



**Executive Summary**  
**Proposed Limekankar & Limestone Quarry**  
**23.02.5 Ha**

For

**PUBLIC HEARING**

At

**S.F Nos : 229/3A, 230/2A, 237/1, 237/4A, 240/1, 240/5A, 241/1A, 244/1A, 245/1A, 245/5A, 267/1A, 1B, 1C, 1D, 1E, 2A, 2B, 2C, 2D, 10A, 10B, 10C, 11A, 11B, 11C, 11D, 11E, 11F, 11G, 12A, 12B, 12C, 12D, 13A, 13B, 14A, 14B, 15, 16A, 16B, 17A, 17B, 17C, 18A, 18B, 18C, 19A, 19B, 19C, 20A, 20B, 20C, 21, 22, 23A, 23B, 23C, 23D, 23E, 23F, 24, 25A, 25B, 25C, 25D, 25E & 272 / 1 in Pudupalayam Village, Ariyalur Taluk, Ariyalur District and Tamil Nadu**

**Project Proponent**

**M/s. Tamil Nadu Cements Corporation Limited**  
Ariyalur Cement Factory,  
Ariyalur Taluk,  
Ariyalur District – 621729.

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

**Prepared By:**  
**Ecotech Labs Pvt. Ltd.**



**NABET Accredited EIA Consultant**  
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**Pallikaranai, Chennai-600100**

<b>Project</b>	<b><i>Pudupalayam Limekankar &amp; Limestone Quarry – 23.02.5 Ha</i></b>	<b><i>Executive Summary</i></b>
<b>Project Proponent</b>	<b><i>M/s. TamilNadu Cement Corporation Limited (A Government of TamilNadu Undertaking)</i></b>	
<b>Project Location</b>	<b><i>Pudupalayam Village, Ariyalur Taluk, Ariyalur District</i></b>	

## EXECUTIVE SUMMARY

### 1. Project Background

The Limekankar & Limestone Quarry project of M/s. Tamilnadu Cements Corporation Limited is situated at 229/3A, 230/2A, 237/1, 237/4A, 240/1, 240/5A, 241/1A, 244/1A, 245/1A, 245/5A, 267/1A, 1B, 1C, 1D, 1E, 2A, 2B, 2C, 2D, 10A, 10B, 10C, 11A, 11B, 11C, 11D, 11E, 11F, 11G, 12A, 12B, 12C, 12D, 13A, 13B, 14A, 14B, 15, 16A, 16B, 17A, 17B, 17C, 18A, 18B, 18C, 19A, 19B, 19C, 20A, 20B, 20C, 21, 22, 23A, 23B, 23C, 23D, 23E, 23F, 24, 25A, 25B, 25C, 25D, 25E & 272 /1., at Pudupalayam Village, Ariyalur Taluk, Ariyalur District, Tamil Nadu of area is 23.02.5 Ha. The proposed project has been accorded with Terms of Reference from SEIAA, Tamil nadu vide Letter No. SEIAA – TN/F.No.7604/SEAC/ToR-794/2020 dated 21.10.2020. The project proponent possesses working lease for mine lease area 23.02.5 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/2059.MDS dated 09.10.2019. The copy of LOI, which enclosed in Annexure-I. The Precise Area Communication Letter No. 3995/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 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 1102078 MT of Limestone and 103010 MT of Limekankar. The Mineable Reserves is about 1069342 MT of Limestone and 102023 MT of limekankar and Proposed Year wise production is 288138 Tonnes/Annum, Limekankar – 25075 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
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<b>Project</b>	<b><i>Pudupalayam Limekankar &amp; Limestone Quarry – 23.02.5 Ha</i></b>	<b><i>Executive Summary</i></b>
<b>Project Proponent</b>	<b><i>M/s. TamilNadu Cement Corporation Limited (A Government of TamilNadu Undertaking)</i></b>	
<b>Project Location</b>	<b><i>Pudupalayam Village, Ariyalur Taluk, Ariyalur District</i></b>	

