PRE FEASIBILITY REPORT

For

EXPANSION OF CEMENT PLANT

With

INCREASE OF PRODUCTION
CLINKER: 1.5 to 4.0 Million Tonnes per Annum
CEMENT: 2.0 to 4.6 Million Tonnes per Annum
&
INCREASE OF WASTE HEAT RECOVERY
POWER PLANT: 10 MW to 20 MW

By

PENNA CEMENT INDUSTRIES LTD.,
Boyareddypalli Village, Yadiki Mandal, Anantapur District, Andhra Pradesh.

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1. EXECUTIVE SUMMARY

PENNA CEMENT INDUSTRIES LTD (PCIL)

Penna Cement is one of the largest privately held cement companies in India, with an installed cement capacity of 7 Million Tonnes Per Annum.

Founded in 1991, Penna Cement has established itself as one of the most trusted cement brands, with significant footprints in southern and western India. Our clientele ranges from small house owners to established real estate developers and from various state governments to global construction majors.

Over the last two decades, PCIL had grown organically by developing in-house expertise and capabilities, across the entire value chain in the cement industry. All PCIL cement plants are equipped with state-of-the-art technology, enabling the company to deliver the superior quality products.

PENNA CEMENT INDUSTRIES LTD (PCIL) is operating a Cement Plant with a Clinker production capacity of 1.5 Million Tonnes Per Annum (MTPA) at Boyareddypalli Village, Yadiki Mandal, Anantapur District, Andhra Pradesh.

Penna Cement manufactures a wide range of cement including Ordinary Portland Cement (OPC 53 grade and 43 grade), Portland Pozzolana Cement (PPC), Portland Slag Cement (PSC).

The limestone requirement of the cement plant is met from Gudipadu Limestone mine located at Gudipadu, Yadiki Mandal, Anantapur District, Andhra Pradesh.

PCIL received Environmental Clearance vide MOEF letter no. J-11011/351/2006-IA-II(1) dt 18-05-2007 (**Annexure-I)**

The current status of various units of **PCIL** along with installed production capacities are given below:

OVERVIEW OF PRODUCTION CAPACITIES OF PCIL

		Installed capacity MTPA
1	Clinker Production Capacity	1.50
2	Cement Production Capacity	2.00
3	Captive Limestone Mining	2.30

PCIL has obtained CFE and operating 10 MW Waste Heat Recovery power plant from APPCB and project in under installation stage. PCIL now proposes to increase clinker production capacity from 1.50 to 4.0 MTPA and cement production from 2.00 to 4.6 MTPA by enhancing the Unit-I production capacity from 1.5 to 1.65 MTPA and by installing a new line of 2.35 MTPA. With increase of clinker production capacity, the limestone requirement increases from 2.30 to 5.30 MTPA.

PCIL proposes to meet the additional limestone requirement from same captive limestone mining lease. The mining lease extends over an area of 392.62 Ha., in Gudipadu, Yadiki Mandal, Anantapur District, Andhra Pradesh.

The present proposal pertains to obtaining environmental clearance for expansion of the cement plant as per the following table:

PRODUCTION CAPACITY (MTPA)

Unit		**Present approved Capacity as per MoEF EC (MTPA)**		**Capacity after proposed expansion (MTPA)**	
		Clinker	**Cement**	**Clinker**	**Cement**
Cement Plant	Unit –I	1.5	2.0	1.65	2.0
	Unit –II (new unit)	-	-	2.35	2.6
	Total	**1.5**	**2.0**	**4.00**	**4.6**
Waste Heat Recovery based Power Plant, MW		**10**		**20**	

PCIL complex is located in an area of 60 Ha. The new unit will be located within the existing cement plant complex as shown in the Lay out plan.

PCIL cement plant is supported by their captive Limestone mines to meet the additional limestone requirement of proposed expansion. The

production capacity of limestone mines will be augmented. The proposal is being submitted to MoEF separately for necessary environmental clearance.

The present water requirement of the plant is 930 m^3/day and is sourced from borewells & mine pit within the plant site. Additional Water requirement for the proposal is 500 m^3/day which will be met from mines pit.

The project is based on Clinkerization factor of 1.50 on Raw Meal basis with specific heat consumption of 740 Kcal/ kg clinker.

There is no wild life sanctuary, national park, eco-sensitive area within the 10 km radius of the project site.

For transporting cement from the cement plant to the market and obtaining raw materials like coal, gypsum and other additives, well connected road and railway siding is available.

No additional quarter's construction is proposed.

No solid waste generation from the plant. Only Wastewater generated is only from domestic activities at cement plant and residential colony. A full-fledged sewage treatment plant (STP) is in operation designed for a maximum load of 250 m^3/day. Treated domestic wastewater is 100% reused for greenbelt development within PCIL cement plant complex.

Greenbelt is maintained in about 33 % of the total area.

