



Executive Summary

Pudupalayam Limekankar & Limestone Quarry – 22.89.0 Ha

For

PUBLIC HEARING

At

**S.F. No. 350, 351/1A, 351/4A, 351/7A, 351/12A, 357,
365/1, 365/19, 366/1, 367, 368, 369/1A, 369/3, 370/1A &
370/8 – 22.89.0 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)

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EXECUTIVE SUMMARY

The Limekankar & Limestone Quarry project of M/s. Tamilnadu Cements Corporation Limited is situated at Survey Numbers – 350, 351/1A, 351/4A, 351/7A, 351/12A, 357, 365/1, 365/19, 366/1, 367, 368, 369/1A, 369/3, 370/1A & 370/8 Pudupalayam Village, Ariyalur Taluk, Ariyalur district of area is 22.89.0 Ha. The proposed project has been accorded with Terms of Reference from SEIAA, Tamil nadu vide Letter No. SEIAA – TN/ F.No. 7606/ SEAC/ ToR-796/ 2020 Dated: 21.10.2020. The project proponent possesses working lease for mine lease area 22.89.0 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/2064.MDS dated 16.12.2019. The copy of LOI, which enclosed in Annexure–I. The Precise Area Communication Letter No. 3396/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 Total Geological reserve is about 402338 MT of Limestone and 39466 MT of Limekankar. The Mineable Reserves is about 402338 MT of Limestone and 39466 MT of limekankar and Proposed Year wise production is 101328 Tonnes/Annum, Limekankar – 14459 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' 29.53" to 79° 08' 48.98"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	22.89.0 Ha
7	Nearest highway	NH 227 – Tiruchirapalli – Chidambaram
8	Nearest railway station	Ariyalur (11 km, NW)
9	Nearest airport	Tiruchirapalli - 59 km, SW
10	Nearest town / city	Town - Ariyalur – 11 km, NW District – Ariyalur – 11 km, NW
11	Rivers / Canal/Lake	❖ Marudaiyar River -1.5 km, S ❖ Eleri Village Lake -4.5 km, S ❖ Kurinji Lake -12 km, NW ❖ Periya Lake -14.2 km, NW ❖ Ponnangulam Lake -13 km, SW ❖ Sithu lake - 6.5 km, S ❖ Sitteri - 10 km, NW ❖ Peraiyur lake – 14.7 km, NW ❖ Kumuran kulam -11 km, N ❖ Manakkudi Big lake- 8.5 km, N ❖ Kollidam river - 15 km, S
12	Reserved Forest / Wild life Sanctuary	➤ Adichanur RF (7.6 km, E) ➤ Ulliyankudi RF (8.8 km, E) ➤ Sundaresapuram RF (9.5 km, E) ➤ Alvoy RF (12 km, E) ➤ Parukkal RF (15.3 km, E) ➤ Karaivetti Bird Sanctuary -15 km, SW ➤ Vilangudi RF – 8.5 km(E) ➤ Ambapur RF – 9km (SE)
13	Seismic Zone	Zone – III [as per IS 1893 (Part-I): 2002]
14	Total Project Cost	Rs. 13,07,79,928

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.