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	55 m above Mean Sea Level
4	Topography	Plain Terrain
5	Land use of the site	Patta land
6	Extent of lease area	23.02.5 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	Town - Ariyalur – 10.5 km, NW District – Ariyalur – 10.5 km, NW
11	Rivers / Canal/Lake	❖ Eleri Village Lake - (4.96 km, S) ❖ Sithu Lake - (8.5 km, S) ❖ Kurinji Lake - (10.9 km, NW) ❖ Manakudi Big Lake - (6.52 km, NW) ❖ Kadambooran Eri - (20m, E) ❖ Periya Lake - (13 km, NW) ❖ Ponnangulam Lake - (13 km, SW) ❖ New Lake - (14 km, SSW) ❖ Lake Putheri - (14.75 km, NE) ❖ Lake Aruthaneri - (14.5 km, NE) ❖ Lake Melur - (14.72 km, NE) ❖ Maruthaiyar River - (2.85 km, S)
12	Reserved Forest / Wild life Sanctuary	➤ Manageri RF -10 km NE ➤ Vilangudi RF -7.5 km E ➤ Uliangudi RF -9 km E ➤ Ambapur RF -9 km, SSE ➤ Adichanur RF - 6.95 km, E ➤ Ulliyankudi RF - 8.17 km, E ➤ Sundaresapuram RF - 8.88 km, E ➤ Alvoy RF - 11.99 km, E ➤ Parukkal RF - 14.75 km, E ➤ Karaivetti Bird San - 15.52 km, SW

<b>Project</b>	<b><i>Pudupalayam Limekankar &amp; Limestone Quarry – 23.02.5 Ha</i></b>	<b><i>Executive Summary</i></b>
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13	Seismic Zone	Zone – III [as per IS 1893 (Part-I): 2002]
14	Total Project Cost	Rs. 32,79,34,366

### **Need for the Project**

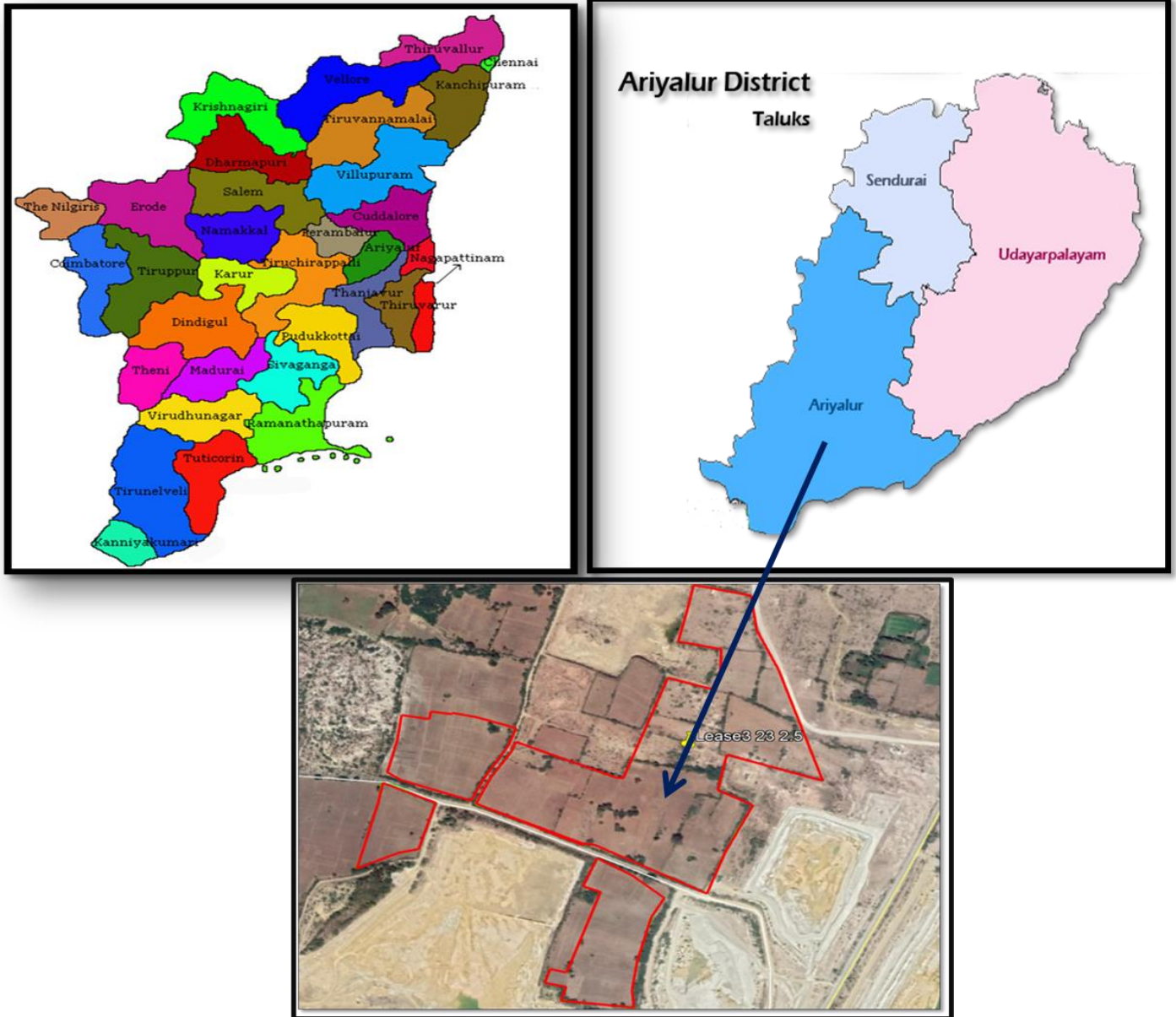
India is the second largest producer of cement in the world. India has a lot of potential for development in the infrastructure and construction sector and the cement sector is expected to largely benefit from it. The drive to take India's economy, with initiatives such as 'Housing for All' and 'Smart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

