

Executive Summary
Mallegoundanpalayam Limekankar Quarry

M/s. The India Cements Limited,

“B1” Category

S.F.Nos	120/1, 120/2, 126/1, 126/2A, 126/2B, 126/2C, 126/2D, 126/2E, 126/3, 137/7, 138, 139, 151, 152/2, 152/3, 152/4 & 152/5
Extent	19.84.5 Ha
Village	Mallegoundanpalayam
Taluk	Palladam
District	Tiruppur
Purpose	Prior Environmental Clearance
Peak Production capacity	70,000 Ts of Limekankar
Project Cost	Rs. 1.66 crores

PROPONENT ADDRESS

M/s. The India Cements Limited,
Sankari West,
Salem District – 637 303.

PREPARED BY

M/s. Geo Exploration and Mining Solution,

Accredited for Sector 1, 28 & 38 Category ‘A’
Quality Council of India – National Accreditation Board for Education & Training, New Delhi
Certificate No : NABET/EIA/1821/RA 0123

1. INTRODUCTION –

M/s. The India Cements Limited is a public limited company applied for Limekankar quarry lease over an extent of 19.84.5 Ha in S.F.Nos. 120/1, 120/2, 126/1, 126/2A, 126/2B, 126/2C, 126/2D, 126/2E, 126/3, 137/7, 138, 139, 151, 152/2, 152/3, 152/4, 152/5 in Mallegoundanpalayam village, Palladam taluk, Tiruppur district, Tamil Nadu.

The extent of the quarry lease is more than 5 Ha ie 19.84.5 ha, This EIA report is prepared to evaluate the environmental impacts of the project in line with the requirements of EIA notification SO 1533(E) dated 14.9.2006 and amendments made thereof.

The proposed production of is 3,52,000Tonnes of ROM (96,000Tonnes of Top soil + 2,56,000Tonnes of Limekankar) for five year mining plan period.

Project Identification:-

This is the opencast Mining project proposed to carry out in S.F.Nos 120/1, 120/2, 126/1, 126/2A, 126/2B, 126/2C, 126/2D, 126/2E, 126/3, 137/7, 138, 139, 151, 152/2, 152/3, 152/4, 152/5 in Mallegoundanpalayam village, Palladam taluk, Tiruppur district, Tamil Nadu.

Statutory details:-

- Applied for Limekankar quarry lease 21.06.2018
- Precise area communication letter given by the industries department, Secretariat, Chennai Dated 05.09.2018
- Mining plan approved by the Director of Geology and Mining, Guindy, Chennai Dated 26.10.2018
- Submitted application for Terms of Reference (ToR) on 27.11.2018
- ToR and issued vide Terms of Reference (ToR) Letter No. SEIAA-TN/F.No.6674/SEAC/ToR- 624/2019 Dated: 21.06.2019

Identification of the project proponent:-**Proponent Address****M/s. The India Cements Limited****Thiru. S. K. Palaniappan**

