The Ramco Cements Limited

Proposed Expansion of Ramasamy Raja Nagar Cement Plant by Inclusion of Revamped Old Line-II operations to existing Lines I & III (Operation of all 3 Existing Lines-as Upgraded) and Increasing Operational Days from 320 days to 345 days Production Enhancement of Clinker from 1.44 MTPA to 2.76 MTPA & Cement from 2.70 MTPA to 4.00 MTPA along with associated Waste Heat Recovery System (WHRS) of 13 MW

SF Nos. Parts of 1-14, 16, 22, 24, 30-32, 34-39, 49-52, 56-60, 65-66, 210, 212, 214, 221, 222, 225-230 of Tulukkappatti, 192, 194-212, 215, 216 & 287 of Thammanayakkanpatti and 100-103, 108, 109, 112 & 113 Vachchakkarappatti Villages, Taluk & District Virudhunagar, Tamil Nadu

Environmental Clearance under EIA Notification 2006
Schedule Sl. No. 3(b) - Category 'A'

Summary Environmental Impact Assessment Report

(after TOR for Public Hearing)
Awarded TOR Identification No. TO24A1102TN5995426N dated 12.11.2024
Baseline Data Collection Period : Jul.-Sep. 2024 (Premonsoon Season)

December 2024

EIA Consultant

ABC Techno Labs India Private Limited, Chennai
Accreditation Certificate : NABET/EIA/2225/RA0290 dated 11.06.2023 with Validity till 16.11.2025
(Sl. No. 4 of QCI/NABET List dated 29.10.2024)
Lab Accreditation : NABL Certificate No. TC-5770 dated 03.04.2024-valid till 02.04.2026

Executive Summary

1.0 Introduction

1.1 Name of the Project, Applicable Schedule & Category as per EIA, 2006

M/s. The Ramco Cements Limited (RCL) of **Ramco Group** is operating their Ramasamy Raja Nagar (RR Nagar) Cement Plant with CPP & Township over an extent of **191.434 Ha own patta lands** in SF Nos. Parts of 1-14, 16, 22, 24, 30-32, 34-39, 49-52, 56-60, 65-66, 210, 212, 214, 221, 222, 225-230 of Tulukkappatti, 192, 194-212, 215, 216 & 287 of Thammanayakkanpatti and 100-103, 108, 109, 112 & 113 Vachchakkarappatti Villages, Taluk & District Virudhunagar, Tamil Nadu State (**Fig. 1.1**). FMB Sketch is given as **Plate-1**. The Plant is in operation since 1961-62.

RCL had established the recent expansion activities with New Kiln Line of 3000 TPD in compliance with Environmental Clearance (EC) from MoEF&CC awarded vide EC Identification No. EC21A009TN169325 dated **25.10.2021**. After obtaining CTEs & CTOs from TNPCB, the Plant is now being operated for production of 1.44 MTPA Clinker & 2.70 MTPA Cement from **1st March 2023**. Present **CTO-Renew Orders** are obtained from TNPCB vide 2408157290712 (Water Act) & 2408257290712 (Air Act) dated 13.09.2024 with **validity till 31.03.2025**. Certified Compliance Report (**CCR**) for earlier EC has been issued by Integrated Regional Office (IRO), MoEF&CC, Chennai on 18.03.2024 and there is **no Non-Compliance** / no Partial Compliance reported.

With revamping measures proposed by Engineering Consultant FLSmidth, RCL intends to expand RR Nagar Cement Plant with inclusion of revamped Old Line-II operations to existing Lines I & III i.e. **operations of all 3 existing Lines-**as Upgraded and also by increasing operational days from **320 to 345 days**.

Proposal : 'Expansion of RR Nagar Cement Plant with inclusion of revamped Old Line-II operations to existing Lines I & III i.e. operations of all 3 existing Lines-as Upgraded and also by increasing operational days from 320 to 345 days - production enhancement of Clinker from 1.44 MTPA to 2.76 MTPA and Cement from 2.70 MTPA to 4.00 MTPA along with associated Waste Heat Recovery System of 13 MW' at Tulukkappatti, Thammanayakkanpatti & Vachchakkarappatti Villages, Taluk & District Virudhunagar, Tamil Nadu. The additional Project Cost is Rs.103.38 Crores. On proposed Expansion, the details of Products & By-products are given in **Table 1.1**.

Table : 1.1 Details of Products & By-Products on Expansion

Production of	Product / By-product	Production, MTPA			Mode of Transportation
		Existing	Proposed	Total	
Clinker	By-product	1.44	1.32	**2.76**	By Conveyor
Imported Clinker from RCL Sister Units	-	0.50	0	**0.50**	Rail
Cement	Product	2.70	1.30	**4.00**	Both Road & Rail
WHRB Power Generation from all 3 Lines @ **13.0 MW**					

Fig. : 1.1 Index Map

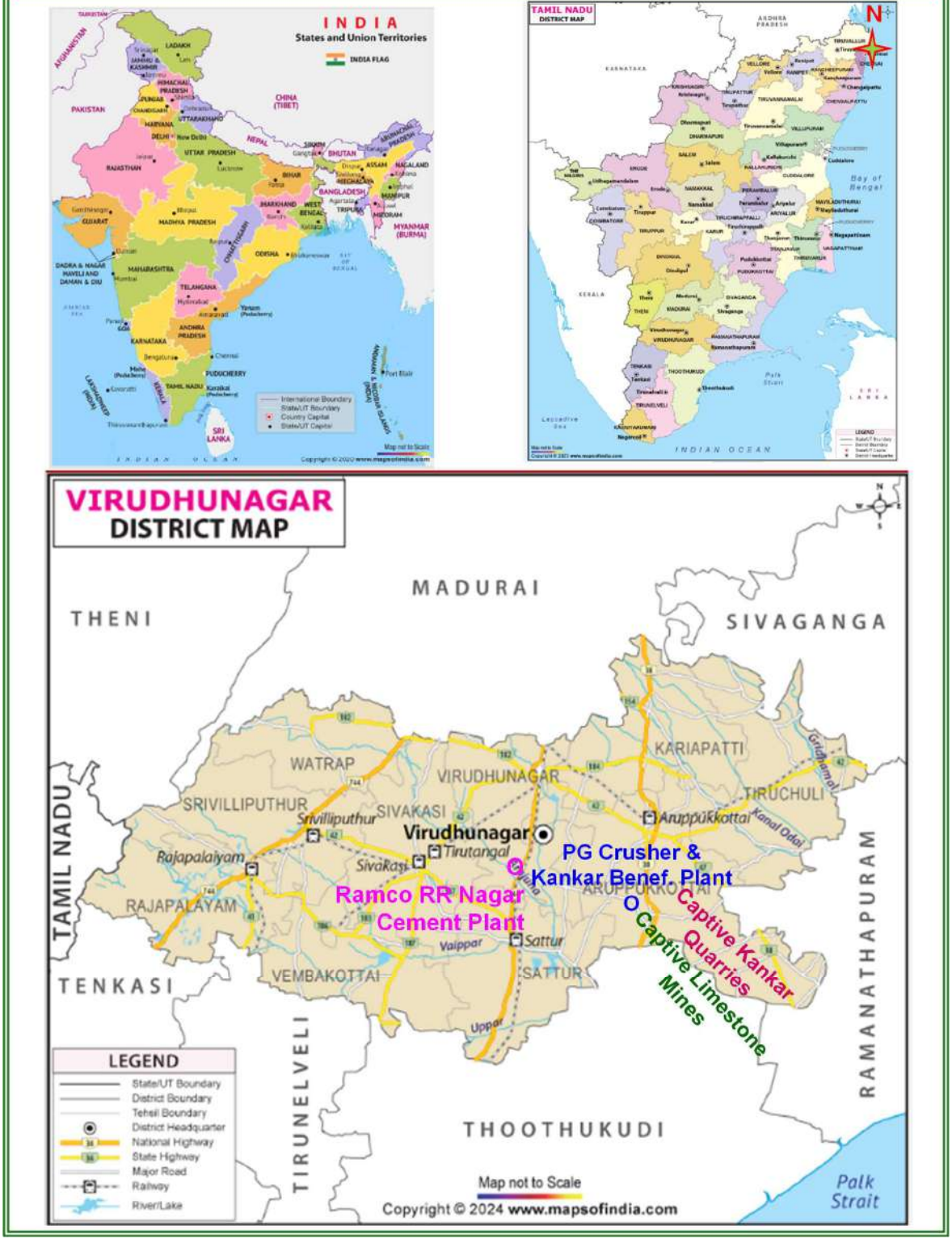
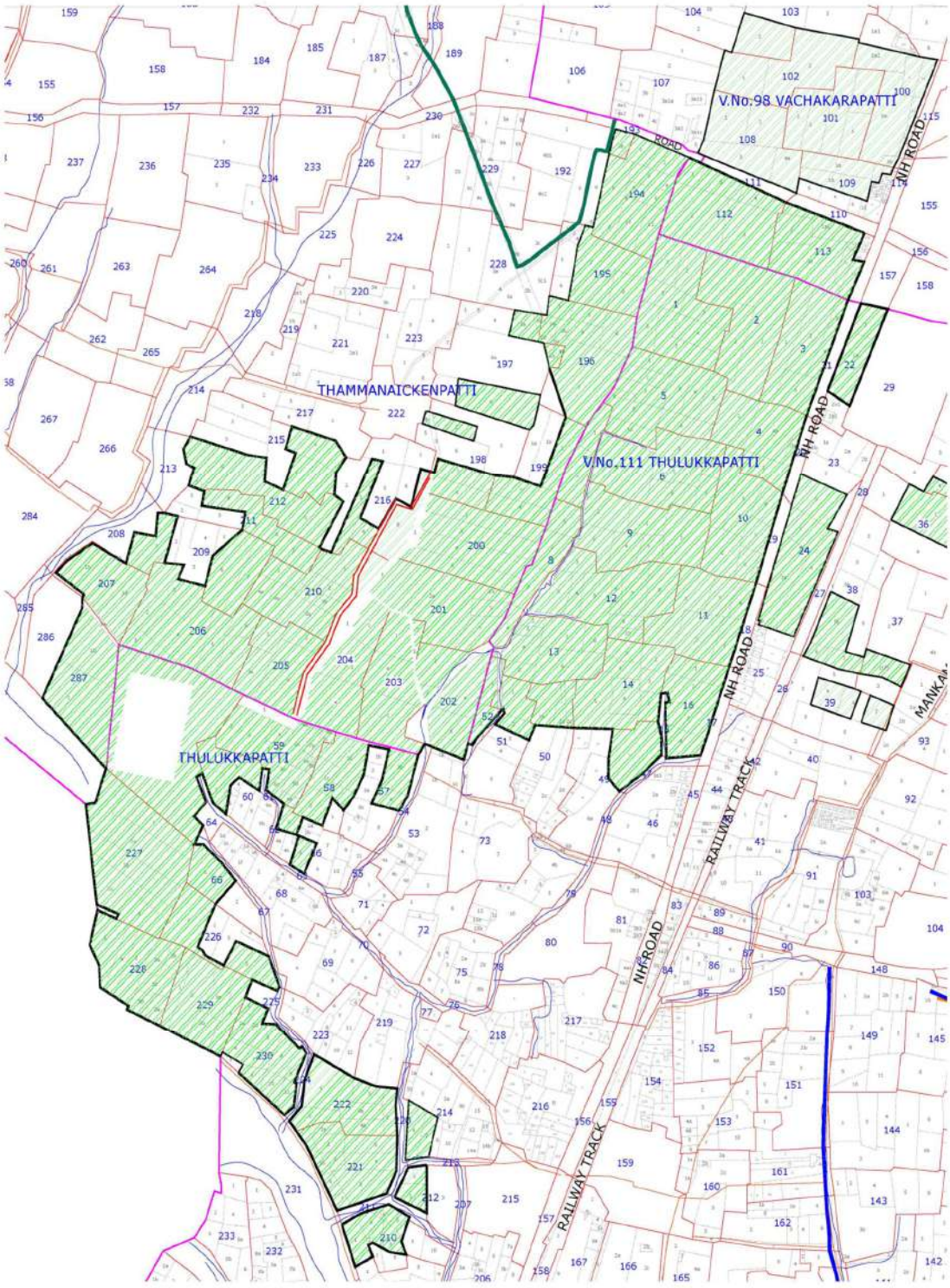


