

Karuppur Senapathy Limestone Mine

Mining Lease Owner/Lessee :

Mr S.Saravanan, Director, Dhandapani Cement Private Limited

(Captive Mine)

Extent : 4.67.0 Ha

ROM Production : 47,013 Tonnes per Annum

**S.F. Nos. 6/4, 8/3, 8/4A, 8/4B, 8/5A, 8/5B, 8/5C, 8/5E, 8/6A, 8/6B, 8/6C, 8/7 & 8/8 of
Karuppursenapathy Village, Ariyalur Taluk & District, Tamil Nadu**

**ML Validity as per GO 14720/MM1/04 dated 21.12.2005 : 20 Years
(07.02.2006 to 06.02.2026)**

ML Validity as per MMDR Amendment Act : 07.02.2006 to 06.02.2056

**Review of Mining Plan & Progressive Mine Closure Plan Approval vide
IBM, Chennai Letter No. TN/ALR/LST/ROMP-1599.MDS dated 21/22.09.2020
(ROMP Period 2021-22 to 2025-26)**

**Environmental Clearance under EIA Notification 2006
Schedule SI. No. 1(a); Category 'B1' (Mining in <100 Ha)
Violation Proposal**

Summary Environmental Impact Assessment Report

(after TOR for Public Hearing)

Awarded TOR : SEIAA-TN/F.No.6230/TOR-535/2018 dated 30.07.2018

December 2021

EIA Consultant

**ABC Techno Labs India Private Limited, Chennai
Certificate No.: NABET/EIA/1922/RA0155 valid till 22.05.2022
(SI. No. 3 of QCI/NABET List dated 13.12.2021)
NABL Certificate No. TC-5770 dated 03.04.2020 valid till 02.04.2022**

Karuppur Senapathy Limestone Mine, Ariyalur District
Lessee : Mr S.Saravanan, Director of Dhandapani Cement Private Limited
Summary Environmental Impact Assessment

1.0 Introduction**1.1 Project Proponent**

M/s. Dhandapani Cements Private Limited (DCPL) are operating a Cement Plant (900 TPD Cement production) at Thathamangalam Village near Mannachanallur in Trichy District. Shri.S.Subramanian, (Chairman) and Mr.S.Saravanan are the Directors of DCPL. Both of them and their Family Members are having Limestone Mines in Perambalur, Ariyalur and Trichy Districts which are Captive Mines to DCPL Cement Plant.

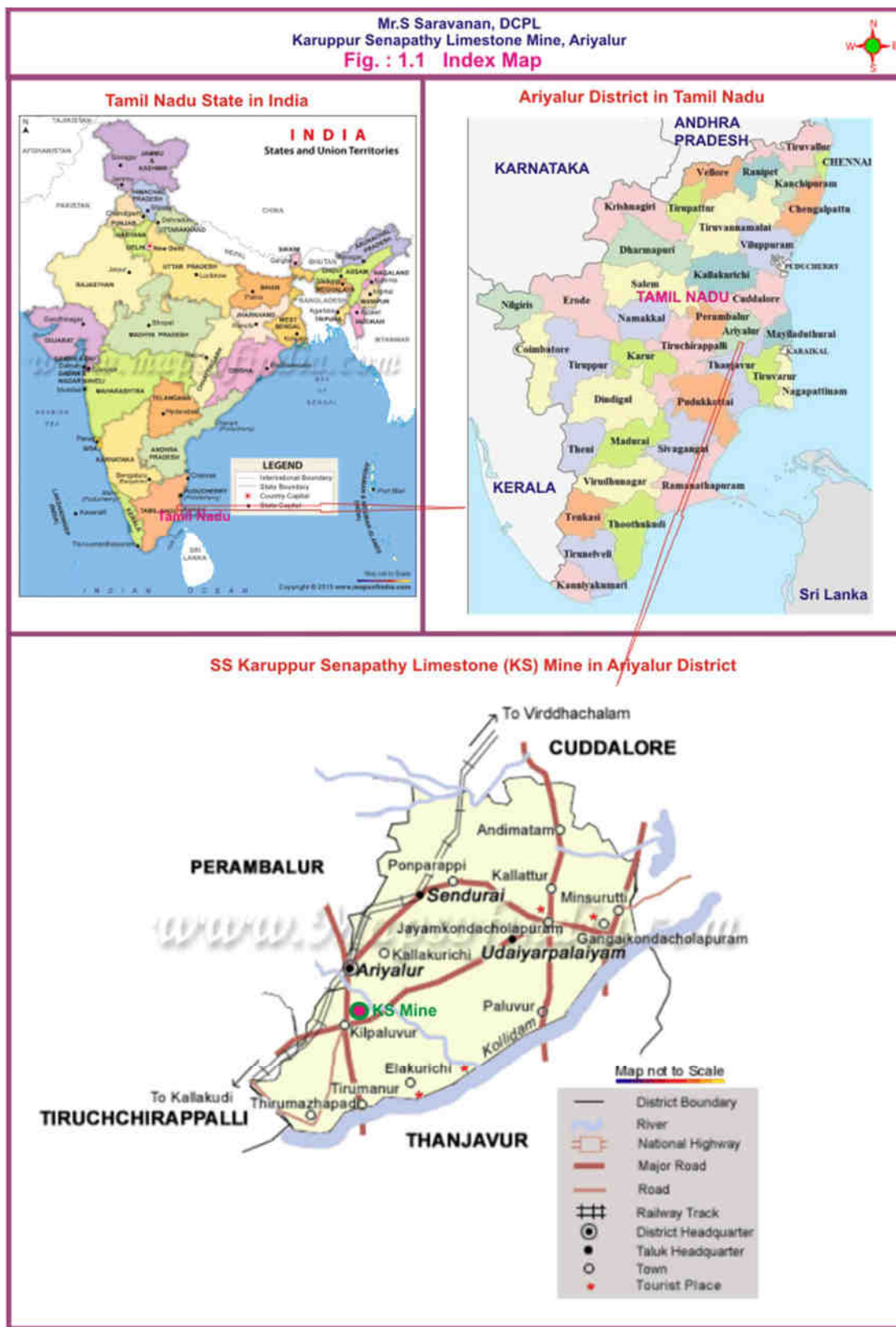
Mr.S.Saravanan, Director of DCPL is having **Karuppur Senapathy Limestone Mining Lease** over an extent of **4.670 Ha (own Patta Land)** in SF Nos. 6/4, 8/3, 4A, 4B, 5A, 5B, 5C, 5E, 6A, 6B, 6C, 7 & 8 of Karuppur Senapathy Village, Ariyalur Taluk & District of Tamil Nadu State (**Fig. 1.1**). There is no Govt./Forest Land involved.

