8: Average Annual Rainfall Data (2012-2021) .....	3-14
Table 3.9: Meteorological Data .....	3-16
Table 3.10: Air Quality Monitoring .....	3-18
Table 3.11: Air Quality Monitoring Locations .....	3-18
Table 3.12: Ambient Air Quality Data .....	3-20
Table 3.13: Water Quality Monitoring .....	3-21
Table 3.14: Summary of Water Quality Data .....	3-23
Table 3.15: Noise Level Monitoring .....	3-24
Table 3.16: Ambient Noise Level in dB (A).....	3-26
Table 3.17: Soil Quality Monitoring.....	3-27
Table 3.18: Soil Quality Data.....	3-29
Table 3.19: RS satellite image used for the present study.....	3-30
Table 3.20: Major Landuse Units of the Study Area .....	3-31
Table 3.21: Area Estimation of Landuse Categories in Buffer Zone .....	3-33
Table 3.22: Land Use Pattern of the Study Area Falling Within 10 Km Area in (Ha).....	3-35
Table 3.23: List of Floristic Species in the Core Zone.....	3-37
Table 3.24: Phyto-Sociological Survey Of Trees In PIZ.....	3-39





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

Table 3.25: Species Diversity index of trees in PIZ .....	3-40
Table 3.26: List of Floristic Species in the Buffer Zone.....	3-40
Table 3.27: List of Fauna in the Buffer Zone .....	3-46
Table 3.26: Groundwater Level BGL) Pre Monsoon and Post Monsoon .....	3-51
Table 4.1: Impact and Mitigation Measures – Air Environment.....	4-4
Table 4.2: Emission Sources.....	4-4
Table 4.3: Emission Factors.....	4-5
Table 4.4: Emission Rate .....	4-5
Table 4.5: Peak Incremental Concentration .....	4-6
Table 4.6: Concentrations Of PM <sub>10</sub> after Project Implementation.....	4-9
Table 4.7: Concentrations Of PM <sub>2.5</sub> after Project Implementation.....	4-9
Table 4.8: Impact on water environment .....	4-11
Table 4.9: Control Measures – Water Environment.....	4-11
Table 4.10: Main Sources of Noise .....	4-14
Table 4.11: Impact of Noise Levels .....	4-14
Table 4.12: Post Project Noise Levels.....	4-15
Table 4.13: Land Use Table .....	4-16
Table 4.14: Land Use During Post Operational Period.....	4-17
Table 4.15: Impact on Biological Environment .....	4-17
Table 4.16: Existing Plantation outside the lease area .....	4-21
Table 4.17: Proposed Plantation .....	4-24
Table 4.18: CSR Activities carried out between 2021 - 2024.....	4-25
Table 4.19:CSR activities carried out during 2023-24.....	4-26
Table 4.20: CER Cost.....	4-30
Table 4.21: Personal Protective Equipments.....	4-33
Table 4.22: Details of Transportation .....	4-34
Table 6.1: Environmental Monitoring Schedule .....	6-2
Table 6.2: Environmental Standards .....	6-2





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---

Table 6.3: National Ambient Air Quality Standards.....	6-3
Table 6.4: IS – 10500 :2012 Standards.....	6-5
Table 6.5: Noise Level Standards .....	6-7
Table 6.6: Permissible Noise For Industrial Workers As Laid Down By CPCB .....	6-7
Table 10.1: Environmental Control Cost.....	10-11
Table 11.1: Statutory Clearances.....	11-1
Table 11.2: Site Details .....	11-2
Table 11.3: Environment Setting of The Study Area.....	11-3
Table 11.4: Technical Description .....	11-3
Table 11.5: Social, Economic and Demographic Profile of the Study Area.....	11-4
Table 11.6: Baseline Data.....	11-5
Table 11.7: Landuse Pattern of 10km Buffer Zone .....	11-6
Table 11.8: Mitigation Measures – Air Environment .....	11-8
Table 11.9: Mitigation Measures – Water Pollution .....	11-10





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---

**LIST OF ANNEXURES**

Annexure 1:	Precise Area Communication Letter	A-1
Annexure 2:	Mining Plan Approval Letter	A-12
Annexure 3:	VAO Letter	A-23
Annexure 4:	Details of quarries within 500m radius	A-24
Annexure 5:	Population Breakup and Literacy Levels in the Buffer Zone	A-27
Annexure 6:	Occupational Structure in the Buffer Zone	A-29
Annexure 7:	Educational Facilities in the Buffer Zone	A-31
Annexure 8:	Medical Facilities in the Buffer Zone	A-32
Annexure 9:	Infrastructural Facilities in the Buffer Zone	A-33
Annexure 10:	Ambient Air Quality Data	A-34
Annexure 11:	Water Quality Data	A-39
Annexure 12:	Village-wise Land Use Pattern in the Buffer Zone	A-41
Annexure 13:	NOC from DFO	A-43
Annexure 14:	Authenticated List of Flora and Fauna	A-46
Annexure 15:	Affidavit	A-52

\*\*\*\*\*



# **TERMS OF REFERENCE & ITS COMPLIANCE**



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

STATE LEVEL ENVIRONMENT IMPACT  
ASSESSMENT AUTHORITY –TAMILNADU  
3rd Floor, Panagal Maaligai,  
No.1 Jeenis Road, Saidapet,  
Chennai – 600015  
Tele phone No : 044-2435 9970

**TERMS OF REFERENCE (ToR)**

**Lr No.SEIAA-TN/F.No.10503/2023/SEAC/ToR- 1671/2024 Dated: 08.02.2024.**

To

M/s. The Ramco Cements Limited  
5th Floor, Auras Corporate Centre No. 98A,  
Dr.Radhakrishnan Road,  
Mylapore,  
Chennai-600 004

Sir / Madam,

**Sub:** SEIAA, Tamil Nadu – Terms of Reference with public Hearing (ToR) for the Proposed Lime kankar quarry lease over an extent of 57.36.0Ha at SF.Nos.204/10, 204/11, 204/12, 204/13, 204/14, 204/15, 204/17, 204/18, 204/19, 204/20, 204/25, 204/26, 204/27, 204/28, 204/29, 204/30, 204/31, 204/32, 204/33, 205/3A, 205/3B, 205/4, 205/5A, 205/5B, 205/6, 205/7, 206/1A, 206/1B, 206/1C, 206/1D, 206/1E, 206/2, 206/3, 206/4A, 206/4B, 206/5A, 206/5B, 206/5C, 206/6, 206/7A, 206/7B, 206/8, 206/9A, 206/9B, 206/10, 206/11, 206/12, 206/13, 206/14, 206/16B, 206/17A, 206/17B, 206/18, 206/19, 207/2, 207/3, 207/4, 207/5, 207/6, 207/7, 207/8, 207/9, 207/10, 207/11A, 207/11B, 207/12, 207/13A, 207/13B, 207/13C, 207/14, 207/15, 208/1, 208/2, 208/3, 208/4, 208/5A, 208/5B, 208/5C, 208/6B, 208/7, 208/8, 208/9, 208/10, 208/11, 208/12, 208/13, 208/14, 208/15, 208/16, 208/18, 208/19, 209/1, 209/2, 209/3, 209/4A, 209/4B, 209/5A, 209/5B2, 209/5C, 209/5D, 209/5E, 209/6, 209/7A, 209/7B, 209/7C, 209/8, 209/9, 209/10, 209/11, 209/12, 209/14, 210/4B, 210/5B, 210/6B, 210/7B, 210/9, 210/10, 210/11, 210/12, 213/1, 213/2A, 213/2B, 213/2C, 213/3, 213/4, 213/5A, 213/5B, 213/5C, 213/5D, 213/6A, 213/7, 213/8A, 213/8B, 213/9, 214/2, 214/3, 214/4, 214/5A, 214/5B, 214/6, 214/7, 214/8, 214/9, 214/10, 214/11, 214/12, 215/1A, 215/1B, 215/2A, 215/2B, 215/3A, 215/3B, 215/4, 215/5A, 215/5B, 215/6A, 215/6B, 215/6C, 215/7, 215/8A, 215/8B, 215/8C, 215/9,

  
MEMBER SECRETARY  
SEIAA-TN

215/10A, 215/10B, 215/10C, 215/11, 216/1A, 216/1B, 216/2, 216/3, 216/4, 216/5A, 216/5B, 216/6, 216/7, 216/8, 216/9A, 216/9B, 216/10, 217/1, 217/2, 217/3, 217/4, 217/5, 217/6, 217/7A, 217/7B, 217/8A, 217/8B, 217/8C, 217/9, 217/10A, 217/10B, 217/10C, 218/1A, 218/1C, 218/8, 218/9A, 218/9B, 218/10, 218/11, 218/12, 218/13, 218/14, 219/5, 220/1A, 220/1B, 220/1C, 220/1D, 220/1E, 220/1F, 220/1G, 220/1H, 220/1I, 220/2E, 220/3, 220/4A, 220/4B, 221/1, 221/2, 221/3, 221/4, 221/5, 221/6A, 221/6B, 221/6C, 221/6D, 221/7A, 221/7B, 221/8, 221/9, 221/10, 222/1, 222/2, 222/3, 222/4, 222/5, 222/6, 222/7, 223/1A, 226/1, 226/2, 226/3, 226/4, 226/5, 226/6, 226/7, 226/11, 226/12, 226/13, 226/24, 226/25, 226/26, 226/27, 226/28, 227/1, 227/2, 227/3, 227/4, 227/5A, 227/5B, 227/5C, 227/5D, 227/17, 227/18A, 227/18B, 227/20, 227/21, 227/22, 227/23, 227/24, 227/25 and 227/26 of Ottakovil Village, Ariyalur Taluk, Ariyalur District, Tamil Nadu by M/s.The Ramco Cements Limited - under project category - "B1" and Schedule S.No.1 (a) - ToR issued along with Public Hearing - preparation of EIA report - Regarding.

- Ref:**
1. Online proposal No. SIA/TN/MIN/450881/2023, dated:01.11.2023.
  2. Your application submitted for Terms of Reference dated:02.11.2023.
  3. Minutes of the 436<sup>th</sup> SEAC meeting held on 29.12.2023.
  4. Minutes of the 693<sup>rd</sup> SEIAA meeting held on 08.02.2024.

-----

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

The proponent, M/sThe Ramco Cements Limited has submitted application for Terms of Reference (ToR) in Form-I, Pre- Feasibility report for the Proposed Lime kankar quarry lease over an extent of 57.36.0Ha at SF.Nos. 204/10, 204/11, 204/12, 204/13, 204/14, 204/15, 204/17, 204/18, 204/19, 204/20, 204/25, 204/26, 204/27, 204/28, 204/29, 204/30, 204/31, 204/32, 204/33, 205/3A, 205/3B, 205/4, 205/5A, 205/5B, 205/6, 205/7, 206/1A, 206/1B, 206/1C, 206/1D, 206/1E, 206/2, 206/3, 206/4A, 206/4B, 206/5A, 206/5B, 206/5C, 206/6, 206/7A, 206/7B, 206/8, 206/9A, 206/9B, 206/10, 206/11, 206/12, 206/13, 206/14, 206/16B, 206/17A, 206/17B, 206/18, 206/19, 207/2, 207/3, 207/4, 207/5, 207/6, 207/7, 207/8, 207/9, 207/10, 207/11A, 207/11B, 207/12, 207/13A, 207/13B, 207/13C, 207/14, 207/15, 208/1, 208/2, 208/3, 208/4, 208/5A, 208/5B, 208/5C, 208/6B, 208/7, 208/8, 208/9, 208/10, 208/11, 208/12, 208/13, 208/14, 208/15, 208/16, 208/18, 208/19, 209/1, 209/2, 209/3, 209/4A, 209/4B, 209/5A, 209/5B2, 209/5C, 209/5D, 209/5E, 209/6, 209/7A, 209/7B, 209/7C, 209/8, 209/9, 209/10, 209/11, 209/12, 209/14, 210/4B, 210/5B, 210/6B, 210/7B, 210/9, 210/10, 210/11,

  
MEMBER SECRETARY  
SEIAA-TN

210/12, 213/1, 213/2A, 213/2B, 213/2C, 213/3, 213/4, 213/5A, 213/5B, 213/5C, 213/5D, 213/6A, 213/7, 213/8A, 213/8B, 213/9, 214/2, 214/3, 214/4, 214/5A, 214/5B, 214/6, 214/7, 214/8, 214/9, 214/10, 214/11, 214/12, 215/1A, 215/1B, 215/2A, 215/2B, 215/3A, 215/3B, 215/4, 215/5A, 215/5B, 215/6A, 215/6B, 215/6C, 215/7, 215/8A, 215/8B, 215/8C, 215/9, 215/10A, 215/10B, 215/10C, 215/11, 216/1A, 216/1B, 216/2, 216/3, 216/4, 216/5A, 216/5B, 216/6, 216/7, 216/8, 216/9A, 216/9B, 216/10, 217/1, 217/2, 217/3, 217/4, 217/5, 217/6, 217/7A, 217/7B, 217/8A, 217/8B, 217/8C, 217/9, 217/10A, 217/10B, 217/10C, 218/1A, 218/1C, 218/8, 218/9A, 218/9B, 218/10, 218/11, 218/12, 218/13, 218/14, 219/5, 220/1A, 220/1B, 220/1C, 220/1D, 220/1E, 220/1F, 220/1G, 220/1H, 220/1I, 220/2E, 220/3, 220/4A, 220/4B, 221/1, 221/2, 221/3, 221/4, 221/5, 221/6A, 221/6B, 221/6C, 221/6D, 221/7A, 221/7B, 221/8, 221/9, 221/10, 222/1, 222/2, 222/3, 222/4, 222/5, 222/6, 222/7, 223/1A, 226/1, 226/2, 226/3, 226/4, 226/5, 226/6, 226/7, 226/11, 226/12, 226/13, 226/24, 226/25, 226/26, 226/27, 226/28, 227/1, 227/2, 227/3, 227/4, 227/5A, 227/5B, 227/5C, 227/5D, 227/17, 227/18A, 227/18B, 227/20, 227/21, 227/22, 227/23, 227/24, 227/25 and 227/26 of Ottakovil Village, Ariyalur Taluk, Ariyalur District, Tamil Nadu.

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

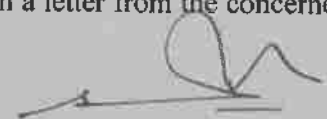
The proposal was placed in the 436<sup>th</sup> SEAC Meeting held on 29.12.2023. The details of the project furnished by the proponent are given on the website (parivesh.nic.in).

**The SEAC noted the following:**

1. The Project Proponent, M/s. The Ramco Cements Limited has applied for Terms of Reference for the Proposed Limekankar quarry lease over an extent of 57.36Ha at SF.Nos. 204/10, 204/11, 204/12, etc of Ottakovil Village, Ariyalur Taluk, Ariyalur District, Tamil Nadu.
2. The project/activity is covered under Category "B1" of Item 1(a) " Mining of mineral Projects" of the Schedule to the EIA Notification, 2006.
3. The lease period is for 5 years. The mining plan is for the period of five years & the production should not exceed 12,49,031 Tonnes of Limekankar & 6,66,150m<sup>3</sup> of Topsoil with an ultimate depth of mining is 2.75m (1.50m Topsoil + 1.25m Limekankar). The annual peak production is 6,99,891 Tonnes of Limekankar & 3,73,275m<sup>3</sup> of Topsoil.

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

1. In case of the existing quarry/operating mines, the PP shall obtain a letter from the concerned AD (Mines) which shall stipulate the following information:



**MEMBER SECRETARY  
SEIAA-TN**




- i. Original pit dimension of the existing quarry
  - ii. Quantity achieved Vs EC Approved Quantity
  - iii. Balance Quantity as per Mineable Reserve calculated.
  - iv. Mined out Depth as on date Vs EC Permitted depth
  - v. Details of illegal/illicit mining carried out, if any
  - vi. Non-compliance/Violation in the quarry during the past working.
  - vii. Quantity of material mined out outside the mine lease area (or) in the adjacent quarry/land.
  - viii. Existing condition of Safety zone/benches
  - ix. Details of any penalties levied on the PP for any violation in the quarry operation
2. The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m & upto 1km shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc.
  3. The study on impact of the proposed quarrying operations on the surrounding environment including the aforesaid any structures existing within 500 m radius from the mine lease apart from the water bodies, Odai etc.,
  4. The Project Proponent shall furnish the revised EMP based on the study carried out on impact of the dust & other environmental impacts due to proposed quarrying operations on the nearby agricultural lands for remaining life of the mine in the format prescribed by the SEAC considering the cluster situation.
  5. The PP shall furnish the mining methodology so as to control the fugitive dust includes the progressive closure of mining activities in the EIA report.
  6. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:
    - (i) Original pit dimension
    - (ii) Quantity achieved Vs EC Approved Quantity
    - (iii) Balance Quantity as per Mineable Reserve calculated.
    - (iv) Mined out Depth as on date Vs EC Permitted depth
    - (v) Details of illegal/illicit mining
    - (vi) Violation in the quarry during the past working.
    - (vii) Quantity of material mined out outside the mine lease area
    - (viii) Condition of Safety zone/benches



MEMBER SECRETARY  
SEIAA-TN


- (ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.
7. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.
  8. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.
  9. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.
  10. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.
  11. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.
  12. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.
  13. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.
  14. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.

  
MEMBER SECRETARY  
SEIAA-TN

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

  
MEMBER SECRETARY  
SEIAA-TN

- of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.
25. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD/TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.
  26. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.
  27. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.
  28. Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon) be submitted.
  29. 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.
  30. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.
  31. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.



**MEMBER SECRETARY**  
**SEIAA-TN**

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



**MEMBER SECRETARY**  
**SEIAA-TN**

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

#### Appendix -I

##### List of Native Trees Suggested for Planting

1. *Aeglemarmelos*-Vilvam
2. *Adenaantherapavonina*-Manjadi
3. *Albizialebbeck*-Vaagai
4. *Albiziaamara*-Usil
5. *Bauhinia purpurea* - Mantharai
6. *Bauhinia racemosa* - Aathi
7. *Bauhinia tomentosa*-Iruvathi
8. *Buchananiaaillaris*-Kattuma
9. *Borassusflabellifer*- Panai
10. *Buteamonosperma* - Murukkamaram
11. *Bobaxceiba*- Ilavu, Sevvilavu

  
MEMBER SECRETARY  
SEIAA-TN

12. *Calophyllum* - Punnai
13. *Cassia fistula*- Sarakondrai
14. *Cassia roxburghii*- Sengondrai
15. *Chloroxylonswietenia* - Purasamaram
16. *Cochlospermumreligiosum*- Kongu, Manjallavu
17. *Cordiadichotoma*- Mookuchalimaram
18. *Cretevaadansonii*-Mavalingum
19. *Dilleniaindica*- Uva, Uzha
20. *Dilleniapentagyna*- SiruUva, Sitruzha
21. *Diospyroschenum*- Karungali
22. *Diospyroschloroxylon*- Vaganai
23. *Ficusamplissima*- Kalltchi
24. *Hibiscus tiliaceous*-Aatrupoovarasu
25. *Hardwickiabinata*- Aacha
26. *Holopteliaintegrifolia*-Aayili
27. *Lanneacoromandelica* - Odhiam
28. *Lagerstroemia speciosa* - Poo Marudhu
29. *Lepisanthustetraphylla*- Neikottaimaram
30. *Limoniaacidissima* - Vila maram
31. *Litseaaglutinosa*-Pisinpattai
32. *Madhucalongifolia* - Illuppai
33. *Manilkarahexandra*-UlakkaiPaalai
34. *Mimusopselengi* - Magizhamaram
35. *Mitragynaparvifolia* - Kadambu
36. *Morindapubescens*-Nuna
37. *Morindacitrifolia*- VellaiNuna
38. *Phoenix sylvestre*-Eachai
39. *Pongamiapinnata*-Pungam
40. *Premnamollissima*- Munnai
41. *Premnaserratifolia*- Narumunnai
42. *Premnatomentosa*-PurangaiNaari, PudangaNaari
43. *Prosopiscinerea* - Vannimaram
44. *Pterocarpusmarsupium* - Vengai

  
MEMBER SECRETARY  
SEIAA-TN

45. *Pterospermum canescens* - Vennangu, Tada
46. *Pterospermum xylocarpum* - Polavu
47. *Puthranjivaroxburghii* - Puthranjivi
48. *Salvadorapersica* - Ugaamaram
49. *Sapindusemarginatus* - Manipungan, Soapukai
50. *Saracaasoca* - Asoca
51. *Streblusasper* - Pirayamaram
52. *Strychnosnuxvomica* - Yetti
53. *Strychnopotatorum* - Therthang Kottai
54. *Syzygiumcumini* - Navai
55. *Terminaliabellerica* - Thandri
56. *Terminalia arjuna* - Venmarudhu
57. *Toona ciliate* - Sandhanavembu
58. *Thespesiapopulnea* - Puvarasu
59. *Walsuratrifoliata* - valsura
60. *Wrightiatinctoria* - Veppalai
61. *Pithecellobium dulce* - Kodukkapuli

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

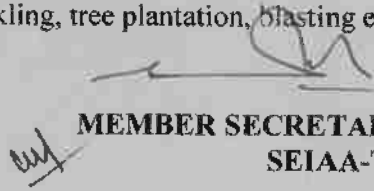
The subject was placed in the 693<sup>rd</sup> Authority meeting held on 08.02.2024. The Authority noted that the subject was appraised in the 436<sup>th</sup> SEAC meeting held on 29.12.2023. After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant **Terms of Reference (ToR) along with Public Hearing** under cluster for undertaking the combined Environment Impact Assessment Study and preparation of separate Environment Management Plan subject to the conditions as recommended by SEAC & normal conditions and conditions in **Annexure 'B'** of this minutes.

1. The PP shall submit the proposal for utilization of Top soil for green belt development.

**Annexure 'B'**

**Cluster Management Committee**

1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.
2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,

  
**MEMBER SECRETARY  
SEIAA-TN**



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

**Impact study of mining**

12. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following
  - a) Soil health & soil biological, physical land chemical features .
  - b) Climate change leading to Droughts, Floods etc.
  - c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, & Livelihood of the local people.
  - d) Possibilities of water contamination and impact on aquatic ecosystem health.
  - e) Agriculture, Forestry & Traditional practices.
  - f) Hydrothermal/Geothermal effect due to destruction in the Environment.
  - g) Bio-geochemical processes and its foot prints including environmental stress.
  - h) Sediment geochemistry in the surface streams.



MEMBER SECRETARY  
SEIAA-TN

**Agriculture & Agro-Biodiversity**

13. Impact on surrounding agricultural fields around the proposed mining Area.
14. Impact on soil flora & vegetation around the project site.
15. Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.
16. The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.
17. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.
18. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.

**Forests**

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

**Water Environment**

23. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.
24. Erosion Control measures.
25. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, & any ecological fragile areas.

  
**MEMBER SECRETARY**  
**SEIAA-TN**

26. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.
27. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.
28. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.
29. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.
30. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.

#### **Energy**

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

#### **Climate Change**

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

#### **Mine Closure Plan**

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


#### **EMP**

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

#### **Risk Assessment**

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

#### **Disaster Management Plan**

  
MEMBER SECRETARY  
SEIAA-TN

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

**Others**

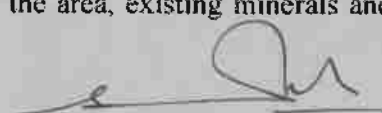
39. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.

40. As per the MoEF& CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.

41. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.

**A. STANDARD TERMS OF REFERENCE**

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

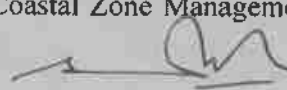
  
**MEMBER SECRETARY**  
**SEIAA-TN**

- mining history of the area, important water bodies, streams and rivers and soil characteristics.
- 6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
  - 7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
  - 8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
  - 9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
  - 10) Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
  - 11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
  - 12) Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.



MEMBER SECRETARY  
SEIAA-TN

- 13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
- 14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
- 15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
- 16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
- 17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
- 18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
- 19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.
- 20) Similarly, for Coastal Projects, a CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease with respect to CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management

  
**MEMBER SECRETARY**  
**SEIAA-TN**

Authority).

- 21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
- 22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
- 23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
- 24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
- 25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
- 26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.
- 27) Impact of the Project on the water quality, both surface and groundwater, should be assessed

  
MEMBER SECRETARY  
SEIAA-TN

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

  
**MEMBER SECRETARY**  
**SEIAA-TN**



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

- 36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
- 37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
- 38) Detailed Environmental Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
- 39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
- 40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
- 41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
- 42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
- 43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
- 44) Besides the above, the below mentioned general points are also to be followed:-
  - a) Executive Summary of the EIA/EMP Report
  - b) All documents to be properly referenced with index and continuous page numbering.
  - c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
  - d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
  - e) Where the documents provided are in a language other than English, an English translation should be provided.
  - f) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.



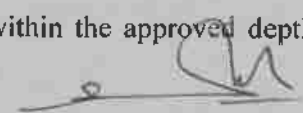
**MEMBER SECRETARY**  
**SEIAA-TN**

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


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

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

1. Project name and location (Village, District, State, Industrial Estate (if applicable)).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of

  
MEMBER SECRETARY  
SEIAA-TN

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




MEMBER SECRETARY  
SEIAA-TN

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

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

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.
- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2<sup>nd</sup> December, 2009, 18<sup>th</sup> March 2010, 28<sup>th</sup> May 2010, 28<sup>th</sup> June 2010, 31<sup>st</sup> December 2010 & 30<sup>th</sup> September 2011 posted on the Ministry's website <http://www.moef.nic.in/> may be referred.
  - After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
  - The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.
  - The TORs with public hearing prescribed shall be **valid for a period of three years** from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I) (part) dated 29<sup>th</sup> August, 2017.

  
**MEMBER SECRETARY  
SEIAA-TN**

**Copy to:**

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



**TOR COMPLIANCE**

S.No	ToR Points	Reply	Pg. No
<b>A. ToR in Addition to Standard ToR</b>			
1	In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: a) Original pit dimension b) Quantity achieved Vs EC Approved Quantity c) Balance Quantity as per Mineable Reserve calculated. d) Mined out Depth as on date Vs EC Permitted depth e) Details of illegal/illicit mining carried out if any f) Non-Compliance/Violation in the quarry during the past working. g) Quantity of material mined out outside the mine lease area (or) in the adjacent quarry/land. h) Existing condition of Safety zone/Benches i) Details of penalties levied on the PP for a violation in quarry operation.	This is a proposed project. As such no production has been carried out so far	--
2	The structures within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc	Details of the nearby features are provided in <b>Table 2.4, Chapter-II.</b>	2-17
3	The study on impact of the proposed quarrying operations on the surrounding environment including the aforesaid any structures existing within 500m radius from the mine lease apart from the water bodies, odai, etc.	Anticipated impacts and mitigation measures are provided in Chapter-IV.	4-1
4	The proponent shall furnish the revised EMP based on the study carried out on impacts due to proposed quarrying operations on the nearby agricultural	Towards implementation of EMP measures, an amount of Rs.34.81 Lakhs is allocated under capital cost and Rs.31.42 Lakhs is allocated under	10-11





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	lands for remaining life of the mine in the format prescribed the SEAC considering cluster situation.	recurring cost. The details of the same has been provided in Table 10.1, Chapter-X.	
5	The PP shall furnish the mining methodology so as to control the fugitive dust includes the progressive closure of mining activities in the EIA report.	Opencast Mining without drilling and blasting using HEMM of low HP will be carried out. During the plan period, the deposit will be mined by a simple system of simultaneous development, production and refilling by the same excavator called strip mining. The depth of mining will be 2.75m only.	2-23
6	In case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following: a) Original pit dimension b) Quantity achieved Vs EC Approved Quantity c) Balance Quantity as per Mineable Reserve calculated. d) Mined out Depth as on date Vs EC Permitted depth e) Details of illegal/illicit mining f) Violation in the quarry during the past working. g) Quantity of material mined out outside the mine lease area h) Condition of Safety zone/benches i) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.	This is a proposed project. As such no production has been carried out so far	--
7	Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.	Letter has been obtained from VAO, Ottakovil and the same has been enclosed as <b>Annexure-3</b> .	A-23
8	The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs	Details of the nearby features are provided in <b>Table 2.4, Chapter-II</b> .	2-17





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.		
9	The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.	Hydrogeological Study is detailed under <b>Section 3.6, Chapter-III.</b>	<b>3-47</b>
10	The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.	A detailed study of flora and fauna composition in the core and buffer zone of the project has been made through primary field surveys. The details are furnished in <b>Section 3.5, Chapter III.</b>	<b>3-37</b>
11	The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.	No Objection Certificate has been obtained from District Forest Officer, Ariyalur vide C.No.4062/2023/D dated 15.11.2023. <b>(Annexure-13)</b>	<b>A-43</b>
12	In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining & Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.	This is a proposed project. As such no production has been carried out so far	--
13	However, in case of the fresh/virgin	The ultimate depth of mining will be	--







**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	quarries, the proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.	2.75m. As such this is not applicable.	
14	The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/ Class mines manager appointed by the proponent.	There is no blasting proposed in this project.	--
15	The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.	There is no drilling or blasting envisaged in this project.	--
16	The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.	Agreed	--
17	If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,	This is a proposed project. As such no production has been carried out so far	--
18	What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?	This is a proposed project. As such no production has been carried out so far	--
19	Quantity of minerals mined out. •Highest production achieved in any one year •Detail of approved depth of mining. •Actual depth of the mining achieved earlier. •Name of the person already mined in	This is a proposed project. As such no production has been carried out so far	--





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	<p>that leases area.</p> <ul style="list-style-type: none"> <li>•If EC and CTO already obtained, the copy of the same shall be submitted.</li> <li>•Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.</li> </ul>		
20	<p>All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).</p>	<ul style="list-style-type: none"> <li>• Satellite imagery with corner coordinates of the project area is provided in <b>Figure 2.5, Chapter-II.</b></li> <li>• Toposheet of the lease area and buffer zone is provided in <b>Figure 3.1, Chapter-III.</b></li> <li>• Geology, Geomorphology, Lithology map of the lease area and buffer zone is provided in <b>Figure 3.19, 3.20 and 3.21, Chapter-III.</b></li> </ul>	<p>2-14</p> <p>3-2</p> <p>3-48</p>
21	<p>The PP shall carry out Drone video survey covering the cluster, Green belt, fencing etc.,</p>	<p>Agreed</p>	<p>--</p>
22	<p>The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees &amp; safety distance between the adjacent quarries &amp; water bodies nearby provided as per the approved mining plan.</p>	<p>Site photographs have been provided in Chapter-II.</p>	<p>2-15</p>
23	<p>The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment and the remedial measures for the same.</p>	<ul style="list-style-type: none"> <li>• The details of geological and mineable reserves are provided in <b>Table 2.6, Chapter-II.</b></li> <li>• The production schedule during the plan period is provided in <b>Table 2.10, Chapter-II.</b></li> <li>• The working methodology is detailed under <b>Section 2.7, Chapter-II.</b></li> <li>• Anticipated impacts of mining operations on surrounding environment is provided under <b>Chapter-IV.</b></li> </ul>	<p>2-22</p> <p>2-24</p> <p>2-23</p> <p>4-1</p>
24	<p>The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to</p>	<p>The organization chart is provided as <b>Figure No.10.5, Chapter-X.</b></p>	<p>10-6</p>





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	be appointed as per the provisions of Mines Act 1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.		
25	The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.	Hydrogeological Study is detailed under <b>Section 3.6, Chapter-III.</b>	<b>3-47</b>
26	The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality & flora/fauna including traffic/vehicular movement study.	The baseline data on micro- meteorology, ambient air quality, Water quality, noise level, soil and flora & fauna are collected during Winter Season (December 2023 – February 2024) and detailed in <b>Section 3.3 to 3.5 of Chapter-III.</b> The details of Traffic Study is provided under <b>Section 4.9, Chapter-IV.</b>	<b>3-11</b>
27	The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of air pollution, water pollution, & health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.	<ul style="list-style-type: none"><li>• There are 2 existing quarries within the 500m radius. The letter obtained from Assistant Director, Geology &amp; Mining in this regard is enclosed as <b>Annexure-4.</b></li><li>• The baseline monitoring reflects the existing environmental conditions of the area. Environmental Management Plan has been described in Chapter-X of the EIA/EMP Report.</li></ul>	<b>A-24</b>  <b>10-1</b>
28	Rain water harvesting management with recharging details along with water balance (both monsoon & non-monsoon)	<ul style="list-style-type: none"><li>• Since simultaneous mining and backfilling method is proposed in the quarrying lease area in the post mining</li></ul>	<b>4-10</b>





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	be submitted.	<p>stage also there will not be much change in the topography. The rain water falling within the mined out and backfilled area will be infiltrated through the backfilled waste and in turn recharge the ground water.</p> <ul style="list-style-type: none"> <li>• During working proper drainage arrangements like earth bunds around working block will be made to avoid surface runoff.</li> <li>• The proponent will also contribute for the up keeping of nearby natural water bodies like pond, kanmai by periodical desilting in coordination with village people and local administrative bodies.</li> </ul>	
29	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.	<ul style="list-style-type: none"> <li>• The land use of the study area was studied to demarcate various LULC categories and its details are provided under <b>Section 3.4, Chapter-III.</b></li> <li>• The land use pattern at present and at the end of the quarrying period has been provided under <b>Section 4.5, Chapter-IV.</b></li> <li>• The post mining land use has been provided in <b>Table No. 4.14, Chapter-IV.</b></li> </ul>	<p>3-29</p> <p>4-18</p>
30	Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be provided.	There are no waste dumps outside the lease area	--
31	Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.	Not applicable	--
32	Description of water conservation measures proposed to be adopted in the	<ul style="list-style-type: none"> <li>• Since simultaneous mining and backfilling method is proposed in the</li> </ul>	4-10





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	<p>quarrying lease area in the post mining stage also there will not be much change in the topography. The rain water falling within the mined out and backfilled area will be infiltrated through the backfilled waste and in turn recharge the ground water.</p> <ul style="list-style-type: none"> <li>• During working proper drainage arrangements like earth bunds around working block will be made to avoid surface runoff.</li> <li>• The proponent will also contribute for the up keeping of nearby natural water bodies like pond, kanmai by periodical desilting in coordination with village people and local administrative bodies.</li> </ul>	
33	Impact on local transport infrastructure due to the Project should be indicated.	<ul style="list-style-type: none"> <li>• The limekankar mined out from this quarry would be used for captive purpose at the company's own Govindapuram Cement Plant, located at a distance of about 6Km wherein it will be blended with limestone from other captive limestone mines to be utilized as raw material for cement manufacture.</li> <li>• From the above table it is seen that there will be about 6 trips per hour. However this is only during the peak production during first year. In the subsequent years the production will also reduce and the number of trips per hour will be ranging from 1 – 4 Trips per hour. The existing road can absorb this traffic due to this project.</li> </ul>	4-31
34	A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area & 300m buffer zone and its management during mining activity.	An ecological survey of the study area was conducted with reference to listing of species and assessment of the existing baseline ecological conditions. Details are provided under <b>Section 3.5.1, Chapter-III.</b>	3-36
35	A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.	Details of Mine Closure Plan is provided under <b>Section 7.5, Chapter-VII.</b>	7-9
36	As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to	An ecological survey of the study area was conducted with reference to listing of species and assessment of the existing baseline ecological conditions. Details are	3-36





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.	provided under <b>Section 3.5.1, Chapter-III.</b>	
37	The purpose of green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.	Agreed	--
38	Taller/one year old Saplings raised in appropriate size of bags, preferably eco-friendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner	Agreed	--
39	A Disaster management Plan shall be prepared and included in the, EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	The disaster management plan has been provided under <b>Section 7.3.1, Chapter-VII.</b>	7-1
40	A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.	Various risks likely to arise due to mining activities are detailed under <b>Section 7.3, Chapter-VII.</b>	7-2
41	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical	Details of occupational health and safety aspects are given under the subsections of <b>Section 4.8, Chapter-IV.</b>	4-29





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.		
42	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	<ul style="list-style-type: none"> <li>• Details of the socio-economic survey conducted in the buffer zone has been provided in <b>Section 3.2.4, Chapter-III.</b></li> <li>• Public health facilities will be further aimed to be developed through CSR activities wherein periodic health checkups, medical camps for the locals will be conducted.</li> </ul>	3-9
43	The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Nearby villages were visited for conducting study to know about socio-economic conditions, including aspirations and requirements of the people for a better living and collected relevant data. The details are provided under <b>Section 3.2.4, Chapter-III.</b>	3-9
44	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.	There is no litigation pending against the project.	--
45	Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.	<ul style="list-style-type: none"> <li>• The quarry will benefit this region in the fields of employment opportunities, improved per capita income for local people, improved social welfare facilities in respect of education, health, infrastructural etc.</li> <li>• Direct employment to about 16 people and indirect employment to scores of people.</li> <li>• By means of carrying out the socio-economic development activities, local community development is expected. Towards the same, the proponent has planned to allocate Rs.10 Lakhs for various activities under CER for all the three projects together. From the CER activities allocated for various social</li> </ul>	8-1





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

		welfare activities, the villages near the lease area will be benefited.	
46	If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&CC, Regional office, Chennai (or) the concerned DEE/TNPCB.	This is a proposed project. As such no production has been carried out so far	--
47	The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.	Affidavit is enclosed as Annexure-15.	<b>A-52</b>
48	Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.	Agreed	--
<b>Annexure-B</b>			
<b>Cluster Management Committee</b>			
1	Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.	Details of the cluster management committee is provided under <b>Section 10.2.2, Chapter-X.</b>	<b>10-8</b>
2	The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, water sprinkling, tree plantation, blasting etc.,	Details of the cluster management committee is provided under <b>Section 10.2.2, Chapter-X.</b>	<b>10-8</b>
3	The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.	Details of the cluster management committee is provided under <b>Section 10.2.2, Chapter-X.</b>	<b>10-8</b>
4	Detailed Operational Plan must be submitted which must include the	Details of the cluster management	<b>10-8</b>







**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.	committee is provided under <b>Section 10.2.2, Chapter-X.</b>	
5	The committee shall deliberate on risk management plan pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.	Details of the cluster management committee is provided under <b>Section 10.2.2, Chapter-X.</b>	10-8
6	The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail.	Details of the cluster management committee is provided under <b>Section 10.2.2, Chapter-X.</b>	10-8
7	The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.	Details of the cluster management committee is provided under <b>Section 10.2.2, Chapter-X.</b>	10-8
8	The committee shall furnish the Emergency Management plan within the cluster.	Details of the cluster management committee is provided under <b>Section 10.2.2, Chapter-X.</b>	10-8
9	The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public.	Details of the cluster management committee is provided under <b>Section 10.2.2, Chapter-X.</b>	10-8
10	The committee shall furnish an action plan to achieve sustainable development goals with reference to water, sanitation & safety.	Details of the cluster management committee is provided under <b>Section 10.2.2, Chapter-X.</b>	10-8
11	The committee shall furnish the fire safety and evacuation plan in the case of fire accidents.	Details of the cluster management committee is provided under <b>Section 10.2.2, Chapter-X.</b>	10-8





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

<b>Impact Study of Mining</b>			
<b>12</b>	<p>Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area covering the entire mine lease period as per precise area communication order issued from reputed research institutions on the following:</p> <p>a) Soil health &amp; soil biological, physical land chemical features</p> <p>b) Climate change leading to Droughts, Floods etc.</p> <p>c) Pollution leading to release of Greenhouse gases (GHG), rise in Temperature, &amp; Livelihood of the local people.</p> <p>d) Possibilities of water contamination and impact on aquatic ecosystem health</p> <p>e) Agriculture, Forestry &amp; Traditional practices.</p> <p>f) Hydrothermal/Geothermal effect due to destruction in the Environment.</p> <p>g) Bio-geochemical processes and its foot prints including environmental stress</p> <p>h) Sediment geochemistry in the surface streams</p>	<ul style="list-style-type: none"> <li>• As is it a mining project, no adverse generation of heat is envisaged.</li> <li>• Certified vehicles with low carbon emissions will only be used. These equipments will be properly and regularly maintained. Besides, regular vehicular emission tests will be done for the transport vehicles to ensure minimal impact due to carbon emissions. To further mediate the carbon emissions, a good greenbelt and plantation plan has been planned.</li> <li>• Geologically the area in and around the lease area contains charnokite type rock formation containing mostly fallow land. As such there no major vegetation or agricultural activities are observed.</li> <li>• There are no Protected or Eco-Sensitive Zone or forest land nearby wherein it can have an impact.</li> <li>• It will be ensured that mining will be carried out adhering to all the statutory rules and regulations and maintaining the environmental quality within the prescribed standards by effective implementation of various mitigative measures.</li> <li>• These environmental mitigative measures will be continued for the entire lease period ensuring no impact on the environment.</li> <li>• As such release of Greenhouse gases (GHG), rise in temperature, affecting livelihood of the local people, loss of Agriculture, Forestry and Traditional Practices is not envisaged. Such a limited scope will not induce any climatic change leading to droughts, floods etc.</li> </ul>	<b>4-20</b>
<b>Agriculture &amp; Agro-Biodiversity</b>			
<b>13</b>	<p><b>Impact on surrounding agricultural fields around the proposed mining Area.</b></p>	<p>Most of the study area remain uncultivated and only in patches of land away from the lease area, agricultural activities are carried during monsoon rainfall. Due to quality of the soil, inconsistent rainfall, water scarcity, high</p>	<b>4-20</b>





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

		agricultural labor cost, manpower shortage and less yield are reason for very little agricultural activity in this region.	
14	Impact on soil flora & vegetation around the project site.	The impact of mining on biological environment is provided under <b>Table 4.17, Chapter-IV.</b>	4-19
15	Details of type of vegetations including no. of trees & shrubs within the proposed mining area and. If so, transplantation of such vegetations all along the boundary of the proposed mining area shall committed mentioned in EMP.	The details of flora in the core zone is provided in <b>Table 3.24, Chapter-III.</b> There is no major clearance of vegetation or transplantation involved.	3-36
16	The Environmental Impact Assessment should study the biodiversity, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.	An ecological survey of the study area was conducted with reference to listing of species and assessment of the existing baseline ecological conditions. Details are provided under <b>Section 3.5.1, Chapter-III.</b>	3-36
17	Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.	The post mining land use has been provided in <b>Table No. 4.14.</b>	4-18
18	The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.	<ul style="list-style-type: none"><li>• No Objection Certificate has been obtained from District Forest Officer, Ariyalur vide C.No.4062/2023/D dated 15.11.2023 (<b>Annexure-13</b>)</li><li>• Most of the study area remain uncultivated and only in patches of land away from the lease area, agricultural activities are carried during monsoon rainfall. Due to quality of the soil, inconsistent rainfall, water scarcity, high agricultural labor cost, manpower shortage and less yield are reason for very little agricultural activity in this region.</li></ul>	4-21
<b>Forests</b>			
19	The project proponent shall detailed study on impact of mining on Reserve	The mining lease area and the 10 km buffer zone from the periphery of the core zone is devoid of declared ecologically	4-19





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	forests free ranging wildlife.	sensitive features like national parks, biospheres, sanctuaries, etc. Vinnakurichi R.F. is located at a distance of 8.05Km from the lease area and as such no impact due to mining operations on the R.F is expected.	
20	The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.	An ecological survey of the study area was conducted with reference to listing of species and assessment of the existing baseline ecological conditions. Details are provided under <b>Section 3.5.1, Chapter-III.</b>	3-36
21	The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.	Replied in point 20. Above	--
22	The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks. Corridors and Wildlife pathways. near project site.	There are no national parks or corridors in the 10km radius. There are no reserve forest in the proximity of the lease area	3-2
<b>Water Environment</b>			
23	Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping & open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.	Details of hydrogeological scenario of this project is provided under <b>Section 3.6, Chapter-III.</b>	3-47
24	Erosion Control Measures	<ul style="list-style-type: none"> <li>• Since simultaneous mining and backfilling method is proposed in the quarrying lease area in the post mining stage also there will not be much change in the topography. The rain water falling within the mined out and</li> </ul>	4-10





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

		<p>backfilled area will be infiltrated through the backfilled waste and in turn recharge the ground water.</p> <ul style="list-style-type: none"><li>• During working proper drainage arrangements like earth bunds around working block will be made to avoid surface runoff.</li></ul>	
25	<p>Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, &amp; any ecological fragile areas.</p>	<p>There are some drainage courses near the lease area for which 50m safety distance has been left. In the safety distance of 50m, earthen bund of 2m height will be formed and good plantation will be carried out within the safety zone. Besides, all these drainage channels are very small and seasonal drainage courses for draining rainwater during monsoon only. There will be no discharge of any waste into this water body. No major impact is envisaged on the water bodies due to project operations.</p>	4-14
26	<p>The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.</p>	<p>There is no major perennial waterbody in close proximity of the lease area.</p>	3-3
27	<p>The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.</p>	<p>The post mining land use has been provided in <b>Table No. 4.14, Chapter-IV</b></p>	4-18
28	<p>The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.</p>	<p>An ecological survey of the study area was conducted with reference to listing of species and assessment of the existing baseline ecological conditions. Details are provided under <b>Section 3.5.1, Chapter-III.</b></p>	3-36
29	<p>The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.</p>	<p>Soil samples were collected in 3 locations in the core and buffer zone to analyse the physiochemical characteristics of the soil in the area. The soil quality data is provided in <b>Table No.3.18, Chapter-III.</b></p>	3-28
30	<p>The Environmental Impact Assessment should study on wetlands, water bodies,</p>	<ul style="list-style-type: none"><li>• The nearest major water bodies is provided in Table No.3.1, Chapter-III.</li></ul>	3-2





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	rivers steams, lakes and farmer sites.	<ul style="list-style-type: none"> <li>• There is no major perennial waterbody in close proximity of the lease area.</li> <li>• There are some drainage courses near the lease area for which 50m safety distance has been left. In the safety distance of 50m, earthen bund of 2m height will be formed and good plantation will be carried out within the safety zone. Besides, all these drainage channels are very small and seasonal drainage courses for draining rainwater during monsoon only. There will be no discharge of any waste into this water body. No major impact is envisaged on the water bodies due to project operations.</li> </ul>	4-14
<b>Energy</b>			
31	The measures taken to control Noise, Air, Water, Dust Control and steps adopted to efficiently utilize the Energy shall be furnished.	The dust control measures are listed under <b>Table 4.1</b> , Water pollution control measures under <b>Section 4.3.2</b> , and noise pollution control measures under <b>Section 4.4.1.2, Chapter-IV</b> . Besides, energy consumption in this project will be optimum and as per requirement.	4-2
<b>Climate Change</b>			
32	The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.	Certified vehicles with low carbon emissions will only be used. These equipments will be properly and regularly maintained. Besides, regular vehicular emission tests will be done for the transport vehicles to ensure minimal impact due to carbon emissions. To further mediate the carbon emissions, a good greenbelt and plantation plan has been planned wherein 6500 number of plants will be planted in and around the lease area.	4-20
33	The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil & below soil carbon stock.	Replied in point no.32	--
<b>Mine Closure Plan</b>			
34	Detailed Mine Closure Plan covering the entire mine lease period as per precise	Details of Mine Closure Plan is provided under <b>section 7.5, Chapter-VII</b> .	7-9





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	area communication order issued.		
<b>EMP</b>			
35	Detailed Environment Management Plan along with adaptation, mitigation & remedial strategies covering the entire mine lease period as per precise area communication order issued.	Detailed environmental management plan is provided under <b>Chapter-X</b> .	10-1
36	The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.	Detailed environmental management plan is provided under <b>Chapter-X</b> .	10-1
<b>Risk Assessment</b>			
37	To furnish risk assessment and management plan including anticipated vulnerabilities during operational and post operational phases of Mining.	Various risks likely to arise due to mining activities are detailed under <b>Section 7.3, Chapter-VII</b> .	7-2
<b>Disaster Management Plan</b>			
38	To furnish disaster management plan and disaster mitigation measures in regard to all aspects to avoid/reduce vulnerability to hazards & to cope with disaster/untoward accidents in & around the proposed mine lease area due to the proposed method of mining activity & its related activities covering the entire mine lease period as per precise area communication order issued.	The disaster management plan has been provided under <b>Section 7.3.1, Chapter-VII</b> .	7-3
<b>Others</b>			
39	The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites. Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel. river, lake pond, tank etc.	Letter has been obtained from VAO, Ottakovil and the same has been enclosed as <b>Annexure-3</b> .	A-23
40	As per the MoEF& cc office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns	Agreed	--





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	raised during the public consultation and all the activities proposed shall be part of the Environment Management plan.		
41	The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic & microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.	Single use plastics/ use and throwaway plastics will be banned in the site as directed by the Tamil Nadu Government vide GO(Ms)No.84 regarding ban on use of plastic products. The employees will be encouraged to use compostable material or ecofriendly materials.	4-30
<b>Standard ToR</b>			
1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.	This is a proposed project. As such no production has been carried out so far	--
2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given	Precise area communication letter was issued by Industries Department vide Lr.No. 2962/MMC.2/2022-1 dated 19.05.2023. <b>(Annexure-1)</b>	A-1
3	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	The production capacity, quantity of waste, its management and mining technology in mine plan and EIA, etc., are compatible with one another.	--
4	All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and	<ul style="list-style-type: none"> <li>Satellite imagery with corner coordinates of the project area is provided in <b>Figure 2.5, Chapter-II.</b></li> <li>Toposheet of the lease area and buffer zone is provided in <b>Figure 3.1, Chapter-</b></li> </ul>	2-6 3-2







**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	other ecological features of the study area (core and buffer zone).	<p>III.</p> <ul style="list-style-type: none"> <li>Geology, Geomorphology, Lithology map of the lease area and buffer zone is provided in <b>Figure 3.19, 3.20 and 3.21, Chapter-III.</b></li> </ul>	3-45
5	Information should be provided in Survey of India Topo sheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	Replied in Standard ToR point no.4	--
6	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.	Not Applicable	--
7	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.	<ul style="list-style-type: none"> <li>The proponent has framed a well-planned environmental policy. Its details are provided under <b>Section 10.2.1, Chapter-X.</b></li> <li>The Environmental Engineer will undertake effective monitoring and implementation of various environmental control measures promptly and effectively and to oversee various environmental management schemes for air quality control, water quality status, noise level control, plantation programme, social development schemes, etc in the mine. The organizational chart for the same has been provided in <b>Figure No.10.5, Chapter-X.</b></li> </ul>	10-1
8	Issues relating to Mine Safety, including	Various risks likely to arise due to mining	7-2





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	activities are detailed under section 7.4, Chapter-VII. This being an opencast mine, subsidence is not applicable. There is no blasting proposed in this project.	4-19
9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.	The study area chosen for collecting existing environmental status covers 10 km radial distance from the project periphery ( <b>Figure No - 3.1, Chapter-III</b> ). Data given in the report is for the life of the quarry.	3-2
10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.	<ul style="list-style-type: none"><li>• The land use of the study area was studied to demarcate various LULC categories and its details are provided under <b>Section 3.4, Chapter-III</b>.</li><li>• The land use pattern at present and at the end of the quarrying period has been provided under <b>Section 4.5.1, Chapter-IV</b>.</li><li>• The post mining land use has been provided in <b>Table No. 4.17, Chapter-IV</b>.</li></ul>	3-30
11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	There are no OB dumps outside the lease area.	--
12	Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for	Not Applicable	--





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	representative of the State Forest Department to assist the Expert Appraisal Committees.		
13	Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of Net Present Value (NPV) and Compensatory Afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	Not Applicable	--
14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	Not Applicable	--
15	The vegetation in the RF / PF areas in the study area, with necessary details, should be given.	There are no reserve forest in the proximity of the lease area	3-2
16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.	The mining lease area and the 10 km buffer zone from the periphery of the core zone is devoid of declared ecologically sensitive features like national parks, biospheres, sanctuaries, etc.	4-22
17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National	Replied in Standard ToR point No.16	--





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	Board of Wildlife and copy furnished.		
18	<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, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.</p>	<p>A detailed study of flora and fauna composition in the core and buffer zone of the project has been made through primary field surveys. The details are furnished in <b>Section 3.5, Chapter III.</b></p>	3-36
19	<p>Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.</p>	Not Applicable	--
20	<p>Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone</p>	Not Applicable	--





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	Management Authority).		
21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.	The mining activities will be carried out within the mine lease areas only. Hence, the question of R& R does not arise.	7-9
22	One season (non-monsoon) (i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season) primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality,; noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the predominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the predominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be	<ul style="list-style-type: none"> <li>• The baseline data on micro-meteorology, ambient air quality, Water quality, noise level, soil and flora &amp; fauna are collected during Winter Season (December 2023 to February 2024) and detailed in para 3.3 to 3.5 of Chapter-III.</li> <li>• Monitoring stations were selected taking into account, wind direction and location of sensitive receptors.</li> <li>• Free silica composition in PM10 sample has been done and the values are found to be Below Detectable Limit (DL 0.05mg/m3) which is well within the prescribed limit of 5mg/m3.</li> </ul>	3-11





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	given.		
23	<p><b>Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of Vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.</b></p>	<ul style="list-style-type: none"> <li>• Air quality modeling details are furnished in para 4.2.2 and its continuous sub paras in Chapter-IV of EIA report.</li> <li>• The impact on air quality due to the proposed project is estimated using AERMOD View Gaussian Plume Air Dispersion Model developed by Lakes Environmental Software which is based on steady state Gaussian plume dispersion.</li> <li>• The model simulations are done for the air pollutant arising from the mining operations, namely, PM10, PM2.5. Ground Level Concentration (GLC) have been computed using hourly meteorological data.</li> <li>• The Isopleths of PM10, PM2.5 concentrations for with control measures scenario have also been drawn and these are given in Figure No.4.1 and 4.2.</li> <li>• It can be seen that the resultant added concentrations with baseline figures even at worst scenario, show that the values of ambient air quality with respect to PM10 are within the statutory limits in each case.</li> </ul>	4-2
24	<p><b>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.</b></p>	<p>The total water requirement for this project will be 15.0 KLD comprising 2.0 KLD for drinking water and domestic use, 8.0 KLD for dust suppression and 5.0 KLD for greenbelt. The water requirement will be met from the borewell in the cement plant. The water balance diagram for the same is shown in Figure No 4.3.</p>	4-10
25	<p><b>Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project</b></p>	Not Applicable	--





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	should be provided.		
26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	<ul style="list-style-type: none"><li>• Since simultaneous mining and backfilling method is proposed in the quarrying lease area in the post mining stage also there will not be much change in the topography. The rain water falling within the mined out and backfilled area will be infiltrated through the backfilled waste and in turn recharge the ground water.</li><li>• During working proper drainage arrangements like earth bunds around working block will be made to avoid surface runoff.</li><li>• The proponent will also contribute for the up keeping of nearby natural water bodies like pond, kanmai by periodical desilting in coordination with village people and local administrative bodies.</li></ul>	4-10
27	Impact of the Project on the water quality, both surface and groundwater should be assessed and necessary safeguard measures, if any required, should be provided.	<ul style="list-style-type: none"><li>• There is no proposal to discharge any effluent into this water body.</li><li>• Since the deposit is of shallow depth and the maximum depth of the mine is limited only upto 2.75m. The groundwater table in this area is much below this level. There is no groundwater intersection envisaged and ground water will not be affected appreciably due to the quarrying operation.</li></ul>	4-14
28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central	<ul style="list-style-type: none"><li>• Since the deposit is of shallow depth and the maximum depth of the mine is limited only upto 2.75m. The groundwater table in this area is much below this level. There is no groundwater intersection envisaged and ground water will not be affected appreciably due to the quarrying operation.</li><li>• Details of hydro geological study are</li></ul>	4-14





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	given in Para 3.6, Chapter – III.	
29	Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	Replied above in Standard ToR point No.27.	--
30	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.	<ul style="list-style-type: none"><li>• Since the deposit is of shallow depth and the maximum depth of the mine is limited only upto 2.75m. The groundwater table in this area is much below this level. There is no groundwater intersection envisaged and ground water will not be affected appreciably due to the quarrying operation.</li></ul>	4-14
31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phasc-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.	In the lease area, it has been planned to carry out plantation in and around the lease area. 6500 numbers of trees will be planted in and around the lease area. The details of the same has been provided below. The details of proposed plantation is provided under Table 4.18, Chapter-IV.	4-23
32	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a	From this proposed quarry the entire output will be transported to the proponent's captive cement plant at a	4-30







**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	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.	distance of 6Km from the mine. Details of the traffic study is provided under section 4.9, Chapter-IV.	
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.	This is a proposed project. Site services like mine office, first aid room, rest shelters, toilets etc. will be provided as semi-permanent structures.	2-32
34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	The post mining land use has been provided in Table No. 4.15. The post mining land use plan showing afforestation and water body is shown in Figure No- 2.16.	4-19
35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed	Details of occupational health and safety aspects are given under the subsections of Para 4.8, Chapter-IV.	4-29
36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations	<ul style="list-style-type: none"><li>• Details of the socio economic survey conducted in the buffer zone has been provided in Para 3.2.4, Chapter-III.</li><li>• Public health facilities will be further aimed to be developed through CER activities wherein periodic health checkups, medical camps for the locals will be conducted.</li></ul>	3-9





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

37	Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Nearby villages were visited for conducting study to know about socio-economic conditions, including aspirations and requirements of the people for a better living and collected relevant data. The details are provided under section 3.2.4, Chapter-III.	3-9
38	Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.	Detailed environmental management plan is provided in Chapter-X.	10-1
39	Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	<ul style="list-style-type: none"><li>This draft EIA/EMP report will be submitted for public hearing as per mandatory procedures through the District Collector and State Pollution Control Board officials after giving 30 days advance notice in two local newspapers about the scheduled date and time for conduct of the public hearing procedures.</li><li>The opinions, concerns and objections of stakeholders will be recorded during the public hearing. All the public queries and the replies to the query by the project proponent and officials concerned will be recorded and incorporated in the Final EIA/EMP report for approval by SEIAA, Tamil Nadu.</li></ul>	7-1
40	Details of litigation pending against the project, if any, with direction /order paced by any Court of Law against the Project should be given.	There is no litigation pending against the project.	--
41	The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.	The cost of the project is Rs.491.50 Lakhs The capital and recurring cost of the project is provided under Table No.10.1,	2-32





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

		Chapter-X.	
42	<b>A Disaster management Plan shall be prepared and included in the EIA/EMP Report.</b>	The disaster management plan has been provided under section 7.4.1, Chapter-VII.	<b>7-14</b>
43	<b>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.</b>	<p>The Quarry will benefit this region in the fields of employment opportunities, improved per capita income for local people, improved social welfare facilities in respect of education, health, infrastructural etc.</p> <p>Direct employment to 16 people and indirect employment to scores of people.</p> <p>By means of carrying out the socio economic development activities, local community development is expected. Towards the same, the proponent has planned to allocate Rs. 10 Lakhs for various activities under CER. From the CER activities allocated for various social welfare activities, the villages near the lease area will be benefited.</p>	<b>8-1</b>

\*\*\*\*\*



# CHAPTER - I

## INTRODUCTION



**CHAPTER 1  
INTRODUCTION**

**1.1 PURPOSE OF THE REPORT:**

**Ottakovil Limekankar Quarry Lease-2 of The Ramco Cements Limited** in S.F.Nos. 204/10, 204/11, 204/12, etc. over an area of 57.36Ha in Ottakovil Village, Ariyalur Taluk, Ariyalur District Tamil Nadu.

As per MoEF&CC notification vide S.O.1533(E) dated 14.09.2006 and its subsequent amendments, non-coal mining projects are divided into the following categories as mentioned in Table No.1.1.

**Table 1.1: Screening of Schedule 1(a) Projects**

MoEF&CC Notification reference	Project or Activity		Category with threshold limit		Conditions if any
			A	B	
S.O. 1886(E) dated 20.04.2022	1 (a)	Mining of Minerals	> 250 Ha of mining lease area in respect of non-coal mine lease	All mining lease area in respect of minor minerals leases and $\leq$ 250 Ha mining lease area in respect of major mineral mining lease other than coal.	General condition shall apply

Source: MoEF&CC Notifications S.O.1533(E) dated 14.09.2006, S.O.3977(E) dated 14.08.2018, S.O.3194(E) dated 14.07.2022

Considering that this is a limekankar mining project which is a minor mineral with a lease area of 57.36 Ha, this project falls under Sector 1(a) i.e.; Mining of Minerals under Category B1 and as per MoEF & CC notification, this proposal necessitates preparation of EIA/EMP report along with public hearing and the PP has initiated action towards the same.

This proposal if made for obtaining Environmental Clearance for Ottakovil Limekankar Quarry Lease-2 of The Ramco Cements Limited for the production of 12,49,031 Tons of Limekankar and 6,66,150m<sup>3</sup> of Topsoil over a period of five years (Peak Production – 6,99,891 Tons, Year 1) upto a total depth of 2.75m. ( 1.50m Top soil + 1.25m Lime Kankar)

This EIA/EMP report is prepared based on standard and additional Terms of Reference issued by SEIAA, Tamil Nadu vide Lr.No.SEIAA-TN/F.No.10503/2023/SEAC/ToR-1671/2024 dated





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---

08.02.2024 and is in conformance of the generic structure prescribed by MOEF&CC in their notification of September 2006 and the approved mining plan.

**1.2 IDENTIFICATION OF PROJECT & PROJECT PROPONENT:**

**1.2.1 IDENTIFICATION OF THE PROJECT:**

Ottakovil Limekankar Quarry Lease-2 of The Ramco Cements Limited over an area of 57.36 Ha is a patta land in the proponent's name. Site vicinity map has been described in Figure 1.1. The limekankar mined out from this quarry would be used for captive purpose at the company's own cement plant, wherein it will be blended with limestone from other captive limestone mines to be utilized as raw material for cement manufacture.

**Figure 1.1: Site Vicinity Map**



Source: Google Earth



**Creative Engineers & Consultants**

**CHAPTER-1 : INTRODUCTION**

**PRO CODE: CEC/EMP/MI-217**

**REV NO : 00/JUN/24**

**1-2**



**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Table 1.2 Identification of project**

1	<b>Project Name</b>	Ottakovil Limekankar Quarry Lease-2 of The Ramco Cements Limited
2	<b>Extent</b>	57.36 Ha
3	<b>Production</b>	12,49,031 Tons of Limekankar and 6,66,150m <sup>3</sup> of Topsoil over a period of five years (Peak Production – 6,99,891 Tons, Year 1) upto a total depth of 2.75m. ( 1.50m Top soil + 1.25m Lime Kankar)
4	<b>Ultimate Depth</b>	2.75m
5	<b>Land Classification</b>	Own Patta Land
6	<b>Location</b>	<b>Survey Number:</b> 204/10, 204/11, 204/12 etc.
		<b>Village:</b> Ottakovil
		<b>Taluk:</b> Ariyalur
		<b>District:</b> Ariyalur
		<b>State:</b> Tamil Nadu

Source: Approved Mining Plan

**Table 1.3:Statutory Clearances**

Name	Issuing Authority	Status	Letter number	Date	Reference
Precise Area Communication	Industries, Investment Promotion and Commerce Department	Received	2962/MMC.2/2022-1	19.05.2023	<b>Annexure-1</b>
Mining Plan Approval	Deputy Director of Geology & Mining	Approved	Rc.No.1272/MM7/2021	17.08.2023	<b>Annexure-2</b>
VAO Letter	VAO, Ariyalur	Obtained	--	--	<b>Annexure-3</b>
Details of quarry within 500m radius	Assistant Director, Geology & Mining	Obtained	Rc.No.184/G&M/2020	27.07.2023	<b>Annexure-4</b>

**1.2.2 IDENTIFICATION OF THE PROJECT PROPONENT:**

The Ramco Cements Limited has installed its cement industry in the various parts of south India more particular in Tamil Nadu. The present installed capacity of all units is amounting 18.30 million tonnes of cement per annum. The details of the same has been provided below:





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Table 1.4: Cement Plants and their capacity**

Location	District	State	Cement Capacity
Ariyalur	Ariyalur	Tamilnadu	5.50 MTPA
RR Nagar	Virudhunagar	Tamilnadu	2.70 MTPA
Alathiyur	Ariyalur	Tamilnadu	3.00 MTPA
Jayanthipuram	Krishna	Andhra Pradesh	3.65 MTPA
Method	Chitradurga	Karnataka	0.30 MTPA
Kolimigundla	Kurnool	Andhra Pradesh	3.15 MTPA
<b>TOTAL</b>			<b>18.30 MTPA</b>

The Ramco Cements Limited, Govindapuram unit are holding six captive mines, two Limekankar quarry leases in Ariyalur district and one Limestone Mine in Perambalur District. The limekankar mined out from this proposed quarry would be used for captive purpose at the company's own cement plant, wherein it will be blended with limestone from other captive limestone mine to be utilized as raw material for cement manufacture.

**Table 1.5: Identification of Project Proponent**

<b>Applicant Name</b>	Thiru C. Ravichandran, Sr.Vice President (ESG), The Ramco Cements Ltd.
<b>Address</b>	Auras Corporate Center, V Floor, 98-A Radhakrishnan Salai, Mylapore, Chennai-600014.
<b>Contact Number</b>	044 28478676
<b>Email-ID</b>	ramcoenv@ramcocements.co.in

**1.3 BRIEF DESCRIPTION OF NATURE, SIZE, LOCATION & PROJECT IMPORTANCE**

**Table 1.6: Brief Description of Nature of project**

<b>Sector</b>	1(a), Non-Coal Mining
<b>Type</b>	Greenfield Project
<b>Category</b>	B1
<b>Mineral to be mined</b>	Limekankar
<b>Major/Minor Mineral</b>	Minor
<b>Production</b>	It is proposed to mine 12,49,031T of Limekankar and 6,66,150m3 of Topsoil upto a total depth of 2.75m for a period of 5 years.
<b>Mining Method</b>	Opencast Mining without drilling and blasting using HEMM of low HP will be carried out. During the plan period, the deposit will be mined by a simple system of simultaneous development,







**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	production and refilling by the same excavator called strip mining.
--	---

**Table 1.7: Location of the project**

S.No	Particulars	Details
1	Corner Coordinates	<b>Latitude</b> : 11°12'15" N to 11°11'45" N <b>Longitude</b> : 79°06'35" E to 79°06'32" E
2	Toposheet Number	58M-3,4 & 58I-16
3.	Survey No.	204/10,11,12,13,14 etc.

Location details are elaborated in Para 2.3, Chapter-II.

**1.3.1 IMPORTANCE TO THE COUNTRY AND REGION:**

The Limekankar mined out from this quarry will meet the raw material requirement of the Govindapuram Unit of The Ramco Cements Ltd. wherein it will be blended with limestone from other captive limestone mine to be utilized as raw material for cement manufacture. Safety barriers as per State Government order is left in the planning stage itself. Systematic and scientific mining be carried out. This project will provide employment opportunities to 16 people. The proponent will carry out CER activities which will help the surrounding villages to derive socio economic benefits. The activities will be customized based on local needs and prioritized. Hence, livelihood development and employment will arise due to this project.