Plate : 1 FMB Sketch



Salient features of Proposal are given in **Table 1.2**.

Table : 1.2 Salient features of Expansion Proposal

S. No.	Details	Project Details as per Latest EC		Project Details on Expansion now	
1	Plant Extent in Ha	191.434		191.434	
2	Clinker Production, MTPA	Line	Capacity,	Line	Capacity
		I	0.48	I	0.69
		II	-	II	0.69
		III	0.96	III	1.38
		Total	1.44	Total	2.76
3	Import Clinker from Sister Units, MTPA	-	0.50	-	0.50
4	Cement Production, MTPA	Total	2.70	Total	4.00
5	WHRS	Line-I	PH&AQC Boiler	Lines I, II & III	13 MW
6	Raw Materials Demand, TPA	Limestone (& Kankar)	2.16 @ 6740 TPD	Limestone	1.794 @ 5200 TPD
		-	-	Lime Kankar	2.085 @ 6050 TPD
		-	-	Clay, Chips, Roughstone	0.209 @ 605 TPD
		Copper Slag / Laterite / Iron Ore	0.022 @ 63 TPD	Copper Slag / Laterite / Iron Ore	0.083 @ 242 TPD
		Fuel : Petcoke	0.128 @ 423 TPD	Fuel : Petcoke	0.246 @ 715 TPD
		Gypsum	0.108 @ 290 TPD	Gypsum	0.136 @ 395 TPD
		Fly Ash	0.677 @ 2050 TPD	Dry Fly Ash	1.120 @ 3246 TPD
		-	-	Wet Fly Ash	0.080 @ 232 TPD
		Slag	63 TPD	Slag	2.200 @ 6377 TPD
		-	-	Limestone Powder as PI	0.040 @ 115 TPD
7	Power, MW	32.85		40.50	
8	Water requirement in KLD & Source	1000 Ground & Surface Water		1265 Surface Water only	
9(i)	Sewage generation in KLD	280		280 (No Change)	
9(ii)	Trade Effluent generation in KLD	20		(20+60=) 80	
10	Air Pollution Control Limits	PM - 20 mg/Nm^3 SO_2 - <100 mg/Nm^3 NOx - <600 mg/Nm^3		PM - 30 mg/Nm^3 SO_2 - <100 mg/Nm^3 NOx - <600 mg/Nm^3	
11	Hazardous waste generation	Used/Spent Oil (Category 5.1) - 94.62 TPA		Used/Spent Oil (Category 5.1) - 94.62 TPA	
12	Project Cost	CP & CPP	Rs.894 Cr.	Addition	Rs.103.38 Cr.
	EMP-Capital	Rs.14.20 Cr.		Rs.1.00 Cr.	
	EMP-Operation	Rs.3.90 Cr./annum		Rs.0.25 Crores/annum	

All activities are **proposed within the Industry premises** and no additional land is required. Also, there is **no Rehabilitation & Resettlement** (R&R) involved. There is **no Litigation or Pending Case** against the Project.

The proposed Expansion of Cement Plant (≥1.0 MTPA) falls under Sl. No. 3(b) - Category 'A' of EIA Notification 2006 and requires prior EC from MoEF&CC. As per Notification SO 1599 (E) dated 25.06.2014 and OM F. No. 22-24/2018-IA.III dated 22.01.2019, prior EC for installation of WHRB is exempt and is excluded for prior EC under Sl. No. 1(d). Accordingly, RCL filed TOR Application vide Parivesh Online Proposal No. IA/TN/IND1/498318/2024 on 26.09.2024. MoEF&CC granted Standard Terms of Reference (Standard TOR) for the Project with **TOR Identification No. TO24A1102TN5995426N dated 12.11.2024** under File No. J-11011/119/2009.IA.II(I). As permitted, Baseline Data was collected during Jul.-Sep. 2024 in Premonsoon Season **for this Region** in compliance with MoEF&CC Office Memorandum No. J-11013/41/2006-IA-II(I)(Part) dated 29.08.2017.

Draft Environmental Impact Assessment (EIA) Report and Summary EIA Reports in English & Tamil languages, prepared in compliance with awarded TORs by accreditated EIA Consultant - M/s. ABC Techno Labs India Private Limited (Certificate NABET/EIA/2225/RA0290 dated 11.06.2023 with validity till 16.11.2025), has been submitted now for Public Consultation & Public Hearing.

1.2 Location & Accessibility

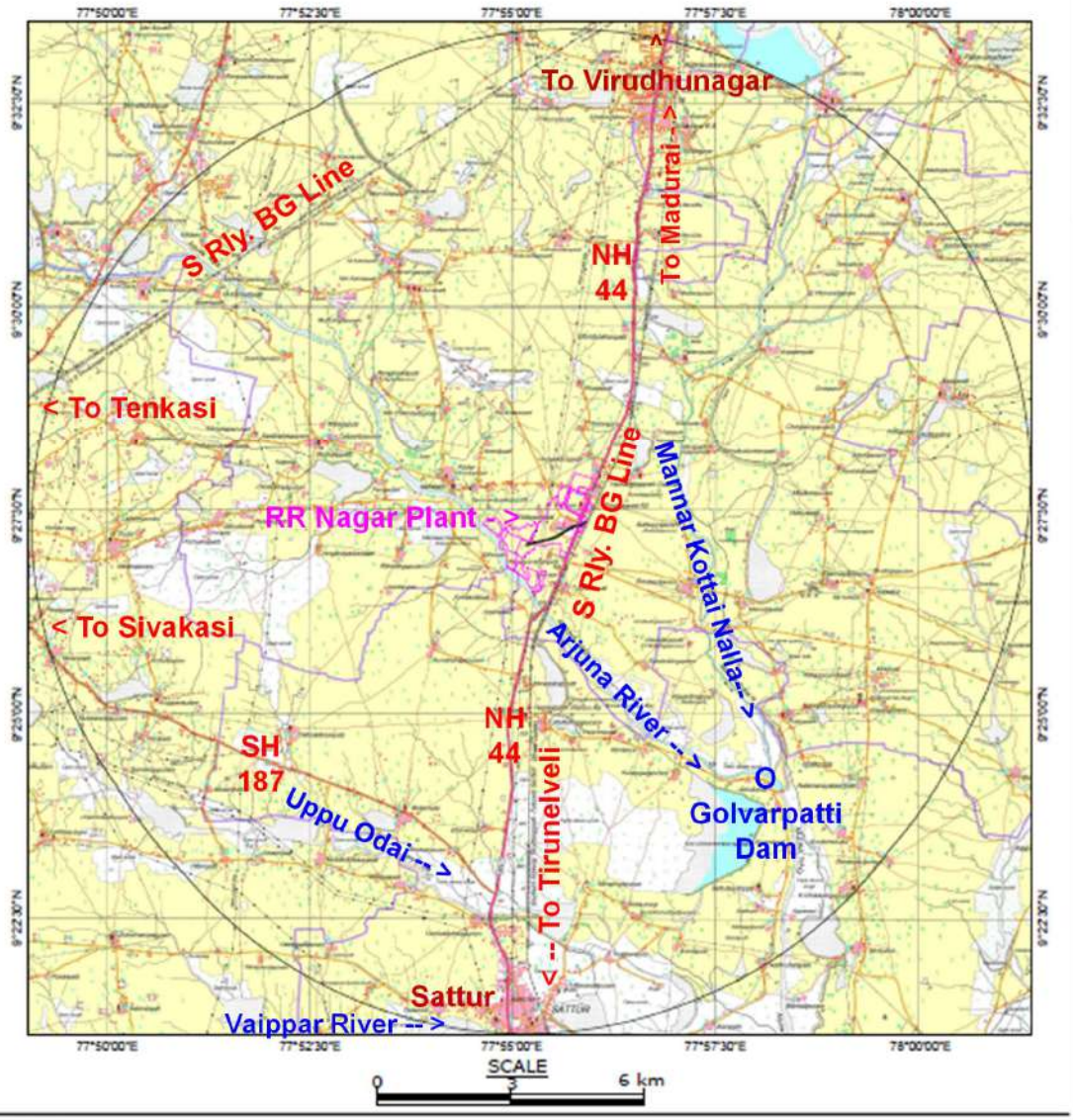
The Cement Plant is located at a distance of 15 km in south from District Head Quarters Virudhunagar. Sattur Town is at a distance of 7.5 km (south) and Sivakasi Town is at 11 km (west). NH-44 (earlier NH-7) (4-Lane Madurai-Kanniyakumari Section) and Southern Railway BG Line (Chennai-Madurai-Kanniyakumari Section) run parallel to the Plant. Madurai is the nearest Airport (50 km in north). Thoothukudi VOC Port is the nearest Port (80 km-southeast). State Headquarters Chennai is at 450 km in northeast from the Plant.