Authorized Signatory & Mines Agent

Sankari Works

Sankari west Post, Salem District,

04283 240387

Email Id skd_gmoffice@indiacements.co.in

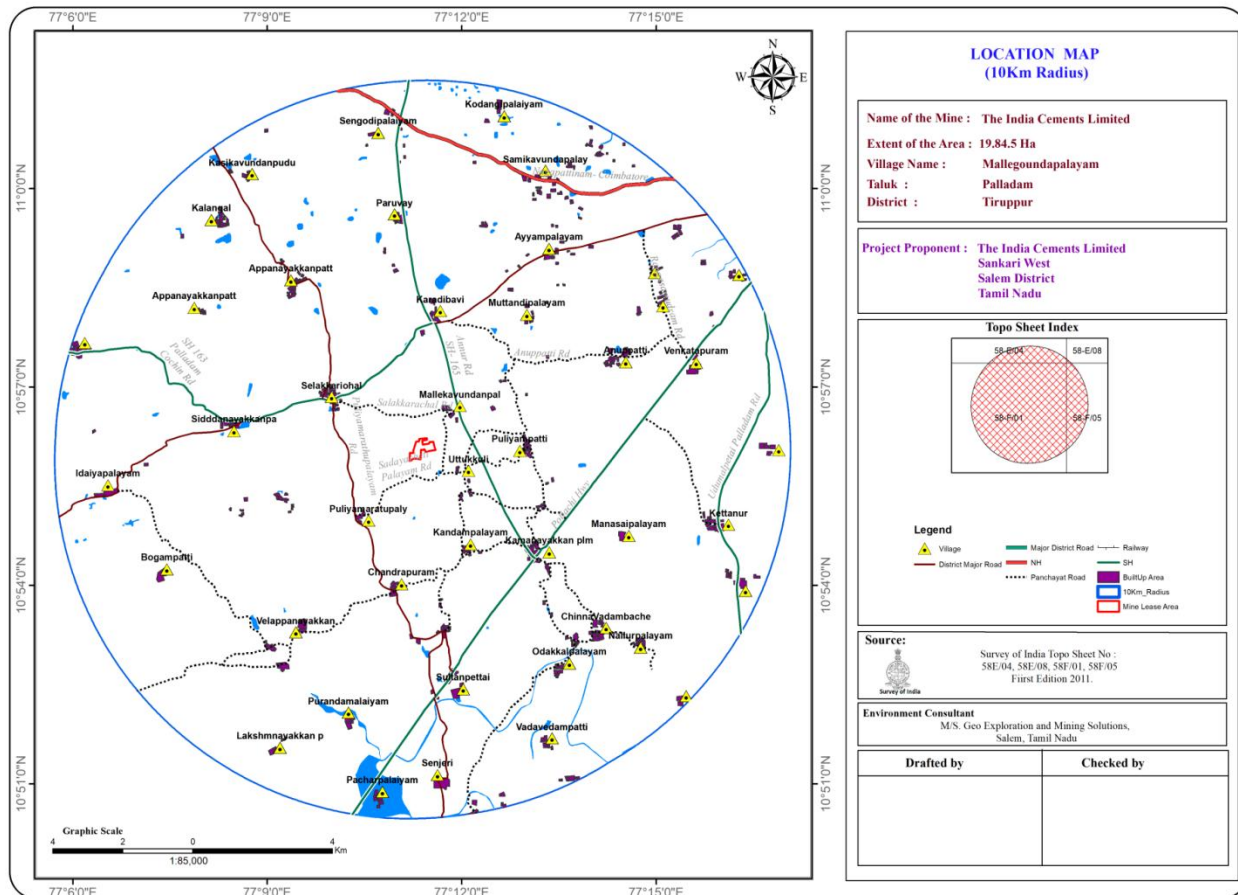
M/s. The India Cements Limited is a limited company, Thiru. S.K. Palaniappan is the Authorized signatory of this mining project.

2. PROJECT DESCRIPTION –**Project profile and Salient Features**

S.No	Particulars	Details
1	Name of the project	Mallegoundanpalayam Limekankar quarry project
2	Project proponent	M/s. The India Cements Limited
3	Location of the project	S.F.Nos - 120/1, 120/2, 126/1, 126/2A, 126/2B, 126/2C, 126/2D, 126/2E, 126/3, 137/7, 138, 139, 151, 152/2, 152/3, 152/4, 152/5 Village - Mallegoundanpalayam Taluk - Palladam District - Tiruppur
4	Co ordinates	Latitude between 10°55'91.02"N to 10°56'20.02"N Longitudes between 77°11'12.02"E to 77°11'50.05"E Toposheet No 58- F/1
5	Extent and Capacity	Extent 19.84.5 ha Production Capacity 3,52,000 Ts of ROM (96,000Ts of Top soil and 2,56,000Ts of Limekankar)
6	Topography and MSL	Almost plain topography with gentle sloping towards South East 437m Above MSL