The Lease has been granted by the Director of Geology & Mining, Chennai vide Proceeding Rc. No. 14720/MM1/04 dated 21.12.2005 for 20 Years. The **Lease Deed has been executed on 07.02.2006** and registered on 03.03.2006. The Mining Lease granted is valid from 07.02.2006 to 06.02.2026 which is **valid till 06.02.2056** as per MMDR Amendment Act 2015. Mine has been commissioned in March 2006.

Present **Review of Mining Plan (ROMP) & Progressive Mine Closure Plan** has been approved by the Regional Controller of Mines, Indian Bureau of Mines (IBM), Chennai vide Letter No. TN/ALR/LST/ROMP-1599.MDS dated 21/22.09.2020 for the Period 2021-22 to 2025-26.

Opencast Mechanized Non-Conventional Method of Mining using Rock Breakers was adopted. No Top Soil and Over Burden generation was envisaged. No Waste Dump exists. Existing Mine Pit is 3.55 Ha with dimension of 220 (L) x 150 (W) x13 m (Depth). The Lessee's communication address is:

Shri. S.Saravanan,
Director,
Dhandapani Cements Private Limited,
69, Ganapathy Nagar,
Tiruvanai Kovil,
Trichy -620 005.
Tel. No. : 94892 01004
e-mail : dcplmaruthi@gmail.com



1.2 Project Profile

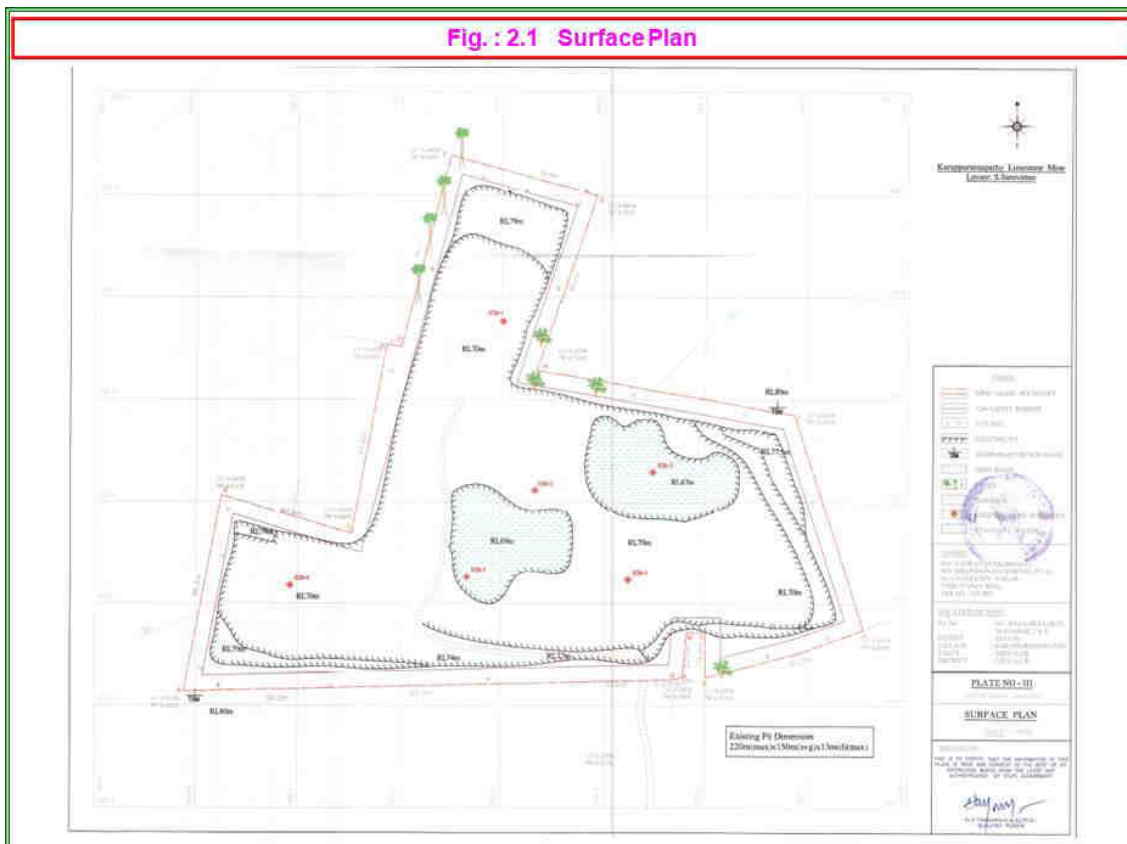
Karuppur Senapathy Limestone Mining Lease is located in an extent of 4.670 Ha in Karuppur Senapathy Village. The lease area is accessible from the National Highway (NH)-81 Trichy-Chidambaram Section. Drinking Water, rest shed, store room, public convenience and mines office are available in temporary structures in the Lease. Mine has been commissioned in March 2006. The Mine is now in Temporary Discontinuance from 20.02.2017 for want of EC. Assessed Total Mineable Reserves (111 Category) from this Mine is **6,47,392 Tonnes**. ROM production from this Mine so far was **2,75,701 Tonnes (42.59%** of total assessed Reserves) in 12 Years. Despatched quantity was 2,75,553.74 Tonnes and balance 147.26 Tonnes is in the Pit.