The peak power consumption in the PCIL Cement plant complex including mine is 25 MW. Power requirement is met from grid. An additional power of 15 MW is required for the proposed expansion project. Totaling 40 MW. Internal Power generation from WHR will be 20MW. There will not be any additional power requirement.

Plant is expected to be commissioned in 18 months from date of commencement of construction

Total capital Investment Cost is Rs. 800 crores.

2.0 INTRODUCTION OF THE PROJECT/ BACKGROUND INFORMATION

i. IDENTIFICATION OF PROJECT AND PROJECT PROPONENT. IN CASE OF MINING PROJECT, A COPY OF MINING LEASE / LETTER OF INTENT SHOULD BE GIVEN.

PENNA CEMENT INDUSTRIES LTD (PCIL) is operating a Cement Plant with a Clinker production capacity of 1.5 Million Tonnes Per Annum (MTPA) & 10MW WHR Power Plant at Boyareddypalli Village, Yadiki Mandal, Anantapur District, Andhra Pradesh.

PCIL present installed capacity of cement plant is 1.5 million tonnes per annum (MTPA) of clinker and 2.0 MTPA of cement & 10MW WHR Power Plant. PCIL is manufacturing Ordinary Portland Cement (OPC), and Portland Pozzolana Cement (PPC).

To meet the increasing demand of cement, both in the domestic and international markets, PCIL is proposes to increase production of clinker capacity to 4.0 MTPA and cement production to 4.6 MTPA & 20MW Power.

ii) Brief description of nature of the project

The project is cement plant with present clinker production of 1.5 MTPA and cement of 2.0 MTPA. The proposal is for increase of clinker production to 4.0 MTPA and cement production capacity to 4.6 MTPA & 20MW Power.

iii) Need for the project and its importance to the country and or region.

The cement market has growth potential due to the central government liberalization policies and new schemes for housing, road projects. Cement demand growth is anticipated to be about 9 to 10% increase mainly through road projects (Golden Quadrilateral), Housing Projects (1.3 million houses in rural & 0.7 million in urban areas). Continuous demand for exports to China and other South-East Asian countries along with the increased requirement of the domestic sector have led all the cement manufacturers in the country to plan for increased capacities.

So with a view to capture growing opportunity demand, the management PCIL wants to take up the section wise capacity balancing and optimization. The proposed expansion will enable the company to maximize its profitability by optimum utilization of technology, manpower, present infrastructure and capital.

The cost of production will substantially reduce due to power efficient equipment, fuel, financial charges and other fixed overheads on account of large scale economics due to higher volume of production and sales.

It would also enable the company to withstand against the considerable competitive pressure from large-scale units in the country and also to create wider brand loyalty for the product.

The increase of production within the existing plant is based on the following considerations

- Proximity of the site to captive limestone mines and abundant availability of reserves.
- Market demand
- Availability of land – no further land is proposed to be acquired
- Availability of existing infrastructure.

Demand – supply Gap

Cement demand in India is expected to increase due to government's push for large infrastructure projects, leading to 45 million tonnes of cement needed in the next three to four years1.

India's cement demand is expected to reach 550-600 Million Tonnes Per Annum (MTPA) by 2025. The housing sector is the biggest demand driver of cement, accounting for about 67 per cent of the total consumption in India. The other major consumers of cement include infrastructure at 13 per cent, commercial construction at 11 per cent and industrial construction at nine per cent.

To meet the rise in demand, cement companies are expected to add 56 million tonnes (MT) capacity over the next three years. The cement

capacity in India may register a growth of eight per cent by next year end to 395 MT from the current level of 366 MT. It may increase further to 421 MT by the end of 2017. The country's per capita consumption stands at around 190 kg.

The Indian cement industry is dominated by a few companies. The top 20 cement companies account for almost 70 per cent of the total cement production of the country. A total of 188 large cement plants together account for 97 per cent of the total installed capacity in the country, with 365 small plants account for the rest. Of these large cement plants, 77 are located in the states of Andhra Pradesh, Rajasthan and Tamil Nadu & Telangana

v) Imports Vs. Indigenous production

India is self sufficient to meet the demands of the market with the GDP projected at 10 % in the coming decades and in view of the infrastructure.

The end product being cement, the importance of the project is detailed below with respect to cement demand.

India is self sufficient to meet the demands of the market with the GDP projected at 10% in the coming decades and in view of the infrastructure.

vi) Export possibility

No export of cement outside the country is planned.

vii) Domestic / export markets

The expansion of cement plant will meet the domestic markets demand.

viii) Employment generation (direct and indirect) due to the project.

100 additional employees are required.

3. PROJECT DESCRIPTION

i. Type of project including interlinked and interdependent projects, if any

The present proposal is setting up new kiln and by enhancing the present kiln production capacity, within existing Cement Plant area of PCIL located at Boyareddypalli Village, Yadiki Mandal, Anantapur District, Andhra Pradesh in area of 60 Ha.