ENVIRONMENTAL SETTINGS		
7	Nearest Railway Station	Sulur Railway Station – 10km – North West
8	Nearest Airport	Coimbatore Airport – 19.5km – North West
9	Interstate boundary	Kerala Interstate boundary – 36.0 km - West
10	Coastal zone	Arabian Sea – 136km – West
11	Reserved Forest	Nil within 10km
12	Wildlife Sanctuary	Indira Gandhi (Aanamalai) Wildlife sanctuary – 48.7 km – SW
13	Notified Archaeologically important places, Monuments	Nil within 10km radius
14	Local Places of Historical and Tourism Interest	Nil within 10km radius
15	Environmental sensitive areas, Protected areas as per Wildlife Protection Act, 1972 (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves and conservation reserves)	Nil within 10km radius
16	Defense installation	Nil within 10km radius
17	Seismic zone	Zone – II (Least Active)
Project Detail: -		
RESOURCES AND RESERVES		
S.No	Particulars	Details
1	Geological Resource	ROM = 5,95,350 Ts Top Soil = 1,98,450 Ts Limekankar = 3,96,900 Ts
2	Mineable Reserves	ROM = 4,59,984Ts Top Soil = 1,53,000 Ts Limekankar = 3,06,984 Ts
3	Yearwise production (For this Mining plan period)	ROM = 3,52,000 Ts Top Soil = 96,000 Ts Limekankar = 2,56,000 Ts

METHOD OF MINING AND MACHINERY DETAIL		
4	Method of Mining	Opencast mechanized Mining
5	Bench height	1.5m height
6	Name of the machinery	Hydraulic Excavator – 1 No Font end loader - 1 No Power screen - 1 No Mobile tower light - 1 No Water tanker 5000ltrs capacity - 1 No



3. DESCRIPTION OF THE ENVIRONMENT –

Baseline data was generated for various environmental parameters including Air, Water (surface and groundwater), Land and Soil, Ecology and Socio-economic status to determine quality of the prevailing environmental settings. The Base Line Study was conducted during post-monsoon (October - December) season in 2019.

3.1 Land Environment

Core zone:

The entire project area (Extent - 19.84.5 ha) is own patta land, the entire project area is almost plain topography covered by thick top soil formation. There are no habitations, vegetation's, trees any other infrastructures within project area.

It is a dry barren land and agricultural activities are carried out by utilizing well water around the area (lift irrigation-seasonal vegetation is mostly practiced). Out of 19.84.5 hec, Mine working covers only 12.80.0 hec.

Land use pattern (Core zone)

Description	Present Land use (Ha)	Land use at the end of the plan period (ha)
Area under quarry	Nil	Nil
Area backfilled and afforestation developed	Nil	12.80.0
Infrastructure	Nil	0.00.5
Roads	Nil	0.50.0
Unutilized area (Area for future mining & blocked up as safety distance area)	19.84.5	6.54.0
Total area	19.84.5	19.84.5

Buffer zone

10km radius from the periphery of the project area is taken as buffer zone, Land use refers to “men activity and the various use which are carried on land.” Land Cover refers to “natural vegetation, water bodies, rock/ soil, artificial cover and others resulting due to land transformation.”

Majority of the land covered in the study area is Agriculture Land – 87.81%, barren land – 3%, Mining Area – 0.74% from this Total Mining area the project area covers 8%. Existing land use pattern of the project area is Dry Barren Land, own patta Land, No Forest Land is involved.

3.2 Soil Environment

The major part of the district is covered by black cotton soil. Loamy soil, Sandy loam and Sandy clay are the soil types found in the district.

Nine soil samples were collected, one in core zone and another four samples collected in the buffer zone. pH ranges from 7.77 to 8.51 and found to be Strongly alkaline in nature. The soils collected from different location in the study area are Clay loam in texture. Water holding capacity was found between 27.8 - 45.7 %.