Mineable Reserves (111 Category) as on 06.08.2020 is **3,71,691 Tonnes**. The planned production during ROMP Period is 1,47,571 Tonnes ROM (**22.79%**). Balance 2,24,120 Tonnes (**34.62%**) will be mined during the successive Plan/Scheme Periods. The **balance Life of the Mine** will be 9.8 Years or say **10 Years**. The Layout/Surface Plan is given as **Fig. 2.1**.

The mining operation will be carried out by **Non-conventional Mechanized Opencast Method of Mining (without Drilling & Blasting)** by deploying Rock Breakers. The **proposed maximum production** from this Lease during ROMP Period is **47,013 Tonnes ROM**. **Ultimate pit depth will be 18 m BGL**. There will be no Top Soil or OB generation till Conceptual Stage and **there will be no Top Soil Dump and no OB Dump in the Lease Area**. As the ground water-table fluctuates between 35-38 m below ground level (BGL) in the mine vicinity, **Mining activities will not intersect the ground water-table**. The **Mine Profile** during Operation Phase would be as follows:

Mine Extent	:	4.670 Ha
Mine Pit Area-Conceptual	:	3.550 Ha
Reserves (111 Category)	:	3,71,691 Tonnes ROM
Method of Mining	:	Non-Conventional (no Drilling & Blasting)
Proposed Production-Max.	:	47,013 TPA @ 160 Tonnes per day (TPD)
Top Soil/OB Quantity	:	Nil (Also, no Dump in the Mine)
Ore:OB Ratio-Conceptual	:	1:0
No. of Working Days	:	300
Life of the Mine	:	10 years
Pit Configuration-Conceptual	:	220 x 150 x 18 m (d)
Bench Height	:	4 m; Bench Width : 6 m
Bench Slope	:	60° (from horizontal)
Ultimate Pit Limit-Conceptual	:	18 m (BGL); Top RL 80 m & Bottom RL 62 m
Ground Water-table at	:	35 m BGL (Postmonsoon) & 38 m (Premonsoon)

Mining will not intersect the ground water-table.



'No prior Environmental Clearance (EC) is required for the Mines with <5 Ha Extent' in the context of the Ministry of Environment, Forest and Climate Change (MoEF&CC), Government of India Office Memorandum (OM) No. J-11013/182/2012-IA-II(M) dated 04.01.2013. However, the existing Mining Lease requires EC as per MoEF&CC Notification SO 141(E) dated 15.01.2016 under EIA Notification 2006. **The mine leases which continue to operate without obtaining EC after 15.01.2016 shall be considered as Violation Cases.**

The **Lessee has operated** Karuppur Senapathy Limestone Mine **after 15.01.2016 till 31.07.2016 and produced 26,520 Tonnes of Limestone. Operating the Lease without EC is in VIOLATION.** Accordingly, the Lessee has applied for EC to SEIAA-TN vide Online Proposal No. **SIA/TN/MIN/24097/2018 on 11.04.2018** under Violation Category. The Proposal under Sl. No. 1(a), Category B1 was deliberated under Violation Category in the State Level Expert Appraisal Committee-Tamil Nadu (SEAC-TN) in its 114th Meeting held on 20.06.2018 and in 327th SEIAA-TN Meeting held on 30.07.2018. **TOR has been awarded vide Letter SEIAA-TN/F.No.6230/TOR-535/2018 dated 30.07.2018 with Public Hearing** for preparing the Environmental Impact Assessment (EIA) Report.

The **EIA Report has been prepared and submitted as per awarded TORs with the Additional Chapter No. 13** for Ecological Damage Assessment, Remediation Plan and Natural Resource Augmentation & Community Resource Augmentation Plan and also as per the generic structure proposed in the EIA Notification 2006. The Summary EIA Reports (both in English and Tamil) along with Draft EIA Report are submitted for the Public Consultation & Public Hearing.

The EIA Consultant, M/s.ABC Techno Labs India Private Limited, Chennai has been accredited for various Sectors including Sector-1 (Mining Projects) for Category 'A' by the National Accreditation Board for Education & Training (**NABET**), Quality Council of India vide Certificate NABET/EIA/1922/RA 0155 with validity 22.05.2022 (Sl. No. 3 of QCI/NABET List dated 13.12.2021). ABC Techno Labs India Private Limited Laboratory is accredited by the National Accreditation Board for Testing and Calibration Laboratories (**NABL**) vide Certificate No. TC-5770 dated 03.04.2020 valid till 02.04.2022. The Lab is also recognised by MoEF&CC vide Letter F. No. Q-15018/04/2019-CPW dated 14.10.2019 with validity of 5 years.

Meanwhile, the Lessee has received the **Demand Notice vide Rc. No. 132/G&M/2019 dated 20.08.2019 for Rs.1,21,69,560/-**, 100% cost of Mineral for 26,520 Tonnes of Limestone excavated during the period 15.01.2016 to 10.01.2017 without EC. Accordingly, the Lessee has remitted **Rs.1,21,69,560/- on 26/27.08.2021** vide TNTC9 Chalan through State Bank of India, Valajanagaram Branch, Ariyalur. **All legal requirements will be complied** by the Lessee during the EC Process. Also, the Mine will be operated only after obtaining all the Statutory Clearances.