**1.4 SCOPE OF THE STUDY:**

Particulars	Details
<b>Proposal no</b>	SIA/TN/MIN/450881/2023 dated 01.11.2023
<b>File no</b>	F.No.10503
<b>SEAC meeting for issue of TOR</b>	436 <sup>th</sup> SEAC Meeting dated 29.12.2023
<b>SEIAA meeting for issue of TOR</b>	693 <sup>rd</sup> SEIAA Meeting dated 08.02.2024
<b>Terms of Reference</b>	SEIAA-TN/F.No.10503/2023/SEAC/ToR-1671/2024 dated 08.02.2024
<b>Baseline Data Collection</b>	Carried out by Creative Engineers & Consultants , Chennai for Winter Season (Dec 2023 to Feb 2024)





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---

Based on the terms of reference, data collection, the Environmental Impact Assessment was carried out for the project area (core zone and the buffer zone (10km radius from the core zone) and the following studies were covered:

- Collection of primary and secondary data relevant to the project.
- One-Season baseline monitoring for environmental parameters such as air, water, noise, soil, flora & fauna, etc. Analysis of parameters in in-house laboratory.
- Documentation of EIA/EMP report with inclusion of relevant studies conducted by other bodies into the EIA/EMP report.
- Identification of significant environmental parameters that are prone to get affected due to pollution. Namely, Air, Water, Noise, Soil, Biological and Land Environment.
- Evaluation and determination of suitable mitigation measures to reduce and control the said pollution.
- Prediction of post project concentration (baseline + incremental) with respect to air environment for core zone and buffer zone.
- Formulation of an Environmental Management plan including administrative aspects for proposed implementation of mitigative measures in time.

This draft EIA/EMP report will be submitted for public hearing, as per rules and procedures in this respect, as per the EIA notification 2006. The opinions, concerns and objections, if any, of the surrounding public and other stake holders connected, will be taken into consideration and compliance report thereon will be submitted to SEIAA, Tamil Nadu in the final EIA/EMP report.

### **1.5 LEGAL AND REGULATORY FRAMEWORK:**

The Ministry of Environment, Forests & Climate Change, State and Central Pollution Control Board are the primary operational agencies/ regulation agencies in India with respect to Environment. The various environmental regulations and subsequent amendments which govern the project have been provided below:

- ❖ Environment Protection Act, 1986
- ❖ EIA Notification, 2006





- ❖ Air (Prevention and Control of Pollution) Act, 1981
- ❖ Water (Prevention and Control of Pollution) Act, 1974
- ❖ Noise Pollution (Prevention & Control) Rules, 2000
- ❖ Solid Waste Management Rules, 2016
- ❖ Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2016
- ❖ Mines-Act 1952
- ❖ Mines & Minerals (Regulation and Development) Act, 1957
- ❖ Metalliferous Mines Regulations (MMR), 1961
- ❖ Explosives Rules, 2018

## **1.6 STRUCTURE OF THE EIA/EMP REPORT:**

**Chapter-1: Introduction:** This chapter provides the background information of the project, brief description of nature, size and location of proposed project, environmental setting of project, importance of project and scope of the study.

**Chapter-2: Project Description:** This chapter deals with the need for the project, location, project implementation, details of mining activity, other technical and design details.

**Chapter-3: Description of the Environment:** This chapter presents the methodology and findings of one season field study undertaken to establish the environmental baseline conditions, which is also supplemented by secondary published literature.

**Chapter-4: Anticipated Environmental Impact & Mitigation Measures:** This chapter cover detailed impact of the proposed project on different environmental components during operation phase of mining project. The chapter will also deal with the measures to be adopted to mitigate the adverse impact of the proposed mine development and underscores the areas of concern, which need mitigation measures.

**Chapter-5: Analysis of Alternatives (Technology & Site):** This chapter describes the analysis of various alternative sites and the technology considered for the mining activities.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---

**Chapter-6: Environmental Monitoring Program:** This chapter presents the environmental monitoring requirements for effective implementation of mitigatory measures during operational phase of the proposed project. The frequency and reporting of monitoring programme is also outlined in this chapter along with its cost.

**Chapter-7: Additional Studies:** This chapter describes various risks associated during operational stage of the project. A disaster management plan to minimise the risks or to combat the associated risks is also discussed. The public hearing details will be incorporated in this chapter in the final EIA/EMP after the successful completion of public hearing. The summary of additional studies and mine closure plan is also briefed here.

**Chapter-8: Project Benefits:** This chapter describes various benefits of the project to the community in the vicinity and as well as to the region on the whole.

**Chapter-9: Environmental Cost Benefit Analysis:** This chapter has to be carried out if specifically required as per scoping stage. As this is not specifically mentioned in scoping, accordingly detailed study in this regard is not carried out.

**Chapter-10: Environment Management Plan:** This chapter presents the details of institutional arrangements for environment protection and conservation and the capital and recurring cost of implementing the various mitigation measures stated in this EIA/EMP report.

**Chapter-11: Summary and Conclusions:** This chapter contains the summary and conclusion of the overall EIA studies.

**Chapter-12: Disclosure of Consultants Engaged:** This chapter contains the list of various experts engaged in preparing the EIA report along with brief description of the consultancy services.

\* \* \* \* \*



# CHAPTER - II



**PROJECT  
DESCRIPTION**



## **CHAPTER 2**

### **PROJECT DESCRIPTION**

#### **2.1 TYPE OF PROJECT:**

This proposal involves expansion in production capacity 12,49,031 Tons of Limekankar and 6,66,150m<sup>3</sup> of Topsoil over a period of five years (Peak Production – 6,99,891 Tons, Year 1) up to a total depth of 2.75m. (1.50m Top soil + 1.25m Lime Kankar)

#### **2.2 NEED & JUSTIFICATION FOR THE PROJECT:**

The Limekankar mined out from this quarry will meet the raw material requirement of the Govindapuram Unit of The Ramco Cements Ltd. wherein it will be blended with limestone from other captive limestone mine to be utilized as raw material for cement manufacture. Presently, the raw material requirement of Govindapuram cement plant of TRCL (5.50 MTPA capacity) is met from various limestone mines and lime kankar mines of TRCL in the ariyalur region. However, due to depletion of reserves in the few active working mines, now it is proposed to compensate part requirement from this proposed kankar lease area.

This project will provide employment opportunities to 16 people. The proponent will carry out CER activities which will help the surrounding villages to derive socio economic benefits. The activities will be customized based on local needs and prioritized. Hence, livelihood development and employment will arise due to this project. This project is proposed to be carried out for the following reasons:

##### **A) Availability of good quality proved reserves:**

This mining plan shows the availability of 1.249 Mil.T of Limekankar as mineable reserves.

##### **B) Techno economic viability of the scheme:**

Mechanized opencast method of mining with simultaneous backfilling without drilling and blasting is proposed in the mine, which is a proven technology in our country. With good market demand it is economically viable. Under the above circumstances it can be concluded that techno economically this scheme is feasible.





**OTTA KOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTA KOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**C) Economic and Socio Economic Benefits:**

Enhanced revenue to Government by way of Seigniorage Fees, DMF, Green Fund etc., Socio economic benefit to the locals due to CSR/CER activities

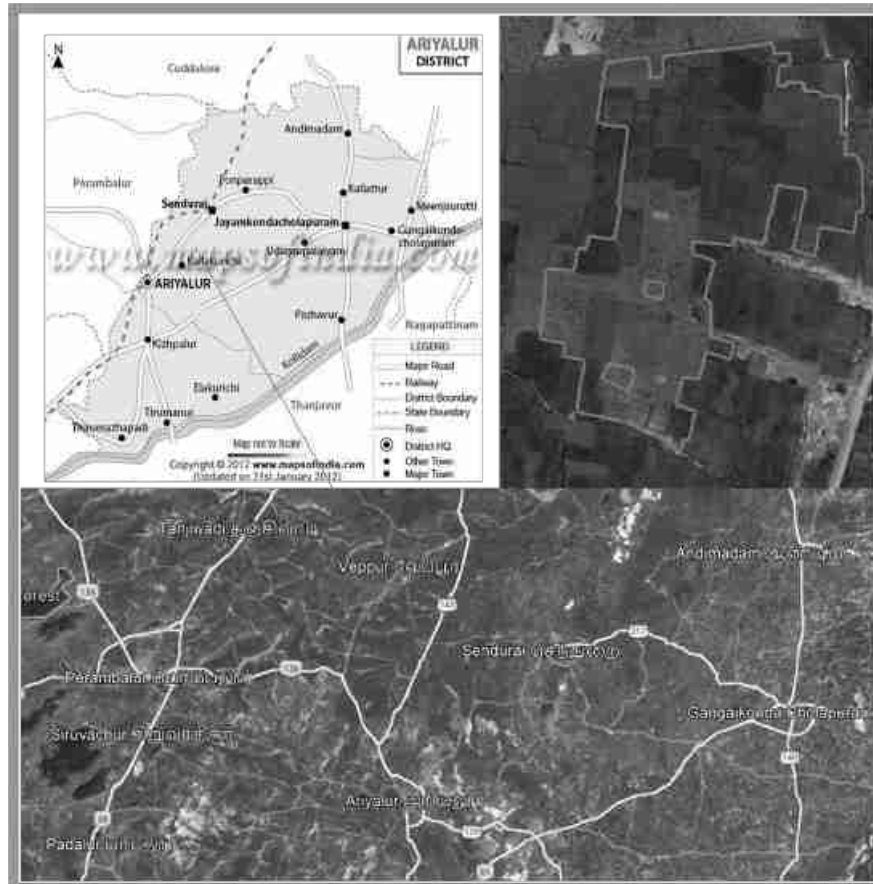
Considering all the above said favorable factors it is practically possible to achieve the proposal within the planned period and this proposal is fully justified.

**2.3 LOCATION:**

**A. Location of the project:**

The lease area is located in Ottakovil Village, Ariyalur Taluk, Ariyalur District Tamil Nadu. The location map has been shown below in Figure 2.1.

**Figure 2.1: Location Map**



Source: Google Earth





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**B. Approachability of the lease area:**

The lease area can be approached through a black top road from Ariyalur to Sendurai Village about 270m on the eastern side. This road joins SH-136 (Perambalur - Keezhapalur) which lies around 5.7Km on the southern side of the lease area.

**Figure 2.2: Approachability Map**



Source: Google Earth

**Table 2.1: Description of approach**

<b>Nearest Village</b>	Ottakovil – 480m (SE)
<b>Nearest Highway</b>	SH-136 (Perambalur - Keezhapalur) – 5.7Km (S)
<b>Nearest Railway Station</b>	Ariyalur Railway Station – 6.8Km (S)
<b>Nearest Airport</b>	Neyveli Airport – 63Km (NE)

**C. Land Use Details:**

The lease area of 57.36 Ha is a own patta land located in in S.F.Nos. 204/10, 204/11, 204/12, etc. in Ottakovil Village, Ariyalur Taluk, Ariyalur District Tamil Nadu.







**Figure 2.3: Village Map**





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

The present land use of this project has been provided in the Table 2.2 below.

**Table 2.2: Present Land Use**

S.No	Land Use	Present Land Use (Ha)
1	Quarrying Pit	--
2	Infrastructure	--
3	Roads	--
4	Green Belt	--
5	Other (Safety Barrier)	12.95.0
6	Unused Land	44.41.0
	<b>Total</b>	<b>57.36.0</b>

Source: Approved Mining Plan

As per the precise area communication letter, the safety distances required to be left are provided in Table No.2.3.

**Table 2.3: Safety Distance**

S.No	Feature	Location (S.F. Nos.)	Safety distance to be left as per precise area condition
1	Murugan Eri	207/1	50m (West)
2	Sadayappa Udaiyar Kuttai	219/6 and 255	50m(East)
3	Odai	209/13, 222/9, 223/3, 229/1 and 226/14	50m (East)
4	Odai	250/4	50m (East)
5	Vari Course	219/7	50m (North)
6	LT Power Line	213/3, 213/8A, 213/8D, 213/9, 214/2, 217/3, 217/5, 217/7B, 217/8B, 217/8C, 217/9, 217/10B, 218/1A	50m (NE-SW)
7	LT Power Line	SF Nos.136 & 204	50m (SW)
8	Government Poramboke lands	SF No.205/1 and 204/1	10m (W)
9	Government poramboke land (Footpath)	SF No.203	10m (S)
10	Government poramboke land (Tharisu)	SF.No.218/15	10m (NE)
11	Arulmigu Ayyanar Swamy Temple Land	SF.No.204/16.	10m
12	Arulmigu Swarna Puriswarar Temple Land	SF.No.226/8.	10m
13	Arulmigu Saminatha Temple Land	SF.No.226/10.	10m
14	Arulmigu Pitchandavar Swamy Temple Land	SF.No.226/22	10m
15	Patta Lands	SF.Nos.208/6A, 209/581	7.5m

Mining plan is prepared after leaving necessary safety distance meeting the precise area condition. Intervening Government poramboke and other lands are provided with approach road and peripheral safety distance all around.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Photographs of Features**



**2. Murugan Eri – 50m (W)**



**1. Sadaiyappa Udaiyar Kuttai – 50m (W)**



**4. Odai – 50m (E)**



**3. Odai – 50m (E)**



**5. Vari Course – 50m (N)**



**6. Power Line – 50m (NE-SW)**





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**



**9. Government Poromboke Land (Footpath) – 10m (S)**



**10. Government Poromboke Land (Tharisu)–10m (NE)**



**11. Arulmigu Ayyanar Swamy Temple Land – 10m**



**12. Arulmigu Swarna Puriswarar Temple Land – 10m**



**13. Arulmigu Saminatha Temple Land – 10m**



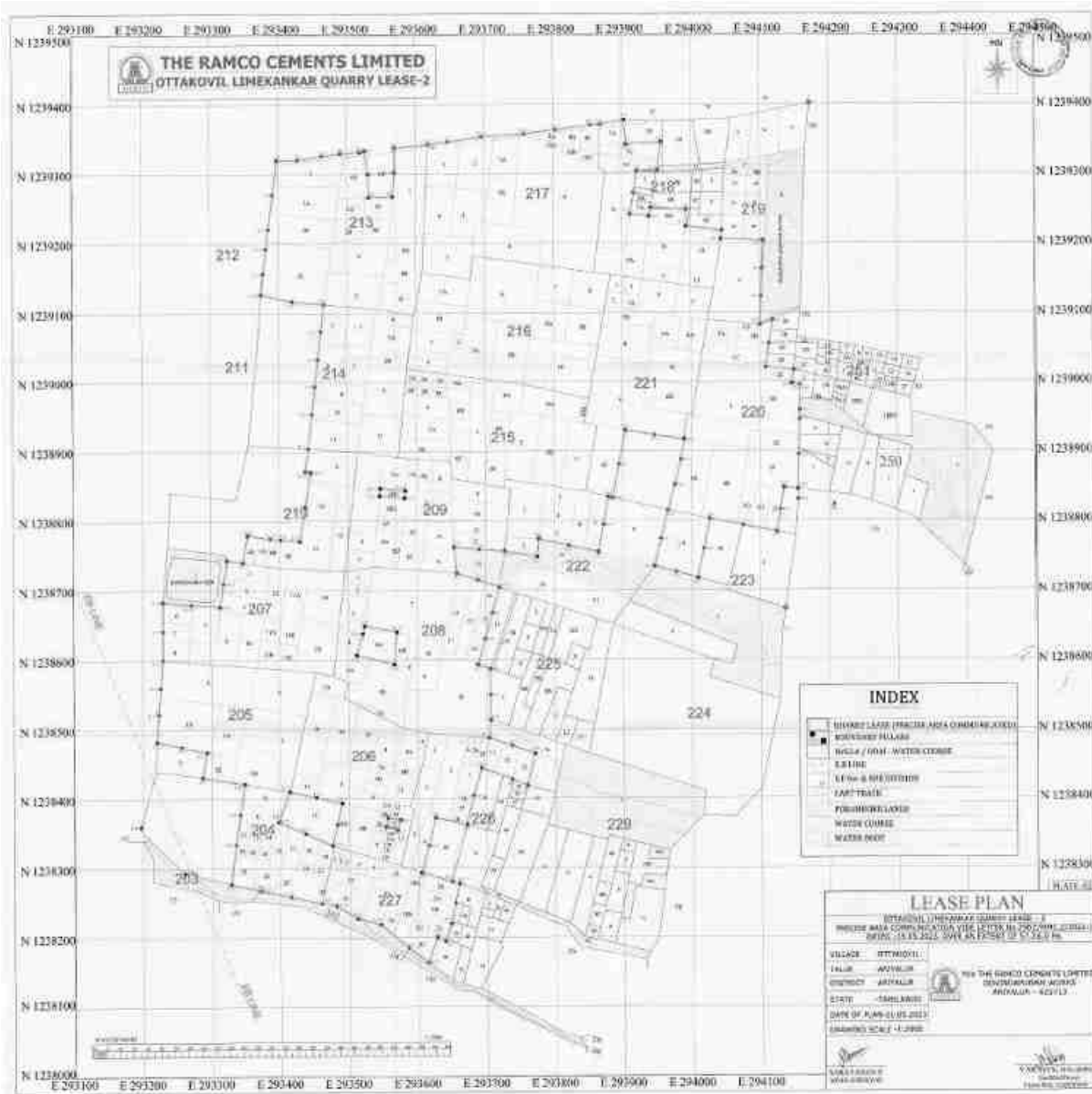
**14. Arulmigu Pitchandavar Swamy Temple Land-10m**





**OTTA KOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTA KOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 2.4: Lease Plan**



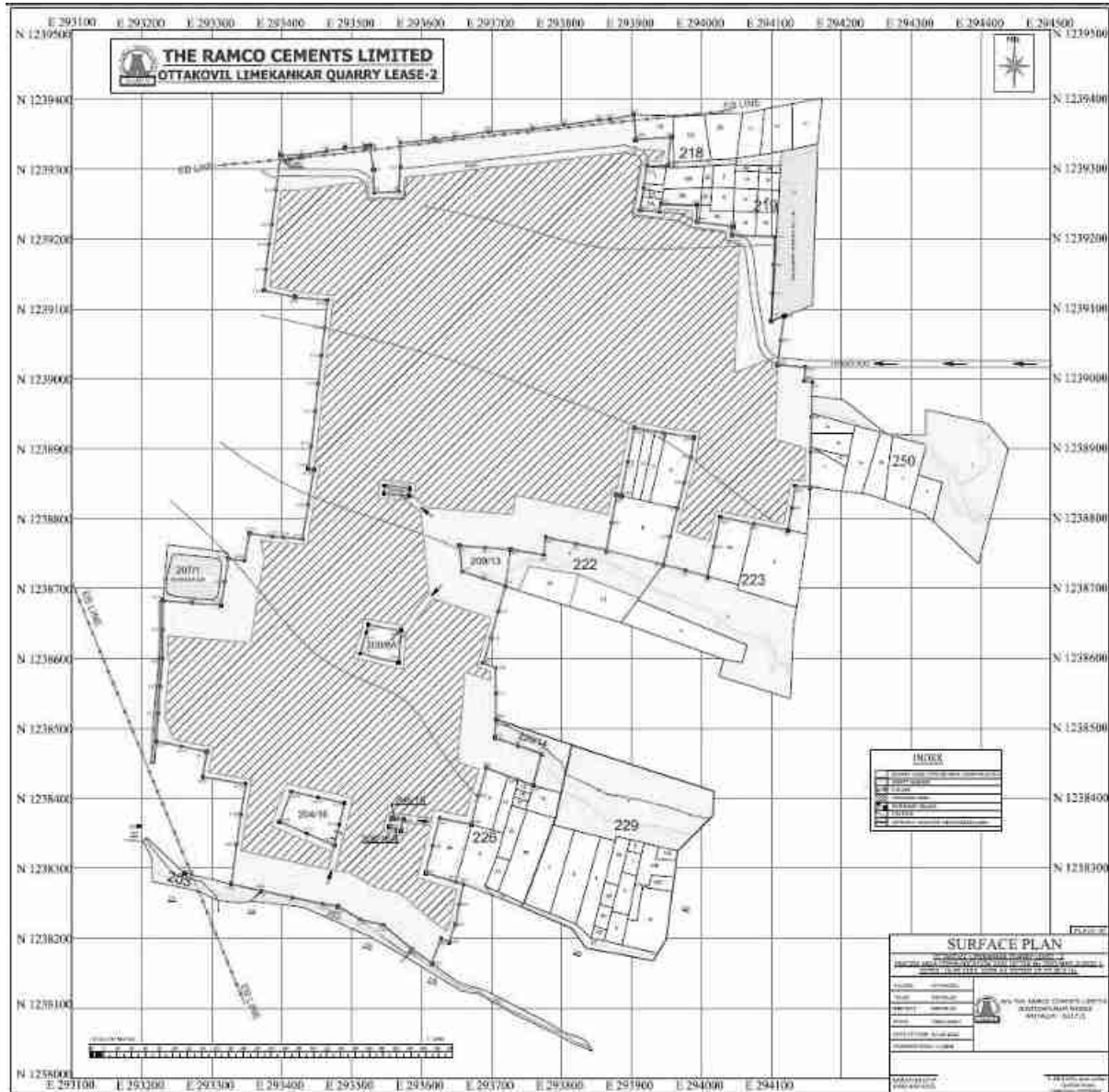
Source: Approved Mining Plan





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 2.5: Surface Plan**



**D. Coordinates of the lease area:**

The lease area is bounded by latitudes 11°12'15" N to 11°11'45" N and longitudes 79°06'35" E to 79°06'32" E. The list of coordinates as per the approved mining plan has been provided below:





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 2.6: Satellite Imagery Showing Corner Co-ordinates of the Project Area**



Source: Google Earth





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**SITE PHOTOGRAPHS**







**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---





**E. Features within 500m radius:**

Based on the Terms of Reference issued by SEIAA, the details of the structures within 300m radius of this project has been studied and provided in this section below.

**Figure 2.7: Details of features within 300m**



Source: Google Earth





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**




**Table 2.4: Details of Features within 300m radius**

S.No	Name	Distance	Photograph
1	Approach Road	16m (E)	
2	Tank	138m (E)	
3	Shed	290m (E)	





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

4	Nearby Ramco Mine	95m (NW)	
5	Vari Course	50m (E)	
6	Shed	270m (N)	





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**2.4 GEOLOGY:**

**2.4.1 REGIONAL GEOLOGY:**

The limestone deposit of the study area forms a part of Kallankurichi limestone formations of Middle Ariyalur stage of Cretaceous beds in South India. In the Cauvery basin carbonate rock form a sizable part of the stratigraphic column from the Lower Cretaceous to Recent. These deposits are geologically called the Maestrichian Limestones. This limestone bed is sandwiched between two sandstone/Marl beds. It can be traced continuously for more than 9 K.ms in the North - South direction starting from Srinivasapuram in the north through Kairulabad, Ameenabad, Periyanaalur, Hasthinapuram, Kattupiringium, Pudupalyam, Nerunchikorai, Vilipiringium and further South up to Idaiyathankudi on the banks of Marudaiyar river. Limestone of Cretaceous and early Tertiary are also exposed in the three principal outcrop areas viz. Trichirapalli, Virudhachalam, and Pondicherry along the western margin of the basin. The western margin of these sediments have NE- SW trend. The formation in the east trends NE-SW in the north and changes to NW-SE in the Southern part. The dips also change accordingly. The stratigraphic succession for the cretaceous basin is given below:

**Table 2.5:Stratigraphic Succession**

Age	Group	Formation	Litho Stratigraphy
Miopliocene		Cuddalore	Ferruginous sand stone laterite and clay
-----Unconformity-----			
Palaeocene	ARIYALUR	Niniyur	Predominantly limestone with sandstone and marl parting White sandstone and Fossiliferous Limestone calcareous shale marl and sandstone
		Kallamedu	
Upper Cretaceous		Kallankurichi	-----Unconformity----- Upper member-sandstone dominant Lower member -limestone / calc. Sandstone dominant
		Sillakudi	
-----Unconformity-----			
Upper Cretaceous	Tiruchirapalli	Anaipadi	Upper-Sandstone Lower-Shale
		Kulakkantham	
-----Unconformity-----			
Upper Cretaceous	Uttattur	Karai Maruvattur	Coral limestone, Shaly limestone, sandstone & marl
-----Unconformity-----			





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

Upper Jurassic to Lower Cretaceous	Upper Gondwana	Thappai	Brownish, micaceous & silty ferruginous sandstone
-----Unconformity-----			
Archaean		Crystalline	Charnockite & Gneisses

**2.4.2 LOCAL GEOLOGY:**

**Black-cotton soil:**

The black soil cover is around 1.50 mts. It contains a large amount of loose, nodules of kankar widely scattered in it. They are probably derived from the soil and deposited by ground water. The kankar usually contains a large amount of siliceous impurities.

**Limekankar:**

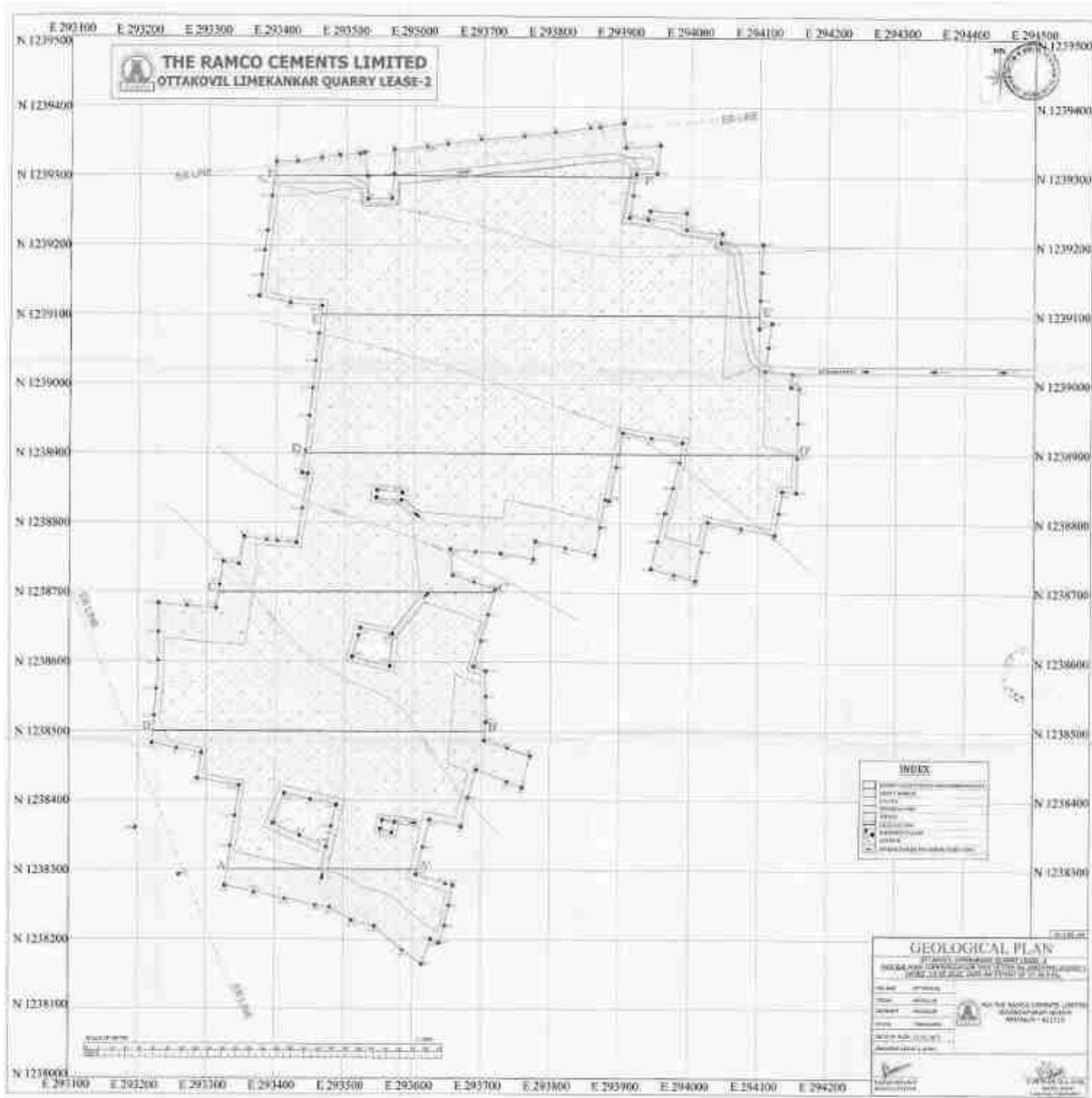
A hard layer of lime kankar is seen in patches especially in the eastern portions of the area near Ottakovil. The Lime Kankar beds of around 1.00-to-1.50-meter thickness.





**OTTA KOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTA KOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 2.8: Geological Plan & Cross Section**



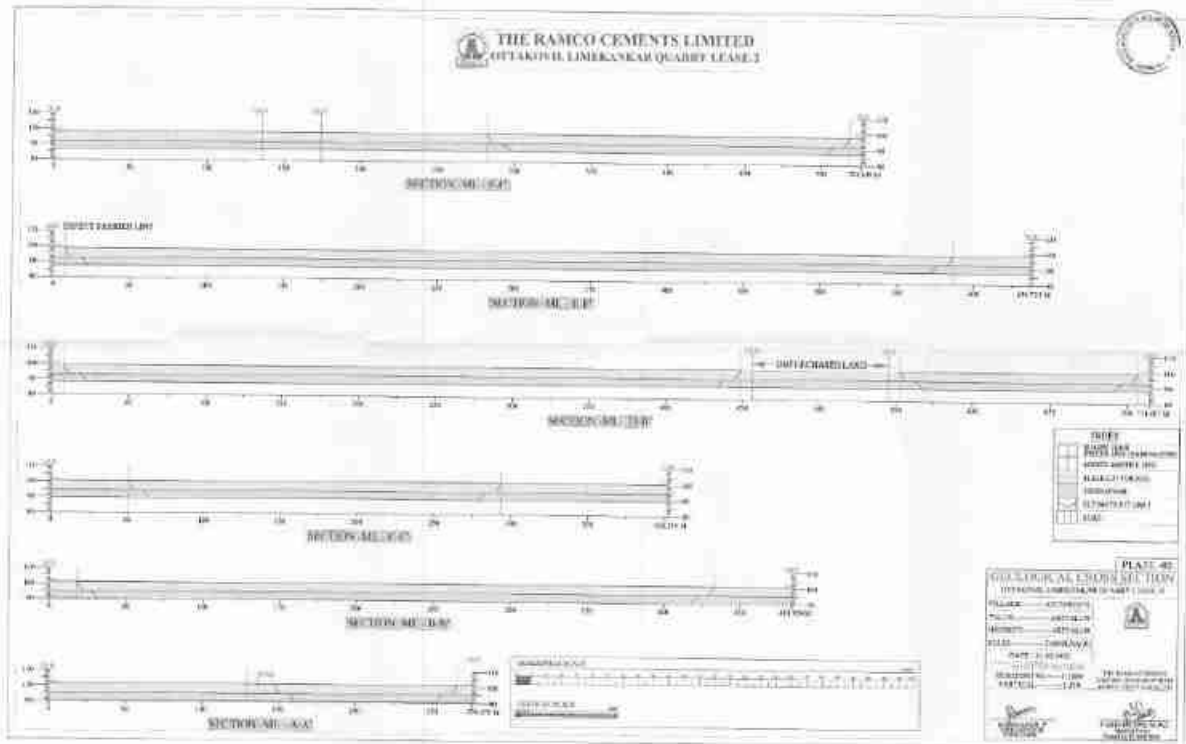
Source: Approved Mining Plan





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 2.9: Geological Cross Section**



Source: Approved Mining Plan

## 2.5 SIZE AND MAGNITUDE OF THE OPERATION:

- The mining will be done by open cast semi mechanized mining method without drilling and blasting.
- During the plan period, the deposit will be mined by a simple system of simultaneous development, production and refilling by the same excavator called strip mining.
- Depth of mining is 2.75m only. ( 1.50m Top soil + 1.25m Lime Kankar)
- It is proposed to mine 12,49,031T of Limekankar and 6,66,150m<sup>3</sup> of Topsoil upto a total depth of 2.75m for a period of 5 years.
- The life of the mine is 5 years.
- At the end of life of the mine, part of the mine pit will be backfilled and reclaimed and the balance will be left for water harvesting.
- Since the depth of mining is 2.75m only, there is no groundwater intersection envisaged.



**Creative Engineers & Consultants**

**CHAPTER-2 : PROJECT DESCRIPTION**

**PRO CODE: CEC/EMP/MI-217**

**REV NO : 00/JUN/24**

**2-24**





## 2.5.1 RESERVES:

**Table 2.6: Geological and Mineable Reserves**

S. No	Type of reserves	Limekankar (T)
1	Geological Resources	16,13,250
2	Mineable Reserves Initially Estimated	11,78,719
3	Mineable Reserves (After shifting of LT Power Line)*	12,49,031

As a part of mineral conservation, low tension power line passing in the North East to South West direction in SF.Nos.213/3, 213/8A, 213/8D, 213/9, 214/2, 217/3, 217/5, 217/7B, 217/8B, 217/8C, 217/9, 217/10B and 218/1A is shifted to the Northern side of the quarry lease boundary. In line with the shifting of low-tension power line, the area covered under safety distance is reduced from 15.45.0 hectares to 12.95.0 hectares. In this juncture, the mineable reserves has been enhanced.

## 2.5.2 MINING METHOD:

Opencast Mining without drilling and blasting using HEMM of low HP will be carried out. During the plan period, the deposit will be mined by a simple system of simultaneous development, production and refilling by the same excavator called strip mining. The depth of mining will be 2.75m only.

**Table 2.7: Details of Equipments**

NAME OF THE EQUIPMENT	CAPACITY	REQUIREMENT
TATA Hitachi EX 200	1.20 M <sup>3</sup>	2
BEML – D50 Dozer	50HP	1
Taurus tippers	25 tonnes	8
Water Tanker	10 KL	1

Source: Approved Mining Plan

## 2.6 PROPOSED SCHEDULE FOR APPROVAL AND IMPLEMENTATION:

The proponent propose to implement the production immediately after obtaining all the statutory approvals such as CTE, CTO, etc. The proponent will comply with the environmental clearance conditions during mining operations. The schedule of project implementation envisaged for this project is provided below. This is a tentative schedule subject to various factor, hence unforeseen variations may occur.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Table 2.8: Proposed Schedule of Implementation**

Activities	Months					
	Zero Date	1	2	3	4	5
Obtaining Environmental Clearance						
Obtaining Consent from State Pollution Control Board						
Lease Execution						
Equipment mobilization and Commencement of Mining activity after following all the Statutory Requirements						

**2.7 PROJECT DESCRIPTION:**

**2.7.1 PLAN PERIOD-PRODUCTION & WASTE DISPOSAL:**

As per the approved scheme of mining plan, it is proposed to mine 12,49,031T of Limekankar upto a total depth of 2.75m for a period of 5 years. The year wise production as per the approved mining plan is as follows:

**Table 2.9: Yearwise Production**

Year	Section Line	RL in Mts	Area in (Ha.)	Area in (Sq.m)	Depth in (m)	Volume in M <sup>3</sup>	Bulk Density	Total Quantity in Tons
I Year	A-A' – F-F'	99.5 - 98.25 & 97.5 - 96.25	24.88.5	248850	1.25	311063	2.25	699891
II Year	D-D' - F-F'	97.5 - 96.25	14.36.5	143650	1.25	179562	2.25	404016
III Year	C-C' - D-D'	97.5 - 96.25	1.78.0	17800	1.25	22250	2.25	50062
IV Year	D-D' - E-E'	97.5 - 96.25	1.78.0	17800	1.25	22250	2.25	50062
V Year	E-E' - F-F'	97.5 - 96.25	1.60.0	16000	1.25	20000	2.25	45000
<b>Total</b>			<b>44.41.0</b>			<b>555125</b>		<b>1249031</b>

Source: Approved Mining Plan

**Table 2.10: Yearwise Development**

Year	Section Line	RL in Mts	Area in (Ha.)	Area (Sq.m)	Topsoil Thickness (m)	Quantity in M3
I Year	A-A' TO F-F'	101 - 99.5 & 99 - 97.5	24.88.5	248850	1.50	373275
II Year	D-D' TO F-F'	99 - 97.5	14.36.5	143650	1.50	215475
III Year	C-C' TO D-D'	99 - 97.5	1.78.0	17800	1.50	26700
IV Year	D-D' TO E-E'	99 - 97.5	1.78.0	17800	1.50	26700
V Year	E-E' TO F-F'	99 - 97.5	1.60.0	16000	1.50	24000
<b>Total</b>			<b>44.41.0</b>			<b>666150</b>

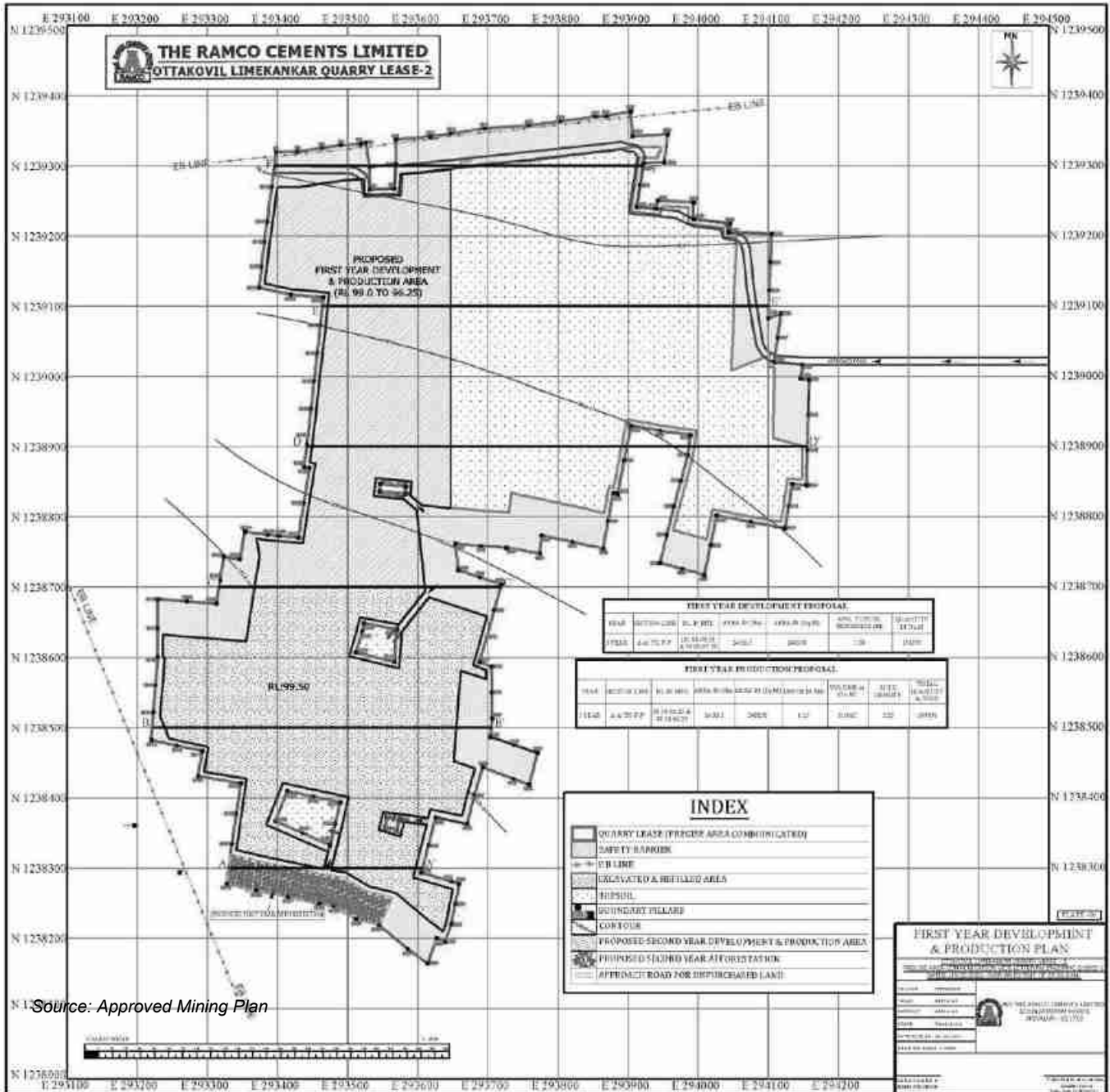




**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

To win the 12.49 Lakh Tons of Limekankar, 6.66 Lakh M3 of overburden in the form of topsoil is to be removed in the quarry lease area. This top soil will be used for backfilling the mined-out pit using cut and fill method. The life of the mine is 5 years.

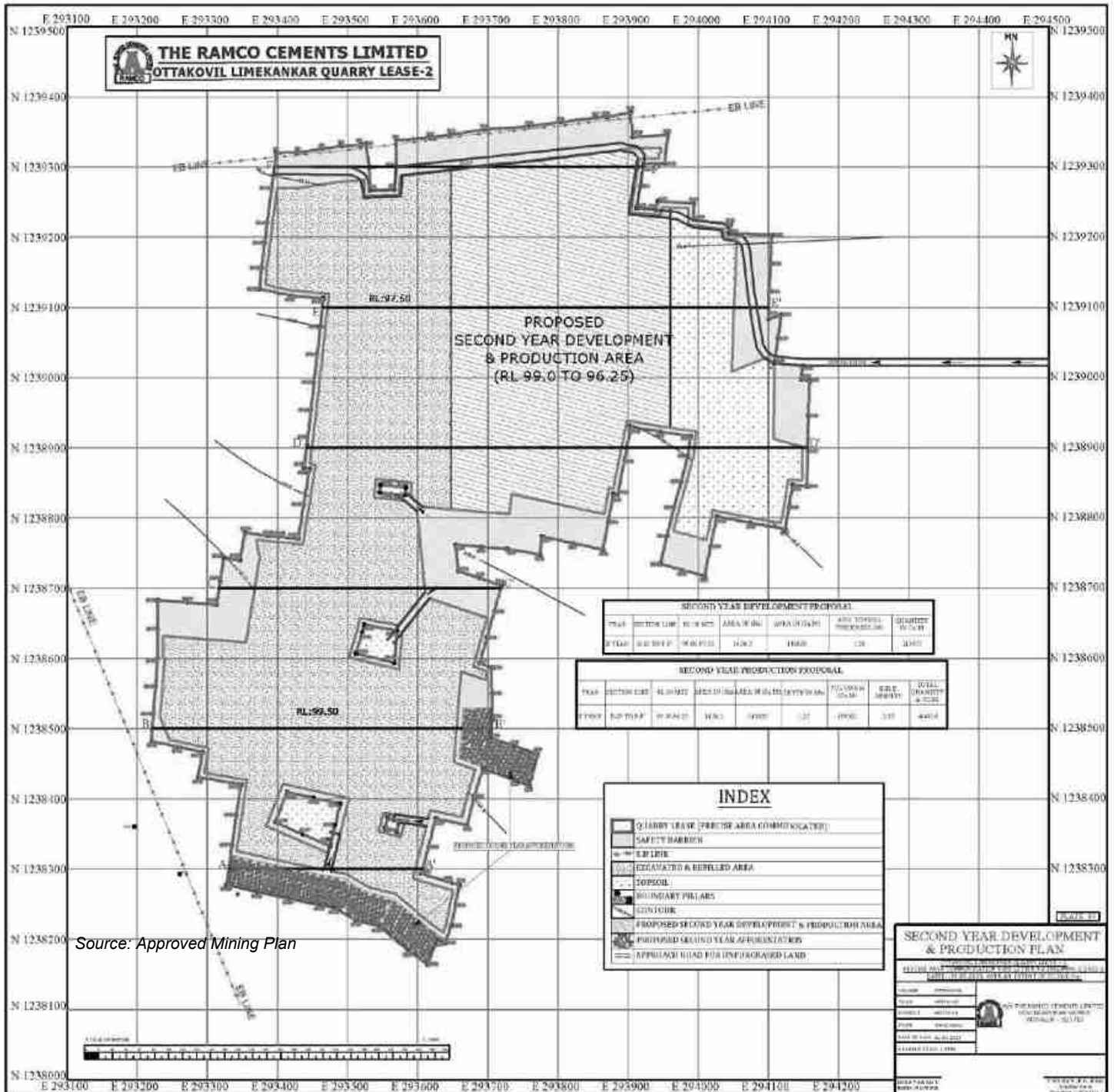
**Figure 2.10: Yearwise Plan (Year 1)**





**OTTA KOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTA KOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

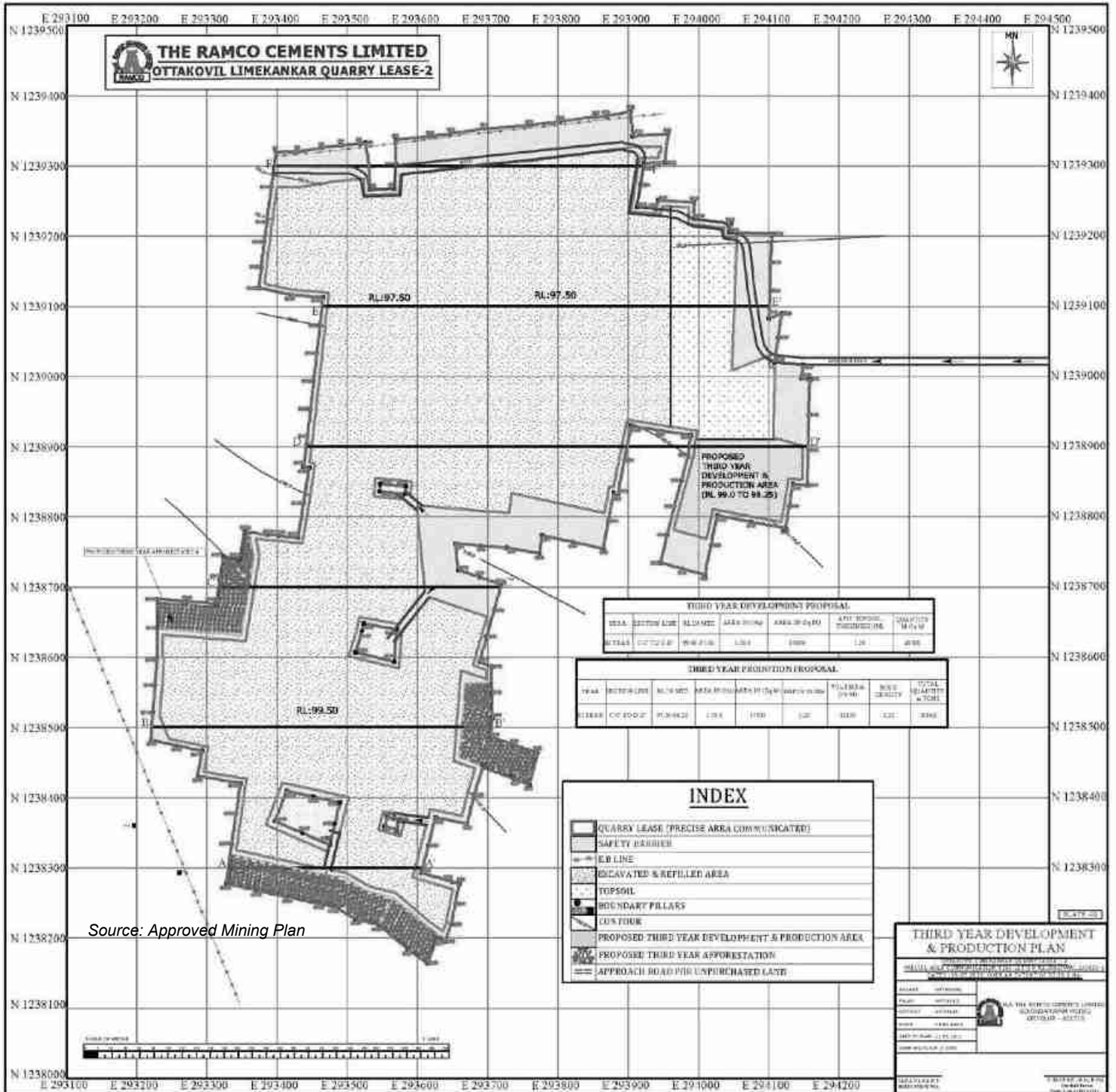
**Figure 2.11: Yearwise Plan (Year 2)**





**OTTA KOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTA KOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

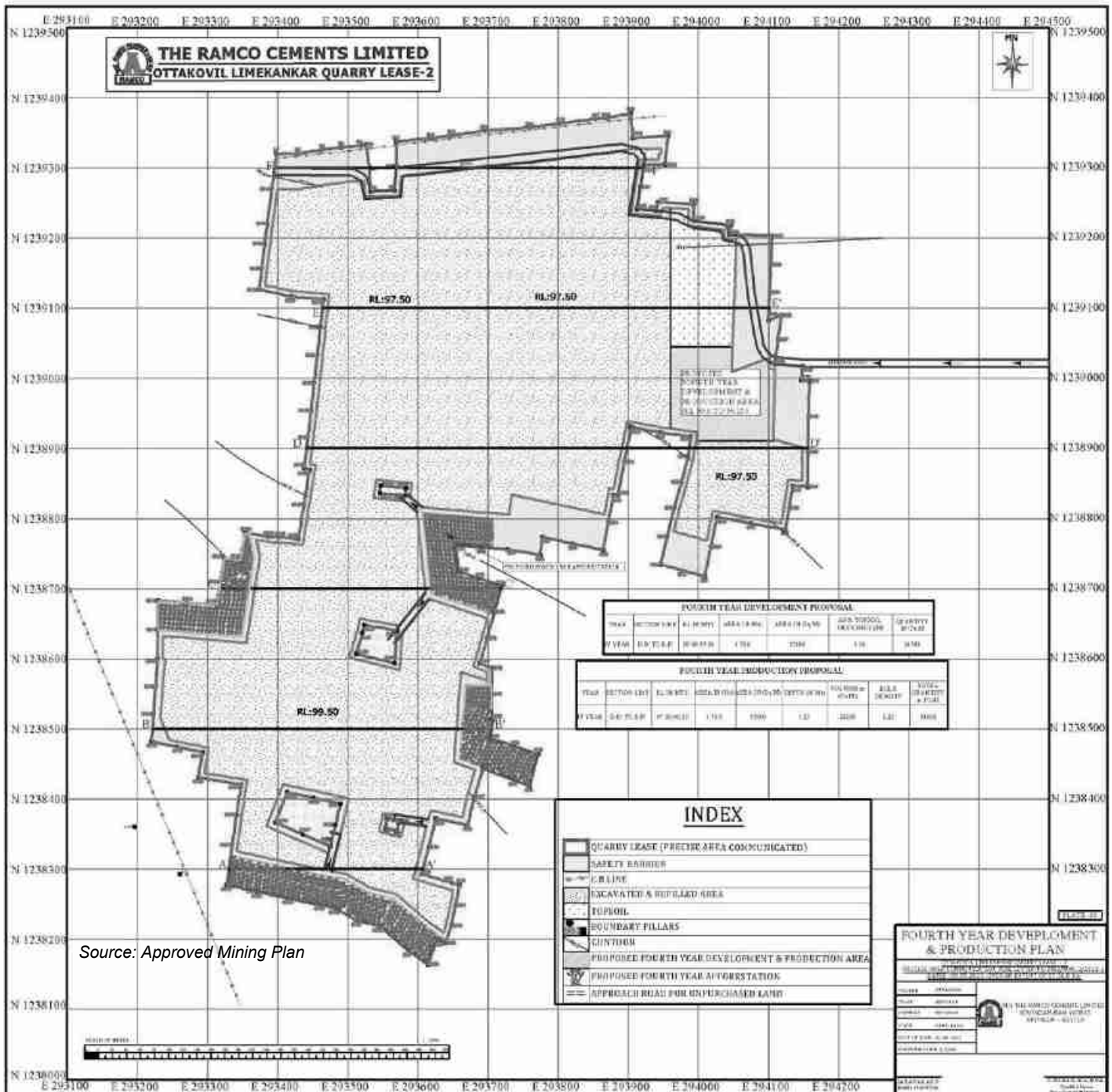
**Figure 2.12: Yearwise Plan (Year 3)**





**OTTA KOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTA KOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

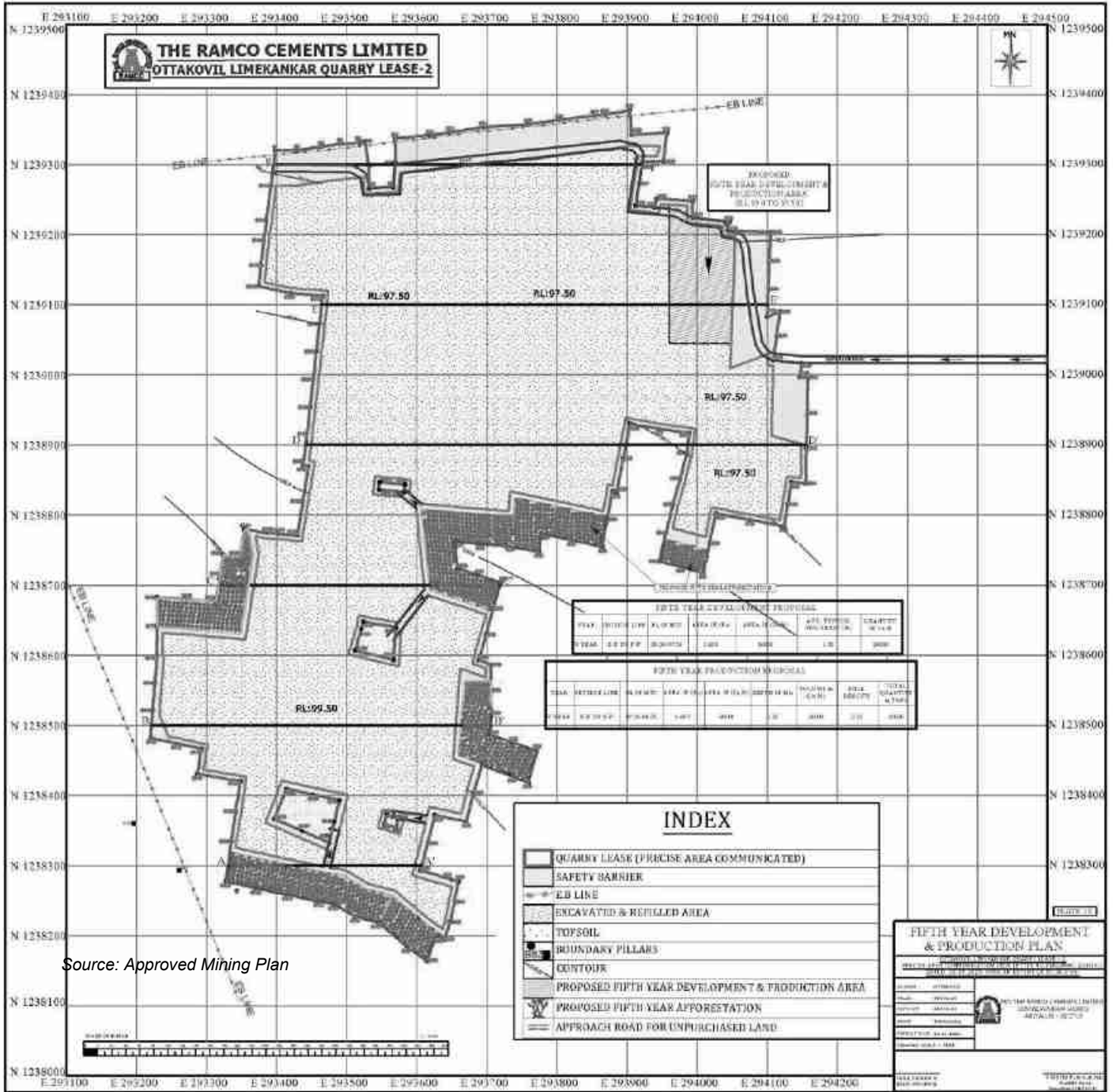
**Figure 2.13: Yearwise Plan (Year 4)**





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

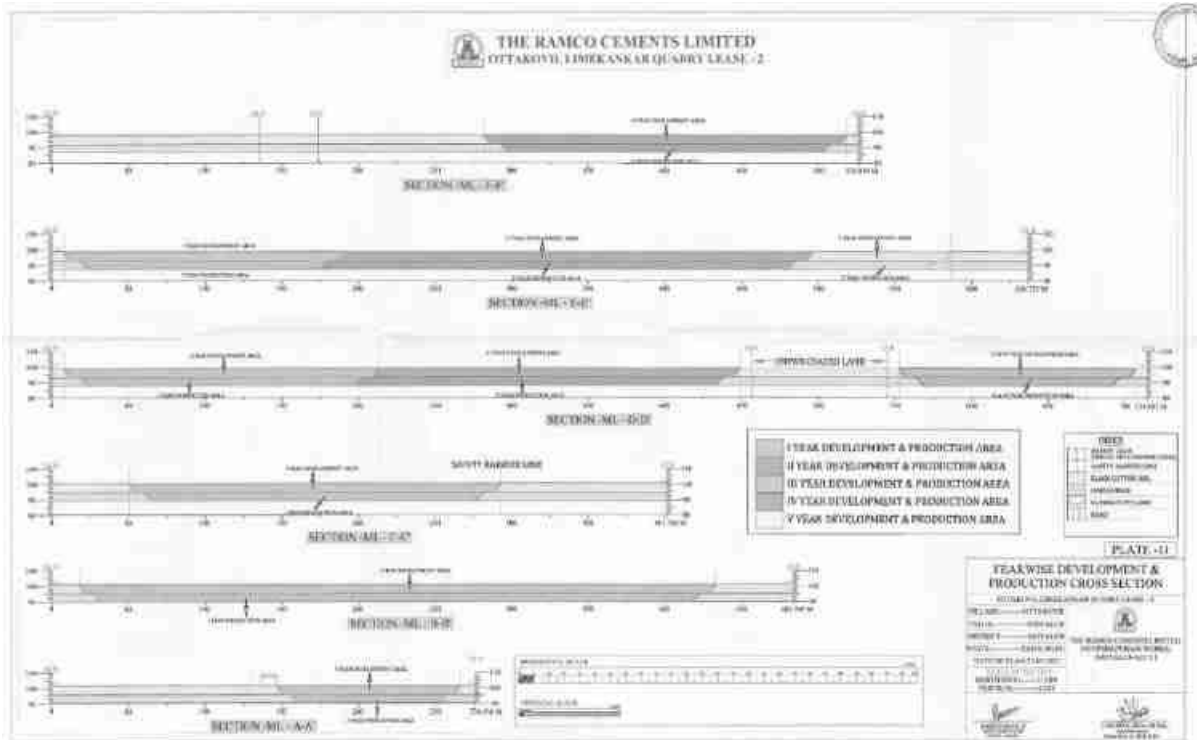
**Figure 2.14: Yearwise Plan (Year 5)**





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 2.15: Yearwise Cross Section**



Source: Approved Mining Plan

**2.9.1 CONCEPTUAL STAGE:**

At the end of the life of the mine, out of 44.41.0Ha of mined out area, 26.08Ha will be backfilled and restored to premining stage and balance 18.33Ha will be left as water reservoir. 0.01Ha will be infrastructure, 5.00Ha will be greenbelt and 7.94Ha will be the safety distance in which plantation will be carried out.

**Table 2.11: Land use breakup**

S.No	Land Use	Present Land Use as per AMP (Ha)	At the end of 5 <sup>th</sup> year (Ha)
1	Quarrying Pit	--	44.41.0
2	Infrastructure	--	0.01.0
3	Roads	--	--
4	Green Belt	--	5.00.0
5	Others ( Safety Barrier)	12.95.0	7.94.0
6	Unused	44.41.0	--
	<b>Total</b>	<b>57.36.0</b>	<b>57.36.0</b>

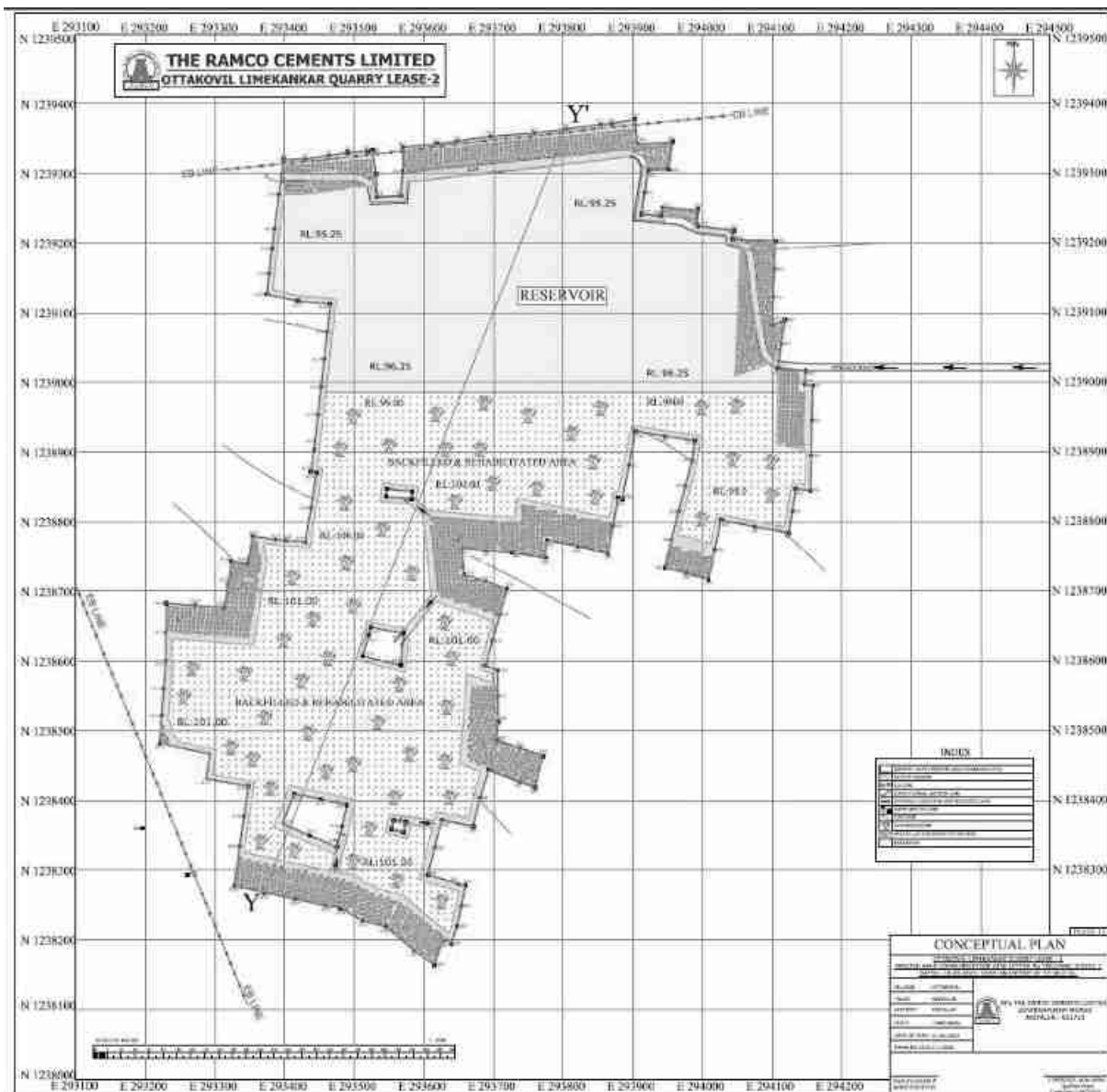






**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 2.16: Conceptual Plan**



Source: Approved Mining Plan

**2.9.2 PROJECT REQUIREMENTS:**

**Table 2.12: Project Requirements**

<b>Manpower</b>	This project will provide employment opportunities to about 16 persons directly and 50 people indirectly.
<b>Water Requirement and Source</b>	<b>Water Requirement: 15 KLD</b>





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	<b>Details</b>	<b>Quantity (KLD)</b>
	Drinking water and Domestic Use	2.0
	Dust Suppression	8.0
	Green belt	5.0
	<b>Total</b>	<b>15.0</b>
	<b>Source:</b> Water requirement will be met from the borewells from the cement plant.	
<b>Power Requirement</b>	No electricity needed for mining operation. The minimum power requirement for office, etc will be met from state grid.	
<b>Site Services</b>	Site services like mine office, first aid room, rest shelters, toilets etc. are provided as semi-permanent structures.	
<b>Project Cost</b>	Rs.491.50 Lakhs	
<b>Funds allocated for socio-economic development</b>	Rs.10.0 Lakhs is allocated under CER budget.	

**2.8 DESCRIPTION OF MITIGATION MEASURES:**

Scientific and systematic development of mines will be carried out by the project authorities for preserving as well as improving the environmental conditions in and around the mining lease area. Elaborate analysis on impacts and mitigation measures to be adopted on implementation of this project and the same has been dealt in Chapter- IV.

**2.9 ASSESSMENT OF NEW & UNTESTED TECHNOLOGY:**

There is no new technology that is being implemented. Opencast method of mining which is the proposed method of mining is a proven technology which is technologically and economically viable. No major technological failures are anticipated. A disaster management plan shall be put into place to take care of any unforeseen situation.

**2.10 CONCLUSION:**

As good environmental preservation is one of the prime motives of the project proponent. It is expected that the project activity will not have any major impact on environmental equilibrium in the study area.

\*\*\*\*\*



# **CHAPTER - III**

## **DESCRIPTION OF ENVIRONMENT**



### CHAPTER 3

#### DESCRIPTION OF ENVIRONMENT

##### 3.1 GENERAL:

The existing environmental baseline data for the various environmental components were collected in the study area for the purpose of assessing the impact on present environment due to the project activities.

Monitoring was carried out systematically and meticulously as per relevant IS codes, CPCB, MoEF&CC guidelines during **Winter Season (December 2023 to February 2024)** The details of the study are given in this chapter.

