The Ramco Cements Limited

Maravarperungudi Lime Kankar Quarry Lease-I

(New Captive Mine over an Extent of 498.87.0 Ha;

ROM Production of 1.333 MTPA/Clean Lime Kankar @ 0.600 MTPA & Clay (Others) @ 0.060 MTPA)

Project Brief

M/s. The Ramco Cements Limited (RCL) are manufacturers of cement for about 14.45 million tons per annum (MTPA) from their Cement Plants in South India. RCL is operating a Cement Plant at Ramasamy Raja Nagar (RR Nagar) in Virudhunagar District of Tamil Nadu for the Cement production of 2.0 MTPA. The Cement Plants Limestone requirements of 1.630 MTPA Clean Limestone & Lime Kankar are met from the Captive Limestone Mines in Pandalgudi Region viz. Pandalgudi, Maravarperungudi (Lime Kankar), Sivalarpatti and Melvenkateswarapuram Mines. The Run-Off Mine (ROM) Production of these Mines is about 1.819 MTPA.

The Centralised Crusher & Beneficiation Plant (2.0 MTPA Crushing/Beneficiation capacity) is located at Pandalgudi. The existing Cement Plant operations and Captive Mines operations are in compliance with MoEF&CC Environmental Clearances and TNPCB CTOs conditions.

Cement Plants require both cement grade Limestone and Lime Kankar. Kankar is required for blending with high/low grade limestone to meet the cement grade raw material to the Cement Plant. The existing Captive Limestone Mines are nearing Conceptual Stage and the Limestone grade varies constantly. Existing Maravarperungudi Lime Kankar Lease only supplies about 0.64 MTPA Lime Kankar and Clay which is also at the end Stage. Thus, RCL is proposing other Lime Kankar Quarry Leases in Pandalgudi Region. The **Maravarperungudi Lime Kankar Quarry Lease (QL) - I** is proposed for Captive Consumption of the Cement Plants.

RCL has applied for Grant the Quarry Lease **for quarrying Lime Kankar and Clay** over an extent of **498.87.0 Ha** in Suddhamadam village, Aruppukottai Taluk, Virudhunagar District of Tamil Nadu State. Subsequently, **Precise Area Communication (PAC)** has been issued by the Tamil Nadu State Industries Department vide Letter No/14547/MMC.2/2016-1 dated **21.04.2017 for a period of 10 years.** The area covered under mining is non-forest type. The entire area applied for Quarry Lease is patta land owned by RCL since 1993. There is **no Rehabilitation & Resettlement (R&R) issue** due to the proposal. There is **no litigation/pending case** against the proposal.

The **Mining Plan has been prepared and submitted on 11.05.2017** to the Department of Mining & Geology, Govt. of Tamil Nadu, Chennai for approval. There was delay in obtaining the Mining Plan Approval within 3 months due to the administrative reasons of the State Government and PAC was also extended for 3 months initially and another 3 months by the state Government. RCL has obtained the approval for Mining Plan from the Department of Mining & Geology (Tamil Nadu) vide its Letter dated 11.05.2018 and submitted to the State Government.

With Precise Area Notification and approved Mining Plan for the Lease, we have to apply and obtain the Environmental Clearance for the Lease for the Grant of Quarry Lease and for execution of the Lease. Also, the Mineral Beneficiation has been now proposed and included in the approved Mining Plan and accordingly, the Proposal is now modified.

Thus earlier TOR Application filed by RCL Online vide IA/TN/MIN/71530/2017 on 11.12.2017 has been modified. The updated Form-1, PFR and Approved Mining Plan are submitted to the Ministry again now for considering and awarding the TOR for the Proposal.

As per approved Mining Plan, the proposed production of Lime Kankar & Clay from this Lease by **Strip Mining** would be about **1.333 Million Tonnes per Annum (MTPA) as Run-Off Mine (ROM) basis (or) 0.600 MTPA as Clean Kankar and Clay (Others) @ 0.060 MTPA**.

In the total QL area of 498.87.0 Ha, about **371.575 Ha is only available for effective mining** after leaving the prescribed safety barriers of about 127.295 Ha. It is estimated that 45,98,241 Tonnes of Lime Kankar is recoverable from the estimated Geological Reserves of 1,02,18,313 Tonnes from this Quarry. In-situ Geological Clay Reserves is 91,96,481 Tonnes. Out of which about 459,824 Tonnes Clay (Others) will be utilized for the cement manufacturing process and balance 87,36,657 Tonnes Clay will be used for simultaneous refilling of the mined out portion.

Mechanized Opencast Mining, without Drilling and Blasting, with deployment of heavy earth moving machineries of low HP will be adopted. The average depth of over burden black cotton soil is 1.5 m. The **maximum depth of the Mine will be of 3.0 m only**. It is calculated that about 1,200,000 Tonnes of over burden soil will have to be removed every year to win 6,00,000 Tonnes of clean Kankar. The ratio of ore (clean Kankar) to O.B works out to be 1:2. The deposit will be mined by a simple system of **simultaneous development, production and refilling** by the same excavator called **strip mining**. Simultaneous reclamation activities will be continued upto the end of mine life. Thus, **there will be no Top Soil/OB Dump as the entire Top Soil will be refilled in the mined out pit simultaneously. Life of the Mine is 8 years only**.