<b>Project</b>	<b><i>Pudupalayam Limekankar &amp; Limestone Quarry – 23.02.5 Ha</i></b>	<b>Executive Summary</b>
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<b>Project Location</b>	<b><i>Pudupalayam Village, Ariyalur Taluk, Ariyalur District</i></b>	



**Figure 1 Project Location**



<b>Project</b>	<b><i>Pudupalayam Limekankar &amp; Limestone Quarry – 23.02.5 Ha</i></b>	<b>Executive Summary</b>
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**Figure 2 Google Image of the Project Site**

<b>Project</b>	<b>Pudupalayam Limekankar &amp; Limestone Quarry – 23.02.5 Ha</b>	<b>Executive Summary</b>
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<b>Project Location</b>	<b>Pudupalayam Village, Ariyalur Taluk, Ariyalur District</b>	

## 2. Geological Reserves & Mineable Reserves

**Table 2 Geological & Mineable Reserves**

**A. Mineral Reserves (111)**

Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Limestone				Limekankar				Topsoil
					Volume in (cum)	Bulk Density	ROM	Limestone @ 100% Recovery (Ts)	Volume in (cum)	Bulk Density	ROM	Limekankar @ 100% Recovery (Ts)	
X1Y1-AB	I	105	60	2	12600	2	-	-	-	-	-	-	25200
	II	97	52	0.75	-	-	-	-	3783	2.25	8512	8512	-
	III	91	46	6	25116	2	50232	50232	-	-	-	-	-
	IV	72	27	6	11664	2	23328	23328	-	-	-	-	-
	V	31	10	3	930	2	1860	1860	-	-	-	-	-
	<b>Total</b>						<b>75420</b>	<b>75420</b>			<b>8512</b>	<b>8512</b>	<b>25200</b>
X2Y2-CD	I	136	126	2	34272	2	-	-	-	-	-	-	68544
	II	132	117	0.75	-	-	-	-	11583	2.25	26062	26062	-
	III	129	111	6	85914	2	171828	171828	-	-	-	-	-
	IV	120	92	6	66240	2	132480	132480	-	-	-	-	-
	<b>Total</b>						<b>304308</b>	<b>304308</b>			<b>26062</b>	<b>26062</b>	<b>68544</b>
X3Y3-GH	I	93	140	2	26040	2	-	-	-	-	-	-	52080
	II	84	135	0.75	-	-	-	-	8505	2.25	19136	19136	-
	III	79	132	6	62568	2	125136	125136	-	-	-	-	-
	IV	60	122	6	43920	2	87840	87840	-	-	-	-	-
	V	43	112	3	14448	2	28896	28896	-	-	-	-	-
	<b>Total</b>						<b>241872</b>	<b>241872</b>			<b>19136</b>	<b>19136</b>	<b>52080</b>
X4Y4-GH	I	90	101	2	18180	2	-	-	-	-	-	-	36360
	II	82	97	0.75	-	-	-	-	5966	2.25	13422	13422	-