2.0 Description of the Environment

2.1 Environmental Setting

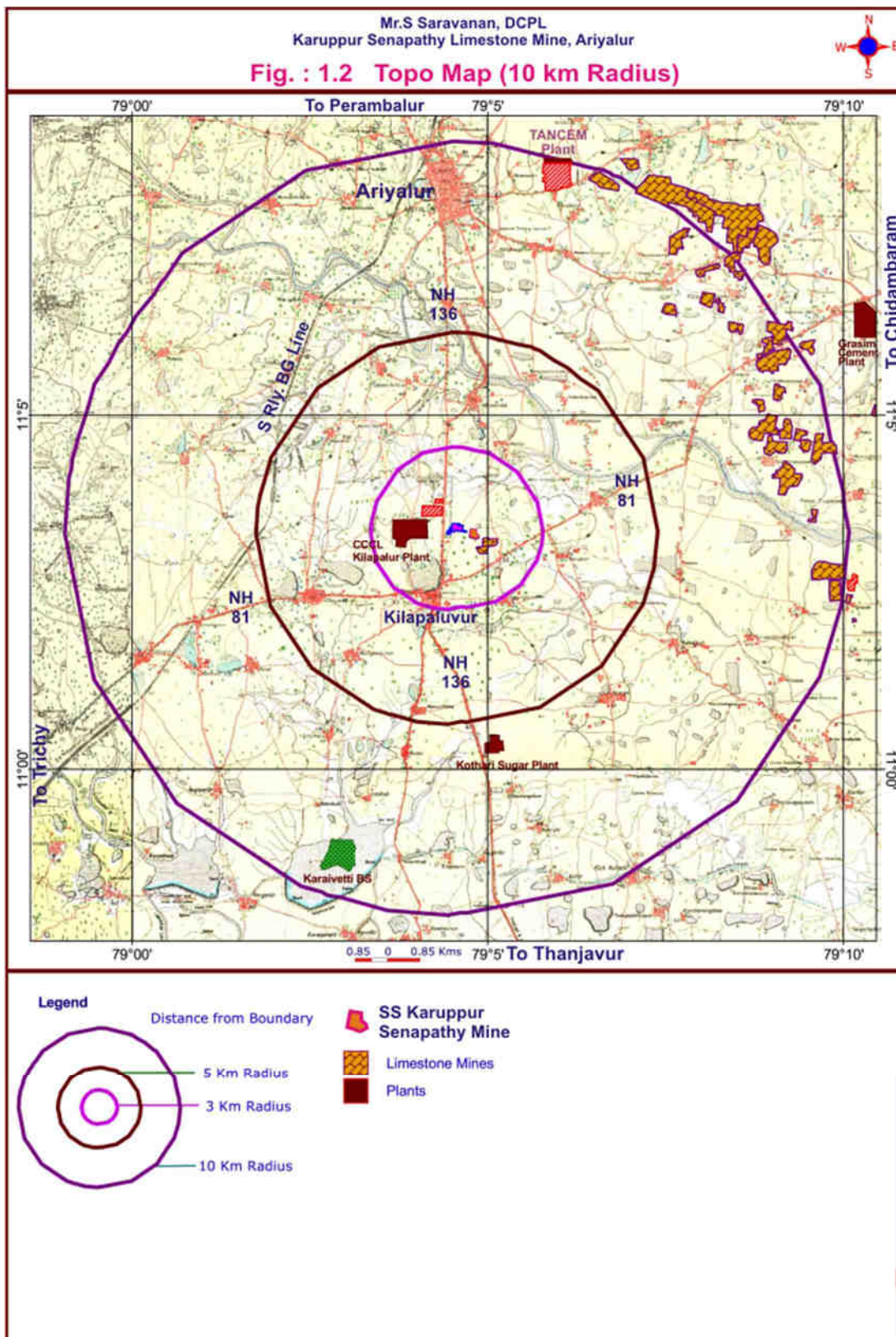
ML Area falls in Survey of India Topo Sheet No. **58 M/4** and is located in-between **11°03'20.80"-11°03'30.00" N Latitude & 79°04'37.00"-79°04'48.30" E Longitude (Fig. 1.2)**. Notified **Karaivetti Bird Sanctuary is at 7.8 km in SSW** direction. Other than Karaivetti BS, there are **no other Eco Sensitive Areas**, National Parks, Wildlife Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar Sites, Tiger/Elephant Reserves, Reserved Forests, etc. (existing as well as proposed) within 10 km from the Site. There is an Archaeological/Fossil Museum at Varanavasi (1.8 km in NW).

There is **no nallah/stream crossing** at the Mine. There is no perennial river in the study area. Seasonal Marudaiyar River drains the area which flows at 2.6 km in northeast. There are small seasonal streams/nallahs flowing towards northeast and southeast so as to join Marudaiyar River. Kallar River (4.4 km in NE), Uppu Odai (8.5 km in east) and Ottan Odai (1.0 km east) are seasonal streams near the Mine.

NH-81 (Trichy-Chidambaram) runs at 0.75 km south. NH-136 (Thanjavur-Ariyalur Section) runs at 0.6 km in the west. Southern Railway BG Line (Villupuram-Ariyalur-Trichy Section) runs through Ariyalur at 10.0 km in NNW direction. Karaikkal Port is at 85 km (ESE) and Cuddalore Port at 105 km (NE) are the nearest Ports. Thus, CRZ Notification is not applicable to the Project. Trichy Airport (50 km, SW) is the nearest Airport.

Kilapaluvur is the nearest settlement at a distance of 1.5 km in southwest. Mela Karuppur (2.0 km. SE), Poyyur (2.9 km, NE) and Mallur (2.1 km, NNE), Varanavasi (3.0 km, N) are nearby villages/settlements. The Taluk & District Head Quarters Ariyalur is at 7.3 km in north. Chettinad Cement Karuppur Kilapaluvur Limestone Mine (0.35 km in west) & Karuppur Senapathy Mine (0.25 km in SSE) and Vijay Cement Karuppur Senapathy Mine (0.1 km in east) are located adjacently. DCPL Authorities have two Lime Kankar Mining Leases nearby. Dalmia Periyathirukonam Mine (8.7 km, ESE), ICL, Periyathirukonam Mine (7.8 km, ENE), UltraTech Reddipalayam Mine (8.3 km, ENE), Ramco Cement Reddipalayam Mine (8.8 km, ENE), Chettinad Pudupalayam Mine (8.7 km, NE), Ramco Pudupalayam Mine (9.0 km, NE), Ramco Kattupiringium Mine (8.5 km, NE), TAMIN Kattupiringium Mine (8.7 km, NE), Dalmia Periyanaalur-A&K Mines (9.7 km NNE), etc. are major Limestone Mines in the Study Area.