For the purposes of this study, the area has been divided into two zones, namely, core and buffer zones. The entire lease area is considered to be the core zone while the buffer zone encompasses a 10km radius from the periphery of the core zone. The details of villages falling in the study area and other features are given in Index Plan in **Figure No - 3.1**

The primary data collection was done by means of field monitoring and the secondary data collection was obtained from published sources and Government documents. The details of the baseline data collection which has been elaborated through the course of this chapter has been concised below:

**Table 3.1: Type of Baseline Data**

S.No	Studies	Parameters / Study	Location
1	Socio Economy	Demographic Data from Census 2011	Core and Buffer Zone
		Sample Survey	Buffer Zone
2	Micro Meteorology	Rainfall Data from IMD, Ariyalur	Ariyalur
		Temperature, Humidity, Wind Speed, Wind Direction	1 Representative Location
3	Ambient Air Quality	PM10, PM2.5, SO2, NOx, CO	1 Core Zone, 4 Buffer Zone
4	Water Quality	Physical and Chemical Parameters	1 Core Zone, 5 Buffer Zone
5	Noise Levels	Ambient Noise	1 Core Zone, 4 Buffer Zone
6	Soil Quality	Physical and Chemical Parameters	1 Core Zone, 4 Buffer Zone
7	Land Use and Land Cover	Land use pattern within 10km study area using RS Satellite	Buffer Zone
		Land use based on Census 2011	Core and Buffer Zone
8	Biological Environment	Flora and Fauna	Core Zone and Buffer Zone
9	Hydrology & Hydro Geology	Hydrogeological profile of the area	Core Zone and Buffer Zone





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 3.1: Study Area Map**





**Table 3.2: Environmental Setting of the Study Area**

S.No	Particulars	Details	Distance	Direction
<b>I Connectivity</b>				
1.	Highway	SH-136 (Perambalur - Keezhapalur)	5.7Km	S
2.	Railway Station	Ariyalur Railway Station	6.8Km	S
3.	Airport	Neyveli Airport	63Km	NE
4.	Village	Ottakkovil	480m	S
		O. Krishnapuram	1.1Km	W
		O. Kuttur	1.2km	W
		Poyyandanallur	1.7km	NE
5.	Town/City	Ariyalur	5.9Km	S
<b>II Environmental Features</b>				
6.	Water Bodies	Kallar River	3.8Km	S
		Venmani Odai	6.4Km	NW
		Anaivari Odai	6.8Km	NW
		Vanchiyam Odai	7.0Km	SW
7.	Reserve Forests	Vannankurichi RF	8.1Km	E
<b>III Sensitive Areas</b>				
8.	Notified Archaeologically important places, Monuments	Nil	--	--
9.	Environmental sensitive areas, Protected areas as per Wildlife Protection Act, 1972	Nil	--	--
10.	Defense Installations	Nil	--	--

### 3.2 SOCIO-ECONOMIC CONFIGURATIONS OF THE AREA:

#### 3.2.1 GENERAL:

The Socio-Economic details of the study area are collected through:

- Identification of villages falling from the study area map with combined Taluk map.
- Collection of primary data through sample survey, village meetings and focused group discussion.
- Collection of the demographic pattern of villages falling in the area through NIC 2011 census data.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

- Occupational structure of villages falling in the study area through NIC 2011 census data.
- Details of the amenities available in villages falling in the study area through NIC 2011 census data. The findings of the study are illustrated below:

**3.2.2 SECONDARY DATA DESCRIPTION:**

The proposed quarry is located in in Ottakovil Village, Ariyalur Taluk, Ariyalur District. Based on 2011 census data, in the 10km radius there are 38 Rural villages and 1 urban area namely Ariyalur from 2 Taluks namely Ariyalur, Perambalur. The demographic profile of the study area is given below:

**Table 3.3: Social, Economic and Demographic Profile of the Study Area**

Details	Population	Percentage
<b>A. Gender-wise distribution</b>		
Male Population	82500	49.94
Female Population	82687	50.06
<b>Total</b>	<b>165187</b>	<b>100</b>
<b>B. Caste-wise population distribution</b>		
Scheduled Caste	44628	27.02
Scheduled Tribes	782	0.47
Other	119777	72.51
<b>Total</b>	<b>165187</b>	<b>100</b>
<b>C. Literate and Illiterate population</b>		
Literate Males	59821	36.21
Literate Females	45116	27.31
<b>Total Literate Population</b>	<b>104937</b>	<b>63.53</b>
Others Males	22679	13.73
Others Females	37571	22.74
<b>Others Population</b>	<b>60250</b>	<b>36.47</b>
<b>Total</b>	<b>165187</b>	<b>100</b>
<b>D. Occupational structure</b>		
Main workers	61051	37.00
Marginal workers	18330	11.10
<b>Total Workers</b>	<b>79381</b>	<b>48.10</b>
<b>Total Non-workers</b>	<b>85806</b>	<b>51.90</b>
<b>Total</b>	<b>165187</b>	<b>100</b>

The total population of these 38 rural villages and 1 urban area is 165187 in which the male population is 82500 (49.94%) and the female population is 82687 (50.06%). This shows that the male and female population ratio is almost equal. Among the total population 0.47% belong to





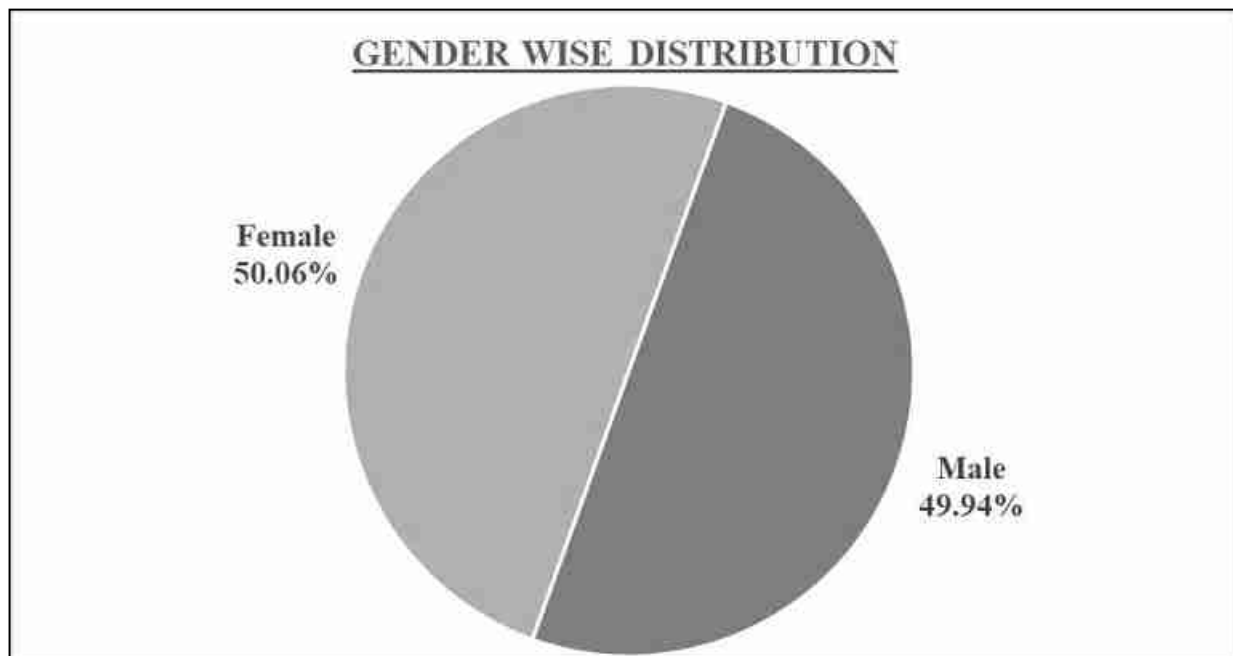
**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

Scheduled Tribes, 27.02 % are Scheduled Caste and the balance 72.51% people belong to other castes. Among the total population, 63.53% of the people are literate

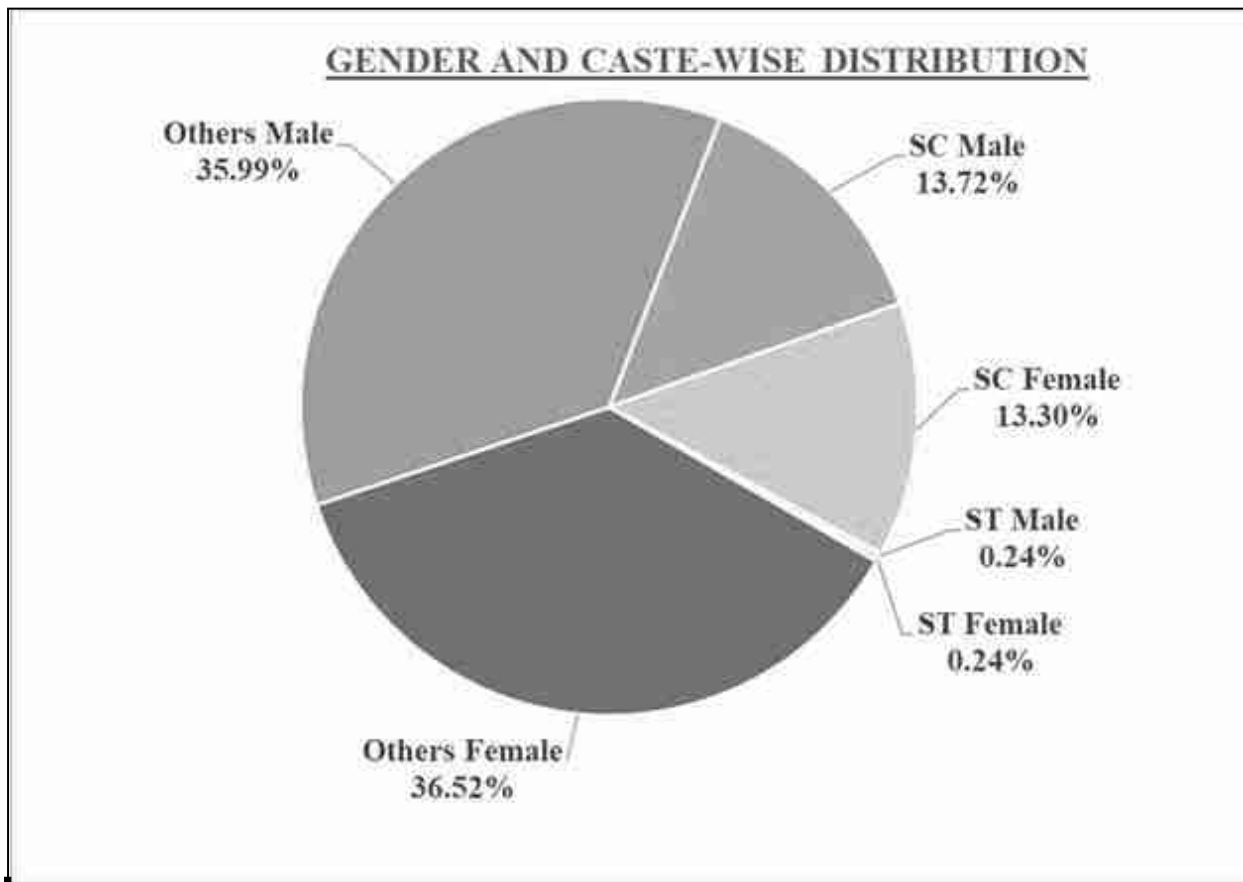
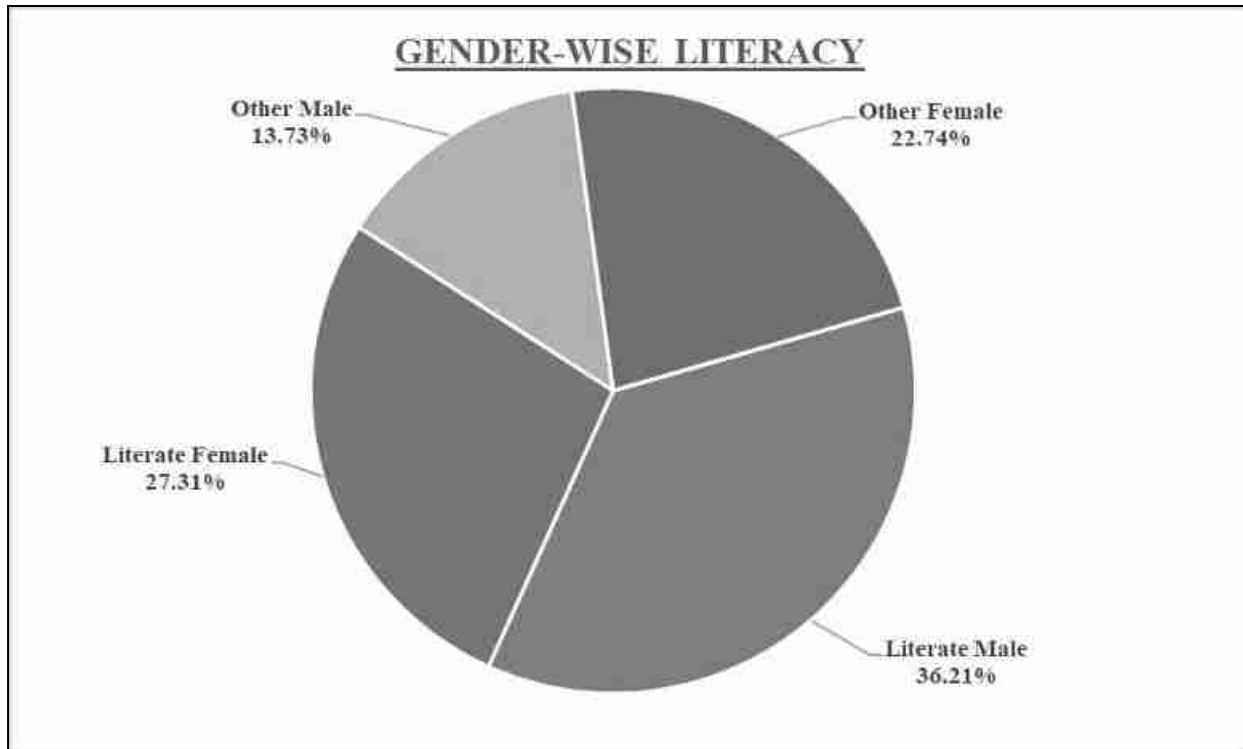
Among the total population, 36.21% are literate males and 27.31% are literate females. This shows that the male literates are slightly more than the female literates. Totally, the illiterate constitutes 36.47% of which the female covers 22.74% and the male 13.73%. Illiteracy in women is more than in the male population.

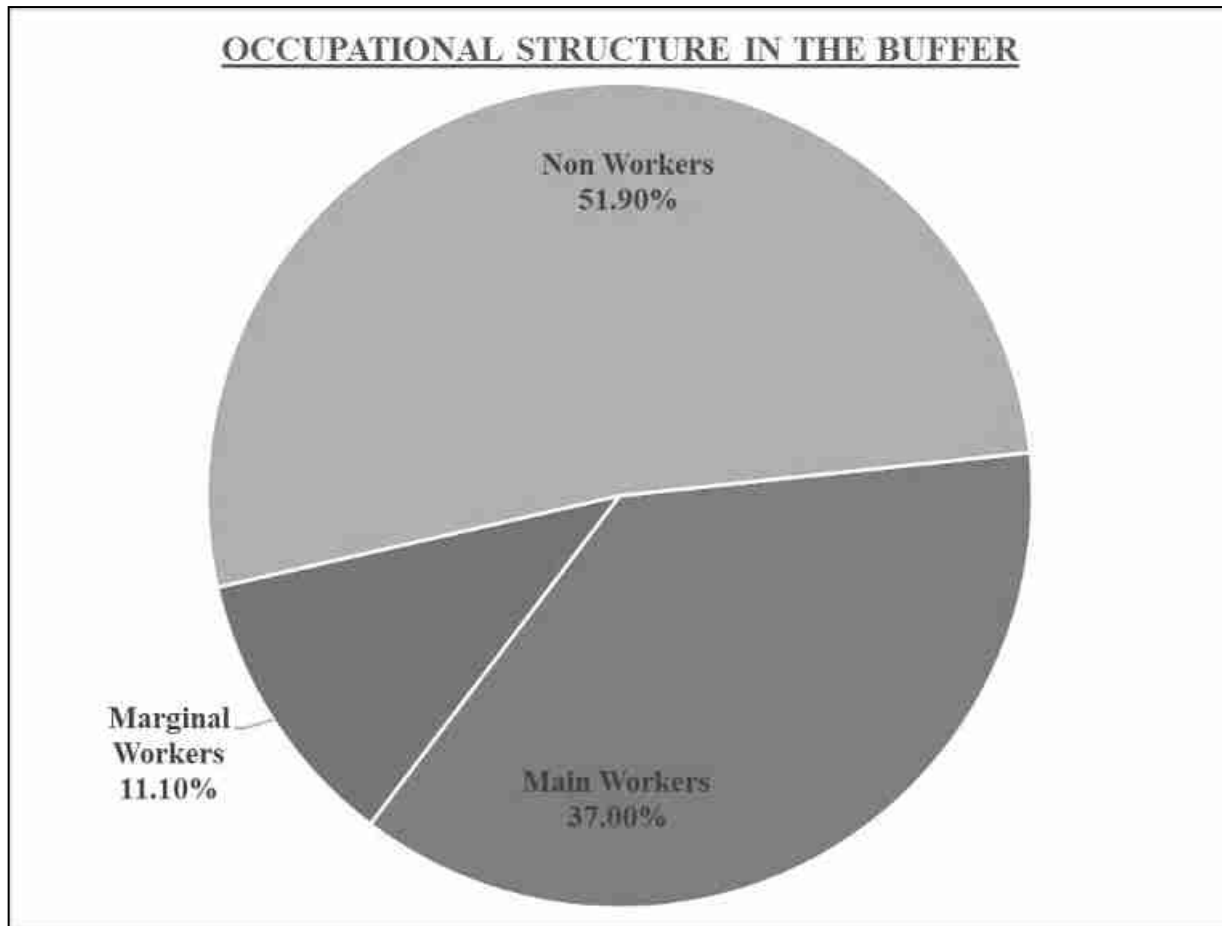
The village wise population, literacy levels and occupational structure details are given in **Annexures 5 and 6**. The demographic structure within the buffer zone is shown diagrammatically in **Figure No – 3.2**.

**Figure 3.2: Demographic Structure in Buffer Zone**









**3.2.3 DETAILS OF AMENITIES:**

Based on 2011 census data, regarding the educational facilities, 38 rural villages have educational facilities. There are totally 86 Primary Schools functioning in these 38 rural villages. Among them 10 villages have one primary school, 10 villages have 2 primary schools, 11 villages have 3 primary schools, 2 villages have 4 primary schools, 3 villages has 5 primary schools. With regards to educational facilities, from Primary School level to Senior Secondary School level, there is availability of some schools in the area. However, beyond this, college level education is not available in the buffer zone. Out of 38 villages, 26 villages have primary health sub centers. Better medical facilities are available in the nearby larger towns.

**Table 3.4: Primary Schools in the Buffer Zone Rural Villages**

S.No	No of Rural Villages	Number of primary schools	Totals
1	2	0	0
2	10	1	10
3	10	2	20





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

4	11	3	33
5	2	4	8
6	3	5	15
<b>Total</b>	<b>38</b>		<b>86</b>

**Table 3.5: Education Facility Availability**

<b>PARTICULARS</b>	<b>Available in village</b>
Govt Primary School	36
Govt Middle School	30
Govt Secondary School	14
Govt Senior Secondary School	7
Govt Arts and Science Degree College	0
Govt Engineering College	0
Govt Medicine College	0
Govt Management Institute	0
Govt Polytechnic	0
Govt Vocational Training School/ITI	1

**Table 3.6: Healthcare Amenities Availability**

<b>PARTICULARS</b>	<b>Available in village</b>
Community Health Centre	1
Primary Health Centre	6
Primary Health Sub Centre	26
Maternity And Child Welfare Centre	13
TB Clinic	7
Hospital Allopathic	1
Hospital Alternative Medicine	1
Dispensary	6
Veterinary Hospital	6
Mobile Health Clinic	0
Family Welfare Centre	6

**Table 3.7: Infrastructure Facilities**

<b>Particulars</b>	<b>Available in village</b>
Tap Water-Treated	35
Covered Well	21
Hand Pump	19
Tube Wells/Borehole	35
Post office	4
Bus services	37
Railway station	3
Commercial Bank	4
Cooperative bank	7





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---

The details of the educational, medical and infrastructural facilities available in the buffer zone is provided in **Annexures-7-9**. Further developments in this area with respect to these various facilities has occurred over the years.

### **3.2.4 SAMPLE SURVEY:**

#### **3.2.4.1 OBJECTIVE:**

The objective of the study is to understand the present socio-economic condition, availability of existing infrastructure facilities in the area & to know the needs of the people in the project peripheral villages, to provide an implementable future CER proposal pertaining to specific needs addressing local requirements.

#### **3.2.4.2 APPROACH:**

Nearby villages were visited for conducting study to know about socio-economic conditions, including aspirations and requirements of the people for a better living and collected relevant data. Informal discussions were conducted in the villages to capture the overall scenario of the village including their socio economic problems and the aspirations, desires of the community in overall terms.

#### **Salient details of the study are given below:**

- Predominantly the study area is dry, barren land with sporadic agriculture dependent on rain.
- Patches of plantation and agriculture are observed during the monsoon season.
- Majority of the people are small farmers and others are working in the nearby mines and cement industries.
- Since agriculture is predominantly rainfed and the water is available only for few months, during the rest of the time they have less employment opportunities. Other occupations include construction workers, vendors, etc.
- Other allied activities livestock rearing and poultry farming are also found.
- Reasonably better amenities like approach road bus facility, electricity, mobile phone connectivity, Public Distribution System, banks etc are available.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

- Bore well is the main source for drinking water. There are OHT's, Ground level tanks, public taps are available .
- Education facilities from primary upto higher secondary school are available locally.
- Basic medical facilities are available locally.
- Higher education facilities and also better medical facilities are available in Ariyalur and Trichy, etc.
- The Ramco Cements Limited through their CER measures of existing mines and cement plant has carried out improvements in road, transport facilities, school infrastructural facility, water provision, etc. around the plant area. Besides, it has also brought about direct and indirect benefits to scores of people by way of employment opportunities in the plant (direct and indirect), vendors, shops, renting of houses, etc.

**3.2.4.3 IDENTIFIED CER ACTIVITIES:**

The following activities are identified based on the survey, which will be modified and implemented based on the needs and requirements of the local people:

- Improvement in infrastructural facilities for nearby schools.
- Provision of common RO water facility for locals
- Carrying out activities for improvement of natural resource augmentation like water conservation, harvesting, tree plantation, energy conservation measures etc.



PRIMARY SCHOOL – POIYATHANALLUR VILLAGE



PRIMARY HEALTH CENTRE-POIYATHANALLUR VILLAGAE





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**



WATER TANK – NALLAMPATHTHAI VILLAGE



ANGANVADI– OTTAKOVIL VILLAGE

### 3.3 EXISTING ENVIRONMENTAL QUALITY

#### 3.3.1 MICRO-METEOROLOGY

##### 3.3.1.1 General:

The meteorological conditions in an area regulate the dispersion of air pollutants being released into the atmosphere. The principal variables are horizontal convective transport i.e. wind speed and direction and vertical convective transport, i.e. mixing height, stability class and topography of the area.

##### 3.3.1.2 Historical Meteorological Data:

###### A. Cyclones And Depressions

Cyclonic storms and depressions in Bay of Bengal affect the East Coast of India. Isolated ones, forming in January to March in the South Bay of Bengal move West-North-westwards and hit Tamil Nadu coast. In April and May, cyclonic storms and depressions form in the South and adjoining Central Bay and move initially to the Northwest, then North and then recurve to the Northeast striking the Arakan coasts in April and Andhra Pradesh (AP)-Orissa-West Bengal (WB) – Bangladesh coasts in May. Most of the monsoon (June – September) storms develop in the central and in the north bay and move west – north - westwards affecting AP – Orissa – WB coasts. Post monsoon (October – December) storms form mostly in the south and central Bay, recurve between 150 and 180 N affecting Tamil Nadu – AP – Orissa – WB – Bangladesh coasts. **Figure No - 3.3** depicts the history of cyclonic storms, which have struck the Indian coast during the months of October, November and December during the last 75 years. (Source: Vulnerability Atlas of India series, above figure accessed from [www.maps of](http://www.maps of)

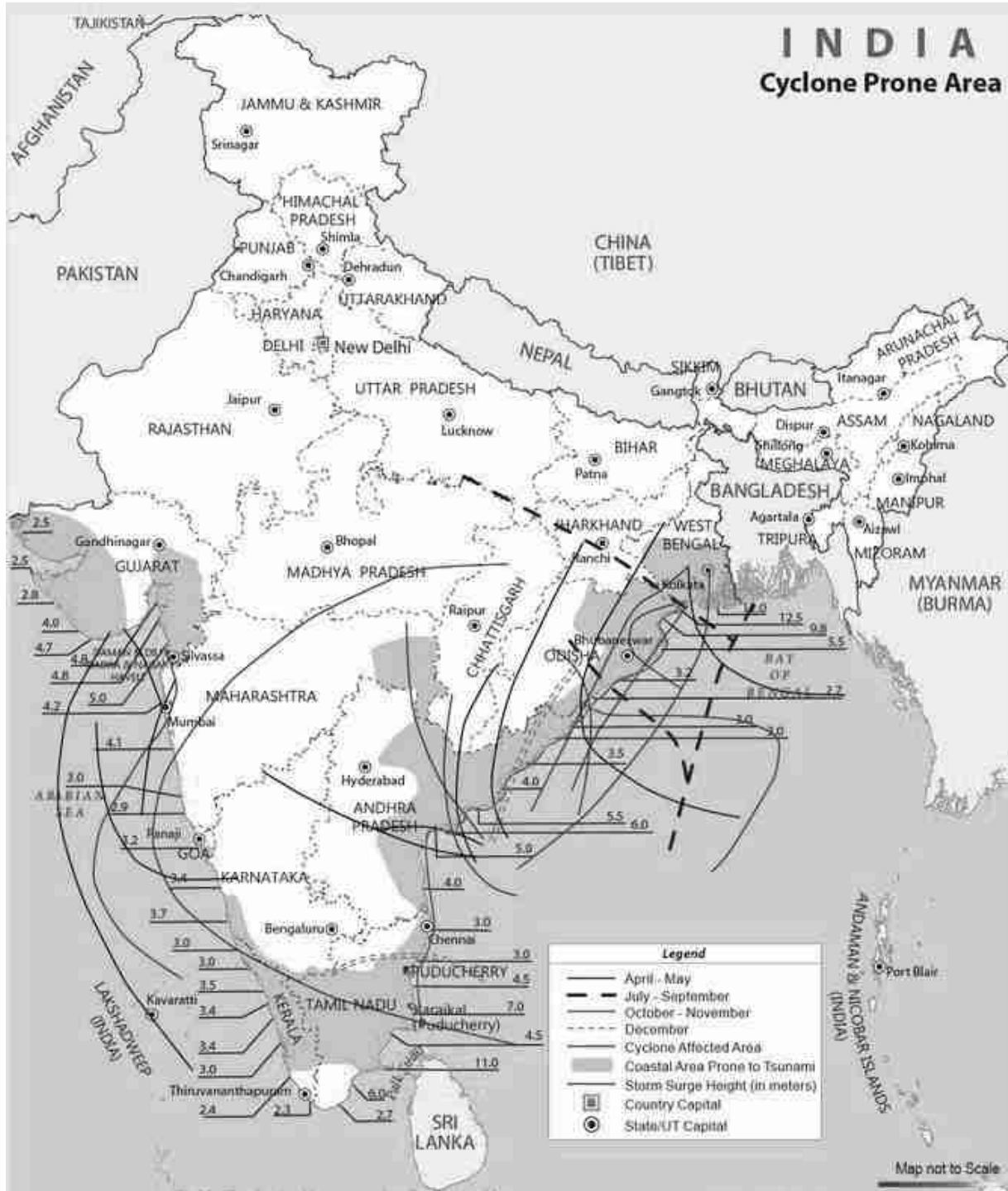




**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

india.com). East coast is prone to cyclonic storms round the year but mostly these occur prior to SW i.e., in May and after SW monsoon i.e., in October and November.

**Figure 3.3: Cyclone Prone Areas**

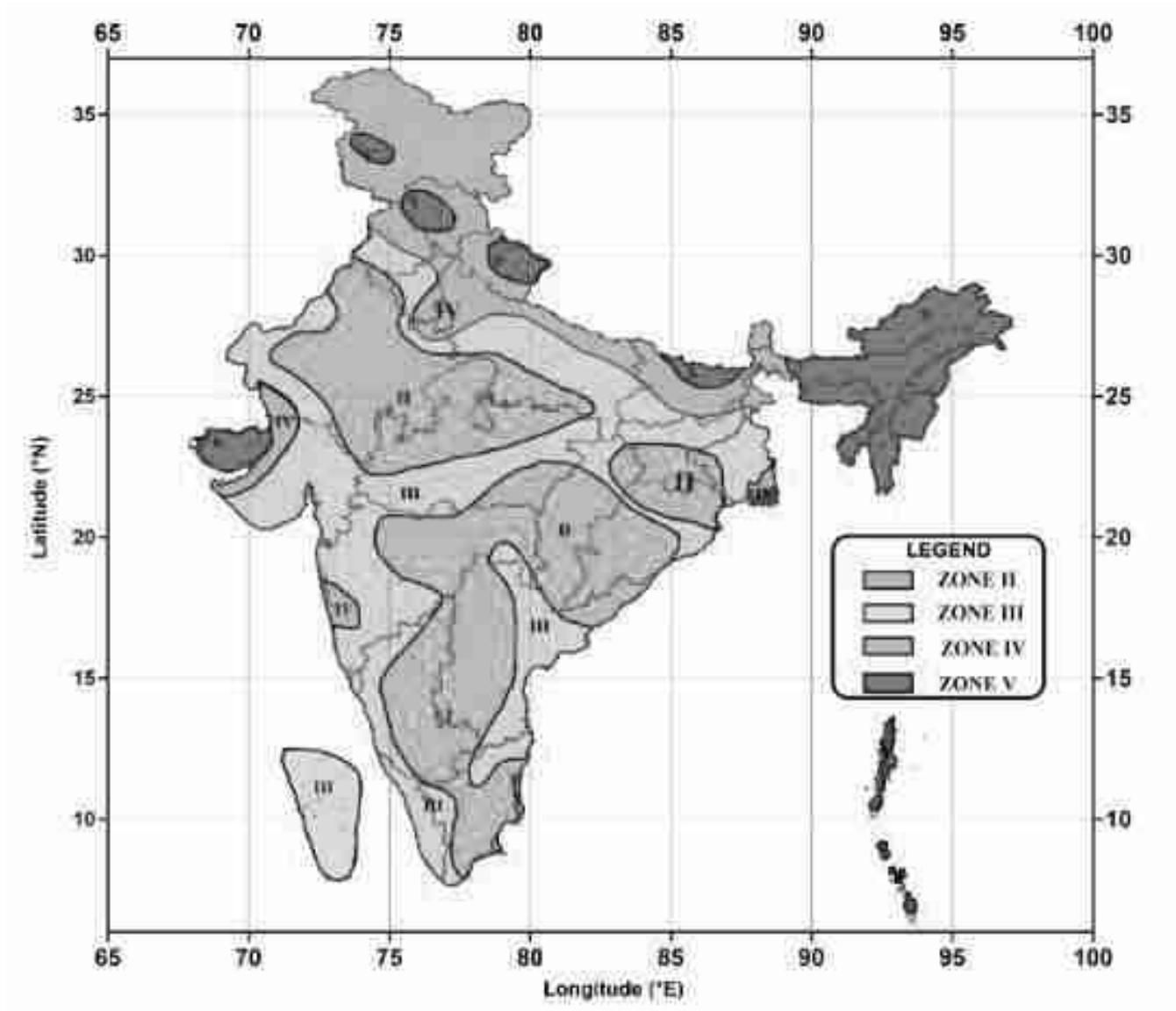




## B. SEISMIC DATA

From the seismic zone map of India as depicted in the **Figure No - 3.4**, it can be seen that the project site and study area falls in the Zone – II and is described as least active zone.

**Figure 3.4: Seismic Zone Map of India**







**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**C. Climate and Rainfall Data:**

The climate of Ariyalur district is sub-tropical. As per IMD data, 70 year normal rainfall for Ariyalur Rainfall gauge station is 1,096mm comprising 199mm during Jan-May transition period, 379mm in June – sept SW monsoon period, 518mm during Oct-Dec NE monsoon period. The last 10 years average annual rainfall is 1137.3 mm and is given in **Table No.3.8**. Rainfall histograms are presented in **Figure No - 3.5 & 3.6**.

**Table 3.8: Average Annual Rainfall Data (2012-2021)**

YEAR	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Rainfall
2012	10.26	11.1	44.64	215.27	73.81	215.05	219.15	281.78	142.85	200.84	106.61	16.04	1537.4
2013	0.5	15.84	17.46	1.95	23.69	30.12	25.14	194.66	118.83	102.85	233.9	118.4	883.34
2014	0.85	5.16	0	0	179.76	21.94	91.06	135.01	35.37	306.85	209.59	144.91	1130.5
2015	14.11	0	1.59	79.09	92.45	64.4	75.23	89.55	39.72	115.89	548.65	285.57	1406.25
2016	0.04	0	0.01	0	119.86	57.61	49.59	179.49	50.16	65.93	55.41	41.1	619.2
2017	60.91	0.01	6.88	0	3.06	45.02	12	66.04	99.16	66.82	254.12	88.92	702.94
2018	30.73	0.01	1.38	0.93	5.5	55.19	32.41	87.1	16.54	223.15	279.22	33.53	765.69
2019	0.73	0.87	0.01	0	1.56	5.38	59.77	130.1	277.01	189.97	293.44	248.8	1207.64
2020	18.26	0.63	0.08	8.85	27.65	27.86	127.82	77.81	104.89	110.97	236.52	481.36	1222.7
2021	348.76	27.96	4.73	16.73	77.21	56.97	54.09	132.28	129.35	302.09	658.23	89.6	1898
<b>Average</b>	48.515	6.158	7.678	32.282	60.455	57.954	74.626	137.382	101.388	168.536	287.569	154.823	1137.37

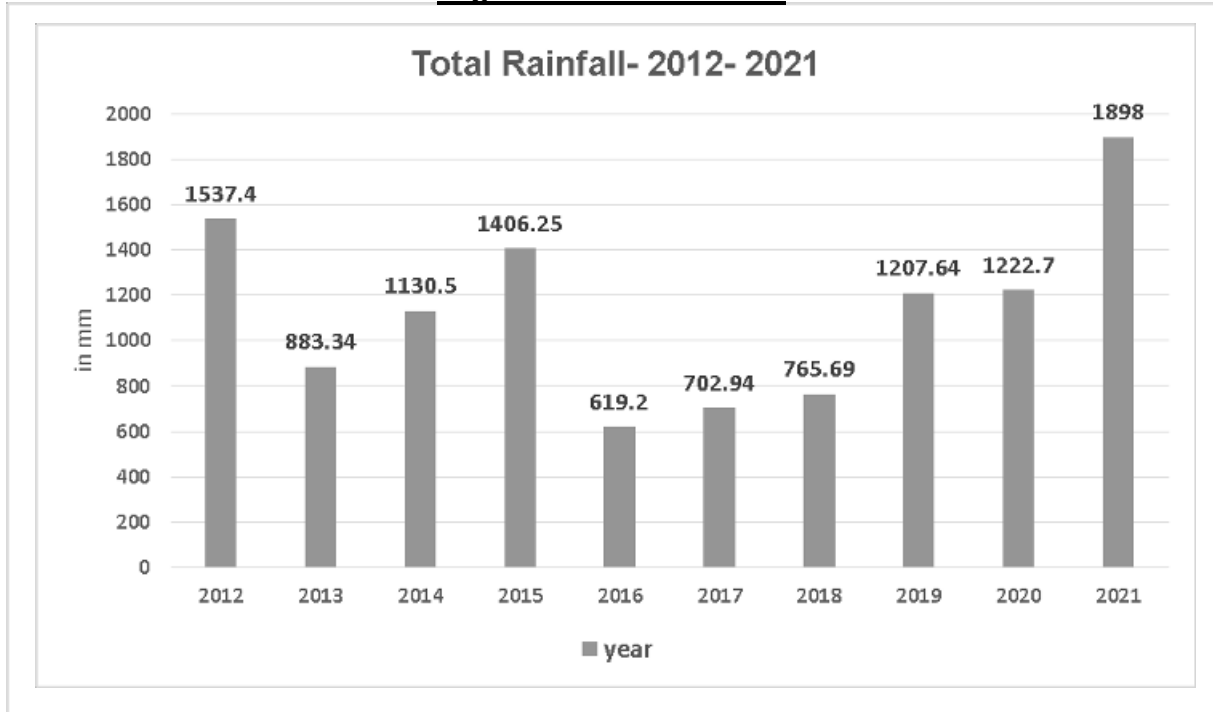
Source – IMD GRID – Ariyalur report



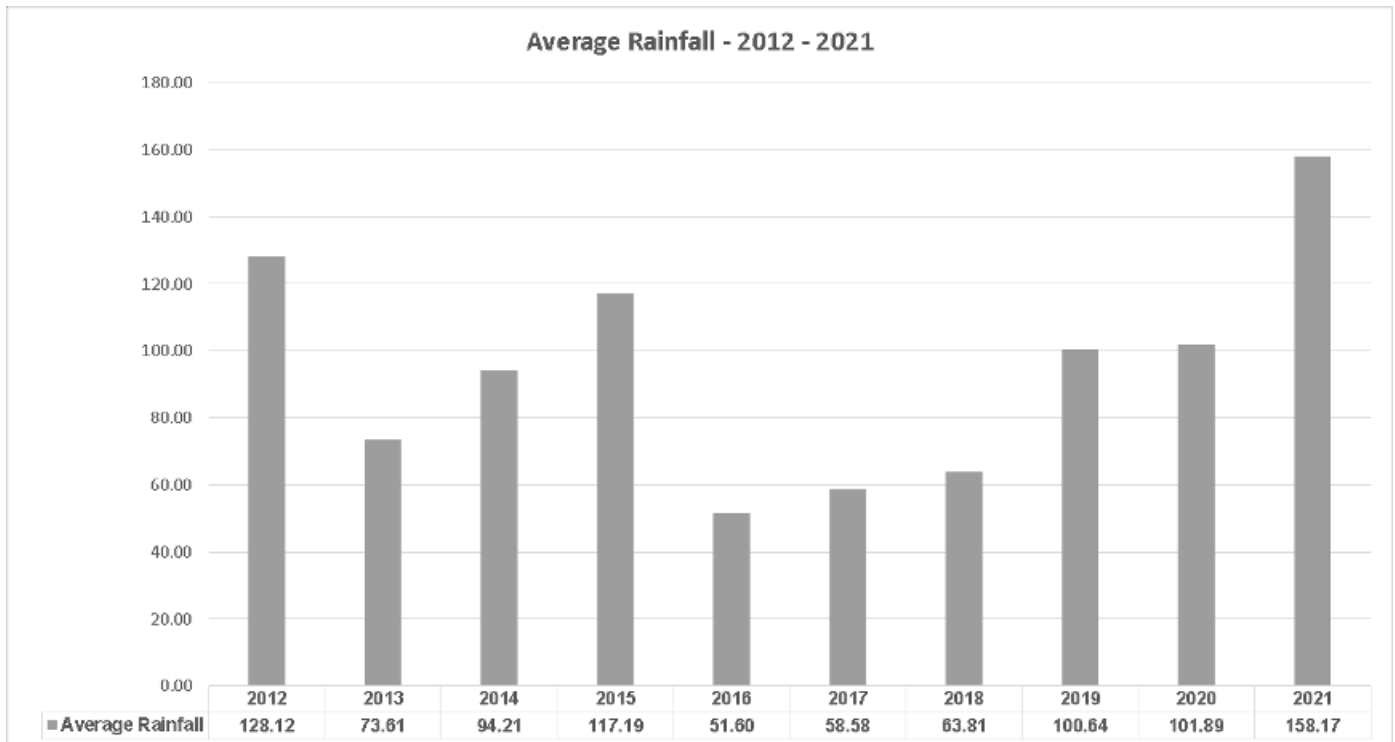


**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 3.5: Total Rainfall**



**Figure 3.6: Average Annual Rainfall**





### **3.3.1.3 SITE SPECIFIC METEOROLOGICAL DATA:**

Micrometeorology and microclimatic parameters were collected from the weather monitoring station. Data of wind velocity, wind direction, ambient temperature, relative humidity, were recorded throughout the monitoring period.

#### **DATA ANALYSIS:**

The temperature in the area during the study period ranged from 18.9°C to 34.7°C while the relative humidity varied between 33.0 – 99.0%. The wind speed during the study period ranged from <1.8 to 30.0 Km/hr. The predominant wind direction is from NE. The meteorological data are presented in **Table no – 3.9**. The average wind rose is depicted in **Figure No - 3.7**.

**Table 3.9: Meteorological Data**

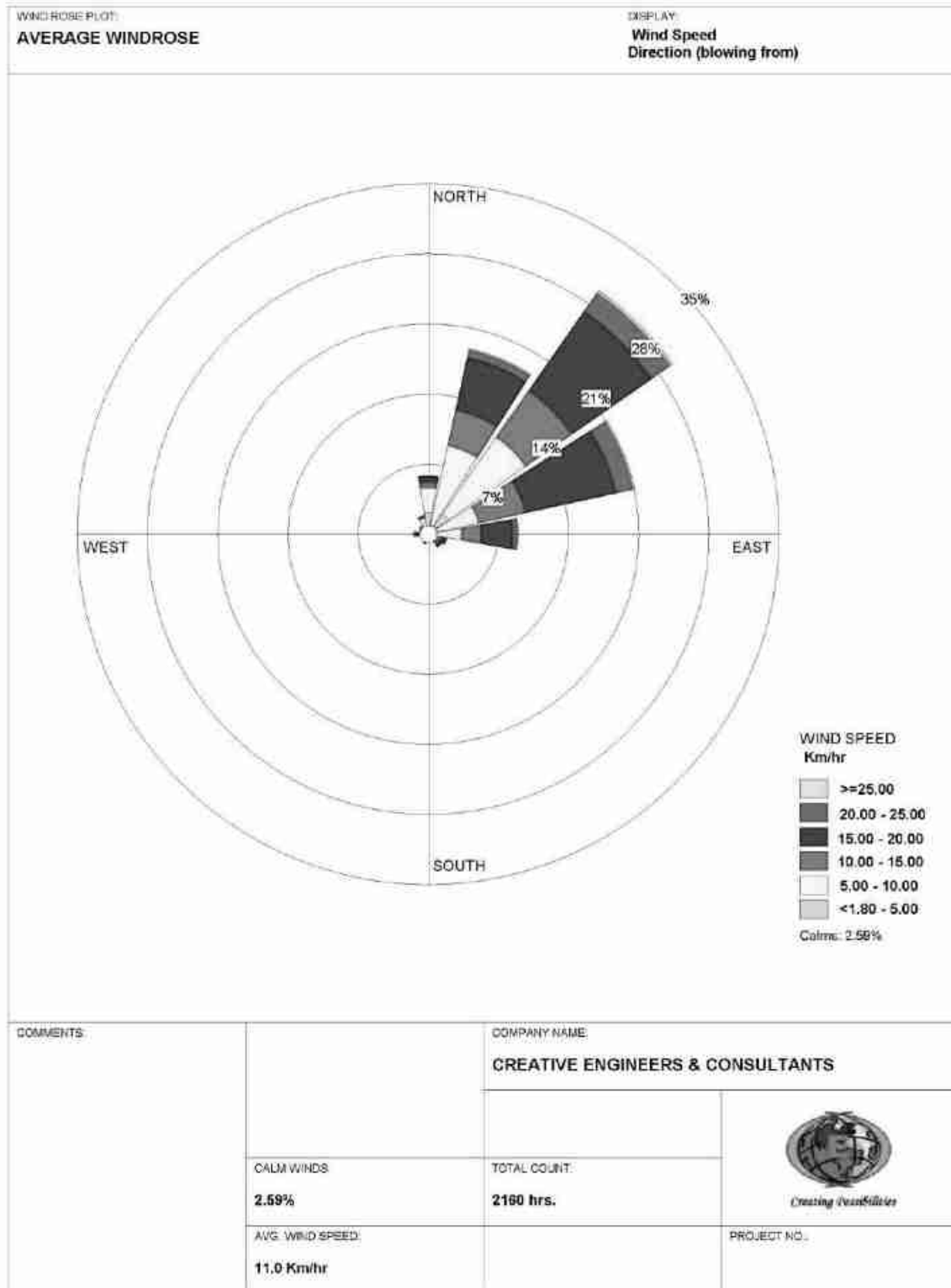
<b>Season: Winter Season, December 2023 to February 2024)</b>			
<b>S.NO</b>	<b>PARAMETERS</b>	<b>MIN</b>	<b>MAX</b>
1	Temperature In °c	18.9	34.7
2	Humidity in %	33.0	99.0
3	Wind speed in km/hr	<1.8	30.0
4	Predominant wind direction from	NE	
5	Rainfall in mm	101.5	





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 3.7: Average Wind Rose**



WRPLOT View - Latas Environmental Software





### 3.3.2 AMBIENT AIR QUALITY (AAQ):

Ambient Air quality has been assessed through a network of 5 ambient air quality stations. The following methodology has been considered for design of ambient air quality monitoring network in the area. Based on these criteria, 5 numbers of air sampling stations were selected in the area as shown below in Table No.3.10.

- ❖ Topography / terrain of study area.
- ❖ Populated areas within study area.
- ❖ Residential /sensitive areas within study area.
- ❖ Magnitude of surrounding industries.
- ❖ Representation of regional background levels.
- ❖ Representation of cross sectional distribution in down wind direction.
- ❖ Predominant wind direction and wind pattern.

**Table 3.10: Air Quality Monitoring**

1.	<b>Monitoring Period</b>	Winter Season ( Dec 2023 – Feb 2024)
2.	<b>Monitoring Location</b>	The location map showing Ambient Air Quality study stations are shown in <b>Figure No- 3.8.</b>
3.	<b>Methodology</b>	
	<b>Parameter</b>	<b>Protocol</b>
	a. Particulate Matter (PM10)	Gravimetric (IS 5182: Part 23:2017)
	b. Particulate Matter PM2.5	Gravimetric ( IS 5182: Part 24:2019)
	c. Sulphur Dioxide	Colorimetric (West & Gaeke Method) (IS 5182: Part 02: 2017)
	d. Nitrogen Dioxide	Colorimetric(Modified Jacob & Hocheiser Method) (IS 5182: Part 06:2017)
	e. Carbon Monoxide	CO Monitor
	f. Silica	Colorimetric (Molybdate Method) <b>NIOSH 7601 -2003</b>
4.	<b>Monitoring Frequency</b>	2 days in a week, 4 weeks in a month for 3 months in a season.

**Table 3.11: Air Quality Monitoring Locations**

S.NO	CODE	LOCATION	DISTANCE (KM)	DIRECTION
1	A1	Near mine lease area ottakovil	-	-
2	A2	Nallampathai Village	1.2km	SW
3	A3	Poianallur Village	1.6km	NE
4	A4	Kothur Village	1.2km	NW
5	A5	Salaiyakkurichi Village	1.8km	SE





**OTTA KOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTA KOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 3.8: Ambient Air Quality Study Stations**



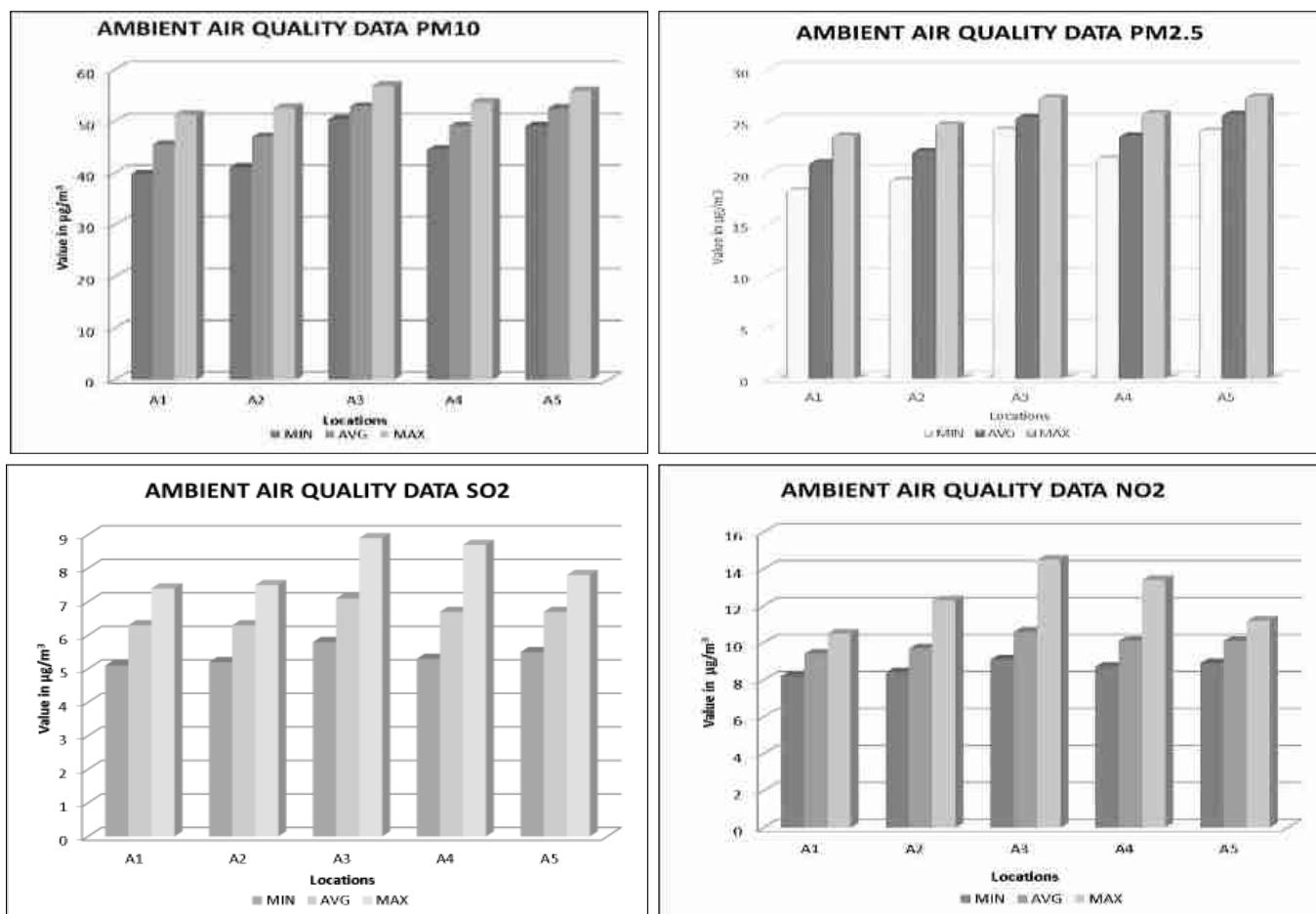


**Table 3.12: Ambient Air Quality Data**

PARAMETERS LOCATIONS	Cat.*	PM <sub>10</sub>			PM <sub>2.5</sub>			SO <sub>2</sub>			NO <sub>2</sub>		
		MIN	AVG	MAX	MIN	AVG	MAX	MIN	AVG	MAX	MIN	AVG	MAX
A1-Near mine lease area (Ottakovil)	I	39.8	45.5	51.3	18.3	21	23.6	5.1	6.3	7.4	8.2	9.4	10.5
A2-Nallampathai Village	R	41.1	47.0	52.6	19.3	22.1	24.7	5.2	6.3	7.5	8.4	9.7	12.3
A3-Poianallur Village	R	50.4	52.9	56.9	24.2	25.4	27.3	5.8	7.1	8.9	9.1	10.6	14.5
A4-Kothur Village	R	44.5	49.1	53.7	21.4	23.6	25.8	5.3	6.7	8.7	8.7	10.1	13.4
A5- Salaiyakkurichi Village	R	49.1	52.5	55.9	24.1	25.7	27.4	5.5	6.7	7.8	8.9	10.1	11.2
<b>NAAQ Limits</b>		<b>PM<sub>10</sub></b>			<b>PM<sub>2.5</sub></b>			<b>SO<sub>2</sub></b>			<b>NO<sub>2</sub></b>		
	*	<b>100</b>			<b>60</b>			<b>80</b>			<b>80</b>		
	**	<b>100</b>			<b>60</b>			<b>80</b>			<b>80</b>		

**\*Note:** Category: \* - Industrial, Residential, Rural and other area, \*\* – Ecologically Sensitive Area (notified by Central Government)

**Figure 3.9: Ambient Air Quality Data**





### 3.3.2.1 Results and Discussion:

The AAQ monitored data for all locations for above parameters are shown in **Table No - 3.12** and in **Figure No - 3.10**. Ambient Air Quality data during the study period is given in **Annexure- 9**. From the table it is seen that, in the ambient air, the PM<sub>10</sub> values were in the range of 39.8-56.9 µg/m<sup>3</sup>. PM<sub>2.5</sub> values were in the range of 18.3-27.4 µg/m<sup>3</sup>. SO<sub>2</sub> levels were ranging from 5.1– 8.9 µg/m<sup>3</sup>. NO<sub>2</sub> levels were ranging from 8.2-14.5 µg/m<sup>3</sup>.

The existing Ambient Air Quality levels for PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>2</sub>, are within the NAAQ standards prescribed CPCB limits of 100 µg/m<sup>3</sup>, 60 µg/m<sup>3</sup>, 80 µg/m<sup>3</sup> & 80 µg/m<sup>3</sup>. The CO values in all the locations were found to be below detectable limit. Silica values in the study area are found to be below detectable limit. (Detection limit – 0.05 mg/m<sup>3</sup>)

### 3.3.3 WATER ENVIRONMENT:

Assessment of baseline data on water environment includes Identification of water resources, Collection of water samples and Analyzing water samples collected for physico-chemical parameters as per standards. The water sampling was carried out for 5 locations. Details of the same has been provided below:

**Table 3.13: Water Quality Monitoring**

1.	<b>Monitoring Period</b>	Winter Season ( Dec 2023 – Feb 2024)			
2.	<b>Monitoring Location</b>	The location map showing water sampling locations are given in <b>Figure No.3.11</b> .			
	<b>Code</b>	<b>Location</b>	<b>Sample Type</b>	<b>Distance</b>	<b>Direction</b>
	<b>W1</b>	Near mine lease area ottakovil	Bore well	-	-
	<b>W2</b>	Nallampathai Village	Bore well	1.2km	SW
	<b>W3</b>	Poianallur Village	Bore well	1.6km	NE
	<b>W4</b>	Kothur Village	Bore well	1.2km	NW
	<b>W5</b>	Salaiyakkurichi Village	Bore well	1.8km	SE
3.	<b>Methodology</b>	Sampling - IS 3025 Part - I Analysis – IS 3025 relevant parts / APHA 23rd Edition			







**OTTA KOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTA KOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 3.10: Location of Water Sampling Stations**





**Table 3.14: Summary of Water Quality Data**

Season	December 2023 to February 2024	
Monitoring Locations	5 locations	
Parameters	Range of values	Limits*
pH at 25 °C	6.79 – 7.81	<b>6.5-8.5</b>
Total Dissolved Solids, mg/L	616 – 1035	<b>2000</b>
Chloride as Cl-, mg/L	139 – 271	<b>1000</b>
Total Hardness (as CaCO <sub>3</sub> ), mg/L	269 – 560	<b>600</b>
Total Alkalinity (as CaCO <sub>3</sub> ), mg/L	304– 398	<b>600</b>
Sulphates as SO <sub>4</sub> <sup>2-</sup> , mg/L	78.60 – 292	<b>400</b>
Iron as Fe, mg/L	0.03 – 0.08	<b>0.3</b>
Nitrate as NO <sub>3</sub> , mg/L	1.76 – 4.65	<b>45</b>
Fluoride as F, mg/L	0.33 – 0.54	<b>1.5</b>

### 3.3.3.1 Results and Discussion:

The results of the water sample analysis are shown in **Table No - 3.14**. The pH values of bore well water were ranging in between 6.79 – 7.81, TDS values were in the range of 616 – 1035mg/L. Chloride values were ranging from 139 – 271mg/L. Iron content was found to be in the range 0.03 – 0.08mg/L. The water quality of ground water is found to be within the prescribed Permissible limits of IS: 10500 Norms in the absence of an alternative source as per Drinking Water Specifications. The water quality data is provided in **Annexure-10**.

### 3.3.4 NOISE ENVIRONMENT:

Operational phase of this project may lead to increase noise levels from the existing levels at least in and around the project area. As noise level beyond permissible limits will cause adverse impacts on the environment, it has become imperative to assess the noise levels in and around the mine area. Noise level measurements were taken at the 5 locations during the monitoring period. Details of the same are provided below:





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Table 3.15: Noise Level Monitoring**

1.	<b>Monitoring Period</b>	Winter Season ( Dec 2023 – Feb 2024)		
2.	<b>Monitoring Location</b>	The location map showing noise monitoring locations are given in <b>Figure No.3.11</b> .		
	<b>Code</b>	<b>Location</b>	<b>Distance</b>	<b>Direction</b>
	<b>N1</b>	Near mine lease area ottakovil	-	-
	<b>N2</b>	Nallampathai Village	1.2km	SW
	<b>N3</b>	Poianallur Village	1.6km	NE
	<b>N4</b>	Kothur Village	1.2km	NW
	<b>N5</b>	Salaiyakkurichi Village	1.8km	SE
3.	<b>Methodology</b>	Noise levels were measured using sound level meter manufactured by (Model No - SL- 4001, Make - Lutron). Sound Pressure Level (SPL) measurements were measured at all locations where ambient air quality monitored; one reading for every hour was taken for 24 hours.		
4.	<b>Monitoring Frequency</b>	Once during monitoring period		





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 3.11: Location of Noise Sampling Stations**

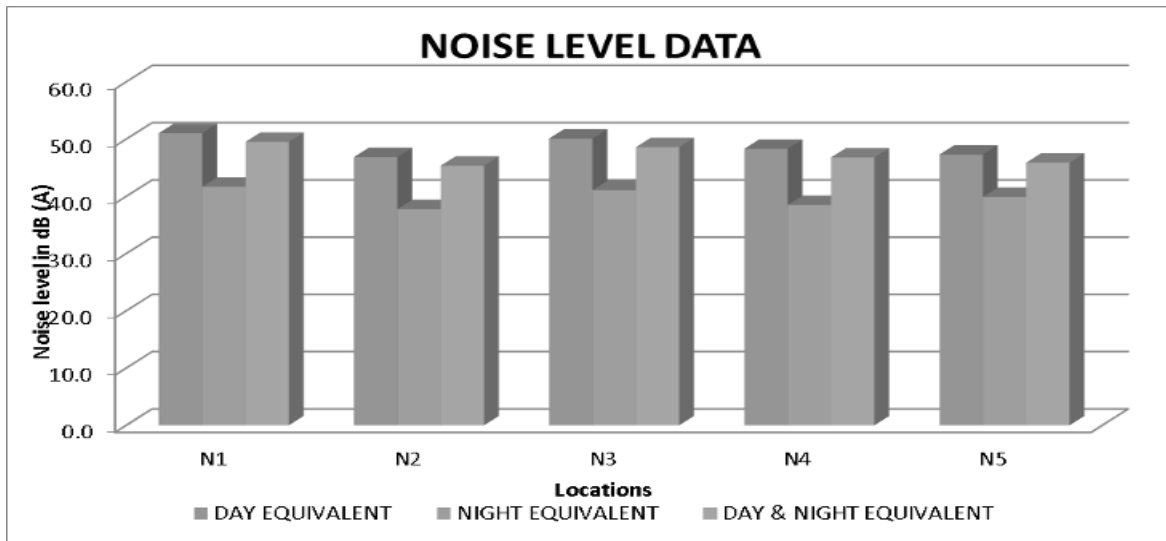




**Table 3.16: Ambient Noise Level in dB (A)**

Date and time of monitoring	N1	N2	N3	N4	N5
Day Equivalent	51.0	46.9	50.1	48.3	47.3
Night Equivalent	41.7	37.8	41.1	38.5	39.9
Day & Night Equivalent	49.5	45.4	48.6	46.8	45.9
Limits: As per CPCB: Work zone Exposure in 8 hr - 90 dB(A)					
As per MoEF&CC: Residential: Day equivalent - 55 dB(A); Night equivalent - 45 dB(A)					

**Figure 3.12: Noise Level Data**



### 3.3.4.1 Results and Discussion:

The results of noise levels for all locations are given in **Table No-3.16**. The noise values for all above locations are shown in a comparative chart given in **Figure No - 3.12**. In the buffer zone, day Equivalent Noise (Leq-d) noise levels were ranging from 47.3 dB(A) to 51.0 dB(A) and night Equivalent Noise (Leq-d) levels ranged between 37.8 dB(A) to 41.7 dB(A). While comparing with the MOEF&CC Norm of 55 dB(A) for day time and 45 dB(A) for night time, the monitored ambient noise levels were within the limit values for Residential areas.

### 3.3.5 SOIL CHARACTERISTICS:

Soil samples were collected in 5 locations in the core and buffer zone to analyse the physiochemical characteristics of the soil in the area. Elaborate details of the same has been provided below.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Table 3.17: Soil Quality Monitoring**

1.	<b>Monitoring Period</b>	Winter Season ( Dec 2023 – Feb 2024)		
2.	<b>Monitoring Location</b>	The location map showing soil sampling locations are given in <b>Figure No.3.13.</b>		
	<b>Code</b>	<b>Location</b>	<b>Distance</b>	<b>Direction</b>
	<b>S1</b>	Mine lease area	-	-
	<b>S2</b>	Nallampathai Village	1.2km	SW
	<b>S3</b>	Poianallur Village	1.6km	NE
	<b>S4</b>	Kothur Village	1.2km	NW
	<b>S5</b>	Salaiyakkurichi Village	1.8km	SE
3.	<b>Methodology</b>	Composite soil samples using sampling augers and field capacity apparatus.		
4.	<b>Monitoring Frequency</b>	Once during monitoring period		





**OTTA KOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTA KOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 3.13: Location of Soil Sampling Stations**





**Table 3.18: Soil Quality Data**

S.No	Parameters	Unit	S1	S2	S3	S4	S5
1	pH at 25°C	-	7.46	6.69	7.32	7.45	6.95
2	Electrical Conductivity	(µmhos/cm)	120.3	80.6	76.95	110.5	76.58
3	Dry matter content	%	96.58	97.65	97.36	97.48	96.55
4	Water Content	%	3.42	2.35	2.64	2.52	3.45
5	Organic Matter	%	0.95	0.64	1.59	2.12	0.74
6	Soil texture	-	SANDY LOAM	LOAM	CLAY LOAM	SILT LOAM	LOAM
7	Grain Size Distribution	%	63.54	42.89	28.41	27.22	31.69
8	i. Sand	%	23.69	32.54	33.08	53.54	42.51
9	ii. Silt	%	12.77	24.57	38.51	19.24	25.8
10	iii. Clay	%	1.95	1.67	2.16	3.36	1.75
11	Phosphorous	µg/g	470	632	371	266	560
12	Sodium	mg/kg	292	396	510	532	362
13	Potassium	mg/kg	162	215	456	640	216
14	Total Nitrogen	mg/kg	BDL(D.L.0.02)	BDL(D.L.0.02)	BDL(D.L.0.02)	BDL(D.L.0.02)	BDL(D.L.0.02)
15	Total Sulphur	%	3.2	3.5	3.6	3.9	3.7
16	Water Holding Capacity	%	20.6	24.3	26.5	20.3	26.9
17	Porosity	%					

### 3.3.5.1 Results and Discussion:

Results of the soil samples show that the pH values were ranging between 6.69 to 7.46 and Electrical Conductivity values were ranging between 76.58 – 120.3 µmhos/cm. Soils are generally silt loam type. Organic matter values were ranging between 0.64 – 2.12 %. Total Nitrogen values were ranging between 162 - 640 mg/kg. Phosphorus values were ranging between 1.67 – 3.36 µg/g. Potassium values were ranging between 292 -532 mg/kg. Sodium values were ranging between 266- 632 mg/kg. Total Sulphur values were observed to be BDL. The soil quality data for the 5 samples collected and analyzed are provided in **Table No – 3.18.**

### 3.4 LAND ENVIRONMENT - LANDUSE & LAND COVER

For preparing an impact statement, aspects of the land conditions are covered under land use. An industrial project / mine can cause changes in land use, soil process in different intensities depending upon the size of the project and distance involved between the industries and the area. Here, land use status for a radius of 10 km has been studied.







### 3.4.1 DATA USED AND METHODOLOGY

For the present study on land use pattern of buffer area around the quarry, an archived historical data of Landsat 9 data has been used as base data (Figure No.3.14 has been used to generate the require landuse map showing their spatial pattern within the buffer area. The table showing data used for generation of information on landuse and subsequent GIS analysis is given below

**Table 3.19: RS satellite image used for the present study**

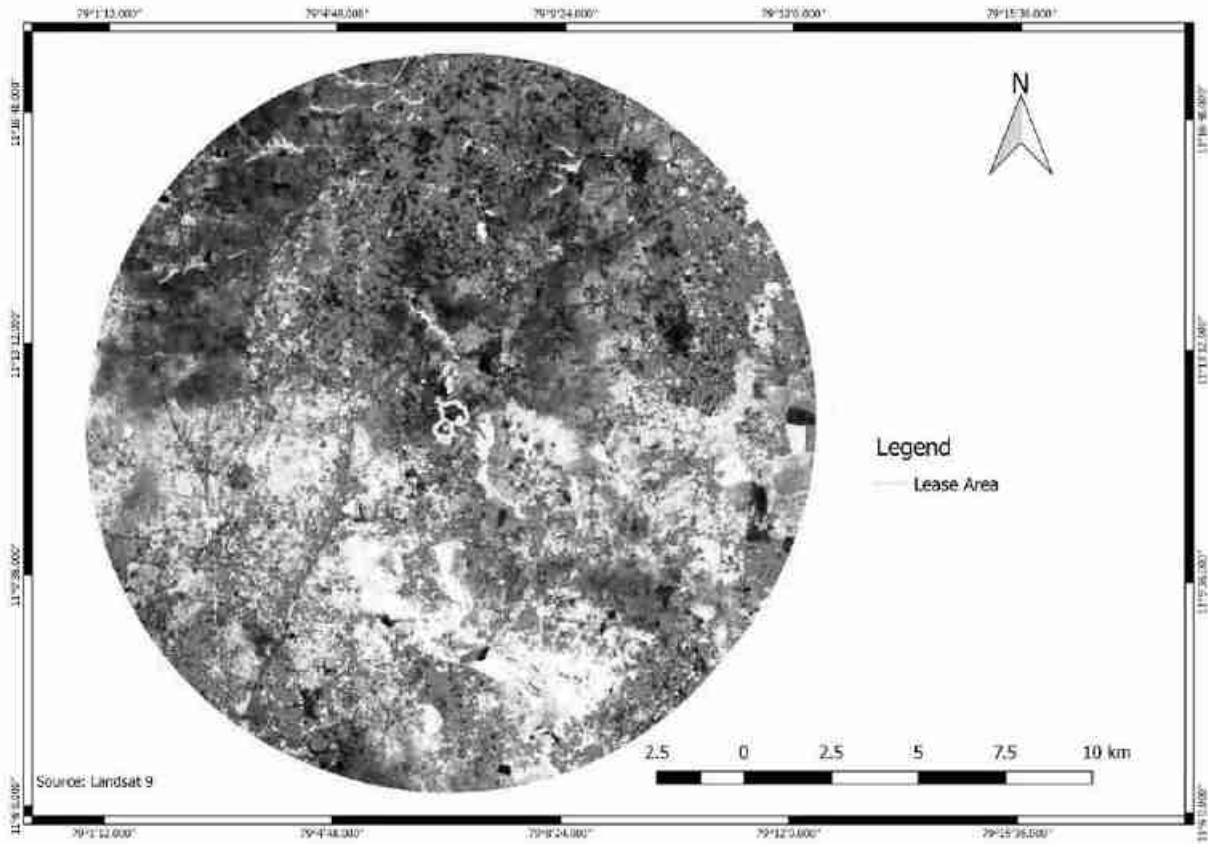
S.No	Type of Data	Period	Generated Map
1.	Landsat 9	February	Landuse (LU) Map showing 10 Km buffer zone

Interpretation of satellite image requires understanding of relationship between image elements and their respective terrain elements. Since, in the present study, the landuse information is obtained using visual interpretation, an interpretation key is generated. The image elements such as color, tone, texture, size, shape and associated elements have been used to delineate various landuse categories. The landuse categorization and nomenclature used in the present study is based on the national level landuse classification system, which is adopted for the entire country as recommended by National Remote Sensing Centre (NRSC), Department of Space, Government of India.