	III	76	95	6	43320	2	86640	86640	-	-	-	-	-
	IV	57	85	6	29070	2	58140	58140	-	-	-	-	-
	V	40	76	3	9120	2	18240	18240	-	-	-	-	-
	<b>Total</b>						<b>163020</b>	<b>163020</b>			<b>13422</b>	<b>13422</b>	<b>36360</b>
X5Y5-IJ	I	89	125	2	22250	2	-	-	-	-	-	-	44500
	II	80	116	0.75	-	-	-	-	6960	2.25	15660	15660	-
	III	75	111	6	49950	2	99900	99900	-	-	-	-	-
	IV	56	92	6	30912	2	61824	61824	-	-	-	-	-
	V	39	75	3	8775	2	17550	17550	-	-	-	-	-
	<b>Total</b>						<b>179274</b>	<b>179274</b>			<b>15660</b>	<b>15660</b>	<b>44500</b>
X7Y7-MN	I	23	34	2	1564	2	-	-	-	-	-	-	3128
	II	15	30	0.75	-	-	-	-	338	2.25	759	759	-
	III	10	27	6	1620	2	3240	3240	-	-	-	-	-
	<b>Total</b>						<b>3240</b>	<b>3240</b>			<b>759</b>	<b>759</b>	<b>3128</b>
X8Y8-OP	I	75	47	2	7050	2	-	-	-	-	-	-	14100
	II	71	39	0.75	-	-	-	-	2077	2.25	4673	4673	-
	III	68	33	6	13464	2	26928	26928	-	-	-	-	-
	IV	58	14	2	1624	2	3248	3248	-	-	-	-	-
	<b>Total</b>						<b>30176</b>	<b>30176</b>			<b>4673</b>	<b>4673</b>	<b>14100</b>
X8Y8-QR	I	100	50	2	10000	2	-	-	-	-	-	-	20000
	II	100	42	0.75	-	-	-	-	3150	2.25	7088	7088	-
	III	100	36	6	21600	2	43200	43200	-	-	-	-	-
	IV	100	17	2	3400	2	6800	6800	-	-	-	-	-
	<b>Total</b>						<b>50000</b>	<b>50000</b>			<b>7088</b>	<b>7088</b>	<b>20000</b>
X8Y8-ST	I	83	59	2	9794	2	-	-	-	-	-	-	19588
	II	78	55	0.75	-	-	-	-	3218	2.25	7239	7239	-
	III	76	52	6	23712	2	47424	47424	-	-	-	-	-
	IV	66	25	2	3300	2	6600	6600	-	-	-	-	-
	<b>Total</b>						<b>54024</b>	<b>54024</b>			<b>7239</b>	<b>7239</b>	<b>19588</b>
X9Y9-ST	I	16	38	2	1216	2	-	-	-	-	-	-	2432
	II	8	34	0.75	-	-	-	-	204	2.25	459	459	-
	III	3	31	4	372	2	744	744	-	-	-	-	-
	<b>Total</b>						<b>744</b>	<b>744</b>			<b>459</b>	<b>459</b>	<b>2432</b>
<b>Grand Total</b>							<b>1102078</b>	<b>1102078</b>			<b>103010</b>	<b>103010</b>	<b>285932</b>



<b>Project</b>	<b>Pudupalayam Limekankar &amp; Limestone Quarry – 23.02.5 Ha</b>	<b>Executive Summary</b>
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<b>Project Location</b>	<b>Pudupalayam Village, Ariyalur Taluk, Ariyalur District</b>	