To meet the limestone requirement of Cement Plant after proposed project, the existing mines' production will be enhanced.

ii. Location (map showing general location, specific location, and project boundary & project site layout) with co-ordinates.

The Cement plant is located near Boyirredipalli Village, Yadiki Mandal, Tadipatri Taluka, Ananthapur District of Andhra Pradesh. The site falls between A) 15° 3'35.20"N- 77°56'52.51"E B) 15° 3'51.44"N- 77°56'52.03"E C) 15° 3'52.10"N- 77°57'12.06"E D) 15° 3'35.82"N- 77°57'12.55"E North latitude and East Longitude with an average altitude of 276m above MSL. The area falls within Survey of India Toposheet no. 57/E/16 [1:50000 scale].

Fig-1 shows the location map of the Plant Site.

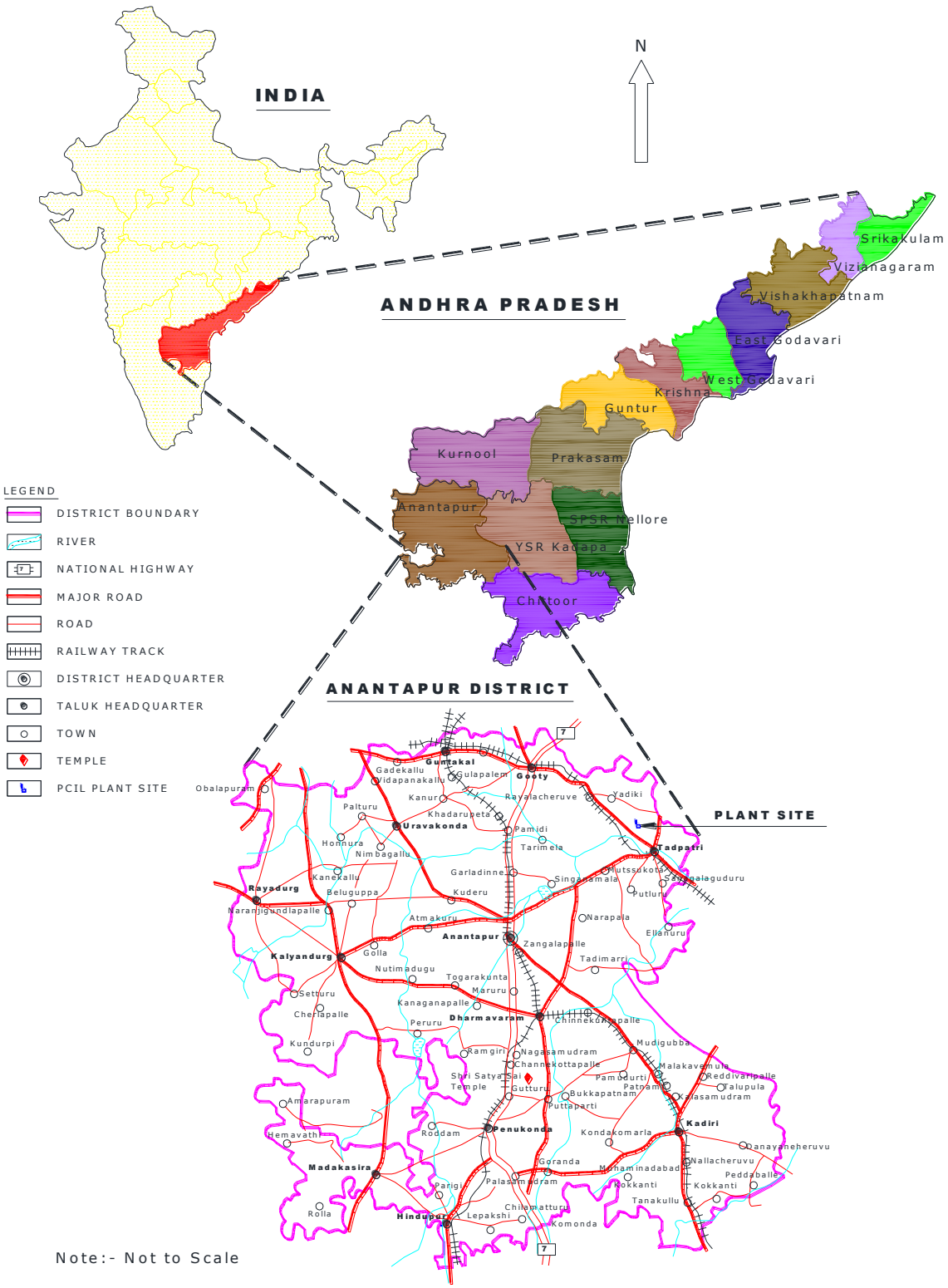
Nearest railway line connecting Rayalacheruvu - Tadipatri of South Central Railway line is located at a distance of 11.1 km to WSW direction from the site. Key map showing the location of various features around the Plant site is shows in **Fig – 2**. Tadipatri is major town is located at a distance of 17.8 km in SSE direction.