**Figure 3.14 : Landsat 9 Satellite Data of the Study Area**



**Table 3.20: Major Landuse Units of the Study Area**

S.No	Major Category	Landuse unit
1	Built-Up Land	Village, Town, Industrial / Vacant Area
2	Agricultural Land	Crop Land Fallow Land Plantation Farm Land
3	Forest Land	Open Scrub Forest
4	Waste Land Mining Area	Land With Scrub/ Land Without Scrub Barren Rocky/ Stony Waste Quarries / Abandoned Quarries
5	Waterbodies	Odais/Tanks/ Rivers / Streams

Such LandUse and Land cover (LULC) categories have been verified using field check and identified sample sites within the buffer area, verified on field and transferred into GIS geo-coordinates using observation coordinates received from hand held GPS (global positioning system) instrument. Thus, an interpreted final landuse map has been generated (Figure No. 3.14) using above such elaborate procedure and transformed into GIS environment for its spatial distribution and area estimation. Spatial nature and extent of various landuse categories within the buffer area is discussed is given below:





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

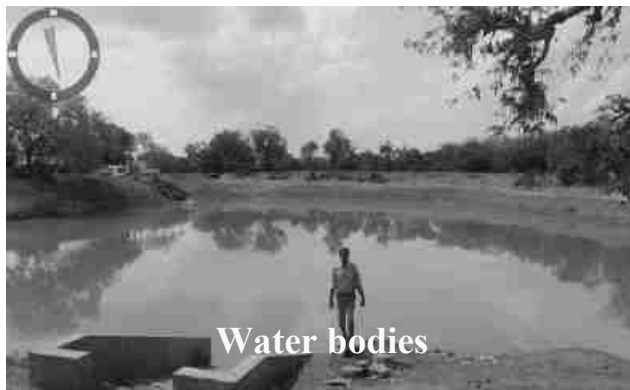
**PHOTOGRAPH SHOWING DIFFERENT LAND USE**



**Agriculture Land**



**Barren Land**



**Water bodies**



**Plantation**



**Land With Scrub**



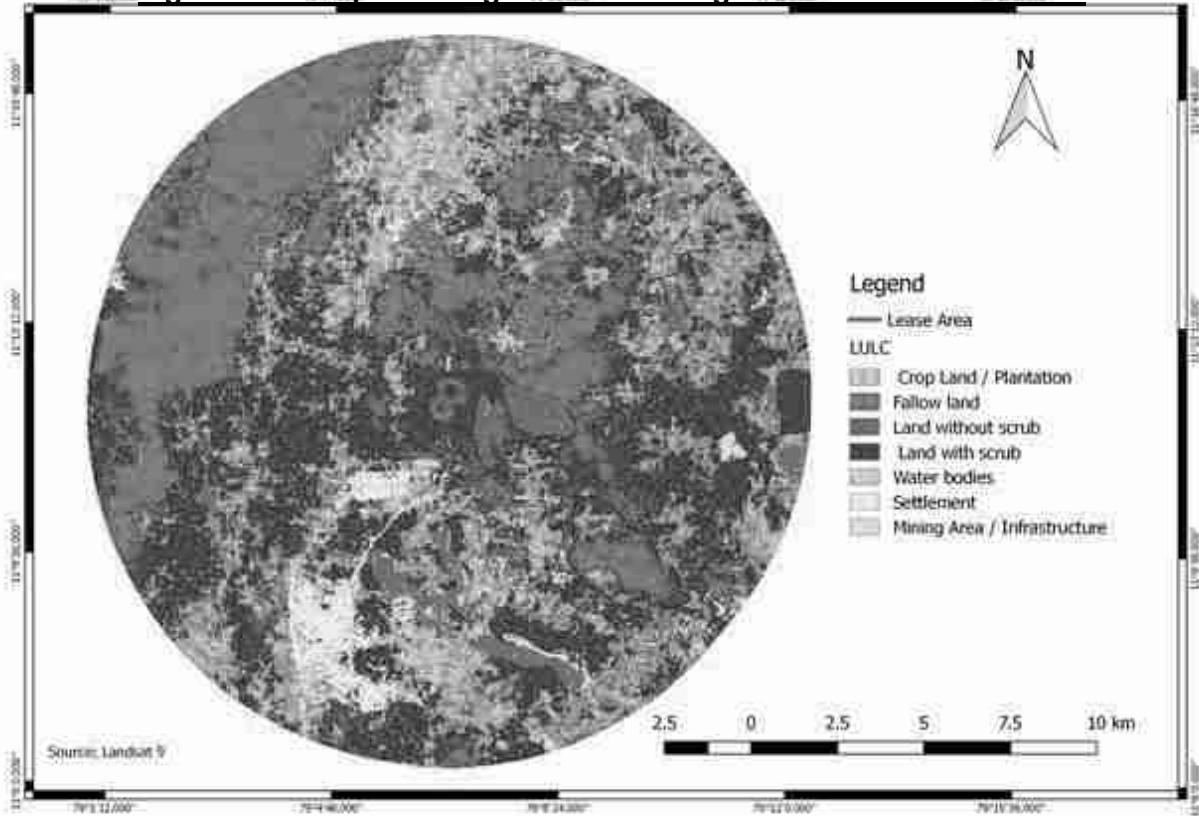
**Land Without Scrub**





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 3.15: Map Showing Land Use Categories around 10km Buffer**



**Table 3.21: Area Estimation of Landuse Categories in Buffer Zone**

S.No	Landuse Feature	Area (Sq.Km)	Percentage
1	Agriculture/ Plantation	96.90	27.75
2	Fallow Land	80.28	22.99
3	Land With out Scrub	20.25	5.80
4	Land With Scrub	132.48	37.95
5	Water bodies	1.49	0.43
6	Settlement	16.21	4.64
7	Mining	1.52	0.44
	<b>Total</b>	<b>349.14</b>	<b>100</b>

From the above table it is seen that 27.75% of the buffer area is classified under the Agriculture/ Plantation followed by 22.99 % of fallow land, 37.95 % constitutes land with scrub, 5.80 % constitutes land without scrub and the balance falls under other land use categories.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---

**3.4.2 LAND USED BASED ON REVENUE RECORDS:**

The lease area falls in Ottakovil Village, Ariyalur Taluk, Ariyalur District, Tamil Nadu state and the study area for the land use pattern (10 km radius) has been divided into four zones viz. Zone-I (0-2 km), Zone-II (2-5 km), Zone-III (5-10 km) and Zone-IV (0-10 km) respectively. The land use pattern of rural villages as per Census falling within 10 km radius around the proposed project area is presented in Table no - 3.22.



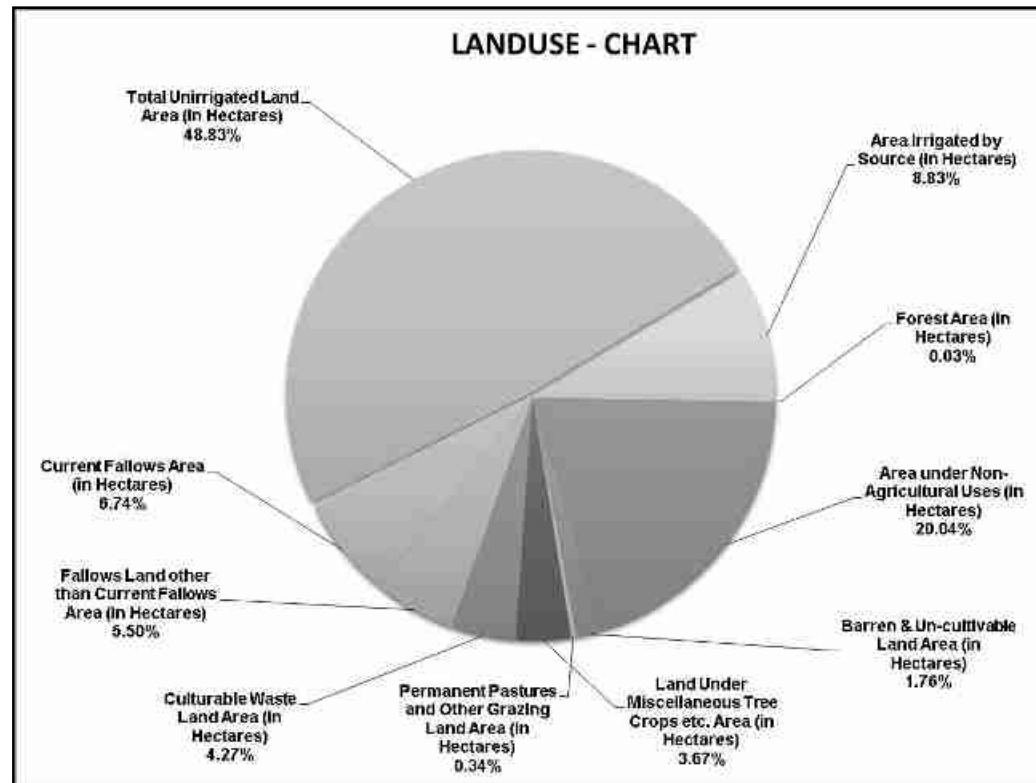


**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Table 3.22: Land Use Pattern of the Study Area Falling Within 10 Km Area in (Ha)**

Distance	Total Geographical Area	Forest Area	Area under Non-Agricultural Uses	Barren & Un-cultivable Land Area	Permanent Pastures and Other Grazing Land Area	Land Under Miscellaneous Tree Crops etc. Area	Culturable Waste Land Area	Fallows Land other than Current Fallows Area	Current Fallows Area	Total Un irrigated Land Area	Area Irrigated by Source
0- 2 KM	1795.12	0	505.18	122.82	0	100	4.1	0	10	979.36	73.66
2 - 5 KM	9807.92	0	1369.67	330.22	79.26	375.96	306.53	802.69	758.35	4775.58	1009.66
5-10 KM	27379.62	10	5938.66	232.92	51.76	956.01	1355.35	1340.09	1858.86	13278.49	2357.48
0-10 KM	38982.66	10	7813.51	685.96	131.02	1431.97	1665.98	2142.78	2627.21	19033.43	3440.8

**Figure 3.16: Landuse within the Buffer Zone Area**





### **3.5 BIOLOGICAL ENVIRONMENT:**

Study of the biological environment of any area comprises of well-planned ecological survey for the floristic and faunal composition of the areas through various scientifically planned techniques.

#### **3.5.1 FLORA:**

An ecological survey of the study area was conducted with reference to listing of species and assessment of the existing baseline ecological conditions. The objective of the survey is as follows:

- ❖ Generate existing data from field observations of various terrestrial floristic occurrences.
- ❖ Collect secondary data from Government records as well as through discussion with Forest officials, knowledgeable public etc.,
- ❖ Compare the data with authentic past records to identify changes, if any.
- ❖ Identify the impact of project operations on the biological aspects.

To accomplish the above objectives, a general ecological survey covering an area of 10 km radius was conducted. The locations were identified for phyto-sociological aspects to assess the current status.

##### **3.5.1.1 Sampling Methodology:**

In order to provide representative ecological status for the study area, the 10-km radius buffer 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). 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.

**Phyto-sociological Survey:** Phyto-sociological parameters, viz., Abundance (i.e., density), average and minimum stems were measured to determine the distribution and ecological aspects of the species. Abundance is a measure of the density of distribution of an individual species within a given area. It is calculated by summed individuals of a species. Average species number is calculated for all quadrates; similarly, minimum number of individuals





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

represented is recorded at quadrats level. A total of 5 quadrats were laid down in core area and a total of 20 quadrats were laid out in four quartiles (5 each) of buffer area.

**Quadrats method for flora :** A total of 100 x 100 m Grid was laid for buffer zone of 300m from Core Zone. In that grid 10 × 10m sub-quadrat were laid down randomly within core, PIZ and 10kms buffer area; each quadrat was laid to assess the trees (>5 cm GBH) and 5 × 5 m sub-quadrat nested within the quadrat for shrubs and two plot 1 × 1 m for herbs. The quadrats were laid apart to maximize the sampling efforts and minimize the species homogeneity, such as small stream area, Mining area, Working pit, Old quarries, agricultural areas, tank bunds, farm forestry plantations, natural forest area, avenue plantations, house backyards, etc. In each sample quadrat, individuals belonging to tree, shrub and herb species were recorded separately, and have been identified on the field. The prevailing land use and habitat quality has been noted down for each location on the field.

**Vegetation Analysis using index:** Species diversity will be calculated by using Shannon and Wiener (1963) formula as follows:

$$H' = - \sum_{i=1}^R p_i \ln p_i$$

Whereas,

H' is Shannon index of general diversity,

*p<sub>i</sub>* is often the proportion of individuals belonging to the *i*th species in the dataset of interest.

Evenness index was calculated as:  $E = H'/H_{max}$ ,

Whereas  $H_{max} = \log_2$  (number of species in the plot)

**A.CORE ZONE:**

The lease area is a non forest, private land. The lease area is mostly barren interspersed with with mainly *Nuna tree*. In the lease periphery few vembu and panai trees are observed. There are 5 trees species followed by 7 shrubs and 9 herbs and 3 grass species were recorded in the core zone. The detailed list of plants found in the core zone are given in Table no – 3.23.

**Table 3.23: List of Floristic Species in the Core Zone**

Sl.No	Species Name	Common Name	Family
<b>Trees</b>			
1	<i>Acacia nilotica</i>	Karuvelan	Fabaceae







**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

Sl.No	Species Name	Common Name	Family
2	<i>Morinda tinctoria</i>	Nuna	Rubiaceae
3	<i>Prosopis juliflora</i>	Cimaikkaruvel	Fabaceae
4	<i>Azadirachta indica</i>	Vembu	Meliaceae
5	<i>Borassus flabelliformis</i>	Panna-maram	Arecaceae
<b>Shrubs</b>			
1	<i>Sida cordifolia</i>	Sida plant	Malvaceae
2	<i>Justicia adhatoda</i>	Adathoda	Acanthaceae
3	<i>Sida acuta</i>	Palambasi	Malvaceae
4	<i>Ricinus communis</i>	Amanakku	Euphorbiaceae
5	<i>Nerium indicum</i>	Arali	Apocynaceae
6	<i>Calotropis gigantea</i>	Yerukku	Apocynaceae
7	<i>Lantana camara</i>	Unni chedi	Verbenaceae
<b>Herbs</b>			
1	<i>Leucas aspera</i>	Thumbai	Lamiaceae
2	<i>Parthenium hysterophorus</i>	Parthenium	Asteraceae
3	<i>Tridax procumbens</i>	Vettukai poondu	Asteraceae
4	<i>Anisomeles indica</i>	Marutti	Lamiaceae
5	<i>Achyranthes aspera</i>	Nayuruvi	Amaranthaceae
6	<i>Solanum xanthocarpum</i>	Kandangkattari	Solanaceae
7	<i>Abutilon indicum</i>	Tutti	Malvaceae
8	<i>Acalypha indica</i>	Kupaimeni keeri	Amaranthaceae
9	<i>Vinca rosea</i>	Nithiyakalyani	Apocynaceae
<b>Grasses</b>			
1	<i>Chloris barbata</i>	Kodai pullu	Poaceae
2	<i>Cynodon dactylon</i>	Arugampillu	Poaceae
3	<i>Cyprus rotundus</i>	Korai	Cyperaceae

**B. PROJECT IMPACT ZONE (PIZ-300m BUFFER FROM CORE ZONE):**

The PIZ is a dry area comprising with thorny bushes, a total of 13 tree species from 6 families are recorded in the PIZ. Data analysis shows that Shannon value index was 3.193, which shows the diversity indexes was less due to dry area. Fisher alpha index also shows the less dominance of individual in the study area. From the above result it is clearly shows the PIZ is disturbed and has less diversity. Hence it is important to improve the plantation of the study area. The list of plants found in the PIZ are given in Table no – 3.24. The detailed list of plants found in the PIZ is given below.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**PHOTOGRAPH SHOWING LEASE AREA**



**Table 3.24: Phyto-Sociological Survey Of Trees In PIZ**

Species	Family	Density	Frequency	BA	Rd	Rdo	Rf	IVI
Acacia auriculiformis	Fabaceae	4	3	0.41	3.54	4.22	6.25	14.01
Acacia leucophloea	Fabaceae	4	2	0.32	3.54	3.25	4.16	10.96
Acacia nilotica	Fabaceae	19	7	1.61	16.81	16.53	14.58	47.93
Albizia amara	Fabaceae	1	1	0.16	0.88	1.66	2.083	4.63
Albizia lebeck	Fabaceae	2	2	0.25	1.77	2.56	4.16	8.49
Azadirachta indica	Meliaceae	12	4	1.26	10.62	12.93	8.33	31.89
Borassia flabelliformis	Arecaceae	4	3	0.82	3.54	8.47	6.25	18.26
Cassia fistula	Fabaceae	2	1	0.22	1.77	2.31	2.08	6.17
Ficus religiosa	Moraceae	3	2	1.03	2.65	10.54	4.16	17.36
Mangifera indica	Anacardiaceae	3	2	0.28	2.65	2.92	4.16	9.74
Morinda pubescens	Rubiaceae	24	10	2.12	21.24	21.75	20.83	63.82
Pongamia pinnata	Fabaceae	2	1	0.26	1.77	2.66	2.08	6.51
Prosopis juliflora	Fabaceae	28	8	0.39	24.78	3.96	16.66	45.41
Samanea saman	Fabaceae	5	2	0.61	4.42	6.23	4.16	14.82

*Rd- Relative Density, Rdo- Relative dominance, Rf – Relative Frequency, IVI – Importance Value Index*

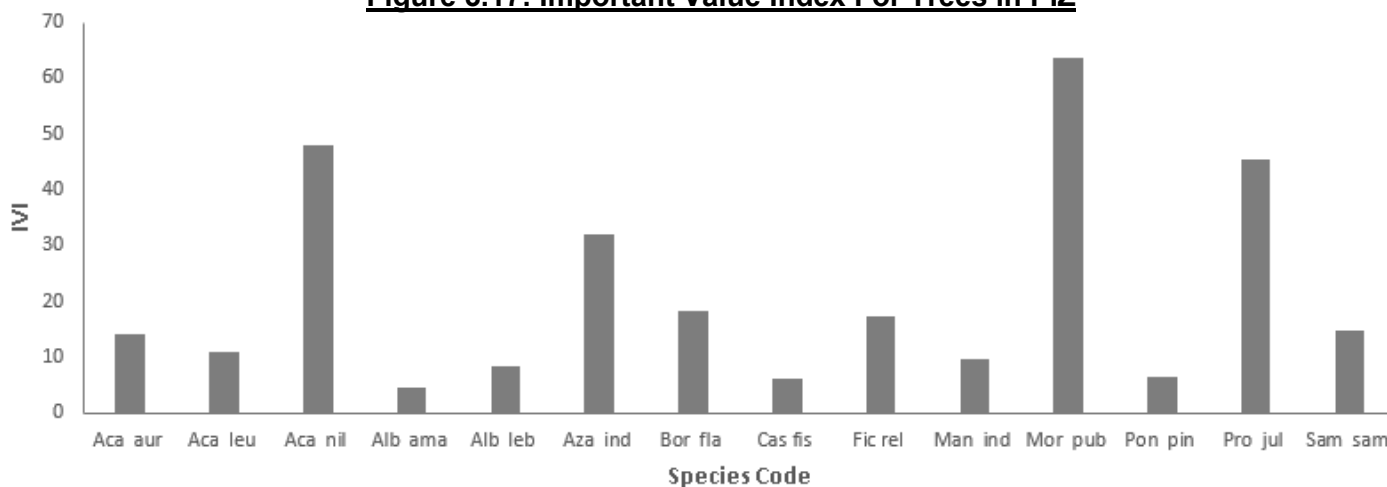




**Table 3.25: Species Diversity index of trees in PIZ**

	Diversity Index	Lower	Upper
Species	14	14	14
Individuals	113	113	113
Dominance	0.1466	0.1142	0.1791
Simpson	0.8534	0.8209	0.8858
Shannon	3.193	2.947	3.439
Evenness	0.6375	0.6375	0.6375
Fisher alpha	4.208	2.846	5.57
Berger-Parker	0.2478	-	-

**Figure 3.17: Important Value Index For Trees in PIZ**



**C.BUFFER ZONE:**

The buffer zone is mainly dominated with fallow land, agriculture and plantation. Agriculture activity was mainly depends on monsoon season only. Vannankurichi RF is around 8.1 km from the lease area and dominated with Eucalyptus globulus. The forest department is converting the low yielding species to high yielding species in the forest area like Mango & Munthiri. Common species are like Morinda tinctoria, Prosopis juliflora, Sygygium cumuni, Azadirachta indica, Borassus flabellifer, Albizia lebbeck, Acacia auriculiformis, etc are dominated in the buffer zone. The detailed list of plants found in the Buffer zone is given in Table no – 3.26. Letter has been obtained from DFO, Ariyalur vide C.No.4063/2023/D dated 10.11.2023 wherein the list of flora and fauna within the 10Km radius has been provided. **(Annexure-14)**

**Table 3.26: List of Floristic Species in the Buffer Zone**

Sl.No	Species	Family	Common Name
<b>Tress</b>			





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

1	Acacia auriculiformis	Fabaceae	Pencil tree
2	Acacia leucophloea	Fabaceae	Valvelam
3	Acacia nilotica	Fabaceae	Karuvelan
4	Adina cordifolia	Rubiaceae	Manjakadambu
5	Aegle marmelos	Rutaceae	Vilvamaran
6	Albizia amara	Fabaceae	Vagai
7	Albizia lebbek	Fabaceae	Vagai
8	Albizia odoratissima	Fabaceae	Karuvagai
9	Anacardium occidentale	Anacardiaceae	Munthiri
10	Annona squamosa	Annonaceae	Siththa
11	Artocarpus heterophyllus	Moraceae	Jackfruit
12	Azadirachta indica	Meliaceae	Vembu
13	Bambusa arundanacea	Poaceae	Mungil
14	Madhuca longifolia	Sapotaceae	Iluppai
15	Bauhinia racemosa	Fabaceae	Aatti
16	Borassus flabelliformis	Arecaceae	Panna-maram
17	Butea monosperma	Fabaceae	Flame of Forest
18	Caesalpinia pulcherrima	Fabaceae	Mayilkondrai
19	Calophyllum inophyllum	Clusiaceae	Punnai
20	Carica papaya	Caricaceae	Pappali
21	Cassia fistula	Fabaceae	Konrai
22	Cassia siamea	Caesalpinaceae	Manja konnai
23	Casuarina equisetifolia	Casuarinaceae	Savukku
24	Ceiba pentandra	Bombacaceae	Silk-Cotton Tree,
25	Citrus limon	Rutaceae	Lemon
26	Cocus nucifera	Arecaceae	Tennai
27	Dalbergiasissoo	Fabaceae	Indian rosewood
28	Delonix elata	Fabaceae	Perungondrai
29	Delonix regia	Fabaceae	Gulmohar
30	Dichrostachis cinerea	Fabaceae	Sickle Bush,
31	Emblica officinalis	Phyllanthaceae	Nelli
32	Eucalyptus globulus	Myrtaceae	Blue gum
33	Limonia acidissima	Rutaceae	Vilamaram
34	Ficus benghalensis	Moraceae	Aalamaram
35	Ficus hispida	Moraceae	Aarasu
36	Ficus religiosa	Moraceae	Arasamaram
37	Ficus religiosa	Moraceae	Poarasamaram
38	Leucaena leucocephala	Fabaceae	Subabul
39	Madhuca indica	Sapotaceae	Iluppai
40	Madhuca longifolia	Sapotaceae	Iluppai
41	Mangifera indica	Anacardiaceae	Maamaram
42	Manilkara zapota	Sapotaceae	Sappota
43	Melia azadirachta	Meliaceae	Malaivembu
44	Melia dubia	Meliaceae	Karuvembu
45	Mimusops elengi	Sapotaceae	Magizhamboo
46	Morinda tinctoria	Rubiaceae	Nuna





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

47	Moringa oleifera	Moringaceae	Murungai
48	Murraya koenigii	Rutaceae	Curry leaf
49	Musa paradisiaca	Musaceae	Valzhlai
50	Peltophorum pterocarpum	Fabaceae	Kilukiluppai
51	Phoenix sylvestris	Arecaceae	Eecham
52	Phyllanthus emblica	Euphorbiaceae	Nelli
53	Pithecellobium dulce	Fabaceae	Kodukkapuli
54	Polyalthia longifolia	Annonaceae	Nietilingam
55	Pongamia pinnata	Fabaceae	Pungai
56	Prosopis juliflora	Fabaceae	Seemai karuvel
57	PterocarpusSantalinus	Fabaceae	Red Sandal Wood
58	Psidium guava	Myrtaceae	Koyya
59	Samanea saman	Fabaceae	Amaivagai
60	Sygygium cumuni	Myrtaceae	Naval
61	Tamarindus indica	Fabaceae	Puli
62	Tectona grandis	Verbenaceae	Tekku
63	Terminalia arjuna	Combretaceae	Marudha Maram
64	Terminalia catappa	Combretaceae	Badam Tree
65	Thespesia populnea	Malvaceae	Puvarasu
66	Ziziphus jujube	Rhamnaceae	Elandhai
67	Ziziphus mauritiana	Rhamanaceae	Elandhai
<b>Shrubs</b>			
1	Adathoda vasica	Acanthaceae	Adathodai
2	Agave americana	Agavaceae	Karunkattralai
3	Aloe vera	Asphodelaceae	Chotthu kthalai
4	Boerhaavia diffusa	Nyctaginaceae	Kagithapoo
5	Calotropis gigantea	Apocynaceae	Earukku
6	Canna indica	Cannaceae	Kalvalai
7	Carissa carandas	Apocynaceae	Kalakkai
8	Cassia auriculata	Fabaceae	Aavarampoo
9	Chromolaena odorata	Asteraceae	Devil Weed
10	Corcorus olitorius	Tiliaceae	Perattikkirai
11	Datura metel	Solanaceae	Umatai
12	Dodonaea viscosa	Sapindaceae	Virali
13	Euphorbia tirucalli	Euphorbiaceae	Thirukalli
14	Hibiscus rosa-sinensis	Malvaceae	Semparuthi
15	Indigofera tinctoria	Fabaceae	Avuri
16	Ipomea carnea	Convolvulaceae	Bush Morning Glory
17	Ixora casei	Rubiaceae	Idlipoo
18	Ixora coccinea	Rubiaceae	Vedchi
19	Jatropha glandulifera	Euphorbiaceae	Vellaikattukottai
20	Justicia adhatoda	Acanthaceae	Adathoda
21	Lantana camara	Verbenaceae	nuni
22	Lawsonia inermis	Lythraceae	Maruthani
23	Murraya koengii	Rutaceae	Karuveppilai
24	Nerium indicum	Apocynaceae	Arali





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

25	Nerium oleander	Apocynaceae	Arali
26	Opuntia dillenii	Cactaceae	Chappathikkalli
27	Pavetta indica	Rubiaceae	Kattukkarantai
28	Ricinus communis	Euphorbiaceae	Amanakku
29	Sida cordifolia	Malvaceae	Sida plant
30	Solanum xanthocarpum	Solanaceae	Yellow berried
31	Tecoma stans	Bignoniaceae	Yellow trumpetbush
32	Vitex negundo	Verbinaceae	Vanili
33	Ziziphus jujuba	Rhamnaceae	Elanthai
<b>Herbs</b>			
1	Abutilon indicum	Malvaceae	Tutti
2	Acalypha indica	Amaranthaceae	Kupaimeni keeri
3	Acanthospermum hispidum	Asteraceae	Kenathupoonda
4	Achyranthes aspera	Amaranthaceae	Nayuruvi
5	Aerva lanata	Amaranthaceae	Sirupulai
6	Aloe vera	Liliaceae	Kathalai
7	Alternanthera sessilis	Amaranthaceae	Ponnanganni
8	Amaranthus spinosus	Amaranthaceae	Mullukkirai
9	Amaranthus viridis	Amaranthaceae	Creen amaranth
10	Andrographis paniculata	Acanthaceae	Kirayt
11	Anisomeles indica	Lamiaceae	marutti
12	Anisomeles malabarica	Lamiaceae	Peyimarutti
13	Argemone mexicana	Papaveraceae	Mexican poppy
14	Boerhavia erecta	Nyctaginaceae	Erect spiderling
15	Boerheavia diffusa	Nyctaginaceae	Mukkarattai Keerai
16	Cassia tora	Caesalpiaceae	Tagarai
17	Cleome viscosa	Cleomaceae	Naai velai
18	Commelina benghalensis	Commelinaceae	Kanavachai
19	Croton sparsiflorus	Euphorbiaceae	Poodu sedi
20	Euphorbia hirta	Euphorbiaceae	Ammam Paccharisi
21	Evolvulus alsinoides	Convolvulaceae	Vishnukranthi
22	Gloriosa superba	Colchicaceae	Kallappai kilangu
23	Gomphrena globosa	Amaranthaceae	Vaadamalli
24	Heliotropium indicum	Boraginaceae	Thel kodukku
25	Hemidesmus indicus	Apocynaceae	Nannari
26	Ipomea hederfolia	Convolvulaceae	Kanavalikkodi
27	Leucas aspera	Lamiaceae	Thumbai
28	Mimosa pudica	Mimosaceae	Thottachurungi
29	Ocimum sanctum	Lamiaceae	Holy Basil, Thulasi
30	Ocimum tenuiflorum	Lamiaceae	Thulasi
31	Parthenium hysterophorus	Asteraceae	Parthenium
32	Phyllanthus niruri	Phyllanthaceae	Keelzhaneeli
33	Rosa indica	Rosaceae	Rose
34	Sida acuta	Malvaceae	Palambasi
35	Sida cordifolia	Malvaceae	Kurunthotti
36	Sida rhombifolia	Malvaceae	Kurundotti





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

37	Solanum nigrum	Solanaceae	Manatthakalli
38	Solanum xanthocarpum	Solanaceae	Kandangkattari
39	Tephrosia purpurea	Fabaceae	Vayal poondu
40	Tragia involucrata	Euphorbiaceae	Kanchori
41	Tridax procumbens	Asteraceae	Vettukai poondu
42	Vicoa indica	Asteraceae	Mukkuthipoo
43	Vinca rosea	Apocynaceae	Nithiyakalyani
<b>Climbers</b>			
1	Abrus precatorius	Fabaceae	Kundumani
2	Asparagus racemosus	Asparagaceae	Tannir-vittan
3	Capparis rotundifolia	Capparaceae	Thoratti
4	Cissus quadrangularis	Vitaceae	Pirandai
5	Clitoria ternatea	Fabaceae	Sankupushpam
6	Coccinia indica	Cucubitaceae	Kovai
7	Cucumis sativus	Cucurbitaceae	Cucumber
8	Ipomea reniformis	Convolvulaceae	Elikathukeerai
9	Jasminum angustifolium	Oleaceae	Uccimalligai
10	Tinospora cordifolia	Menispermaceae	Shindilakodi
<b>Grasses</b>			
1	Cenchrus ciliaris	Poaceae	Buffel grass
2	Chloris barbata	Poaceae	Kodai pullu
3	Cynodon dactylon	Poaceae	Arugampillu
4	Cyperus difformis	Cyperaceae	Smallflower
5	Cyperus rotundus	Cyperaceae	korai pullu
6	Cyprus rotundus	Cyperaceae	Korai, Nut grass
7	Dichanthium annulatum	Poaceae	Marvel grass
8	Heteropogan contortus	Poaceae	Bunch Speargrass
9	Kyllinga nemoralis	Cyperaceae	Velutta nirbasi
10	Saccharum munja	Poaceae	Munja grass
11	Saccharum spontaneum	Poaceae	Kans grass,
<b>Agriculture Crop</b>			
1	Oryza saliva	Poaceae	Paddy
2	Saccharumofficinarum	Poaceae	Karumbu
3	Phaseolusmungo	Fabaceae	Oolunthu
4	Arachishypodia	Fabaceae	Ground nut
5	Musa acuminata	Musacene	Plantain
6	Sorghum vulgare	Poaceae	Solam
7	Jasminium oleander	Oleaceae	Malligai
8	Chrysanthemums	asteraceae	Saamanthi





**PHOTOGRAPH SHOWING RESERVE FOREST**



**3.5.2 FAUNA:**

The method was used to study the Bird diversity. Besides, discussion with local villagers Collection secondary data from Government records, published reports as well as through discussion with Forest officials, knowledgeable public were used for the study.

**Observation:** There is no Wild Life Sanctuary or National Park within the study area of 10 km. Domesticated animals like Cows, Buffalos, Dogs, Cats etc., are commonly found. The lease and 10 Km buffer zone does not fall in the Western Ghats ESA boundary. No wild mammalian species was directly sighted during the field survey. There is no Schedule I animals in the buffer zone area. The list of fauna within the study area is given in **Table No – 3.27.**







**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Table 3.27: List of Fauna in the Buffer Zone**

S.No	Common Name	Scientific name	IWPA, Schedule
<b>Mammals</b>			
1	Common Indian Hare	Lepus ruficaudatus	IV
2	Indian Palm squirrel	Funambus palmarum	IV
3	Indian Grey Mongoose	Herpestes edwardsii	II
4	Wild Boar	Sus scrofa	IV
5	Cat	Felis chaus	IV
<b>Birds</b>			
1	Black Drongo	Dicrurus macrocercus	IV
2	Cattle Egret	Bubulcus ibis	IV
3	Common Babbler	Turdoides caudatus	IV
4	Common Crow	Corvus splendens	V
5	Common Kingfisher	Alcedo atthis	IV
6	Common Myna	Acridotheres tristis	IV
7	Common Quail	Coturnix coturnix	IV
8	House Sparrow	Passer domesticus	IV
9	Indian Cuckoo	Cuculus micropterus	IV
10	Little Cormorant	Phalacrocorax niger	IV
11	Little Egret	Egretta garzetta	IV
12	Purple-rumped Sunbird	Nectarinia zeylonica	IV
13	Red-vented Bulbul	Pycnonotus cafer	IV
14	Rose-ringed Parakeet	Psittacula krameri	IV
15	Spotted Dove	Streptopelia chinensis	IV
16	Grey jungle fowl	Hallus sonneratii	IV
17	Grey partridge	Francolinus	IV
<b>Reptiles</b>			
1	Common Indian krait	Bungarus caeruleus	II
2	Rat Snake	Ptyas mucosa	II
3	Garden Lizard	Calotes versicolor	IV
4	Indian cobra	Naja naja	IV
5	Russell's viper	Daboua russelii	IV
<b>Amphibians</b>			
1	Common Indian toad	Bufo melanostictus	IV
<b>Butterfly</b>			
1	Lime butterfly	Papilio demoleus	IV
2	Common crow	Euploea core	IV
3	Small grass yellow	Eurema brigitta	IV
<b>Fishes</b>			
1	Sardinella longiceps	Mathi Meen	IV
2	Stolephorus indicus	Indian anchovy	IV
3	Sardinella gibbosa	Nonalai/ Kavalai	IV
4	Sardinella brachysoma	Usi kavalai	IV
5	Stolephorus commersonii	Nethili	IV
6	Thunnus tonggol	Kara surai/ Kila valai	IV
7	Scomberomorus guttatus	Katta-cheela/ Cheela	IV
8	Rastrelliger kanagurta	Ailai/ Augalai/ Kanangeluthi	IV
9	Scomberomorus guttatus	Vanjaram fish	IV





### 3.6 HYDROGEOLOGICAL STUDY:

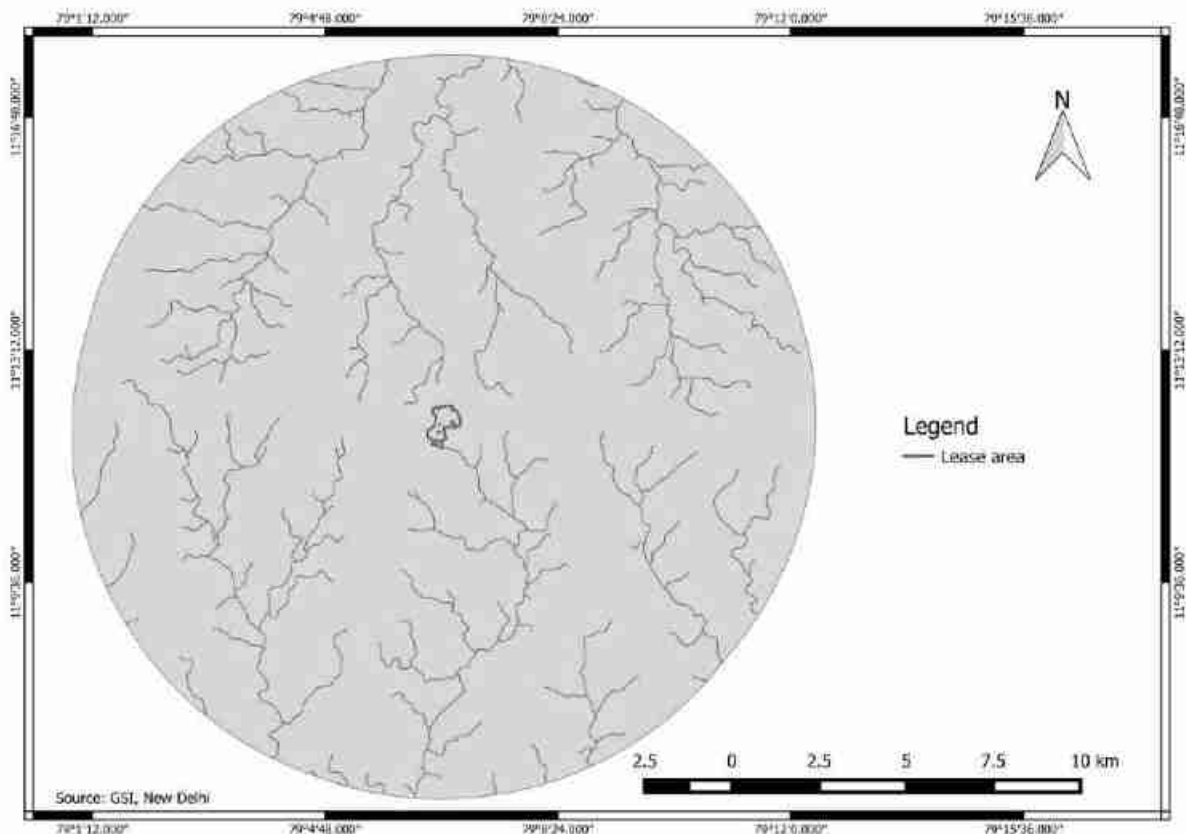
This section delves into the study of the hydrogeological scenario of the study area to evaluate the impact of mining activities on the nearby areas. The study area is considered to understand the nature of the general hydrogeological conditions of the area.

#### 3.6.1 PHYSIOGRAPHY AND DRAINAGE:

**Physiography:** The area applied for mining lease is a gentle plain terrain.

**Drainage:** There is no major water body in the core zone. Further elaborate details of the same has been provided under section 4.3.3C, Chapter-IV. The drainage map prepared from the survey of India topographic maps shows the presence of few streams running in a dendritic pattern.

**Figure 3.18: Drainage Map**

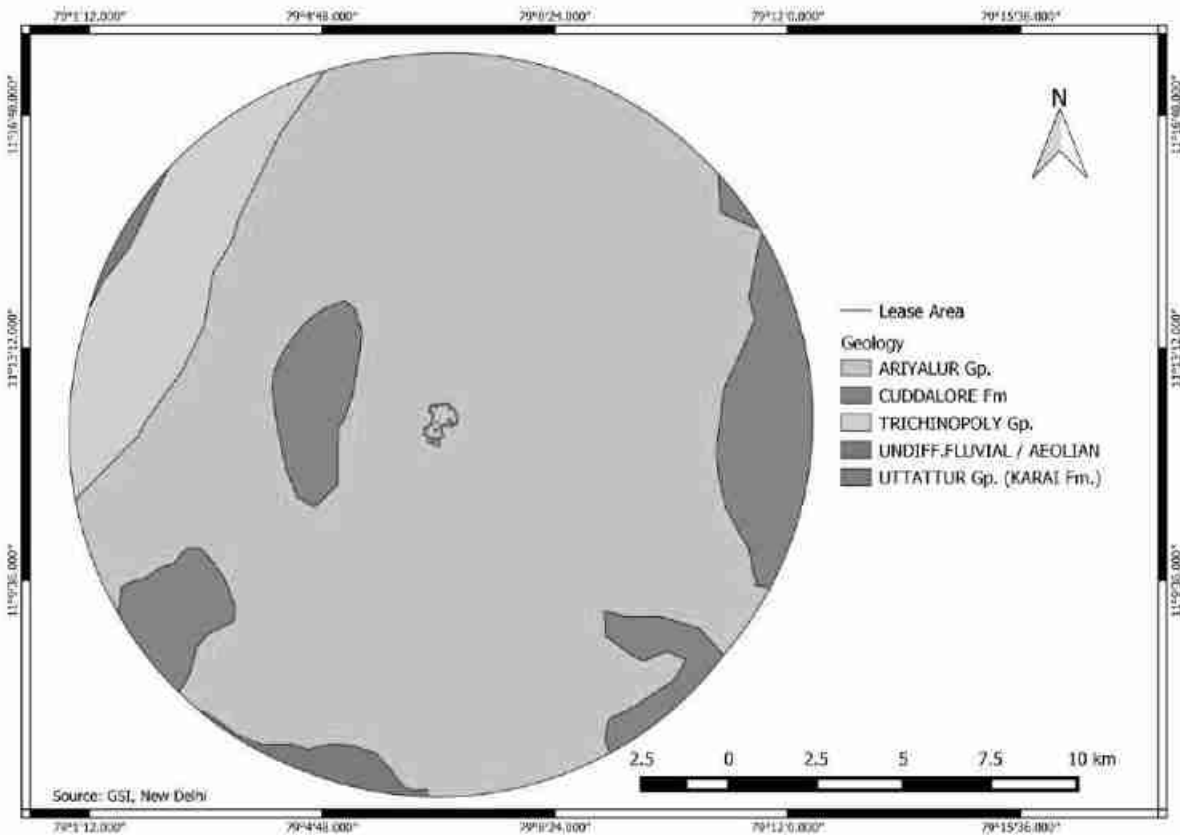




### 3.6.2 GEOLOGY AND GEOMORPHOLOGY

**Geology:** The type of rock formation in the study area is composed of Ariyalur Gp. The lease area falls under Ariyalur Gp category. The geological map is provided below in Figure No.3.21.

**Figure 3.19: Geology Map**



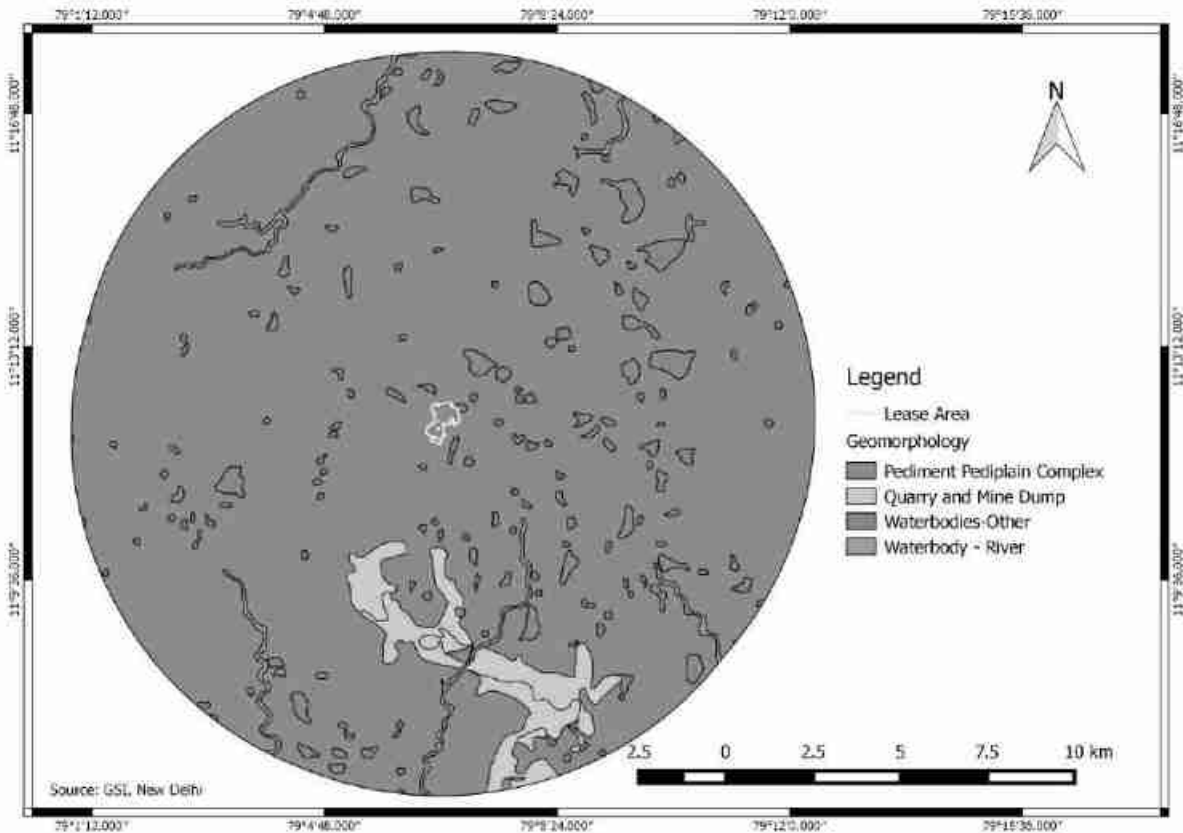
**Geomorphology:** The geomorphology map of the study derived from the satellite imagery using remote sensing and GIS technique. Predominantly the buffer zone is dominated by Pediment Plain complex, and it is the same category that the lease area also falls under.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 3.20: Geomorphology Map**



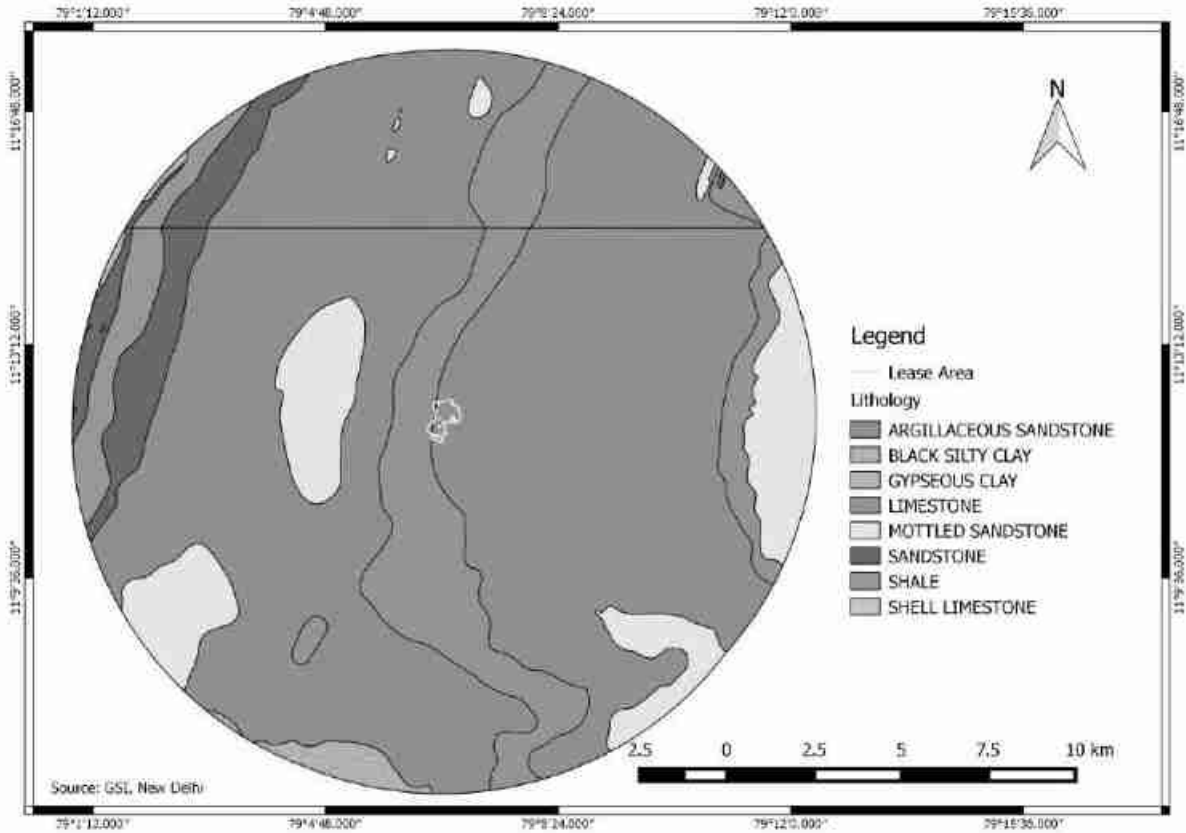
**Lithology:** The lithological map of the buffer zone has been provided in Figure No.3.23. From this, it is seen that the study area is mainly dominated by Argillaceous sandstone. The lease area falls under by Argillaceous sandstone with regards to lithology.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 3.21: Lithology Map**

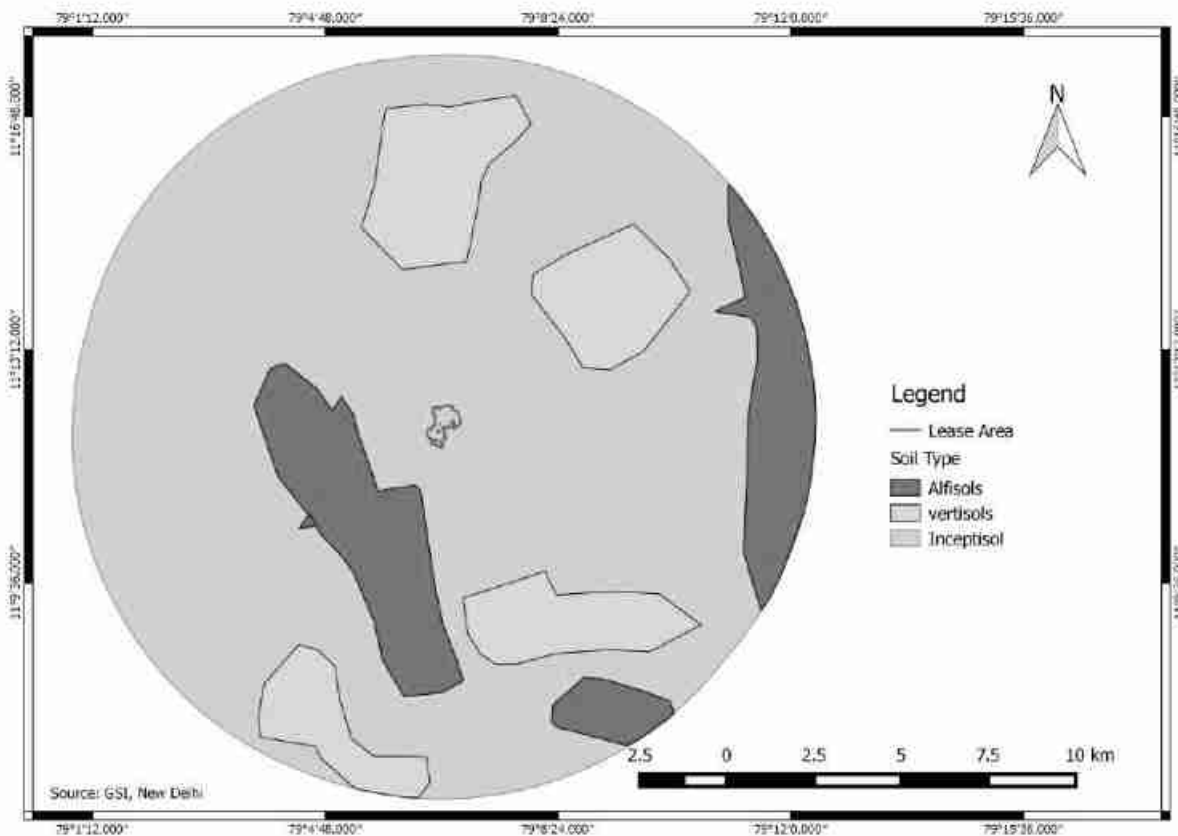


**Soil:** The study area is characterized by Inceptisol, Vertisols and Alfisols. The lease are falls under the category of Inceptisol. The soil map is provided in Figure No.3.24.





**Figure 3.22: Soil Map**



**3.6.3 WATER TABLE OF THE AREA:**

The Groundwater levels from the 27 number of observation wells of TWAD in Ariyalur have been analyzed for Post-Monsoon and Pre-Monsoon. 5 years average Ground water level in m Below Ground Level for pre and post monsoon is as follows:

**Table 3.28: Groundwater Level BGL) Pre Monsoon and Post Monsoon**

	<b>January</b>	<b>May</b>
<b>2017</b>	28.8	31.7
<b>2018</b>	25.0	31.3
<b>2019</b>	26.9	30.0
<b>2020</b>	26.1	29.1
<b>2021</b>	24.6	27.9
<b>Average</b>	26.3	30.0

**3.6.4 Ground water Condition in and around study area:**

The Hydrological setting of this area is characterized generally by two aquifer system, comprising a water table aquifer in the over burden and limestone and a semi-confined one in the sandstone occur below the limestone formation. The water table aquifer is normally





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---

developed for domestic water supply and small irrigation needs, through dug wells, constructed in the past. The semi- confined aquifer is mostly developed through bore wells for agricultural purposes tapping this zone at depths of 60 to 80m. In these wells, the limestone zone is also screened for better yield. The over burden and limestone together could be grouped under one water table zone for hydrological purposes.

In the case of Ottakovil mining is proposed to be carried for kankar for a depth of 2.75m. Hence the effect on water table will be negligible. The stage of ground water development of the Ariyalur block is < 70% & falls in “ **Safe Category**” as per CGWB Report of Perambalur.

\* \* \* \* \*



# **CHAPTER - IV**

## **ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES**





## **CHAPTER 4**

### **ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES**

#### **4.1 GENERAL**

Mining and allied operations in this new lease may affect the existing environmental set up in the area unless proper mitigation measures are not taken. Hence it is essential to assess the impacts of mining on various environmental parameters so that abatement measures could be planned in advance for systematic, sustainable and eco-friendly mining in the area.

In this lease, the entire top layer will be removed for exposing the bottom limekankar formation. The limekankar in this area is soft and can be excavated directly by using hydraulic excavator without any drilling and blasting involved in the mining operation. The maximum depth of working is limited only up to 2.75 m only ( 1.50m Top soil + 1.25m Lime Kankar). The deposit will be mined by a simple system of removal of top soil, simultaneous refilling by the same excavator & then removal of kankar exposed below called strip mining. The number of equipment's to be used is also very less since the production is also less. As such, there will not be much impact on environment due to mining activity.

However, due to proposed mining activities in the area there may be some additional impacts on various environmental attributes. As such, detailed impact assessment studies and planning of appropriate control measures have been undertaken for the proposed project. The study details are elaborately described below:

#### **4.2 AIR ENVIRONMENT:**

##### **4.2.1 SOURCES OF AIR POLLUTION:**

The existing ambient air quality in the area has been described in Chapter-III. The proposed mining and allied operations may cause deterioration of air quality due to pollution arising from the project operation if prompt care is not taken. The principal sources of air pollution in general due to mining and allied activities will be:

- ❖ Excavation of material.
- ❖ Movement of HEMM such as Excavators, tippers etc.
- ❖ Loading and unloading operation





- ❖ Hauling
- ❖ Transportation outside lease area

**4.2.2 IMPACTS DUE TO PROJECT OPERATION:**

The various sources of air pollution are listed above in the previous section. The major impacts that arise due to the above listed sources is the generation of particulate and gaseous matter. The direct impact and the indirect impact due to these pollution sources are provided below:

Direct Impact	Impact on humans/surrounding environment
<p>Increase in particulate matter concentration in ambient air</p>	<ul style="list-style-type: none"> <li>• Settling in the bronchi and lungs and cause health problems like Bronchitis, Emphysema, Bronchial Asthma, Irritation of mucus membranes of eyes, etc.</li> <li>• Particles smaller than 2.5 micrometers (PM2.5), tend to penetrate into the lungs and very small particles (&lt; 100 nanometers) may pass through the lungs to affect other organs.</li> <li>• The fine dust can be carried during windy days and be deposited on any structures located nearby causing dust nuisance.</li> <li>• Reduction in visibility in the area.</li> <li>• Workers are prone to dust related diseases such as siderosis, tuberculosis, eye irritations, dust related pneumonia, etc.</li> <li>• Apart from humans, inhalation of dust can also affect animals by way of health disorders such as respiratory problems.</li> <li>• Dust deposition can also be an impediment to growth of vegetation, leading to decreased productivity. It can affect the photosynthesis, respiration and transpiration processes.</li> </ul>
<p>Increase in concentration of gaseous parameters like SO<sub>2</sub>, NO<sub>x</sub> and CO in ambient air</p>	<ul style="list-style-type: none"> <li>• Inhalation of SO<sub>2</sub> in higher concentrations of 8-12 ppm in air causes throat irritation, coughing, constriction of the chest, lachrymation, and smarting of the eyes. A concentration of 150 ppm can be endured only a few minutes, because of eye irritation and the effect on the membranes of the nose, throat and lungs. Exposure to a concentration of 500 ppm by volume in air for a few minutes is very dangerous At high concentrations it can cause life-threatening accumulation of fluid in the lungs (pulmonary edema).</li> <li>• NO<sub>x</sub> reacts with ammonia, moisture, and other compounds to form nitric acid vapor and related particles. Small particles can penetrate deeply into sensitive lung tissue</li> </ul>





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	<p>and damage it, causing premature death in extreme cases. Inhalation of such particles may cause or worsen respiratory diseases, such as emphysema or bronchitis, or may also aggravate existing heart disease.</p> <ul style="list-style-type: none"><li>• At lower concentrations, CO causes fatigue in healthy people and chest pain in people with heart disease. At moderate concentrations it causes angina, impaired vision, and reduced brain function. At higher concentrations it can cause impaired vision and coordination, headaches, dizziness, confusion, nausea, flu-like symptoms that clear up after leaving home.</li><li>• These emission can react with other compounds in the atmosphere to form fine particles that reduce visibility (haze).</li><li>• SO<sub>2</sub> and NO<sub>x</sub> can contribute to acid rain which can harm sensitive eco system.</li><li>• In plants, photosynthesis is one of the first process to be affected by high SO<sub>2</sub> concentration. It can also affect the plant growth and productivity. Similarly, NO<sub>x</sub> is also potentially toxic to plants, as it can injure leaves and reduce growth and yield.</li><li>• Similarly, animals exposed to high concentration of SO<sub>2</sub> show decreased respiration, inflammation of airways, destruction of areas of the lung, etc. Smaller animals with less lung capacity than humans are more susceptible to dangers of increased CO levels as they can become affected with carbon monoxide poisoning.</li></ul>
--	--

As far as mining projects are concerned, the gaseous emissions like SO<sub>2</sub>, NO<sub>x</sub> & CO are controlled from the source itself by using very low sulphur content fuel, using advanced diesel engines to abate NO<sub>x</sub> & CO emission from the HEMM. Hence, no adverse impact on this front is envisaged from mining and allied activities. In the mining industry, impact is primarily due to fugitive dust emission. In case of this mine, no major impact on air quality is envisaged due to the following reasons:

- No drilling or blasting is involved.
- Depth of mining is just 2.75 m only and the ore excavated in the mine face will be directly loaded in to the trucks for transportation.
- The waste material will be simultaneously re-casted back into the mined out void and as such will not be any transportation of waste material or external waste dumps.
- Less fleet of mining equipment's only is involved.

From the above it could be seen that there may not be adverse impact on air quality due to mining operations in this lease due to subdued activity in the area.





**Table 4.1: Impact and Mitigation Measures – Air Environment**

S.No	Activity	Consequence	Mitigation Measures
1	Excavation and Loading	Dust emanation, Gaseous Emission	HEMM will be operated as per the manufacturer's guidelines
			Enclosures for operator cabin.
			Imparting sufficient training to operators on safety and environmental parameters.
			Proper maintenance of hauling equipments.
			Avoiding overloading of tippers
2	Transportation	Dust emanation, Gaseous Emission	Regular wetting of transport road using mobile water tanker.
			Proper maintenance of haul road and other roads
			Setting up of tyre wash facility in the transport road.
			Avoiding overloading of tippers
			Covering of loaded tippers with tarpaulins during transportation
			Vehicular emissions will be controlled through regular and proper preventive maintenance schedules and emissions tests are done with diesel smoke meter equipment to ensure emission values.

Due to adoption of all these measures, no major impact on air quality is envisaged due to this proposed opencast mining operation.

Due to well – designed and appropriate mitigative measures adopted and to be adopted in the project, the impact on air environment is expected to be well within statutory limits. This is amply corroborated by the prediction of impact on air quality post expansion which is detailed in the following section. Impact on air quality due to fugitive emissions was estimated based on the latest computer model AERMOD View Gaussian Plume Air Dispersion Model developed by Lakes Environmental Software. Details of the modeling study / estimation including the modeling technique and post project air quality values are elaborated in the following paras.

**4.2.3 AIR QUALITY IMPACT PREDICTION:**

The model simulations are done for the air pollutant arising from the mining operations, namely, PM<sub>10</sub>, PM<sub>2.5</sub>. **Ground Level Concentration (GLC)** have been computed using hourly meteorological data.

**Table 4.2: Emission Sources**

ACTIVITY	SOURCE TYPE
A. Mining operations	Open pit
B. Transportation	Line





#### 4.2.2.1 Emission Factors

Quantification of particulate emissions has been carried out by the emission factor technique. Emission factor is a statistical average of the rate at which a pollutant is released during an activity. This factor when multiplied by the level of that activity in a given situation will give the overall effect. Fugitive emissions have been predicted by using standard equations given and suggested by AP-42, USEPA(1998), Coal S&T Project and for mining & allied activities and other factors. The modeling is done for the peak production to know the worst case scenario. The details of the emission factors used for the same is provided below:

**Table 4.3: Emission Factors**

S.No	Activity	PM10	PM2.5	Unit
1	Ore Loading	$1.5 \times 10^{-3}$	$2.1 \times 10^{-4}$	Kg/T
2	OB Loading	$1.4 \times 10^{-4}$	$1.5 \times 10^{-5}$	Kg/T
3	Hauling inside lease area	0.19	0.019	g/VKT

#### 4.2.2.2 Emission Rates:

Based on the emission factors, after adopting necessary control measures like dust suppression, Proper maintenance of HEMM, using better quality diesel, using latest equipment, proper maintenance of roads, etc. the expected peak emission rate due to various operations in this project is calculated and is given below:

**Table 4.4: Emission Rate**

ACTIVITIES/POLLUTANTS	PM <sub>10</sub> (g/sec)	PM <sub>2.5</sub> (g/sec)
Excavation	0.30	0.04
Hauling inside lease area	0.54	0.08
<b>Total</b>	<b>0.84</b>	<b>0.12</b>

**A. Emission Source Coordinates:** The center of mine was assumed (0, 0) in the mathematical modeling.

**B. Meteorological Conditions Used In Predictions:** The hourly meteorological data has been generated for the monitoring period and the same has been used in the predictions.





#### 4.2.2.3 Results and Discussions

**Table 4.5: Peak Incremental Concentration**

S.No	Parameters	Peak incremental concentration $\mu\text{g}/\text{m}^3$
1	PM <sub>10</sub>	3.20
2	PM <sub>2.5</sub>	1.85

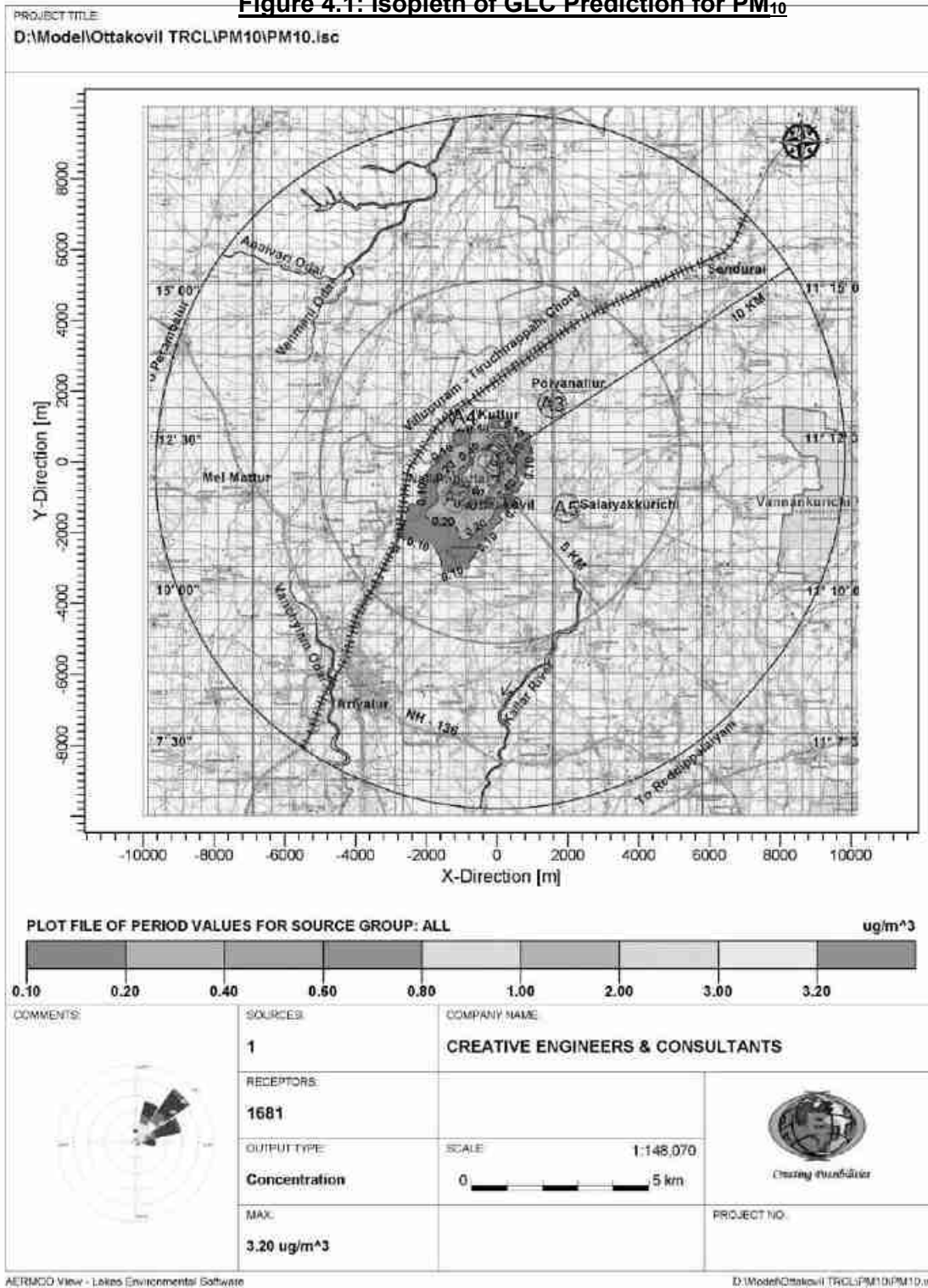
It is observed that the peak incremental concentration for PM<sub>10</sub>, PM<sub>2.5</sub> occurring very near the source. At away from the source the values are getting reduced due to dispersion effects. The Isopleths of PM<sub>10</sub>, PM<sub>2.5</sub> concentrations with control measures scenario have also been drawn and these are given in **Figure No.4.1 and 4.2**. The incremental and predicted concentrations at the locations of ambient air quality have been discussed in the following section.





