

Executive Summary

Pudupalayam Limekankar & Limestone Quarry – 23.35.0 Ha

For

PUBLIC HEARING

At

S.F. No. 222/1, 222/2A, 222/11A, 225, 226/1A, 226/7, 227/1, 233/1, 236/1A, 236/9 & 239 - 23.35.0 Ha, Pudupalayam Village, Ariyalur Taluk, Ariyalur District, Tamil Nadu

Project Proponent

M/s. TamilNadu Cement Corporation Limited

(A Government of TamilNadu Undertaking)

5th Floor, Aavin Illam, No.3A, Pasumpon Muthuramalingam

Salai, Nandanam,

Chennai-600035

EIA Notification 2006 Schedule 1(a) Category B1 (Cluster)

Prepared By: Ecotech Labs Pvt. Ltd.

COCCCII Dabs I



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EXECUTIVE SUMMARY

The Limekankar & Limestone Quarry project of M/s. Tamilnadu Cements Corporation Limited is situated at 222/1, 222/2A, 222/11A, 225, 226/1A, 226/7, 227/1, 233/1, 236/1A, 236/9 & 239, at Pudupalayam Village, Ariyalur Taluk, Ariyalur District, Tamil Nadu of area is 23.35.0 Ha. The proposed project has been accorded with Terms of SEIAA. Reference from **Tamil** nadu vide Letter No. SEIAA TN/F.No.7605/SEAC/ToR-795/2020 dated 21.10.2020. The project proponent possesses working lease for mine lease area 23.35.0 Ha for the period of 30 years from the District Collector, Industries (MMA.2) Department, Chennai.

The mining plan approval letter issued by Indian Bureau of Mines, Chennai Letter No. TN/ALR/LST&KNK/MP/2062.MDS dated 09.10.2019. The copy of LOI, which enclosed in Annexure–I. The Precise Area Communication Letter No. 3392/MMA.2/2019-1, Dated: 02.08.2019 issued by Government of Tamil Nadu Industries (MMA.2) Department, Secretariat

The quarry operation is proposed to carry out with conventional open cast semi mechanized mining in Limekankar mineral one bench is proposed with 0.75m height and width with 60° slope and for Limestone mineral two benches are proposed with 6m height and 6m width and another one bench is proposed with 3m height and 3m with 60°slope. The quarry operation is proposed up to depth of 17.75m. The Mineable Reserves is about 1066316 MT of Limestone and 108704 MT of Limekankar and Proposed Year wise production is 256200 Tonnes/Annum, Limekankar – 33914 Tonnes/Annum.

The project area does not fall in Hill Area Conservation Authority region. There is no interstate boundary, CRZ zone, Western Ghats, notified Bird sanctuaries, wildlife sanctuaries as per Wild life protection Act 1972, within the radius of 15km.

Table 1 Brief Description of the Project

S. No	Particulars	Details
1	Latitude	11°04' 55.55" to 11°05' 26.05"N
2	Longitude	79°08' 48.31" to 79°09' 14.11"E
3	Site Elevation above MSL	57 m above Mean Sea Level

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4	Topography	Plain Terrain	
5	Land use of the site	Patta land	
6	Extent of lease area	23.35.0 Ha	
7	Nearest highway	NH 227 – Tiruchirapalli – Chidambaram	
8	Nearest railway station	Ariyalur (10.5km, NW)	
9	Nearest airport	Tiruchirapalli - 59 km, SW	
10	Nearest town / city	Ariyalur (9.40 Km, NW)	
11	Rivers / Canal/Lake	 Eleri Village Lake (5.7 km, S) Manakkudi Big Lake (6.32 km, N) Sithu Lake (8.77 km, S) Kurinji Lake (10.2 km, NW) Periya Lake (12.95 km, NW) Ponnangulam Lake (13.41 km, SW) Lake Kalleri (13.63 km, NE) New Lake (14.64 km, SW) Lake Putheri (14.14 km, NE) Lake Aruthaneri (14.34 km, NE) Lake Melur (14.72 km, NE) Maruthaiyar River (2.14 km, S) 	
12	Reserved Forest / Wild life Sanctuary	 Adichanur RF (7.18 km, E) Ulliyankudi RF (8.54 km, E) Sundaresapuram RF (9.01 km, E) Alvoy RF (12.36 km, E) Parukkal RF (14.9 km, E) Karaivetti Bird Sanctuary (16km, SW) 	
13	Seismic Zone	Zone – III [as per IS 1893 (Part-I): 2002]	
14	Total Project Cost	Rs. 31,96,24,640	

Need for the Project

India is the second largest producer of cement in the world. India has a lot of potential for development in the infrastructure and construction sector and the cement sector is expected to largely benefit from it. The drive to take India's economy, with initiatives such as

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'Housing for All' and 'Smart Cities Mission' will be heavily reliant on the growth of the cement industry.