## Mineable Resources

### Mineable Reserves Estimation

The year wise production and development schedule proposed for the present mining plan period under (UNFC 111) is tabulated below.																	
Table-23																	
Yearwise Production Details																	
Year	Section	Bench	Length in (m)	Width in (m)	Depth in (m)	Limestone				Limekankar				Topsoil (Ts)	Location of advancement	Ore to Overburden ratio	
						Volume in (cum)	Bulk Density	ROM (Ts)	Limestone @ 100% Recovery (Ts)	Volume in (cum)	Bulk Density	ROM (Ts)	Limekankar @ 100% Recovery (Ts)				
I Year	X1Y1-AB	I	105	60	2	12600	2	-	-	-	-	-	-	-	25200	West - East	1:0.35
		II	97	52	0.75	-	-	-	-	3783	2.25	8512	8512	-	-		
		III	91	46	6	25116	2	50232	50232	-	-	-	-	-	-		
		IV	72	27	6	11664	2	23328	23328	-	-	-	-	-	-		
		V	31	10	3	930	2	1860	1860	-	-	-	-	-	-		
	X5Y5-IJ	I	70	125	2	17500	2	-	-	-	-	-	-	-	35000		
		II	61	116	0.75	-	-	-	-	5307	2.25	11941	11941	-	-		
		III	56	111	6	37296	2	74592	74592	-	-	-	-	-	-		
		<b>Total</b>							<b>150012</b>	<b>150012</b>			<b>20453</b>	<b>20453</b>	<b>60200</b>		
															<b>9500</b>		
II Year	X4Y4-GH	I	19	125	2	4750	2	-	-	-	-	-	-	-	9500	West - East	1:0.18
		II	19	116	0.75	-	-	-	-	1653	2.25	3719	3719	-	-		
		III	19	111	6	12654	2	25308	25308	-	-	-	-	-	-		
		IV	56	92	6	30912	2	61824	61824	-	-	-	-	-	-		
		V	39	75	3	8775	2	17550	17550	-	-	-	-	-	-		
	X3Y3-GH	I	90	101	2	18180	2	-	-	-	-	-	-	-	36360		
		II	82	97	0.75	-	-	-	-	5966	2.25	13422	13422	-	-		
		III	76	95	6	43320	2	86640	86640	-	-	-	-	-	-		
		IV	57	85	6	29070	2	58140	58140	-	-	-	-	-	-		
		V	40	73	3	8760	2	17520	17520	-	-	-	-	-	-		
III Year	X3Y3-GH	I	93	24	2	4464	2	-	-	-	-	-	-	-	8928	West - East	1:0.18
		II	84	20	0.75	-	-	-	-	1260	2.25	2835	2835	-	-		
		III	79	17	6	8058	2	16116	16116	-	-	-	-	-	-		
		IV	60	7	6	2520	2	5040	5040	-	-	-	-	-	-		
		<b>Total</b>							<b>288138</b>	<b>288138</b>			<b>19977</b>	<b>19977</b>	<b>54788</b>		
	X3Y3-GH	V	40	3	3	360	2	720	720	-	-	-	-	-	-		
		I	93	115	2	21390	2	-	-	-	-	-	-	-	42780		
		II	84	115	0.75	-	-	-	-	7245	2.25	16301	16301	-	-		
		III	79	115	6	54510	2	109020	109020	-	-	-	-	-	-		
		IV	60	115	6	41400	2	82800	82800	-	-	-	-	-	-		
IV Year	X2Y2-CD	I	43	112	3	14448	2	28896	28896	-	-	-	-	-	-	West - East	1:0.23
		<b>Total</b>							<b>221436</b>	<b>221436</b>			<b>16301</b>	<b>16301</b>	<b>42780</b>		
		II	136	126	2	34272	2	-	-	-	-	-	-	-	68544		
		III	127	117	0.75	-	-	-	-	11144	2.25	25075	25075	-	-		
		IV	121	111	6	80586	2	161172	161172	-	-	-	-	-	-		
	X7Y7-MN	I	100	92	6	55200	2	110400	110400	-	-	-	-	-	-		
		II	23	34	2	1564	2	-	-	-	-	-	-	-	3128		
		III	15	30	0.75	-	-	-	-	338	2.25	759	759	-	-		
		IV	10	27	6	1620	2	3240	3240	-	-	-	-	-	-		
		<b>Total</b>							<b>271572</b>	<b>271572</b>			<b>25075</b>	<b>25075</b>	<b>68544</b>		
V Year	X8Y8-OP	I	23	34	2	1564	2	-	-	-	-	-	-	-	3128	West - East	1:0.24
		II	75	47	2	7050	2	-	-	-	-	-	-	-	14100		
		III	71	39	0.75	-	-	-	-	2077	2.25	4673	4673	-	-		
		IV	68	33	6	13464	2	26928	26928	-	-	-	-	-	-		
		V	58	14	2	1624	2	3248	3248	-	-	-	-	-	-		
	X8Y8-OR	I	100	50	2	10000	2	-	-	-	-	-	-	-	20000		
		II	100	42	0.75	-	-	-	-	3150	2.25	7088	7088	-	-		
		III	100	36	6	21600	2	43200	43200	-	-	-	-	-	-		
		IV	100	17	2	3400	2	6800	6800	-	-	-	-	-	-		
		V	83	59	2	9794	2	-	-	-	-	-	-	-	19588		
X8Y8-ST	I	78	55	0.75	-	-	-	-	3218	2.25	7239	7239	-	-			
	II	76	52	6	23712	2	47424	47424	-	-	-	-	-	-			
	III	66	25	2	3300	2	6600	6600	-	-	-	-	-	-			
	IV	16	38	2	1216	2	-	-	-	-	-	-	-	2432			
	V	8	34	0.75	-	-	-	-	204	2.25	459	459	-	-			
X9Y9-ST	I	3	31	4	372	2	744	744	-	-	-	-	-	-			
	II	8	34	0.75	-	-	-	-	-	-	-	-	-	-			
	III	16	38	2	1216	2	-	-	-	-	-	-	-	-			
	<b>Total</b>							<b>138184</b>	<b>138184</b>			<b>20218</b>	<b>20218</b>	<b>59248</b>			
	<b>Grand Total</b>							<b>1069342</b>	<b>1069342</b>			<b>102023</b>	<b>102023</b>	<b>285560</b>	<b>1:0.24</b>		