The soils with low bulk density have favorable physical conditions whereas those with high bulk density exhibit poor physical conditions for agriculture crops. The bulk density of the soil in the study area ranged between 1.02 – 1.25 g/cc. Organic carbon and available nitrogen shows good trend and is suitable for plantation.

3.3 WATER ENVIRONMENT –

The assessment of present status of water quality within the study area was conducted by collecting water from ground & surface water sources during the period of October - December.

There is no perennial source of surface water body in the core zone, Analysis of different Samples of ground water shows that all parameter are well within prescribed limit.

The water table in the area is 60m below the ground level, observed from the nearby borewells and geophysical resistivity survey. The proposed depth is well above the ground water table. Hence the quarrying operation will not intersect the ground water table

Groundwater –

- The pH was varying from 7.09 to 7.88.
- The TDS values is ranging from 602 - 768 mg/l
- Hardness values is ranging from 302.4-405 mg/l

Surface Water–

- The pH was varying from 7.20 to 7.54.
- The TDS values is ranging from 672 to 788 mg/l
- Hardness values is ranging from 292.4 to 409mg/l

Analysis of different Samples of ground water shows that all parameter are well within prescribed limit.

3.4 Air Environment – Meteorology (Climate) –

The annual mean minimum and maximum temperatures are 26 and 40° C respectively. The relative humidity is on an average between 74 to 84.2% in the mornings.

Air quality Monitoring -

Ambient Air quality Stations were selected based on the Predominant downwind direction in respect to the project site. Six Ambient Air Quality Monitoring (AAQM) Stations were selected by considering the wind rose pattern for pre-monsoon season and the accessibility of the selected sites.

The monitoring was carried out from October - December, 2019 for the parameters such as PM₁₀, PM_{2.5}, SO₂, NO_x, CO, O₃, NH₃, As, Ni, Pb, Bap & C₆ H₆. Ambient air quality monitoring was carried out at a frequency of two days per week at each location for three months at 24 hours continuously.

S.No	Parameter	Result in µg/m ³ (98 th percentile value)	CPCB Standard
1	PM ₁₀	43.8	100
2	PM _{2.5}	24.8	60
3	SO ₂	10.7	80
4	NO ₂	15.6	80

From the table it can be seen that the existing Ambient Air Quality levels for SO₂, NO₂, PM₁₀ and PM_{2.5} are within the prescribed CPCB limits.

3.5 Noise Environment –

Noise level monitoring was carried out in 10 location (5 in core zone and 5 in buffer) Minimum and maximum noise levels recorded in core zone during day time were from 42.2 – 49.3 dB (A) Leq and during night time were from 36.5 – 42.3 dB (A) Leq.

Minimum and maximum noise levels recorded in buffer zone during day time were from 43.4 – 44.6 dB (A) Leq and during night time were from 37.7 – 38.9 dB (A) Leq. Thus the noise level for Industrial and Residential area meets the requirements of CPCB.

From the results, it can be seen that the Day equivalents and the Night equivalents were within the Ambient Noise Standards of Industrial / Commercial / Residential Area.

3.6 Biological Environment –

Ecological survey has been carried out to understand baseline ecological status, important floristic elements and fauna structure. Peacock is found near the area for that Conservation plan has been prepared in consultation with Forest Department. There are No Schedule – I Species listed as per The Indian Wildlife (Protection) Act, 1972 or Threatened Species as per IUCN Red List noticed within the Study Area.

3.7 Socio Economics –

The buffer zone encompassing 10 km radius from the periphery of core zone consists of 36 villages within 10km radius from the study area.

The infrastructure and amenities available in the area denotes the economic well being of the region. The study area as a whole possesses an average level of infrastructural facilities. This area lacks higher level of amenities like higher education, health, drinking water and communication network. This area needs more medical facilities as it has not even one maternity and child care centre. Though the area is well connected with road transport and communication facilities still more frequent bus service is required.