Tamilnadu Cements Corporation Limited (TANCEM), a wholly-owned Government of Tamil Nadu undertaking, started business from 1st April 1976 with an authorized share capital of Rs.18 Crores taking over cement plant at Alangulam and setting up another plant at Ariyalur in the year 1979. The Ariyalur Cement Works is primarily supplying cement to Government departments. It has a wide network of stockists for open market sales and selling cement in the central and northern districts of Tamil Nadu and Northern districts of Kerala. It manufactures OPC 43 Grade & PPC under ARASU and VALIMAI brands.

TANCEM has thus become a multi plant, multi-location, and multi-product company with an annual turnover of around Rs. 500 crores and the authorized capital as of now is Rs.112 Crores.

The main objective of the company is to produce cement and cement based products to primarily cater the needs of the Government.

The industry believes that there would be a surge in demand due to the requirements of a strong infrastructure framework that the nation endeavours to put in place through its government as well as housing projects.

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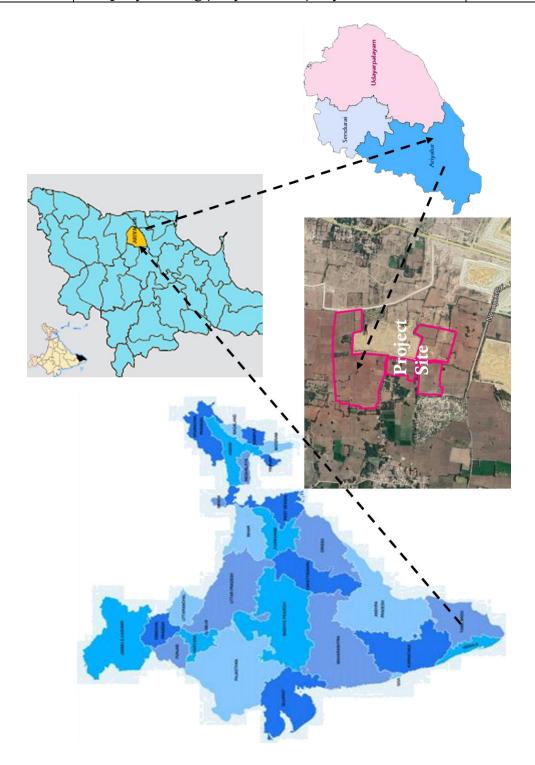


Figure 1 Project Location

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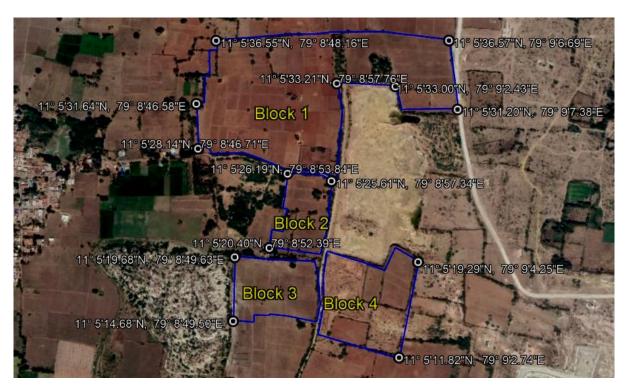


Figure 2 Google Image of the Project Site

Geological Reserves & Mineable Reserves

Table 2 Geological & Mineable Reserves - Summary

Description	Section	Limestone ROM (Ts)	Limestone @100% Recovery (Ts)	Limekankar ROM (Ts)	Limekankar @100% Recovery (Ts)	Topsoil (Ts)
Mineral	X3 Y3-AB	41080	41080	8319	8319	23296
Reserve	X5Y5-CD	5580	5580	1249	1249	4752
	X6Y6-IJ	225252	225252	19217	19217	51408
	X7Y7-KL	49280	49280	9315	9315	25232
	X8Y8-KL	65400	65400	12120	12120	31944
	X9Y9-OP	650748	650748	54008	54008	137472
	X10Y10- MN	28976	28976	4475	4475	12528
	Total	1066316	1066316	108704	108704	286632