### Summary of Geological & Mineable Reserves

In this area the building stone exposures are bordering to the lease boundary. The mineable reserves are arrived after deducting the reserves locked in mines barrier along the boundary



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<b>Project Location</b>	<b><i>Pudupalayam Village, Ariyalur Taluk, Ariyalur District</i></b>	

in compliance with Metalliferous Mines Regulations 2015. Summary of Geological and mineable reserve is given below.

**Table 3 Summary of Yearwise production**

Summary of Yearwise [1 st year to 5 th year]

Year	Limestone		Limekankar		Topsoil (Ts)	Ore to Overburden ratio
	ROM (Ts)	Limestone @ 100% Recovery (Ts)	ROM (Ts)	Limekankar @ 100% Recovery (Ts)		
I Year	150012	150012	20453	20453	60200	1:0.35
II Year	288138	288138	19977	19977	54788	1:0.18
III Year	221436	221436	16301	16301	42780	1:0.18
IV Year	271572	271572	25075	25075	68544	1:0.23
V Year	138184	138184	20218	20218	59248	1:0.37
<b>Total</b>	<b>1069342</b>	<b>1069342</b>	<b>102023</b>	<b>102023</b>	<b>285560</b>	<b>1:0.24</b>

#### **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 “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

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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 2,13,868 tonnes and Limekankar will be 20,405 tonnes with 300 working days in a year. The topsoil generated is proposed to be dumped in the Southwestern portion (i.e. Block – III) of the area applied for Mining lease and also will be 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 2,85,560 Ts of topsoil would be generated during the present plan period is proposed to be dumped on the Southwestern portion (i.e. Block-III) of the lease applied area and also utilized for afforestation purposes. Topsoil & Limekankar is the overburden found in the area applied for Mine lease.

Description (Proposed Topsoil Temporary Dump)	Dimension	Location
I Year	123m X 77m X 3.2m(h)	Southwest (Block – III)
II Year	123m X 77m X 6.0m(h)	Southwest (Block – III)
III Year	123m X 77m X 8.3m(h)	Southwest (Block – III)
IV Year	123m X 77m X 12.0m(h)	Southwest (Block – III)
V Year	123m X 77m X 15.0m(h)	Southwest (Block – III)

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.

