

Executive Summary

Pudupalayam Limekankar & Limestone Quarry – 22.96.0 Ha

For

PUBLIC HEARING

At

S.F. Nos. 144/1A, 217/1A, 217/1C, 217/2, 217/3A, 217/3B, 217/4, 217/5, 217/6, 218/1, 219/1, 219/2A, 219/2B, 219/3A, 219/3B, 219/3C, 219/3D, 219/3E, 219/3F, 219/3G, 219/4A, 219/4B, 219/5A, 219/5B, 219/5C, 219/6, 219/8, 219/9, 220/1, 220/2A, 220/2B, 220/3A, 220/3B, 220/3C, 220/3D, 220/3E, 220/4, 220/5A, 220/5B, 220/6A, 220/6B, 220/7A, 220/7B, 220/8A, 220/8B, 220/9A, 220/9B, 220/9C, 220/10A, 220/10B, 220/11A, 220/11B, 221/1A & 221/15 - 22.96.0 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:

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EXECUTIVE SUMMARY

1. Project Background

The Limekankar & Limestone Quarry project of M/s. Tamilnadu Cements Corporation Limited is situated at 144/1A, 217/1A, 217/1C, 217/2, 217/3A, 217/3B, 217/4, 217/5, 217/6, 218/1, 219/1, 219/2A, 219/2B, 219/3A, 219/3B, 219/3C, 219/3D, 219/3E, 219/3F, 219/3G, 219/4A, 219/4B, 219/5A, 219/5B, 219/5C, 219/6, 219/8, 219/9, 220/1, 220/2A, 220/2B, 220/3A, 220/3B, 220/3C, 220/3D, 220/3E, 220/4, 220/5A, 220/5B, 220/6A, 220/6B, 220/7A, 220/7B, 220/8A, 220/8B, 220/9A, 220/9B, 220/9C, 220/10A, 220/10B, 220/11A, 220/11B, 221/1A & 221/15, at Pudupalayam Village, Ariyalur Taluk, Ariyalur District, Tamil Nadu of area is 22.96.0 Ha. The proposed project has been accorded with Terms of Reference from SEIAA, Tamil nadu vide Letter No. SEIAA – TN/F.No.7607/SEAC/ToR-797/2020 dated 21.10.2020.

The project proponent possesses working lease for mine lease area 22.96.0 Ha for the period of 50 years from the Industries (MMA.2) Department, Secretariat, Chennai in Letter No. 3397/MMA.2/2019-1, Dated: 02.08.2019. Mining Plan was approved by The Indian Bureau of Mines, Chennai vide letter no. TN/ALR/LST&KNK/MP/2061.MDS dated 09.10.2019.

The quarry operation is proposed to carry out with conventional open cast 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 1768310 MT of Limestone and 191626 MT of Limekankar and Proposed Year wise production is 1119000 Tonnes/Annum, Limekankar – 191626 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.

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Table 1 Brief Description of the Project

S. No	Particulars	Details		
1	Latitude	11°05' 34.95" to 11°05' 50.96"N		
2	Longitude	79°08' 38.65" to 79°09' 09.41"E		
3	Site Elevation above MSL	55 m above Mean Sea Level		
4	Topography	Plain Terrain		
5	Land use of the site	Patta land		
6	Extent of lease area	22.96.0 Ha		
7	Nearest highway	NH 227 – Tiruchirapalli – Chidambaram -1.4 km- N		
8	Nearest railway station	Ariyalur (10.5km, NW)		
9	Nearest airport	Tiruchirapalli – 60.6 km, SW		
10	Nearest town / city	Ariyalur (10.76 Km, NW)		
11	Rivers / Canal/Lake	 Easwaran kovil Eri (0.27Km, W) Ponneri (0.95 Km N) Marudhaiyar River (2.18 Km, SW) Eleri Village Lake (6.2 km, S) Kurinji Lake (8.50 km, NW) Chetti Lake (9.80 Km, NW) Periya Lake (11.85 km, NW) Ponnangulam Lake (12.8 km, SW) Lake Putheri (14.1 km, NE) Lake Melur (14.72 km, NE) 		
12	Reserved Forest / Wild life Sanctuary	 Adichanur R.F (6.80 km E) Ulliyankudi R.F (8.33 Km, E) Sundaresapuram R.F (8.75km, E) Alvoy R.F (11.47 km, SE) Karaivetti Bird Sanctuary (16.5 Km SW) Karaivetti Bird Sanctuary (16.5km, SW) 		
13	Seismic Zone	Zone – III [as per IS 1893 (Part-I): 2002]		
14	Total Project Cost	Rs. 52,13,78,739		