Plant area falls in Survey of India Topo Sheet No. **58 G/15** (Open Series Map-C43R15). Topo Sheet is given as **Fig. 2.1.** Plant Coordinates are:

North Latitude	:	09º26'26.80" to 09º27'55.00"
East Longitude	:	77º54'38.00" to 77º56'00.10".

There are **no Eco Sensitive Areas** like National Parks, Wildlife Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar Sites, Tiger/Elephant Reserves, Reserved Forests, Archaeological / Historical Monuments etc. (existing as well as proposed), within 10 km Study Area. There is **no perennial River** in the Region. **Seasonal Arjuna River** (0.3 km in south) and Mannarkottai Nalla (2.0 km-east) are flowing near the Plant. There is **no major Industry** in the Study Area other than RR Nagar Cement Plant & CPP and Fire Cracker Units.

Fig. : 2.1 Topo Map - 10 km Radius



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SITE BOUNDARY

Survey of India Topo Sheet No. 58 G/15

Plant Area Coordinates:-

North Latitude : 09°26'26.80" to 09°27'55.00"

East Longitude : 77°54'38.00" to 77°56'00.10"

No ESA/ESZ within 10 km Radius.

2.0 Project Description

2.1 Resource Requirements

Land : All Expansion activities i.e. **Line-II inclusion**, are proposed within the existing Premises and **no additional land** is required. **No establishment** is required for the Proposal. Proposed Layout is given as **Fig. 2.1**.

Total Builtup Area of the Complex is **61.266 Ha** (with Roof Top Area of 27.570 Ha) and Paved Area of **17.012 Ha**. The total Green Belt Area is **64.50 Ha** in the total extent of 191.434 Ha **with 33.69% coverage**. **No additional Green Belt** is required. **All internal roads** are designed for minimum **6 m width and 9 m turning radius** for smooth traffic flow inside the Unit including fire tender, as per NBC Norms.

Captive Mines Limestone Supply : For 2.76 MTPA Clinker production, Raw Meal requirement is 4.17 MTPA. Lime Kankar is blended with Limestone for Raw Meal preparation. Accordingly, **Limestone requirement is 1.794 MTPA @ 5,200 TPD & Lime Kankar requirement is 2.085 MTPA @ 6,050 TPD**. Existing Captive Limestone Mines in Pandalgudi Region have consented production quantity of **2.691 MTPA Limestone** of various grades. Likely, existing Captive Lime Kankar Quarries have consented production quantity of **3.914 MTPA ROM Kankar**. Thus, **existing supply/consented quantity** of Mines & Quarries **are adequate** for the proposed Expansion.

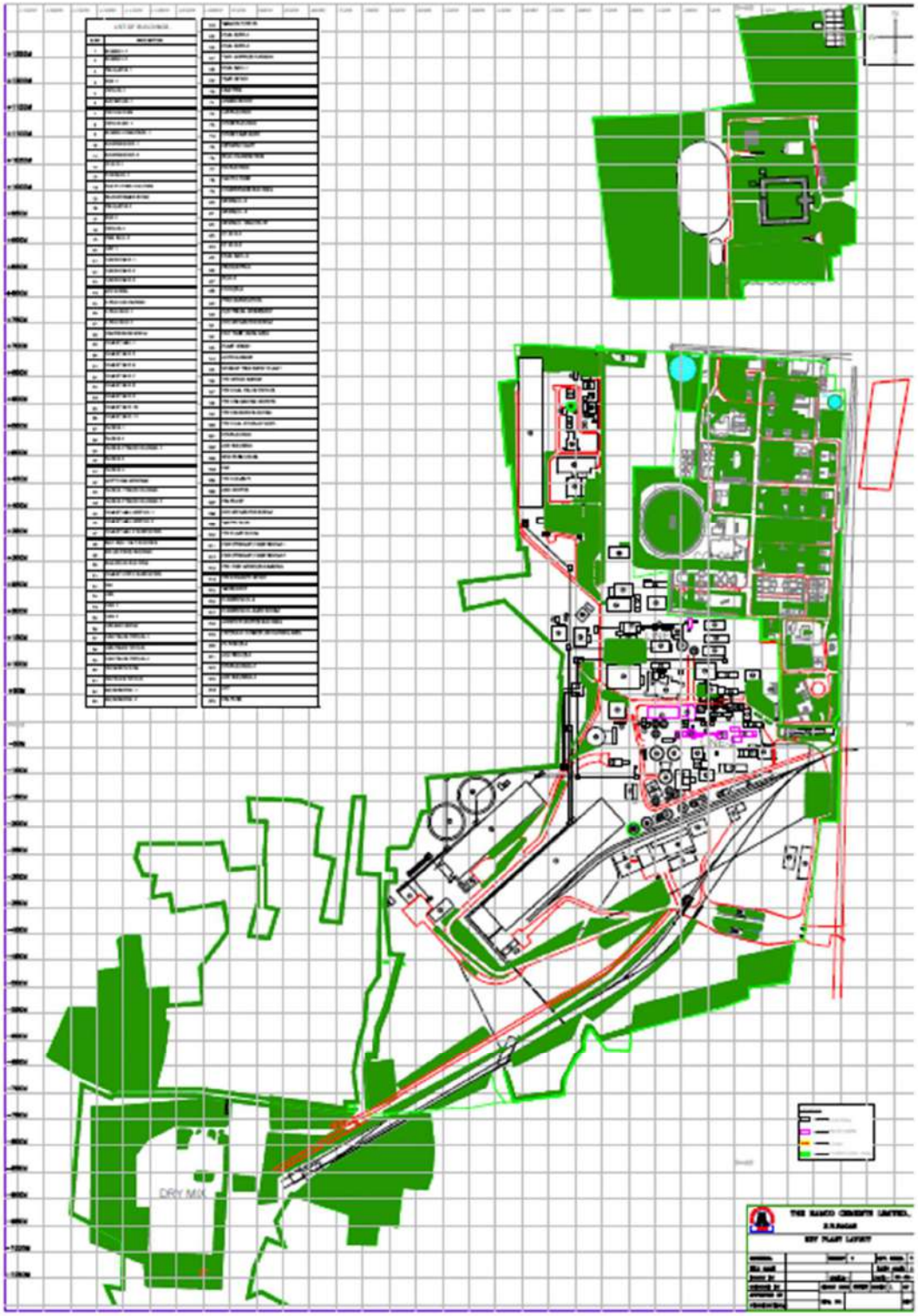
Water: Presently, the fresh water demand of the Cement Plant, CPP & Township is 1,000 KLD. **On Expansion, fresh water to the tune of 265 KLD is required** for WHRB Power Plant. Thus, total water demand will be **1,265 KLD which is well within the permitted drawl quantity of 1,500 KLD** from Arjuna River.

Fuel : Petcoke or Imported Coal is used as Fuel in the Kilns and the demand will be (i) 100% Petcoke-0.246 MTPA @ 715 TPD or 100% Imported Coal - 0.358@ 1040 TPD. There will be no change to existing demand of other fuels.

Power: The power demand of existing Plant operations and Township is 32.85 MW. Proposed Kiln-II operations will require additional Power Demand will be 7.65 MW and the total Power Demand will be 40.50 MW. In addition to 24.0 MW from CPP, 13.0 MW from WHRB Power Plant, 34.5 MW from TANGEDCO Grid) & wind power generated through RCL windmills (by wheeling within the State), **total 71.50 MW, are available** for the Plant operations.

Manpower : Presently, there are 465 Direct Employees working in the Cement Complex. Indirect Employment to about 600 persons has been provided. Due to the Expansion Proposal, **another 35 Direct Employees & 50 Indirect Employees will be added**.