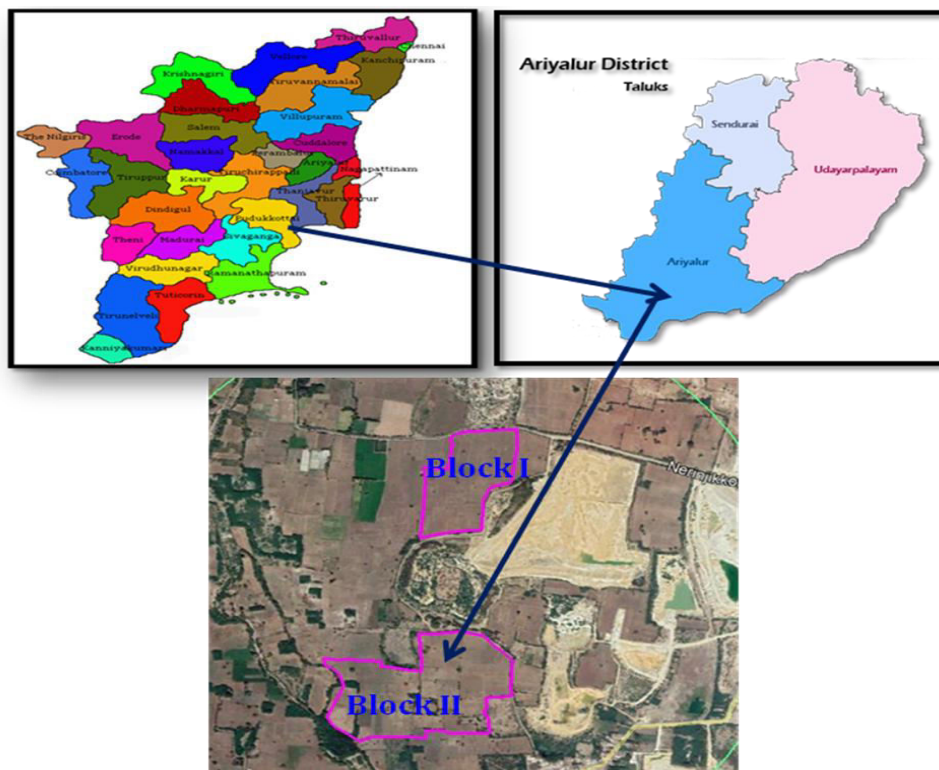


Figure 1 Project Location

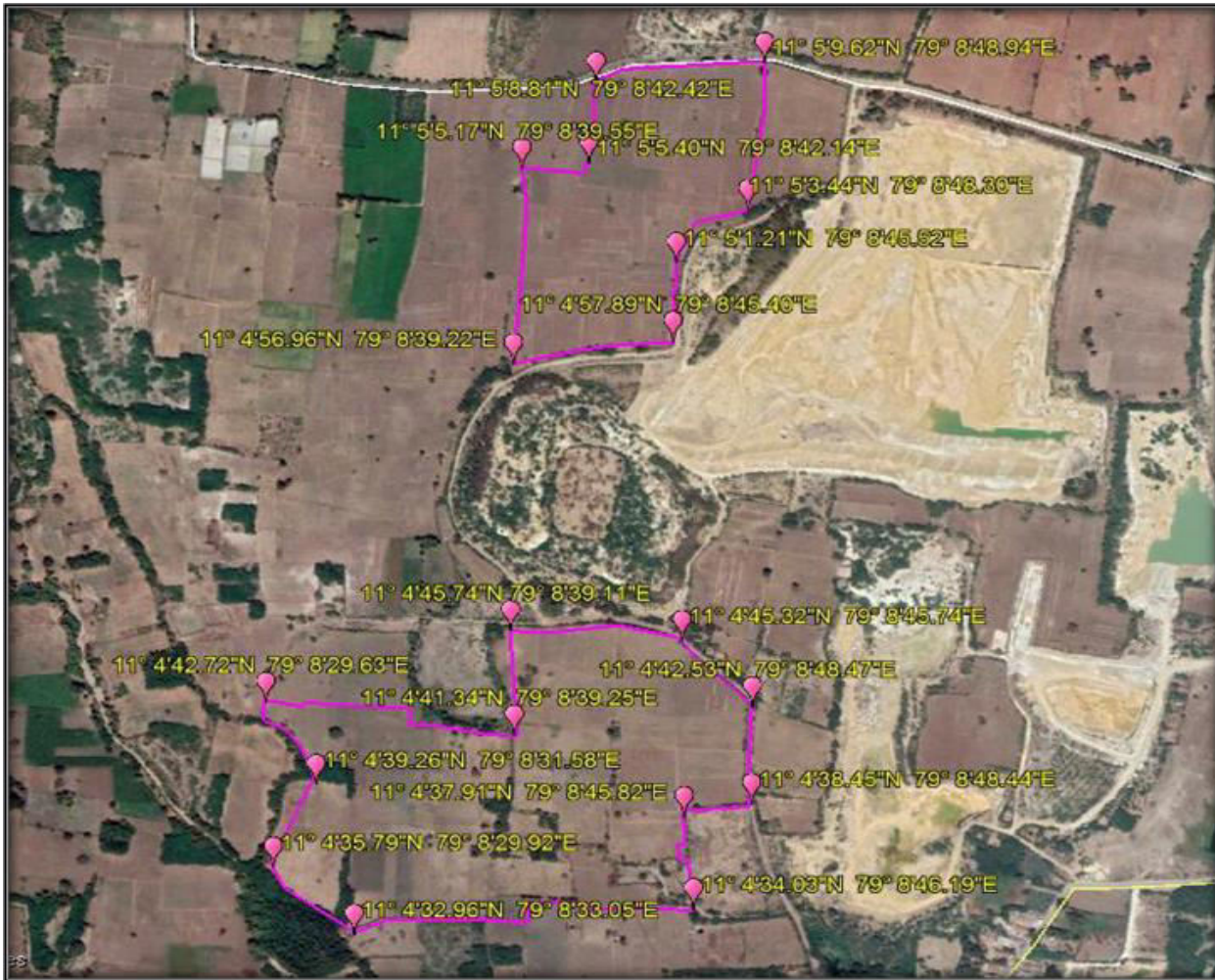


Figure 2 Google Image of the Project Site

Geological Reserves & Mineable Reserves

Table 2 Geological Reserve

Section	Bench	Length (m)	Width (m)	Depth (m)	Limestone				Limestone				Topsoil (Ts)
					Volume In (cum)	Bulk density	ROM (Ts)	Limestone @ 100% Recovery (Ts)	Volume In (cum)	Bulk density	ROM (Ts)	Limekar @ 100% Recovery (Ts)	
XIY	I	134	86	2	23048	2	-	-	-	-	-	-	46096

1 - CD	II	129	78	0.75	-	-	-	-	7547	2.25	16890	16890	-
	III	125	72	6	54000	2	108000	108000	-	-	-	-	-
	IV	110	51	6	33660	2	67320	67320	-	-	-	-	-
	V	94	31	3	8742	2	17484	17484	-	-	-	-	-
	Total						192804	192804	-	-	16890	16890	46096
X1Y 1 - EF	I	70	78	2	10920	2	-	-					21840
	II	67	71	0.75		-	-	-	3568	2.25	8027	8027	-
	III	64	65	6	29460	2	49920	49920	-	-	-	-	-
	IV	54	46	6	14904	2	29808	29808	-	-	-	-	-
	V	45	29	3	3915	2	7830	7830	-	-	-	-	-
Total						87558	87558	-	-	8027	8027	21840	
X5Y 5-GH	I	110	92	2	20240	2	-	-	-	-	-	-	40480
	II	102	84	0.75	-	-	-	-	6426	2.25	14459	14459	-
	III	96	78	6	44928	2	89856	89856	-	-	-	-	-
	IV	73	55	4	1060	2	32120	32120	-	-	-	-	-
	Total						121976	121976	-	-	14459	14459	40480
Grand Total						402338	402338	-	-	39466	39466	108416	

Table 3 Summary of Year wise production

Year	Limestone		Limekankar		Topsoil (Ts)	Ore to Overburden Ratio
	ROM (Ts)	Limestone @ 100% Recovery (Ts)	ROM (Ts)	Limekankar @ 100% Recovery (Ts)		
I year	86400	86400	14084	14084	39560	1;0.39
II Year	101328	101328	10923	10923	28376	1;0.25
III Year	92634	92634	14459	14459	40480	1;0.38
IV Year	65520	65520	-	-		1;0.00