**OTTA KOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTA KOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

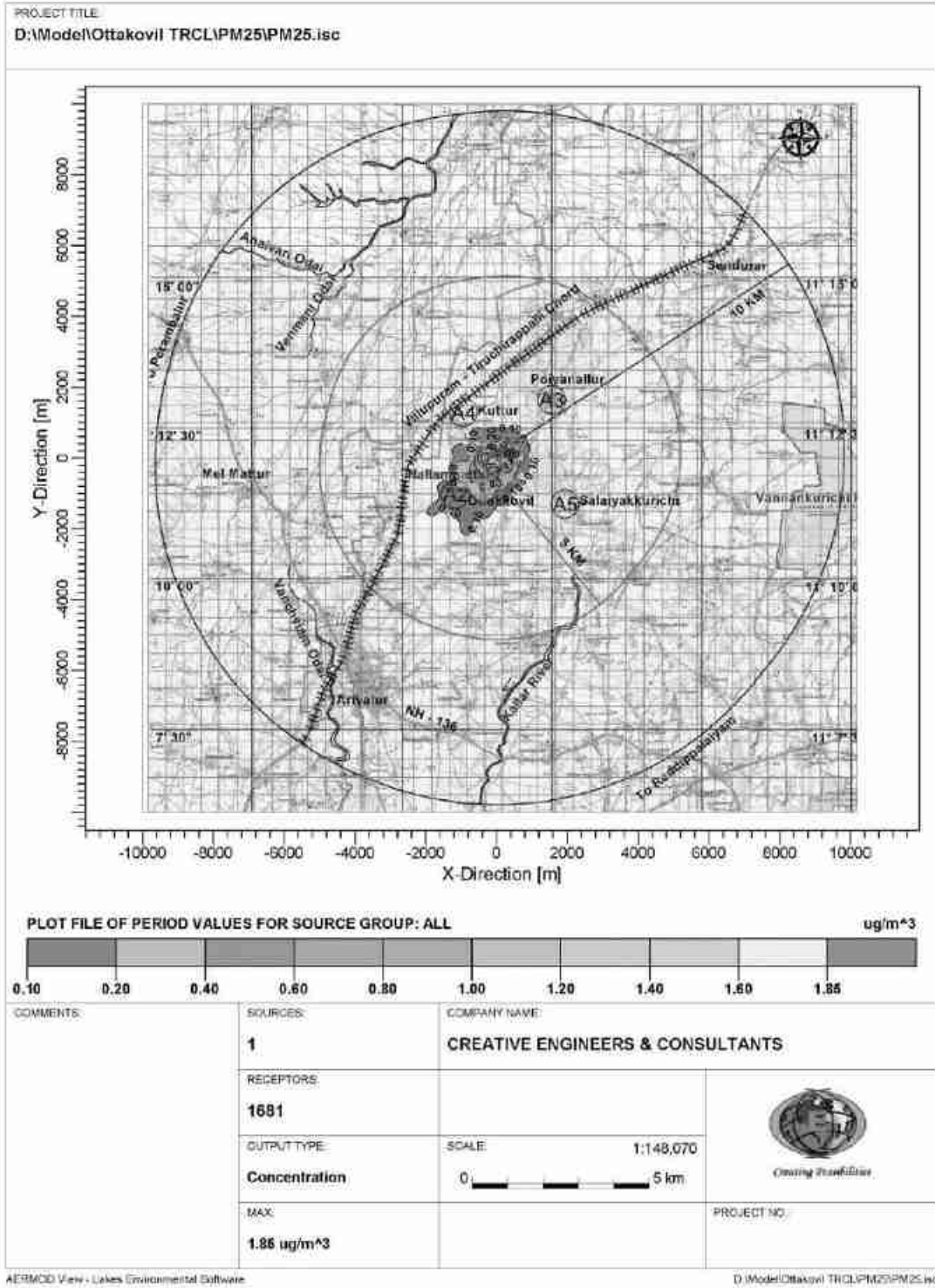
**Figure 4.1: Isopleth of GLC Prediction for PM<sub>10</sub>**





**OTTA KOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTA KOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 4.2: Isopleth of GLC Prediction for PM<sub>2.5</sub>**







**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Predicted Ambient Air Quality:**

The post project Concentrations of PM10, PM2.5, (GLC) (base line + incremental) after adopting necessary control measures is given in Table No - 4.6 to 4.7.

**Table 4.6: Concentrations Of PM<sub>10</sub> after Project Implementation**

Values in  $\mu\text{g}/\text{m}^3$

S. No	Location	Background Concentration	Predicted Incremental Concentration	Post Project Concentration	Statutory Limits
1	A1-Near mine lease area ottakovil	51.3	3.2	54.5	-
2	A2-Nallampathai Village	52.6	1.0	53.6	100
3	A3-Poiyanallur Village	56.9	<1.0	57.9	
4	A4-Kothur Village	53.7	<1.0	54.7	
5	A5- Salaiyakkurichi Village	55.9	<1.0	56.9	

**Table 4.7: Concentrations Of PM<sub>2.5</sub> after Project Implementation**

Values in  $\mu\text{g}/\text{m}^3$

S. No	Location	Background Concentration	Predicted Incremental Concentration	Post Project Concentration	Statutory Limits
1	A1-Near mine lease area ottakovil	23.6	1.8	25.4	-
2	A2-Nallampathai Village	24.7	<1.0	25.7	60
3	A3-Poiyanallur Village	27.3	<1.0	28.3	
4	A4-Kothur Village	25.8	<1.0	26.8	
5	A5- Salaiyakkurichi Village	27.4	<1.0	28.4	

It can be seen that the resultant added concentrations with baseline figures even at worst scenario, show that the values of ambient air quality with respect to PM10 are in the range of 53.6 $\mu\text{g}/\text{m}^3$  to 57.9 $\mu\text{g}/\text{m}^3$  and with respect to PM2.5 are in the range of 25.4 $\mu\text{g}/\text{m}^3$  to 28.4  $\mu\text{g}/\text{m}^3$  which are within the statutory limits in each case. For preservation of environment in this mine strict enforcement of management schemes and regular air quality monitoring will be undertaken for taking corrective actions, as needed. By adopting the effective implementation of all the mitigative measures, no adverse impact on Air quality due to the mining operation in this lease area is expected.



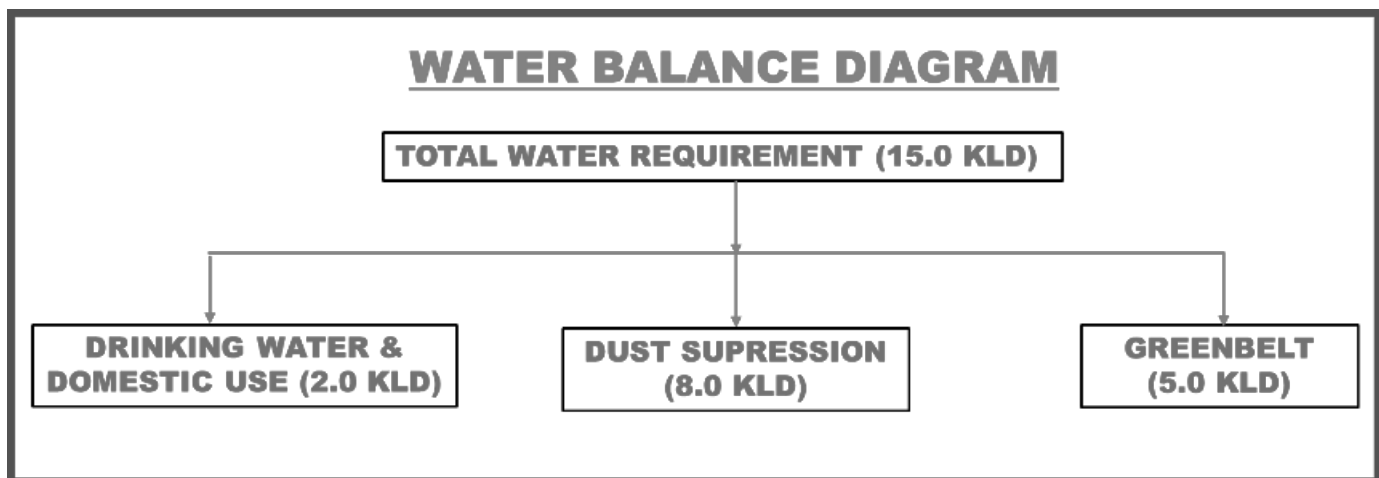


#### 4.3 WATER ENVIRONMENT:

##### 4.3.1 WATER REQUIREMENT:

The water requirement for the mines is mainly for plantation, dust suppression, Domestic & drinking purpose. The total water requirement for this project will be 15.0 KLD comprising 2.0 KLD for drinking water and domestic use, 8.0 KLD for dust suppression and 5.0 KLD for greenbelt. The water requirement will be met from the borewell in the cement plant. The water balance diagram for the same is shown in **Figure No 4.3**.

**Figure 4.3: Water Balance Diagram**



##### 4.3.2 SOURCES OF WATER POLLUTION:

The existing water environment showing water quality at different sampling stations in the area has been described in Chapter-III. In general, during mining operations, the major sources of water pollution are described below:

- A. Generation of effluent water from workshop, service building.
- B. Domestic effluent
- C. Wash off / runoff from mine workings, waste dumps, ore stockpiles in the mine,
- D. Effect on drainage course if any
- E. Ground water and surface water pumping for mining and allied activities

This being a mining project there will be no harmful or process effluent generation. The major impacts that arise due to the above listed sources if left untreated are expected to be the following:





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

- Deterioration of water quality due to pollutants from discharged waste water
- Change in natural drainage pattern of nearby water bodies
- Siltation of nearby water courses affecting its quality as well as its course.
- Impact on groundwater regime

**Table 4.8: Impact on water environment**

S.No	Source	Consequence	Impacts	Pollutant	Impacts on Humans/Environment
1	Workshop, service building	Generation of effluent	Deterioration of water quality	Suspended solids and Oil & Grease	<ul style="list-style-type: none"> <li>• Leads to non-potability of water.</li> <li>• Affect microflora</li> <li>• Contract of water borne diseases like diarrhea, jaundice, dysentery, typhoid, etc.</li> <li>• Silt carryover into nearby waterbody from runoff.</li> </ul>
2	Domestic use	Generation of waste water	Deterioration of water quality	Suspended solids and BOD	
3	Rainfall	Runoff from mine faces, waste dump and ore stack	Deterioration of water quality due to washoff, runoff resulting in siltation	Increased solids level in water quality ( TSS, TDS etc)	

To obviate these significant negative impacts various control measures are devised and continued to be implemented to ensure there are no adverse impact on water environment and its details are given below.

**Table 4.9: Control Measures – Water Environment**

S.No	Source	Proposed Control Measures
1	Workshop, service building	Vehicle washing will be carried out and oil and grease trap facility.
		The treated water is reused for greenbelt area
		The oil and grease from separate storage tank is safely disposed to CPCB authorized re-processor.
2	Domestic use – Rest area, Canteen	The domestic sewage to be generated from the project will be collected in septic tank with soak pits.
3	Rainfall – Runoff	<ul style="list-style-type: none"> <li>• Since simultaneous mining and backfilling method is proposed in the quarrying lease area, there will not be any external waste dump and as such there will not be any siltation in this front.</li> <li>• in the post mining stage also there will not be much change in the topography. The rain water falling within the mined out and backfilled area will be infiltrated through the backfilled waste and in turn recharge the ground water.</li> <li>• During working the mine will be worked in strips of 50m x 50m and proper drainage arrangements like garland drains, earth bunds around working block will be made to avoid surface runoff.</li> </ul>





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	<ul style="list-style-type: none"> <li>The proponent will also contribute for the up keeping of nearby natural water bodies like pond, kanmai by periodical desilting in coordination with village people and local administrative bodies.</li> </ul>
--	---

**A. Disturbance to drainage courses**

The following drainage courses are present surrounding the lease area:

Feature	Location (S.F. Nos.)	Safety distance to be left as per precise area condition
Murugan Eri	207/1	50m (West)
Sadaiyappa Udaiyar Kuttai	219/6 and 255	50m(East)
Odai	209/13, 222/9, 223/3, 229/1 and 226/14	50m (East)
Odai	250/4	50m (East)
Vari Course	219/7	50m (North)

All these drainage channels are very small and seasonal drainage courses for draining rainwater during monsoon only. As suggested in the precise area communication letter, safety barrier of 50m will be provided from all these water bodies. No quarrying work will be carried out in the safety zone barrier left out for Odai, eri, etc., and it will be maintained as non-quarrying area throughout the lease period. As such, no natural water course will be disturbed or diverted due to quarrying operation.

In the safety distance of 50m, earthen bund of 2m height will be formed and good plantation will be carried out within the safety zone. There will be no discharge of any waste into this water body. Besides, by providing proper drainage arrangements in the lease area and provision of safety distance from the waterbodies, it will be ensured that the rainwater collected in these waterbodies and its upstream side, drains unhindered to the downstream users. From the above, it is evident that there will not be any appreciable impact on the surface water courses in the area.

**B. Generation of mine pit water pumped out from deeper workings if any.**

Since the deposit is of shallow depth and the maximum depth of the mine is limited only upto 2.75m. The groundwater table in this area is much below this level. There is no groundwater intersection envisaged and ground water will not be affected appreciably due to the quarrying operation.





#### **4.3.3 REDUCING WATER CONSUMPTION OVER THE YEARS:**

##### **4.3.3.1 GENERAL METHODS:**

Use of water will be monitored and used to the minimum required. Awareness will be spread to the employees about the importance of water conservation. Tap and showers will be turned off immediately after use and any leaks will be monitored and immediately controlled. Water requirement for greenbelt and dust suppression can be reduced by choosing the native plants/trees species with low water requirement and which can sustain in such conditions for greenbelt/ plantation and also optimum usage to the required minimum. While the dust suppression itself is an important method of pollution control for air pollution due to dust, the water consumption will be monitored strictly. The water tanker will be examined for any sources of leaks and if found will be immediately sealed so that water can be utilized for dust suppression effectively without loss.

##### **4.3.3.2 RAINWATER HARVESTING PLAN:**

As mentioned earlier, simultaneous mining and backfilling method is proposed in the quarrying lease area. The rain water falling within the mined out and backfilled area will be infiltrated through the backfilled waste and in turn recharge the ground water. Apart from this the proponent will also contribute for the up keeping of nearby natural water bodies like pond, kanmai by periodical desilting in coordination with village people and local administrative bodies.

#### **4.4 NOISE AND VIBRATION:**

##### **4.4.1 NOISE ENVIRONMENT:**

The ambient noise levels in the study area have been discussed in Chapter - III. The data shows that the existing noise levels are within statutory tolerable limits. The impact prediction and control measure for noise environment due to mining and allied activities is described below:

##### **4.4.1.1 IMPACT PREDICTION DUE TO NOISE:**

Noise is one of the inevitable causes of pollution in mining operations, largely due to the extensive mechanization adopted. Besides, other operations such as movement of vehicles, etc., also produce noise of considerable magnitude in mining operations. The main sources of noise and expected levels are given below in **Table no – 4.10**.





**Table 4.10: Main Sources of Noise**

Sl. No.	Source	Inside Cabin	Noise level at dB(A) 10 m. from source
1	Shovel	84-91	59-68
2.	Dumpers/Tippers	87-96	75-85

Prolonged exposure to a high noise level is harmful to the human auditory system and can create mental fatigue, rebellious attitude, annoyance and carelessness, which may lead to neglect of work and also result in accidents. The impact of noise level as per World Health Organization’s 1986 notification is given below in **Table No - 4.11.**

**Table 4.11: Impact of Noise Levels**

NOISE LEVELS	ADVERSE EFFECTS
90-115 dB	Partial deafness and nervous irritability
> 115 dB	Permanent deafness
Impulsive noise (>90dB)	Frightens livestock grazing in the nearby areas

OSHA (Occupational Safety and Health Administration), USA and other similar organisations stipulate that noise level up to 90 dB(A) is acceptable for eight hours exposure Leq (Equivalent sound level) (8hrs) per day. The Directorate General of Mines Safety, in circular No. DG (Tech)/18 of 1975, has prescribed the noise level in mining occupations (TLV) for workers, in an 8 hour shift period with unprotected ear as 85 dB(A) or less.

The noise will be felt only near the active sources. There will be considerable reduction in the noise level due to the absorption factor, environmental surroundings and other attenuation factors. As far as absorption factor is concerned, If the ground cover is vegetated or has a soft texture, sound will decrease at the rate of 4.5 dB(A) every time the distance between the source and the observer is doubled. Besides, there will be shielding factor, which takes into account the environmental surroundings. With every 30m of dense land scape vegetation, 5 dB(A) of additional attenuation can be obtained up to a maximum of 10 dB(A). As such at away places the effect of noise will not be felt.

There are no drilling or blasting operations and the mining operations are carried out with very little fleet of equipment’s and as such no major noise generation is envisaged. Besides, since





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

the mining operations will be carried out in blocks within a big lease area, due to natural attenuation effects no impact on noise will be felt by the nearby community.

Anticipated noise levels resulting from operation of the various machineries like excavator, tippers, have been computed using point source model. Computation of cumulative noise levels at the nearby villages is made based on the assumption that there are no attenuation paths between the source and the boundary.

Noise modeling is carried out using the following formula:

$Lp2 = Lp1 - 20 \log R2/R1$ , Where,  $Lp1$  and  $Lp2$  are sound pressure levels at points located at distances  $R1$  and  $R2$  respectively from the source. The study results are as follows:

**Table 4.12: Post Project Noise Levels**

SI.No	Location	Baseline Day Eq.in dB(A)	Post project noise Eq in dB(A)	Limit dB(A) as per MoEF&CC
1	A1-Near mine lease area ottakovil	51.0	52.2	90
2	A2-Nallampathai Village	46.9	47.2	55
3	A3-Poiyanallur Village	50.1	50.4	55
4	A4-Kothur Village	48.3	48.6	55
5	A5- Salaiyakkurichi Village	47.3	47.5	55

From the studies, it is found that the predicted Noise Levels due to mining operations at the periphery of the mine lease itself will be less even without considering any attenuation factor. However, practically there will be attenuation due to vegetation etc., and as such there will not be any adverse noise propagation outside the lease boundary. Since the habitations are also away the effect of noise due to mining operations will not be felt at all in the surrounding villages.

**4.4.1.2 CONTROL MEASURES FOR NOISE ENVIRONMENT:**

Hence, by following mitigative measures for noise control, the impact on noise levels will be insignificant:

- Planting rows of native trees along roads, around mine area and other noise generating centers to act as acoustic barriers.
- Sound proof operator’s cabin for equipments like shovel, tippers, etc.
- Proper and regular maintenance of equipments may lead to less noise generation.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

- Providing in-built mechanism for reducing sound emissions.
- Providing earplugs to workers exposed to higher noise level.
- Conducting regular health check-up of workers including Audiometry test for the workers engaged in noise prone area.
- Displaying the noise level status of operational machinery on the machines to know the extent of noise level and to control the time to which the worker is exposed to higher noise levels.

Further green belt and afforestation will be planned and executed to abate noise and dust propagation in the area.

**4.4.2 GROUND VIBRATIONAL DUE TO BLASTING EFFECTS:**

The Limekankar in this area is in friable form and can be excavated directly by using hydraulic excavator and there will not be any drilling and blasting involved in the mining operation. Hence, vibration due to blasting is not envisaged.

**4.5 LAND ENVIRONMENT:**

The lease area of 57.36Ha is a patta land in the name of The Ramco Cements Limited. The present land use pattern, and the post mining land use pattern is shown below:

**Table 4.13: Land Use Table**

S.No	Land Use	Present Land Use (Ha)	At the end of 5 <sup>th</sup> year (Ha)
1	Quarrying Pit	--	44.41.0
2	Infrastructure	--	0.01.0
3	Roads	--	--
4	Green Belt	--	5.00.0
5	Other (Safety Barrier)	12.95.0	7.94.0
6	Unused Land	44.41.0	--
	<b>Total</b>	<b>57.36.0</b>	<b>57.36.0</b>

**4.5.1 LAND RECLAMATION:**

. The maximum depth of working is limited only up to 2.75 m only ( 1.50m Top soil + 1.25m Lime Kankar). The deposit will be mined by a simple system of removal of top soil, simultaneous refilling by the same excavator & then removal of kankar exposed below. At the end of the life of the mine, out of 44.41.0Ha of mined out area, 26.08Ha will be backfilled and restored to premining condition and balance 18.33Ha will be left as water reservoir. 0.01Ha will be







**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

infrastructure, 5.00Ha will be greenbelt and 7.94Ha will be the safety distance in which plantation will be carried out. Entire mined out area will be properly fenced to prevent inadvertent entry of men and animals.

**Table 4.14: Land Use During Post Operational Period**

S.No	Description	Land use (Ha.)			
		Plantation and Reclamation	Water body	Others	Total
1	Quarrying Pit	26.08	18.33	-	44.41
2	External Dump	-	-	-	-
3	Infrastructure	0.01	-	-	0.01
4	Green Belt	5.00	-	-	5.00
5	Road	-	-	-	-
6	Others (Safety Barrier)	7.94	-	-	7.94
	<b>Total</b>	<b>39.03</b>	<b>18.33</b>	<b>-</b>	<b>57.36</b>

**4.6 BIOLOGICAL ENVIRONMENT:**

**4.6.1 EXISTING FLORA AND FAUNA:**

The core zone area is barren with grasses and bushes. Details of flora/fauna pattern in core and buffer zones have been described in chapter - III.

**4.6.2 IMPACT OF MINING ON BIOLOGICAL ENVIRONMENT:**

The significance of impact on biological environment due to mining and allied activities on various fronts is described below:

**Table 4.15: Impact on Biological Environment**

S.No	ISSUES	OBSERVATIONS
1	Clearance of vegetation due to mining and allied activities	The lease area is mostly barren with grasses & shrubs only. No major clearance of vegetation is involved.
2	Retardation of tree growth, tip burning, etc, due to deposition of dust and the Particulate matter generated from the mining operation.	Since simple shallow mining will be carried out no adverse impact on Ambient air quality is envisaged. Necessary mitigative measures like dust suppression, proper maintenance of equipment's, roads will be carried out to prevent dust generation.
3	Proximity to national park/ wildlife sanctuary/reserve forest/mangroves/Coastline/estuary/ sea	The mining lease area and the 10 km buffer zone from the periphery of the core zone is devoid of declared ecologically sensitive features like national parks, biospheres, sanctuaries, etc. Vinnakurichi R.F. is located at a distance of 8.05Km from the lease area and as such no impact due to mining operations on





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

		the R.F is expected.
4	Release of effluents into water body that also supplies water to wildlife	There is no proposal to discharge any effluent into nearby water bodies.
5	Proposed project could increase siltation that would affect nearby biodiversity area	Surface runoff management structures like garland drain, settling pond etc. as explained above will be constructed and as such there will not be any appreciable impact on surface water quality which in turn can affect the bio diversity of the area.
6	Activities of the project affects the breeding/nesting sites of birds and animals	In the present ML area, there is no wetland. A migratory bird needs sufficient wetlands with sufficient food, shelter, roosting places and nesting places which is not possible here.
7	Located near an area populated by rare or endangered species	There are no Schedule 1 animals in the study area.
8	Risk of fall/slip or cause death to wild animals due to project activities	In the post mining stage, barbed wire fencing is proposed all around the mined-out void to prevent falling of animals in the mine pits.
9	Project affects the forest-based livelihood/any specific forest product on which local livelihood depends	Not applicable
10	Project likely to affect migration routes	No migration routes are in the area.
11	Project likely to affect flora of an area, which have medicinal value	No such significantly important medicinal value species within the ML area and its nearby region.
12	The project likely to affect wetlands, fish breeding grounds, marine ecology	There are not any wetlands, fish breeding grounds, marine ecology nearby the ML area which will be affected due to this project.
13	Project affects the Agriculture, Forestry and Traditional Practices	Most of the study area remain uncultivated and only in patches of land away from the lease area, agricultural activities are carried during monsoon rainfall. Due to quality of the soil, inconsistent rainfall, water scarcity, high agricultural labor cost, manpower shortage and less yield are reason for very little agricultural activity in this region.
14	Impact on soil health and biodiversity	The mining operations will be carried out only upto a depth of 2.75m and simultaneous backfilling is also proposed. The backfilled area will also be stabilized. As such no adverse impact on soil health is envisaged.
15	Climate change leading to droughts, floods,etc.	• This being a mining project, no adverse generation of heat is envisaged.
16	Pollution leading to release of greenhouse gases (GHG) rise in temperature (Hydrothermal/Geothermal effect due to destruction in environment, Bio-geochemical processes and its	• Certified vehicles with low carbon emissions will only be used. These equipments will be properly and regularly maintained. Besides, regular vehicular emission tests will be done for the transport vehicles to ensure minimal impact due to carbon emissions. To





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

	<p>foot prints including environmental stress) and livelihood of local people.</p>	<p>further mediate the carbon emissions, a good greenbelt and plantation plan has been planned.</p> <ul style="list-style-type: none"> <li>•Geologically the area in and around the lease area contains Limestone, sandstone formation containing mostly fallow land.</li> <li>•There are no Protected or Eco-Sensitive Zone or forest land nearby wherein it can have an impact.</li> <li>•It will be ensured that mining will be carried out adhering to all the statutory rules and regulations and maintaining the environmental quality within the prescribed standards by effective implementation of various mitigative measures.</li> <li>•These mitigative measures will be continued for the entire lease period ensuring no impact on the environment.</li> <li>•As such release of Greenhouse gases (GHG), rise in temperature, affecting livelihood of the local people ,loss of Agriculture, Forestry and Traditional Practices is not envisaged. Such a limited scope will not induce any climatic change leading to droughts, floods etc.</li> </ul>
<p>17</p>	<p>Possibilities of water contamination and impact on aquatic ecosystem health and impact on Sediment geochemistry in the surface streams</p>	<ul style="list-style-type: none"> <li>•There are no aquatic eco system observed near the lease area.</li> <li>•This being a mining project no process effluent will be generated.</li> <li>•Considering the very meagre depth of mining and no generation of waste, no impact on aquatic ecosystem is envisaged.</li> </ul>

There are no migratory corridors, migratory avian-fauna, rare endemic and endangered species. Therefore, there shall be no impacts due to mining activity on them. Even though there are no adverse impact on bio diversity and flora/fauna status due to project operations, positive impacts will arise due to well-planned reclamation measures for restoration of land status in the area ultimately to productive land category with elaborately planned green belt development activities.

Besides, No Objection Certificate has been obtained from District Forest Officer, Ariyalur vide C.No.4062/2023/D dated 15.11.2023 (**Annexure-13**) wherein the following has been stated:

- The mine area does not comprise any forest land.

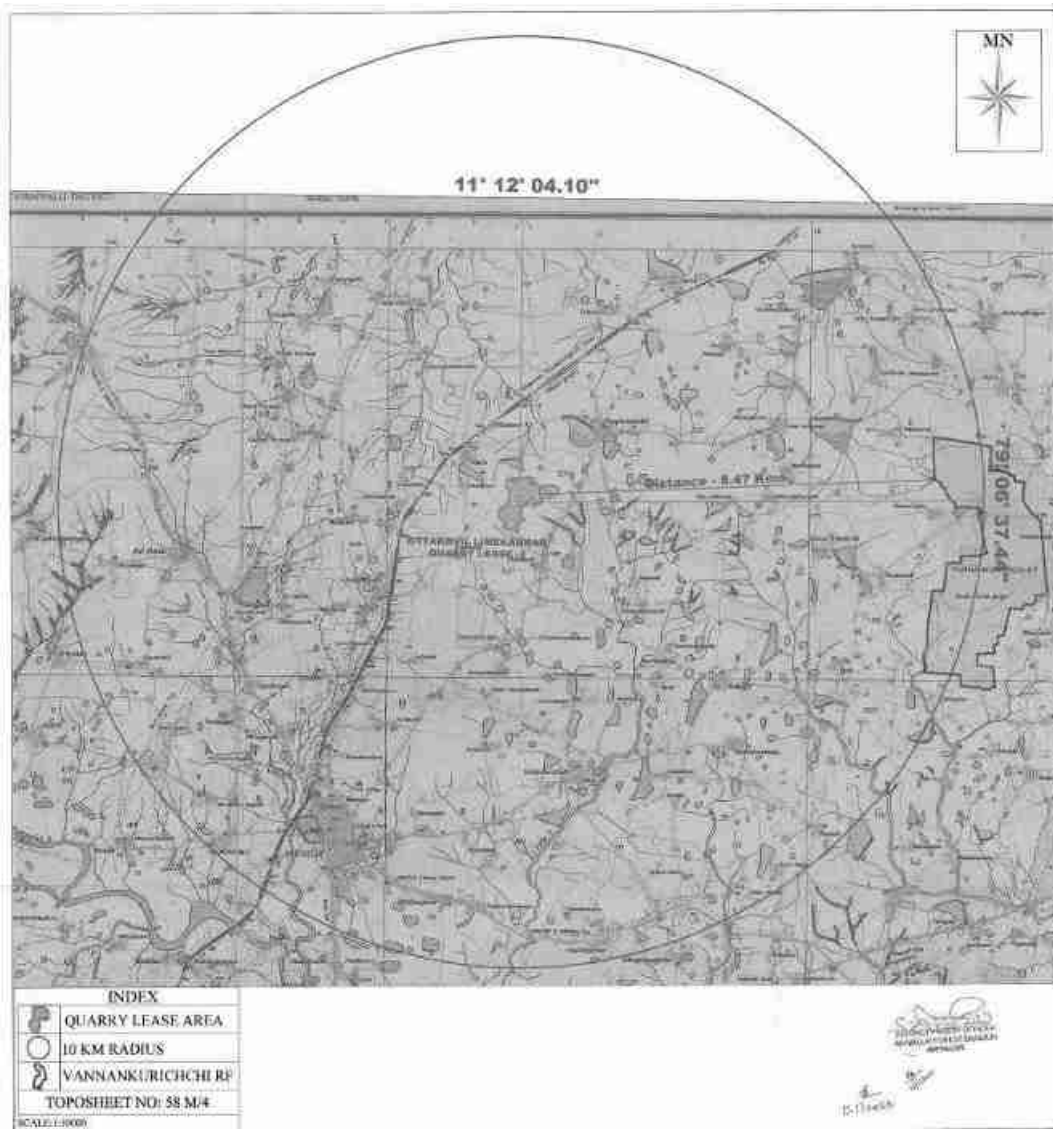




**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

- No reserve forests is present within one kilometer radius of the mine.
- The nearest reserve forest is Vinnakurichi Reserve Forest which is 8.05Km
- Karaivetti Bird Sanctuary is 23Km away from the mine and no other protcted area is present nearby.
- No other National Parks, Sanctuaries, Biosphere Reserve, Wildlife Corridors, Ramsar Site, Tiger/Elephant reserves lies in the proposed area.
- The Mine doesn't fall under notified areas of TNPPF Act/ TNHP Act.

**Figure 4.4:Authenticated Wildlife Map**





**4.6.3 CONTROL MEASURES FOR BIOLOGICAL ASPECTS:**

To reduce the adverse effects on flora/fauna status of the area due to deposition of dust generated from mining operations, mobile water tanker systems will be ensured in all dust prone areas to arrest dust generation. Methodical and well-planned plantation scheme will be carried out depending upon the immediate need, priority and availability of land. The plantation will be done along the lease boundary in a phased manner.

The objectives of the greenbelt cover will cover the following:

- Noise abatement
- Reuse of waste water to the extent possible
- Prevention of soil erosion
- Ecological restoration
- Aesthetic, biological and visual improvement of area due to improved vegetative and plantations cover.

**4.6.4 GREEN BELT & PLANTATION:**

The Ramco Cements has already been carrying out operations of mines and cement plant in the area earlier. In this regard, plantation has been carried out in and around the area already about 99,200 trees have been planted in various areas such as Township, Factory sites, School, ITI, etc. The details of the same has been provided below:

**Table 4.16: Existing Plantation outside the lease area**

Year	No. of Trees	Area
		(in Acres)
07-Aug	450	1
08-Sep	3000	10
09-Oct	2000	7
10-Nov	1100	3.5
11-Dec	2900	10
13-Dec	17670	35
13-14	46000	46
14-15	2500	7
15-16	2000	6
16-17	1891	6
17-18	2500	8
18-19	750	3
19-20	750	1.66





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

20-21	4280	2.47
21-22	3834	3.79
22-23	5285	5.22
23-24	2290	2.26
<b>Total</b>	<b>99200</b>	

**PHOTOGRAPHS OF EXISTING PLANTATION**



**Colony**



**Behind OHC**



**Near Club House**



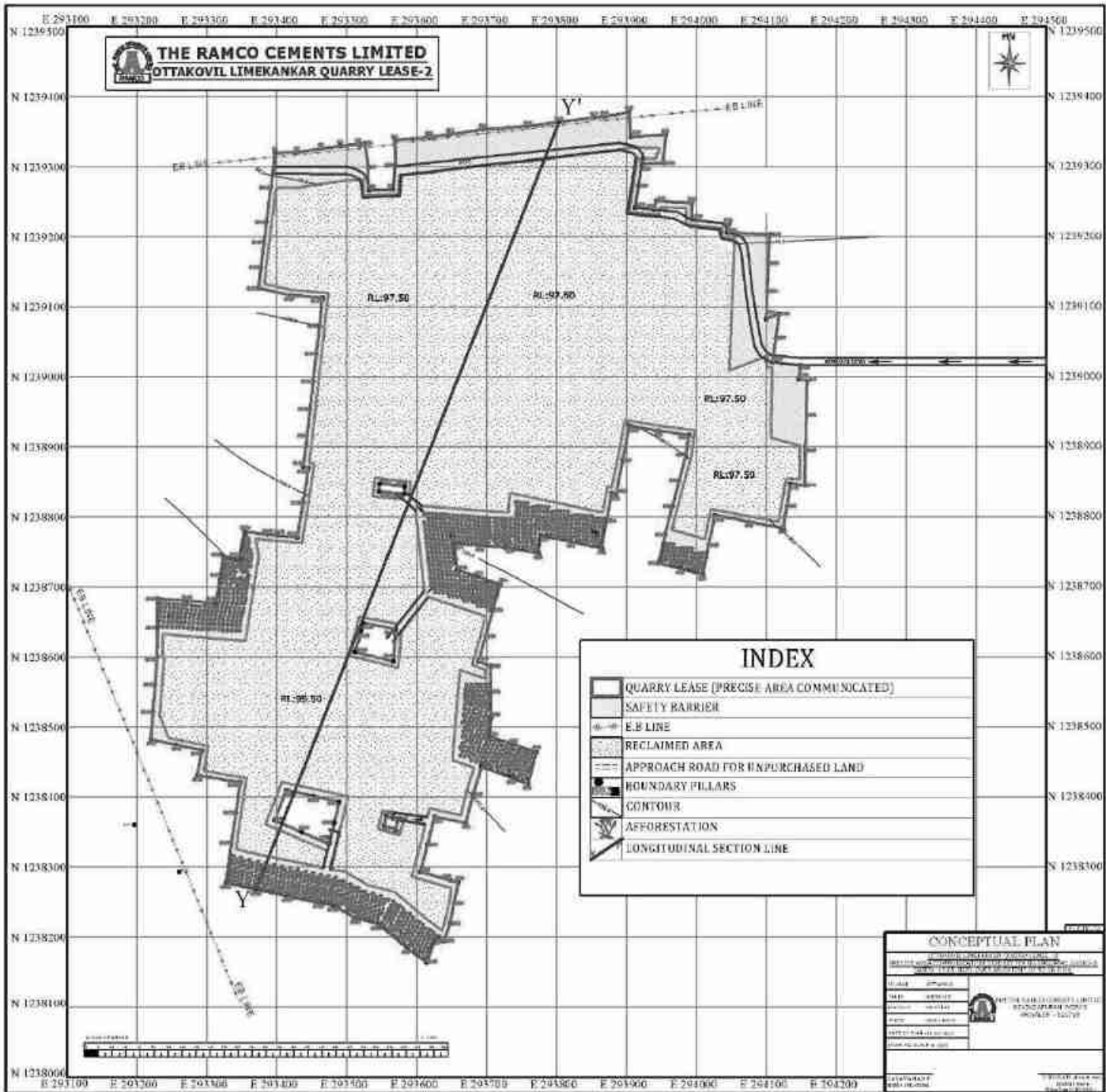
**Nursery**





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 4.5:CONCEPTUAL PLAN**





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

In the lease area, it has been planned to carry out plantation in and around the lease area. The details of the same has been provided below. Local native species will be considered for plantation.

**Table 4.17: Proposed Plantation**

Year	No. of tress proposed to be planted	Name of the species
I	1300	Pungai, Vagai, Vembu, Manjal konrai, Naval, Puvarasu, etc.,
II	1300	
III	1300	
IV	1300	
V	1300	
<b>Total</b>	<b>6500</b>	

At the end of the life of the mine, out of 44.41.0Ha of mined out area, 26.08Ha will be backfilled and restored to premining condition and balance 18.33Ha will be left as water reservoir. 0.01Ha will be infrastructure, 5.00Ha will be greenbelt and 7.94Ha will be the safety distance in which plantation will be carried out.

#### **4.7 SOCIO ECONOMIC ENVIRONMENT:**

The entire lease area is in the proponent's possession. Hence, there are no habitations or hutments in the core zone area and no rehabilitation or resettlement problems will arise here.

The mining operations in the proposed mine will employ about 16 persons directly and about 50 persons on indirect basis through allied opportunities in logistics, trading, repairing works etc. good employment potential will arise in this area, which will provide raising income levels and standards of living in the area through various service related activities connected with the project operations as shown under.

- Project related logistical operations for transport, etc,
- Various trading services for consumer goods, spare parts, sundry items, etc.
- Contractual services connected with the project.
- Green belt and horticultural works in the project.
- Casual labor needs for various activities.

Besides, there will be improvement in the following aspects due to project operation:







**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

- ❖ Improvement in infrastructural facilities, providing education aids etc. in nearby schools
- ❖ Betterment of drinking water facilities.
- ❖ Benefit to the State and the Central governments through financial revenues by way of royalty, tax, duties, etc from this project directly and also indirectly.

TRCL has adopted proper implementation of their corporate social Responsibility (CSR) programmes as a strategic and prime corporate motto. The company treats CSR as not only philanthropy, but as an important Corporate Mission and have carried out socially beneficial developmental activities in all peripheral areas of local community near to all their operating industrial ventures. In this project also, which is being operated for past many years, the project proponent have carried out extensive and beneficial social welfare activities to greatly improve the social and physical infrastructure of the local area. Elaborate details in this respect are profiled below. Many of the under mentioned welfare measures are also being implemented presently in a progressive manner from the past. The measures are largely designed on need based aspirations of local villagers. The proponent has already carried out extensive CSR activities in the areas around the lease area. So far they have spent Rs.3.19 Crores between 2021-2024 for the development of the local areas. A breakup of the same has been provided below:

**Table 4.18: CSR Activities carried out between 2021 - 2024**

Head	Yearwise Expenditure			
	2021-22	2022-23	2023-24	Total
Health	294467		104092	398559
Infrastructure	3932861	4730098	2360603	11023562
Skill Development	4441549	3197599	5023455	12662603
Environment	17500	414896		432396
Education	92130	1205990	1168846	2466966
Social	200000	1167474	50000	1417474
Other	57758	3208332	250448	3516538
<b>Total</b>	<b>9036265</b>	<b>13924389</b>	<b>8957444</b>	<b>31918098</b>





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Table 4.19:CSR activities carried out during 2023-24**

S.NO	DESCRIPTION	AMOUNT(RS)	VILLAGE
1	Construction Of 50 Nos of Smart Toilets In Ameenabad Village And 50 Nos Toilets In Periyagalur	22,06,595	Ameenabad
2	Donation Towards Sri Vinayagar & Karuppasamy Temple Kumbabeisegam At Illapaiyur Village	50,000	Illapaiyur
3	Donation For The Armed Force Flag Day Fund To District Environment Engineer,Tamilnadu Pollution Control Board-Ariyalur	10,000	Ariyalur
4	Sponsor Nutritional Food Supplement for TB Affected Patients	1,04,092	Factory & Mines
5	Tamil Nadu Apex Skill Development Centre Apr 2023 - Mar 2024	12,98,763.50	Factory & Mines
6	Donate 20 Benches & Desks To The Government Primary School,Ameenabad Village	1,15,995	Ameenabad
7	Donate Furnitures To The Government Primary School,Thamaraikulam	76,599	Thamaraikulam
8	Donation For The Armed Force Flag Day Fund To Assistant Director Of Geology And Mining,Ariyalur	50,000	Ariyalur
9	Tailor Training To Women In Illupaiyur Villages	1,69,265	Illupaiyur
10	Tailor Training To Women In Poyyathanallur Villages	1,83,705	Poyyathanallur
11	Construction Of Classroom In Government Middle School, Illupaiyur Village	9,76,252	Illupaiyur
12	Purchase Of Pongal Gift For The Sports Activities In Around Plant & Mines Villages Under Csr Activity.	1,90,448	Ariyalur
13	Construction Of Bus Stop At Govindapuram Village	1,54,008	Govindapuram
14	Excess Of Expenditure Over Income of Pacr ITI For The Year 2022-23	33,71,721	Ariyalur
	<b>TOTAL</b>	<b>89,57,443</b>	





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**PHOTOGRAPHS OF CSR ACTIVITIES**



**SPONSORING NUTRITIONAL FOOD FOR TB PATIENTS**



**DONATION TOWARDS TEMPLE KUMBABISEGAM AT ILLAPAIYUR VILLAGE**





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**



**SPONSORING FURNITURE TO GOVERNMENT HIGH SCHOOL, THAMARAIKULAM**



**CONSTRUCTION OF SMART TOILET IN AMEENABAD VILLAGE**





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**



**SKILL TRAINING TO WOMEN**



**CONSTRUCTION OF CLASSROOM AT GOVERNMENT MIDDLE SCHOOL**





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

From above details, it is clear that the project operations will have highly beneficial positive impact in the area as more such activities will be carried out in the future also.

**Table 4.20: CER Cost**

<b>Project Cost (Rs.)</b>	Rs.491.50 Lakhs
<b>CER Cost Requirement (2% of the Project Cost) (Rs.)</b>	Rs. 9.83 Lakhs
<b>Revised CER cost allocated (Rs.)</b>	Rs. 10.00 Lakhs

However, towards the socio economic development of the surrounding area, the proponent has earmarked an amount of Rs.10 Lakhs under Corporate Environmental Responsibility. The activities identified under CER will be implemented in a phased manner in provision of facilities in nearby Government School.

#### **4.8 OCCUPATIONAL HEALTH AND SAFETY:**

##### **4.8.1 BASELINE STATUS:**

Primary data collection through field survey conducted in the study area reveals that there is no reported incident of any occupational diseases in the area. Hazardous jobs are planned to be executed safely and with all precautionary measures as prescribed in Metalliferrous Mines Regulations of 1961, so as to minimize hazards and incidences of health problems.

##### **4.8.2 IMPACTS ON OCCUPATIONAL HEALTH DUE TO PROJECT OPERATIONS:**

Anticipated occupational illness sequel to mining activities can be as follows:

- Dust related pneumonia
- Tuberculosis
- Rheumatic arthritis
- Segmental vibration
- Miner's Nystagmus
- Eye diseases with irritation of eye, etc.

##### **4.8.3 MITIGATIVE MEASURES FOR OCCUPATIONAL HEALTH:**

There is an occupational health center presently available within the premises of the cement plant wherein first aid and medicines for health related issues are provided. AFIH Qualified Full time Doctor is appointed in General Shift and Male Nurses are also available. Basic Life Support





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---

Ambulance 24\*7 with Driver is available both at plant and mines respectively. First aid training & Certificates provided regularly to employees. Ensured first aid trainers available at each shift. Height phobia testing facility is available at the plant premises. Presently, for the various leases in the area the following measures are being carried out:

- Pre-employment Medical Examination is being carried out.
- Annual medical examination conducted for employees & Contractors
- Medical records are maintained for all workers.
- Health related Training Program conducted for all Employees.
- Adequate first aid boxes are provided at different locations in our plant and refilling being done as per the schedule.
- TRCL have Tie-Up with nearby Hospitals for further medical assistance.
- Periodical Health checkup for employees working in high risk areas were screened for any occupational illness symptoms.
- Health & Hygiene awareness given to all employees and families regularly and related health programs are regularly given to all employees and contractors at workplace and their colony premises.
- Health monitoring for Drivers are carried out at a specified location in the truck parking yard. They are being regularly monitored on daily basis. Periodic medical camps are also conducted for them.
- Labour Colony residential, Employee Spouse, all Mines employee is being carrying out periodically at their respective places. A dedicated OHC person is appointed to monitor the same.
- Conducting Height Phobia Examination for workers
- Organizing Work Life Balance programs to employees and their dependent
- Conducting Periodical Medical Check up for employees
- Conducting Lifestyle awareness program/ YOGA programs to employees





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

- Organizing medical camps to the nearby community
- Sponsoring medical kits to nearby community
- Providing Drinking water facility to the nearby community
- Constructed Smart Toilets and donated to the nearby community

To reduce pollution emanation from the project, following measures will be taken in addition to above existing measures:

- Water sprinkling on haul roads etc.
- Green belt creation to arrest dust and reduce noise propagation.
- Acceptance of good control measures for reducing air pollution, as mentioned earlier in the chapter.
- Control of noise levels through good preventive maintenance of machineries, green belt creation, provision of ear plugs to workers, etc.
- In addition to above measures, the following remedial steps are being and will be enforced to ensure minimization of occupational health and safety problems.
- Regular awareness campaigns amongst staff and workers
- Staff will be provided with PPE to guard against excess noise levels, Dust generation and inhalation, etc., as per standards prescribed by DGMS.

**PHOTOGRAPHS OF OCCUPATIONAL HEALTH CENTER**



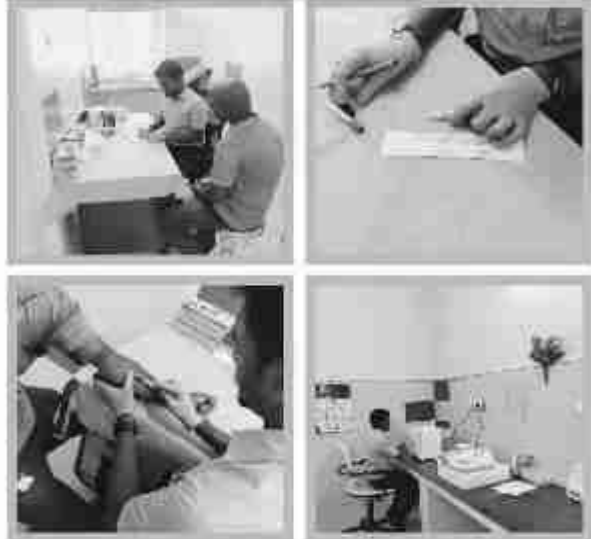




**PHYSICAL EXAMINATION**



**LAB INVESTIGATION**



**4.8.4 MITIGATIVE MEASURES FOR SAFETY ASPECTS:**

The following safety gadgets will be provided to the staff and workers based on their area of operation and work & requirement:

**Table 4.21: Personal Protective Equipments**

SI No	Safety Equipments
1.	Helmets
2.	Shoes
3.	Goggles
4.	Dust Mask
5.	Hand Gloves
6.	Reflective Jackets
7.	Ear Muffs
8.	Signal Lights/Flags

**4.9 LOGISTICAL SYSTEM:**

The lease area can be approached through a black top road from Ariyalur to Sendurai Village about 270m on the eastern side. This road joins SH-136 (Perambalur - Keezhapalur) which lies around 5.7Km on the southern side of the lease area. The limekankar mined out from this quarry would be used for captive purpose at the company’s own Govindapuram Cement Plant, located at a distance of about 6Km wherein it will be blended with limestone from other captive limestone mines to be utilized as raw material for cement manufacture.





**Figure 4.6: Transport Route**



**Table 4.22: Details of Transportation**

Sl.no	Particulars of activity	Quantity
A	Maximum Quantity Transported (TPA)	699891
B	No of days in a year	300
C	Transport hours per day	16
D	Truck capacity in T	25
	Trips per hour	6 Trip/hr

From the above table it is seen that there will be about 6 trips per hour. However this is only during the peak production during first year. In the subsequent years the production will also reduce and the number of trips per house will be ranging from 1 – 4 Trips per hour. The existing





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---

road can absorb this traffic due to this project. However, the following mitigative measures are suggested:

- ❖ Water sprinkling on material in the transport vehicles before transporting, so that no dust nuisance during transport will arise.
- ❖ Plantation on either side of the transport road in consultation with the concerned department.
- ❖ Proper maintenance of transport roads
- ❖ Proper maintenance of transport vehicles.
- ❖ Avoiding overloading of material
- ❖ Covering of loaded vehicles with tarpaulins sheet if warranted.
- ❖ Keeping traffic regulators at vulnerable locations.
- ❖ Distribution of transport vehicles for avoiding choking of roads
- ❖ Limiting of speed
- ❖ Installation of barriers at vulnerable locations
- ❖ Provision of tyre washing facility at the mine outlet

#### **4.10 WASTE MANAGEMENT:**

**Solid Waste:** Since the entire mined out material will be used for backfilling there will not be any solid waste generation from this project.

**Liquid waste:** There is no process effluent generation from this mine. Hence no liquid waste is generated.

**Hazardous waste management:** In this project the following management practices will be followed:

- Ensuring availability of different colour bins for collection of different types of waste.
- Storing of Hazardous waste material in a separate storage area with impervious containers for waste oil, oil contaminated clothes, used lead acid batteries, scraps, tyre storage etc.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---

- Ensure that there are no leakages/spillages of hazardous wastes.
- Ensuring that the fire extinguisher system is available at hazardous material storage area.

The hazardous waste if any will be disposed through authorized recyclers or re-processors periodically. The hazardous wastes will be transported in accordance with the provisions of rules. By effective implementation of above said mitigation measures no major impact due to Hazardous waste is expected.

**Plastic waste:** Single use plastics/ use and throwaway plastics will be banned in the site as directed by the Tamil Nadu Government vide GO(Ms)No.84 regarding ban on use of plastic products. The employees will be encouraged to use compostable material or ecofriendly material.

\* \* \* \* \*



# **CHAPTER - V**

## **ANALYSIS OF ALTERNATIVES (TECHNOLOGY & SITE)**



## **CHAPTER 5**

### **ANALYSIS OF ALTERNATIVES**

#### **5.1 ALTERNATE TECHNOLOGY:**

This is a proposed Limekankar Quarry in which Mechanized Open Cast mining will be carried out without drilling and blasting. It involves excavation & loading of ore using hydraulic excavator and transportation through tippers. As this method is techno economically proven, consideration of an alternate technology is not warranted.

#### **5.2 ALTERNATE SITE:**

The mineral deposits are site specific in nature; hence question of seeking alternate site does not arise.

\* \* \* \* \*



# **CHAPTER - VI**

## **ENVIRONMENTAL MONITORING PROGRAMME**



## **CHAPTER 6**

### **ENVIRONMENTAL MONITORING PROGRAMME**

#### **6.1 GENERAL**

In this project, appropriate environmental monitoring programme are framed. Regular, systematic and sustained programme schedules for implementation and monitoring of various control measures are devised with clear cut guidelines of various concerned plans for keeping a continuous surveillance on the various environmental quality parameters in the area.

The monitoring schedules are planned to aim at regular and systematic study of various pollution levels with respect to air and water quality, noise levels etc., to ensure that they conform to the standards laid down by the Environment Protection Act, 1986 and various Central and State Pollution Control Board Limits.

The various methodologies and frequency of studies of all environmental quality parameters will be as per prescribed norms laid down by MOEF&CC and State Pollution Control Board. This being a small quarry operation, the Environmental Engineer will take care of all the environmental related works also.

Environmental control measures include components like air, water and soil quality, noise levels, afforestation measures, etc. For monitoring of environment over the life of the mine, a set of stations for study of quality parameters are fixed as per the actual requirements and prevailing conditions of environmental factors, as dictated from time to time, depending on the prevailing pollution levels.

#### **6.2 MONITORING SCHEDULES FOR VARIOUS PARAMETERS**

The monitoring schedules are planned for systematic study of various pollution levels with respect to air and water qualities, noise levels, etc. to ensure that they conform to the standards laid down by Environmental Protection Act and various statutory Limits. However, based on the need and priority it may be suitably modified / improved in consultation with local authorities. The monitoring schedules to be adopted in this quarry are given below.







**Table 6.1: Environmental Monitoring Schedule**

S.No	Environmental Parameters	Parameters to be monitored	Monitoring area coverage /locations	Frequency of monitoring
1	Air Quality	Sulphur dioxide (SO <sub>2</sub> ), Oxides of Nitrogen (NO <sub>2</sub> ), Respirable Particulate Matter (PM <sub>2.5</sub> and PM <sub>10</sub> ).	2 locations in the buffer zone and 1 work zone locations.	As per CTO conditions
2	Water Quality	General, Physical, and chemical parameters	Ground Water samples (around the project area) and Mine Pit water samples	As per CTO conditions
3	Noise	Leq. Lmax Lmin, Leq Day & Leq Night dB(A)	Work zone locations and buffer zone villages	As per CTO conditions
4	Socio Economic Environment	Socio Economic Survey, Review of implementation of CER activities proposed	Buffer Zone	Yearly basis
5	Occupational Health	Occupational health survey to detect early incidence of diseases, Audiometry Test for workers in noise prone area and review of safety matters.	Staff and Workers involved in the project	Once in a year
6	Greenbelt	Maintenance	Within the lease area	Regularly

**6.3 LEGISLATIVE AND REGULATORY FRAME WORK:**

The project will have environmental policy declaring its responsibility and commitment to protect the environment and to ensure public safety. The existing policy will be available with all concerned officials of the plant. The following environmental standards as per methodologies prescribed, by MOEF/CPCB/TNPCB will be enforced in this project:

**Table 6.2: Environmental Standards**

Standards	Issued By	Reference
National Ambient Air Quality Standards	Central Pollution Control Board	Table No. 6.3
Water quality standards per IS 10500:2012	Bureau of Indian Standards	Table No.6.4
Noise Standards	CPCB / MoEF&CC	Table No.6.5





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Table 6.3: National Ambient Air Quality Standards**

[भाग III—खण्ड 4]

भाग का संस्करण : अद्यतन

3

**NATIONAL AMBIENT AIR QUALITY STANDARDS  
CENTRAL POLLUTION CONTROL BOARD  
NOTIFICATION**

New Delhi, the 18th November, 2009

No. B-29016/20/90/PCI-L—In exercise of the powers conferred by Sub-section (2) (b) of section 16 of the Air (Prevention and Control of Pollution) Act, 1981 (Act No.14 of 1981), and in supersession of the Notification No(s). S.O. 384(E), dated 11<sup>th</sup> April, 1994 and S.O. 935(E), dated 14<sup>th</sup> October, 1998, the Central Pollution Control Board hereby notify the National Ambient Air Quality Standards with immediate effect, namely:-

**NATIONAL AMBIENT AIR QUALITY STANDARDS**

S. No.	Pollutant	Time Weighted Average	Concentration in Ambient Air		
			Industrial, Residential, Rural and Other Area	Ecologically Sensitive Area (notified by Central Government)	Methods of Measurement
(1)	(2)	(3)	(4)	(5)	(6)
1	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	Annual* 24 hours**	50 80	20 80	- Improved West and Gaeke -Ultraviolet fluorescence
2	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	Annual* 24 hours**	40 80	30 80	- Modified Jacob & Hochheiser (Na-Arsenite) - Chemiluminescence
3	Particulate Matter (size less than 10µm) or PM <sub>10</sub> µg/m <sup>3</sup>	Annual* 24 hours**	60 100	60 100	- Gravimetric - TOEM - Beta attenuation
4	Particulate Matter (size less than 2.5µm) or PM <sub>2.5</sub> µg/m <sup>3</sup>	Annual* 24 hours**	40 60	40 60	- Gravimetric - TOEM - Beta attenuation
5	Ozone (O <sub>3</sub> ) µg/m <sup>3</sup>	8 hours** 1 hour**	100 180	100 180	- UV photometric - Chemiluminescence - Chemical Method
6	Lead (Pb) µg/m <sup>3</sup>	Annual* 24 hours**	0.50 1.0	0.50 1.0	- AAS /ICP method after sampling on EPM 2000 or equivalent filter paper - ED-XRF using Teflon filter
7	Carbon Monoxide (CO) mg/m <sup>3</sup>	8 hours** 1 hour**	02 04	02 04	- Non Dispersive Infra Red (NDIR) spectroscopy
8	Ammonia (NH <sub>3</sub> ) µg/m <sup>3</sup>	Annual* 24 hours**	100 400	100 400	-Chemiluminescence -indophenol blue method





**OTTA KOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTA KOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

4

THE GAZETTE OF INDIA : EXTRAORDINARY

[PART III—Sec. 4]

(1)	(2)	(3)	(4)	(5)	(6)
9	Benzene (C <sub>6</sub> H <sub>6</sub> ) µg/m <sup>3</sup>	Annual*	05	05	- Gas chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
10	Benzo(a)Pyrene (BaP) - particulate phase only. ng/m <sup>3</sup>	Annual*	01	01	- Solvent extraction followed by HPLC/GC analysis
11	Arsenic (As), ng/m <sup>3</sup>	Annual*	06	06	- AAS /ICP method after sampling on EPM 2000 or equivalent filter paper
12	Nickel (Ni), ng/m <sup>3</sup>	Annual*	20	20	- AAS /ICP method after sampling on EPM 2000 or equivalent filter paper

\* Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

\*\* 24 hourly or 08 hourly or 01 hourly monitored values, as applicable, shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

Note. — Whenever and wherever monitoring results on two consecutive days of monitoring exceed the limits specified above for the respective category, it shall be considered adequate reason to institute regular or continuous monitoring and further investigation.

SANT PRASAD GAUTAM, Chairman  
[ADVT-IB/4/18409/Exy.]

Note: The notifications on National Ambient Air Quality Standards were published by the Central Pollution Control Board in the Gazette of India, Extraordinary vide notification No(s). S.O. 384(E), dated 11<sup>th</sup> April, 1994 and S.O. 935(E), dated 14<sup>th</sup> October, 1998.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Table 6.4: IS – 10500 :2012 Standards**

**Table 1 Organoleptic and Physical Parameters**  
(Foreword and Clause 4)

Sl No.	Characteristic	Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of Test, Ref to Part of IS 3025	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
i)	Colour, Hazen units, <i>Max</i>	5	15	Part 4	Extended to 15 only, if toxic substances are not suspected in absence of alternate sources
ii)	Odour	Agreeable	Agreeable	Part 5	a) Test cold and when heated b) Test at several dilutions
iii)	pH value	6.5-8.5	No relaxation	Part 11	—
iv)	Taste	Agreeable	Agreeable	Parts 7 and 8	Test to be conducted only after safety has been established
v)	Turbidity, NTU, <i>Max</i>	1	5	Part 10	—
vi)	Total dissolved solids, mg/l, <i>Max</i>	500	2 000	Part 16	—

NOTE — It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissible limit in the absence of alternate source' in col 4, above which the sources will have to be rejected.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Table 2 General Parameters Concerning Substances Undesirable in Excessive Amounts**  
(Foreword and Clause 4)

Sl No.	Characteristic	Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of Test, Ref to	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
i)	Aluminium (as Al), mg/l, Max	0.03	0.2	IS 3025 (Part 55)	—
ii)	Ammonia (as total ammonia-N), mg/l, Max	0.5	No relaxation	IS 3025 (Part 34)	—
iii)	Anionic detergents (as MBAS) mg/l, Max	0.2	1.0	Annex K of IS 13428	—
iv)	Barium (as Ba), mg/l, Max	0.7	No relaxation	Annex F of IS 13428* or IS 15302	—
v)	Boron (as B), mg/l, Max	0.5	1.0	IS 3025 (Part 57)	—
vi)	Calcium (as Ca), mg/l, Max	75	200	IS 3025 (Part 40)	—
vii)	Chloramines (as Cl <sub>2</sub> ), mg/l, Max	4.0	No relaxation	IS 3025 (Part 26)* or APHA 4500-Cl G	—
viii)	Chloride (as Cl), mg/l, Max	250	1 000	IS 3025 (Part 32)	—
ix)	Copper (as Cu), mg/l, Max	0.05	1.5	IS 3025 (Part 42)	—
x)	Fluoride (as F) mg/l, Max	1.0	1.5	IS 3025 (Part 60)	—
xi)	Free residual chlorine, mg/l, Min	0.2	1	IS 3025 (Part 26)	To be applicable only when water is chlorinated. Tested at consumer end. When protection against viral infection is required, it should be minimum 0.5 mg/l.
xii)	Iron (as Fe), mg/l, Max	0.3	No relaxation	IS 3025 (Part 53)	Total concentration of manganese (as Mn) and iron (as Fe) shall not exceed 0.3 mg/l
xiii)	Magnesium (as Mg), mg/l, Max	30	100	IS 3025 (Part 46)	—
xiv)	Manganese (as Mn), mg/l, Max	0.1	0.3	IS 3025 (Part 59)	Total concentration of manganese (as Mn) and iron (as Fe) shall not exceed 0.3 mg/l
xv)	Mineral oil, mg/l, Max	0.5	No relaxation	Clause 6 of IS 3025 (Part 39) Infrared partition method	—
xvi)	Nitrate (as NO <sub>3</sub> ), mg/l, Max	45	No relaxation	IS 3025 (Part 34)	—
xvii)	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH), mg/l, Max	0.001	0.002	IS 3025 (Part 43)	—
xviii)	Selenium (as Se), mg/l, Max	0.01	No relaxation	IS 3025 (Part 56) or IS 15303*	—
xix)	Silver (as Ag), mg/l, Max	0.1	No relaxation	Annex J of IS 13428	—
xx)	Sulphate (as SO <sub>4</sub> ) mg/l, Max	200	400	IS 3025 (Part 24)	May be extended to 400 provided that Magnesium does not exceed 30
xxi)	Sulphide (as H <sub>2</sub> S), mg/l, Max	0.05	No relaxation	IS 3025 (Part 29)	—
xxii)	Total alkalinity as calcium carbonate, mg/l, Max	200	600	IS 3025 (Part 23)	—
xxiii)	Total hardness (as CaCO <sub>3</sub> ), mg/l, Max	200	600	IS 3025 (Part 21)	—
xxiv)	Zinc (as Zn), mg/l, Max	5	15	IS 3025 (Part 49)	—

**NOTES**

1 In case of dispute, the method indicated by '\*' shall be the referee method.

2 It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissible limit in the absence of alternate source' in col 4, above which the sources will have to be rejected.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Table 6.5: Noise Level Standards**

Area Code	Category of Area	Limits in dB(A) Leq	
		Day Time	Night Time
(A)	Industrial area	75	70
(B)	Commercial area	65	55
(C)	Residential area	55	45
(D)	Silence Zone	50	40

**Note :**

1. Day time shall mean from 6 a.m. and 10.0 p.m.
2. Night time shall mean from 10.0 p.m. and 6 a.m.
3. Silence zone is an area comprising not less than 100 meters around hospitals, educational institutions, courts, religious places or any other area which is declared as such by the competent authority.
4. Mixed categories of areas may be average as one of the four above mentioned categories by the competent authority.

\* dB(A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.

A “decibel” is a unit in which noise is measured.

“A”, in dB(A) Leq, denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear.

Leq: It is energy mean of the noise level over a specified period.

**Table 6.6: Permissible Noise For Industrial Workers As Laid Down By CPCB**

Exposure time (in hr. per day)	Limit in dB(A)
8	90
4	93
2	96
1	99
1/2	102
1/4	105
1/8	108
1/16	111
1/32	114





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---

The above said monitoring location and the frequency of monitoring shall be suitably modified in consultation with the nodal agency as per the actual requirements and prevailing conditions of the mine and environmental factors, as dictated from time to time, depending on the prevailing pollution levels, if required.

**6.4 ENVIRONMENTAL MONITORING COST:**

Towards environmental monitoring it is proposed to allocate a budget of Rs. 50,000 per annum for this project. Further details of the capital and recurring cost of environmental management has been provided in in Table No. 10.1, Chapter-X.

\* \* \* \* \*



# CHAPTER - VII

**ADDITIONAL STUDIES**





## **CHAPTER 7 ADDITIONAL STUDIES**

### **7.1 GENERAL:**

The additional studies covered for this EIA / EMP report are:

1. Public consultation of the project as per MoEF&CC mandates.
2. Risk Assessment
3. Cumulative Impact Study
4. R&R Plan
5. Mine closure planning

### **7.2 PUBLIC HEARING:**

This draft EIA/EMP report will be submitted for public hearing as per mandatory procedures through the District Collector and State Pollution Control Board officials after giving 30 days advance notice in two local newspapers about the scheduled date and time for conduct of the public hearing procedures. The opinions, concerns and objections of stakeholders will be recorded during the public hearing. All the public queries and the replies to the query by the project proponent and officials concerned will be recorded and incorporated in the Final EIA/EMP report for approval by SEIAA, Tamil Nadu.

### **7.3 RISK ASSESSMENT:**

Risk assessment is a process whereby risks are analyzed assessed and risk management priorities are evaluated. It is defined as the characterization of the potential adverse effect to human health & environment due to environmental hazards.

**Objectives of risk assessment are:**

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





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

- Reduce the inherent potential for major accidents

**Methodology of Risk assessment:**

- Collection of information & identification of hazard
- Classify their severity and probability of occurrence
- Identification of exposed risks
- Assess the risk and risk rating based on
  - ❖ Probability
  - ❖ Exposure
  - ❖ Consequence
- Prioritization of the risks
- Implementation of control measures
- Monitoring risk assessment
- Evaluation and correction

For the various risks, likely to arise, detailed analysis of causes and control measures is given in below:

S.No	Factors	Causes of risks	Control measures
1.	Slope stability of mine face and dumping benches	a) Bench may slide due to its unconsolidated nature. b) Vibration due to movement of vehicles in the benches.	The maximum depth of mining is 2.75 meters only. After extraction of Limekankar it is proposed to backfill the mined out pit, hence the risk of bench failure is practically absent.
2.	Excavation	a)Hauling and loading equipment are in such proximity while excavation b)Swinging of bucket over the body of tipper c) Driving of unauthorized person	<ul style="list-style-type: none"> <li>• Operator shall not operate the machine when person &amp; vehicles are in such proximity.</li> <li>• Shall not swing the bucket over the cab and operator leaves the machine after ensuring the bucket is on ground.</li> <li>• Shall not allow any unauthorized person to operate the machine by effective supervision.</li> </ul>
3.	Transportation	a)Operating the vehicle "nose to tail" b) Overloading of material c) While reversal & overtaking of vehicle	<ul style="list-style-type: none"> <li>• It will be ensured that all these causes will be nullified by giving training to the operators.</li> <li>• No over loading will be done.</li> <li>• Audio visual reverse horn will be</li> </ul>





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

S.No	Factors	Causes of risks	Control measures
		d) Operator of truck leaving his cabin when it is loaded	provided. • Proper training will be given.
4.	Fire due to electricity and Oil	a) Due to the short circuit of cables & other electrical parts b) Due to the leakage of inflammable liquid like diesel, oil etc.	• Electrical parts shall be cleaned frequently with the help of dry air blower • All fastening parts and places will be tightening. Suitable fire suppression equipment shall be provided.
5.	Natural calamities	Unexpected happenings	The mine management is capable to deal with the situation.