Fig. : 2.1 Proposed Layout



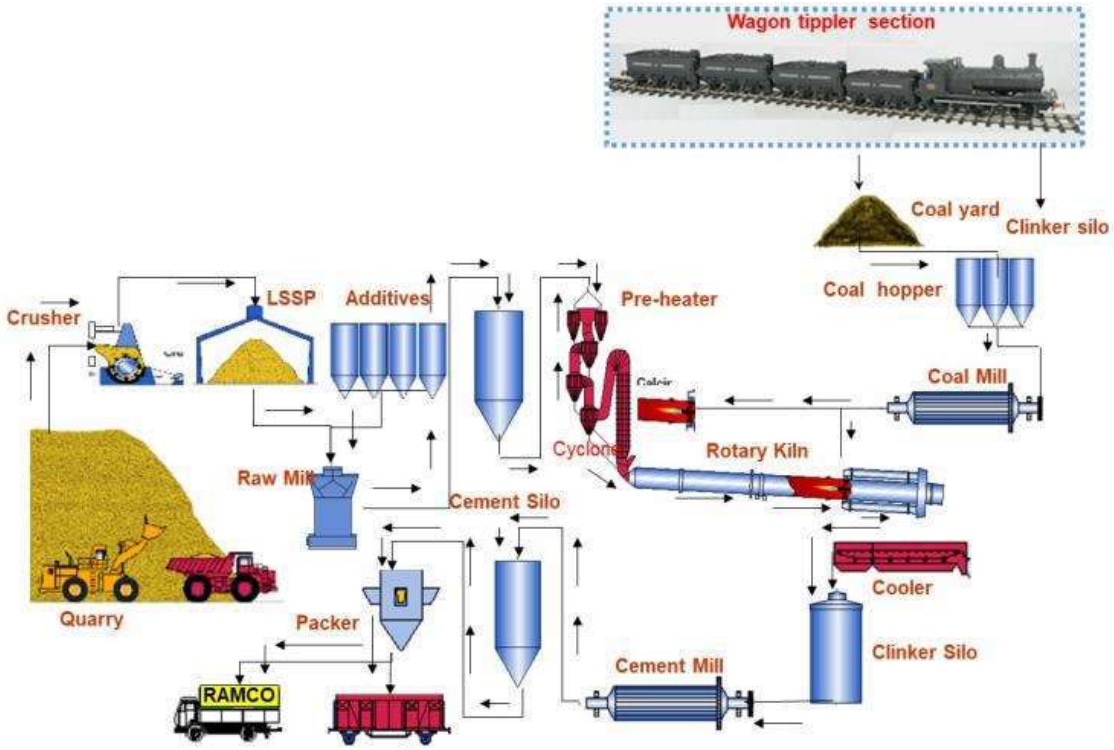
2.2 Operational Activity

Well established **Dry Process** utilising the Precalciner technology along with the technological advances in the area of grinding and homogenisation has been incorporated. General **Dry Process** Flow Chart is given as **Fig. 2.2**. The proportions for Raw Mix (average) are given below :

Raw Mix:

Limestone	:	43%
Lime Kankar	:	50%
Clay Chips & Roughstone	:	5%
Slag, Laterite, Iron Ore	:	2%
Clinkerisation Factor	:	1.512 (Raw meal to Clinker)
Fuel Consumption	:	9.28 % (100% Pet coke)
		13.62% (100% Imported coal)

Fig. : 2.2 General Process Flow Chart



Limestone & Lime Kankar along with other additives is metered in suitable proportions and sent to Raw Mill where the raw material is ground to the required size. The powdered Raw Meal is stored in the Raw Meal Silo. Belt bucket elevator is used to feed the raw material to Preheater Cyclones / Precalciner. The calcined material from the Preheater enters the Kiln and is subjected to physical and chemical changes to form Clinker. The hot molten Clinker is allowed to pass through a modern high efficient Clinker Cooler to cool it down to 150 °C. Cooled Clinker is then stored in Clinker Silos.

Clinker is then ground along with Gypsum, Slag, Fly Ash, Wet Fly Ash, PI, etc. to produce various grades of Cement. To pre grind the mill feed Clinker, Roller Press exists in the circuit. The Cement is then conveyed to the Silos through elevators. There are Electronic Packers with two discharges for automatic weighing and packing the cement in HDPE, Paper Bags and BOPP Bags. Facilities are available to dispatch Cement through Trucks as well as Rail Wagons to the Marketing Centres. Adequate **storage facilities** will be provided for the storage of raw materials & finished products. Material Balance for 2.76 MTPA Clinkerisation is given as **Fig. 2.3**. Material Balance for 4.00 MTPA PPC is given as **Fig. 2.4**.

Fig. : 2.3 Material Balance for 2.76 MTPA Clinker Production

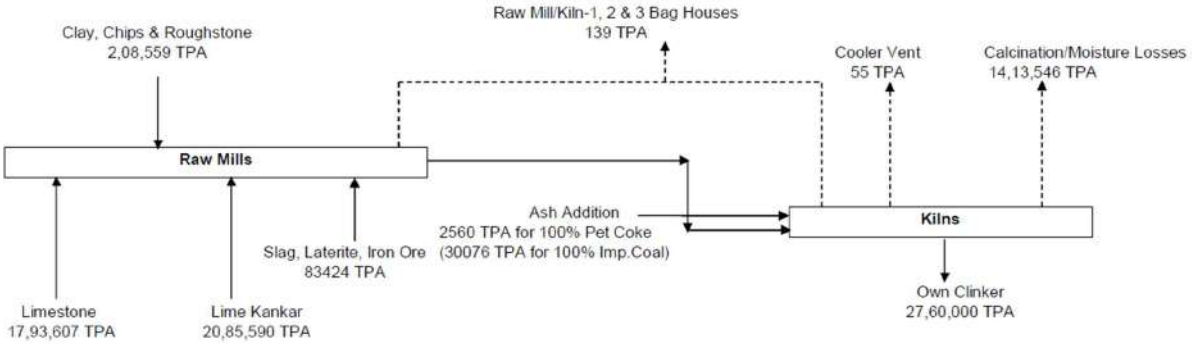
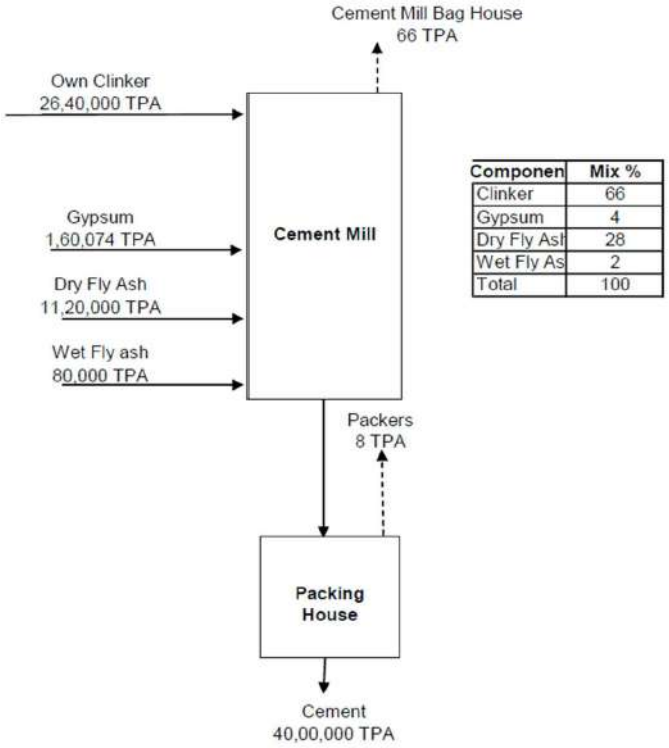


Fig. : 2.4 Material Balance for PPC Manufacturing



Componen	Mix %
Clinker	66
Gypsum	4
Dry Fly Ash	28
Wet Fly As	2
Total	100

WHR System : The waste heat recovery (WHR) system effectively utilizes the available waste heat from exit gases of pre-heater and clinker cooler. WHR system consists of Suspension pre-heater (SP) boiler, Air Quenching Chamber (AQC) boiler, steam turbine generator, distributed control system (DCS), water-circulation system and dust-removal system, etc. In Line-I, WHR Circuit installed in Year 2019 and generated steam is utilized in the CPP for power generation. Now, PH Boilers & AQC Boilers are proposed for Lines-II & III Kiln. Existing WHR Boilers of Line-I and proposed WHRBs for Lines II & III will be combined for producing about **13 MW by a dedicated Turbine Generator**.

On obtaining all Statutory approvals, the Plant can be operated for expansion quantity from 01.04.2025.

2.3 Key Pollution Concerns

Air Pollution : The (old) Line-II Kiln is already provided with Reverse Air Bag House, Cooler with ESP, Coal Mill with Bag Filters so as to control the **Particulate Emissions from the Line-II <30 mg/Nm^3**. All the Material conveyors are fully covered and provided with Bagfilters at Transfer Points. The Plant operations will be in compliance with new Emission Standards issued by MoEF&CC for Cement Industry vide Notifications dated 25.08.2014 and amended on 09.05.2016 & 10.05.2016 as below :

PM Emissions from all Major Stacks : <30 mg/Nm^3.
SO_2 Emissions from all Major Stacks : <100 mg/Nm^3 (pyritic Sulphur is <0.25%).
NOx Emissions from New Kiln-II : <600 mg/Nm^3.

All Main Stacks of Line-II are provided with **Online Monitors** and the **Real Time Emission Levels are connected** to TNPCB Care Air Centre & CPCB **Servers**.

Water Pollution : There is no trade effluent from the Cement Plant. Workshop washings of 4 KLD and 16 KLD Rejects from CPP are individually neutralized and the Treated Effluent of 20 KLD is taken to the Cement Plant for equipment cooling (where it is evaporated fully). **On Expansion**, DM/RO Rejects of 40 KLD, Boiler Bleed-offs of 8 KLD and Colling Tower Rejects of 12 KLD, total **60 KLD effluent will be generated** additionally which will be treated for pH Correction in a **100 KLD Neutralisation Pit separately** and **Treated Effluent of 60 KLD** will be utilized for Equipment Cooling of (old) Line-II machineries where it will be evaporated fully.