V Year	56456	56456	-	-		1;0.00
Total	402338	402338	39466	39466	108416	1;0.25

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 “A 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 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 101328 tonnes and Limekankar will be 14459 tonnes with 300 working days in a year. The topsoil generated is proposed to

to be dumped on the Southwest of Block-I & Western side of Block-II of the lease applied 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 108416 Ts of topsoil would be generated during the present plan period is proposed to be dumped on the Southwest of Block-I & Western side of Block-II 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 southwestern portion of the area and also utilized for Afforestation purposes.

Backfilling of voids

There is no proposal for backfilling the mined-out pit in this mining plan period.

Water Requirement

Table 4 Water requirement Summary

Purpose	Quantity	Sources
Drinking Water	0.65 kLD	Water will be supplied from existing mine of TANCEM which is covered in Mining Lease G.O. No. 344 and from nearby vendors.
Green belt	11.0 kLD	
Dust suppression	11.0 kLD	
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 5 Land use Breakup

S. No	Land Use	Mine lease Area (Ha)
1	Mining	2.78.8
2	Dump	01.11.0

3	Office & Infrastructure	00.05.0
4	Mine Roads	00.02.0
5	Areas Under Plantation	05.38.8
6	Un utilized area	13.53.4
Total		22.89.0

Manpower:

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

Table 6 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 7 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