Chettinad Kilapaluvur Cement Plant is at 1.0 km in the west. UltraTech Cement Plant, Reddipalayam (11.0 km, NE), TANCEM Cement Plant, Kallankurichi (9.7 km, NNE), Ramco Govindapuram Cement Plant (12.5 km, N) and Dalmia Tamaraikulam Cement Plant (13.5 km, NNE) are the major Cement Plants within 15 km Radius Area. The Limestone Mines belong to these Cement Plants and others are located within 15 km radius from the ML Area. Kothari Sugar Plant is located at 5.0 km in south. Chettinad Arungal Mine is at 3.9 km in SSE.



2.2 Baseline Environmental Status

The study area of **10 km radius (from boundary)** (Fig. 3.1) has been considered for assessing the baseline environmental status. The monitoring stations were selected in such a way that the baseline environmental data reflects the **Cumulative Impact of existing Mines and Industries** in the Study area. The Project Area does not fall in **Critically Polluted Industrial Clusters** listed by CPCB. Considering the environmental setting of the project, project activities and their interaction, environmental regulations and standards, following Environmental Attributes have been included in EIA Study.

- ❖ Site specific Micro-meteorological Data from Lease Area for a Season.
- ❖ Ambient Air Quality Monitoring at 10 locations for all 12 parameters as per Revised NAAQ Norms.
- ❖ Noise Level Measurements at all air quality monitoring station once in the season.
- ❖ Water Quality Monitoring – grab sampling of Surface Water (8 locations) and Ground Water (9 Locations) including existing Pit Water - once in the Season.
- ❖ Soil Quality Monitoring at 5 locations once in the Season.
- ❖ Land Use Pattern based on recent available Satellite Imagery.
- ❖ Biotic Attributes for : Flora & Fauna in Core & Buffer Zones.
- ❖ Socio-Economic Profile, based on 2011.

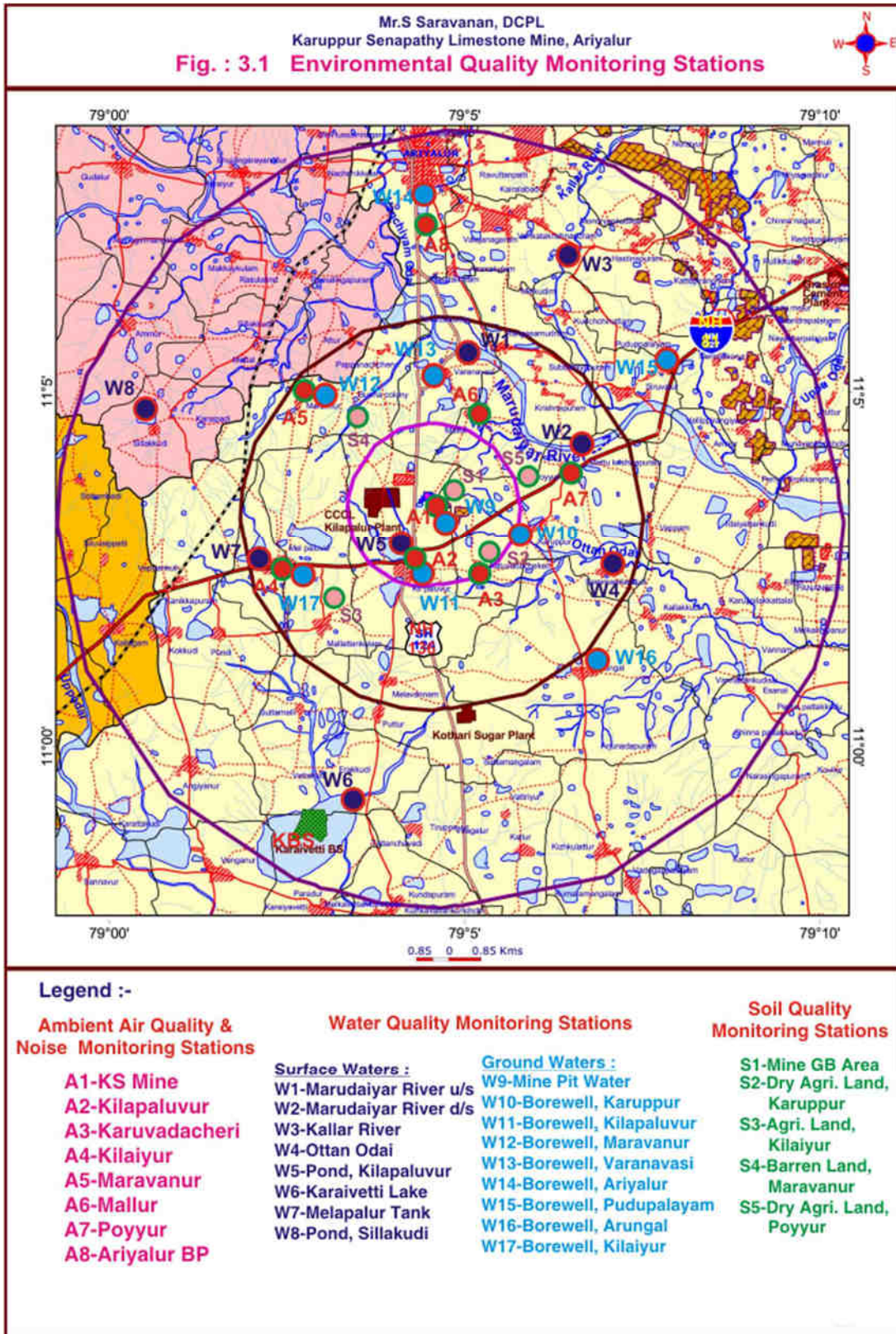
The summary of baseline status is given in **Table 2.1**.

Table : 2.1 Environmental Baseline Status

Period : Dec. 2019-Feb. 2020

Envl. Component	Main Parameters	Minimum	Maximum	Mean	Desirable Norms
Ambient Air Quality, ug/m ³	PM2.5	10	48	23.0	60
	PM10	15	71	39.4	100
	SO ₂	6	23	11.9	80
	NO _x	6	27	14.2	80
Ambient Noise, dB(A)	Leq-Day	41.7	47.2	44.4	55
	Leq-Night	40.1	44.1	42.0	45
Surface Waters	TDS, mg/l	230	470	-	500/2100
Ground Waters	TDS, mg/l	230	540	-	500-2000
Soil Status	EC, mmhos/cm	1.21	1.65	-	0.2-0.5
	SAR	2.16	2.76	-	<5

Legend : PM2.5-Particulate Matter size less than 2.5 um; PM10- Particulate Matter size less than 10 um; SO₂-Sulphur dioxide; NO_x-Oxides of Nitrogen; Leq-Day & Leq-Night - Equivalent Noise Levels during Day & Night Times; TDS-Total Dissolved Solids; EC-Electrical Conductivity & SAR-Sodium Absorption Ratio.