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Table 3 Summary of Year wise production

	Lime	stone	Limel	kankar		Ore to Overburden Ratio
Year	Limestone ROM (Ts)	Limestone @ 100% Recovery (Ts)	Limekankar ROM (Ts)	Limekankar @ 100% Recovery (Ts)	Topsoil (Ts)	
I year	100256	100256	16338	16338	46320	1:0.46
II Year	256200	256200	17483	17483	43008	1:0.16
III Year	237336	237336	18107	18107	44544	1:0.18
IV Year	235652	235652	33914	33914	90776	1:0.38
V Year	195792	195792	14543	14543	38688	1:0.26
Total	1025236	1025236	100384	100384	263336	1:0.26

Topography:

The core zone i.e. the area applied for mining lease is of sedimentary terrain. The topography of the area is almost plain topography with gentle gradient towards south. The lease area will be altered due to mining activities by formation of benches towards the inner faces and proposed mine pit is well above the ground water table levels. Thus, the mining will bring change in the local topography of the lease applied area.

Opencast Mines - Salient Features of Mode of working-:

The mining operations are proposed to be carried out by "B Category" Method. Excavators will be deployed for the formation of benches and loading. Rock breaker is proposed for development & production activities. Neither drilling nor blasting is carried out.

One bench is proposed on the topsoil with 2.0m height and width with 45° slope. In Limekankar mineral one bench is proposed with 0.75m height and width with 60° slope. In

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Limestone mineral two benches are proposed with 6m height and 6m width and another one bench is proposed with 3m height and 3m with 60° slope.

During the mining plan period, the mining operations are proposed to be carried out in the North, Centre, Eastern & western portion of the area applied for Mining lease starting from West and progress towards the Eastern side by open cast method with Two benches is 6m bench height and 6m bench width and another one bench is 3m bench height and 3m bench width for a limestone mineral upto a depth of 17.75mts with an average of 0.75m limekankar and 2.0m Topsoil from RL 55.0m to RL 37.25m.

The proposed average annual production Limestone will be **256200 Tonnes** and Limekankar will be **33914 Tonnes** with 300 working days in a year. The generation of topsoil during the present plan period will be temporarily dumped on the Northwestern portion of the area and also utilized for Afforestation purposes.

Top Soil

The topsoil is black cotton soil. It occurs to a depth of 2m and lies over the Limekankar formations. About 263336 Ts of topsoil would be generated during the present plan period is proposed to be dumped on the Northwestern portion of the lease applied area and also utilized for afforestation purposes. Topsoil & Limekankar is the overburden found in the area applied for Mine lease.

There is no Mineral reject, the entire lease area consists of whole area deposit. Hence quantities of generation of mineral rejects in this area applied for mining lease does not arise. The generation of topsoil during the present plan period will be temporarily dumped on the Northwestern portion of the area and also utilized for Afforestation purposes.

Table 4 Dimensions of the dumps at the end of the life of mine

Existing Dump 1 (from	65m x 80m x 6m (h)	North
Adjacent Mine Lease Area)		
Proposed Topsoil	60m x 76.3m x 31.3m (h)	North west
Temporary Dump		
Proposed Bund	163m x 15m x 9.7m (h)	North west

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Water Requirement

Table 5 Water requirement Summary

Purpose	Quantity	Sources
Drinking Water	0.65 kLD	Water will be supplied from existing mine of
Green belt	11.0 kLD	TANCEM which is covered in Mining Lease G.O. No. 344 and from nearby vendors.
Dust suppression	11.0 kLD	G.O. 140. 544 and from ficulty vehicois.
Total	22.65 kLD	

Land Use Pattern Details

The details of land area indicating the area likely to be degraded due to mining will be as under: -

Table 6 Land use Breakup

S. No	Land Use	Mine lease Area (Ha)
1	Mining	04.02.7
2	Dump	04.19.4
3	Office & Infrastructure	00.05.0
4	Mine Roads	00.50.0
5	Greenbelt	04.41.5
6	Un utilized area	10.16.4
	Total	23.35.0

Manpower:

The total number of employees including skilled and un-skilled workers is 13which include workers for mine and ancillary unit. The details of the staff and workmen employed in the mine are given below:-