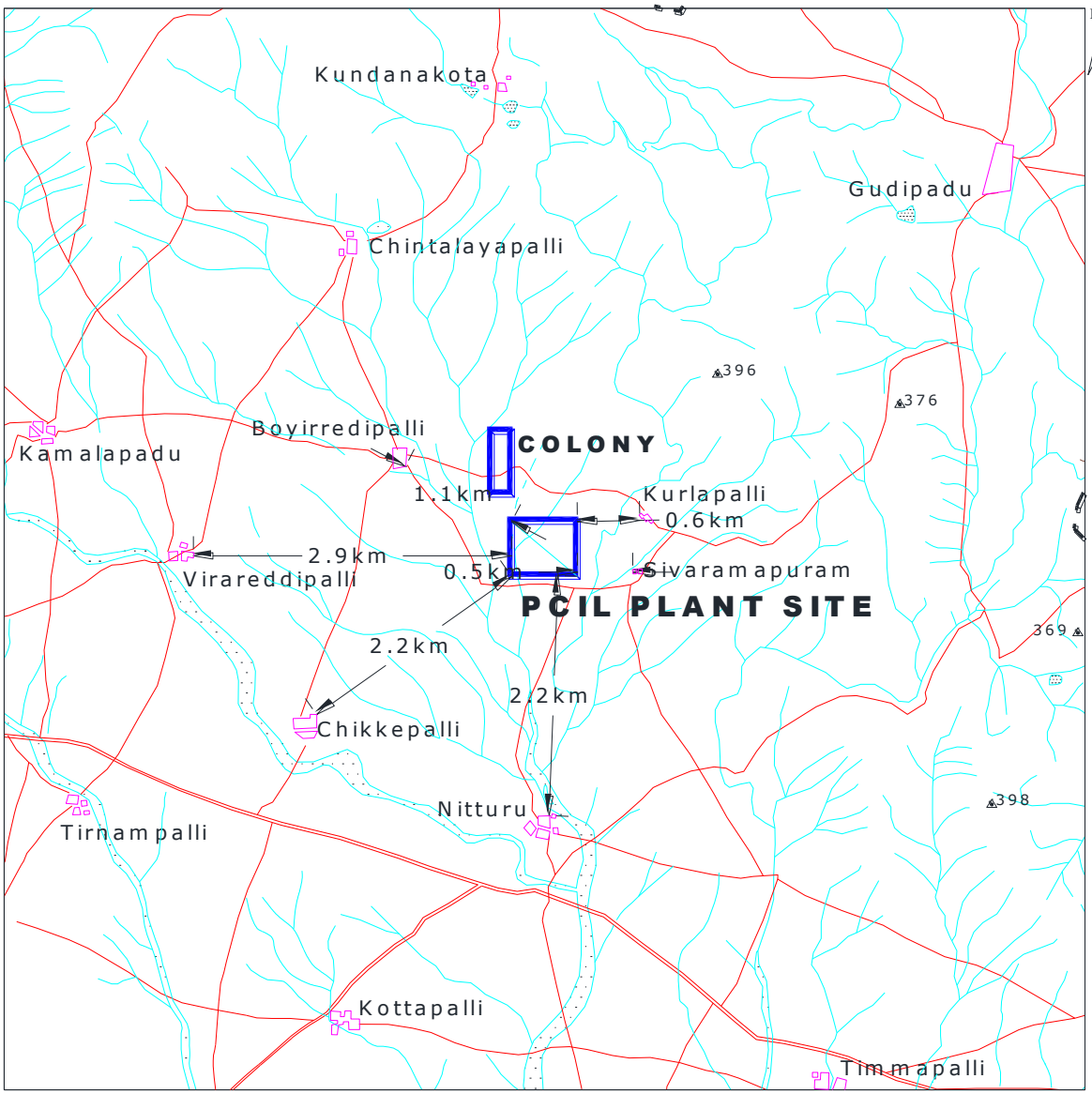
The National Highway (NH-44) connecting Dhone - Gooty is located at a distance of about 29.5 km in WNW direction. The State Highway (SH-57) connecting Bellary– Nellore is located at a distance of about 3.0 km in Southern direction.

The nearest railway station is located at Tadipatri which is 17.7 km in SSE direction.

FIG - 1

LOCATION MAP





LEGEND

- ROADS
- STREAMS / TANKS
- 396 SPOT HEIGHTS
- SETTLEMENTS
- DISTRICT BOUNDARY
- COLONY
- PCIL PLANT SITE

SCALE

0 1 2km

FIG - 2

CLIENT:
M/s. PENNA CEMENT INDUSTRIES LTD.,

PROJECT:
CEMENT PLANT
Boyireddypalli Village, Yadiki Mandal, Ananthapur District, Andhra Pradesh

TITLE:
KEY MAP

Prepared by
B.S.ENVI-TECH (P) LTD.,
SECUNDERABAD

Penneru River – 11.4 km – S and Maruna Vagu – 8.9 km – WSW are the nearest waterbodies in the 10 km radius of the plant site.