The findings of baseline environmental status of the study area are summarized below :

- ❖ The collected meteorological data during this season represented the local weather phenomena.
- ❖ The monitored ambient air quality in the study area was found to be in compliance with the National Ambient Air Quality (NAAQ) 24-hourly Norms for Industrial, Residential, Rural and other areas.
- ❖ Monitored Ambient Noise Levels (Leq) during day and night times were found to be well within the MoEF&CC Norms.
- ❖ The water quality of surface waters were found to be in compliance with CPCB Norms.
- ❖ The ground water quality was found to be in compliance with the BIS:10500-2012 Norms.
- ❖ The soil in the study area would very well support vegetation after amending it suitably.
- ❖ Notified Karaivetti Bird Sanctuary is in the Study Area. No Reserved Forests in the Area. Domesticated animals only exist.
- ❖ The area is thinly populated and basic amenities are available almost in all villages.

Thus, there is **adequate buffer** for the proposed Proposal in the physical, biological and edaphic environments of the study area.

3.0 Anticipated Environmental Impacts

Identification of all potential environmental impacts due to the Proposal are critically examined and major impacts (both **Beneficial & Adverse**) are studied. The impacts have been divided into two categories, viz. **Localised and Cumulative**. Being an existing Mine Proposal, it **does not involve any major establishment or construction**. For **Cumulative Impact Assessment**, existing industrial activities in the Study Area are considered (Table 4.1).

Table : 4.1 Industrial Activities considered for Cumulative Impact

Sl. No.	Industry / Mine	Extent & Consented Production	Bearing & Contribution for Cumulative Impact
1	Chettinad Karuppur Kilapaluvur Mine	26.145 Ha 0.76 MTPA	Not in operation.
2	Vijay Cement Karuppur Senapathy Mine	3.880 Ha 2,000 TPM	In Upwind Direction and cumulatively contributing.
3	Chettinad Karuppur Senapathy Mine	4.000 Ha 0.36 MTPA	Not in operation.
4	Chettinad Arungal Mine	67.730 Ha 0.80 MTPA	In Upwind Direction and contributing cumulatively to Traffic Volume.
5	Chettinad Kilapaluvur Cement Plant	5.5 MTPA Cement & 45 MW CTPP	In Downwind Direction and contributing cumulatively to Traffic Volume.

Cumulative Impact has been assessed for the identified Industries and assumed that the pollution due to other existing Industrial/Mining activities have already been covered under baseline environmental status and continue to remain same till the operation of the project. The identified Impacts are given in **Table 3.2**.

Table : 3.2 Identified Impacts

Sl. No.	Environmental Component & Anticipated Impacts
1	<p>Land Environment : At Conceptual Stage, out of 4.670 Ha Mine Area, 3.550 Ha will be the mine pit which will be left as Water Reservoir for harvesting the Rain Water. About 0.010 Ha will be for Office & Infrastructures, 0.030 Ha will be under Roads. About 0.270 Ha (5.8% coverage) will be covered under Green Belt. Cumulatively, 34.025 Ha land will be under Mining Use in the vicinity. Kankar Quarries are yet to be commissioned. By keeping the same Production Quantity of 47,013 TPA, the entire quantity will be exploited in another 10 years.</p> <p>Mechanized Non-Conventional Opencast Quarrying, without Drilling and Blasting, will be adopted with deployment of Rock Breakers. No Ground Vibration due to mining. There will be no developmental work and no generation of Solid wastes. Hence, no Top Soil/OB Dump in the Lease Area. Thus, no significant impact anticipated on Land environment.</p>
2	<p>Traffic Volume : The proposed daily Production will be 160 TPD ROM. With 4 Taurus Tippers @ 2 Trips in a day, about 16 Tipper movements will be there (2-ways). NH-81 runs near to the Leases which is the Mineral Transportation Route from the Mine to DCPL Cement Plant at 50 km via Kilapaluvur & Samayapuram. NH-136 runs through Kilapaluvur. For assessing the baseline status, the Traffic Survey based on Indian Road Congress-IRC: 64/106 Norms were carried out at Kilapaluvur Junction (Nh-81 & NH-136) during a Week Day (Wednesday; 12.02.2020) and also during Week end (Sunday; 16.02.2020). Based on the Survey, the existing Traffic Volume at the Junction is computed in Passenger Car Units (PCUs).</p> <p>At present, 8,088.5 PCU/day (337.02 PCU/hr.) was the traffic volume at the Junction. There will be an addition of 16 Tippers movement due to the Mine Ore Transportation. It is 35.2 PCU/day addition at Kilapaluvur Junction. Cumulatively, 8,123.7 PCU/day (338.49 PCU/hr.) would be the traffic volume at the Junction. The increase by 1.47 PCU/hr. will not have any significant impact on the traffic volume. The proposed 4-Lane NH-81 will be adequate to handle the proposed traffic volume due to the Project.</p>
3	<p>Air Quality : Mining, Loading and Transporting activities would generate both fugitive dust emissions and smoke from HEM Machineries/Equipments & Transporting Tippers. Fugitive emissions are predicted by using standard equations given in 'Indian Mine and Engineering Journal' and suggested by USEPA (Emission Factors as referred in AP-42) for Mining & Allied activities. Accordingly, the computed values for various activities are :</p> <p>Mineral Excavation : 1.61×10^{-7} g/sec Loading : 1.97×10^{-7} g/sec Haulage : 1.99×10^{-6} g/sec.</p>