Domestic Sewage & Canteen wastewaters of 25 KLD from the Cement Plant, 9 KLD Domestic Sewage from CPP, 160 KLD Domestic Sewage from the Township and another 86 KLD Domestic Sewage from Labour Qtrs., thus, a total of 280 KLD is generated. All the Domestic Sewage is treated in a **400 KLD Sewage Treatment Plants (350+50 KLD STPs)**. The Treated Sewage of 250 KLD is fully used for the Green Belt development. There will be **no change to existing status on Expansion**. Thus, it will be a '**Zero Effluent Discharge**' Plant.

Solid/Hazardous Wastes : The solid waste generated from the process and dust collected from various air pollution control equipment is being recycled in the process. Solid waste from the Sewage treatment plant 0.8 @ TPD is vermi-composted and used as manure for Green belt development. Fly ash (29.3 TPD) produced from CPP and Bottom ash (5.2 TPD) are transported pneumatically with the help of dense phase pneumatic pumps to the RCC storage silos. The ash is evacuated from silo and transported to Cement Plant for PPC manufacturing. The Plant has obtained **Hazardous Wastes Authorisation** from TNPCB vide No. 23HPC42009117 dated 07.06.2023 with validity till 31.03.2028 to handle 94.62 TPA used/Spent Oil (Category 5.1) from the Plant. There **will not be any change to the existing Status** of Solid Waste Generation, Treatment and Disposal from the Complex on Expansion.

3.0 Baseline Environmental Studies

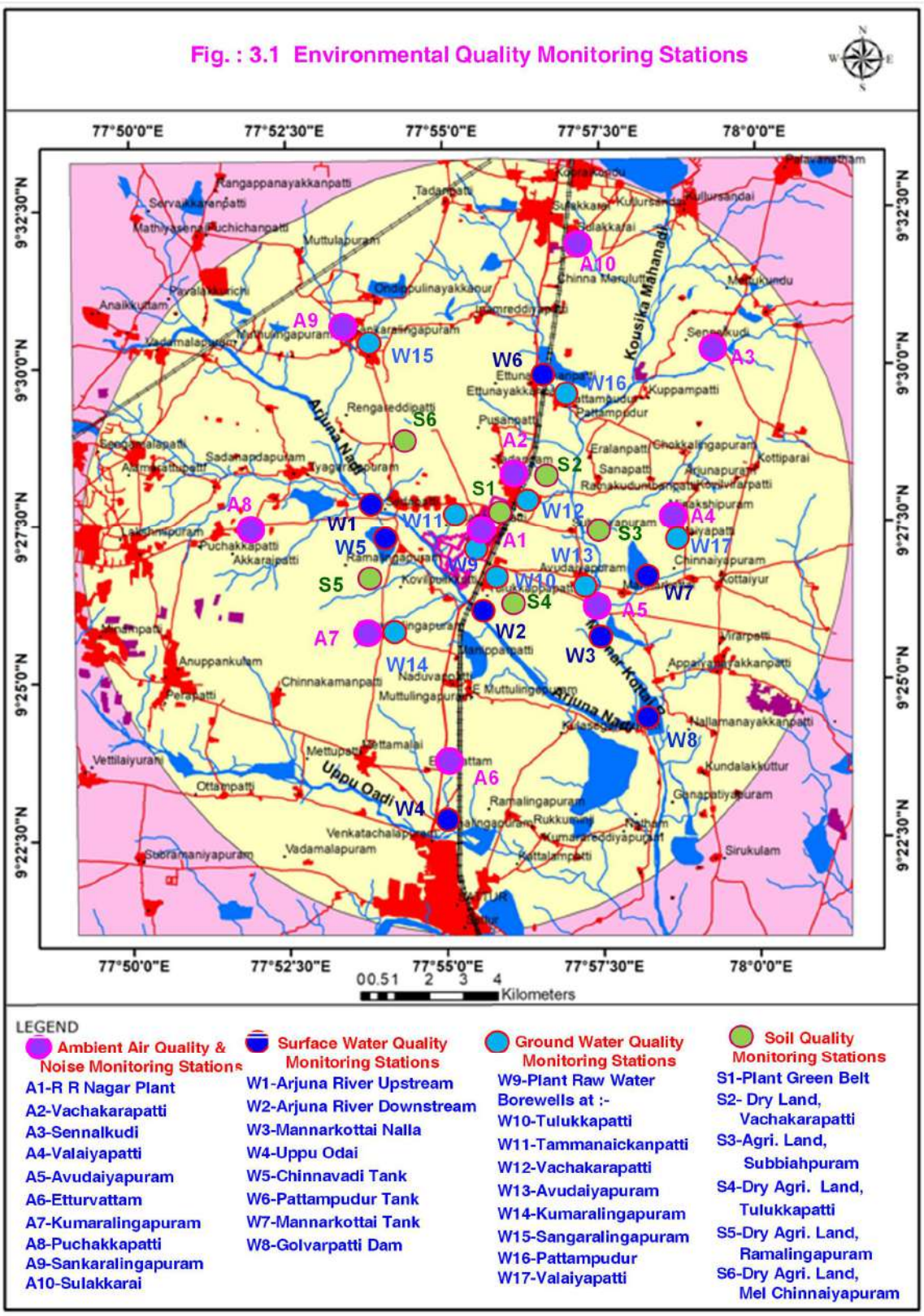
Project **Area dose not fall in Critically Polluted Industrial Clusters** listed by CPCB or CRZ Area. The study area of 10 km radius from boundary has been considered (**Fig. 3.1**) for assessing the baseline environmental status-**Cumulatively**. Considering the Environmental setting of the project, project activities and their interaction, environmental regulations and Standards, following Environmental Attributes have been included in EIA Study :

- **Site specific Micro-meteorological Data** from Plant Area for the Season, **on hourly basis continuously**, on wind speed, wind direction (wind roses), temperature, humidity, cloud cover, atmospheric pressure and rainfall.
- **Ambient Air Quality Monitoring** at **10 locations** on 24-hourly basis, continuously for 2 days in a week for 4 weeks in a month for 3 months in the season for all 12 parameters as per Revised NAAQ Norms.
- Noise Level Measurements at **10 locations** (air quality monitoring stations) for Leq, Lday and Lnight values once in the season.
- Water Quality Monitoring – grab sampling of Surface Water (**8 locations**) and Ground Water including Plant Raw Water (**9 Locations**) - once in the Season.
- Soil Quality Monitoring at **6 locations** once in the Season for Textural & Physical Parameters, Nutrients, etc.
- **Land Use Pattern** based on recent available Satellite Imagery.
- Biotic Attributes for : **Flora & Fauna** in Core & Buffer Zones.
- **Socio-Economic** Profile, based on 2011-Census and **Need Based Assessment**, once in the study period for: Total Population / Household Size, Gender Composition, SC / ST Population, Literacy Levels, Occupational Structure, etc.

The summary of baseline status is given in **Table 3.1**.

There is **adequate buffer** for the proposed Project in the physical, biological and edaphic environments of the study area.

Fig. : 3.1 Environmental Quality Monitoring Stations



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Ambient Air Quality & Noise Monitoring Stations
- A1-R R Nagar Plant
- A2-Vachakarapatti
- A3-Sennalkudi
- A4-Valaiyapatti
- A5-Avudaiyapuram
- A6-Etturvattam
- A7-Kumaralingapuram
- A8-Puchakkapatti
- A9-Sankaralingapuram
- A10-Sulakkarai

Surface Water Quality Monitoring Stations
- W1-Arjuna River Upstream
- W2-Arjuna River Downstream
- W3-Mannarkottai Nalla
- W4-Uppu Odai
- W5-Chinnavadi Tank
- W6-Pattampudur Tank
- W7-Mannarkottai Tank
- W8-Golvarpatti Dam

Ground Water Quality Monitoring Stations
- W9-Plant Raw Water Borewells at :-
- W10-Tulukkapatti
- W11-Tammanaickanpatti
- W12-Vachakarapatti
- W13-Avudaiyapuram
- W14-Kumaralingapuram
- W15-Sangaralingapuram
- W16-Pattampudur
- W17-Valaiyapatti

Soil Quality Monitoring Stations
- S1-Plant Green Belt
- S2- Dry Land, Vachakarapatti
- S3-Agri. Land, Subbiahpuram
- S4-Dry Agri. Land, Tulukkapatti
- S5-Dry Agri. Land, Ramalingapuram
- S6-Dry Agri. Land, Mel Chinnaiyapuram

Table : 3.1 Environmental Baseline Status

Envl. Component	Main Parameters	Minimum	Maximum	Mean	Desirable Norms
Ambient Air Quality, ug/m^3	PM2.5	10	38	**21.7**	**60**
	PM10	13	65	**39.0**	**100**
	SO_2	6	24	**12.0**	**80**
	NOx	7	27	**14.5**	**80**
Ambient Noise, dB(A)	Leq-Day	41.5	48.1	**43.5**	**55**
	Leq-Night	40.1	44.7	**41.4**	**45**
Surface Waters	TDS, mg/l	310	560	-	**500/2100**
Ground Waters	TDS, mg/l	360	520	-	**500-2000**
Soil Status	EC, mmhos/cm	0.92	1.45	-	**0.2-0.5**
	SAR	2.16	5.51	-	**<5**

Legend : PM2.5-Particulate Matter size less than 2.5 um; PM10- Particulate Matter size less than 10 um; SO_2-Sulphur dioxide; NOx-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.

3.1 Ambient Air Quality

Micrometeorology : During the **Premonsoon Season (Jul.-Sep. 2024),** predominant winds were from W/WSW/WNW directions and mean Wind velocity was 6.4 kmph. Temperature values were ranging from 24.0 °C to 40.0 °C with mean value of 30.8 °C. Mean maximum relative humidity value was 62.7%. Mean atmospheric pressure value was computed as 757.0 mm of mercury. There were 11 rainy days with total rainfall of 14.5 mm on this Premonsoon Period. The monitored meteorological data were found to be in compliance with local weather phenomena.

Ambient Air Quality : All **12 AAQ parameters** (**24/8/1 hourly basis**) were monitored in compliance with NAAQ Norms. During the study, each **240 samples** were collected, analysed and reported.