Yadiki RF is the Nearest Forests at a distance of 8.4 km in WNW dirsction. The Nearest Airport from the Plant site is Kadapa Airport – 106.1 km – SE

Due to availability of rich limestone deposits, major cement plants, which are located within 10 km are BMM Cements Limited – 3.0 km – ENE and Ultratech Cement – 7.5 km – SE

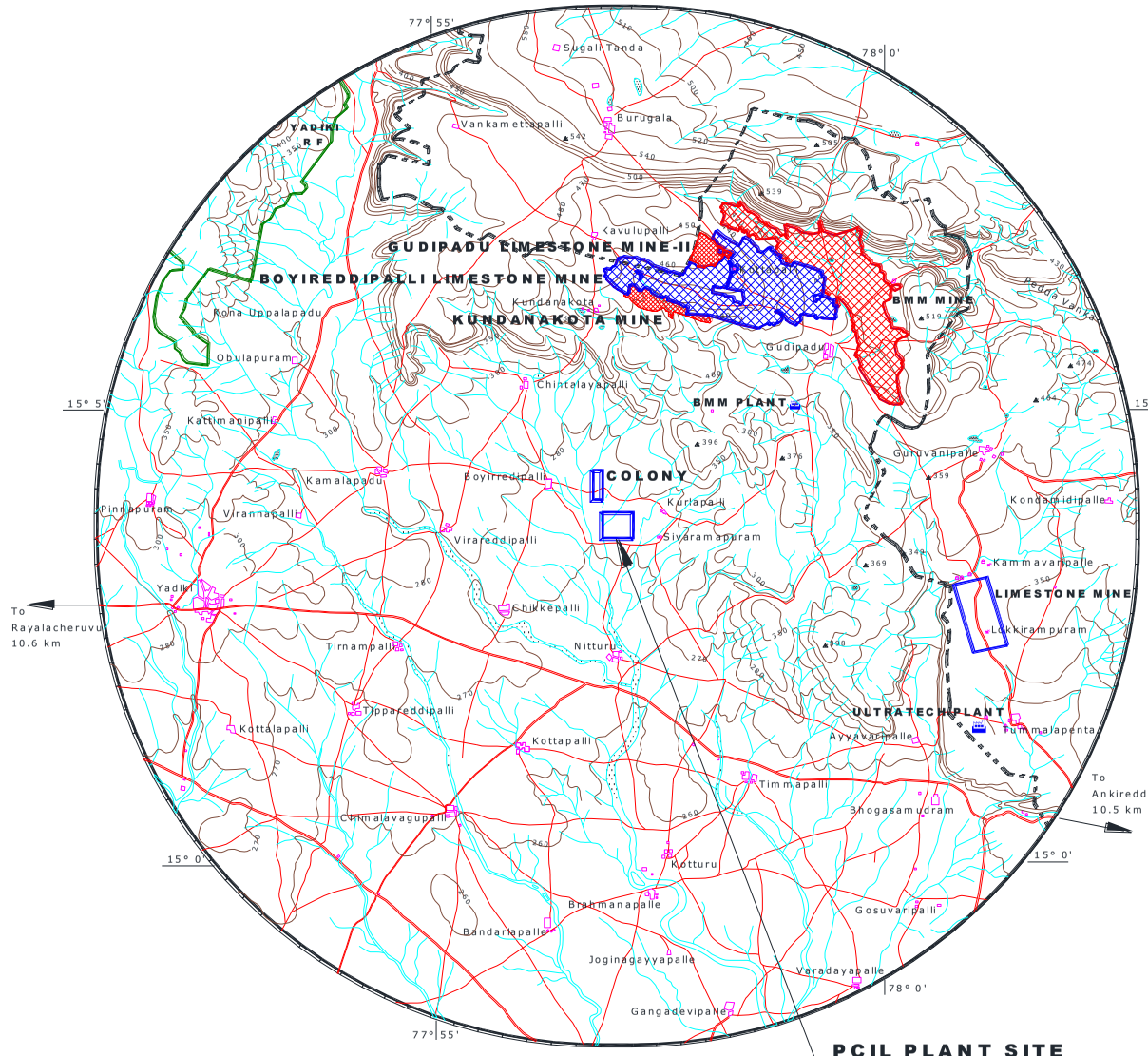
There are no national parks/wild life sanctuaries/eco sensitive zones within 10 km radius of the cement plant and mine sites.