### 7.3.1. DISASTER MANAGEMENT PLAN:

The complete mining operation will be carried out under the management control and direction of a qualified mine manager holding a First Class Manager's certificate of competency. The DGMS have been issuing a number of standing orders, model standing orders and circulars to be followed by the mine management in case of disaster, if any. Moreover, mining staff is being sent to refresher courses from time to time to keep them alert.

Since simple shallow depth of mining with less equipment only will be used in this mine no natural/industrial hazards are may occur during normal operation.

In order to take care of hazard / disasters if any the following control measures have been adopted.

- Checking and regular maintenance of garland drains and earthen bunds to avoid any inflow of surface water in the mine pit.
- All safety precautions and provisions of regulations will be strictly followed during all mining operations
- Prohibiting entry of unauthorized persons.
- Provision of Firefighting and first-aid provisions in the mines.
- Provisions of all the safety appliances such as safety boot, helmets, goggles, dust masks, ear plugs and ear muffs etc. are made available to the employees for their use.
- Training and refresher courses for all the employees working in hazardous premises





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---

- Working of mine, as per approved plans and regularly updating the mine plans
- Cleaning of mine faces regularly
- Regular maintenance and testing of all mining equipment as per manufacturers guidelines
- Suppression of dust on the haulage roads with frequent water sprinkling, etc.
- Increasing the awareness of safety and disaster through competitions, posters and annual safety weeks and environmental weeks, encouraged through suitable rewards and other similar drives.

The management and the EMC will be able to deal with the situations efficiently keeping in view of the likely sources of dangers in the mine.

#### **7.4 REHABILITATION AND RESETTLEMENT (R & R) PLAN:**

The mining activities will be carried out within the mine lease area only. The entire mine lease area is own Patta land. There is no population within the ML area. Hence, the question of R& R does not arise.

#### **7.5 MINE CLOSURE PLAN:**

In the mine closure stage all necessary measures will be taken as per Act & Rules. Simultaneous backfilling of mined out area and its reclamation is proposed. As such most of the mined out area will be backfilled and reclaimed. The balance mined out area will be a shallow water reservoir used for rain water harvesting. Progressive reclamation of mined out backfilled area & plantation in the safety zone within the lease area will be ensured. The lease periphery will be properly fenced all around to prevent inherent entry of public and animal and all the statutory requirements will be fulfilled. Besides, to prevent any access to the mined out void, entrance will be secured with tall gate and a blockage bund across the access road. No entry / safety board will be erected all around the lease area.

\* \* \* \* \*



# **CHAPTER - VIII**

## **PROJECT BENEFITS**



## **CHAPTER 8 PROJECT BENEFITS**

The quarry will improve physical and social infrastructures in the area like:

- Direct employment to 16 people.
- Indirect employment to 50 people.
- Improvements in infrastructure in the area like Provision of drinking water supply, approach road etc., to nearby areas.
- Improvement of Educational, health Facilities in the surrounding areas.
- Increase in education and literacy level of the people due to creation of more facilities.
- Financial gains for the state and central Governments, through collection of various taxes like GST, Seigniorage Fees, DMF, Green Fund etc.,
- Increase in General Awareness of the People.
- Increase in Competitive Spirit among Youths.
- Improvement of the General Living Standard of the People in the Vicinity.
- Overall Improvement in HDI (Human Development Index).
- Growth of Allied Industries in the Area.
- Generation of self-employment through self-help groups.
- Improvement in Per Capita Income.
- Providing certain facilities for the local schools and panchyats.
- Creation of more awareness and concern about the preservation and conservation of the environment compared to the earlier times.
- Increase in the rate of employment, which will enhance the economic living standard of the people.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

- Facilities in health care services will augment, which will help the people to enjoy healthier lives.
- The social assets of the people will improve.
- A level of increase will be seen in the education and literacy level of the people.
- The overall standard of living of the people will improve.

In short, the mine will benefit this region in the fields of employment opportunities, improved per capita income for local people, improved social welfare facilities in respect of education, medical systems, infrastructural build-up, etc in its own way.

The mining operations have always been carried out in a safe, systematic and scientific manner by The Ramco Cements in their mining operations in the area. This is evidenced by the various awards and accolades received by them in this regard. Some instances of the same are shown below:

**Photographs of Awards**



**5 Star Rating Award by Ministry of mines**



**FIMI Environmental Award**





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**



**NCCBM Awards**



**MEMC Week 2024**

Such safe mining operations in adherence to Government regulations will be carried out in this lease also. By means of carrying out the socio-economic development activities, local community development is expected. Towards the same, the proponent has planned to allocate Rs.10 Lakhs for various activities under CER. The activities will be implemented once the mining operations commence. From the CER activities allocated for various social welfare activities, the villages near the lease area will be benefited.

\*\*\*\*\*





# **CHAPTER - IX**

## **ENVIRONMENTAL COST BENEFIT ANALYSIS**



**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---

**CHAPTER 9  
ENVIRONMENTAL COST BENEFIT ANALYSIS**

Appendix-III of the MoEF notification S.O. 1533 dated 14.09.2006, which describes the generic structure of Environmental Impact Assessment document, states that the chapter 'Environmental cost benefit analysis' is applicable if it is recommended during scoping stage.

ToR for this project has been received from SEIAA, Tamil Nadu vide their letter No. SEIAA-TN/F.No.10503/2023/SEAC/ToR-1671/2024 dated 08.02.2024. Environmental cost benefit analysis is not prescribed in the terms of reference. Hence, it is not applicable for this project.

\* \* \* \* \*



# **CHAPTER - X**

## **ENVIRONMENTAL MANAGEMENT PLAN**



## **CHAPTER 10**

### **ENVIRONMENTAL MANAGEMENT PLAN**

#### **10.1 INTRODUCTION:**

This chapter describes the implementation strategies of the environmental management measures described through the course of this EIA/EMP report for the purpose of mitigating significant impacts due to the proposed expanded mining operations.

#### **10.2 COMPONENTS OF THE ENVIRONMENTAL MANAGEMENT PLAN:**

The environmental management plan comprises identification of the major impacts due to project operations and their suitable mitigative measures. (Provided in an elaborate manner in Chapter-IV) Based on the environmental policy of the company, the environmental management cell will oversee the implementation of these mitigative measures. The details of the proponent's environmental policy, environmental management cell and also the budgetary allocation towards various environmental management measures has been elaborated in this chapter.

##### **10.2.1 ENVIRONMENTAL POLICY:**





The Ramco Cements Limited is an ISO 9001:2015 (Quality Management System) ISO14001:2015 (Environment Management System), OHSMS 45001:2018(Occupational Health & Safety Management System) and ISO 50001:2018 (Energy Management System) certified company. The company has formulated a well-planned and integrated Environment, Quality and Occupational Health & Safety Management policy.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 10.1:ISO 9001:2015 Certificate**

MSC-F6.4-15

बारे में (बहिष्करण के लिए 3 के उप-भाग (ii) भी देखें)  
Form 10 (Rule 316-Para (ii) of Para 3 of Scheme 10)

**भारतीय मानक ब्यूरो**  
**BUREAU OF INDIAN STANDARDS**  
 गुणवत्ता प्रबंधन प्रणाली प्रमाणन अनुमति  
LICENCE FOR THE QUALITY MANAGEMENT SYSTEMS CERTIFICATION  
 राष्ट्रीय प्रत्याचन प्रमाणन निकाय बोर्ड, नई दिल्ली द्वारा प्रत्यांकित  
(Accredited by National Accreditation Board for Certification Bodies, New Delhi)

**लाइसेंस सं. QM/L-6006947.4**  
**Licence No. QM/L- 6006947.4**  
 [अनुसूची में ब्यक्त शर्तों अधिनियम, 2016 (2016 का 11) द्वारा प्रदान की गई शर्तियों के अन्तर्गत, नई दिल्ली]  
By virtue of the power conferred on it by the Bureau of Indian Standards Act 2016 (11 of 2016), the Bureau hereby grants/accredits as follows:

<b>दू. एस. पी. यादव लिमिटेड</b> <b>गोविन्दपुरम वर्क्स, सेन्दुरई रोड,</b> <b>अरियलूर जिल्ला- 621 713</b> <b>तमिलनाडु, भारत</b>	<b>The Ramco Cements Limited</b> <b>Govindapuram Works, Sendurai Road,</b> <b>Ariyalur District, - 621 713</b> <b>Tamilnada, India</b>
--	---

जो (जिनमें इनके अन्तर्भावप्राप्त किए गए हैं) इनके साथ सभी अनुसूची में विवरण एवं वे संश्लेषण/उत्पाद/सौकर्य सेवाओं या प्रक्रियाओं का (जिनमें इनके अन्तर्भावप्राप्त किए गए हैं) इनके साथ सभी अनुसूची में विवरण एवं वे संश्लेषण/उत्पाद/सौकर्य सेवाओं का प्रस्ताव है: उनका वे ब्यूरो के गुणवत्ता प्रबंधन प्रणाली प्रमाणन के अन्तर्भावप्राप्तियों के अधिनियम (2016) में उक्त शर्तों में सूचीबद्ध होने का अधिकार और अनुसूची में उल्लेखित शर्तों के अन्तर्गत कार्य करने का अधिकार है, जो इस लाइसेंस की है। इस प्रमाण के अन्तर्गत उत्पाद/सौकर्य सेवाओं या प्रक्रियाओं का अन्तर्भावप्राप्ति द्वारा IS/ISO 9001:2015 के अन्तर्गत गुणवत्ता प्रबंधन प्रणाली के अन्तर्गत प्रमाणन प्राप्त करने वाले (यहाँ) पर निर्दिष्ट/प्रमाणित किए जायेंगे।  
(hereinafter called the Licensee) (the right and licence to) be listed in the Bureau's register(s) of Licensees of Quality Management Systems Certification in respect of the products and/or services or processes particularly described in the schedule hereto, bearing the same number as this licence. Such products and/or services or processes shall be manufactured/provided/carried out by the Licensee at only the address(es) given above, and under the Quality Management Systems in accordance with IS/ISO 9001:2015





2. यह लाइसेंस इस लाइसेंस का विधिवत करने वाले सम्बंधित अधिनियम और उनके अधीन ब्यापक एवं विधायक और विनियमों के अन्तर्गत प्रमाणन के अन्तर्गत प्रमाणित करने का अधिकार है।  
The licence is granted/qualified subject to the relevant provisions of the above Act and the rules and regulations made thereunder governing the licences referred to above, and the Licensee hereby consents with the Bureau duly to observe with the said Rules and Regulations.

3. यह लाइसेंस 16 नवंबर 2023 से 09 अक्टूबर 2026 तक वैध रहेगा और विनियमों के अनुसार इसे नवीनीकृत किया जा सकता है।  
This licence shall be valid from 16 November 2023 to 09 October 2026 and may be renewed as prescribed in the Regulations.

नवंबर 2023 के 17 तारीख को हस्ताक्षरित एवं मुद्रांकित  
**Signed, Sealed and Dated on 17<sup>th</sup> day of November 2023**

उपस्थित  
(यू. एस. पी. यादव)  
**दू. एस. पी. यादव / U. S. P. YADAV**  
से. निदेशक (दक्षिण) (Deputy Director General (South))  
भारतीय मानक ब्यूरो  
**BUREAU OF INDIAN STANDARDS**  
दक्षिण क्षेत्र कार्यालय, 34 डी.सी. रोड, 67 कॉम्प्लेक्स,  
मन्नार, 39-1 (Tamilnadu) Chennai - 600 113.

**वैज्ञानिक एवं उप-सहायक निदेशक (दक्षिणी क्षेत्र)**  
**नई भारतीय मानक ब्यूरो**  
(U. S. P. YADAV)  
**Sc.F. & Deputy Director General (Southern Region)**  
**for BUREAU OF INDIAN STANDARDS**














**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 10.2: ISO 14001:2015 Certificate**

धारा III (खीच-III) के पैरा 3 के उप-पैरा (5) को देखें  
Form III (Refer Sub-Para (5) of Para 3 of Scheme III)

**भारतीय मानक ब्यूरो**  
**BUREAU OF INDIAN STANDARDS**

पर्यावरण प्रबंध प्रणाली प्रमाणन लाइसेंस  
LICENCE FOR THE ENVIRONMENTAL MANAGEMENT SYSTEMS CERTIFICATION

राष्ट्रीय प्रत्यायन प्रमाणन निकाय बोर्ड, नई दिल्ली द्वारा प्रत्यायित  
(Accredited by National Accreditation Board for Certification Bodies, New Delhi)

लाइसेंस सं. ईएम/एन- 6000582.3  
Licence No. E/M/L- 6000582.3

1. भारतीय मानक ब्यूरो अधिनियम, 2016 (2016 का 11) द्वारा प्रदान की गई शक्तियों के अन्तर्गत, ब्यूरो  
By virtue of the power conferred on it by the Bureau of Indian Standards Act 2016 (11 of 2016), the Bureau hereby  
(grants/recertifies to)

<p><b>द रामको सीमेंट्स लिमिटेड</b> गोविन्दपुरम वर्क्स, सेंदुरई रोड, अरियालुर जिल्ला- 621 713 तमिलनाडु, भारत</p>	<p><b>The Ramco Cements Limited</b> Govindapuram Works, Sendurai Road, Ariyalur District, - 621 713 Tamilnada, India</p>
---	--

को (जिन्हें इसके बाद लाइसेंसधारी कहा गया है) इसके साथ लगी अनुमोदी में विरोध रूप में वर्णित उत्पादों और/या सेवाओं या प्रक्रियाओं के संबंध में ब्यूरो के पर्यावरण प्रबंध प्रणाली प्रमाणन के लाइसेंसधारी के रजिस्टर(री) में उसी संख्या में सूचीबद्ध होने का अधिकार और लाइसेंस प्रत्यायन/नवीकरण करता है, जो इस लाइसेंस की है। इस प्रकार के उत्पाद और/या सेवाओं या प्रक्रिया लाइसेंसधारी द्वारा **IS/ISO 14001:2015** के अनुरूप पर्यावरण प्रबंध प्रणाली के अनुसार केवल उपर बताए गए पते (पते) पर निर्मित/प्रदान/प्रदानित किए जाएंगे।  
(hereinafter called the Licensee) the right and licence to be listed in the Bureau's register(s) of Licensees of Environmental Management Systems Certification in respect of the products and/or services or processes particularly described in the schedule hereto, bearing the same number as this licence. Such products and/or services or processes shall be manufactured/provided/carried out by the Licensee at only the address(es) given above, and under the Environmental Management Systems in accordance with **IS/ISO 14001:2015**.




2. यह लाइसेंस इस लाइसेंस का विनियमन करने वाले उपरोक्त अधिनियम और उसके अधीन बनाए गए नियमों और विनियमों के संबंध प्रवधानों के अंतर्गत स्विकृत/पुनः प्रमाणित किया गया और लाइसेंसधारी एतद द्वारा ब्यूरो को उपरोक्त नियमों और विनियमों का विधिपूर्वक पालन करने का वचन देता है।  
The licence is granted/recertified subject to the relevant provisions of the above Act and the rules and regulations made thereunder governing the licences referred to above, and the Licensee hereby covenants with the Bureau duly to observe with the said Rules and Regulations.

3. यह लाइसेंस 16 नवंबर 2023 से 09 अक्टूबर 2026 तक वैध रहेगा और विनियमों के अनुसार इसे नवीनीकृत किया जा सकता है।  
This licence shall be valid from **16 November 2023 to 09 October 2026** and may be renewed as prescribed in the Regulations.

नवंबर 2023 के 17 तारीख को हस्ताक्षरित एवं मुद्रित  
Signed, Sealed and Dated on 17<sup>th</sup> day of November 2023

पु. एस. पी. यादव / U. S. P. YADAV  
उप-महानिदेशक (खीच) / Deputy Director General (Scheme III)  
भारतीय मानक ब्यूरो  
BUREAU OF INDIAN STANDARDS  
दक्षिण क्षेत्रीय कार्यालय, एच.एस. रोड, एच.एस. रोड, नई दिल्ली  
Southern Regional Office, H. Cross Road, H. Cross Road, New Delhi  
हरियाणा, चेन्नै / Haridwar, Chennai - 600 117.

Signature  
(यु. एस. पी. यादव)  
वैज्ञानिक एक और उप महानिदेशक (दक्षिणी क्षेत्र)  
भारतीय मानक ब्यूरो  
(U. S. P. YADAV)  
S. F. & Deputy Director General (Southern Region)  
for BUREAU OF INDIAN STANDARDS

धारा III | अधिनियम 7 (1) D (6) देखें  
Form III (see Regulation 7 (1) D (6))  
MSC -F6.4-15





**OTTA KOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTA KOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 10.3: ISO 45001:2018 Certificate**



OHSS

MSC-F6.4-15

Form III (Ruler Sub-Para (5) of Para 3 of Scheme III)

## भारतीय मानक ब्यूरो

### BUREAU OF INDIAN STANDARDS

LICENCEE FOR OCCUPATIONAL HEALTH & SAFETY MANAGEMENT SYSTEMS CERTIFICATION

[Accredited by National Accreditation Board for Certification Bodies, New Delhi]

**साइनेस नं. ओएच/एन-6000230.3**  
**Licence No OH/L-6000230.3**

1. भारतीय मानक ब्यूरो अधिनियम, 2016 (2016 का 11) द्वारा प्रदान की गई शक्तियों के अन्तर्गत, ब्यूरो  
 By virtue of the power conferred on it by the Bureau of Indian Standards Act 2016 (11 of 2016), the Bureau hereby  
 grants/recognises to

<p><b>द दैनको सीमेंट्स लिमिटेड</b>  <b>गोविन्दपुरम वर्क्स, सेंदुराल रोड,</b>  <b>अरियालुर डिस्ट्रिक्ट- 621 713</b>  <b>तमिलनाडु, भारत</b></p>	<p><b>The Ramco Cements Limited</b>  <b>Govindapuram Works, Sendural Road,</b>  <b>Ariyalur District, - 621 713</b>  <b>Tamilnadu, India</b></p>
---	--

को (जिसे इसके बाद साइनेसधारी कहा गया है) इसके साथ जहाँ अनुसूची में विशेष रूप से वर्णित उत्पादों और/या सेवाओं या प्रक्रियाओं के संबंध में ब्यूरो के व्यावसायिक स्वास्थ्य एवं सुरक्षा प्रबंध प्रणाली प्रमाणन के साइनेसधारी के रजिस्ट्रार(री) में उसी संख्या से सूचीबद्ध होने का अधिकार और साइनेस प्रदान/पुनः प्रमाणित कराता है, जो इस साइनेस की है। इस प्रकार के उत्पाद और/या सेवाओं या प्रक्रिया साइनेसधारी द्वारा **IS/ISO 45001:2018** के अनुसार व्यावसायिक स्वास्थ्य एवं सुरक्षा प्रबंध प्रणाली के अनुसार केवल उपर बताए गए पते (पते) पर निर्मित/प्रदान/संचालित किए जाएंगे।  
 (hereinafter called the Licensee) the right and licence to be listed in the Bureau's register(s) of Licensees of Occupational Health & Safety Management Systems Certification in respect of the products and/or services or processes particularly described in the schedule hereto, bearing the same number as this licence. Such products and/or services or processes shall be manufactured/provided/carried out by the Licensee at only the address(es) given above, and under the Occupational Health & Safety Management Systems in accordance with **IS/ISO 45001:2018**

2. यह साइनेस इस साइनेस का विनियमन करने वाले उपरोक्त अधिनियम और उसके अधीन बनाए गए नियमों और विनियमों के संदर्भ में प्रमाणन के अंतर्गत न्यूनतम पुनः प्रमाणित किया गया और साइनेसधारी एवम्, द्वारा ब्यूरो को उपरोक्त नियमों और विनियमों का विधिपूर्वक पालन करने का वचन देता है।  
 The licence is granted/recognised subject to the relevant provisions of the above Act and the rules and regulations made thereunder governing the licences referred to above, and the Licensee hereby covenants with the Bureau duly to observe with the said Rules and Regulations.

3. यह साइनेस 16 नवंबर 2023 से 09 अक्टूबर 2026 तक वैध रहेगा और विनियमों के अनुसार इसे नवीनीकृत किया जा सकता है।  
 This licence shall be valid from **16 November 2023 to 09 October 2026** and may be renewed as prescribed in the Regulations.

नवंबर 2023 के 17 तारीख को हस्ताक्षरित एवं मुहताकित  
**Signed, Sealed and Dated on 17<sup>th</sup> day of November 2023**

सू. एस. पी. यादव / U. S. P. YADAV  
 उप-निदेशक (दक्षिण) / Deputy Director General (Southern Region)  
 भारतीय मानक ब्यूरो  
**BUREAU OF INDIAN STANDARDS**  
 सॉुथर्न रेगिऑन ऑफिस, 14 क्रॉस रोड, सी.ए. कॉम्प्लेक्स,  
 तारामो, चेन्नई / Tararam, Chennai - 600 113.

30/11/23  
 (सू. एस. पी. यादव)  
 वैज्ञानिक एक और उप महानिदेशक (दक्षिणी क्षेत्र)  
 कृते भारतीय मानक ब्यूरो  
 (U. S. P. YADAV)  
**for BUREAU OF INDIAN STANDARDS**











**OTTAKOVI LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVI VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Figure 10.4: ISO 5001:2018 Certificate**



**En**

**M**

**S**

MSC -F6.4-17 Issue - 02

फॉर्म III (स्कीम-III के पैरा 3 के उप-पैरा (5) को देखें)  
Form III (Refer Sub-Para (5) of Para 3 of Scheme III)

**भारतीय मानक ब्यूरो**  
**BUREAU OF INDIAN STANDARDS**

**ऊर्जा प्रबंध पद्धति प्रमाणन लाइसेंस**  
**LICENCE FOR THE ENERGY MANAGEMENT SYSTEMS CERTIFICATION**

लाइसेंस नं. इएन/एम-6000078.2

Licence No. EN/L-6000078.2

1. भारतीय मानक ब्यूरो अधिनियम, 2016 (2016 का 11) द्वारा प्रदान की गई शक्तियों के अधिन में, ब्यूरो  
By virtue of the power conferred on it by the Bureau of Indian Standards Act 2016 (11 of 2016), the Bureau  
hereby grants/recertifies to

मेसर्स द रैमको सीमेंट्स लिमिटेड.

M/s. The Ramco Cements Limited

गोविन्दपुरम वर्क्स

Govindapuram Works

सेन्दुरल रोड, अरियालुर तालुक

Sendurai Road, Ariyalur Taluk,

अरियालुर जिला

Ariyalur District

तमिलनाडु - 621 713, भारत।

Tamilnadu - 621 713, India.

को (जिन्हें इसके बाद लाइसेंसधारी कहा जायेगा) इसके साथ लम्बी अवधि की विशेष रूप से वर्णित उत्पादों और/या सेवाओं या प्रक्रियाओं के संबंध में ब्यूरो के ऊर्जा प्रबंध पद्धति प्रमाणन के लाइसेंसधारियों के रजिस्ट्रार(री) में उसी संख्या से सूचीबद्ध होने का अधिकार और लाइसेंस प्रदान/पुनर्विचार करता है, जो इस लाइसेंस की है। इस प्रकार के उत्पाद और/या सेवाओं या प्रक्रिया लाइसेंसधारियों द्वारा IS/ISO 50001:2018 के अनुसार ऊर्जा प्रबंध पद्धति के अनुसार केवल ऊपर बताए गए पते (पते) पर निर्मित/प्रदान/प्रदान किए जाएंगे।

(hereinafter called the Licensee) the right and licence to be listed in the Bureau's register(s) of Licensees of Energy Management Systems Certification in respect of the products and/or services or processes particularly described in the schedule hereto, bearing the same number as this licence. Such products and/or services or processes shall be manufactured/provided/carried out by the Licensee at only the address(es) given above, and under the Energy Management Systems in accordance with IS/ISO 50001:2018.

2. यह लाइसेंस इस लाइसेंस को प्रदान करने वाले अधिनियम और उसके अधीन बनाए गए नियमों और विनियमों के संदर्भ प्रारंभ के अंतर्गत सूचीकृत शर्तों के अधिनियम और उसके अधिनियमों के अनुसार केवल ऊपर बताए गए पते (पते) पर निर्मित/प्रदान/प्रदान करने का अधिकार प्रदान करने का उद्देश्य है।

The licence is granted/recertified subject to the relevant provisions of the above Act and the rules and regulations made there under governing the licensees referred to above, and the Licensee hereby covenants with the Bureau duly to observe with the said Rules and Regulations.

3. यह लाइसेंस 08 जून 2023 से 23 मार्च 2026 तक तक वैध होगा और इसका विनियमों के अनुसार पुनर्विचार किया जा सकेगा।

This licence shall be valid from 08 June 2023 to 23 Mar 2026 and may be recertified as prescribed in the Regulations.

जून 2023 के 28 तारीख को प्रस्तावित एवं मुहरांकित।

Signed, Sealed and Dated on 28<sup>th</sup> day of June 2023

(यू. एस. पी. यादव)

वैश्वानर एक और उप महानिदेशक (दक्षिणी क्षेत्र)

कृते भारतीय मानक ब्यूरो

(U. S. P. YADAV)

Sec'y & Deputy Director General (Southern Region)  
for BUREAU OF INDIAN STANDARDS

यू. एस. पी. यादव / U. S. P. YADAV

उप महानिदेशक (दक्षिणी) / Deputy Director General (South)

भारतीय मानक ब्यूरो

BUREAU OF INDIAN STANDARDS

दक्षिण क्षेत्रीय कार्यालय, चौथा क्रॉस रोड, सी 11 कैंपस,

Southern Regional Office, IV Cross Road, C11 Campus,

चरमणी, चेन्नई (Taramani, Chennai - 600 113.

Page 1 of 2



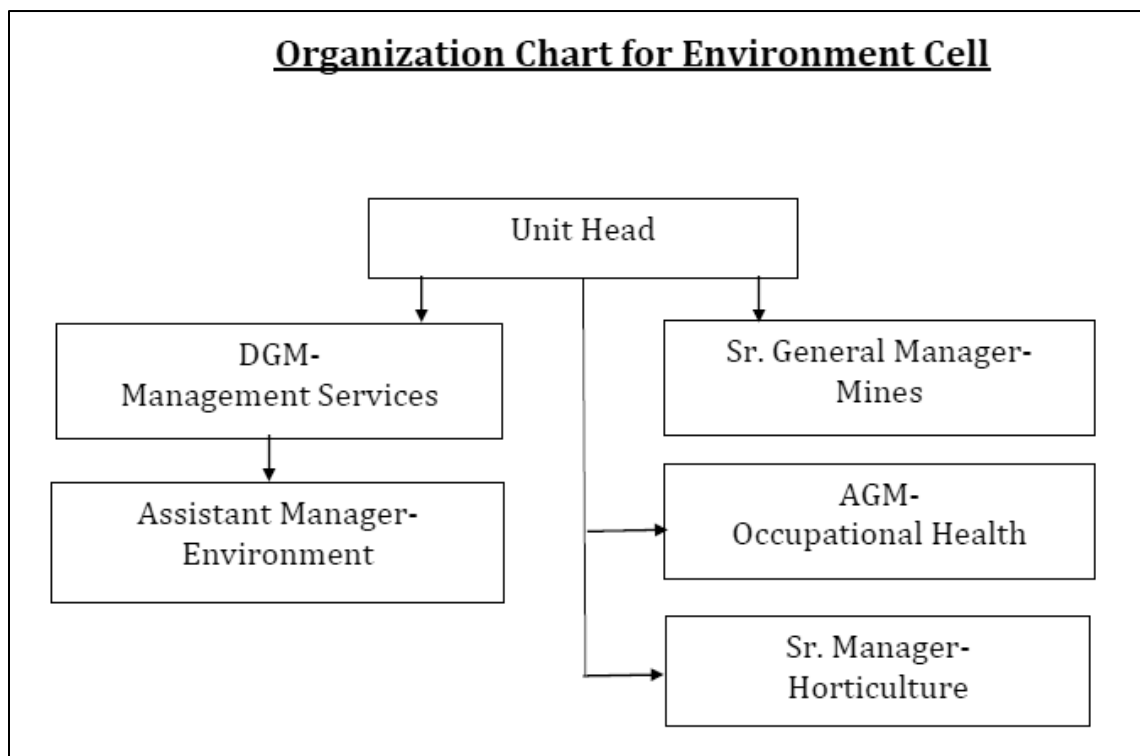




### 10.2.2 ENVIRONMENTAL MANAGEMENT CELL:

Common environmental management cell is available for the proponent's leases in this area. The Unit Head will undertake effective monitoring and implementation of various environmental control measures promptly and effectively and to oversee various environmental management schemes for air quality control, water quality status, noise level control, plantation programme, social development schemes, etc in the mine. The organizational chart for the same has been provided below:

**Figure 10.5: Organization Chart**



The Unit in the mine project site will be directly responsible for various environmental activities in the mine. The owner will correlate and oversee the environmental activities and their effective implementation in consonance with the guidelines in the EMP. The DGM (Management Services) will oversee the environmental administration at the mine and he will directly supervise all activities of environmental administration on environmental issues. Necessary assistance from sub ordinates, external consultants and laboratories shall be taken.



**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---

Environmental control measures will span various factors like land degradation, air, water and soil quality, noise levels, effective land reclamation for excavated areas, afforestation measures, etc. The administrative functions are given below.

- ❖ To observe the implementation of environmental control measures.
- ❖ To study the effects of project activities on the environment.
- ❖ To ensure implementation of Plantation Programme. Regular monitoring of survival rate of plants is carried out to achieve the desired result.
- ❖ To keep records of monitoring etc., in a systematic way, so as to facilitate easy access, when needed by statutory agencies, etc. Also send prescribed returns to statutory authorities.
- ❖ To ensure that adequate fencing and plantation is carried out in the safety zones.
- ❖ Conducting environmental studies and reporting to SPCB.
- ❖ To interact and liaise with Government Departments.
- ❖ To evaluate the performance of existing pollution control equipment and systems periodically and take timely action to keep the equipment at its optimum performance condition.
- ❖ To take immediate preventive action in case of some unforeseen environmental pollution attributable to the project.
- ❖ Conducting safety audits and programmes to create safety awareness in workers/ staff.
- ❖ Conducting annual health audits to detect any health problems promptly in the workers/staff. This will reduce occupational health problems.
- ❖ Imparting training on safety and conduct safety drills to educate employees. Firefighting equipment and system has to be kept in 'ready-to-fight' condition.
- ❖ Carrying out socio economic study in the surrounding areas to find out the benefits derived by the society due to the project and also to fulfill the deficiency, if any, immediately.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---

❖ Ensuring proper mine closure arrangements

Considering the other mines in the cluster, the Environmental Management Cell of this project will also act as a Cluster Management Committee. The various activities to be undertaken by this committee are detailed below:

- Effective implementation of the environmental management measures in a holistic manner
- Devising an operation plan for mining and transportation activities.
- Various natural calamities like rain, flooding, evacuation plans etc. will also be deliberated by this committee to form risk management and emergency management plan pertaining to the cluster.
- The environmental policy of the company will be implemented and proper sustainable mining in accordance with statutory regulations will be enforced for the quarries in the cluster.
- Furnishing action plan regarding restoration strategy
- Deliberate on the health of the workers involved in the mining and also the health of the public
- Carrying out detailed study on the impact of mining on:
  - Soil health & biodiversity
  - Climate change leading to droughts, floods, etc.
  - Pollution leading to release of greenhouse gases (GHG) rise in temperature and livelihood of local people
  - Possibilities of water contamination and impact on aquatic ecosystem health.
  - Agriculture, Forestry & Traditional practices.
  - Hydrogeothermal/Geothermal effect due to destruction in the Environment.
  - Bio-geochemical process and its footprints including environmental stress.
  - Sediment geochemistry





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---

- Furnishing action plan to achieve sustainable development goals with regards to water, sanitation and safety.
- Furnishing fire safety and evacuation plans in case of fire accidents.
- Implementation of steps to effectively utilize energy.

### **10.2.3 ENVIRONMENTAL MANAGEMENT PLAN:**

Systematic monitoring systems and well-conceived and efficient Environment Management Plan will ensure that during the project operations, the various environmental parameters, are well within the statutorily sustainable limits. The environmental control measures proposed to keep various environmental parameters of the project in terms of air, water, noise, land, biological environment, etc. has been described below.

#### **10.2.3.2 Air Quality:**

With regards to air quality, to mitigate the fugitive and gaseous emission resulting from mining and allied activities, the following control measures are proposed to be undertaken:

- Regular water sprinkling in the transport roads using mobile tankers for dust suppression.
- Provision of dust filters / mask to workers working at highly dust prone and affected areas.
- Proper maintenance of haul roads, HEMM and dumpers.
- Covering of loaded tippers with tarpaulins during transportation
- Vehicular emissions will be controlled through regular and proper preventive maintenance schedules and emissions tests are done with diesel smoke meter equipment to ensure emission values.
- Besides, there will be good green belt cover will be developed around mine periphery and in safety zone.

#### **10.2.3.3 Water Environment:**

The domestic sewage to be generated from the project will be collected in septic tank with soak pits. Since simultaneous mining and backfilling method is proposed in the quarrying lease area





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---

in the post mining stage also there will not be much change in the topography. The rain water falling within the mined out and backfilled area will be infiltrated through the backfilled waste and in turn recharge the ground water. During working proper drainage arrangements like earth bunds around working block will be made to avoid surface runoff. The proponent will also contribute for the up keeping of nearby natural water bodies like pond, kanmai by periodical desilting in coordination with village people and local administrative bodies.

#### **10.2.3.4 Noise Environment:**

During the project operations, various control measures as listed below will be carried out to mitigate adverse impact due to the noise generated due to mining and allied activities:

- Good plantation will be carried out in the safety zone areas
- Noise protectors, insulation of operator cabins, installation of silencers in machineries, etc.
- Proper and regular maintenance of equipments
- Providing earplugs to workers exposed to higher noise level.
- Providing in-built mechanism for reducing sound emissions.
- Conducting regular health check-up of workers including Audiometry test for the workers engaged in noise prone area.
- Displaying the noise level status of operational machinery on the machines to know the extent of noise level and to control the time to which the worker is exposed to higher noise levels.

#### **10.2.3.5 Ground Vibration**

The limekankar in this area is in friable form and can be excavated directly by using hydraulic excavator and there will not be any drilling and blasting involved in the mining operation. Hence, vibration due to blasting is not envisaged.

#### **10.2.2.6 Biological Environment:**

The mining lease area and 10km buffer zone are devoid of declared ecologically sensitive features such as national parks, sanctuaries etc. Besides, no Schedule-I animals are observed





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

in the core and buffer zone. There will be no major clearance of vegetation involved in this project. However, good greenbelt and plantation programmes are planned within the lease area. Besides, No Objection Certificate has been obtained from District Forest Officer, Ariyalur vide C.No.4062/2023/D dated 15.11.2023.

In the lease area, it has been planned to carry out plantation in and around the lease area. Within the lease area, 6500 trees will be planted during the plan period. Elaborate details regarding the same is provided under section 4.6.4, Chapter-IV.

**10.2.2.7 Socio-Economic Environment:**

The proposed project operation will provide positive impacts in the region on the employment area as well as on physical and social infrastructural status. Many other tangible benefits will be gained by the local people in the surrounding areas due to ancillary units, trading operations, contractual needs, casual labor, green belt development, etc. The proponent has already carried out extensive CSR activities in the areas around the lease area. So far they have spent Rs.3.19 Crores between 2021-2024 for the development of the local areas. Further, the proponent has earmarked an amount of Rs.10.0 Lakhs under Corporate Environmental Responsibility. The activities identified under CER will be implemented in a phased manner.

**10.3 ENVIRONMENTAL POLLUTION CONTROL COST:**

In this proposed quarry Implementation of environmental control measures as stated above involves capital as well as recurring expenses. The probable capital and recurring environmental control cost are calculated and given below:

**Table 10.1: Environmental Control Cost**

S. No	Mitigation Measure	Rs. In lakhs	
		Capital cost	Recurring Cost /Annum
<b>Air Environment</b>			
1	Water sprinkling	8.00	0.50
2	Installing wheel wash system near gate of quarry	0.50	0.20
3	Environmental Monitoring	0.00	0.50
4	Transport Trucks -Monitoring exhaust fumes, covering with tarpaulin, monitoring manually with security guard to avoid overloading and installation of speed governors, Parking area with flaggers for traffic management	6.14	5.94
5	Road Maintenance - Haul road maintenancem Regular sweeping and maintenance of approach road	0.00	11.47
<b>Sub-Total (A)</b>		<b>14.64</b>	<b>18.61</b>





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

<b>Water Environment</b>			
6	Surface Runoff Management Structures	5.74	0.05
<b>Sub-Total (B)</b>		<b>5.74</b>	<b>0.05</b>
<b>Implementation of EC, Mining Plan &amp; DGMS Condition</b>			
7	Waste Management - Collection and Disposal	0.30	0.22
8	Fencing and Green Net Provision	-	0.10
9	Health and Safety - Provision of PPEs, IME, PME, First aid facility	0.64	2.61
10	Sign Boards -safety precaution signages, EC Conditions display board	0.20	0.03
11	Installation of CCTV cameras	0.30	0.05
12	Remuneration of statutory persons	0.00	7.80
<b>Sub-Total (C)</b>		<b>1.44</b>	<b>10.81</b>
<b>Green Belt Development</b>			
13	Plantation Inside the lease area(6500 Nos.)	13.00	1.95
<b>Sub-Total (D)</b>		<b>13.00</b>	<b>1.95</b>
<b>Grand Total</b>		<b>34.81</b>	<b>31.42</b>

Towards EMP measures, Rs.34.81 Lakhs is allocated under capital cost. Besides, Rs.31.42 Lakhs per annum will be spent under recurring cost. All the recurring cost of maintenance of pollution control measures, environmental monitoring etc., will be met from revenue and will be spent for the entire lease period.

#### **10.4 CONCLUSION:**

A meticulously well planned Environmental Management Plan, with various programme schedules and timely execution objectives, as above, will ensure that the future environmental quality in the area will be maintained within statutory limits. The environmental management strategy as explained above will prove that industrial growth, if properly planned with all environmental concerns and appropriate remedial measures can go a long way to improve life pattern and living conditions of the local community around the project.

\* \* \* \* \*



# **CHAPTER-XI**



**SUMMARY AND  
CONCLUSION**





## CHAPTER 11

### SUMMARY & CONCLUSION

#### 11.1 INTRODUCTION:

**Ottakovil Limekankar Quarry Lease-2 of The Ramco Cements Limited** in S.F.Nos. 204/10, 204/11, 204/12, etc. over an area of 57.36Ha in Ottakovil Village, Ariyalur Taluk, Ariyalur District Tamil Nadu. Considering that this is a limekankar mining project which is a minor mineral with a lease area of 57.36 Ha, this project falls under Sector 1(a) i.e.; Mining of Minerals under Category B1 as per MoEF & CC notification.

This proposal if made for obtaining Environmental Clearance for Ottakovil Limekankar Quarry Lease-2 of The Ramco Cements Limited for the production of 12,49,031 Tons of Limekankar and 6,66,150m<sup>3</sup> of Topsoil over a period of five years (Peak Production – 6,99,891 Tons, Year 1) upto a total depth of 2.75m. ( 1.50m Top soil + 1.25m Lime Kankar)

The limekankar mined out from this quarry would be used for captive purpose at the company's own cement plant, wherein it will be blended with limestone from other captive limestone mines to be utilized as raw material for cement manufacture.

#### 11.1.1 STATUTORY CLEARANCES:

**Table 11.1: Statutory Clearances**

Name	Issuing Authority	Status	Letter number	Date	Reference
Precise Area Communication	Industries, Investment Promotion and Commerce Department	Received	2962/MMC.2/2022-1	19.05.2023	<b>Annexure-1</b>
Mining Plan Approval	Deputy Director of Geology & Mining	Approved	Rc.No.1272/MM7/2021	17.08.2023	<b>Annexure-2</b>
VAO Letter	VAO, Ariyalur	Obtained	--	--	<b>Annexure-3</b>
Details of quarry within 500m radius	Assistant Director, Geology & Mining	Obtained	Rc.No.184/G&M/2020	27.07.2023	<b>Annexure-4</b>

#### 11.1.2 ENVIRONMENTAL CLEARANCE APPLICATION:

PARTICULARS	DETAILS
Terms of Reference	SEIAA-TN/F.No.10503/2023/SEAC/ToR-1671/2024 dated 08.02.2024





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

<b>Baseline Data Collection</b>	Carried out by Creative Engineers & Consultants , Chennai for Winter Season (Dec 2023 to Feb 2024)
---------------------------------	--

## 11.2 SALIENT FEATURES OF THE PROJECT:

**Table 11.2: Site Details**

<b>Location</b>	Ottakovil Village, Ariyalur Taluk, Ariyalur District Tamil Nadu.
<b>Survey No.</b>	S.F.Nos. 204/10, 204/11, 204/12, etc.
<b>Coordinates</b>	<b>Latitude</b> : 11°12'15" N to 11°11'45" N <b>Longitude</b> : 79°06'35" E to 79°06'32" E
<b>Nearest Highway</b>	SH-136 (Perambalur - Keezhapalur) – 5.7Km (S)
<b>Nearest Village</b>	Ottakovil – 480m (SE)
<b>Nearest Railway Station</b>	Ariyalur Railway Station – 6.8Km (S)
<b>Nearest Airport</b>	Neyveli Airport – 63Km (NE)
<b>Topography</b>	Plain terrain, dry lands with scarce vegetation.
<b>Accessibility</b>	The lease area can be approached through a black top road from Ariyalur to Sendurai Village about 270m on the eastern side. This road joins SH-136 (Perambalur - Keezhapalur) which lies around 5.7Km on the southern side of the lease area.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

**Table 11.3: Environment Setting of The Study Area**

S.No	Particulars	Details	Distance	Direction
<b>I Connectivity</b>				
1.	Highway	SH-136 (Perambalur - Keezhapalur)	5.7Km	S
2.	Railway Station	Ariyalur Railway Station	6.8Km	S
3.	Airport	Neyveli Airport	63Km	NE
4.	Village	Ottakkovil	480m	S
		Krishnapuram	1.1Km	W
		Kuttur	1.2km	W
		Poyyandanallur	1.7km	NE
5.	Town/City			
<b>II Environmental Features</b>				
6.	Water Bodies	Kallar River	3.8Km	S
		Venmani Odai	6.4Km	NW
		Anaivari Odai	6.8Km	NW
		Vanchiyam Odai	7.0Km	SW
7.	Reserve Forests	Vannankurichi RF	8.1Km	E
<b>III Sensitive Areas</b>				
8.	Notified Archaeologically important places, Monuments	Nil	--	--
9.	Environmental sensitive areas, Protected areas as per Wildlife Protection Act, 1972	Nil	--	--
10.	Defense Installations	Nil	--	--

**Table 11.4: Technical Description**

<b>PARTICULARS</b>	<b>DETAILS</b>
Geological reserve	16,13,250 T of Limekankar
Mineable reserve	12,49,031 T of Limekankar
Method of Mining	Opencast Mining without drilling and blasting using HEMM of low HP will be carried out. During the plan period, the deposit will be mined by a simple system of simultaneous development, production and refilling by the same excavator called strip mining. The depth of mining will be 2.75m only.
Production	It is proposed to mine 12,49,031T of Limekankar and 6,66,150m <sup>3</sup> of Topsoil upto a total depth of 2.75m for a period of 5 years.
Ultimate Depth	2.75m
Man power	16 People directly and more than 50 people indirectly





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

<b>PARTICULARS</b>	<b>DETAILS</b>
Mode of transport	By Road
Water requirement	15 KLD
Source of water	Water requirement will be met from the borewells from the cement plant.
Power requirement	All the equipment will be diesel operated. No electricity is needed for mining operation. The minimum power requirement for office, etc will be met from state grid.
Life of the mine	5 years
Project cost	Rs.491.50 Lakhs

### 11.3 EXISTING ENVIRONMENTAL SCENARIO:

The studies and data collection have been carried out systematically and meticulously as per relevant IS codes, CPCB and MoEF&CC guidelines and as per approved ToR during **Winter Season (December 2023 – February 2024)** For the purpose of this study, the area has been divided into two zones, namely, core and buffer zones. Core zone is considered as the total lease area, while buffer zone encompasses an area of 10 km radius distance from the periphery of core zone.

#### 11.3.2 SOCIO-ECONOMIC STATUS:

The details of the 10Km radius study area has been provided below:

**Table 11.5: Social, Economic and Demographic Profile of the Study Area**

<b>Details</b>	<b>Population</b>	<b>Percentage</b>
<b>A. Gender-wise distribution</b>		
Male Population	93803	50.84
Female Population	90719	49.16
<b>Total</b>	<b>184522</b>	<b>100</b>
<b>B. Caste-wise population distribution</b>		
Scheduled Caste	41568	22.53
Scheduled Tribes	906	0.49
Other	142048	76.98
<b>Total</b>	<b>184522</b>	<b>100</b>
<b>C. Literacy Levels</b>		
Total Literate Population	118629	64.29
Others	65893	35.71
<b>Total</b>	<b>184522</b>	<b>100</b>
<b>D. Occupational structure</b>		
Main workers	81120	44.00





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

Details	Population	Percentage
Marginal workers	22453	12.20
<b>Total Workers</b>	<b>103573</b>	<b>56.20</b>
<b>Total Non-workers</b>	<b>80949</b>	<b>43.90</b>
<b>Total</b>	<b>184522</b>	<b>100</b>

**11.3.2.1 SAMPLE SURVEY:**

Nearby villages were visited for conducting sample Village survey on all socio-economic aspects and requirements of the people. The existing socio-economic scenario is studied and CER activities are also suggested to the proponent. The study details are given in **Para 3.2.4, Chapter – III.**

**11.3.3 EXISTING ENVIRONMENTAL QUALITY:**

**Table 11.6: Baseline Data**

A) METEOROLOGICAL DATA		Winter Season (Dec 2023 – Feb 2024)	
PARAMETERS	MINIMUM	MAXIMUM	
Temperature in °C	18.9	34.7	
Humidity in %	33.0	99.0	
Wind speed Km/Hr	<1.8	30.0	
Predominant wind direction (From)	NE		
B) AMBIENT AIR QUALITY		Monitoring Location – 5 locations	
PARAMETER	RESULT (µg/m3)		*LIMIT (µg/m3)
Location	Core Zone	Buffer Zone	
Particulate Matter (Size <10 µm)	39.8 – 51.3	41.1 – 56.9	100
Particulate Matter (Size <2.5 µm)	18.3 – 23.6	19.3 – 27.4	60
Sulphur Dioxide (as SO <sub>2</sub> )	5.1 – 7.4	5.2 – 8.9	80
Nitrogen Dioxide (as NO <sub>2</sub> )	8.2 – 10.5	8.4 – 14.5	80
<b>Conclusion:</b> The existing Ambient Air Quality levels for PM10, PM2.5, SO2 and NO2, are within the NAAQ standards prescribed CPCB limits of 100 µg/m3, 60 µg/m3, 80 µg/m3 & 80 µg/m3. The CO values in all the locations were found to be below detectable limit. Silica values in the study area are found to be below detectable limit. (Detection limit – 0.05 mg/m3)			
C) WATER QUALITY		Monitoring Location – 5 locations	
PARAMETER	Result	*LIMIT (µg/m3)	
pH at 25 °C	6.79 – 7.81	6.5-8.5	
Total Dissolved Solids, mg/L	616 – 1035	2000	
Chloride as Cl <sup>-</sup> , mg/L	139 – 271	1000	
Total Hardness (as CaCO <sub>3</sub> ), mg/L	269 – 560	600	





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

Total Alkalinity (as CaCO <sub>3</sub> ), mg/L	304– 398	<b>600</b>
Sulphates as SO <sub>4</sub> <sup>2-</sup> , mg/L	78.60 – 292	<b>400</b>
Iron as Fe, mg/L	0.03 – 0.08	<b>0.3</b>
Nitrate as NO <sub>3</sub> , mg/L	1.76 – 4.65	<b>45</b>
Fluoride as F, mg/L	0.33 – 0.54	<b>1.5</b>

**Conclusion:** The water quality of ground water is found to be within the prescribed Permissible limits of IS: 10500 Norms in the absence of an alternative source as per Drinking Water Specifications.

<b>D) NOISE LEVELS</b>		<b>Monitoring Location – 6 locations</b>	
<b>PARAMETER</b>	<b>RESULT dB(A)</b>		<b>*LIMIT (µg/m<sup>3</sup>)</b>
	<b>Day Equivalent</b>	<b>Night Equivalent</b>	
Core Zone	51.0	41.7	<b>90</b>
Buffer Zone	47.3 – 50.1	37.8 – 41.1	<b>Day Equivalent - 55dB(A), Night Equivalent - 45dB(A)</b>

\*Permissible noise for industrial workers as laid down by CPCB (at 8 hrs Exposure Time). While comparing with the MoEF&CC Norms, the monitored ambient noise levels are generally within the limit values.

<b>E) SOIL QUALITY</b>		<b>Monitoring Location – 3 locations</b>
<b>PARAMETER</b>	<b>Range of values</b>	
pH	6.69 – 7.45	
Electrical Conductivity (µmho/cm)	76.58 – 120.3	
Organic matter (%)	0.64 – 2.12	
Total Nitrogen (mg/kg)	162 – 640	
Phosphorus (mg/kg)	1.75 – 3.36	
Sodium (mg/kg)	266 – 632	
Potassium (mg/kg)	292 – 532	
Soil is of Sandy Loam Type.		

**F) LAND ENVIRONMENT:**

For the present study on land use pattern in the study area, remote sensing satellite data have been used. The area estimated of land use categories around the 10km buffer zone is provided below:

**Table 11.7: Landuse Pattern of 10km Buffer Zone**

<b>S.No</b>	<b>Landuse Feature</b>	<b>Area (Sq.Km)</b>	<b>Percentage</b>
1	Agriculture/ Plantation	96.90	27.75
2	Fallow Land	80.28	22.99
3	Land With out Scrub	20.25	5.80
4	Land With Scrub	132.48	37.95





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

5	Water bodies	1.49	0.43
6	Settlement	16.21	4.64
7	Mining	1.52	0.44
	<b>Total</b>	<b>349.14</b>	<b>100</b>

From the above table it is seen that 27.75% of the buffer area is classified under the Agriculture/ Plantation followed by 22.99 % of fallow land, 37.95 % constitutes land with scrub, 5.80 % constitutes land without scrub and the balance falls under other land use categories.

### **G) BIOLOGICAL ENVIRONMENT:**

The lease area is a non forest, private land. The lease area is mostly barren interspersed with with mainly *Nuna tree*. In the lease periphery few vembu and panai trees are observed. The Common species are like *Morinda tinctoria*, *Prosopis juliflora*, *Sygygium cumuni*, *Azadirachta indica*, *Borassus flabellifer*, *Albizia lebbek*, *Acacia auriculiformis*, etc are dominated in the buffer zone. The detailed list of plants found in the Buffer zone is given in Table no – 3.26. Letter has been obtained from DFO, Ariyalur vide C.No.4063/2023/D dated 10.11.2023 wherein the list of flora and fauna within the 10Km radius has been provided. **(Annexure-14)**

**Fauna:** There is no Wild Life Sanctuary or National Park within the study area of 10 km. Domesticated animals like Cows, Buffalos, Dogs, Cats etc., are commonly found. The lease and 10 Km buffer zone does not fall in the Western Ghats ESA boundary. No wild mammalian species was directly sighted during the field survey. There is no Schedule I species in the core & buffer zone. The list of fauna within the study area is given in Table No – 3.27.

### **H) HYDROLOGICAL STUDY:**

The Hydrological setting of this area is characterized generally by two aquifer system, comprising a water table aquifer in the over burden and limestone and a semi-confined one in the sandstone occur below the limestone formation. The water table aquifer is normally developed for domestic water supply and small irrigation needs, through dug wells, constructed in the past. The semi-confined aquifer is mostly developed through bore wells for agricultural purposes tapping this zone at depths of 60 to 80m. In these wells, the limestone zone is also screened for better yield. The over burden and limestone together could be grouped under one water table zone for hydrological purposes.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

In the case of Ottakovil mining is proposed to be carried for kankar for a depth of 2.75m. Hence the effect on water table will be negligible. The stage of ground water development of the Ariyalur block is < 70% & falls in “ Safe Category” as per CGWB Report of Perambalur.

**11.4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES:**

**11.4.1 GENERAL:**

The identified impacts due to this mine during mining and associated activities have been studied in relation to various environmental components like Air, water, noise, vibration, land, transport etc.

**11.4.2 AIR ENVIRONMENT:**

The principal sources of air pollution in the area due to mining and allied activities are dust generation in the mine due to various activities such as excavation of material, movement of HEMM, loading, unloading and transportation operations.. Besides, Gas emission also occur as a result of emission of SO<sub>2</sub>, NO<sub>x</sub>, CO etc., from diesel driven mining equipment, compressors, generator sets, etc. In case of this mine, no major impact on air quality is envisaged due to the following reasons:

- No drilling or blasting is involved.
- Depth of mining is just 2.75 m only and the ore excavated in the mine face will be directly loaded in to the trucks for transportation.
- The waste material will be simultaneously re-casted back into the mined out void and as such will not be any transportation of waste material or external waste dumps.
- Less fleet of mining equipment's only is involved.

The following measures will be adopted to control impact on the air quality due to mining operations in the lease area:

**Table 11.8: Mitigation Measures – Air Environment**

S.No	Activity	Consequence	Mitigation Measures
1	Excavation and Loading	Dust emanation,	HEMM will be operated as per the manufacturer's guidelines Enclosures for operator cabin.







**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

		Gaseous Emission	Imparting sufficient training to operators on safety and environmental parameters. Proper maintenance of hauling equipments. Avoiding overloading of dumpers.
2	Transportation	Dust emanation, Gaseous Emission	Regular wetting of transport road using mobile water tanker. Proper maintenance of haul road and other roads Setting up of tyre wash facility in the transport road. Avoiding overloading of tippers Covering of loaded tippers with tarpaulins during transportation Vehicular emissions will be controlled through regular and proper preventive maintenance schedules and emissions tests are done with diesel smoke meter equipment to ensure emission values.

Due to adoption of all these measures, no major impact on air quality is envisaged due to this project.

The impact on air quality due to the proposed project is estimated using AERMOD View Gaussian Plume Air Dispersion Model developed by Lakes Environmental Software which is based on steady state Gaussian plume dispersion. Ground Level Concentration (GLC) have been computed using hourly meteorological data for particulate matter PM10 and PM2.5.

The post project added concentrations with baseline figures even at worst scenario, show that the values of ambient air quality with respect to PM<sub>10</sub> are in the range of 53.6µg/m<sup>3</sup> to 57.9µg/m<sup>3</sup> and with respect to PM2.5 are in the range of 25.7µg/m<sup>3</sup> to 28.4µg/m<sup>3</sup> which are within the statutory limits in each case.

For preservation of environment in this mine strict enforcement of management schemes will be undertaken for taking corrective actions, as needed. By adopting the effective implementation of all the mitigative measures, no adverse impact on Air quality due to the mining operation in this lease area is expected.

### 11.4.3 WATER ENVIRONMENT:

**Water Requirement:** The water requirement for the mines is mainly for plantation, dust suppression, Domestic & drinking purpose. The total water requirement for this project will be





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

15.0 KLD comprising 2.0 KLD for drinking water and domestic use, 8.0 KLD for dust suppression and 5.0 KLD for greenbelt. The water will be sourced from borewells in the cement plant.

The activity / source of pollution, its impact / consequence, proposed control measures are explained below:

**Table 11.9: Mitigation Measures – Water Pollution**

S.No	Source	Consequence	Mitigation Measures
A	Domestic use	Generation of waste water	The domestic sewage to be generated from the project will be collected in septic tank with soak pits.
B	Workshop , Service Building	Generation of waste water	Vehicle washing will be carried out and oil and grease trap facility.
B	Rainfall	Rainfall - Runoff	<ul style="list-style-type: none"> <li>• Since simultaneous mining and backfilling method is proposed in the quarrying lease area, there will not be any external waste dump and as such there will not be any siltation in this front.</li> <li>• in the post mining stage also there will not be much change in the topography. The rain water falling within the mined out and backfilled area will be infiltrated through the backfilled waste and in turn recharge the ground water.</li> <li>• During working the mine will be worked in strips of 50m x 50m and proper drainage arrangements like garland drains, earth bunds around working block will be made to avoid surface runoff.</li> <li>• The proponent will also contribute for the up keeping of nearby natural water bodies like pond, kanmai by periodical desilting in coordination with village people and local administrative bodies.</li> </ul>
C	Drainage Course	Disturbance to drainage course	<ul style="list-style-type: none"> <li>• All these drainage channels are very small and seasonal drainage courses for draining rainwater during monsoon only. As suggested in the precise area communication letter, safety barrier of 50m will be provided from all these water bodies. No quarrying work will be carried out in the safety zone barrier left out for Odai, eri, etc., and it will be maintained as non-quarrying area</li> </ul>





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

			<p>throughout the lease period. As such, no natural water course will be disturbed or diverted due to quarrying operation.</p> <ul style="list-style-type: none"> <li>• In the safety distance of 50m, earthen bund of 2m height will be formed and good plantation will be carried out within the safety zone. There will be no discharge of any waste into this water body. Besides, by providing proper drainage arrangements in the lease area and provision of safety distance from the waterbodies, it will be ensured that the rainwater collected in these waterbodies and its upstream side, drains unhindered to the downstream users. From the above, it is evident that there will not be any appreciable impact on the surface water courses in the area.</li> </ul>
--	--	--	---

**11.4.4 NOISE ENVIRONMENT:**

Anticipated noise levels resulting from operation of the various machineries like excavator, tippers, have been computed using point source model. Computation of cumulative noise levels at the nearby villages is made based on the assumption that there are no attenuation paths between the source and the boundary.

From the studies, it is found that the predicted Noise Levels due to mining operations at the periphery of the mine lease itself will be less even without considering any attenuation factor. However, practically there will be attenuation due to vegetation etc., and as such there will not be any adverse noise propagation outside the lease boundary. Since the habitations are also away the effect of noise due to mining operations will not be felt at all in the surrounding villages.

- Planting rows of native trees along roads, around mine area and other noise generating centres to act as acoustic barriers.
- Sound proof operator’s cabin for equipments like shovel, tippers, etc.
- Proper and regular maintenance of equipments may lead to less noise generation.
- Providing in-built mechanism for reducing sound emissions.
- Providing earplugs to workers exposed to higher noise level.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---

- Conducting regular health check-up of workers including Audiometry test for the workers engaged in noise prone area.
- Displaying the noise level status of operational machinery on the machines to know the extent of noise level and to control the time to which the worker is exposed to higher noise levels.
- Provision of green net in lease periphery

Further green belt and afforestation will be planned and executed to abate noise and dust propagation in the area.

#### **11.4.5. VIBRATION:**

The limekankar in this area is in friable form and can be excavated directly by using excavator and there will not be any drilling and blasting involved in the mining operation. Hence, vibration due to blasting is not envisaged.

#### **11.4.6 IMPACT ON LAND ENVIRONMENT:**

. The maximum depth of working is limited only up to 2.75 m only ( 1.50m Top soil + 1.25m Lime Kankar). The deposit will be mined by a simple system of removal of top soil, simultaneous refilling by the same excavator & then removal of kankar exposed below. At the end of the life of the mine, out of 44.41.0Ha of mined out area, 26.08Ha will be backfilled and restored to pre mining condition and balance 18.33Ha will be left as water reservoir. 0.01Ha will be infrastructure, 5.00Ha will be greenbelt and 7.94Ha will be the safety distance in which plantation will be carried out. Entire mined out area will be properly fenced to prevent inadvertent entry of men and animals.

#### **11.4.7 BIOLOGICAL ENVIRONMENT:**

The mining lease area and the 10 km buffer zone from the periphery of the core zone is devoid of declared ecologically sensitive features like national parks, biospheres, sanctuaries, etc. Vinnakurichi R.F. is located at a distance of 8.05Km from the lease area and as such no impact due to mining operations on the R.F is expected. Besides, No Objection Certificate has been obtained from District Forest Officer, Ariyalur vide C.No.4062/2023/D dated 15.11.2023 wherein the following has been stated:

- The mine area does not comprise any forest land.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---

- No reserve forests is present within one kilometer radius of the mine.
- The nearest reserve forest is Vinnakurichi Reserve Forest which is 8.05Km
- Karaivetti Bird Sanctuary is 23Km away from the mine and no other procted area is present nearby.
- No other National Parks, Sanctuaries, Biosphere Reserve, Wildlife Corridors, Ramsar Site, Tiger/Elephant reserves lies in the proposed area.
- The Mine doesn't fall under notified areas of TNPPF Act/ TNHP Act.

In the lease area, it has been planned to carry out plantation in and around the lease area. 28,700 numbers of trees will be planted in and around the lease area. The details of the same has been provided below. Local native species will be considered for plantation.

At the end of the life of the mine, out of 44.41.0Ha of mined out area, 26.08Ha will be backfilled and restored to premining condition and balance 18.33Ha will be left as water reservoir. 0.01Ha will be infrastructure, 5.00Ha will be greenbelt and 7.94Ha will be the safety distance in which plantation will be carried out.

#### **11.4.8 SOCIO ECONOMIC ENVIRONMENT:**

The entire lease area is a patta land in the proponent's possession. Hence, there are no habitations or hutments in the core zone area and no rehabilitation or resettlement problems will arise here. The mining operations will employ about 16 people. Besides through allied opportunities in logistics, trading, repairing works etc. good employment potential will arise in this area, which will provide raising income levels and standards of living in the area through various service related activities connected with the project operations.

The proponent has already carried out extensive CSR activities in the areas around the lease area. So far they have spent Rs.3.19 Crores between 2021-2024 for the development of the local areas. Further, the proponent has has earmarked an amount of Rs.10 Lakhs under Corporate Environmental Responsibility. The activities identified under CER will be implemented in a phased manner in provision of facilities in nearby Government School.





#### **11.4.9 OCCUPATIONAL HEALTH AND SAFETY ASPECTS:**

In order to ensure minimisation of occupational health and safety problems in the project operation, the following preventive remedial measures will be effectively exercised in the project operations, so as to comply with applicable standards.

- Medical examination of workers at pre-entry level stage of workers, etc., by qualified doctors, with periodical examination of all workers/staff at least once a year, as per DGMS circulars.
- Regular awareness campaigns amongst staff and workers
- Staff will be provided with PPE to guard against excess noise levels, Dust generation and inhalation, etc., as per standards prescribed by DGMS.

#### **11.4.10 IMPACT ON LOCAL LOGISTICAL SYSTEM DUE TO PROJECT:**

The lease area can be approached through a black top road from Ariyalur to Sendurai Village about 270m on the eastern side. This road joins SH-136 (Perambalur - Keezhapalur) which lies around 5.7Km on the southern side of the lease area. The limekankar mined out from this quarry would be used for captive purpose at the company's own Govindapuram Cement Plant, located at a distance of about 6Km wherein it will be blended with limestone from other captive limestone mines to be utilized as raw material for cement manufacture.

There will be about 6 trips per hour. However this is only during the peak production during first year. In the subsequent years the production will also reduce and the number of trips per hour will be ranging from 1 – 4 Trips per hour. The existing road can absorb this traffic due to this project. The following mitigative measures are suggested for mitigation of adverse impacts on the logistical aspect of the project:

- ❖ Water sprinkling in the transport vehicles before transporting, so that no dust nuisance during transport will arise.
- ❖ Proper maintenance of transport roads
- ❖ Proper maintenance of transport vehicles.
- ❖ Avoiding overloading of material
- ❖ Covering of loaded vehicles with tarpaulins sheet if warranted.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---

#### **11.4.11 WASTE MANAGEMENT:**

Since the entire mined out material will be used there will not be any solid waste generation from this project. There is no process effluent generation from this mine. Hence no liquid waste is generated.

Single use plastics/ use and throwaway plastics will be banned in the site as directed by the Tamil Nadu Government vide GO(Ms)No.84 regarding ban on use of plastic products. The employees will be encouraged to use compostable material or reusable material.

#### **11.5 ENVIRONMENTAL MONITORING PROGRAMME:**

The monitoring schedules are planned for systematic study of various pollution levels with respect to air and water qualities, noise levels, etc. to ensure that they conform to the standards laid down by Environmental Protection Act and various statutory Limits.

Monitoring location and the frequency of monitoring shall be suitably modified in consultation with the nodal agency as per the actual requirements and prevailing conditions of the mine and environmental factors, as dictated from time to time, depending on the prevailing pollution levels, if required.

Towards EMP measures, Rs.34.81 Lakhs is allocated under capital cost. Besides, Rs.31.42 Lakhs per annum will be spent under recurring cost. All the recurring cost of maintenance of pollution control measures, environmental monitoring etc., will be met from revenue. Further details of the capital and recurring cost of environmental management has been provided in in Table No. 10.1, Chapter-X.

#### **11.6 ADDITIONAL STUDIES:**

This draft EIA/EMP report will be exposed to public consultation as per mandatory procedures through the District Collector and State Pollution Control Board officials after giving 30 days advance notice in two local newspapers about the scheduled date and time for conduct of the public hearing procedures. The opinions, concerns and objections of stakeholders will be recorded during the public hearing. All the public queries and the replies to the query by the project proponent and officials concerned will be recorded and incorporated in the EIA/EMP report for approval by SEIAA, Tamil Nadu. Elaborate description in respect of Risk Assessment and Mine closure plan are given in **Chapter - VII**.





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

---

**11.7 CONCLUSION:**

By systematic and scientific mining adhering to all the statutory norms and enforcing and strictly implementing the above said mitigation measures mentioned in this report, no adverse impact is envisaged. The proposed mining project will benefit this region in the fields of potential employment opportunities, improved per capita income for local people, improved social welfare facilities in respect of education, medical healthcare systems, etc. in its own way and also revenue to Government through royalty, taxes etc.