RCL is proposing to establish a **Wet Beneficiation Plant** (Washing, Grinding and Floatation) for the ROM Kankar from the Quarry Leases to reduce the Silica Content and enhance the quality of ROM Kankar in meeting the cement plants quality requirement. **Throughput quantity of the Washing Plant will now be 1.333 MTPA** and the ROM material from other future leases will be fed. **Water requirement for the Beneficiation Plant will be about 2,500 cu.m/day.** The required water will be sourced from existing Captive Mine Pits in Pandalgudi Region. The concentrate (product) in the form of dewatered cakes shall be transported to factory and dewatered tailings shall be dumped within the lease / re-used effectively towards achieving Zero Waste Mining.

Till the Wet Beneficiation Plant is commissioned, the existing practice of simple Dry Screening as in Maravarperungudi Mines will be continued to screen-off the interstitial Clay. The existing Screening Plant will be shifted to this quarry lease area. The ROM material from the mine will be transported to the Screen Plant. This is a single deck screen normally having the mesh size of +25 mm (or) +15 mm. The mesh size is changeable. Based on the moisture content of the ROM material, the screen mesh size will be decided. After screening, the product material will be dispatched to Pandalgudi Crusher for further processing. The screened reject will be separately stacked in the mine itself. During this screening, about 55% of the interstitial reject will be screened off from ROM material and the product kankar will be upgraded to 70% to 75% TC.

RCL has its own black top road for 10 km from existing Kankar Mine nearby to the centralized Crusher at Pandalgudi. The same road will be extended to this Lease for transport of the Minerals.

Mine Profile :

Top Black Cotton Soil	:	1.5 m
Nodular Kankar intermixed with Clay	:	0.10-0.40 m (below Top Soil)
Kankar Beds	:	0.85-1.90 m
Gneissic bed-rock	:	Below Kankar Beds.
Proved Lime Kankar Reserves (Clean)	:	4.60 Million Tonnes
Proposed Clean Kankar Production	:	0.60 MTPA
Clean Ore:OB Ratio	**:**	**1: 2.0**
Life of the Mine	**:**	**8 years**
Total estimated Kankar Reserves (ROM):		91,96,481 Tonnes
Clay Quantity for Cement Manufacture	:	4,59,824 Tonnes @ 60,000 Tonnes/annum
Clay Qty. for simultaneous Backfilling	:	87,36,657 Tonnes
No. of working days/annum	:	300 (2 shifts)
Pit Configuration	:	20 m x 8 m strips
Bench height	:	-
Bench width	:	-
Bench slope	:	-
Ultimate Pit Limit-Conceptual	:	3 m (bgl); Top RL 63.5 m & Bottom RL 60.5 m
Ground Water-table at	:	20 m bgl (Postmonsoon) & 25 m (Premonsoon) 43.5-38.5 m RL.

Mining will not intersect the ground water-table.

As it is a shallow mining upto a depth of 3.0 m BGL and simultaneous refilling is proposed, **there will not be any water seepage or water harvesting in the Mine Pit**. The mine requires about 3 cu.m/day drinking water for domestic consumption which will be supplied from the RO Plant at Pandalgudi Mine. Domestic sewage generation will be about 2.5 cu.m/day which will be biologically treated in a Septic Tank followed by a Dispersion Trench. **No workshop** is proposed and thus, **no effluent generation** from the Mine.

Out of the total area of Quarry Lease (498.870 Ha.), Green Belt and Afforested Area will be about 120 Ha with 24.05% coverage at Conceptual Stage.

This mine will **employ about 30 persons directly and 50 persons indirectly**. The capital cost of the Project is Rs.45.00 crores. An amount of **Rs.30.00 Lakhs has been earmarked as Capital EMP Budget** and **Rs.20.00 Lakhs per Annum is the Operating Cost towards EMP me**asures, Green Belt maintenance, Environmental Monitoring, etc. Also, an amount of Rs.1.00 Lakhs per Annum has been earmarked for Occupational Health & Safety Measures. A budget of 1% of the Project Cost will be allotted as **CER Budget**. In addition, for the mandatory **District Mineral Fund (DMF @ 10% of Royalty Amount)** will also be contributed.

The Maravarperungudi Quarry Lease-I is located in Suddhamadam village between the Coordinates 9°19'42"- 9°21'38"N Latitudes and 78°10'03"- 78°12'39"E Longitudes (Survey of India Topo sheet No.58 K/3). The site is free from seismic effects (Seismic Zone III). There is no environmental issue about the

Mines location. There are **no eco sensitive areas** like National Parks, Wildlife Sanctuaries, Biosphere Reserves, Reserved Forests, Elephant Corridor, Mangroves, Archaeological/Historical Monuments, Heritage sites, etc. within 10 km from the site boundary. **Proposed Vadakkunatham Quarry Lease (QL V) is adjacent to QL-I to its south-southeast direction (0.1 km).** The distance of the nearest village Suddhamadam (in northeast) is about 1.3 km and Krishnapuram (in southwest) is about 300 m from the Lease boundary.

The Lime Kankar and Clay to be mined out from this Quarry are **Minor Minerals in an extent of 498.87.0 Ha (>100 Ha) falling Sl. No. 1(a) & Category A and the Mineral Beneficiation Plant falling Sl. No. 2(b) of EIA Notification 2006, require prior Environmental Clearance (EC) from MoEF&CC (with or without Cluster Approach)**.

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