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2. 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 '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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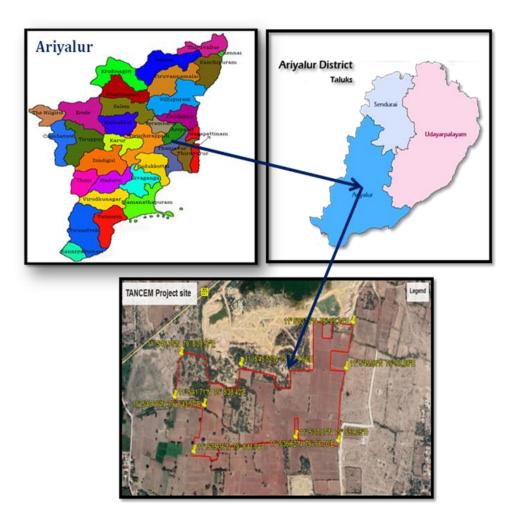


Figure 1 Project Location

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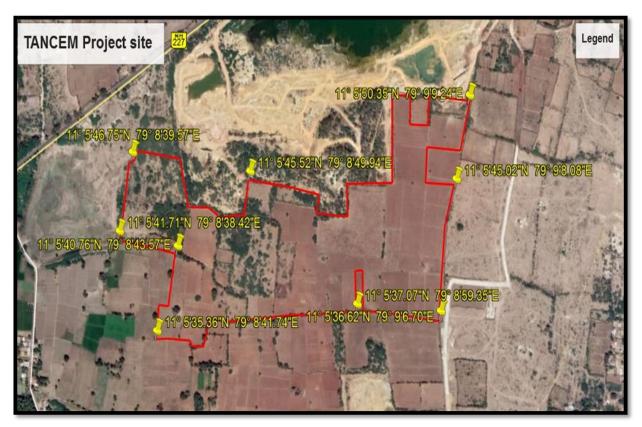


Figure 2 Google Image of the Project Site

3. Geological Reserves & Mineable Reserves

Table 2 Geological & Mineable Reserves - Summary

Descript ion	Section	ROM (Ts)	Limestone @100% Recovery (Ts)	ROM (Ts)	Limekankar @100% Recovery (Ts)	Topsoil (Ts)
Mineral	X8 Y8-CD	9288	9288	1863	1863	5880
Reserves	X9Y9-GH	160446	160446	14000	14000	37296
	X3Y3-IJ	94128	94128	21738	21738	55692
	X4Y4-IJ	60000	60000	26325	26325	65600
	X5Y5-IJ	242000	242000	21600	21600	52400
	X5Y5-KL	148320	148320	14588	14588	36848
	X6Y6-IJ	138800	138800	12825	12825	31600

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	Total	1768310	1768310	191626	191626	480420
	X9Y9-IJ	471048	471048	37007	37007	91344
	X7Y7-IJ	304800	304800	28013	28013	68800
	X6Y6-KL	139480	139480	13667	13667	34960

Table 3 Summary of Year wise production

	Limestone		Limekankar			
Year	Limestone ROM (Ts)	Limestone @ 100% Recovery (Ts)	Limekankar ROM (Ts)	Limekankar @ 100% Recovery (Ts)	Topsoil (Ts)	Ore to Overburden Ratio
I year	94128	94128	69015	69015	173692	1;1.06
II Year	307152	307152	41344	41344	103408	1;0.30
III Year	298416	298416	28397	28397	68800	1;0.21
IV Year	192960	192960	37007	37007	91344	1;0.40
V Year	226344	226344	15863	15863	43176	1;0.18
Total	1119000	1119000	191626	191626	480420	1;0.37

4. 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.

5. 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.

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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 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 46.25m.

The proposed average annual production Limestone will be **307152** *Tonnes* and Limekankar will be **41344** *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.

6.Top Soil

The topsoil is black cotton soil. It occurs to a depth of 2m and lies over the Limekankar formations. About 480420 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.