Fig-3 shows the 10 km radius around Cement plant. Salient features of the plant site are given in **Table-1.**

TABLE – 1
SALIENT FEATURES OF THE CEMENT PLANT

Feature	**Details**
Altitude	276 m above msl
Longitude Latitude	A) 15° 3'35.20"N- 77°56'52.51"E B) 15° 3'51.44"N- 77°56'52.03"E C) 15° 3'52.10"N- 77°57'12.06"E D) 15° 3'35.82"N- 77°57'12.55"E
Village, Tehsil, District, State	Boyirredipalli Village, Yadiki Mandal, Tadipatri Taluka, Ananthapur District of Andhra Pradesh.
Annual rainfall	725 mm
Nearest water bodies	Penneru River – 11.4 km – S Maruna Vagu – 8.9 km - WSW
Nearest Highway	The National Highway (NH-44) connecting Dhone – Gooty-29.5km-WNW The State Highway (SH-57) connecting Bellary– Nellore - 3.0 km in Southern direction.
Nearest Railway station	Tadipatri RS - 17.7 km - SSE
Inter State Boundary	Andhra Pradesh – Karnataka – 85.5km - W
Nearest Industries	BMM Cements Limited – 3.0 km – ENE Ultratech Cement – 7.5 km - SE
District Head Quarter	Ananthapur – 55.9 km - SW
Nearest Town	Tadipatri – 17.8 km – SSE direction.
Nearest Air port	Kadapa Airport – 106.1 km – SE Tirupati (Renigunta) Airport – 236 .0km - SE
Nearest Forest	Yadiki RF - 8.4 km - WNW
Nearest Wild life Sanctuaries	None within 10 km Radius

* ***All distances mentioned in the above table are aerial distances.***



LEGEND

- ROADS
- STREAMS / TANKS
- CONTOURS
- SPOT HEIGHTS
- SETTLEMENTS
- FOREST
- DISTRICT BOUNDARY
- COLONY
- PCIL PLANT SITE

N

REFER TO THIS MAP AS:- 1:50,000
SHEET 57/E/16 FIRST EDITION

Published under the direction of
the Surveyor General of India - 1977

Index to
Survey of India Toposheets

57 E/11	57 E/15	57 I/3
57 E/12	57 E/16	57 I/4
57 F/9	57 F/13	57 J/1

SCALE

0 1 2 3 4 5km

FIG - 3

CLIENT:
M/s. PENNA CEMENT INDUSTRIES LTD.,

PROJECT:
CEMENT PLANT
Boyirredipalli Village, Yadiki Mandal, Ananthapur District, Andhra Pradesh

TITLE:
TOPOGRAPHICAL MAP SHOWING 10 km RADIUS

PREPARED BY:
B.S.ENVI-TECH (P) LTD.,
SECUNDERABAD

iii. Details of alternate sites considered and the basis of selecting the proposed site, particularly the environmental considerations gone into should be highlighted.

As the expansion is proposed in the existing premises, no alternate site considered or proposed for the proposed project

iv. Size or magnitude of operation

With the proposed expansion, the clinker production will be 4.0 MTPA and Cement at 4.6 MTPA & 20MW Power from WHR.

PCIL is manufacturing blended cement. viz., Ordinary Portland cement (OPC)) and Portland Pozzolana Cement (PPC)/ Portland Slag Cement.

Manufacturing Process:

Limestone Mining: Mechanized mining of lime stone is done by deep hole drilling, nonel blasting, excavation and hauling. The blasted lime stone of size less than 1000mm will be transported to lime stone crusher for crushing.

Limestone Crushing: A single Rotor Impact Crusher is installed to reduce limestone size from 1000 mm to 75mm.

Stacking & Reclaiming: The crushed lime stone is stacked longitudinally with stacker as per the required quality given by Quality Control Dept. The capacity of stock pile is 60000 T. After forming the stockpile, the reclaimation will be started. The total process of stacking and reclaiming is called chevron method.

Raw material grinding: Blended lime stone will be reclaimed and will be filled into raw material hopper in the Vertical Roller Mill (VRM) section. Laterite, Iron Ore and corrective limestone will be filled into hoppers. All the materials with the required ratio are conveyed through the weigh feeders and belt conveyors to Vertical Roller Mill, where grinding takes place.

VRM with inbuilt system of separator will grind the raw materials 75 mm size to 18% R on 90 micron size. The product called raw meal is

collected in cyclones and RABH and transported through air slides and bucket elevator and stored in blending Silo.

Coal Crushing & Grinding: Raw Coal unloaded from open trucks by wagon tippler through rakes to yard and transported by Belt Conveyors to crusher where the size is reduced from 100mm to 25 mm and conveyed to raw coal hopper through conveyor belts. Vertical roller mill (VRM) pulverizes raw coal to fine coal with fineness of 10% R on 90 microns, which is collected in Bag Filter. The fine coal is further conveyed mechanically to fine coal bins and transported to kiln and calciner pneumatically (through FK pumps) for firing.