\* \* \* \* \*





# **CHAPTER - XII**

## **DISCLOSURE OF CONSULTANTS ENGAGED**



## CHAPTER 12

### DISCLOSURE OF CONSULTANTS ENGAGED

**Creative Engineers & Consultants**, Chennai is an **NABL** accredited testing laboratory and **NABET** accredited EIA consultancy. Established over 25 years ago, this company has steadily made good strides in the environmental impact assessment fields, and is also one of the first companies to get accredited by NABET as an Accredited Consultant Organization as early as 2011. Creative Engineers & Consultants has to its credit, successful completion of numerous EIA/EMP reports, grant of environmental clearances and periodic environmental monitoring works. Presently, the company has been accredited by NABET as a 'Category-A' organization for the sectors of Mining of Minerals (opencast only), Thermal Power Plants, Mineral Beneficiation and Cement Plants with the accreditation valid upto 23.12.2026. The team of experienced professionals that are a part of this organization has been detailed below.

**Table 12.1: List of People Involved**

EXPERT NAME	QUALIFICATION	POSITION	EXPERIENCE
Mr. P. Giri	AMIE (Mining)	EIA Coordinator & Functional area Expert (AP,NV,HW),	Over 30 years of experience in EIA/EMP report, mine plan preparation, including modeling
Mr. K. Shankar	M.Sc (Geology). PGMEMG	Functional area Expert (GEO, HG, SHW, RH) & IBM approved RQP.	Over 25 years of experience in EIA/EMP report, Mine plan, hydrological report preparation
Mr.S.S.Rajendran	M.Sc. (Pharmaceutical Chemistry)	Lab head	More than 9 years of experience in Environmental laboratory.
Mr. R. Babu raj	M.A (Sociology), B.Com(Y.L&Cost), ITI, Advance Diploma in Computer application	Functional Area Expert (Socio Economy)	Over 13 years of experience in dispersion modeling, computer applications. Specialized in CAD and computer software, applications. 4years experience in the field of socio economy





**OTTAKOVIL LIMEKANKAR QUARRY LEASE-2 OF THE RAMCO CEMENTS LIMITED IN SF.NOS.204/10, 204/11, 204/12, ETC. OVER AN AREA OF 57.36HA IN OTTAKOVIL VILLAGE, ARIYALUR TALUK, ARIYALUR DISTRICT, TAMIL NADU.**

EXPERT NAME	QUALIFICATION	POSITION	EXPERIENCE
			and its allied report preparation.
Mr. B. Govindaraman	B.Sc.	Field technician	Over 20 years of field monitoring & data collection experience
Dr.B.Swamynathan	M.Sc (Ecology & Environmental Sciences), M.Phill (Botany), Ph.D (Ecology & Environmental Sciences)	EIA Coordinator and Functional Area Expert (EB,SC,LU and AP)	More than 10 years of experience in Environment and allied fields.
Ms. G. Sandhya	B. Tech Chemical Engineering M.Tech Environmental Engineering	EIA Coordinator, Functional Area Expert (AQ, WP)	Over 6 years experience in preparation of EIA/EMP reports

\* \* \* \* \*



# **ANNEXURES**



Industries, Investment Promotion and Commerce (MMC.2) Department, Secretariat, Chennai – 600 009.

**Letter No.2962/MMC.2/2022-1, dated: 19.05.2023**

From

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

✓ To

The Ramco Cements Limited,  
Auras Corporate Centre, 5<sup>th</sup> Floor,  
98-A, Dr.Radhakrishnan Salai,  
Mylapore, Chennai – 600 004.

Sir,

Sub: Industries, Investment Promotion and Commerce Department - Mines and Minerals - Minor Mineral – quarry lease application of The Ramco Cements Limited, Chennai for quarrying Limekankar over an extent of 57.36.0 hectares of patta lands in SF.Nos.204/10, 204/11, 204/12 etc., of Ottakovil Village, Ariyalur Taluk and District – Precise Area communicated – Approved Mining Plan and Environmental Clearance Certificate – Requested – Regarding.

Ref: 1. Your Quarry Lease application dated 04.09.2020.  
2. From the Assistant Director (i/c), Ariyalur District, Letter Rc.No.184/G&M/2020, dated 15.02.2021.  
3. From the Commissioner of Geology and Mining, File Rc.No.1272/MM7/2021, dated 25.01.2023.

\*\*\*\*\*

I am directed to invite your attention to the reference first cited and to state that in the references second and third cited, the Assistant Director (i/c), Ariyalur District and the Commissioner of Geology and Mining respectively have recommended your quarry lease application for grant of quarry lease for quarrying Limekankar over an extent of 57.36.0 hectares of patta lands in SF.Nos.204/10, 204/11, 204/12 etc., of Ottakovil Village, Ariyalur Taluk and District for a period of 5 years under Rule 43(3) of the Tamil Nadu Minor Mineral Concession Rules, 1959.

2. In this connection, I am directed to inform that the above said area for quarrying Limekankar is approved as precise area by Government. Therefore, I request you to furnish an approved mining plan for the above precise area by incorporating the following conditions to the Government through the Commissioner of Geology and Mining within a period of 3 months for grant of quarry lease for quarrying

Limekankar as per rule 43(3) of the Tamil Nadu Minor Mineral Concession Rules, 1959:-

- i. The quarrying operations shall be carried out upto 3 meters of depth only in the lease applied area.
- ii. The lessee shall quarry Limekankar only. If any other mineral other than Limekankar is found during quarrying operations, the lessee shall report to the District Collector immediately.
- iii. The lessee shall not quarry Limestone deposited below the Limekankar deposit.
- iv. The Assistant Director (Geology & Mining), Ariyalur shall inspect the subject quarry lease area before issuing permits and to ascertain that the lessee is quarrying only Limekankar.
- v. If quarrying of Limestone or any other minerals other than Limekankar is found, issuance of permits shall be stopped immediately and penal action shall be initiated against the lessee as per Act and Rules.
- vi. The applicant company shall provide and maintain 50 meters safety distance to Murugan Eri situated in SF.No.207/1 in the western side of the applied area.
- vii. The applicant company shall provide and maintain 50 meters safety distance to Sadaiyappa Udaiyar Kuttai situated in SF.Nos.219/6 and 255 in the eastern side of the applied area.
- viii. The applicant company shall provide and maintain 50 meters safety distance to odai situated in SF Nos.209/13, 222/9, 223/3, 229/1 and 226/14 in the eastern side of the applied area.
- ix. The applicant company shall provide and maintain 50 meters safety distance to odai situated in SF No.250/4 in the eastern side of the applied area.
- x. The applicant company shall provide and maintain 50 meters safety distance to vari course situated in SF.No.201 & 202 in the southern side of the applied area.
- xi. The applicant company shall provide and maintain 50 meters safety distance to vari course situated in SF.No.219/7 in the Northern side of the applied area.
- xii. The applicant company shall provide and maintain 50 meters safety distance to the low tension power line passing in SF Nos.213/3, 213/8A, 213/8D, 213/9, 214/2, 217/3, 217/5, 217/7B, 217/8B, 217/8C, 217/9, 217/10B and 218/1A in the North East to South West direction.
- xiii. The applicant company shall provide and maintain 50 meters safety distance to the low tension power line passing in SF Nos.136 & 204 in the South Western side of the applied area in North West to South East direction.

- xiv. The applicant company shall provide and maintain 10 meters safety distance to the Government poramboke land (othaiyadi pathai) and another Government poramboke land (Nadaipathai) situated in SF No.205/1 and 204/1 respectively in the western side of the applied area.
- xv. The applicant company shall provide and maintain 10 meters safety distance to the Government poramboke land (footpath) situated in SF No.203 in the southern side of the applied area of SF.No.204/25 & 204/26.
- xvi. The applicant company shall provide and maintain 10 meters safety distance to the Government poramboke land (Tharisu) situated in SF.No.218/15 in the northeastern side of the applied area.
- xvii. The applicant company shall provide and maintain 10 meters safety distance to the temple land of Arulmigu Ayyanar Swamy situated in SF.No.204/16.
- xviii. The applicant company shall provide and maintain 10 meters safety distance to the temple land of Arulmigu Swarna Puriswarar situated in SF.No.226/8.
- xix. The applicant company shall provide and maintain 10 meters safety distance to the temple land of Arulmigu Saminatha Temple situated in SF.No.226/10.
- xx. The applicant company shall provide and maintain 10 meters safety distance to the temple land of Arulmigu Pitchandavar Swamy Temple situated in SF.No.226/22.
- xxi. The applicant company shall provide and maintain 7.5 meters safety distance around the patta lands situated in SF.Nos.208/6A, 209/5B1 in the middle of the applied area.
- xxii. The applicant company shall provide and maintain necessary approach road to the patta lands situated in SF Nos.208/6A, 209/5B1.
- xxiii. The applicant company shall produce the latest computerized chitta for patta land situated in SF.No.209/5A before the execution of lease deed.
- xxiv. The applicant company shall provide and maintain a safety distance of 7.5 meters to the adjoining patta lands.
- xxv. The applicant company should not encroach the adjacent patta lands.
- xxvi. The applicant should obtain consent from Tamil Nadu Pollution Control Board before the commencement of quarrying activities.

- xxvii. The applicant company should fence the lease granted area with barbed wire fencing before the execution of lease deed as follows:-
- The pillar post shall be firmly grounded with concrete foundation of height not less than 2 meters with a distance between two pillars shall not be more than 3 meters.
  - The applicant company shall incorporate the DGPS readings for the entire boundary Pillars of the area and the same should be clearly shown in the mining plan.
  - A soft copy of the digitalized map with DGPS readings should be submitted in the CD form to the Deputy Director (Geology and Mining), Ariyalur.
- xxviii. The applicant company should ensure that all the quarry workers working under its control are registered in the Labour Welfare Board and also enrolled in the ongoing insurance scheme and to submit compliance report to the District Collector, Ariyalur before execution of the lease deed.

3. I am also directed to request you to obtain and produce Environmental Clearance Certificate from the appropriate authority as per rule 42 of the Tamil Nadu Minor Mineral Concession Rules, 1959 for grant of quarry lease. The survey no. wise details of extent of land applied for lease is annexed with this letter.

Yours faithfully,

for Additional Chief Secretary to Government

Copy to:

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

The District Collector,  
Ariyalur District.

The Assistant Director (Geology & Mining),  
O/o. District Collectorate,  
Ariyalur District.



**Industries, Investment Promotion and  
Commerce (MMC.2) Department**

**Annexure**

**Government Letter No.2962/MMC.2/2022-1, dated 19.05.2023**

Precise area in respect of the quarry lease application of The Ramco Cements Limited, Chennai for quarrying Limekankar over an extent of 57.36.0 hectares of patta lands in SF.Nos.204/10, 204/11, 204/12 etc., of Ottakovil Village, Ariyalur Taluk and District:-

Survey No.	Sub - Div	Total Extent (Hectares)	Extent applied for (Acres)	Classification
204	10	0.17.5	0.43	Patta Dry
204	11	0.11.5	0.28	Patta Dry
204	12	0.05.5	0.14	Patta Dry
204	13	0.05.5	0.14	Patta Dry
204	14	0.05.5	0.14	Patta Dry
204	15	0.05.0	0.12	Patta Dry
204	17	0.13.5	0.33	Patta Dry
204	18	0.09.0	0.22	Patta Dry
204	19	0.08.0	0.20	Patta Dry
204	20	0.02.5	0.06	Patta Dry
204	25	0.12.5	0.31	Patta Dry
204	26	0.14.0	0.35	Patta Dry
204	27	0.26.5	0.65	Patta Dry
204	28	0.02.5	0.06	Patta Dry
204	29	0.03.0	0.07	Patta Dry
204	30	0.02.5	0.06	Patta Dry
204	31	0.12.5	0.31	Patta Dry
204	32	0.03.0	0.07	Patta Dry
204	33	0.03.0	0.07	Patta Dry
		<b>1.63.0</b>	<b>4.03</b>	
205	3A	0.56.5	1.40	Patta Dry
205	3B	0.18.0	0.44	Patta Dry
205	4	0.75.0	1.85	Patta Dry
205	5A	0.33.0	0.82	Patta Dry
205	5B	0.30.0	0.74	Patta Dry
205	6	0.51.5	1.27	Patta Dry
205	7	0.61.0	1.51	Patta Dry
		<b>3.25.0</b>	<b>8.03</b>	
206	1A	0.14.5	0.36	Patta Dry
206	1B	0.45.0	1.11	Patta Dry
206	1C	0.10.0	0.25	Patta Dry
206	1D	0.32.5	0.80	Patta Dry
206	1E	0.34.0	0.84	Patta Dry
206	2	0.06.5	0.16	Patta Dry
206	3	0.35.0	0.86	Patta Dry

206	4A	0.12.5	0.31	Patta Dry
206	4B	0.24.0	0.59	Patta Dry
206	5A	0.02.0	0.05	Patta Dry
206	5B	0.01.5	0.04	Patta Dry
206	5C	0.02.0	0.05	Patta Dry
206	6	0.11.5	0.28	Patta Dry
206	7A	0.05.5	0.14	Patta Dry
206	7B	0.05.0	0.12	Patta Dry
206	8	0.11.0	0.27	Patta Dry
206	9A	0.17.5	0.43	Patta Dry
206	9B	0.04.0	0.10	Patta Dry
206	10	0.03.5	0.09	Patta Dry
206	11	0.16.5	0.41	Patta Dry
206	12	0.01.5	0.04	Patta Dry
206	13	0.12.0	0.30	Patta Dry
206	14	0.02.0	0.05	Patta Dry
206	16B	0.01.5	0.04	Patta Dry
206	17A	0.02.0	0.05	Patta Dry
206	17B	0.01.5	0.04	Patta Dry
206	18	0.01.0	0.02	Patta Dry
206	19	0.02.0	0.05	Patta Dry
		<b>3.17.5</b>	<b>7.85</b>	
207	2	0.16.0	0.40	Patta Dry
207	3	0.14.0	0.35	Patta Dry
207	4	0.16.0	0.40	Patta Dry
207	5	0.21.0	0.52	Patta Dry
207	6	0.11.5	0.28	Patta Dry
207	7	0.11.0	0.27	Patta Dry
207	8	0.11.0	0.27	Patta Dry
207	9	0.36.5	0.90	Patta Dry
207	10	0.23.0	0.57	Patta Dry
207	11A	0.10.0	0.25	Patta Dry
207	11B	0.10.0	0.25	Patta Dry
207	12	0.19.5	0.48	Patta Dry
207	13A	0.26.0	0.64	Patta Dry
207	13B	0.08.0	0.20	Patta Dry
207	13C	0.09.5	0.23	Patta Dry
207	14	0.39.5	0.98	Patta Dry
207	15	0.42.0	1.04	Patta Dry
		<b>3.24.5</b>	<b>8.02</b>	
208	1	0.09.0	0.22	Patta Dry
208	2	0.06.5	0.16	Patta Dry
208	3	0.18.0	0.44	Patta Dry
208	4	0.11.5	0.28	Patta Dry
208	5A	0.18.0	0.44	Patta Dry
208	5B	0.48.0	1.19	Patta Dry
208	5C	0.07.0	0.17	Patta Dry

208	6B	0.11.0	0.27	Patta Dry
208	7	1.17.0	2.89	Patta Dry
208	8	0.06.5	0.16	Patta Dry
208	9	0.17.0	0.42	Patta Dry
208	10	0.08.0	0.20	Patta Dry
208	11	0.07.5	0.19	Patta Dry
208	12	0.07.5	0.19	Patta Dry
208	13	0.20.5	0.51	Patta Dry
208	14	0.07.5	0.19	Patta Dry
208	15	0.07.5	0.19	Patta Dry
208	16	0.08.5	0.21	Patta Dry
208	18	1.13.0	2.79	Patta Dry
208	19	0.08.5	0.21	Patta Dry
		<b>4.58.0</b>	<b>11.32</b>	
209	1	0.43.5	1.07	Patta Dry
209	2	0.10.5	0.26	Patta Dry
209	3	0.10.5	0.26	Patta Dry
209	4A	0.06.0	0.15	Patta Dry
209	4B	0.15.0	0.37	Patta Dry
209	5A	0.17.5	0.43	Patta to be transferred
209	5B2	0.14.5	0.36	Patta Dry
209	5C	0.14.0	0.35	Patta Dry
209	5D	0.04.0	0.10	Patta Dry
209	5E	0.10.0	0.25	Patta Dry
209	6	0.16.0	0.40	Patta Dry
209	7A	0.06.5	0.16	Patta Dry
209	7B	0.08.5	0.21	Patta Dry
209	7C	0.32.0	0.79	Patta Dry
209	8	0.12.0	0.30	Patta Dry
209	9	0.23.0	0.57	Patta Dry
209	10	0.23.0	0.57	Patta Dry
209	11	0.15.0	0.37	Patta Dry
209	12	0.15.5	0.38	Patta Dry
209	14	0.15.5	0.38	Patta Dry
		<b>3.12.5</b>	<b>7.72</b>	
210	4B	0.06.0	0.15	Patta Dry
210	5B	0.07.0	0.17	Patta Dry
210	6B	0.06.5	0.16	Patta Dry
210	7B	0.11.0	0.27	Patta Dry
210	9	0.35.0	0.86	Patta Dry
210	10	0.27.5	0.68	Patta Dry
210	11	0.29.0	0.72	Patta Dry
210	12	0.28.5	0.70	Patta Dry
		<b>1.50.5</b>	<b>3.72</b>	
213	1	0.41.0	1.01	Patta Dry
213	2A	0.37.0	0.91	Patta Dry

213	2B	0.39.0	0.96	Patta Dry
213	2C	0.74.0	1.83	Patta Dry
213	3	0.36.0	0.89	Patta Dry
213	4	0.39.5	0.98	Patta Dry
213	5A	0.13.0	0.32	Patta Dry
213	5B	0.13.0	0.32	Patta Dry
213	5C	0.11.5	0.28	Patta Dry
213	5D	0.12.0	0.30	Patta Dry
213	6A	0.25.5	0.63	Patta Dry
213	7	0.59.5	1.47	Patta Dry
213	8A	0.16.5	0.41	Patta Dry
213	8B	0.18.5	0.46	Patta Dry
213	9	0.20.5	0.51	Patta Dry
		<b>4.56.5</b>	<b>11.28</b>	
214	2	0.20.0	0.49	Patta Dry
214	3	0.22.5	0.56	Patta Dry
214	4	0.11.0	0.27	Patta Dry
214	5A	0.18.5	0.46	Patta Dry
214	5B	0.13.5	0.33	Patta Dry
214	6	0.38.5	0.95	Patta Dry
214	7	0.21.5	0.53	Patta Dry
214	8	0.20.0	0.49	Patta Dry
214	9	0.20.5	0.51	Patta Dry
214	10	0.19.5	0.48	Patta Dry
214	11	0.31.0	0.77	Patta Dry
214	12	0.32.5	0.80	Patta Dry
		<b>2.69.0</b>	<b>6.65</b>	
215	1A	0.04.5	0.11	Patta Dry
215	1B	0.03.0	0.07	Patta Dry
215	2A	0.04.0	0.10	Patta Dry
215	2B	0.03.5	0.09	Patta Dry
215	3A	0.04.0	0.10	Patta Dry
215	3B	0.03.5	0.09	Patta Dry
215	4	0.21.0	0.52	Patta Dry
215	5A	0.15.0	0.37	Patta Dry
215	5B	0.32.0	0.79	Patta Dry
215	6A	0.07.0	0.17	Patta Dry
215	6B	0.18.5	0.46	Patta Dry
215	6C	0.20.0	0.49	Patta Dry
215	7	0.44.0	1.09	Patta Dry
215	8A	0.17.5	0.43	Patta Dry
215	8B	0.14.0	0.35	Patta Dry
215	8C	0.15.0	0.37	Patta Dry
215	9	0.40.5	1.00	Patta Dry
215	10A	0.31.5	0.78	Patta Dry
215	10B	0.03.5	0.09	Patta Dry
215	10C	0.41.0	1.01	Patta Dry

215	11	0.38.0	0.94	Patta Dry
		<b>3.81.0</b>	<b>9.41</b>	
216	1A	0.28.0	0.69	Patta Dry
216	1B	0.32.5	0.80	Patta Dry
216	2	0.02.5	0.06	Patta Dry
216	3	0.19.0	0.47	Patta Dry
216	4	0.16.5	0.41	Patta Dry
216	5A	0.46.5	1.15	Patta Dry
216	5B	0.43.0	1.06	Patta Dry
216	6	0.84.0	2.08	Patta Dry
216	7	0.25.0	0.62	Patta Dry
216	8	0.28.0	0.69	Patta Dry
216	9A	0.26.0	0.64	Patta Dry
216	9B	0.27.5	0.68	Patta Dry
216	10	0.70.5	1.74	Patta Dry
		<b>4.49.0</b>	<b>11.09</b>	
217	1	0.29.5	0.73	Patta Dry
217	2	0.36.0	0.89	Patta Dry
217	3	0.29.5	0.73	Patta Dry
217	4	0.28.5	0.70	Patta Dry
217	5	0.42.0	1.04	Patta Dry
217	6	0.48.0	1.19	Patta Dry
217	7A	0.25.5	0.63	Patta Dry
217	7B	0.28.5	0.70	Patta Dry
217	8A	0.07.5	0.19	Patta Dry
217	8B	0.06.0	0.15	Patta Dry
217	8C	0.13.0	0.32	Patta Dry
217	9	1.84.0	4.55	Patta Dry
217	10A	0.04.0	0.10	Patta Dry
217	10B	0.03.0	0.07	Patta Dry
217	10C	0.04.5	0.11	Patta Dry
		<b>4.89.5</b>	<b>12.10</b>	
218	1A	0.13.0	0.32	Patta Dry
218	1C	0.17.5	0.43	Patta Dry
218	8	0.48.5	1.20	Patta Dry
218	9A	0.12.5	0.31	Patta Dry
218	9B	0.41.0	1.01	Patta Dry
218	10	0.34.5	0.85	Patta Dry
218	11	0.10.0	0.25	Patta Dry
218	12	0.34.0	0.84	Patta Dry
218	13	0.10.5	0.26	Patta Dry
218	14	0.15.5	0.38	Patta Dry
		<b>2.37.0</b>	<b>5.86</b>	
219	5	0.81.5	2.01	Patta Dry
		<b>0.81.5</b>	<b>2.01</b>	
220	1A	0.14.0	0.35	Patta Dry
220	1B	0.16.0	0.40	Patta Dry

220	1C	0.22.0	0.54	Patta Dry
220	1D	1.28.0	3.16	Patta Dry
220	1E	0.19.0	0.47	Patta Dry
220	1F	0.40.0	0.99	Patta Dry
220	1G	0.11.0	0.27	Patta Dry
220	1H	0.12.0	0.30	Patta Dry
220	1I	0.12.0	0.30	Patta Dry
220	2E	0.06.0	0.15	Patta Dry
220	3	0.45.0	1.11	Patta Dry
220	4A	0.52.5	1.30	Patta Dry
220	4B	0.50.0	1.24	Patta Dry
		<b>4.27.5</b>	<b>10.56</b>	
221	1	0.06.0	0.15	Patta Dry
221	2	0.05.5	0.14	Patta Dry
221	3	0.05.5	0.14	Patta Dry
221	4	0.23.5	0.58	Patta Dry
221	5	0.22.0	0.54	Patta Dry
221	6A	0.20.0	0.49	Patta Dry
221	6B	0.18.0	0.44	Patta Dry
221	6C	0.34.0	0.84	Patta Dry
221	6D	0.31.0	0.77	Patta Dry
221	7A	0.04.5	0.11	Patta Dry
221	7B	0.18.0	0.44	Patta Dry
221	8	0.39.0	0.96	Patta Dry
221	9	1.03.5	2.56	Patta Dry
221	10	0.40.5	1.00	Patta Dry
		<b>3.71.0</b>	<b>9.17</b>	
222	1	0.39.5	0.98	Patta Dry
222	2	0.11.0	0.27	Patta Dry
222	3	0.12.5	0.31	Patta Dry
222	4	0.12.0	0.30	Patta Dry
222	5	0.13.5	0.33	Patta Dry
222	6	0.18.0	0.44	Patta Dry
222	7	0.19.0	0.47	Patta Dry
		<b>1.25.5</b>	<b>3.10</b>	
223	1A	0.52.0	1.28	Patta Dry
		<b>0.52.0</b>	<b>1.28</b>	
226	1	0.14.0	0.35	Patta Dry
226	2	0.16.0	0.40	Patta Dry
226	3	0.16.5	0.41	Patta Dry
226	4	0.14.0	0.35	Patta Dry
226	5	0.34.5	0.85	Patta Dry
226	6	0.04.0	0.10	Patta Dry
226	7	0.12.5	0.31	Patta Dry
226	11	0.09.5	0.23	Patta Dry
226	12	0.11.5	0.28	Patta Dry
226	13	0.11.5	0.28	Patta Dry

226	24	0.04.0	0.10	Patta Dry
226	25	0.04.5	0.11	Patta Dry
226	26	0.04.0	0.10	Patta Dry
226	27	0.04.0	0.10	Patta Dry
226	28	0.04.0	0.10	Patta Dry
		<b>1.64.5</b>	<b>4.06</b>	
227	1	0.03.0	0.07	Patta Dry
227	2	0.02.5	0.06	Patta Dry
227	3	0.02.5	0.06	Patta Dry
227	4	0.05.5	0.14	Patta Dry
227	5A	0.07.0	0.17	Patta Dry
227	5B	0.14.5	0.36	Patta Dry
227	5C	0.03.0	0.07	Patta Dry
227	5D	0.13.5	0.33	Patta Dry
227	17	0.07.5	0.19	Patta Dry
227	18A	0.07.0	0.17	Patta Dry
227	18B	0.14.0	0.35	Patta Dry
227	20	0.10.5	0.26	Patta Dry
227	21	0.08.0	0.20	Patta Dry
227	22	0.09.5	0.23	Patta Dry
227	23	0.12.0	0.30	Patta Dry
227	24	0.25.0	0.62	Patta Dry
227	25	0.30.0	0.74	Patta Dry
227	26	0.06.0	0.15	Patta Dry
		<b>1.81.0</b>	<b>4.47</b>	
<b>NET TOTAL</b>		<b>57.36.0</b>	<b>141.74</b>	

**S. Krishnan**  
Additional Chief Secretary to Government

// True copy //

*S. K. 2* 15/05/2023  
**SECTION OFFICER**  
*15.5.2023*

**DIRECTORATE OF GEOLOGY AND MINING**

From  
Thiru S.Sudarsanam, M.Sc.,  
Additional Director,  
Directorate of Geology and Mining,  
Guindy, Chennai – 600 032.

To  
The Ramco Cements Limited,  
Auras Corporate Center, 5<sup>th</sup> Floor,  
98-/A, Dr.Radhakrishnan Salai,  
Mylapore, Chennai – 600 004.

Rc.No.1272/MM7/2021, dated 17.08.2023

Sir,

Sub: Mines and Quarries – 31 Minor Minerals – Limekankar – Ariyalur Taluk & District – Ottakovil Village - S.F.Nos. 204/10, 204/11, 204/12 etc., - over an extent of 57.36.0 Hectares - Patta lands - Quarry lease application preferred by Tvl. The Ramco Cements Limited – Recommended and forwarded to Government – Precise area communicated by the Government - Mining Plan submitted for approval - accorded – Regarding.

- Ref: 1) Quarry lease application of Tvl. The Ramco Cements Limited dated 04.09.2020.  
2) The Assistant Director (i/c), Geology and Mining, Ariyalur letter Rc.No.184/G&M/2020, dated 15.02.2021.  
3) G.O.(D) No.60, Industries (MMC.1) Department, dated 12.06.2021.  
4) The Commissioner of Geology and Mining, File Rc.No.1272/MM7/2021, dated 25.01.2023.  
5) Government letter No.2962/ MMC.2/2022-1, dated 19.05.2023.  
6) Mining Plan Submitted by Tvl. The Ramco Cements Limited dated 20.07.2023.  
7) The Assistant Director (G&M), Ariyalur District letter Rc.No.184/G&M/2020, dated 27.07.2023.

-oOo-

Kind attention is invited to the references cited above.

2) In the reference 5<sup>th</sup> cited, Precise Area has been communicated by the Government with a direction to the applicant to submit an approved mining plan within a period of 3 months in respect of the area applied for grant of quarry lease for quarrying Limekankar over an extent of 57.36.0 hectares of patta lands in S.F.Nos.204/10 (0.17.5), 204/11 (0.11.5), 204/12 (0.05.5), 204/13 (0.05.5), 204/14 (0.05.5), 204/15 (0.05.0), 204/17 (0.13.5), 204/18



(0.09.0), 204/19 (0.08.0), 204/20 (0.02.5), 204/25 (0.12.5), 204/26 (0.14.0), 204/27 (0.26.5), 204/28 (0.02.5), 204/29 (0.03.0), 204/30 (0.02.5), 204/31 (0.12.5), 204/32 (0.03.0), 204/33 (0.03.0), 205/3A (0.56.5), 205/3B (0.18.0), 205/4 (0.75.0), 205/5A (0.33.0), 205/5B (0.30.0), 205/6 (0.51.5), 205/7 (0.61.0), 206/1A (0.14.5), 206/1B (0.45.0), 206/1C (0.10.0), 206/1D (0.32.5), 206/1E (0.34.0), 206/2 (0.06.5), 206/3 (0.35.0), 206/4A (0.12.5), 206/4B (0.24.0), 206/5A (0.02.0), 206/5B (0.01.5), 206/5C (0.02.0), 206/6 (0.11.5), 206/7A (0.05.5), 206/7B (0.05.0), 206/8 (0.11.0), 206/9A (0.17.5), 206/9B (0.04.0), 206/10 (0.03.5), 206/11 (0.16.5), 206/12 (0.01.5), 206/13 (0.12.0), 206/14 (0.02.0), 206/16B (0.01.5), 206/17A (0.02.0), 206/17B (0.01.5), 206/18 (0.01.0), 206/19 (0.02.0), 207/2 (0.16.0), 207/3 (0.14.0), 207/4 (0.16.0), 207/5 (0.21.0), 207/6 (0.11.5), 207/7 (0.11.0), 207/8 (0.11.0), 207/9 (0.36.5), 207/10 (0.23.0), 207/11A (0.10.0), 207/11B (0.10.0), 207/12 (0.19.5), 207/13A (0.26.0), 207/13B (0.08.0), 207/13C (0.09.5), 207/14 (0.39.5), 207/15 (0.42.0), 208/1 (0.09.0), 208/2 (0.06.5), 208/3 (0.18.0), 208/4 (0.11.5), 208/5A (0.18.0), 208/5B (0.48.0), 208/5C (0.07.0), 208/6B (0.11.0), 208/7 (1.17.0), 208/8 (0.06.5), 208/9 (0.17.0), 208/10 (0.08.0), 208/11 (0.07.5), 208/12 (0.07.5), 208/13 (0.20.5), 208/14 (0.07.5), 208/15 (0.07.5), 208/16 (0.08.5), 208/18 (1.13.0), 208/19 (0.08.5), 209/1 (0.43.5), 209/2 (0.10.5), 209/3 (0.10.5), 209/4A (0.06.0), 209/4B (0.15.0), 209/5A (0.17.5), 209/5B2 (0.14.5), 209/5C (0.14.0), 209/5D (0.04.0), 209/5E (0.10.0), 209/6 (0.16.0), 209/7A (0.06.5), 209/7B (0.08.5), 209/7C (0.32.0), 209/8 (0.12.0), 209/9 (0.23.0), 209/10 (0.23.0), 209/11 (0.15.0), 209/12 (0.15.5), 209/14 (0.15.5), 210/4B (0.06.0), 210/5B (0.07.0), 210/6B (0.06.5), 210/7B (0.11.0), 210/9 (0.35.0), 210/10 (0.27.5), 210/11 (0.29.0), 210/12 (0.28.5), 213/1 (0.41.0), 213/2A (0.37.0), 213/2B (0.39.0), 213/2C (0.74.0), 213/3 (0.36.0), 213/4 (0.39.5), 213/5A (0.13.0), 213/5B (0.13.0), 213/5C (0.11.5), 213/5D (0.12.0), 213/6A (0.25.5), 213/7 (0.59.5), 213/8A (0.16.5), 213/8B (0.18.5), 213/9 (0.20.5), 214/2 (0.20.0), 214/3 (0.22.5), 214/4 (0.11.0), 214/5A (0.18.5), 214/5B (0.13.5), 214/6 (0.38.5), 214/7 (0.21.5), 214/8

(0.20.0), 214/9 (0.20.5), 214/10 (0.19.5), 214/11 (0.31.0), 214/12 (0.32.5), 215/1A (0.04.5), 215/1B (0.03.0), 215/2A (0.04.0), 215/2B (0.03.5), 215/3A (0.04.0), 215/3B (0.03.5), 215/4 (0.21.0), 215/5A (0.15.0), 215/5B (0.32.0), 215/6A (0.07.0), 215/6B (0.18.5), 215/6C (0.20.0), 215/7 (0.44.0), 215/8A (0.17.5), 215/8B (0.14.0), 215/8C (0.15.0), 215/9 (0.40.5), 215/10A (0.31.5), 215/10B (0.03.5), 215/10C (0.41.0), 215/11 (0.38.0), 216/1A (0.28.0), 216/1B (0.32.5), 216/2 (0.02.5), 216/3 (0.19.0), 216/4 (0.16.5), 216/5A (0.46.5), 216/5B (0.43.0), 216/6 (0.84.0), 216/7 (0.25.0), 216/8 (0.28.0), 216/9A (0.26.0), 216/9B (0.27.5), 216/10 (0.70.5), 217/1 (0.29.5), 217/2 (0.36.0), 217/3 (0.29.5), 217/4 (0.28.5), 217/5 (0.42.0), 217/6 (0.48.0), 217/7A (0.25.5), 217/7B (0.28.5), 217/8A (0.07.5), 217/8B (0.06.0), 217/8C (0.13.0), 217/9 (1.84.0), 217/10A (0.04.0), 217/10B (0.03.0), 217/10C (0.04.5), 218/1A (0.13.0), 218/1C (0.17.5), 218/8 (0.48.5), 218/9A (0.12.5), 218/9B (0.41.0), 218/10 (0.34.5), 218/11 (0.10.0), 218/12 (0.34.0), 218/13 (0.10.5), 218/14 (0.15.5), 219/5 (0.81.5), 220/1A (0.14.0), 220/1B (0.16.0), 220/1C (0.22.0), 220/1D (1.28.0), 220/1E (0.19.0), 220/1F (0.40.0), 220/1G (0.11.0), 220/1H (0.12.0), 220/1I (0.12.0), 220/2E (0.06.0), 220/3 (0.45.0), 220/4A (0.52.5), 220/4B (0.50.0), 221/1 (0.06.0), 221/2 (0.05.5), 221/3 (0.05.5), 221/4 (0.23.5), 221/5 (0.22.0), 221/6A (0.20.0), 221/6B (0.18.0), 221/6C (0.34.0), 221/6D (0.31.0), 221/7A (0.04.5), 221/7B (0.18.0), 221/8 (0.39.0), 221/9 (1.03.5), 221/10 (0.40.5), 222/1 (0.39.5), 222/2 (0.11.0), 222/3 (0.12.5), 222/4 (0.12.0), 222/5 (0.13.5), 222/6 (0.18.0), 222/7 (0.19.0), 223/1A (0.52.0), 226/1 (0.14.0), 226/2 (0.16.0), 226/3 (0.16.5), 226/4 (0.14.0), 226/5 (0.34.5), 226/6 (0.04.0), 226/7 (0.12.5), 226/11 (0.09.5), 226/12 (0.11.5), 226/13 (0.11.5), 226/24 (0.04.0), 226/25 (0.04.5), 226/25 (0.04.5), 226/26 (0.04.0), 226/27 (0.04.0), 226/28 (0.04.0), 227/1 (0.03.0), 227/2 (0.02.5), 227/3 (0.02.5), 227/4 (0.05.5), 227/5A (0.07.0), 227/5B (0.14.5), 227/5C (0.03.0), 227/5D (0.13.5), 227/17 (0.07.5), 227/18A (0.07.0), 227/18B (0.14.0), 227/20 (0.10.5), 227/21 (0.08.0), 227/22 (0.09.5), 227/23 (0.12.0), 227/24 (0.25.0), 227/25 (0.30.0) and 227/26 (0.06.0) of

Ottakovil Village, Ariyalur Taluk & District for a period of 5 years as per Rule 43 of Tamil Nadu Minor Mineral Concession Rules, 1959 by incorporating the conditions stipulated in the Government letter dated 19.05.2023.

3) In response to the Precise Area communicated by the Government, the applicant has submitted 5 copies of draft mining plan duly prepared by the Qualified Person for approval vide reference 6<sup>th</sup> cited.

4) In the reference 7<sup>th</sup> cited, the Assistant Director, Geology and Mining, Ariyalur has forwarded the copies of draft mining plan and reported that contents of the draft mining plan have been verified and all the conditions stipulated by the Government in letter No.2962/MMC.2/2022-1, dated 19.05.2023 were duly incorporated in the draft mining plan, including the safety distance and other conditions. The details such as Geological Reserves, Mineable Reserves, Year wise production and Development programme have been incorporated in the mining plan. The special conditions imposed in the precise area communication are incorporated in the mining plan.

5) The Assistant Director, Geology and Mining, Ariyalur vide letter Rc.No.184/G&M/2020, dated 27.07.2023 has described the Geology of the applied areas as, the entire applied area is covered by black cotton soil as a top layer with a average thickness of 1.50 metres. Below the top soil, yellow/ yellowish brown coloured layer of Limekankar deposit is occurring up to a average thickness of 1.25 meters which belongs to Kallankurichi formation of Cretaceous age and recent formation. The calcium content in Limekankar varies from 20.0% to 45% as Cao. As observed in the field, the Limekankar deposit is occur as a capping over limestone for a thickness of ab out 1.25 meters. Therefore, the depth of persistence may be assumed as 1.25 meters for the purpose of estimation of reserves and the

recovery of Limekankar may be around 100% of the total material mined. The Mineable reserves (As per Mining Plan at the rate of 100% of recovery) 12,49,031 Tonnes. Further, the Assistant Director (G&M), Ariyalur has recommended that the Government letter No.2962/MMC.2/2022-1, dated 19.05.2023, condition in Sl.No.2 (xii) that the applicant company shall provide and maintain 50 mts safety distance to the low tension power line passing in S.F.Nos. 213/3, 213/8A, 213/8D, 213/9, 214/2, 217/3, 217/5, 217/7B, 217/8B, 217/8C, 217/9, 217/10B and 218/1A in the NE-SW direction. During the field inspection, it is observed that the lessee company has shifted the low tension power line to the Northern side periphery of the proposed area and EB line passing in S.F.Nos. 213/1, 213/6A, 213/7, 217/1, 217/2, 217/7A, 217/8A, 217/8B, 217/8C, 217/9, 217/10A and 218/1A and necessary safety distance of 50 mts has to be provided to EB line. Finally recommended for approval of mining plan.

6) The Government have authorized the Additional Director of Geology and Mining, Head Quarters to approve the mining plan, modified mining plans and scheme of mining in respect of 31 minor minerals vide G.O.(D) No.60, Industries (MMC.1) Department, dated 12.06.2021.

7) In exercise of the powers conferred under Rule 43 (8) of Tamil Nadu Minor Mineral Concession Rules, 1959, read with G.O.(D) No.60, Industries (MMC.1) Department, dated 12.06.2021 the mining plan submitted by the applicant in respect of the precise area communicated for quarrying Limekankar over an extent of 57.36.0 hectares of patta lands in S.F.Nos.204/10 (0.17.5), 204/11 (0.11.5), 204/12 (0.05.5), 204/13 (0.05.5), 204/14 (0.05.5), 204/15 (0.05.0), 204/17 (0.13.5), 204/18 (0.09.0), 204/19 (0.08.0), 204/20 (0.02.5), 204/25 (0.12.5), 204/26 (0.14.0), 204/27 (0.26.5), 204/28 (0.02.5), 204/29 (0.03.0), 204/30 (0.02.5), 204/31 (0.12.5), 204/32 (0.03.0), 204/33 (0.03.0), 205/3A (0.56.5), 205/3B (0.18.0), 205/4

(0.75.0), 205/5A (0.33.0), 205/5B (0.30.0), 205/6 (0.51.5), 205/7 (0.61.0), 206/1A (0.14.5), 206/1B (0.45.0), 206/1C (0.10.0), 206/1D (0.32.5), 206/1E (0.34.0), 206/2 (0.06.5), 206/3 (0.35.0), 206/4A (0.12.5), 206/4B (0.24.0), 206/5A (0.02.0), 206/5B (0.01.5), 206/5C (0.02.0), 206/6 (0.11.5), 206/7A (0.05.5), 206/7B (0.05.0), 206/8 (0.11.0), 206/9A (0.17.5), 206/9B (0.04.0), 206/10 (0.03.5), 206/11 (0.16.5), 206/12 (0.01.5), 206/13 (0.12.0), 206/14 (0.02.0), 206/16B (0.01.5), 206/17A (0.02.0), 206/17B (0.01.5), 206/18 (0.01.0), 206/19 (0.02.0), 207/2 (0.16.0), 207/3 (0.14.0), 207/4 (0.16.0), 207/5 (0.21.0), 207/6 (0.11.5), 207/7 (0.11.0), 207/8 (0.11.0), 207/9 (0.36.5), 207/10 (0.23.0), 207/11A (0.10.0), 207/11B (0.10.0), 207/12 (0.19.5), 207/13A (0.26.0), 207/13B (0.08.0), 207/13C (0.09.5), 207/14 (0.39.5), 207/15 (0.42.0), 208/1 (0.09.0), 208/2 (0.06.5), 208/3 (0.18.0), 208/4 (0.11.5), 208/5A (0.18.0), 208/5B (0.48.0), 208/5C (0.07.0), 208/6B (0.11.0), 208/7 (1.17.0), 208/8 (0.06.5), 208/9 (0.17.0), 208/10 (0.08.0), 208/11 (0.07.5), 208/12 (0.07.5), 208/13 (0.20.5), 208/14 (0.07.5), 208/15 (0.07.5), 208/16 (0.08.5), 208/18 (1.13.0), 208/19 (0.08.5), 209/1 (0.43.5), 209/2 (0.10.5), 209/3 (0.10.5), 209/4A (0.06.0), 209/4B (0.15.0), 209/5A (0.17.5), 209/5B2 (0.14.5), 209/5C (0.14.0), 209/5D (0.04.0), 209/5E (0.10.0), 209/6 (0.16.0), 209/7A (0.06.5), 209/7B (0.08.5), 209/7C (0.32.0), 209/8 (0.12.0), 209/9 (0.23.0), 209/10 (0.23.0), 209/11 (0.15.0), 209/12 (0.15.5), 209/14 (0.15.5), 210/4B (0.06.0), 210/5B (0.07.0), 210/6B (0.06.5), 210/7B (0.11.0), 210/9 (0.35.0), 210/10 (0.27.5), 210/11 (0.29.0), 210/12 (0.28.5), 213/1 (0.41.0), 213/2A (0.37.0), 213/2B (0.39.0), 213/2C (0.74.0), 213/3 (0.36.0), 213/4 (0.39.5), 213/5A (0.13.0), 213/5B (0.13.0), 213/5C (0.11.5), 213/5D (0.12.0), 213/6A (0.25.5), 213/7 (0.59.5), 213/8A (0.16.5), 213/8B (0.18.5), 213/9 (0.20.5), 214/2 (0.20.0), 214/3 (0.22.5), 214/4 (0.11.0), 214/5A (0.18.5), 214/5B (0.13.5), 214/6 (0.38.5), 214/7 (0.21.5), 214/8 (0.20.0), 214/9 (0.20.5), 214/10 (0.19.5), 214/11 (0.31.0), 214/12 (0.32.5), 215/1A (0.04.5), 215/1B (0.03.0), 215/2A (0.04.0), 215/2B (0.03.5), 215/3A (0.04.0), 215/3B (0.03.5), 215/4 (0.21.0), 215/5A (0.15.0), 215/5B (0.32.0), 215/6A (0.07.0),

215/8B (0.14.0), 215/8C (0.15.0), 215/9 (0.40.5), 215/10A (0.31.5), 215/10B (0.03.5), 215/10C (0.41.0), 215/11 (0.38.0), 216/1A (0.28.0), 216/1B (0.32.5), 216/2 (0.02.5), 216/3 (0.19.0), 216/4 (0.16.5), 216/5A (0.46.5), 216/5B (0.43.0), 216/6 (0.84.0), 216/7 (0.25.0), 216/8 (0.28.0), 216/9A (0.26.0), 216/9B (0.27.5), 216/10 (0.70.5), 217/1 (0.29.5), 217/2 (0.36.0), 217/3 (0.29.5), 217/4 (0.28.5), 217/5 (0.42.0), 217/6 (0.48.0), 217/7A (0.25.5), 217/7B (0.28.5), 217/8A (0.07.5), 217/8B (0.06.0), 217/8C (0.13.0), 217/9 (1.84.0), 217/10A (0.04.0), 217/10B (0.03.0), 217/10C (0.04.5), 218/1A (0.13.0), 218/1C (0.17.5), 218/8 (0.48.5), 218/9A (0.12.5), 218/9B (0.41.0), 218/10 (0.34.5), 218/11 (0.10.0), 218/12 (0.34.0), 218/13 (0.10.5), 218/14 (0.15.5), 219/5 (0.81.5), 220/1A (0.14.0), 220/1B (0.16.0), 220/1C (0.22.0), 220/1D (1.28.0), 220/1E (0.19.0), 220/1F (0.40.0), 220/1G (0.11.0), 220/1H (0.12.0), 220/1I (0.12.0), 220/2E (0.06.0), 220/3 (0.45.0), 220/4A (0.52.5), 220/4B (0.50.0), 221/1 (0.06.0), 221/2 (0.05.5), 221/3 (0.05.5), 221/4 (0.23.5), 221/5 (0.22.0), 221/6A (0.20.0), 221/6B (0.18.0), 221/6C (0.34.0), 221/6D (0.31.0), 221/7A (0.04.5), 221/7B (0.18.0), 221/8 (0.39.0), 221/9 (1.03.5), 221/10 (0.40.5), 222/1 (0.39.5), 222/2 (0.11.0), 222/3 (0.12.5), 222/4 (0.12.0), 222/5 (0.13.5), 222/6 (0.18.0), 222/7 (0.19.0), 223/1A (0.52.0), 226/1 (0.14.0), 226/2 (0.16.0), 226/3 (0.16.5), 226/4 (0.14.0), 226/5 (0.34.5), 226/6 (0.04.0), 226/7 (0.12.5), 226/11 (0.09.5), 226/12 (0.11.5), 226/13 (0.11.5), 226/24 (0.04.0), 226/25 (0.04.5), 226/25 (0.04.5), 226/26 (0.04.0), 226/27 (0.04.0), 226/28 (0.04.0), 227/1 (0.03.0), 227/2 (0.02.5), 227/3 (0.02.5), 227/4 (0.05.5), 227/5A (0.07.0), 227/5B (0.14.5), 227/5C (0.03.0), 227/5D (0.13.5), 227/17 (0.07.5), 227/18A (0.07.0), 227/18B (0.14.0), 227/20 (0.10.5), 227/21 (0.08.0), 227/22 (0.09.5), 227/23 (0.12.0), 227/24 (0.25.0), 227/25 (0.30.0) and 227/26 (0.06.0) of Ottakovil Village, Ariyalur Taluk & District is hereby approved subject to the following conditions:-

- i) The mining plan is approved without prejudice to any other law applicable to the quarry lease from time to time whether such laws are made by the Central Government, State Government or any other authority;
- ii) The approval of the mining plan does not in any way imply the approval of the Government in terms of any other provisions of the Mines and Minerals (Development and Regulation) Act 1957, or any other connected laws including Forest (Conservation) Act, 1980, Forest Conservation Rules, 1981, Environment Protection Act, 1980, Indian Explosives Act, 1884 (Central Act IV of 1884) and the rules made there under and the Tamil Nadu Minor Mineral Concession Rules, 1959;
- iii) The Mining plan is approved without prejudice to any other order or direction from any court of competent Jurisdiction;
- iv) The average depth of over burden in the form of black cotton soil is 1.50 mts and followed that the average thickness of Limekankar is 1.25 mts and hence, the quarrying operations shall be carried out upto 2.75 meters of depth only in the lease applied area.
- v) The lessee shall quarry Limekankar only. If any other mineral other than Limekankar is found during quarrying operations, the lessee shall report to the District Collector immediately.
- vi) The lessee shall not quarry Limestone deposited below the Limekankar deposit.
- vii) The Assistant Director (Geology & Mining), Ariyalur shall inspect the subject quarry lease area before issuing permits and to ascertain that the lessee is quarrying only Limekankar.
- viii) If quarrying of Limestone or any other minerals other than Limekankar is found, issuance of permit shall be stopped immediately and penal action shall be initiated against the lessee as per Act and Rules.
- ix) The applicant company should provide and maintain 50 meters safety distance to Murugan Eri situated in S.F.No.207/1 in the western side of the applied area.
- x) The applicant company shall provide and maintain 50 meters safety distance to Sadaiyappa Udaiyar Kuttai

situated in S.F.Nos.219/6 and 255 in the eastern side of the applied area.

- xi) The applicant company shall provide and maintain 50 meters safety distance to odai situated in S.F.Nos.209/13, 222/9, 223/3, 229/1 and 226/14 in the eastern side of the applied area.
- xii) The applicant company shall provide and maintain 50 meters safety distance to odai situated in S.F.No.250/4 in the eastern side of the applied area.
- xiii) The applicant company shall provide and maintain 50 meters safety distance to vari course situated in S.F.Nos.201 & 202 in the southern side of the applied area.
- xiv) The applicant company shall provide and maintain 50 meters safety distance to vari course situated in S.F.No.219/7 in the Northern side of the applied area.
- xv) The applicant company shall provide and maintain 50 meters safety distance to the low tension power line passing east-west in S.F.Nos. 213/1, 213/6A, 213/7, 217/1, 217/2, 217/7A, 217/8A, 217/8B, 217/8C, 217/9, 217/10A and 218/1A in the Northern periphery of the applied area.
- xvi) 213/8A, 213/8D, 213/9, 214/2, 217/3, 217/5, 217/7B, 217/8B, 217/8C, 217/9, 217/10B and 218/1A in the North East to South West direction.
- xvii) The applicant company shall provide and maintain 50 meters safety distance to the low tension power line passing in S.F.Nos.136 & 204 in the South Western side of the applied area in North West to South East direction.
- xviii) The applicant company shall provide and maintain 10 metres safety distance to the Government poramboke land (othaiyadi pathai) and another Government poramboke land (Nadaipathai) situated in S.F.Nos.205/1 and 204/1 respectively in the western side of the applied area.
- xix) The applicant company shall provide and maintain 10 meters safety distance to the Government poramboke land (footpath) situated in S.F.No.203 in the southern side of the applied area of S.F.Nos.204/25 & 204/26.
- xx) The applicant company shall provide and maintain 10 meters safety distance to the Government poramboke land (Tharisu) situated in S.F.No.218/5 in the northeastern side of the applied area.



- xxi) The applicant company shall provide and maintain 10 meters safety distance to the temple land of Arulmigu Ayyanar Swamy situated in S.F.No.204/16.
- xxii) The applicant company shall provide and maintain 10 meters safety distance to the temple land of Arulmigu Swarna Puriswara situated in S.F.No.226/8.
- xxiii) The applicant company shall provide and maintain 10 meters safety distance to the temple land of Arulmigu Saminatha Temple situated in S.F.No.226/10.
- xxiv) The applicant company shall provide and maintain 10 meters safety distance to the temple land of Arulmigu Pitchandavar Swamy Temple situated in S.F.No.226/22.
- xxv) The applicant company shall provide and maintain 7.5 meters safety distance around the patta lands situated in S.F.Nos.208/6A, 209/5B1 in the middle of the applied area.
- xxvi) The applicant company shall provide and maintain necessary approach road to the patta lands situated in S.F.Nos.208/6A, 209/5B1.
- xxvii) The applicant company shall produce the latest computerized chitta for patta land situated in S.F.No.209/5A before the execution of lease deed.
- xxviii) The applicant company shall provide and maintain a safety distance 7.5 meters to the adjoining patta lands.
- xxix) The applicant company should not encroach the adjacent patta lands.
- xxx) The applicant company should obtain consent from Tamil Nadu Pollution Control Board before the commencement of quarrying activities.
- xxxi) The applicant company should fence the lease granted area with barbed wire fencing before execution of lease deed as follows:-
- The pillar post shall be firmly grounded with concrete foundation of height not less than 2 mts with a distance between two pillars shall not be more than 3 mts.
- xxxii) The applicant company should ensure that all the quarry workers working under its control are registered in the Labour Welfare Board and also enrolled in the ongoing insurance scheme and to submit compliance report to the

District Collector, Ariyalur District before execution of the lease deed.

- xxxiii) A green belt should be constructed by planting trees along the boundary of the area to control air and noise pollution.
- xxxiv) If any violations are noticed during the quarrying operations, the penal provisions of Tamil Nadu Minor Mineral Concession Rules, 1959 and other Act and Rules in force will attract. Further, issuance of transport permits shall be withheld / stopped till final decision on the violations are taken.
- xxxv) The applicant company shall, after mining operations undertaking re-grassing the mining area and any other area which may have been disturbed due to this mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna, etc.,
- xxxvi) The child labour should not be engaged in the quarry works.
- xxxvii) The Assistant Director, Geology and Mining, Ariyalur District shall ensure the depth limit of the quarry pit not to exceed 2.75 meters before issue the transport permit.

Encl: Approved Mining Plan.

Additional Director of Geology and Mining

Copy Submitted to:

The Additional Chief Secretary to Government,  
Natural Resources Department,  
Secretariat,  
Chennai-9. (with AMP)

Copy to:

- 1) The District Collector,  
Ariyalur.
- 2) The Director General of Mines Safety,  
Lapis Lagoon, AA Block, Shanthi Colony,  
Anna Nagar, Chennai. 600 040. (with AMP)
- 3) The Assistant Director,  
Geology and Mining,  
Ariyalur District. (with AMP)
- 4) Stock file.

## சான்று

அரியலூர் மாவட்டம், அரியலூர் வட்டம், ஒட்டக்கோவில் கிராம நிர்வாக அலுவலர் அளிக்கும் சான்று.

திருவாளர்.ராம்கோ சிமெண்ட்ஸ் நிறுவனம், கோவிந்தபுரம் கிராமம், அரியலூர் மாவட்டம் அவர்கள் அரியலூர் மாவட்டம், அரியலூர் வட்டம், ஒட்டக்கோவில் கிராமம், சர்வே எண். 204/10, 204/11, 204/12 முதலிய பட்டா நிலத்தில், மொத்தப்பரப்பு 57.36.0 ஹெக்டேர் பரப்பளவில் சுண்ணாம்பு கன்கர் வெட்டியெடுக்க குவாரி குத்தகை அனுமதி கோரியுள்ளனர்.

மேற்கண்ட குவாரி குத்தகை அனுமதி கோரியுள்ள இடத்தைச் சுற்றி சுமார் 300 மீட்டர் சுற்றளவில் கிராம நத்த குடியிருப்பு பகுதிகள், அங்கீகரிக்கப்பட்ட வீட்டு மனைகள், கோயில்கள் புராதன வரலாற்று சின்னங்கள் மற்றும் மின்மயானங்கள் எதுவுமில்லை, குவாரி அனுமதி கோரி விண்ணப்பித்துள்ள புலத்திற்கு வண்டிகள் சென்றுவரும் கிராம சாலைகளுக்கு இடையூறுகள் என்றும் இல்லை, மேலும் பொதுமக்களுக்கோ அருகில் உள்ள அரசுப் புறம்போக்கு மற்றும் பட்டாதாரர்களுக்கோ எந்தவித இடையூறுகள் இல்லை என தெரிவித்துக் கொள்கிறேன்.

  
 கிராம நிர்வாக அலுவலர் அனுமதிப் பட்டம்  
 Village Administrative Office  
 ஒட்டக்கோவில்  
 Ariyalur Taluk & Dist.

From  
Miss. R.Priya M.Sc.,  
Assistant Director,  
Geology and Mining,  
Ariyalur.

To  
The Director  
Directorate of Geology and Mining,  
Industrial Estate,  
Guindy,  
Chennai - 32

Rc.No.184/G&M/2020, dated: 27.07.2023

Sir,

**Sub:** Mines and Quarries - Quarrying Lease - Minor Mineral - Limekankar - Ariyalur District & Taluk - Ottakovil Village - S.F.No. 204/10, 204/11, 204/12 etc., - over an extent of 57.36.0 Hectares of patta lands - Quarry lease application of Tvl. The Ramco Cements Ltd., Ariyalur for grant of quarry lease for quarrying Limekankar - Precise area Communicated - Mining Plan submitted for approval - forwarded - reg.

**Ref:**

1. Quarry Lease application of Tvl. The Ramco Cements Ltd., Chennai - 4 dated. 03.09.2020 (received by this office 08.10.2020).
2. The Assistant Director (i/c), Geology and Mining Ariyalur letter Rc. No.184 /G&M/2020, dated. 15.02.2021.
3. The Commissioner of Geology and Mining, Chennai File Rc.No. 1272/MM7/2021, dated 25.01.2023
4. The Government letter No.2962/MMC.2/2022-1 dated. 19.05.2023
5. Tvl. The Ramco Cements Limited, Ariyalur, Letter No. TRCL/Mines/OKL-QL-2/2023 dated. 20.07.2023

\*\*\*\*\*

I invite kind attention to the references cited.

In the reference 1<sup>st</sup> cited, Tvl. The Ramco Cements Limited, Chennai-04 have applied for grant of quarrying Lease for quarrying Limekankar over an extent of 57.36.0 Hectares of patta lands in 204/10, 204/11, 204/12 etc., in Ottakovil Village, Ariyalur Taluk and District for a period of 5 years. The applicant company have submitted the application in the prescribed Appendix Form - VII -B as per sub rule (3) & (5) of Rule-43 of Tamil Nadu Minor Mineral Concession Rules, 1959.

The above said quarry lease application has been forwarded to Government through the Commissioner of Geology and Mining, Chennai - 32 in the reference second cited.

In the reference 4<sup>th</sup> cited, the Government have furnished precise area over an extent 57.36.0 hecets of patta lands in SF.Nos. 204/10, 204/11, 204/12 etc., in Ottakovil village, Ariyalur Taluk and District and requested the applicant to furnish the approved Mining Plan and environmental clearance for the above said area. Accordingly, in the reference 5<sup>th</sup> cited the applicant has submitted five copies of the mining plan for approval.

The Mining Plan has been verified with reference to field conditions. The Mining Plan has been prepared by the qualified person. The details such as Geological Reserves, Mineable Reserves, year wise production and Development programme have been incorporated in the Mining Plan. The Special conditions imposed in the precise area communication are incorporated in the mining plan.

The details of quarries/mine situated within 500meter radial distance from the applied area are furnished

i) Details of existing mines/quarries:

Sl. No	Name of the lessee / applicant	Taluk & Village	S.F. Nos	GO & Extent (in Hect)	Mineral	Lease period
1.	Tvl. The Ramco Cements Ltd., Chennai	Ariyalur Taluk & Ottakovil Village	SF Nos. 116/1, 116/2 etc.,	G.O.(2D). No. 17 Industries, Investment Promotion and Commerce (MMC.2) Department dated: 02.09.2022 Extent = 22.81.5 Hect.	Limekankar	10 years (29.09.2022 to 28.09.203}
2.	Tvl. Ultratech Cement Ltd., Reddipalayam Cement Works Ariyalur District	Ariyalur Taluk & Ottakovil Village	S.F.Nos. 55/2, 58/11, 60/11B etc.,	Commissioner of Geology and Mining Proceeding Rc.No. 7057/MM1/20	Limestone	50 years (10.01.2017 to 09.01.2067)

				09 dated 14.12.2016 Extent = 74.38.0 Hect.		
--	--	--	--	---	--	--

**(ii) Details of Lease period expired/abandoned quarry;**

Sl. No	Name of the lessee / applicant	Taluk & Village	S.F. Nos	Extent (in Hect)	Mineral	Lease period applied/Granted
---NIL---						

**(iii) Details of Proposed mines/quarries;**

Sl. No	Name of the lessee / applicant	Taluk & Village	S.F. Nos	Extent (in Hect)	Mineral	Lease period
---NIL---						

In view of the above, the mining plan submitted by the applicant Tvi. The Ramco Cements Limited for quarrying Limetankar over an extent of 57.36.0 Hectares of patta lands in 204/10, 204/11, 204/12 etc., in Ottakovil Village, Ariyalur Taluk and District is recommended and forwarded for approval.

**Encl:** Five copies of Mining Plan.

  
 27/7/23  
 Assistant Director,  
 Geology and Mining,  
 Ariyalur.