Dimension of dumps during the end of the life of the mine is 123m X 77m X 15.0m(h).

## 7. Water Requirement

**Table 4 Water requirement Summary**

Purpose	Quantity	Sources
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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	
<b>Total</b>	<b>22.65 kLD</b>	

### 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 5 Land use Breakup**

<b>S. No</b>	<b>Land Use</b>	<b>Mine lease Area (Ha)</b>
1	Mining	8.40
2	Dump	0.95
3	Office & Infrastructure	0.05
4	Mine Roads	0.50
5	Greenbelt	11.44
6	Un utilized area	1.68.5
	<b>Total</b>	<b>23.02.5</b>

### 9. 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**

<b>S. No.</b>	<b>Designation</b>	<b>Nos.</b>
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<b>Project</b>	<b><i>Pudupalayam Limekankar &amp; Limestone Quarry – 23.02.5 Ha</i></b>	<b><i>Executive Summary</i></b>
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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

## 10. Machinery and Equipment

**Table 6 machinery & Equipment Details**

S.No.	Machinery	Capacity	Numbers
1.	Hydraulic Excavator attached with rock breaker	0.6 m <sup>3</sup>	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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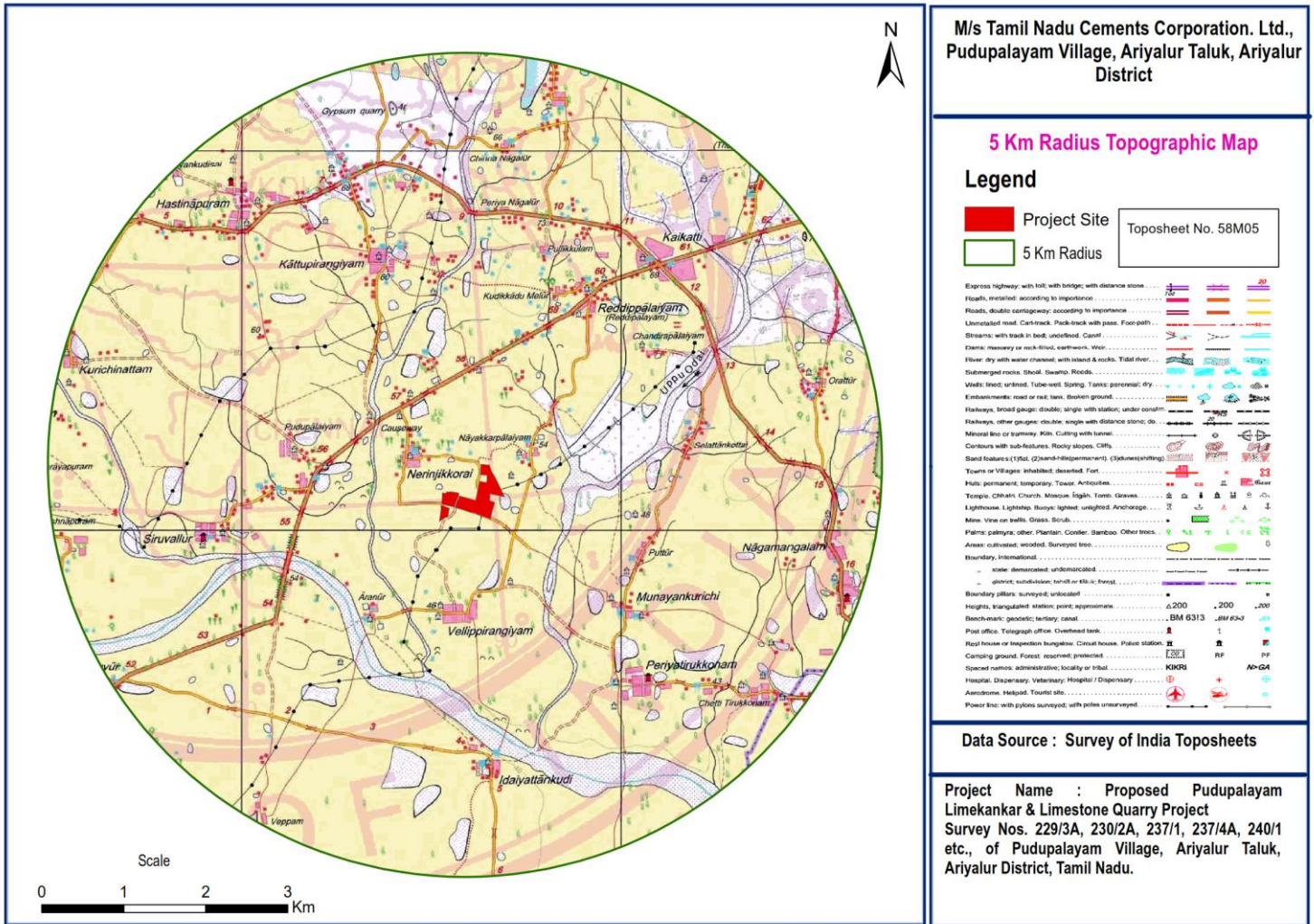