Pyro-Processing: This system consists of Rotary Kiln with 5 stage Pre-heater and In-line Calciner. Raw meal from Silos is conveyed through pre-heater. Fine coal is fired through burner pipe into kiln and into pre-calciner. The material is 90 to 92 % calcined before entering into kiln and balance calcination, Pre burning and sintering takes place in the kiln for ensuring complete chemical reactions. Clinker formed is cooled in grate coolers with high pressure fans. The clinker after cooling is transported mechanically to clinker storage tanks.

Cement Grinding: Clinker from clinker storage tank is conveyed to clinker hopper. Gypsum is filled into gypsum hopper. Closed Circuit Tube Mill with dynamic separator grinds clinker and gypsum in a ratio of 95:5 respectively. The product, called Ordinary Portland cement (OPC) is conveyed mechanically to cement storage silos.

Similarly Clinker, Fly Ash, gypsum in a ratio of 60: 35: 5 respectively are ground in the Ball Mill to make Portland Pozzolana Cement (PPC), Portland slag cement (PSC) & Portland Pozzolana Cement (PPC) which is conveyed mechanically to cement storage silos.

Cement Packing: Electronic Packers (12 spout- double discharge) automatically fill the PP bags or paper bags of 50 Kg. These bags are loaded to the trucks through belt conveyors and loaders/Rail

The Plant is well automated and operated form Central Control Room and Control system is based on PLC.

Quality Control: All the raw materials, in- process and products are carried out by means of XRF and XRD of PAN Analytical. The preventive measures are taken to ensure the consistent and best quality is achieved. Material testing is undertaken on calibrated instruments for both Physical and Chemical parameters all the time. The people involved in this stream are highly qualified and experienced and quality conscious. The product is well accepted in the market and customers like Readymix concrete, Industries and Builders prefer our product very well.

Process Control: The plant operation through Automation is equipped with Expert Control Systems (ECS), comprising the SDR system. PIDs with closed loops systems are intact and PLC is in advanced modern system. Fuzzy logic from FLS is also adopted for smooth and consistent operation of the plant. The process parameter is designed by the experts and is operated by qualified and experienced engineers. The deviations are minimized and the tolerances are limited. This is resulting in achieving the productivity in terms of best quality, optimal production and energy conservation (thermal as well as electrical).

vi. Raw material required along with estimated quantity, likely source, marketing area of final products, mode of transport of raw material and finished product.

The raw material required for production of clinker is Limestone, Iron ore, Bauxite and Coal. Available limestone reserves of existing mines. The requirement of raw material per annum on an average for the production clinker and cement as mentioned above is presented in below table.

RAW MATERIAL REQUIREMENT (MTPA)

	PRESENT	EXPANSION	Source
Limestone	2.3	5.30	Captive mines
Iron ore	0.02	0.05	Bellary / Hospet
Laterite	0.08	0.18	Veldurty, Rajahmundry
Gypsum	0.10	0.23	SPIC and Sterlite Industries, Tuticorin, EID Pary India Ltd., Chennai & Coramandel Fertilizers Ltd., Vizag
Coal	0.26	0.56	Singareni Collieries Company Ltd/ Imported Coal/Petcoke from USA
Slag	0.50	1.14	Jindal Steel and SJK Steel
Ash requirement for PPC	0.10	0.23	Rayalaseema Thermal Power Station and Jindal Power Plant, AP Genco , Power Plant , Nellore

For obtaining raw materials like coal, gypsum, additives and transporting cement from the cement plant to the market well connected roads & rails are available. The National Highway (NH-44) connecting Dhone – Gooty is located at a distance of about 29.5 km in WNW direction.

vii. Resource optimization / recycling and reuse envisaged in the project, if any, should be briefly outlined.

Available limestone reserves of existing mines which cater to limestone needs of Cement Plant

Limestone from the mine is blended to arrive at the proper feedable quality (subjected to the receipt of quality of coal) and supplied to Cement plant for optimum utilization of resources.

Cooling water circuit is close circuited, thereby ensuring no generation of wastewater. The process, selected envisages re-cycling all the material collected in the pollution control equipment whereby ensuring no generation of solid waste.

viii. Availability of water its source, energy / power requirement

Water

Water is required for cooling, dust suppression, sanitary facilities and gardening. The present water requirement of the plant is 930 m^3/day and is sourced from borewells within the plant site. Additional Water requirement for the proposal is 500 m^3/day. The source of water is borewell/mine pit.

Power

The peak power consumption in the PCIL Cement plant complex including mine is 25 MW. Total power requirement for the PCIL cement plant complex is met from Grid. Additional power required is about 15 MW and it also is sourced from grid and WHR Power Plant.