Particulate Matter size less than 2.5 um-**PM2.5** values (24 hours Time Weighted) were monitored in the range between 10-38 **microgram/cu.m (ug/m^3)** in the Study Area with a **mean value of 21.7 ug/m^3** against NAAQ Norm value of **60 ug/m^3** (24 hours Time Weighted).

Particulate Matter size less than 10 um-**PM10** values were monitored in the range between 13-65 ug/m^3 with a **mean value of 39.0 ug/m^3** against NAAQ Norm value of **100 ug/m^3** (24 hours Time Weighted).

SO_2 values were monitored in the range between 6-24 ug/m^3 with a **mean value of 11.4 ug/m^3** against NAAQ limit value of **80 ug/m^3** (24 hours Time Weighted).

NOx values were monitored in the range between 7-27 ug/m^3 with a **mean value of 13.9 ug/m^3** against NAAQ limit value of **80 ug/m^3** (24 hours Time Weighted).

O_3 concentrations (**hourly samples reported for 8-hour average**) were monitored in the range between 10-35.4 ug/m^3 with a **mean value of 15.1 ug/m^3** against NAAQ limit value of 100 ug/m^3 (8 hours Time Weighted).

NH_3-Ammonia; CO-Carbon monoxide; Pb-Particulate Lead; As-Particulate Arsenic; Ni-Particulate Nickel; C_6H_6-Benzene and BaP-Benzo (a) pyrene in particulate phase levels were monitored below respective detectable limits.

While comparing with the National Ambient Air Quality (NAAQ) Standards revised as per GSR 826(E) dated 16.11.2009, **all monitored values were found to be well within the respective limit values for 24-hourly periods** for Industrial, Residential, Rural and other Areas.

3.2 Ambient Noise Levels

Ambient Noise Levels were ranging from 32.6 dB(A) to 97.3 dB(A) during day times and from 32.0 dB(A) to 98.6 dB(A) during night times on the monitoring days. Day Equivalent Noise (Leq-d) level was found to be 43.5 dB(A) and Night Equivalent Noise (Leq-n) level was 41.4 dB(A). While comparing with the MoEF&CC Leq Norms for day and night times, the monitored **ambient noise levels were well within the limit values** for their respective Category Area.

3.3 Traffic Study

For assessing the baseline status, the Traffic Survey based on Indian Road Congress-IRC: 64/106 Norms were carried out at Mukku Road Junction on NH-44 during a Week Day (Wednesday; 28.08.2024) and also during the Week end (Sunday; 01.09.2024). Based on the Survey, existing Traffic Volumes at the Junction is computed in Passenger Car Units (PCUs). The existing traffic volume in the Project vicinity was found to be **16,510.3 PCU/day**.

3.4 Surface Water Quality

The **surface water** samples were monitored with pH in the range 7.58-7.88 against the Limit value of 6.5-8.5. DO levels were in the range 4.0-4.8 mg/l against the minimum requirement value of 4.0-6.0 mg/l for Surface Waters. While EC values were in the range 470-880, TDS values were monitored in the range of 310-560 mg/l against the Limit values of 500/2100 mg/l. Chloride values ranging from 82 mg/l to 116 mg/l. Iron content was found to be in the range 0.06-0.14 mg/l. Oil and grease, phenolic compounds, cyanides, sulphides and insecticides were found to be absent. Trace metals were found to be in traceable levels. BOD and COD values were found to be <2 mg/l and 2-10 mg/l respectively. The surface water quality was found to be within the prescribed CPCB Criteria for Surface Waters **Class-C** (Drinking Water Source after Conventional Treatment and Disinfection) Norms.

3.5 Ground Water Quality

The pH of the **ground water** samples were ranging from 7.51-7.81 against the BIS Norm of 6.5-8.5. While EC values were in the range 560-760, TDS values were monitored in the range 360-520 mg/l (Norm 500 mg/l or 2,000 mg/l in the absence of alternate source). Chloride values were found to be in the range 68-126 mg/l (Norm 250/1000 mg/l). Iron content was found to be in the range 0.06-0.11 mg/l. Oil & Grease, Cyanides, Phenols, Pesticides, etc. were found to be absent. Most of the trace metals were monitored to be below their detectable limits. In general, the water quality of ground waters were found to be within the prescribed IS:10500-2012 Norms for Drinking in the absence of an alternative source.

3.6 Soil Quality

Soils with medium compaction and Silty loam texture are dominant in the study area. Soil pH values were found to be in alkaline range (7.53-7.86) and Electrical Conductivity values were in the range 0.92-1.45 mmhos/cm. There was significant moisture content at all the monitoring locations. Significant levels of Nitrogen, Phosphorous and Potassium (NPK) values were monitored at all locations. Sodium Absorption Ratio was in the range 2.16-5.51 (desirable value being <5). There was **no heavy metals intrusion**/leaching into the ground strata. Wilting coefficient in significant levels would mean that these soils would support vegetation, if amended suitably.

3.7 Land Use

Fallow Land occupies the majority of the Study Area which is about 34.01%. Crop Lands occupy 17.41% of the study area Built-up lands occupy 5.05%. Water body occupies about 4.26% of the study area.

3.8 Biological Environment

There is **no Reserved Forests** within 10 km radius area. The Study Area is not part of any National Park, Sanctuary, Biosphere Reserve, Wildlife Corridors, Migratory Path, etc. The study area does not record the presence of any critically threatened species. Among the fauna recorded, most of them are common resident population and **no endangered species encountered** in the study area. **Peafowl placed under Schedule-I** as per Wild Life (Protection) Amendment Act, 2022 is found in the study area and its surroundings.

3.9 Socio-economic Environment

There are 39 Census villages and 5Census Towns in the study area of 10 km radius. In the study area of 10 km radius, there are 1,34,419 persons (66,910 Males-49.8% and 67,509 Females-50.2%) in 37,349 Households (HHs). As far as the population of Scheduled Castes and

Scheduled Tribes are concerned, there were 34,424 (23.4%) Scheduled Castes Population and 45 Scheduled Tribes (0.03%). In the total population, the Literate population was 92,914 (69.1%) whereas the illiterate population was 41,505 (30.9%).

Total Workers in the total population were about 77,044 (52.1%). About 64,375 (47.9%) persons were non-workers. About 41.7% of the people were engaged in tertiary activities which included different services. The workers in the primary activities (Cultivators) and the secondary activities (Agricultural Labourers) were 2.6% and 7.9% respectively.

Local people are frequently suffering from fever, asthma, diarrhea, etc. and no occupational related disease recorded.

Almost all villagers are aware about the Ramco Cement Plant & its Captive Mines in the region.

4.0 Anticipated Environmental Impacts

Any Project would create impact on the environment in two distinct phases viz. Construction Phase which may be regarded as temporary & short term and Operation Phase which would have long term effects. The impacts have been assessed for the Project by assuming that the **existing industrial activities has already been covered under baseline environmental status** and continue to remain same till the operation of the Project.

4.1 Construction Phase

Expansion activities are proposed within the Industry premises with no additional land & infrastructures. No. of Working days will be increased to 345 days to achieve the production enhancement with existing machineries. Thus, no major establishment is required for the Proposal. Structural Works for proposed WHR System will be main works during Construction Phase.

4.1.1 Impact on Land Use

All Expansion activities i.e. **Line-II inclusion**, are proposed within the existing Premises and **no additional land** is required. There will be no excavation or cut & fill during Construction Phase.

4.1.2 Impact on Road & Traffic

On an average, 2-3 Truck loads/day will be visiting the site and will not have any adverse impact to the existing traffic volume of NH-44.

4.1.3 Impact on Ambient Air Quality

The main sources of emission during the construction period are the movement of materials & equipments at site and dust emitted during the installation related activities. However, the impact will be for short duration and confined locally.

4.1.4 Impact on Noise Levels

There will be very less impact on the existing noise levels due to construction, traffic for loading and unloading, fabrication and handling of equipments & materials, etc. The likely increase of about 1-2 dB(A) in Leq Noise Levels will be confined locally.

4.1.5 Impact on Surface & Ground Water Quality

There is no ground water drawl for the Plant. The construction water requirement is nil. Impact on water quality during construction phase may be due to non-point discharge of sewage generated from construction workforce. Existing STPs are adequate to treat additional sewage.

4.1.6 Impact on Biological Environment

Project does not warrant any cutting or transplantation of trees. Existing Green Belt will control the Air Pollution & Noise Levels, if any, generated during Construction Phase. Thus, there will not be any significant impact on existing flora-fauna of the study area.

4.1.7 Impact on Socioeconomic Environment

There is no rehabilitation and resettlement involved in the project. Presently, there are 465 Direct Employees working in the Cement Complex. Indirect Employment to about 600 persons has been provided. Due to the Expansion Proposal, another 35 Direct Employees & 50 Indirect Employees will be added. This is a positive impact due to the Proposal.

Thus, the Construction Phase activities will not cause any significant adverse impact on the surrounding areas.

4.2 Operation Phase

4.2.1 Impact on Air Quality

The (old) Line-II Kiln is already provided with Reverse Air Bag House, Cooler with ESP, Coal Mill with Bag Filters so as to control the **Particulate Emissions** from **Line-II <30 mg/Nm^3**. SO_2 Emissions from Kiln-II will be <100 mg/Nm^3 and NOx Emissions will be <600 mg/Nm^3. All material conveyors are fully covered and provided with Bagfilters at Transfer Points. The Plant operations will be in

compliance with new Emission Standards issued by MoEF&CC for Cement Industry vide Notifications dated 25.08.2014 and amended on 09.05.2016 & 10.05.2016.

SO_2 Control : The fuel sulfur will contribute for SO_2 generation. However, Pyro-process itself acts as an effective SO_2 scrubber and SO_2 emission will be reduced from the Kilns.