The socio-economic analysis of the Study Area shows that in terms of education and employment, the area is moderately developed. The overall socio-economic status of the target population is average in terms of literacy, Work Participation Rate etc., More attention and care should be given so that the needs and demand of the population of the study area can be fulfilled.

4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES –

4.1 Land Environment:

In the Opencast Mining method, the major impact is Land Environment. The existing land use pattern of the area is dry barren land, no forest land is involved in this project. In the total extent of 19.84.5ha, about 15.30.0ha area is proposed quarry activity for the entire period which will have the impacts due to the quarrying activity. After end of the quarry, the pit will be backfilled and utilized for plantation.

There are no major trees found in the project area at present. There is no prominent trees found within the core zone, few neem and Acacia leucophloea (Velvel) the District Forest officer listed the floras within the core zone vide letter No C.No. 7394/2018/D Dated 22.10.2018, The trees will be uprooted and replanted in the safety barrier/ near the project area After the completion of the mining operation, the lease applied area will be utilized for plantation.

Plantation will be carried out on safety barrier and backfilled area. The entire project area will be covered by green belt at the end of the life of the mine.

4.2 Water Environment

The proposed depth for the mining operation is well above the water table, there is no intersection of surface water (streams, Canal, Odai etc.,) within the study area.

Mitigation Measures –

- Peripheral Garland drain with silt trap will be constructed around the project area to divert the water flow into the natural gradient.
- The silt trap will be cleaned weekly in the monsoon period and monthly once in the non monsoon periods
- Internal garland drains around the quarry pit to prevent the rain water entering into the pit, the rain water will be collected in the lower part of the area and it will be used for afforestation and water sprinkling on haul roads
- Construction of check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- No toxic chemicals are involved. Domestic sewage will be collected in septic tank with soak pit.

4.3 Air Environment–

The air borne particulate matter generated by quarrying operations and transportation is the main air pollutant. The emissions of Sulphur Dioxide (SO₂), Oxides of Nitrogen contributed by vehicles plying on haul roads will be marginal.

The Predicted maximum Ground level concentration of 24 Hour average of particulate matter concentration is superimposed on the maximum baseline concentration obtained during the study period to estimate the post project scenario, which would prevail at the post operational phase.

The 98th percentile value of PM₁₀ is 43.8µg/m³ – and PM_{2.5} is 24.8. This shows that the adverse impact of mining outside the project area is marginal and has no adverse effect on health of human and animals and also on the flora of the area.

Mitigation Measures –

- The quarrying operation will be carried out without drilling and blasting
- Water sprinkling on haul road and working face to control dust emission from loading & handling operations
- Water sprinklers along the mine haulage roads to reduce dust generation during plying of HEMM
- Avoiding of overloading of tippers and covering of loaded tippers with tarpaulins during ore transportation
- Greenbelt development will be carried out to control the dust particles.
- Periodical monitoring of air quality to take steps to control the pollutants
- Ambient Air Quality Monitoring will be conducted on regular basis to assess the quality of ambient air as per the proposed monitoring plan.

4.4 Noise Environment

Noise pollution is mainly due to the Operation of machineries and Occasional plying of tippers in the quarry.

The nearest population is Mallegoundanpalayam village at about 1.0Km North East from the project site. Continuous noise levels beyond the prescribed standards can however have impact on fauna.

Mitigation Measures –

- In the high noise intensity working areas, earmuffs or earplugs or any other suitable personal protective equipment will be provided to the workers.
- Regular noise level monitoring shall be done periodically for taking corrective action.
- Greenbelt development around the quarry site, office buildings and all along the internal road will be practiced as to create a barrier between the source and the receiver so that the noise is absorbed and the exposure level is minimized.

4.5 Biological Environment

The impact on biodiversity is minimal as there are no forest, wild life sanctuaries, and Eco sensitive zone within the radius of 10 KM.

The impact would be due to emission of gaseous pollutant from HEMM. Adequate dust control measures will be taken to control dust emission. Thick Greenbelt development will be carried out in the mine area and haul roads to control the dust emission. Besides the air quality standards for PM₁₀, PM_{2.5}, SO₂ and NO_x are within the AAQ standards.