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Table 7 Manpower Requirement

S. No.	Designation	Nos.
1.	Mines Manager	1
2.	Mines Engineer	1
3.	Geologist	1
4.	Mine Foreman	1
5.	Mines Office clerk (full time)	1
6.	Skilled Labour (Mate/Supervisor)	1
7.	Semi Skilled (Drivers & Operators)	5
8.	Unskilled Labours	2
	Total	13

Machinery and Equipment

Table 8 machinery & Equipment Details

S.No.	Machinery	Capacity	Numbers
	Hydraulic Excavator attached with rock breaker	0.6 m ³	2
2.	Tipper	20 T	6

Scope of the Baseline Study

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

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

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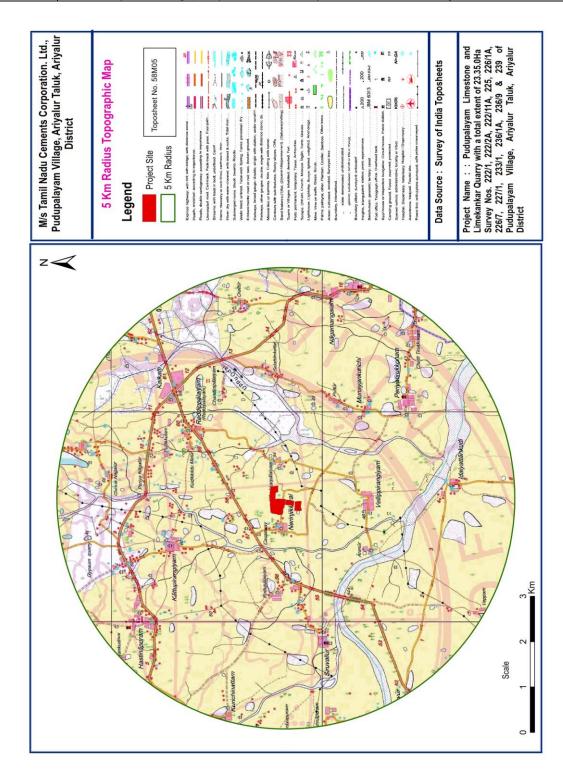


Figure 3 5km Radius Topo Map

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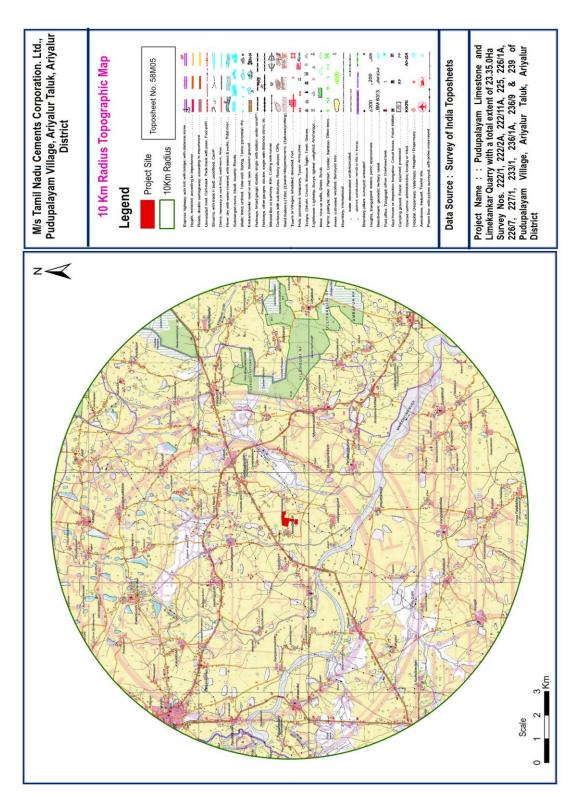


Figure 4 10km Radius Topo Map

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Micro – Meteorology

The area exhibits a subtropical climate and the temperature that goes upto 42°C in summer and falls down to 27°C in December – January. The wind direction is NE-SW and viceversa. Average annual rainfall is about 1071.4 mm in monsoon season.