NOx Control : RCL is taking adequate measures to keep NOx at the minimum level. These measures include installation of low NOx Calciner, Low NOx Burner and usage of Alternate Fuel (AF). RCL is considering the use of AF including plastics and proposes to install upgraded processing and feeding system. Usage of AF would help to control NOx level further.

Prediction Modelling : **AERMOD View (9.6.5 Version)** is used for Prediction Modelling for applicable Parameters **PM2.5, PM10, SO_2 & NOx (CO levels were below BDL)**. The **maximum incremental GLC** for PM2.5 is 0.42 ug/m^3, PM10 - 0.93 ug/m^3, SO_2 – 5.39 ug/m^3 & NOx 15.87 ug/m^3. There will be **adequate Buffer (60.07%-78.26%)** in the Air Environment for proposed Expansion activities. The cumulative impacts were found to be confined locally i.e. within 1.0 km radius from the Plant boundaries.

4.2.2 Impact on Ambient Noise Quality

The noise level within the plant at a distance of one meter from the source will be maintained at <85 db(A) level for 8-hours exposure. Noise level at nearest plant boundary will be <55 dB(A) during day times and <45 dB(A) during night times. Thus, the noise levels will be well within the permissible MoEF&CC Norms for Residential Areas.

4.2.3 Impact on Traffic Volume

Raw and Finished Materials are being transported by **both Rail and Road Modes**. Limestone from Captive Mines & Primary Crusher at Pandalgudi is transported by 30 Tons Tippers through RCL's dedicated transportation road. There are 525 Truck movements in one way i.e. 1,050 Trucks/day now. On Expansion, 1,166 Truck movements in one way i.e. **2,332 Trucks/day** will be there. Thus, there will be **1,282 Trucks/day** additional traffic volume due to the Proposal.

The existing traffic volume in the Project vicinity was found to be **16,510.3 PCU/day**. In the Post-Project Scenario, there will be an addition of **2,332 Vehicles** (in 2 ways) to the existing traffic. Cumulatively, the traffic volume in the Project vicinity on Expansion will be **19,764 PCU/day**. **The net increase (cumulative) will be 3,254 PCU/day only**. The existing Roads/NHs are adequate to handle the proposed traffic volume due to the Project.

4.2.4 Impact on Surface Waters Resource and Quality

Presently, the fresh water demand of the Cement Plant, CPP & Township is 1,000 KLD. The Unit has been **permitted for the drawl of 1,500 KLD** from the nearby Seasonal Arjuna River. There is an Intake Well in the River Basin for tapping the required water. **On Expansion, fresh water to the tune of 265 KLD is required** for WHRB Power Plant. Thus, total water demand will be **1,265 KLD which is well within the permitted drawl quantity of 1,500 KLD** from Arjuna River.

Also, treated sewage of 250 KLD, treated Effluent of 20 KLD from CPP and harvested Rainwater of 230 KLD, in total 500 KLD, are supplementing the raw water demand of the Complex.

4.2.5 Impact on Ground Waters Resource and Quality

There is **no ground water drawl for the Plant**. There is no trade effluent from the Cement Plant. Workshop washings of 4 KLD and 16 KLD Rejects from CPP are individually neutralized and the Treated Effluent of 20 KLD is taken to the Cement Plant for equipment cooling (where it is evaporated fully). **On Expansion**, DM/RO Rejects of 40 KLD, Boiler Bleed-offs of 8 KLD and Colling Tower Rejects of 12 KLD, total **60 KLD effluent will be generated** additionally which will be treated for pH Correction in a **100 KLD Neutralisation Pit separately** and **Treated Effluent of 60 KLD** will be utilized for Equipment Cooling of (old) Line-II machineries where it will be evaporated fully.

Domestic Sewage & Canteen wastewaters of 25 KLD from the Cement Plant, 9 KLD Domestic Sewage from CPP, 160 KLD Domestic Sewage from the Township and another 86 KLD Domestic Sewage from Labour Qtrs., thus, a total of 280 KLD is generated. All the Domestic Sewage is treated in a **400 KLD Sewage Treatment Plants (350+50 KLD STPs)**. The Treated Sewage of 250 KLD is fully used for the Green Belt development. There will be **no change to existing status on Expansion**. Thus, it will be a **'Zero Effluent Discharge'** Plant.

4.2.6 Impact on Solid Wastes

The solid waste generated from the process and dust collected from various air pollution control equipment is being recycled in the process. Solid waste from the Sewage treatment plant 0.8 @ TPD is vermi-composted and used as manure for Green belt development. Fly ash (29.3 TPD) produced from CPP and Bottom ash (5.2 TPD) are transported pneumatically with the help of dense phase pneumatic pumps to the RCC storage silos. The ash is evacuated from silo and transported to Cement Plant for Portland Pozzolana Cement (PPC) manufacturing. There **will not be any change to the existing Status** of Solid Waste Generation, Treatment and Disposal from the Complex on Expansion.

4.2.7 Impact on Terrestrial and Aquatic Habitat

The plant will not have any significant impact on surrounding ecology and biodiversity. About 33% green belt has been developed and maintained in the Complex. The approved **budget for Peafowl Conservation Plan @ Rs.1.00 Lakhs/annum** is being spent for Habitat improvement, Community participation in Conservation, etc. No waste water will be discharged outside Plant boundary as well as no natural water course will be disturbed. Therefore, impact on aquatic habitat is not envisaged.

RCL has contributed Rs.75.00 Lakhs to the Director, **Srivilliputtur-Megamalai Tiger Reserve**, Srivilliputtur vide (i) Indian Bank, RR Nagar Brach DD bearing No. 560840 dated 05.09.2023 for Rs.25,00,000/-, (ii) DD bearing No. 560847 dated 12.09.2023 for Rs.30,00,000/- & (iii) DD bearing No. No. 560848 dated 12.09.2023 for Rs.20,00,000/- and all their receipts were acknowledged by its Dy. Director, Srivilliputtur-Megamalai Tiger Reserve Letters dated 20.10.2023.

4.2.8 Impact on Socio-economic Environment

The plant is significantly contributing revenue to the State & Central Govt. exchequers. As per the Companies Act 2013, Companies should spend at least 2% of the Profit after Tax of the previous year for the CSR activities but not lower than 2% of average of previous three years Profit after Tax. RCL is presently carrying out various Socio Measures for the local as well as regional populations. RCL **has implemented CER proposed** for addressing PH issues during 2021-22 to 2023-24 (I Half) at a cost of **Rs.24.00 Crores**. In addition, during the II Half of 2023-24, RCL has carried out various **CSR activities to the tune of Rs.2.18 Crores**.

As a CSR initiative, **RCL contributed Rs.66,40,000/-** vide Indian Bank, RR Nagar Brach DD bearing No. 560710 dated 03.05.2023 to the District Collector / Chairman, District Rural Development Agency for providing **1500 'Nutrition Kit' under 'Irumbu Penmani (Iron Lady) Scheme'** for Govt. School Girl Students in Virudhunagar District.

4.2.9 Impact on Occupational Health

The Upgraded **Occupational Health Centre** (OHC) for In & Out Patients Treatment with Emergency Care, Ambulance, etc. (Medical Officer with MBBS, DIH qualification) has all the Facilities to take care any emergency. Periodic medical checkups are carried out to determine the employee's current health status. Any deviations are investigated and appropriate preventive and remedial measures are suggested. Records of these examinations are maintained at the OHC. Tie-ups with Tertiary Health Care Referral Centres ensure that the best possible care is provided in case of any emergency.

5.0 Alternative Analysis

The proposal is proposed within the Industrial Complex. Therefore, alternative site selection is not required. Various cleaner production practices are initiated to control air emissions as well as fugitive emissions from various sources. Alternative Fuels are being utilised in the Kilns. Combustible wastes such as plastics, paper and cloths are segregated separately and sent to kiln for co-processing.

6.0 Environmental Monitoring Programme

6.1 Ambient Air, Noise, Water & Soil Quality

Periodical monitoring of the ambient air quality as per Revised NAAQ Norms, fugitive emissions, stack emissions, noise levels (at boundaries), water (once in a season) and soil quality (once in a season) shall be undertaken. The periodical status reports shall be submitted to TNPCB monthly, and Integrated Regional Office, MoEF&CC-Chennai as Half Yearly Status Reports.

6.2 Noise Quality Management Plan

The noise level within the plant at a distance of one meter from the source will be maintained at <85 db(A) level for 8-hours exposure. Noise level at nearest plant boundary will be <55 dB(A) during day times and <45 dB(A) during night times. Thus, the noise levels will be well within the permissible MoEF&CC Norms for Residential Areas.

6.3 Emission & Discharge from the Plant

Continuous online stack monitoring equipment/systems for PM, SO_2 and NOx are installed at all main stacks and the online real time monitoring data are being transmitted to SPCB & CPCB servers continuously. **Four (4 Nos.) Continuous Ambient Air Quality Monitoring Stations** are installed in the Plant for transmission of real time monitoring data to CPCB & SPCB Servers round-the-clock. Data on Stack Emissions and Ambient Levels of PM2.5, PM10, SO_2 & NO_X are also displayed at the Main Gate for general public view.

Further Online Continuous Effluent Monitoring (CEM) System is installed in the STP and it is connected to the TNPCB Water Watch Centre.

6.4 Green Belt

Green Belt has been developed with 33% coverage @2500 Trees/Ha. Survival rate of green belt developed shall be monitored on periodic basis to ensure that damaged plants are replaced with new plants in the subsequent years.

6.5 Social Parameters

RCL has estimated the demand of infrastructure (Physical & Social) in the nearby area of the plant site and appropriate developmental activities will be undertaken under for various rural developmental programmes and initiatives for the up-liftment of the nearby communities from time to time.