4.6 Socio Economic Environment.

Due to this mining activity 15 numbers of skilled and unskilled workers are benefitted through direct employment. About 50 numbers of peoples will be get employment opportunities indirectly. Additional facilities such as medical, educational and infrastructural development will also take place under CSR/CER activities.

Considering the socio – economic and sociological impact it is concluded that the economic level and living standard of the people will generally increase.

5 ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)**Site Alternatives –**

No alternative site has been proposed as Limekankar occurrence is site specific in nature and the location of the proposed project is restricted to the geology and mineral deposition of the area.

Mining Technology alternatives –

Quarrying operation will be carried out through Opencast mechanized method, as it is more economically viable, and preserves the conservation of minerals and environment. Unlike other industries, the project cannot be shifted to other sites.

The mining by opencast method will be highly productive & economical as compared to underground method.

6 ENVIRONMENT MONITORING PROGRAM –

Usually an impact assessment study is carried over short period of time and the data cannot bring out all variations induced by natural or human activities. Hence regular monitoring program of Environmental parameters is essential to take into account the changes in the Environment. The Objective of Monitoring -

- To check or assess the efficiency of the controlling measures;
- To establish a data base for future impact assessment studies.

7 ADDITIONAL STUDIES - RISK ASSESSMENT & HAZARD –

The components associated with risk and hazard in this mining case movement of heavy earth moving machineries and tippers. Measures to reduce and avoid any incidents occurring from the above-mentioned components shall be planned and implemented as soon as the mine starts commissioning; this includes measures to avoid the above discussed risk factors. Proper risk management plan will be proposed to avoid any kind of accident/ disaster.

8 PROJECT BENEFITS –

This Limekankar quarry project falls in the area of Tiruppur District, Tamil Nadu where scanty agricultural activities are being carried out and the new industries are springing up in the district.

The area applied for quarry lease is devoid of major industries and agricultural activities. The earning source in the targeted area is limited, most of the people in and around the area depend upon the seasonal agriculture and much of the people migrate to nearby towns where good number of industries and factories are growing up.

This project will provide direct for about 15 persons and indirect employment for 50 peoples in various sectors like transportation and mineral processing etc., Mineral Industries of the state of Tamil Nadu provides employment opportunities for the people of the state as well as in the specific project area.

- Improvement in physical infrastructure
- Improvement in Social Infrastructure
- Employment Potential
- The company will carry out CSR activities like community awareness program, health camps, Medical aid, family welfare camps etc.,
- A massive plantation will be carry out in the mine area to mitigate the ill-effects of mining and to improve the vicinity and environment of mine and its surrounding area.

9 ENVIRONMENTAL COST BENEFIT ANALYSIS.

Environmental cost benefit analysis is not recommended.

10 ENVIRONMENT MANAGEMENT PLAN –

The company shall organize an Environment Monitoring Cell which is responsible for the management and implementation of the environmental control measures. Basically, this department shall supervise the monitoring of environmental pollution levels like Ambient Air quality, Water quality, Soil quality and Noise level by appointing approved external agencies.

Occupational Health and Safety:-

The working condition in the quarry is governed by the enactments of the Director General of Mines Safety (DGMS). Necessary precautions regarding health and safety of workers will be strictly followed as per the guidelines of the Mines Act, sanitary facilities will be provided within the project area and periodic health check-up will be carried out to all the workers.

11 CONCLUSION –

It can be concluded from overall assessment of the impacts, in terms of positive and negative effects on various environmental components, that the mining activities will not have any adverse effect on the surrounding environment.

To mitigate any impacts due to the mining activities, a well-planned EMP and a detailed post project monitoring system is provided for regular monitoring and immediate rectification at site. Due to the mining activities, socio economic conditions in and around the project site will be improved substantially. Hence, the Prior Environmental Clearance shall be granted at the earliest.