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7. Water Requirement

Table 3 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. No. 344 and from nearby vendors.	
Total	22.65 kLD		

8.Land Use Pattern Details

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

Table 4 Land use Breakup

S. No	Land Use	Mine lease Area (Ha)
1	Mining	11.76.3
2	Dump	01.51.4
3	Office & Infrastructure	00.05.0
4	Mine Roads	00.10.0
5	Greenbelt	03.10.9
6	Un utilized area	06.4.2
	Total	22.96.0

9. 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:-

Table 5 Manpower Requirement

S. No.	Designation	Nos.
1.	Mines Manager	1
2.	Mines Engineer	1

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3.	Geologist	1
4.	Mine Foreman	1
5.	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

10. Machinery and Equipment

Table 6 machinery & Equipment Details

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

11. 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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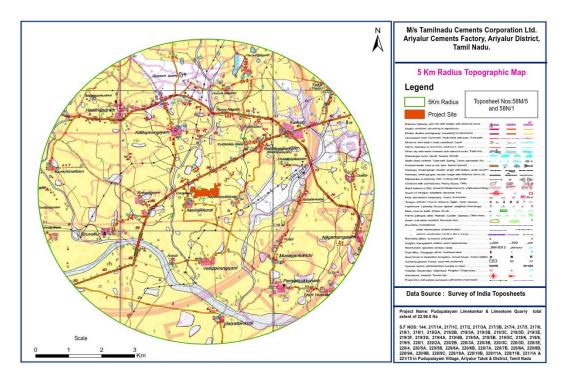


Figure 3 5km Radius Topo Map

11.1 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 vice-versa. Average annual rainfall is about 1071.4 mm in monsoon season.

11.2 Air Environment

Ambient air monitoring was carried out on monthly basis in the surrounding areas of the Mine Lease area to assess the ambient air quality at the source. To know the ambient air quality at a larger distance i.e. in the study area of 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 (30- $58 \mu g/m^3$), PM2.5 ($15-29 \mu g/m^3$), SO₂ ($5-17 \mu g/m^3$), NO2 ($10-34 \mu g/m^3$), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from July – September 2020.

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11.3 Noise Environment

Ambient noise levels were measured at 5 locations around the proposed project site. Noise level varies from 43.0 to 58 dB(A) during day time and 37-48 dB(A) during night time. Maximum noise level were recorded at Near Birla Cements (58 dBA) during day time.

11.4 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 6.68 7.44.
- TDS value is from 597 1330 mg/L
- Chloride ranges from 73 -325 mg/L
- Total Hardness ranges from 200-850 mg/L

The values of Marudhaiyar River and Eleri Lakes are as follows

- The pH is 7.8 & 7.59.
- TDS value is 1558 & 135 mg/L
- Chloride is 345 & 18 mg/L
- Total Hardness is 700 & 80 mg/L respectively

11.5 Land Environment

- pH is 7.1 to 7.65 which indicates soil is slightly alkaline.
- EC of soil is 0.68 to $0.98 \mu S/cm$

Organic matter in soil is 0.08 to 1.34 %, which indicates the soil is unfertile.

11.6 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.

12. 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

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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.

13. 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.

14. 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 3450 trees per annum with interval 5m.
- The rate of survival expected to be 80% in this area.

Green Belt Development Details

Table 7 Green Belt Area Details

Green Belt	Length (m)	Width (m)	Total (Ha)
G1	487.88	7.5	3659.13
G2	376.29	50	188814.13
G3	106.16	7.5	796.23
G4	92	50	4600.00
G5	429.4	7.5	3220.5
Total Green belt area (Sq.m)			31090
Total Green belt area (Ha)			3.10.9

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15.1 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.

15.2 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

15.3 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

15.4 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.

16. Project Cost

The total project cost is **Rs. 52,13,78,739** 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 8 Project Cost Details

S.No	Description	Cost (Rs)
1.	Land Cost	1,53,83,200
2.	Operational Cost	Limestone - 45,44,55,670

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		Limekankhar - 4,92,47,882	
3.	EMP Cost	19,00,000	
Total		52,13,78,739	

17. 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)

Table 9 CER Details

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	1,04,19,735
Total		1,04,19,735