Figure 3 - 5km Radius Topo Map

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## **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 10km radius, air quality survey has been conducted at 5 locations over a period of July – September 2020. Major air pollutants like, Particulate Matter (PM<sub>10</sub>), Sulphur Dioxide (SO<sub>2</sub>), NitrogenDioxide (NO<sub>2</sub>) were monitored and the results are summarized below,

The baseline levels of PM<sub>10</sub> (32- 58 µg/m<sup>3</sup>), PM<sub>2.5</sub> ( 14-29 µg/m<sup>3</sup>), SO<sub>2</sub> (5-17 µg/m<sup>3</sup>), NO<sub>2</sub> ( 11-36 µg/m<sup>3</sup>), all the parameters are well within the standards prescribed by National Ambient Air Quality during the study period from June 2020 to August 2020.

## **11.3 Noise Environment**

Ambient noise levels were measured at 5 locations around the proposed project site. Noise level varies from 42.0 to 49 dB(A) during day time and 38-43 dB(A) during night time. Maximum noise level were recorded at Pudupalayam (49 dBA) during day time.

## **11.4 Water Environment**

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

- The pH is 7.8 and 7.35.
- TDS value is 1558 mg/l and 160 mg/l
- Chloride ranges 345 and 15 mg/L
- Total Hardness as calcium carbonate is 700 and 72 mg/l respectively.

## **11.5 Land Environment**

- pH is 6.57 which indicates soil is slightly acidic.
- EC of soil is 0.89 µS/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.

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### **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.

### **11.7 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.

### **12. 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.

### **13. 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.

### **14. Green Belt Development Details**

**Table 7 Green Belt Area Details**

Length (m)	Width (m)	Total (Sq m)
657.82	7.5	4933.7

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87.4	10	874
686.71	50	34335.2
187.90	50	9395.2
171	7.5	1282.5
118.2	10	1182
433.50	50	21675.2
316.80	50	15840.2
228.72	10	2287.2
451.90	50	22595.2
Total Green Belt Area (Sq m)		114400
Total Green Belt Area (Ha)		11.44.00

## **15. 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



<b>Project</b>	<b><i>Pudupalayam Limekankar &amp; Limestone Quarry – 23.02.5 Ha</i></b>	<b><i>Executive Summary</i></b>
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- 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.

### **16. Project Cost**

The total project cost is **Rs. 32,79,34,366** 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**

<b>S.No.</b>	<b>Description</b>	<b>Cost (Rs)</b>
1.	Land Cost	1,54,26,750
2.	Operational cost Limestone 11,02,078 Ts -28,32,34,046 Limekankar 1,03,010 Ts – 2,64,73,570	30,97,07,616
3.	EMP Cost (Drinking water facility for Labourer, Safety kits, Water sprinkling, Afforestation, Plantation & Maintenance)	28,00,000
<b>Total</b>		<b>32,79,34,366</b>

### **17. Corporate Social Responsibility**

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

**Table 9 CER Details**

<b>S.No.</b>	<b>CER Activity</b>	<b>CER 2% of the project cost (Rs in Crores)</b>

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1.	Road Plantation, Fencing, Drainage, Fencing, Lighting	65,58,687
<b>Total</b>		<b>Rs. 65,58,687</b>