Sl. No.	Environmental Component & Anticipated Impacts																																													
	<p>AERMOD View Software is used for Predicting the maximum Ground Level Concentration (GLC) of the Pollutant PM10 (as other Pollutant Levels are in insignificant levels) including the Transportation Impact. The maximum incremental GLC of PM10 is found to be 0.006 ug/m³ due to the Lease operation including Transportation (Cumulative). The predicted value will not have any significant impact on the Air Environment. Adequate Buffer (60.59%) exist in the Air Environment for the proposed activity.</p>																																													
4	<p>Noise Levels : There will be no Drilling and Blasting in the Mine and thus, no vibration. Excavation, Loading and Transportation activities are the sources of Noise. The noise levels due to the HEM operations would be maintained at <85 db(A) at a distance of 1.5 m from the sources for 8-hours exposure. Ambient Noise level at the boundaries would be maintained <55 dB(A) during day times and <45 dB(A) during night times, well within the MoEF&CC Norms for Residential and Rural Areas.</p>																																													
5	<p>Water Environment :-</p> <p>Impact on Surface Waters : As per Micro Watershed Atlas of India, the Lease Area falls in Micro Watershed Map 4B1B3b6. The first order streams originate in eastern parts of the watershed, join and flow as Ottan Odai. There is no nallah crossing in the mine vicinity. No surface water connectivity to Marudaiya River. Also, there is no Mine Pit Water Discharge. Thus, there will not be any impact on the Surface Waters due to the Mine.</p> <p>Impact on Ground Waters : As per TWAD Data, 70 year Normal Rainfall of Ariyalur Rain Gauge Station is 1,096 mm. Pre-Project & Post-Project Runoffs from the ML Area during rainy periods are estimated as per Manual of Artificial Recharge of Ground Water (CGWB, 2007) and given below:</p> <p>Pre-Project Runoffs :</p> <table border="1" data-bbox="570 1241 1154 1413"> <thead> <tr> <th>Land Use</th> <th>Area, sq.m</th> <th>Rainfall, m</th> <th>Runoff Coeff.</th> <th>Runoff, KL/yr.</th> </tr> </thead> <tbody> <tr> <td>Mining Lease</td> <td>46700</td> <td>1.096</td> <td>0.20</td> <td>10,237</td> </tr> <tr> <td colspan="4">Pre-Project Runoff Total</td> <td>10,237</td> </tr> </tbody> </table> <p>Post-Project Runoffs :</p> <table border="1" data-bbox="529 1509 1195 1766"> <thead> <tr> <th>Land Use</th> <th>Area, sq.m</th> <th>Rainfall, m</th> <th>Runoff Coeff.</th> <th>Runoff, KL/yr.</th> </tr> </thead> <tbody> <tr> <td>Mine Pit</td> <td>35500</td> <td>1.096</td> <td>0.85</td> <td>33071.8</td> </tr> <tr> <td>Roads/Paved</td> <td>400</td> <td>1.096</td> <td>0.65</td> <td>284.96</td> </tr> <tr> <td>Open Land</td> <td>8100</td> <td>1.096</td> <td>0.20</td> <td>1775.52</td> </tr> <tr> <td>Green Belt</td> <td>2700</td> <td>1.096</td> <td>0.15</td> <td>443.88</td> </tr> <tr> <td colspan="4">Post-Project Runoff Total</td> <td>35,576</td> </tr> </tbody> </table> <p>About 10,237 KL/Year is the Pre-Project Runoffs and 35,576 KL/Year is the Post Project Runoffs. About 1,500 KL/Year will be utilized as Raw Water for the Mine. The Balance Quantity of 23,839 KL/Year will be recharging the Ground Water-table</p>	Land Use	Area, sq.m	Rainfall, m	Runoff Coeff.	Runoff, KL/yr.	Mining Lease	46700	1.096	0.20	10,237	Pre-Project Runoff Total				10,237	Land Use	Area, sq.m	Rainfall, m	Runoff Coeff.	Runoff, KL/yr.	Mine Pit	35500	1.096	0.85	33071.8	Roads/Paved	400	1.096	0.65	284.96	Open Land	8100	1.096	0.20	1775.52	Green Belt	2700	1.096	0.15	443.88	Post-Project Runoff Total				35,576
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Sl. No.	Environmental Component & Anticipated Impacts
	in the Mine vicinity. Also, there will be no Ground Water-table Intersection due to the Mining and thus, no significant impact on the Ground Water regime.
6	<p>Biological Environment : There is no tree cutting or loss of forest cover due to the Project and hence there is no need for any compensatory afforestation. There is no habitat fragmentation or blocking of migratory corridors due to Project activities. Thus, there will not be any significant impact on the existing flora-fauna of the area.</p> <p>Anticipated Impacts on Agriculture: ML area is surrounded by Mineral bearing areas, barren lands and dry agricultural lands within 1.0 km area. As the baseline AAQ are in lower levels as well as the Predicted GLC is very low/insignificant, there will not be any impact on the surrounding dry agricultural lands due to the Project.</p>
7	<p>Socio-economics : Project will employ about 20 persons directly and 30 persons indirectly. The direct & indirect employment, CER & CSR activities, etc., will have a positive impact on the Socioeconomic Structure of the area. As part of Corporate Social Responsibility (CSR), various socio-economic measures will be carried out. The main CSR Activities include:</p> <ul style="list-style-type: none"> ❖ Safe Drinking Water. ❖ Promotion of Education. ❖ Promotion of Healthcare facilities. ❖ Rural Development Projects.
8	<p>Occupational Health :-</p> <p>Lessee is committed to provide a Safety & Healthy working conditions. Personal Protective Equipment (PPEs) are provided for all employees working in the Mine.</p>

4.0 Environmental Monitoring Programme

For effective implementations of Environmental Management Plan (EMP), Lessee will have the Monitoring Cell. The quality of air, noise, water, soil, etc. will be monitored at the identified locations as per MoEF&CC/TNPCB Norms by appointing an accredited external agency. The periodical reports shall be submitted to TNPCB monthly, IBM Quarterly and MoEF&CC Monitoring Cell & SEIAA as Half Yearly Status Reports.