Air Environment

Ambient air monitoring was carried out on monthly basis in the surrounding areas of the Mine Lease area to assess the ambient air quality at the source. To know the ambient air quality at a larger distance i.e. in the study area of 5km radius, air quality survey has been conducted at 5 locations over a period of July – September 2020. Major air pollutants like, Particulate Matter (PM10), Sulphur Dioxide (SO2), Nitrogen Dioxide (NO2) were monitored and the results are summarized below,

The baseline levels of PM10 (33- $58 \mu g/m^3$), PM2.5 ($14-29 \mu g/m^3$), SO₂ (5-17 $\mu g/m^3$), NO2 ($10-36 \mu g/m^3$), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from July – September 2020.

Noise Environment

Ambient noise levels were measured at 5 locations around the proposed project site. Noise level varies from 43.0 to 49 dB(A) during day time and 38-44 dB(A) during night time. Maximum noise level were recorded at Pudupalayam (49 dBA) during day time.

Water Environment

During the study period 2 surface water samples collected from near the site i.e, at Marudhaiyar River and Eleri Lake and Ground water samples were collected from 5 locations. The values of Ground water samples lies in the range of

- The pH is from 6.94 7.75.
- TDS value is from 402 862 mg/L
- Chloride ranges from 49 -160 mg/L
- Total Hardness ranges from 230-400 mg/L

Land Environment

- pH is 7.23 which indicates soil is slightly alkaline.
- EC of soil is 0.875 μS/cm

Organic matter in soil is 0.07%, which indicates the soil is unfertile.

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Biological Environment

The Mining lease area is plain terrain and species observed in the study area, there is no extinct flora and fauna species found in the study area.

Socio Economic Environment

Ariyalur is a town and district headquarters of Ariyalur district in the South Indian state of Tamil Nadu and rich limestone and surrounded with seven cement factories and two sugar factories. The town is located at a distance of 310 km from the state capital Chennai. The Nediyiruppu village has population of 136519 of which 68538 are males while 67981are females as per Population Census 2011. It covers an area of 326.82 Sqkm. In 2011, literacy rate of Ariyalur village was 49365 Males and 37206 females.

Rehabilitation/ Resettlement

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

Greenbelt Development

- The development of greenbelt will be done in the peripheral buffer zone of the mine area.
- Green belt has been recommended as one of the major component of environmental Management plan, which will improve ecology, environment and quality of the surrounding area.
- Local trees like, Elamji, Vettithali and Poovam etc will be planted along the south side lease boundary and avenues as well as over Non-active dumps at a rate of 5000 trees per annum with interval 5m.
- The rate of survival expected to be 80% in this area.

Green Belt Development Details

Table 9 Green Belt Area Details

S.No	Length (m)	Breadth (m)	Area (Sqm)
1	111	50	5550
2	126	10	1259.9
3	256	50	11200
4	157	7.5	726

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5	202	10	2020
6	704	7.5	3967.5
7	322	7.5	1108.5
8	165	10	1646
9	565	7.5	2925
10	44	7.5	231
11	135	50	5225
12	223	7.5	1028.498
13	674	10	6738.5
14	170	7.5	525
Total Green belt area			44150.9
Total Green belt area			4.41.5 Ha

Anticipated Environmental Impacts

Air Environment and Mitigation Measures

- Water sprinkling will be done on the roads & unpaved roads.
- Proper mitigation measures like water sprinkling will be adopted to control dust emissions.
- Plantation will be carried out on approach roads & nearby mine premises.
- To control the emissions regular preventive maintenance of equipments will be carried out.

Noise Environment and Mitigation Measures

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

Responsibilities for Environmental Management Cell (EMC)

The responsibilities of the EMC include the following:

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

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Environmental Monitoring Program

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

23. Project Cost

The total project cost is **Rs.** 319624640 including land cost and deployment of machinery and creation of infrastructural facilities like approach road, Mine office / Workers Shed, First Aid Room etc, electrifications and water supply

Table 10 Project Cost Details

S.No	Description	Cost (Rs)	
1.	Land Cost	1,56,44,500	
2.	Operational Cost	Limestone – Rs. 274043212 Limekankhar – Rs. 27936928	
3.	EMP Cost	20,00,000	
Total		319624640	

Corporate Social Responsibility

The funds for the following Corporate Environment Responsibility (CER) activities will be allocated before the commencement of the quarrying activities. (2% of the total project cost)

S. No.	CER Activity	CER (Rs in Crores)
1.	Provision of basic amenities such as Drinking water, Hygienic Toilets facilities, Furniture's and Solar Lights to Government school in Pudupalayam Village	319624640
Total		6392492.8