7.0 Additional Studies

Risk Assessment : Detailed risk assessment and mitigative measures are delineated and an effective Disaster Management Plan, for natural and man-made disasters, is in place.

Public Consultation & Hearing : Adequate Budget will be allotted in **EMP Budget** for addressing Public Hearing issues for execution in 2 years period, in compliance with MoEF&CC OM F. No. 22-65/2017.IA.III dated 01.05.2018.

8.0 Project Benefits

Environmental Benefits : Plant Modernization & Expansion is necessary to increase the plant efficiency by adopting the state-of the-art technologies, machineries and operation of the Plant for optimum standards. WHRS will convert waste heat into productive use. Waste including Hazardous waste of industries, can be used as AFR in sustainable manner by co-processing in kiln. The numerous potential benefits possible through the use of hazardous and other wastes in cement manufacturing processes as AFR include: the recovery of the energy content of waste, conservation of non-renewable fossil fuels and natural resources, reduction of CO_2 emissions, and reduce the problem of disposal of HW and thus reduce contamination.

Social Benefits : There are 465 Direct Employees working in the Cement Complex. Indirect Employment to about 600 persons has been provided. Due to the Proposal, another 35 Direct Employees & 50 Indirect Employees will be added. Adequate Corporate Environmental Responsibility (**CER**) **Budget** will be allotted in compliance with MoEF&CC OM F. No. 22-65/2017.IA.III dated 01.05.2018.

Financial Benefits : The Project will bring **Rs.103.38 Crores** additional investment to the Region, improve the local and regional economy. Incremental GST of Rs. 117 Crores to the Government on this expansion of Cement production from 2.70 MTPA to 4.00 MTPA. Rs.20.25 Crores will be paid additionally to the Government for Minerals consumption on this expansion. This project will boost the economy of the area as well as generate direct & indirect employment opportunities resulting in overall development of the region.

9.0 Environmental Management Plan

An Environmental Management Plant (EMP) is formulated for mitigation of adverse impacts and is based on present environmental status and impact appraisal. It is mandatory to comply with the various regulatory Norms for Prevention and Control of Pollution. The following environmental management plans are proposed for mitigation of impacts on the environment :

9.1 Construction Phase

The following EMP measures shall be undertaken during the Expansion :

- PPE shall be provided to the workers.
- Construction employees shall have access to safe drinking water and to existing Toilet facilities.
- Protection devices viz. ear plugs/ear muffs shall be provided to the workers during welding works.
- All the debris resulting from the site shall be disposed off effective as per existing Norms.
- EMP Cell ensure the periodical Monitoring of Environmental Parameters during the Construction Period and ensure its compliance with Norms.

9.2 Operation Phase

9.2.1 Traffic Volume

Adequate parkings are provided in the Plant. Facilities for **drivers (rest room, toilet, etc.)** are also provided. Other Measures are :

- Green Belt with thick foliage along the Plant/Ore Haulage/Transportation roads.
- Security Guards at the Road Junction to handle the inward and outward vehicles from the Plant to the Highway.
- All Trucks are to be fully covered with Tarpaulin to avoid any spillage on transportation.
- Restriction of over loading of Trucks/Tippers.
- Speed restrictions
- Restriction of Truck parking in the Highway and Public Roads.
- Regular and preventive maintenance of transport vehicles has to be ensured.
- Compliance to ‘Pollution under Control’ Certification has to be checked periodically.

9.2.2 Air Quality Management Plan

RCL has installed adequate air pollution control systems viz. Electro statistic precipitators, Bag house, bag filters, etc. are installed in the stacks to control the emissions. Also, adequate dust collection and extraction systems are installed at various transfer points raw mill handling (unloading, conveying, transporting, stacking), vehicle movement, bagging and packing areas, etc.

- All efforts shall be undertaken to maintain the PM emission levels from the main stacks of Old Line-II New Kiln as <30 mg/Nm^3.
- NOx emission levels from Line-II with New Kiln shall be <600 mg/Nm^3.
- The periodical evaluation for the efficiency performance of ESPs and Bag Filters shall be carried out.
- Fugitive emissions due to storage, transportation, etc. and the leakages and spillages shall be continuously monitored and controlled.
- Thermal insulation is provided wherever necessary to minimize heat radiation from the equipment, piping, etc. to ensure protection of personnel.
- Periodical Ambient Air Quality and Stack Emissions shall be undertaken and the Status Reports shall be submitted to the Authorities as required.

9.2.3 Noise Quality Management Plan

- All rotating items are well lubricated and provided with enclosures as far as possible to reduce noise termination.
- Extensive vibration monitoring systems are provided to check and reduce vibrations.
- For all fans, compressors etc. vibration isolators are provided to reduce noise.
- Provision of silencers are made wherever possible.
- Proper lubrication and housekeeping are maintained.
- The operator provided with necessary safety and protection equipment like ear plugs, ear muffs etc.

9.2.4 Solid & Hazardous Waste Management Plan

- It should be ensured that there is no industrial solid waste from the Plants.
- The dust collected from APC Measures will be consumed in the Cement Plant fully.
- Solid wastes from STP Plant shall be vermi composted and used as manure for Green Belt.
- Waste Oil shall be collected and sold to the CPCB/TNPCB Authorised Agency for further treatment & disposal.
- The municipal wastes shall be collected, transported, treated in a landfill (composting) within the Plant vicinity to make use of it as manure for Green Belt.
- Redundant machinery or equipment scraps (1500 Tons/Annum) as and when generated, will be segregated, stored and sold to the Authorised Recyclers.
- Municipal solid waste generated from plant and will be disposed off after segregating into bio –degradable and non- biodegradable waste.
- Bio –degradable waste will be composted & will be used as manure in greenbelt development. Non-biodegradable waste will be disposed off suitably.
- Used Lead acid batteries will be generated which will be stored in the designated storage area and will be disposed off / sold to registered vendors as per prevalent rules.

9.2.5 Effluent Management Plan

- No ground water tapping for industrial use.
- Water consumption shall not be more than the consented quantity.
- No trade effluent shall be discharged from the Plant.
- Cooling water is put into closed circuit to minimize the evaporation losses.
- The domestic sewages from the Cement Plant, Power Plant and Township shall be treated effectively in the Sewage Treatment Plant so to meet the TNPCB Discharge Norms and the treated sewage shall be used for Green Belt.
- 'Zero Effluent Discharge' shall be practiced.
- No percolation of treated water to the deep ground water table is done.
- Periodical monitoring for specific parameters shall be done regularly.

9.2.6 Storm Water Management Plan

- **Surface Drainage Network** has been developed in the Complex. Surface Drains created are connected to Rain Water Harvesting Ponds in the Plant.
- RCL is harvesting Rain Water through Roof Tops, RWH Ponds with Recharge Mechanism. Roof Top Collections shall be directly stored and used as Raw Water for the Plant.
- Harvested water by surface drain shall also be utilized for the industrial needs so as to conserve the fresh water demand.

9.2.7 Biodiversity Plan

- Green Belt shall be maintained effectively.
- Local species and fruit bearing trees may also be developed to have a thick canopy cover.
- The treated sewage shall be used fully for the Green Belt development.
- There will be **ban on one time use and throw away Plastic usage** in the Plant in compliance with Tamil Nadu, Environment and Forests (EC-2) Department, G.O.(D) No. 84 dated 25.06.2018. RCL will encourage the use of eco friendly alternative such as banana leaf, areca nut palm plate, stainless steel glass, porcelain plates / cups, cloth bag, jute bag etc.

9.2.8 Green Belt Development Plan

Total Green Belt extent is 64.50 Ha (33.69% Coverage) with 1,61,250 Trees @ 2,500 Trees/Ha with Survival Rate @ 90% average. Predominantly, native plant species are preferred for Green Belt like Azadirachta indigo (Neem), Cassia siamea (Manjakondrai), Pongamia pinnata (Pungan), Albizia lebeck (Vagai), Samanea saman (Thoongumoonji), Holoptelia integrifolia (Arali), Tecoma stans (Thangarali), Cassia fistula (Sarakondrai), etc. Local women are engaged for the maintenance of Green Belt.

9.2.9 Occupational Health

- RCL shall provide a safety & healthy working conditions and continually improve the occupational health and safety performance.
- Its objectives shall be to achieve zero accident and safe work environment, to improve moral and health of all employees and to maintain the emission levels below the norms.
- RCL shall provide ergonomic support in work comfortness with periodical review.

9.2.10 Socio-economic Management Plan

- As per the Companies Act 2013, Companies should spend at least 2% of the Profit after Tax of the previous year for the CSR activities but not lower than 2% of average of previous three years Profit after Tax.
- RCL is presently carrying out various Socio Measures for the local as well as regional populations which shall be continued as per existing CSR Norms.

9.3 Project Cost & EMP Implementation Budget

The Project Cost of the existing Cement Plant Complex is Rs.894.00 Crores. A budget Rs.14.20 Crores is presently the EMP Capital Cost and Rs.3.90 Crores/annum is the EMP Recurring Cost. **For proposed Expansion**, with existing Line-II infrastructures and facilities, the Project Cost will be **additional Rs.103.38 Crores**. Thus, total Project Cost on this Expansion will be Rs.997.38 Crores.

A budget **Rs.1.00 Crores as EMP Capital Cost** and Rs.0.25 Crores/annum as EMP Recurring Cost are proposed additionally for the Expansion. Thus, total EMP Capital Budget will be Rs.15.20 Crores and EMP Operating Budget will be Rs.4.20 Crores per Annum.

The **Conservation Plan for Peafowl** duly approved with the Budget Provision of **Rs.1.00 Lakh/Annum** by the Wildlife Warden, Srivilliputtur is being implemented and continued.

Adequate Budget will be allotted in **EMP Budget** for addressing Public Hearing issues for execution in 2 years period, in compliance with MoEF&CC OM F. No. 22-65/2017.IA.III dated 01.05.2018.

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