5.0 Additional Studies

Detailed Risk Assessment and mitigative measures are delineated and an effective Disaster Management Plan, for natural and man-made disasters, is also submitted.

6.0 Project Benefits

Environmental Benefits : Effective utilization of the Mineral for Cement manufacturing is a Mineral Conservation Measure.

Financial Benefits : An amount of Rs.2.00 Lakhs/annum has been earmarked for Corporate Social Responsibility (CSR) Budget. As per MMDR Act 2015, 30% of Royalty Amount will be earmarked for District Mineral Foundation (DMF) and the amount will be spent for the benefit of local village in the Mine Area.

Social Benefits : Project will employ about 20 persons directly and 30 persons indirectly. The direct & indirect employment, CSR/CER activities, etc., will have a positive impact on the Socioeconomic Structure of the area.

7.0 Environmental Management Plan

The Mining operations will be carried out scientifically as per approved Mining Plan, stipulated EC & CFO Conditions, DGMS Norms, etc. EMP Measures proposed for Operation Phase are given in Table 7.1.

Table : 7.1 Proposed EMP Measures

Sl. No.	Environmental Component & Proposed EMP Measures
1	<p>Land Environment :-</p> <ul style="list-style-type: none"> ❖ Earthen bunds are to be provided along the boundaries to arrest wash-offs. ❖ Garland drains are to be maintained around the Lease. ❖ Periodical Maintenance of garland drains shall be done. ❖ Green Belt shall be maintained along the Lease boundaries and Safety Barriers.
2	<p>Transportation :-</p> <ul style="list-style-type: none"> ❖ Tippers shall be fully covered with Tarpaulin to avoid any spillage on transportation. ❖ No overloading of Tippers is allowed strictly. ❖ Safe Speed Limit has to be enforced and monitored continuously. ❖ Compliance to 'Pollution under Control' Certification has to be ensured for the Tippers. ❖ Restriction of Truck parking in the Public Road shall be implemented. ❖ Regular and preventive maintenance of transport vehicles has to be ensured. ❖ Effective Green Belt with thick foliage has to be maintained along the haul roads.
3	<p>Air Quality :-</p> <ul style="list-style-type: none"> ❖ Water sprinkling on the excavating areas, loading point, haul roads, etc. has to be carried out. ❖ Covering of trucks/tippers with tarpaulin is to be done during the Mineral transportation.

Sl. No.	Environmental Component & Proposed EMP Measures
	<ul style="list-style-type: none"> ❖ Over loading of Tippers shall be avoided to control the spillages during transportation. ❖ Periodical maintenance of quarrying equipments has to be carried out. ❖ Periodical check up of vehicles for 'Emission Under Control' Certificate is to be ensured. ❖ Effective Green Belt with thick foliage has to be maintained along the boundaries. ❖ Ambient Quality has to be periodically monitored in the Lease vicinity. ❖ The monitored data are to be periodically submitted as half-yearly Compliance Reports to SEIAA-TN & Regional Office, MoEF&CC, Chennai.
4	<p>Noise Levels :-</p> <ul style="list-style-type: none"> ❖ Deploying HEM equipments will be with in-built acoustic mechanism for reducing noise. ❖ Provision of silencers is to be made to control the noise generated by the machines. ❖ Provision of ear muffs/ear plugs are to be provided the Workers in higher noise zones. ❖ Effective Green Belt has to be maintained along the lease boundary to act as acoustic barriers. ❖ Ambient as well as Workzone Noise Levels are to be periodically monitored and the Reports submitted to the Authorities.
5	<p>Water Environment :-</p> <ul style="list-style-type: none"> ❖ Earthen bunds are to be provided along the boundaries to arrest wash-offs. ❖ Garland drains are to be constructed around the Lease. ❖ Settling Pond has to be provided to the Garland drains, to settle the Suspended Solids, before its utilization. ❖ Periodical Maintenance of garland drains shall be done. ❖ Green Belt shall be maintained along the Lease boundaries and Safety Barriers. ❖ Mine Pits will be converted into a Water Reservoir to recharge the Ground Water-table. ❖ Water Quality has to be periodically monitored in the Lease vicinity. ❖ The monitored data are to be periodically submitted as half-yearly Compliance Reports to SEIAA-TN & Regional Office, MoEF&CC, Chennai.
6	<p>Biological Environment :-</p> <ul style="list-style-type: none"> ❖ Effective Green Belt developed has to be maintained with good Survival Rate till Conceptual Stage. ❖ Native species shall be preferred for the Green Belt.
7	<p>Socio-economics :-</p>

Sl. No.	Environmental Component & Proposed EMP Measures
	<p>As part of Corporate Social Responsibility (CSR), various socio-economic measures will be carried out. The main CSR Activities include:</p> <ul style="list-style-type: none"> ❖ Safe Drinking Water. ❖ Promotion of Education. ❖ Promotion of Healthcare facilities. ❖ Rural Development Projects. ❖ A budget of 2% of the Project Cost will be allotted as Corporate Social Responsibility (CSR) Budget. ❖ In addition, for the mandatory District Mineral Federation (DMF) @ 30% of Royalty Amount will also be contributed.
8	<p>Occupational Health :-</p> <ul style="list-style-type: none"> ❖ All employees are to undergo Medical Check-up on recruitment and periodically during employment. ❖ Maintenance of Pre, during & Post Employment Records are to be kept for periodical review. ❖ Required Personal Protective Equipments for the employees are to be provided.
9	<p>Plastic Waste Management :-</p> <p>There will be ban on one-time use and throw away Plastic usage in the Lease.</p>

EMP Budget : The capital cost of the Project is **Rs.25.00 Lakhs**. A budget of Rs.5.00 Lakhs has been earmarked as Capital Cost for EMP measures and **Rs.15.32 Lakhs per Annum as EMP Operating Cost** towards EMP measures, Green Belt development & maintenance, Environmental Monitoring, etc.

The violation falls under **Low Level Ecological Damage** category. An amount of **Rs.6.00 Lakhs** towards Ecological Remediation Plan and Natural & Community Resource Augmentation Plans is allotted for approval.