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

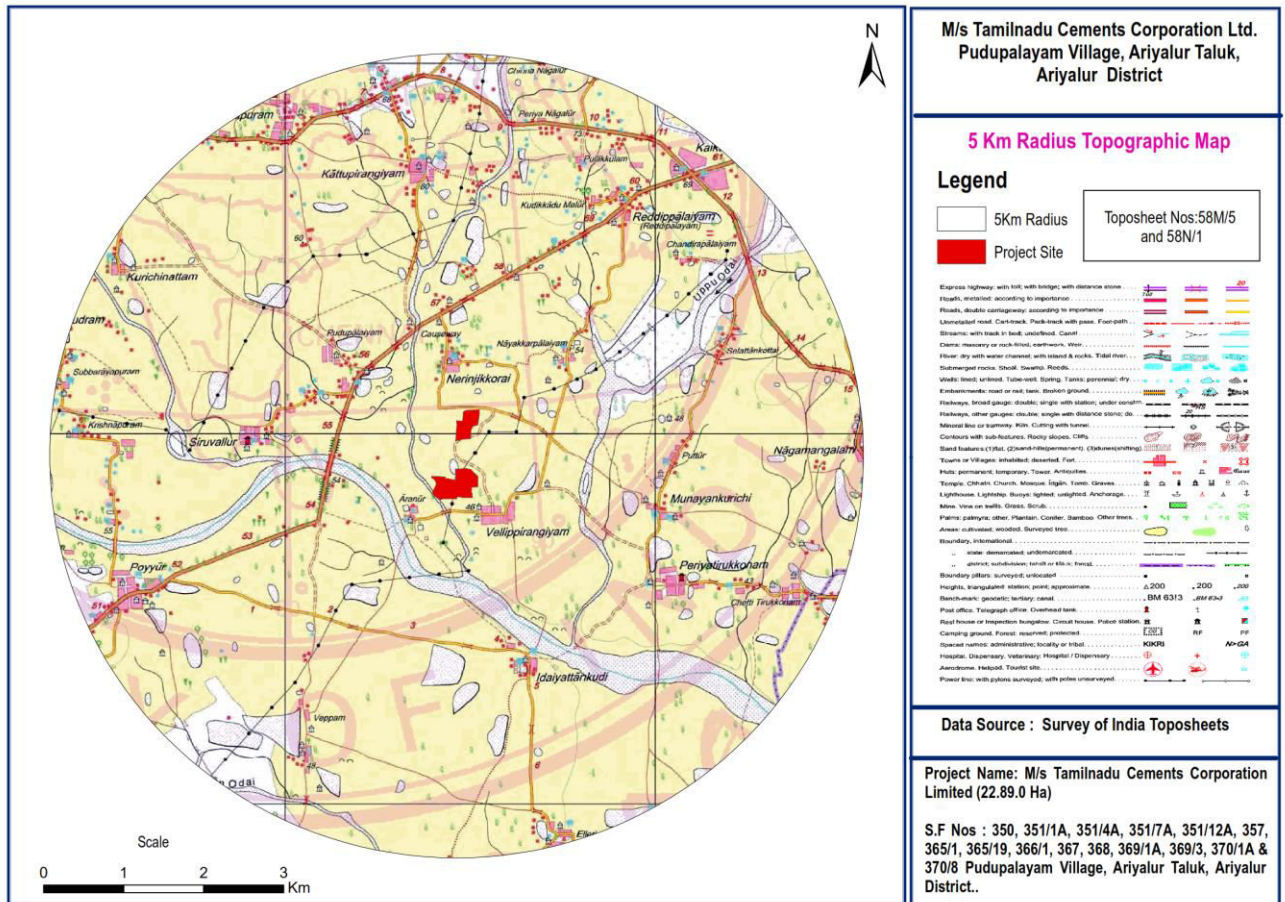


Figure 3 5km Radius Topo Map

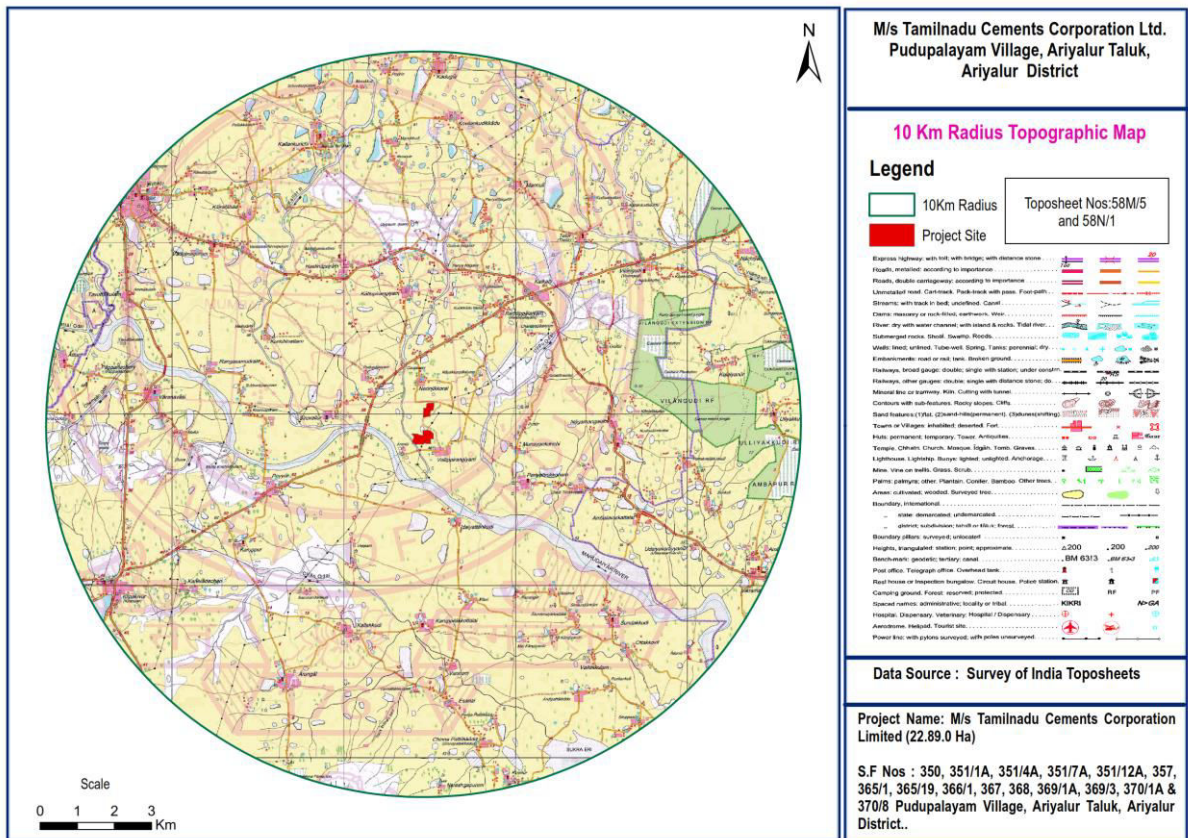


Figure 4 10km Radius Topo Map

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.

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 10km 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 µg/m³), PM_{2.5} (15-29 µg/m³), SO₂ (5-17 µg/m³), NO₂ (10-34 µg/m³), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from July 2020 to September 2020.

Noise Environment

Ambient noise levels were measured at 5 locations around the proposed project site. Noise level varies from 41 to 49 dB(A) during day time and 37-43 dB(A) during night time. Maximum noise level were recorded at Project site (49 dBA) during day time.

Water Environment

During the study period 2 surface water samples collected from near the site i.e, at Maridhaiyar River and Eleri Lake.

- The pH is 7.59– 7.8
- TDS value is 1558 mg/l and 135 mg/l
- Chloride ranges 345 and 18 mg/L
- Total Hardness as calcium carbonate is 700 and 80 mg/l respectively.

Land Environment

- pH is 6.57 which indicates soil is slightly acidic.
- EC of soil is 0.89 μ S/cm

Organic matter in soil is 0.42%, The concentration of Nitrogen, Phosphorus & Potassium has been found to be in good amount in the soil samples.

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 Nediyruppu village has population of 136519 of which 68538 are males while 67981 are 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

Length (m)	Width (m)	Total (Sq m)
928.5	50	46425
350.4	7.5	2628
482.9	10	4829
Total Green Belt Area (Sqm)		53880
Total Green Belt Area (Ha)		5.38.80

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

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. 13,07,79,928** 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

S.No	Description	Cost (Rs)
1.	Land Cost	1,53,36,300
2.	Operational Cost	Limestone – Rs. 10,34,00,866 Limekankar – Rs. 1,01,42,762

3.	EMP Cost	19,00,000
Total		13,07,79,928

Corporate Social Responsibility

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

S.No.	CER Activity	CER 2% of the project cost (Rs in Lakhs)
1.	Provision of basic amenities such as Drinking water, Hygienic Toilets facilities to Government schools in Pudukalayam Village	10,00,000
2.	Desilting of water bodies	16,15,598
Total		2615598