  
 27/07/2023

## POPULATION BREAKUP &amp; LITERACY LEVEL IN THE BUFFER ZONE

Sl.No	No. of Villages	Name of village	Rural / urban	HOUSE HOLDS	POPULATION			POPULATION BELOW 6 AGE GROUP			SCHEDULE CASTE			SCHEDULE TRIBE			LITRERATES			ILLITRERATES			
					TOTAL	MALE	F.MALE	TOTAL	MALE	F.MALE	TOTAL	MALE	F.MALE	TOTAL	MALE	F. MALE	TOTAL	MALE	F.MALE	TOTAL	MALE	F.MALE	
<b>0-2 km,Ariyalur Sub-District, Ariyalur District</b>																							
1	1	Ottakoil	Rural	1210	4703	2344	2359	535	275	260	1769	899	870	0	0	0	2748	1640	1108	1955	704	1251	
		<b>total (A)</b>		<b>1210</b>	<b>4703</b>	<b>2344</b>	<b>2359</b>	<b>535</b>	<b>275</b>	<b>260</b>	<b>1769</b>	<b>899</b>	<b>870</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2748</b>	<b>1640</b>	<b>1108</b>	<b>1955</b>	<b>704</b>	<b>1251</b>	
<b>2-5 km,Ariyalur Sub-District, Ariyalur District</b>																							
2	1	Pottaveli	Rural	1048	4261	2171	2090	517	270	247	2142	1126	1016	0	0	0	2550	1524	1026	1711	647	1064	
3	2	Rayampuram	Rural	947	3718	1846	1872	379	191	188	1456	726	730	0	0	0	2095	1229	866	1623	617	1006	
4	3	Sennivanam	Rural	474	1870	932	938	195	109	86	1179	586	593	0	0	0	1257	711	546	613	221	392	
5	4	Illuppaiyur	Rural	983	4142	2158	1984	481	283	198	1985	1043	942	0	0	0	2433	1505	928	1709	653	1056	
6	5	Govindapuram	Rural	1242	4996	2502	2494	591	314	277	1347	674	673	0	0	0	3260	1871	1389	1736	631	1105	
7	6	Kallankurichi	Rural	1380	5385	2663	2722	607	304	303	1383	699	684	1	1	0	3392	1957	1435	1993	706	1287	
8	7	Kadugur	Rural	866	3217	1627	1590	363	199	164	493	253	240	1	1	0	1893	1172	721	1324	455	869	
9	8	Ammenabath	Rural	170	654	315	339	95	42	53	122	59	63	0	0	0	349	218	131	305	97	208	
<b>Kunnam Sub-District, Perambalur District</b>																							
10	1	Kadur (South)	Rural	655	2794	1404	1390	346	173	173	1449	754	695	0	0	0	1490	903	587	1304	501	803	
11	2	Periavenmani (East)	Rural	351	1469	737	732	186	97	89	557	285	272	0	0	0	783	476	307	686	261	425	
		<b>total (B)</b>		<b>8116</b>	<b>32506</b>	<b>16355</b>	<b>16151</b>	<b>3760</b>	<b>1982</b>	<b>1778</b>	<b>12113</b>	<b>6205</b>	<b>5908</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>19502</b>	<b>11566</b>	<b>7936</b>	<b>13004</b>	<b>4789</b>	<b>8215</b>	
<b>5-10km,Ariyalur Sub-District, Ariyalur District</b>																							
12	1	Ayanathur	Rural	654	2445	1263	1182	207	115	92	362	184	178	0	0	0	1484	915	569	961	348	613	
13	2	Thelur	Rural	1094	4215	2136	2079	480	270	210	794	400	394	4	3	1	2407	1423	984	1808	713	1095	
14	3	Periyanagalur	Rural	1041	3538	1762	1776	330	191	139	692	347	345	0	0	0	1975	1175	800	1563	587	976	
15	4	Kayarlabath	Rural	1349	5215	2602	2613	492	256	236	881	451	430	5	3	2	3937	2128	1809	1278	474	804	
16	5	Ariyalur (North)	Rural	1017	4147	2104	2043	463	263	200	409	207	202	246	127	119	2905	1567	1338	1242	537	705	
17	6	Valajanagaram	Rural	1945	7355	3702	3653	780	413	367	1550	805	745	0	0	0	5078	2873	2205	2277	829	1448	
<b>Sendurai Sub-District, Ariyalur District</b>																							
18	1	Vanjinapuram	Rural	797	2907	1433	1474	336	171	165	1282	639	643	0	0	0	1440	846	594	1467	587	880	
19	2	Namangunam	Rural	948	3897	1979	1918	428	215	213	1960	1001	959	0	0	0	2084	1260	824	1813	719	1094	
20	3	Nakkampadi	Rural	796	3082	1517	1565	325	178	147	1131	569	562	0	0	0	1914	1096	818	1168	421	747	
21	4	Unjini	Rural	1294	5021	2545	2476	540	309	231	1067	535	532	42	18	24	2910	1796	1114	2111	749	1362	
22	5	Sendurai	Rural	2406	9643	4817	4826	1055	558	497	2727	1435	1292	211	110	101	6460	3568	2892	3183	1249	1934	
23	6	Anandavadi	Rural	1087	4262	2108	2154	492	273	219	1436	731	705	132	61	71	2461	1437	1024	1801	671	1130	
24	7	Kilimangalam	Rural	818	2926	1481	1445	309	169	140	640	326	314	0	0	0	1777	1077	700	1149	404	745	
<b>Kunnam Sub-District, Perambalur District</b>																							
25	1	Thungapuram (South)	Rural	589	2290	1116	1174	263	134	129	2	1	1	1	0	1	1442	807	635	848	309	539	
26	2	Paravai (East)	Rural	401	1619	837	782	157	82	75	825	421	404	0	0	0	1008	595	413	611	242	369	
27	3	Periyammalayam	Rural	895	3099	1528	1571	306	160	146	437	217	220	0	0	0	1875	1111	764	1224	417	807	
28	4	Kunnam	Rural	891	3853	1950	1903	365	174	191	1582	822	760	0	0	0	2531	1447	1084	1322	503	819	
29	5	Varagur	Rural	961	3717	1890	1827	355	182	173	1359	704	655	0	0	0	2536	1469	1067	1181	421	760	
30	6	Kolapady	Rural	547	2053	1030	1023	251	145	106	638	313	325	8	4	4	1017	619	398	1036	411	625	
31	7	Puduvettagudi	Rural	979	3621	1749	1872	412	210	202	1181	583	598	123	60	63	1919	1124	795	1702	625	1077	

Sl.No	No. of Villages	Name of village	Rural / urban	HOUSE HOLDS	POPULATION			POPULATION BELOW 6 AGE GROUP			SCHEDULE CASTE			SCHEDULE TRIBE			LITRERATES			ILLITRERATES		
					TOTAL	MALE	F.MALE	TOTAL	MALE	F.MALE	TOTAL	MALE	F.MALE	TOTAL	MALE	F. MALE	TOTAL	MALE	F.MALE	TOTAL	MALE	F.MALE
32	8	Kadur (North)	Rural	711	3132	1623	1509	376	196	180	1974	1053	921	0	0	0	1656	1021	635	1476	602	874
33	9	Periavenmani (West)	Rural	731	2911	1444	1467	308	155	153	937	473	464	0	0	0	1662	1005	657	1249	439	810
34	10	Melamathur	Rural	1096	4282	2125	2157	532	271	261	1262	617	645	0	0	0	2452	1427	1025	1830	698	1132
35	11	Alagiripalayam	Rural	725	2687	1354	1333	302	163	139	544	261	283	0	0	0	1585	925	660	1102	429	673
36	12	Thondappadi	Rural	1075	3966	1885	2081	465	240	225	1121	517	604	0	0	0	2260	1275	985	1706	610	1096
37	13	Koothur	Rural	495	1797	841	956	169	92	77	458	220	238	0	0	0	1102	613	489	695	228	467
38	14	Adhanur (South)	Rural	427	1396	631	765	140	76	64	241	106	135	0	0	0	833	452	381	563	179	384
<b>Ariyalur Sub-District, Ariyalur District</b>																						
39	1	Ariyalur (M)	Urban	7319	28902	14349	14553	2977	1538	1439	3254	1620	1634	8	5	3	21977	11564	10413	6925	2785	4140
		<b>total (C)</b>		<b>33088</b>	<b>127978</b>	<b>63801</b>	<b>64177</b>	<b>13615</b>	<b>7199</b>	<b>6416</b>	<b>30746</b>	<b>15558</b>	<b>15188</b>	<b>780</b>	<b>391</b>	<b>389</b>	<b>82687</b>	<b>46615</b>	<b>36072</b>	<b>45291</b>	<b>17186</b>	<b>28105</b>
		<b>Grand Total (A+B+C)</b>		<b>42414</b>	<b>165187</b>	<b>82500</b>	<b>82687</b>	<b>17910</b>	<b>9456</b>	<b>8454</b>	<b>44628</b>	<b>22662</b>	<b>21966</b>	<b>782</b>	<b>393</b>	<b>389</b>	<b>104937</b>	<b>59821</b>	<b>45116</b>	<b>60250</b>	<b>22679</b>	<b>37571</b>

\*Source: District Primary Census Abstract, Ariyalur District of Tamilnadu State-2011



**OCCUPATIONAL STRUCTURE IN THE BUFFER ZONE**

Sl.No	No. of Villages	Name of village	Rural / urban	MAIN WORKERS		CULTIVATORS		AGRI LABOURS		HOUSE HOLD		OTHERS		MARGINAL WORKERS		NON WORKERS	
				MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE
<b>0-2 km,Ariyalur Sub-District, Ariyalur District</b>																	
1	1	Ottakoil	Rural	1120	590	393	311	355	186	18	22	354	71	276	557	948	1212
		<b>total (A)</b>		<b>1120</b>	<b>590</b>	<b>393</b>	<b>311</b>	<b>355</b>	<b>186</b>	<b>18</b>	<b>22</b>	<b>354</b>	<b>71</b>	<b>276</b>	<b>557</b>	<b>948</b>	<b>1212</b>
<b>2-5 km,Ariyalur Sub-District, Ariyalur District</b>																	
2	1	Pottaveli	Rural	1033	685	351	294	419	349	28	4	235	38	232	157	906	1248
3	2	Rayampuram	Rural	752	432	412	266	138	122	32	4	170	40	321	464	773	976
4	3	Sennivanam	Rural	389	316	177	48	93	243	6	3	113	22	201	238	342	384
5	4	Illuppaiyur	Rural	1101	488	566	267	355	176	12	19	168	26	171	388	886	1108
6	5	Govindapuram	Rural	1401	782	380	220	452	391	12	16	557	155	85	131	1016	1581
7	6	Kallankurichi	Rural	1228	705	396	253	264	236	17	54	551	162	252	150	1183	1867
8	7	Kadugur	Rural	832	712	557	305	201	369	18	15	56	23	186	247	609	631
9	8	Ammenabath	Rural	45	6	31	1	0	0	0	0	14	5	122	70	148	263
<b>Kunnam Sub-District, Perambalur District</b>																	
10	1	Kadur (South)	Rural	343	188	126	38	104	122	4	5	109	23	464	351	597	851
11	2	Periavenmani (East)	Rural	420	179	140	13	176	158	5	2	99	6	17	259	300	294
		<b>total (B)</b>		<b>7544</b>	<b>4493</b>	<b>3136</b>	<b>1705</b>	<b>2202</b>	<b>2166</b>	<b>134</b>	<b>122</b>	<b>2072</b>	<b>500</b>	<b>2051</b>	<b>2455</b>	<b>6760</b>	<b>9203</b>
<b>5-10km,Ariyalur Sub-District, Ariyalur District</b>																	
12	1	Ayanathur	Rural	748	461	528	302	125	132	6	6	89	21	15	40	500	681
13	2	Thealur	Rural	1118	632	461	275	297	289	37	11	323	57	160	167	858	1280
14	3	Periyagalur	Rural	936	644	452	304	123	208	33	29	328	103	85	140	741	992
15	4	Kayarlabath	Rural	1320	362	219	19	244	107	22	12	835	224	94	102	1188	2149
16	5	Ariyalur (North)	Rural	1010	225	271	19	118	63	83	13	538	130	78	104	1016	1714
17	6	Valajanagaram	Rural	1470	666	334	194	237	238	22	22	877	212	547	350	1685	2637
<b>Sendurai Sub-District, Ariyalur District</b>																	
18	1	Vanjinapuram	Rural	691	305	215	103	416	183	8	5	52	14	170	436	572	733
19	2	Namangunam	Rural	566	335	256	102	110	210	5	8	195	15	550	689	863	894
20	3	Nakkampadi	Rural	535	565	333	408	114	122	5	5	83	30	356	358	626	642
21	4	Unjini	Rural	1356	1160	415	325	387	497	481	302	73	36	19	37	1170	1279
22	5	Sendurai	Rural	2050	1000	532	222	591	482	81	41	846	255	479	407	2288	3419
23	6	Anandavadi	Rural	984	608	441	271	372	276	13	18	158	43	146	193	978	1353
24	7	Kilimangalam	Rural	843	580	185	66	564	477	3	4	91	33	7	21	631	844
<b>Kunnam Sub-District, Perambalur District</b>																	
25	1	Thungapuram (South)	Rural	442	366	306	305	28	20	33	17	75	24	216	371	458	437
26	2	Paravai (East)	Rural	326	247	165	146	91	83	5	1	65	17	107	158	404	377
27	3	Periyammalayam	Rural	898	673	583	301	257	353	0	0	58	19	65	289	565	609
28	4	Kunnam	Rural	1022	705	725	579	69	61	9	7	219	58	121	181	807	1017
29	5	Varagur	Rural	856	400	513	187	143	169	11	4	189	40	255	317	779	1110
30	6	Kolapady	Rural	576	545	344	334	121	158	8	19	103	34	26	59	428	419
31	7	Puduvettagudi	Rural	1058	1113	426	471	482	594	15	13	135	35	6	10	685	749

Sl.No	No. of Villages	Name of village	Rural / urban	MAIN WORKERS		CULTIVATORS		AGRI LABOURS		HOUSE HOLD		OTHERS		MARGINAL WORKERS		NON WORKERS	
				MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE	MALE	F.MALE
32	8	Kadur (North)	Rural	50	31	14	3	11	16	1	1	24	11	945	861	628	617
33	9	Periavenmani (West)	Rural	843	706	264	164	445	504	7	6	127	32	33	176	568	585
34	10	Melamathur	Rural	1178	1004	651	598	226	323	10	13	291	70	59	72	888	1081
35	11	Alagiripalayam	Rural	797	737	487	424	230	288	6	5	74	20	17	14	540	582
36	12	Thondappadi	Rural	849	855	527	592	133	203	9	12	180	48	293	350	743	876
37	13	Koothur	Rural	269	313	165	211	48	80	3	0	53	22	188	193	384	450
38	14	Adhanur (South)	Rural	358	469	207	245	139	216	0	0	12	8	12	12	261	284
<b>Ariyalur Sub-District, Ariyalur District</b>																	
39	1	Ariyalur (M)	Urban	6530	1918	248	67	444	226	173	125	5665	1500	1285	550	6534	12085
		<b>total (C)</b>		<b>29679</b>	<b>17625</b>	<b>10267</b>	<b>7237</b>	<b>6565</b>	<b>6578</b>	<b>1089</b>	<b>699</b>	<b>11758</b>	<b>3111</b>	<b>6334</b>	<b>6657</b>	<b>27788</b>	<b>39895</b>
		<b>Grand Total (A+B+C)</b>		<b>38343</b>	<b>22708</b>	<b>13796</b>	<b>9253</b>	<b>9122</b>	<b>8930</b>	<b>1241</b>	<b>843</b>	<b>14184</b>	<b>3682</b>	<b>8661</b>	<b>9669</b>	<b>35496</b>	<b>50310</b>

\*Source: District Primary Census Abstract, Ariyalur District of Tamilnadu State-2011

## EDUCATIONAL FACILITIES IN THE STUDY AREA

Sl.No	No. of Villages	Name of village	Educational Facilities (A(1)/ NA(2) )	Govt Pre - Primary School (Nursery/LKG/UKG) (Numbers)	Govt Primary School (Numbers)	Govt Middle School (Numbers)	Govt Secondary School (Numbers)	Govt Senior Secondary School (Numbers)	Govt Arts and Science Degree College (Numbers)	Govt Engineering College (Numbers)	Govt Medicine College (Numbers)	Govt Management Institute (Numbers)	Govt Polytechnic (Numbers)	Govt Vocational Training School/ITI (Numbers)	Government Non Formal Training Centre (Numbers)	Government School For Disabled (Numbers)
<b>0-2 km,Ariyalur Sub-District, Ariyalur District</b>																
1	1	Ottakoil	1	4	3	3	1	0	0	0	0	0	0	0	1	0
		<b>total (A)</b>	<b>1</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>
<b>2-5 km,Ariyalur Sub-District, Ariyalur District</b>																
2	1	Pottaveli	1	3	2	1	0	0	0	0	0	0	0	0	1	0
3	2	Rayampuram	1	3	2	2	1	0	0	0	0	0	0	0	3	0
4	3	Sennivanam	1	1	2	1	0	0	0	0	0	0	0	0	2	0
5	4	Illuppaiyur	1	3	2	2	1	1	0	0	0	0	0	0	2	0
6	5	Govindapuram	1	5	5	3	1	0	0	0	0	0	0	0	6	0
7	6	Kallankurichi	1	4	5	2	2	0	0	0	0	0	0	0	5	0
8	7	Kadugur	1	2	2	0	0	0	0	0	0	0	0	0	3	0
9	8	Ammenabath	1	1	1	0	0	0	0	0	0	0	0	0	1	0
<b>Kunnam Sub-District, Perambalur District</b>																
10	1	Kadur (South)	1	1	0	0	0	0	0	0	0	0	0	0	0	0
11	2	Periavenmani (East)	1	2	2	0	0	0	0	0	0	0	0	0	1	0
		<b>total (B)</b>	<b>10</b>	<b>25</b>	<b>23</b>	<b>11</b>	<b>5</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>24</b>	<b>0</b>
<b>5-10km,Ariyalur Sub-District, Ariyalur District</b>																
12	1	Ayanathur	1	2	2	1	1	0	0	0	0	0	0	0	3	0
13	2	Thelur	1	3	3	2	0	0	0	0	0	0	0	0	1	0
14	3	Periyanaalur	1	3	3	1	1	0	0	0	0	0	0	0	4	1
15	4	Kayarlabath	1	2	3	2	1	1	0	0	0	0	0	0	1	0
16	5	Ariyalur (North)	1	1	1	0	0	0	0	0	0	0	0	0	1	0
17	6	Valajanagaram	1	5	3	2	0	0	0	0	0	0	0	1	4	0
<b>Sendurai Sub-District, Ariyalur District</b>																
18	1	Vanjinapuram	1	3	3	1	0	0	0	0	0	0	0	0	3	0
19	2	Namangunam	1	5	3	2	0	0	0	0	0	0	0	0	3	0
20	3	Nakkampadi	1	3	2	1	0	0	0	0	0	0	0	0	2	0
21	4	Unjini	1	5	2	2	2	0	0	0	0	0	0	0	4	0
22	5	Sendurai	1	9	5	2	2	2	0	0	0	0	0	0	7	0
23	6	Anandavadi	1	5	4	1	1	1	0	0	0	0	0	0	4	0
24	7	Kilimangalam	1	4	3	1	0	0	0	0	0	0	0	0	1	0
<b>Kunnam Sub-District, Perambalur District</b>																
25	1	Thungapuram (South)	1	2	1	1	1	1	0	0	0	0	0	0	1	0
26	2	Paravai (East)	1	2	1	0	0	0	0	0	0	0	0	0	1	0
27	3	Periyammalayam	1	2	3	1	0	0	0	0	0	0	0	0	1	0
28	4	Kunnam	1	3	1	2	2	1	0	0	0	0	0	0	1	0
29	5	Varagur	1	2	1	1	0	0	0	0	0	0	0	0	1	0
30	6	Kolapady	1	2	0	0	0	0	0	0	0	0	0	0	0	0
31	7	Puduvetagudi	1	2	2	1	0	0	0	0	0	0	0	0	1	0
32	8	Kadur (North)	1	1	1	1	0	0	0	0	0	0	0	0	1	0
33	9	Periavenmani (West)	1	3	1	0	0	0	0	0	0	0	0	0	1	0
34	10	Melamathur	1	3	3	1	0	0	0	0	0	0	0	0	1	0
35	11	Alagiripalayam	1	5	4	2	0	0	0	0	0	0	0	0	1	0
36	12	Thondappadi	1	4	3	2	0	0	0	0	0	0	0	0	1	0
37	13	Koothur	1	1	1	1	1	1	0	0	0	0	0	0	1	0
38	14	Adhanur (South)	1	1	1	1	0	0	0	0	0	0	0	0	1	0
		<b>total (C)</b>	<b>27</b>	<b>83</b>	<b>60</b>	<b>32</b>	<b>12</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>51</b>	<b>1</b>
		<b>Grand Total (A+B+C)</b>	<b>38</b>	<b>112</b>	<b>86</b>	<b>46</b>	<b>18</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>76</b>	<b>1</b>

\*Source: District Primary Census Abstract, Ariyalur District of Tamilnadu State-2011

**MEDICAL FACILITIES WITHIN THE STUDY AREA**

Sl.No	No. of Villages	Name of village	Medical Facilities (A(1)/NA(2))	Community Health Centre (Numbers)	Primary Health Centre (Numbers)	Primary Health Sub Centre (Numbers)	Maternity And Child Welfare Centre (Numbers)	TB Clinic (Numbers)	Hospital Allopathic (Numbers)	Hospital Alternative Medicine (Numbers)	Dispensary (Numbers)	Veterinary Hospital (Numbers)	Mobile Health Clinic (Numbers)	Family Welfare Centre (Numbers)
<b>0-2 km,Ariyalur Sub-District, Ariyalur District</b>														
1	1	Ottakoil	1	0	0	1	0	0	0	0	0	0	0	0
		<b>total (A)</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>2-5 km,Ariyalur Sub-District, Ariyalur District</b>														
2	1	Pottaveli	1	0	0	1	0	0	0	0	0	0	0	0
3	2	Rayampuram	1	0	0	1	0	0	0	0	0	0	0	0
4	3	Sennivanam	2	0	0	0	0	0	0	0	0	0	0	0
5	4	Illuppaiyur	1	0	0	1	0	0	0	0	0	0	0	0
6	5	Govindapuram	1	0	1	1	1	1	0	0	1	0	0	1
7	6	Kallankurichi	1	0	0	1	0	0	0	0	0	0	0	0
8	7	Kadugur	1	1	1	1	1	1	0	0	1	0	0	1
9	8	Ammenabath	2	0	0	0	0	0	0	0	0	0	0	0
<b>Kunnam Sub-District, Perambalur District</b>														
10	1	Kadur (South)	2	0	0	0	0	0	0	0	0	0	0	0
11	2	Periavenmani (East)	2	0	0	0	0	0	0	0	0	0	0	0
		<b>total (B)</b>	<b>14</b>	<b>1</b>	<b>2</b>	<b>6</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>2</b>
<b>5-10km,Ariyalur Sub-District, Ariyalur District</b>														
12	1	Ayanathur	2	0	0	0	0	0	0	0	0	0	0	0
13	2	Thealur	1	0	0	1	0	0	0	0	0	0	0	0
14	3	Periyaganalur	1	0	0	1	1	0	0	0	0	1	0	0
15	4	Kayarlabath	1	0	0	1	0	0	0	0	0	0	0	0
16	5	Ariyalur (North)	1	0	0	1	0	0	0	0	0	0	0	0
17	6	Valajanagaram	1	0	0	1	0	0	0	0	0	0	0	0
<b>Sendurai Sub-District, Ariyalur District</b>														
18	1	Vanjinapuram	2	0	0	0	0	0	0	0	0	0	0	0
19	2	Namangunam	1	0	0	1	1	0	0	0	0	0	0	0
20	3	Nakkampadi	1	0	0	1	0	0	0	0	0	0	0	0
21	4	Unjini	1	0	0	1	1	0	0	0	0	0	0	0
22	5	Sendurai	1	0	0	1	1	1	0	0	0	1	0	0
23	6	Anandavadi	1	0	1	1	1	1	0	0	1	0	0	1
24	7	Kilimangalam	2	0	0	0	0	0	0	0	0	0	0	0
<b>Kunnam Sub-District, Perambalur District</b>														
25	1	Thungapuram (South)	1	0	1	1	1	1	0	0	1	1	0	1
26	2	Paravai (East)	2	0	0	0	0	0	0	0	0	0	0	0
27	3	Periyammalayam	1	0	0	1	0	0	0	0	0	0	0	0
28	4	Kunnam	1	0	1	1	1	1	1	1	1	0	0	1
29	5	Varagur	1	0	0	1	0	0	0	0	0	0	0	0
30	6	Kolapady	2	0	0	0	0	0	0	0	0	0	0	0
31	7	Puduvettagudi	1	0	0	1	1	0	0	0	0	0	0	0
32	8	Kadur (North)	1	0	0	1	1	0	0	0	0	0	0	0
33	9	Periavenmani (West)	1	0	0	1	1	0	0	0	0	0	0	0
34	10	Melamathur	1	0	1	1	1	1	0	0	1	1	0	1
35	11	Alagiripalayam	1	0	0	0	0	0	0	0	0	1	0	0
36	12	Thondappadi	1	0	0	1	0	0	0	0	0	0	0	0
37	13	Koothur	1	0	0	0	0	0	0	0	0	1	0	0
38	14	Adhanur (South)	2	0	0	0	0	0	0	0	0	0	0	0
		<b>total (C)</b>	<b>33</b>	<b>0</b>	<b>4</b>	<b>19</b>	<b>11</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>6</b>	<b>0</b>	<b>4</b>
		<b>Grand Total (A+B+C)</b>	<b>48</b>	<b>1</b>	<b>6</b>	<b>26</b>	<b>13</b>	<b>7</b>	<b>1</b>	<b>1</b>	<b>6</b>	<b>6</b>	<b>0</b>	<b>6</b>

\*Source: District Primary Census Abstract, Ariyalur District of Tamilnadu State-2011

**INFRASTRUCTURAL FACILITIES IN THE STUDY AREA**

Sl.No	No. of Villages	Name of village	Tap Water-Treated (Status A(1)/NA(2))	Covered Well (Status A(1)/NA(2))	Hand Pump (Status A(1)/NA(2))	Tube Wells/Borehole (Status A(1)/NA(2))	Spring (Status A(1)/NA(2))	River/Canal (Status A(1)/NA(2))	Tank/Pond/Lake (Status A(1)/NA(2))	Post Office (Status A(1)/NA(2))	Sub Post Office (Status A(1)/NA(2))	Post And Telegraph Office (Status A(1)/NA(2))	Telephone (landlines) (Status A(1)/NA(2))	Mobile Phone Coverage (Status A(1)/NA(2))	Public Bus Service (Status A(1)/NA(2))	Railway Station (Status A(1)/NA(2))	Commercial Bank (Status A(1)/NA(2))	Cooperative Bank (Status A(1)/NA(2))	Agricultural Credit Societies (Status A(1)/NA(2))
<b>0-2 km,Ariyalur Sub-District, Ariyalur District</b>																			
1	1	Ottakoil	1	1	1	1	2	2	2	2	1	2	1	1	1	1	2	2	2
<b>2-5 km,Ariyalur Sub-District, Ariyalur District</b>																			
2	1	Pottaveli	1	2	1	1	2	2	1	2	1	2	1	1	1	1	2	2	2
3	2	Rayampuram	1	2	1	1	2	2	1	1	1	1	1	1	1	2	2	2	1
4	3	Sennivanam	1	2	2	2	2	2	1	2	1	2	1	1	1	2	2	2	2
5	4	Illuppaiyur	1	1	1	1	1	2	2	2	1	2	1	1	1	2	2	2	1
6	5	Govindapuram	1	1	2	1	1	2	2	2	1	2	1	1	1	2	2	2	1
7	6	Kallankurichi	2	2	1	1	1	2	2	1	1	1	1	1	1	2	2	2	2
8	7	Kadugur	1	2	2	1	2	2	2	2	1	2	1	1	1	2	2	2	2
9	8	Ammenabath	1	2	2	1	2	2	2	2	1	2	1	1	1	2	2	2	2
<b>Kunnam Sub-District, Perambalur District</b>																			
10	1	Kadur (South)	1	1	2	1	2	2	2	2	1	2	1	1	1	2	2	2	2
11	2	Periavenmani (East)	1	1	2	1	2	2	2	2	2	2	2	1	1	2	2	2	2
<b>5-10km,Ariyalur Sub-District, Ariyalur District</b>																			
12	1	Ayanathur	1	1	1	1	1	2	1	2	1	2	1	1	1	2	2	1	1
13	2	Thealur	1	2	1	1	1	1	2	2	1	2	1	1	1	2	2	2	2
14	3	Periyangalur	1	1	1	1	2	2	1	2	1	2	1	1	1	2	2	2	1
15	4	Kayarlabath	1	1	1	1	2	2	2	2	1	2	1	1	1	2	2	2	2
16	5	Ariyalur (North)	1	1	2	1	2	2	2	2	1	2	1	1	1	2	2	2	2
17	6	Valajanagaram	1	1	1	1	2	2	2	2	1	2	1	1	1	2	2	2	2
<b>Sendurai Sub-District, Ariyalur District</b>																			
18	1	Vanjinapuram	1	2	1	1	2	2	2	2	1	2	1	1	1	2	2	2	1
19	2	Namangunam	1	1	2	1	1	2	2	2	1	2	1	1	1	2	2	1	1
20	3	Nakkampadi	1	1	1	1	1	2	2	2	1	2	1	1	1	2	2	2	2
21	4	Unjini	2	1	2	1	2	2	2	2	1	2	1	1	1	2	2	2	2
22	5	Sendurai	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1
23	6	Anandavadi	1	2	1	1	2	2	2	2	1	2	1	1	1	2	1	2	1
24	7	Kilimangalam	1	1	2	1	1	2	1	2	1	2	1	1	1	2	2	2	2
<b>Kunnam Sub-District, Perambalur District</b>																			
25	1	Thungapuram (South)	1	1	2	1	2	2	2	2	2	2	1	1	1	2	1	1	1
26	2	Paravai (East)	1	1	2	1	2	2	2	2	1	2	2	1	1	2	2	2	2
27	3	Periyampalayam	2	2	2	2	2	2	1	2	1	2	1	1	1	2	2	2	2
28	4	Kunnam	1	1	1	1	2	2	1	2	1	2	1	1	1	2	1	1	1
29	5	Varagur	1	1	1	1	2	2	1	2	1	2	1	1	1	2	2	2	2
30	6	Kolapady	1	2	1	1	2	2	2	2	2	2	1	1	1	2	2	2	2
31	7	Puduvettagudi	1	2	2	1	2	2	2	2	1	2	1	1	1	2	2	2	1
32	8	Kadur (North)	1	2	2	1	2	2	2	2	1	2	1	1	2	2	2	2	1
33	9	Periavenmani (West)	1	2	2	1	2	2	2	2	1	2	1	1	1	2	2	2	2
34	10	Melamathur	1	1	1	1	2	2	1	1	2	1	1	1	1	2	2	2	2
35	11	Alagiripalayam	1	2	2	1	2	2	2	2	1	2	1	1	1	2	2	1	2
36	12	Thondappadi	1	1	1	1	2	2	2	2	1	2	2	1	1	2	2	2	2
37	13	Koothur	1	2	2	1	2	2	2	2	1	2	1	1	1	2	2	1	1
38	14	Adhanur (South)	1	2	2	2	2	2	2	2	1	2	1	1	1	2	2	2	2

\*Source: District Primary Census Abstract, Ariyalur District of Tamilnadu State-2011

Note : A: Available, NA- Not Available

Status: A(1)/NA(2)



# CREATIVE ENGINEERS & CONSULTANTS

(NABET ACCREDITED, NABL ACCREDITED TESTING LABORATORY,  
DEPARTMENT OF INDUSTRIES AND COMMERCE REGISTERED COMPANY)

## AMBIENT AIR QUALITY

Project	:	Ottakovil Limekankar Quarry Lease-2 of The Ramco Cements Limited
Name of the Location	:	Near mine lease area - Ottakovil
Station Code	:	A1

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	05.12.23	41.4	19.0	5.4	8.5
2	06.12.23	46.8	21.5	6.5	9.6
3	16.12.23	44.7	20.6	6.1	9.2
4	17.12.23	49.2	22.6	7.0	10.1
5	19.12.23	42.3	19.5	5.6	8.7
6	20.12.23	49.9	23.0	7.1	10.2
7	30.12.23	45.3	20.8	6.2	9.3
8	31.12.23	47.7	21.9	6.7	9.8
9	02.01.24	39.8	18.3	5.1	8.2
10	03.01.24	43.3	19.9	5.8	8.9
11	13.01.24	50.9	23.5	7.3	10.4
12	14.01.24	48.7	22.4	6.9	10
13	16.01.24	41.6	19.1	5.5	8.6
14	17.01.24	45.8	21.1	6.3	9.4
15	27.01.24	40.3	18.5	5.2	8.3
16	28.01.24	43.8	20.1	5.9	9.0
17	30.01.24	51.3	23.6	7.4	10.5
18	31.01.24	48.3	22.2	6.8	9.9
19	10.02.24	46.1	21.2	6.4	9.5
20	11.02.24	47.3	21.8	6.6	9.7
21	13.02.24	40.7	18.7	5.3	8.4
22	14.02.24	44.3	20.4	6.0	9.1
23	24.02.24	42.9	19.7	5.7	8.8
24	25.02.24	50.5	23.2	7.2	10.3
	<b>MIN</b>	<b>39.8</b>	<b>18.3</b>	<b>5.1</b>	<b>8.2</b>
	<b>AVE</b>	<b>45.5</b>	<b>21.0</b>	<b>6.3</b>	<b>9.4</b>
	<b>MAX</b>	<b>51.3</b>	<b>23.6</b>	<b>7.4</b>	<b>10.5</b>

Note: BDL – Below Detectable Limit, DL: Detectable Limit.

Prepared by



9B/4, Bharathwajar Street, East Tambaram, Chennai 600 059.

Ph : 22395170, 9444133619, Fax : 91-44-22396643.

e-mail : cecgiri@yahoo.com, web : www.creativeengineers.co.in



# CREATIVE ENGINEERS & CONSULTANTS

(NABET ACCREDITED, NABL ACCREDITED TESTING LABORATORY,  
DEPARTMENT OF INDUSTRIES AND COMMERCE REGISTERED COMPANY)

## AMBIENT AIR QUALITY

Project	:	Ottakovil Limekankar Quarry Lease-2 of The Ramco Cements Limited
Name of the Location	:	Nallampathai Village
Station Code	:	A2

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	05.12.23	42.7	20.1	5.5	8.7
2	06.12.23	45.3	21.3	6	9.2
3	16.12.23	51.2	24.1	7.2	10.6
4	17.12.23	46.5	21.9	6.2	9.4
5	19.12.23	50.4	23.7	7	10.4
6	20.12.23	44.2	20.8	5.8	8.9
7	30.12.23	47.6	22.4	6.4	9.6
8	31.12.23	51.7	24.3	7.3	10.7
9	02.01.24	41.1	19.3	5.2	8.4
10	03.01.24	44.7	21.0	5.9	9.1
11	13.01.24	43.4	20.4	5.6	8.8
12	14.01.24	48.8	22.9	6.7	10.1
13	16.01.24	42.5	20.0	5.4	8.6
14	17.01.24	47.9	22.5	6.5	9.7
15	27.01.24	43.2	20.3	5.6	8.8
16	28.01.24	48.2	22.7	6.6	9.8
17	30.01.24	52.6	24.7	7.5	12.3
18	31.01.24	49.8	23.4	6.9	10.3
19	10.02.24	41.7	19.3	5.3	8.5
20	11.02.24	46.9	22.0	6.3	9.5
21	13.02.24	45.6	21.4	6.1	9.3
22	14.02.24	52.2	24.5	7.4	11.5
23	24.02.24	49.4	23.2	6.8	10.2
24	25.02.24	50.7	23.8	7.1	10.5
	MIN	41.1	19.3	5.2	8.4
	AVE	47.0	22.1	6.3	9.7
	MAX	52.6	24.7	7.5	12.3

Note: BDL – Below Detectable Limit, DL: Detectable Limit.

Prepared by



9B/4, Bharathwajar Street, East Tambaram, Chennai 600 059.

Ph : 22395170, 9444133619, Fax : 91-44-22396643.

e-mail : cecgiri@yahoo.com, web : www.creativeengineers.co.in



# CREATIVE ENGINEERS & CONSULTANTS

(NABET ACCREDITED, NABL ACCREDITED TESTING LABORATORY,  
DEPARTMENT OF INDUSTRIES AND COMMERCE REGISTERED COMPANY)

## AMBIENT AIR QUALITY

Project	:	Ottakovil Limekankar Quarry Lease-2 of The Ramco Cements Limited
Name of the Location	:	Poianallur Village
Station Code	:	A3

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	07.12.23	52.1	25.0	6.6	9.9
2	08.12.23	53.2	25.5	7.3	10.6
3	14.12.23	50.6	24.3	5.9	9.2
4	15.12.23	52.2	25.1	6.7	10.1
5	21.12.23	53.4	25.6	7.4	10.7
6	22.12.23	54.8	26.3	8.3	12.5
7	28.12.23	51.6	24.8	6.4	9.7
8	29.12.23	53.3	25.6	7.2	10.5
9	04.01.24	50.4	24.2	5.8	9.1
10	05.01.24	51.8	24.9	6.5	9.8
11	11.01.24	53.6	25.7	7.5	10.8
12	12.01.24	55.6	26.7	8.6	13.6
13	18.01.24	51.3	24.6	6.1	9.4
14	19.01.24	54.4	26.1	7.8	11.3
15	25.01.24	54.6	26.2	7.9	11.4
16	26.01.24	52.6	25.2	6.9	10.3
17	01.02.24	53.8	25.8	7.6	11.1
18	02.02.24	56.9	27.3	8.9	14.5
19	08.02.24	51.4	24.7	6.3	9.6
20	09.02.24	52.4	25.2	6.8	10.2
21	15.02.24	54.2	26.0	7.7	11.2
22	16.02.24	52.8	25.3	7.1	10.4
23	23.02.24	51.2	24.6	6.2	9.5
24	24.02.24	50.8	24.4	6	9.3
	MIN	50.4	24.2	5.8	9.1
	AVE	52.9	25.4	7.1	10.6
	MAX	56.9	27.3	8.9	14.5

Note: BDL – Below Detectable Limit, DL: Detectable Limit.

Prepared by



9B/4, Bharathwajar Street, East Tambaram, Chennai 600 059.

Ph : 22395170, 9444133619, Fax : 91-44-22396643.

e-mail : cecgiri@yahoo.com, web : www.creativeengineers.co.in





# CREATIVE ENGINEERS & CONSULTANTS

(NABET ACCREDITED, NABL ACCREDITED TESTING LABORATORY,  
DEPARTMENT OF INDUSTRIES AND COMMERCE REGISTERED COMPANY)

## AMBIENT AIR QUALITY

Project	:	Ottakovil Limekankar Quarry Lease-2 of The Ramco Cements Limited
Name of the Location	:	Kothur Village
Station Code	:	A4

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	07.12.23	52.5	25.2	8.2	10.8
2	08.12.23	50.9	24.4	7.2	10.4
3	14.12.23	46.1	22.1	5.7	9.1
4	15.12.23	49.3	23.7	6.5	9.9
5	21.12.23	45.7	21.9	5.6	9.1
6	22.12.23	48.5	23.3	6.3	9.7
7	28.12.23	53.7	25.8	8.7	13.4
8	29.12.23	52.1	25.0	7.8	10.7
9	04.01.24	44.5	21.4	5.3	8.7
10	05.01.24	47.3	22.7	6.1	9.4
11	11.01.24	50.5	24.2	7.1	10.3
12	12.01.24	52.9	25.4	8.4	10.9
13	18.01.24	46.5	22.3	5.8	9.2
14	19.01.24	49.7	23.9	6.6	10.1
15	25.01.24	45.3	21.7	5.5	8.9
16	26.01.24	48.1	23.1	6.2	9.6
17	01.02.24	46.9	22.5	5.9	9.3
18	02.02.24	51.3	24.6	7.4	10.5
19	08.02.24	50.1	24.0	6.8	10.2
20	09.02.24	53.3	25.6	8.6	12.6
21	15.02.24	44.9	21.6	5.4	8.8
22	16.02.24	47.7	22.9	6.1	9.5
23	23.02.24	51.7	24.8	7.6	10.6
24	24.02.24	48.9	23.5	6.4	9.8
	MIN	44.5	21.4	5.3	8.7
	AVE	49.1	23.6	6.7	10.1
	MAX	53.7	25.8	8.7	13.4

Note: BDL – Below Detectable Limit, DL: Detectable Limit.

Prepared by



9B/4, Bharathwajar Street, East Tambaram, Chennai 600 059.

Ph : 22395170, 9444133619, Fax : 91-44-22396643.

e-mail : cecgiri@yahoo.com, web : www.creativeengineers.co.in



# CREATIVE ENGINEERS & CONSULTANTS

(NABET ACCREDITED, NABL ACCREDITED TESTING LABORATORY,  
DEPARTMENT OF INDUSTRIES AND COMMERCE REGISTERED COMPANY)

## AMBIENT AIR QUALITY

Project	:	Ottakovil Limekankar Quarry Lease-2 of The Ramco Cements Limited
Name of the Location	:	Salaiyakkurichi Village
Station Code	:	A5

SL.NO	DATE	PM10	PM2.5	SO2	NO2
1	09.12.23	49.9	24.5	5.8	9.2
2	10.12.23	51.4	25.2	6.3	9.7
3	12.12.23	49.1	24.1	5.5	8.9
4	13.12.23	51.1	25.0	6.2	9.6
5	23.12.23	52.6	25.8	6.7	10.1
6	24.12.23	54.4	26.7	7.3	10.7
7	26.12.23	55.3	27.1	7.6	11.0
8	27.12.23	53.2	26.1	6.9	10.3
9	06.01.24	50.5	24.7	6.0	9.4
10	07.01.24	51.7	25.3	6.4	9.8
11	09.01.24	49.3	24.2	5.6	8.9
12	10.01.24	52.3	25.6	6.6	10.1
13	20.01.24	52.0	25.5	6.5	9.9
14	21.01.24	55.6	27.2	7.7	11.1
15	23.01.24	53.8	26.4	7.1	10.5
16	24.01.24	55.0	26.9	7.5	10.9
17	03.02.24	49.6	24.3	5.7	9.1
18	04.02.24	52.9	25.9	6.8	10.2
19	06.02.24	54.7	26.8	7.4	10.8
20	07.02.24	55.9	27.4	7.8	11.2
21	17.02.24	50.2	24.6	5.9	9.3
22	18.02.24	53.5	26.2	7.0	10.4
23	20.02.24	50.8	24.9	6.1	9.5
24	21.02.24	54.1	26.5	7.2	10.6
	MIN	49.1	24.1	5.5	8.9
	AVE	52.5	25.7	6.7	10.1
	MAX	55.9	27.4	7.8	11.2

Note: BDL – Below Detectable Limit, DL: Detectable Limit.

Prepared by



9B/4, Bharathwajar Street, East Tambaram, Chennai 600 059.

Ph : 22395170, 9444133619, Fax : 91-44-22396643.

e-mail : cecgiri@yahoo.com, web : www.creativeengineers.co.in



## CREATIVE ENGINEERS & CONSULTANTS

(NABET ACCREDITED, NABL ACCREDITED TESTING LABORATORY,  
DEPARTMENT OF INDUSTRIES AND COMMERCE REGISTERED COMPANY)

### WATER QUALITY DATA

<b>Project Name</b>	:	<b>Ottakovil Limekankar Quarry Lease-2 of The Ramco Cements Limited</b>	
<b>Location Name</b>	:	<b>Location Code</b>	<b>Location Name</b>
		W1	Near mine lease area Ottakovil
		W2	Nallam pathai Village
		W3	Poiyanallur Village
		W4	Kothur Village
		W5	Salaiyakkurichi Village

S. No.	Parameter	Unit	W1	W 2	W 3	W 4	W 5	*Permissible Limits
1	pH	-	7.81	7.67	7.36	7.69	6.79	6.5-8.5
2	Electrical Conductivity	µmhos/cm	1180	1484	1108	1025	1724	-
3	Odor	-	AGREEABLE	AGREEABLE	AGREEABLE	AGREEABLE	AGREEABLE	AGREEABLE
4	Turbidity	NTU	<1	<1	<1	<1	<1	5.0
5	Total Hardness as CaCO <sub>3</sub>	mg/L	269	394	468	395	560	600
6	Calcium Hardness CaCO <sub>3</sub>	mg/L	141	120	305	194	286	-
7	Magnesium Hardness CaCO <sub>3</sub>	mg/L	128	274	163	201	274	-
8	Calcium Ca	mg/L	56.4	48.0	122	77.6	114	200
9	Magnesium Mg	mg/L	30.7	65.8	39.1	48.2	65.8	100
10	Alkalinity CaCO <sub>3</sub>	mg/L	386	398	304	340	318	600

9B/4, Bharathwajar Street, East Tambaram, Chennai 600 059.

Ph : 22395170, 9444133619, Fax : 91-44-22396643.

e-mail : cecgiri@yahoo.com, web : www.creativeengineers.co.in



# CREATIVE ENGINEERS & CONSULTANTS

(NABET ACCREDITED, NABL ACCREDITED TESTING LABORATORY,  
DEPARTMENT OF INDUSTRIES AND COMMERCE REGISTERED COMPANY)

S. No.	Parameter	Unit	W1	W 2	W 3	W 4	W 5	*Permissible Limits
11	Chloride Cl <sup>-</sup>	mg/L	144	251	139	157	271	1000
12	Sulphate SO <sub>4</sub> <sup>2-</sup>	mg/L	215	238	124	78.6	292	400
13	Iron Fe	mg/L	0.05	0.04	0.03	0.08	0.06	0.3
14	Nitrate NO <sub>3</sub>	mg/L	3.24	1.76	2.35	3.38	4.65	45
15	Fluoride F	mg/L	0.38	0.35	0.33	0.44	0.54	1.5
16	Total Dissolved Solids	mg/L	708	890	665	616	1035	2000
17	Free Residual Chlorine Cl <sup>-</sup>	mg/L	BDL(D.L-0.2)	BDL(D.L-0.2)	BDL(D.L-0.2)	BDL(D.L-0.2)	BDL(D.L-0.2)	1.0
18	Manganese Mn	mg/L	BDL(D.L-0.05)	BDL(D.L-0.05)	BDL(D.L-0.05)	BDL(D.L-0.05)	BDL(D.L-0.05)	0.3

**Note:** \* The water quality of the collected ground water samples were found to be within the prescribed permissible limits of IS: 10500:2012 Norms for Drinking in the absence of an alternative source.

  
Prepared by



9B/4, Bharathwajar Street, East Tambaram, Chennai 600 059.

Ph : 22395170, 9444133619, Fax : 91-44-22396643.

e-mail : cecgiri@yahoo.com, web : www.creativeengineers.co.in

**LAND USE PATTERN OF THE STUDY AREA WITHIN 10 KM RADIUS AROUND THE PROPOSED PROJECT AREA**

Sl.No	No. of Villages	Name of village	Total Geographical Area (in Hectares)	Forest Area (in Hectares)	Area under Non-Agricultural Uses (in Hectares)	Barren & Uncultivable Land Area (in Hectares)	Permanent Pastures and Other Grazing Land Area (in Hectares)	Land Under Miscellaneous Tree Crops etc. Area (in Hectares)	Culturable Waste Land Area (in Hectares)	Fallows Land other than Current Fallows Area (in Hectares)	Current Fallows Area (in Hectares)	Total Unirrigated Land Area (in Hectares)	Area Irrigated by Source (in Hectares)
<b>0-2 km,Ariyalur Sub-District, Ariyalur District</b>													
1	1	Ottakoil	1795.12	0	505.18	122.82	0	100	4.1	0	10	979.36	73.66
		<b>total (A)</b>	<b>1795.12</b>	<b>0</b>	<b>505.18</b>	<b>122.82</b>	<b>0</b>	<b>100</b>	<b>4.1</b>	<b>0</b>	<b>10</b>	<b>979.36</b>	<b>73.66</b>
<b>2-5 km,Ariyalur Sub-District, Ariyalur District</b>													
2	1	Pottaveli	1180.31	0	214.66	0	0	0	103.69	0	0.67	787.47	73.82
3	2	Rayampuram	1160.97	0	148.87	11.05	0.48	96.95	39.03	5.24	105.15	582.97	171.23
4	3	Sennivanam	557.38	0	112.39	0	24.8	14.95	1.05	0	0.24	365.46	38.49
5	4	Illuppaiyur	1287.11	0	248.82	0	0	23.6	3.01	0	39.19	884.47	88.02
6	5	Govindapuram	1374.92	0	90.45	0	0	10.27	1.28	570.91	159.67	486.43	55.91
7	6	Kallankurichi	1323.55	0	197.97	122.77	9.98	172.35	5.6	88.52	290.88	334.22	101.26
8	7	Kadugur	877.98	0	49.1	21.9	44	45.4	75.6	30.6	85.19	415.59	110.6
9	8	Ammenabath	559.45	0	93.54	174.5	0	9.92	62.97	56.56	0.45	136.27	25.24
<b>Kunnam Sub-District, Perambalur District</b>													
10	1	Kadur (South)	656.37	0	126.99	0	0	2.52	14.3	0	6.6	317.97	187.99
11	2	Periavenmani (East)	829.88	0	86.88	0	0	0	0	50.86	70.31	464.73	157.1
		<b>total (B)</b>	<b>9807.92</b>	<b>0</b>	<b>1369.67</b>	<b>330.22</b>	<b>79.26</b>	<b>375.96</b>	<b>306.53</b>	<b>802.69</b>	<b>758.35</b>	<b>4775.58</b>	<b>1009.66</b>
<b>5-10km,Ariyalur Sub-District, Ariyalur District</b>													
12	1	Ayanathur	988.7	0	20.7	6.04	15.9	20.5	105.1	110.6	210.1	369.36	130.4
13	2	Thelur	1219.57	0	370.13	0	0	35.39	234.97	3.23	144.87	244.65	186.33
14	3	Periyagalur	1194.7	0	291.08	149.36	0.35	22.2	194.18	277.56	16.8	117.03	126.14
15	4	Kayarlabath	1081.1	0	577.13	0	2.06	10.06	152.79	0	15.09	190.1	133.87
16	5	Ariyalur (North)	446.94	0	28.71	0	0	1.79	1.78	101.14	186.02	109.4	18.1
17	6	Valajanagaram	1212.8	0	461.11	0	10.66	10.2	184.91	0	15.19	405.62	125.11
<b>Sendurai Sub-District, Ariyalur District</b>													
18	1	Vanjinapuram	849.4	0	209.24	0	0	49.25	13	9.46	40	396.25	132.2
19	2	Namangunam	997.95	0	163.41	17.21	0	72.25	12	52.73	9.78	362.6	307.97
20	3	Nakkampadi	971.91	0	287.79	0	0.66	53.39	12.78	12.25	20.5	467.19	117.35
21	4	Unjini	726.8	0	126.93	0	0	18.25	21	0.31	29.12	514.38	16.81
22	5	Sendurai	1459.02	0	397.1	0	0	56.3	53.3	63.47	255.35	581.02	52.48
23	6	Anandavadi	1714.25	0	362.22	5.26	0	262.55	45.31	3.14	178.98	772.25	84.54
24	7	Kilimangalam	823.27	0	99.48	0	8.66	11.39	0	13.25	19.72	580.07	90.7
<b>Kunnam Sub-District, Perambalur District</b>													
25	1	Thungapuram (South)	729.69	0	217.1	0	0	15.32	7	8.58	60.11	312.74	108.84
26	2	Paravai (East)	1192.53	0	212.8	0	6.85	13.93	1.6	135.97	53.88	755.05	12.45
27	3	Periyampalayam	1181.52	0	260.99	0	0	12.42	0	95.98	33.46	763.13	15.54
28	4	Kunnam	1281.47	0	300.7	0	2.77	9.4	2.64	40.32	47.72	876.22	1.7
29	5	Varagur	1192.13	0	198.02	0	0	15.43	4.35	63.97	24.55	885.81	0
30	6	Kolapady	477.98	0	109.99	0	1.62	0	0	12.72	9.96	309.52	34.17
31	7	Puduvetagudi	1516.08	0	226.99	3.59	0.23	10.6	71.3	74.95	58.49	916.84	153.09

Sl.No	No. of Villages	Name of village	Total Geographical Area (in Hectares)	Forest Area (in Hectares)	Area under Non-Agricultural Uses (in Hectares)	Barren & Uncultivable Land Area (in Hectares)	Permanent Pastures and Other Grazing Land Area (in Hectares)	Land Under Miscellaneous Tree Crops etc. Area (in Hectares)	Culturable Waste Land Area (in Hectares)	Fallows Land other than Current Fallows Area (in Hectares)	Current Fallows Area (in Hectares)	Total Unirrigated Land Area (in Hectares)	Area Irrigated by Source (in Hectares)
32	8	Kadur (North)	727.66	0	127.98	0	0	8.4	0	75.15	61.12	124.06	330.95
33	9	Periavenmani (West)	1029.17	0	130.99	0	0	10.4	28.67	130.29	8.65	653.34	66.83
34	10	Melamathur	1260.99	0	249.07	36.76	0	5.43	33.03	7.43	33.67	850.05	45.55
35	11	Alagiripalayam	608.93	0	131.03	0.37	0	24.88	1.8	23.02	2.95	419.34	5.54
36	12	Thondappadi	952.73	0	170.05	0.86	0	200.83	14.65	20.18	62.77	460.33	23.06
37	13	Koothur	898.23	10	75.72	5.21	2	1.92	91.19	4.39	250.26	443.96	13.58
38	14	Adhanur (South)	644.1	0	132.2	8.26	0	3.53	68	0	9.75	398.18	24.18
		<b>total (C)</b>	<b>27379.62</b>	<b>10</b>	<b>5938.66</b>	<b>232.92</b>	<b>51.76</b>	<b>956.01</b>	<b>1355.35</b>	<b>1340.09</b>	<b>1858.86</b>	<b>13278.49</b>	<b>2357.48</b>
		<b>Grand Total (A+B+C)</b>	<b>38982.66</b>	<b>10</b>	<b>7813.51</b>	<b>685.96</b>	<b>131.02</b>	<b>1431.97</b>	<b>1665.98</b>	<b>2142.78</b>	<b>2627.21</b>	<b>19033.43</b>	<b>3440.8</b>

\*Source: District Primary Census Abstract, Ariyalur District of Tamilnadu State-2011

Tel. No. 04329-299195  
E.Mail [dfoariyalur@gmail.com](mailto:dfoariyalur@gmail.com)

**TAMIL NADU FOREST DEPARTMENT**

From  
Dr.T.Elangovan, M.Com., B.Ed.,  
District Forest Officer,  
Ariyalur Forest Division,  
Ariyalur.

To  
Principal Chief Conservator of Forests,  
Velachery, Chennai.  
(Through Chief Conservator of Forests,  
Trichy circle)

**C.No.4062/2023/D dated. 15.11.2023**

Sir,

Sub : Mines and quarries – Confirmation of Forest Land and Other Eco-Sensitive areas like National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site, Tiger/Elephant Reserves. if any in the proposed project area of 57.36.0 Ha. In SF Nos.204/10, 204/11, 204/12 etc., of Ottakovil Village, Ariyalur Taluk and District blonging to M/s The Ramco Cements Limited, Govindapuram works, Ariyalur – Regarding.

- Ref 1) Ramco Cements Ltd, Ariyalur Letter dated.01.09.2023.  
2) Forest Range Officer, Ariyalur Range Ref.No.605/2023 dated.07.11.2023.

\*\*\*\*\*

I submit that in the reference 1<sup>st</sup> cited M/s Ramco Cement Ltd, Ottakovil Works had requested “No Objection Certificate” for obtaining Environmental Clearance from Ministry of Environment and Climate Change for Ottakovil in the mining lease area of 57.36.0 Ha comprised in SF.No. 204/10, 204/11, 204/12 Ottakovil Village of Ariyalur Taluk and district.

In this connection the Forest Range Officer, Ariyalur has inspected the mining areas on 04.10.2023 and submitted in his report vide reference 2<sup>nd</sup> cited above has report as detailed below.

- ❖ The mine area does not comprise any Forest Land.
- ❖ No Reserve Forests is present within the one kilometer radius of the mines.
- ❖ The nearest Reserve Forests is Vinnakuruchi Reserved Forests (11.183785<sup>o</sup>, 79.188913<sup>o</sup>) which is 8.05 kilometers away from the mines.
- ❖ No other Reserved Forests lies within ten kilometers radius of the mines.

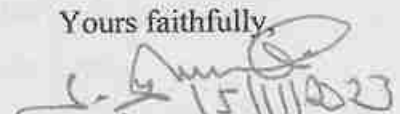
- ❖ Karaivetti Birds Sanctuary is 23 Kilometers away from the said Mines and no other protected area is present nearby.
- ❖ The mine area is 22 Kilometers away from the Eco-Sensitive Zone of Karaivetti Birds Sanctuary
- ❖ And no other National Parks, Sanctuaries, Biosphere Reserve, Wildlife Corridors, Ramsar Site, Tiger/Elephant Reserve lies in the proposed area.
- ❖ The mine area doesn't fall under notified areas of TNPPF Act/TNHP Act.

In this regard I submit that as reported by the Forest range Officer, Ariyalur, No Reserved Forests or any other Forest land is situated within 1 Km from the Periphery of the above mining lease area.

I have inspected the above mining area on 04.10.2023. The distance between existing lime stone mining area of Ramco Cements Ltd, Govindapuram works, Ariyalur in Ottakovil village over an extent of 57.36.0 Hectares Karaivetti Birds Sanctuary is 22 Kilometers away from the said mines and it also informed that no National park, Sanctuaries, Biosphere Reserves, Wildlife corridors, Ramsar site, Tiger/Elephant Reserves does not lies with in 10 Kms of the existing lime stone mine area. The mine area doesn't fall under notified areas of TNPPF Act/TNHP Act.

Therefore I request that necessary orders may kindly be given for the issue of the "No Objection Certificate" in the above matter. Further I submit that there is no objection from Forestry and Wildlife point of view in according the No Objection Certificate for the operation of mining in the above subject lands.

Yours faithfully,

  
15/11/2023  
District Forest Officer,  
Ariyalur Forest Division,  
Ariyalur.

Copy :

1. submitted to Chief Conservator of Forests, Trichy Circle
2. Copy to General Manager (Mines), Ramco Cements Ltd, Govindapuram, Ariyalur (Dt).



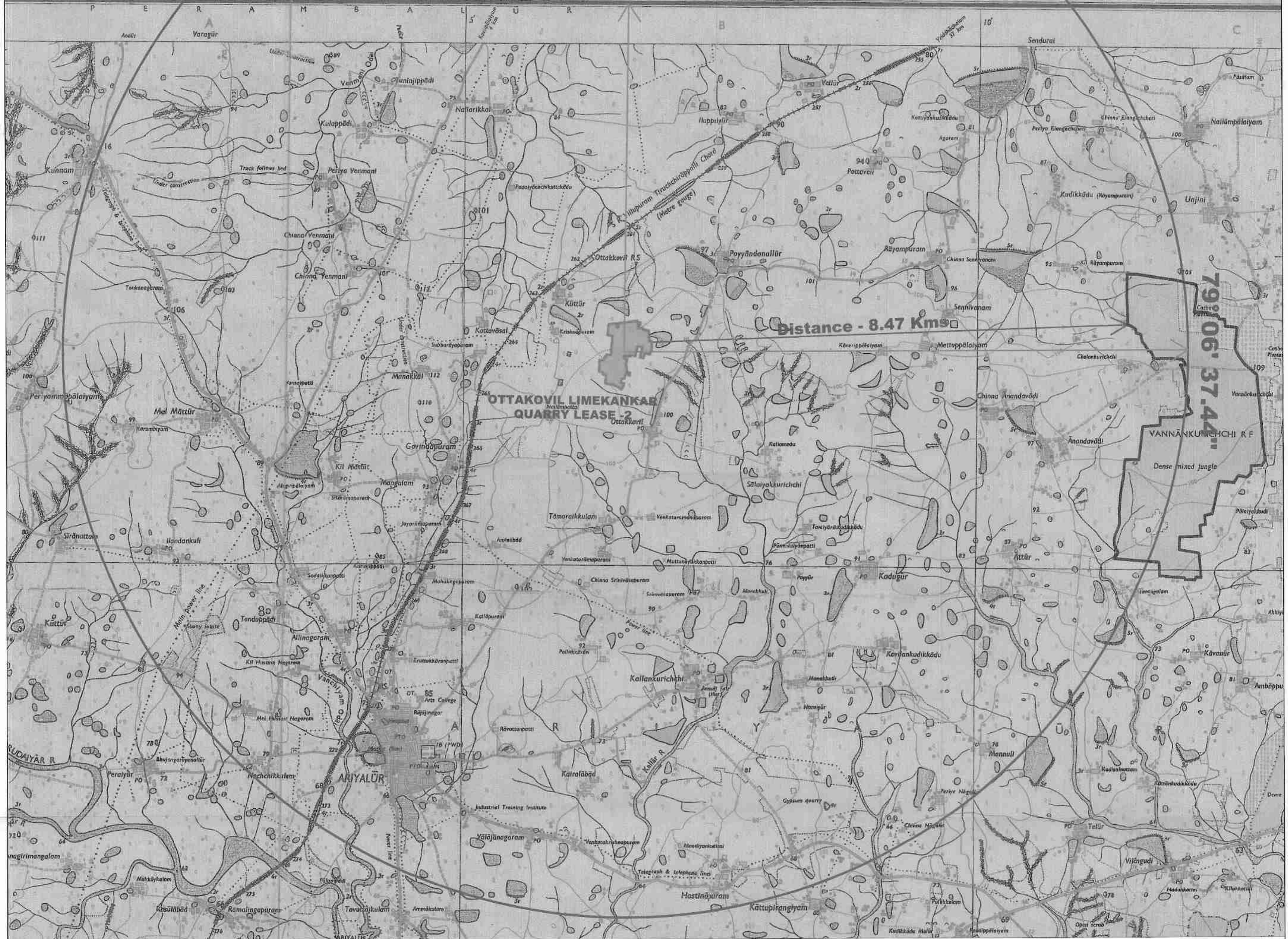


11° 12' 04.10"

CHIRAPPALLI DISTRICT.

Surveyed 1969-70.

(Increasing by about 1 annually).



INDEX

- QUARRY LEASE AREA
- 10 KM RADIUS
- VANNANKURICHCHI RF

TOPOSHEET NO: 58 M/4

SCALE:1:50000

*[Signature]*  
DISTRICT FOREST OFFICER  
ARIYALUR FOREST DIVISION  
ARIYALUR

15.11.2023

Tel. No. 04329-299195  
E.Mail [ariyalurdfdo@gmail.com](mailto:ariyalurdfdo@gmail.com)

TAMIL NADU FOREST DEPARTMENT

From Dr.T.Elangovan, M.Com, B.Ed,  
District Forest Officer,  
Ariyalur Forest Division,  
Ariyalur.

To The Manager,  
Ramco Cement Ltd,  
Ariyalur.

C.No.4063/2023/D dated.10.11.2023

Sir,

- Sub : Mines and Minerals - List of Flora and Fauna in the proposed project area of 57.36.0 Ha in SF.Nos 204/10, 204/11, 204/12 etc., of Ottakovil Village, Ariyalur Taluk and District belonging to M/s Ramco Cements Limited, Govindapuram - Regarding.
- Ref : The Ramco Cement Limited, Ariyalur Letter.No.Nil dated.01.09.2023.

\*\*\*\*\*

With reference to your letter cited above, I wish to inform that, the list of Flora and Fauna within 10 km radius for quarrying lease in Ottakovil Village, Ariyalur Taluk and District is hereby authenticated.

Enclosure : List of Flora and Fauna

Yours faithfully

  
District Forest Officer,  
Ariyalur Forest Division,  
Ariyalur.

  
10.11.2023

  
10.11.2023

**LIST OF FLORA AND FAUNA WITH IN 10KM RADIUS FROM  
THE PROPOSED QUARRING LEASE OF OTTAKOIL LIME  
KANKAR OVER AN AREA OF 57.36.0 Ha IN ARIYALUR  
TALUK AND DISTRICT.**

List of Flora within 10 km radius from the quarrying lease area

Sl. No.	BOTANICAL NAME	LOCAL NAME	FAMILY NAME
<b>Trees</b>			
1.	<i>Acacia nilotica</i>	Karuvelan	<i>Fabaceae</i>
2.	<i>Albizia amara</i>	Vagai	<i>Malyaceae</i>
3.	<i>Albizia lebbek</i>	Vagai	<i>Mimosaceae</i>
4.	<i>Annona squamosa</i>	Sithapalzhani	<i>Annonaceae</i>
5.	<i>Artocarpus integrifolia</i>	Pala maram	<i>Moraceae</i>
6.	<i>Azadirachta indica</i>	Neem	<i>Meliaceae</i>
7.	<i>Borassus flabellifer</i>	Panaimaram	<i>Palmae</i>
8.	<i>Cassia fistula</i>	Konrai	<i>Caesalpiniaceae</i>
9.	<i>Casuarina equisetifolia</i>	Savukku	<i>Casuarinaceae</i>
10.	<i>Citrus melenoxylon</i>	Lemon	<i>Rutaceae</i>
11.	<i>Coccoloba palmifera</i>	Thennai	<i>Arecaceae</i>
12.	<i>Dalbergia sissoo</i>	Indian rosewood	<i>Fabaceae</i>
13.	<i>Delonix elata</i>	Perugondrai	<i>Fabaceae</i>
14.	<i>Mangifera indica</i>	Mango	<i>Anacardiaceae</i>
15.	<i>Mimusops elengi</i>	Magizamaram orilanji	<i>Sapotaceae</i>
16.	<i>Phyllanthus embelica</i>	Nelli	<i>Phyllanthaceae</i>
17.	<i>Polyalthia longifolia</i>	False Ashoka	<i>Annonaceae</i>

18.	<i>Prosopis juliflora</i>	Seemai karuvai	<i>Fabaceae</i>
19.	<i>Pterocarpus Santalinus</i>	Red Sandal Wood	<i>Fabaceae</i>
20.	<i>Samania saman</i>	Amai vagai	<i>Fabaceae</i>
21.	<i>Tamarindus indicus</i>	Puli	<i>Caesalpinaceae</i>
22.	<i>Tectona grandis</i>	Teak	<i>Lamiaceae</i>
23.	<i>Terminalia arjuna</i>	Marudha Maram	<i>Combretaceae</i>

**Shrubs**


24.	<i>Abutilon indicum</i>		<i>Malvaceae</i>
25.	<i>Calotropis gigantea</i>	Yerukku	<i>Asclepiadaceae</i>
26.	<i>Cassia auriculata</i>	Avarampoo	<i>Cesalpiniaceae</i>
27.	<i>Hibiscus rosa sinensis</i>	Sembaruthi	<i>Malvaceae</i>
28.	<i>Lawsomia inermis</i>	Maruthani	<i>Lythraceae</i>
29.	<i>Morinda tinctoria</i>	Nuna	<i>Rubiaceae</i>
30.	<i>Nerium oleander</i>	Arali	<i>Apocynaceae</i>
31.	<i>Ocimum sanctum</i>	Thulasi	<i>Amaranthaceae</i>
32.	<i>Senna auriculata</i>	Avarampoo	<i>Cesalpiniaceae</i>
33.	<i>Sida acuta</i>	Seetha	<i>Malvaceae</i>
34.	<i>Zizyphus jujuba</i>	Eelenthai	<i>Rhamnaceae</i>

**Herbs**

35.	<i>Achyranthes aspera</i>	Nayuruvi	<i>Amaranthaceae</i>
36.	<i>Euphorbia prostrata</i>	Crown of thorns	<i>Euphorbiaceae</i>
37.	<i>Leucas aspera</i>	Thunbali	<i>Lamiaceae</i>
38.	<i>Phyllanthus niruri</i>	Keezhanelli	<i>Phyllanthaceae</i>
39.	<i>Solanum xanthocarpum</i>	Kandangkathari	<i>Solanaceae</i>
40.	<i>Tridax procumbens</i>	Vettukkalpoondi	<i>Asteraceae</i>

<b>Climbers</b>			
41.	<i>Abrus precatorius</i>	Indian licorice	<i>Fabaceae</i>
42.	<i>Asparagus racemosus</i>	Tannar-vittan	<i>Asparagaceae</i>
43.	<i>Coccinia indica</i>	kovai	<i>Cucurbitaceae</i>
44.	<i>Cissus quadrangularis</i>	Pirandai	<i>Vitaceae</i>
45.	<i>Coccinia grandis</i>	Kovai	<i>Cucurbitaceae</i>
<b>Grasses</b>			
46.	<i>Chloris barbata</i>	Kodaipullu	<i>Poaceae</i>
47.	<i>Cynodon dactylon</i>	Arugampullu	<i>Poaceae</i>
48.	<i>Cyperus rotundus</i>	Koraipullu	<i>Cyperaceae</i>
49.	<i>Desmostachya bipinnata</i>	Darbhaipul	<i>Poaceae</i>
50.	<i>Kyllingene moralis</i>	Veluttanirbasi	<i>Cyperaceae</i>
<b>Agricultural crops</b>			
51.	<i>Oryza sativa</i>	Paddy	<i>Poaceae</i>
52.	<i>Saccharum officinarum</i>	Karumbu	<i>Poaceae</i>
53.	<i>Phaseolus mungo</i>	Oolunthu	<i>Fabaceae</i>
54.	<i>Arachis hypogea</i>	Ground nut	<i>Fabaceae</i>
55.	<i>Musa acuminata</i>	Plantain	<i>Musaceae</i>
56.	<i>Sorghum vulgare</i>	Solam	<i>Poaceae</i>
57.	<i>Jasminium oleander</i>	Malligai	<i>Oleaceae</i>
58.	<i>Chrysanthemums</i>	Saamanthi	<i>asteraceae</i>

  
 District Forest Officer,  
 Ariyalur Forest Division,  
 Ariyalur.

  
 10-11-2023

  
 15/11/2023

### List of Fauna in the Study Area


List of Fauna within 10 km radius from the quarrying lease area

Sl. No.	Common Name	Scientific Name	Family
<b>A. Mammals</b>			
1.	Boar	<i>Sus scrofa</i>	Suidae
2.	Cat	<i>Felis chaus</i>	Felidae
3.	Rat	<i>Rattus rattus</i>	Muridae
4.	Squirrel	<i>Funambulus palmarum</i>	Sciuridae
5.	Indian hare	<i>Lepus nigricollis</i>	Leporidae
<b>B. Reptiles</b>			
1.	Lizard	<i>Calotes versicolor</i>	Agamidae
2.	Krait	<i>Bungarus caeruleus</i>	Elapidae
3.	Indian cobra	<i>Naja naja</i>	Elapidae
4.	Russell's viper	<i>Daboua russelii</i>	Viperidae
5.	Indian rat Snake	<i>Ptyas mucosa</i>	Colubridae
<b>C. Birds</b>			
1.	Black drongo	<i>Dicrurus macrocerus</i>	Dicruridae
2.	Cattle egret	<i>Bubulcus ibis</i>	Ardeidae
3.	Common myna	<i>Acrida thestristis</i>	Stunidae
4.	Common quail	<i>Cotunix coturnix</i>	Phasianidae
5.	Grey jungle fowl	<i>Hallus sonneratii</i>	Phasianidae
6.	Grey partridge	<i>Francolinus pondicerianus</i>	Phasianidae
7.	House crow	<i>Corvus splendens</i>	Corvidae

8.	House sparrow	Passer domesticus	Passeridae
9.	Indian tree pic	Dendrocitta vagabunda	Corvidae
10.	Jungle crow	Corvus macrohynchos	Corvidae
11.	Jungle myna	Acido theresfuscus	Sturnidae

During the filed inspection no schedule -I species was observed.

  
District Forest Officer,  
Ariyalur Forest Division,  
Ariyalur.

  
10-11-2020

  
10/11/2020



10.06.2024

V. Sumathi DB 361230  
**V. SUMATHI**  
 STAMP VENDOR  
 REG. No: 47/2162/3/96 dt 27-5-1998  
 No: 13/1, KANDAPPA STREET,  
 KRISHNAMPET, CHENNAI-600 005.  
 Cell: 8248388373, 7695975146

**THE RAMCO CEMENTS LIMITED**

**AFFIDAVIT TO SEIAA, TAMIL NADU**

I, C.Ravichandran S/o Shri.S.K.Chinnayan, aged about 61 years ,as Senior Vice President (ESG) & Authorized Signatory of The Ramco Cements Limited, hereby declare and undertake the following:

1. The Ramco Cements Limited has applied for obtaining environmental clearance to SEIAA Tamil Nadu for Ottakovil Limekankar Quarry Lease-2 located in S.F.Nos. 204/10, 204/11, 204/12, etc. over an area of 57.36Ha in Ottakovil Village, Ariyalur Taluk, Ariyalur District Tamil Nadu.
2. I am the authorized signatory for this project.
3. I will abide the EMP for the entire life of Mine

Date: 10.06.2024  
 Place : Chennai

**For The Ramco Cements Limited**

**C.Ravichandran**  
 Sr. Vice President (ESG)

Notarized on 10.06.2024:



*10/6/2024*  
**A. DEVANATHAN, B.A., B.L.,**  
 ADVOCATE, NOTARY PUBLIC  
 COMMISSIONER OF OATHS  
 Law Association, City Civil Court,  
 No.189, Addl. New Law Chambers,  
 High Court Campus, Chennai - 600 104