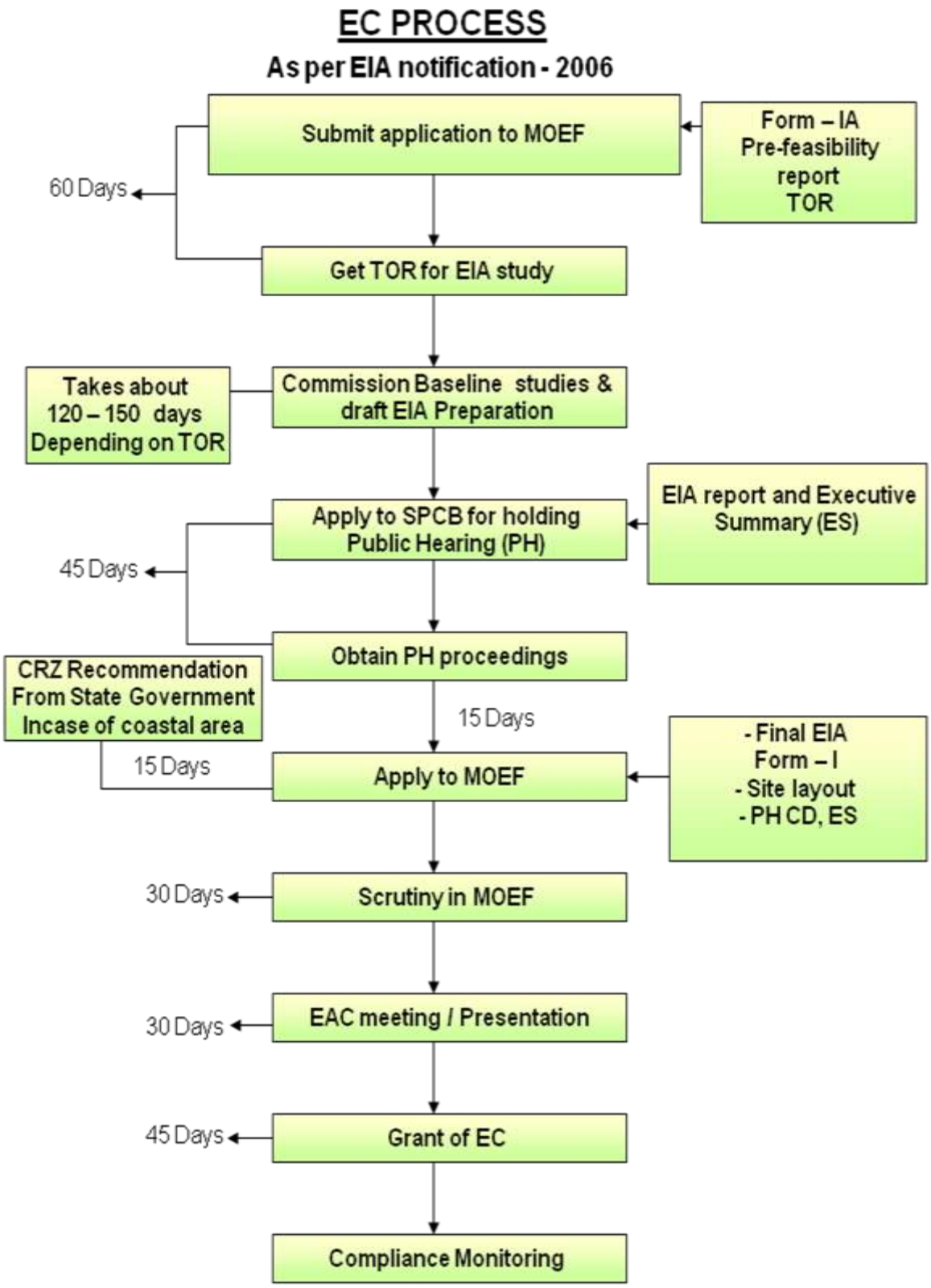
ix. Quantity of waste to be generated (liquid and solid) and scheme for their management / disposal.

In cement plant water is used for cooling, gas conditioning and raw material addition at various stages. This water is totally absorbed in the process or will be subjected to evaporation and hence no wastewater is released from the cement plant.

Wastewater generated is only from domestic activities at cement plant and residential colony. A full-fledged sewage treatment plant (STP) is in operation designed for a maximum load of 250 m^3/day. Treated domestic wastewater is 100% reused for greenbelt development within PCIL cement plant complex.

No solid waste will be generated from the cement plant. The dust collected in the pollution control devices is being 100% recycled back to the process.

x. Schematic representations of the feasibility drawing which give information of EIA purpose.



Total EC process is expected to take about 11 – 12 months

4. SITE ANALYSIS

i. Connectivity

The Cement plant is located near Boyareddypalli Village, Kamalapadu Panchayath Yadiki Mandal, Anantapur District, Andhra Pradesh.

The area is well connected by road and rail. The National Highway (NH-44) connecting Dhone – Gooty is located at a distance of about 29.5 km in WNW direction. The nearest railway station is located at Tadipatri which is 17.7 km in SSE direction.

ii. Land form, land use and land ownership.

Break-up of present land use of existing cement plant is given in **Table-2** and PCIL cement plant layout is shown in **Fig-4.** No additional land acquisition will be required for proposed new line.

TABLE-2
LAND AVAILABILITY

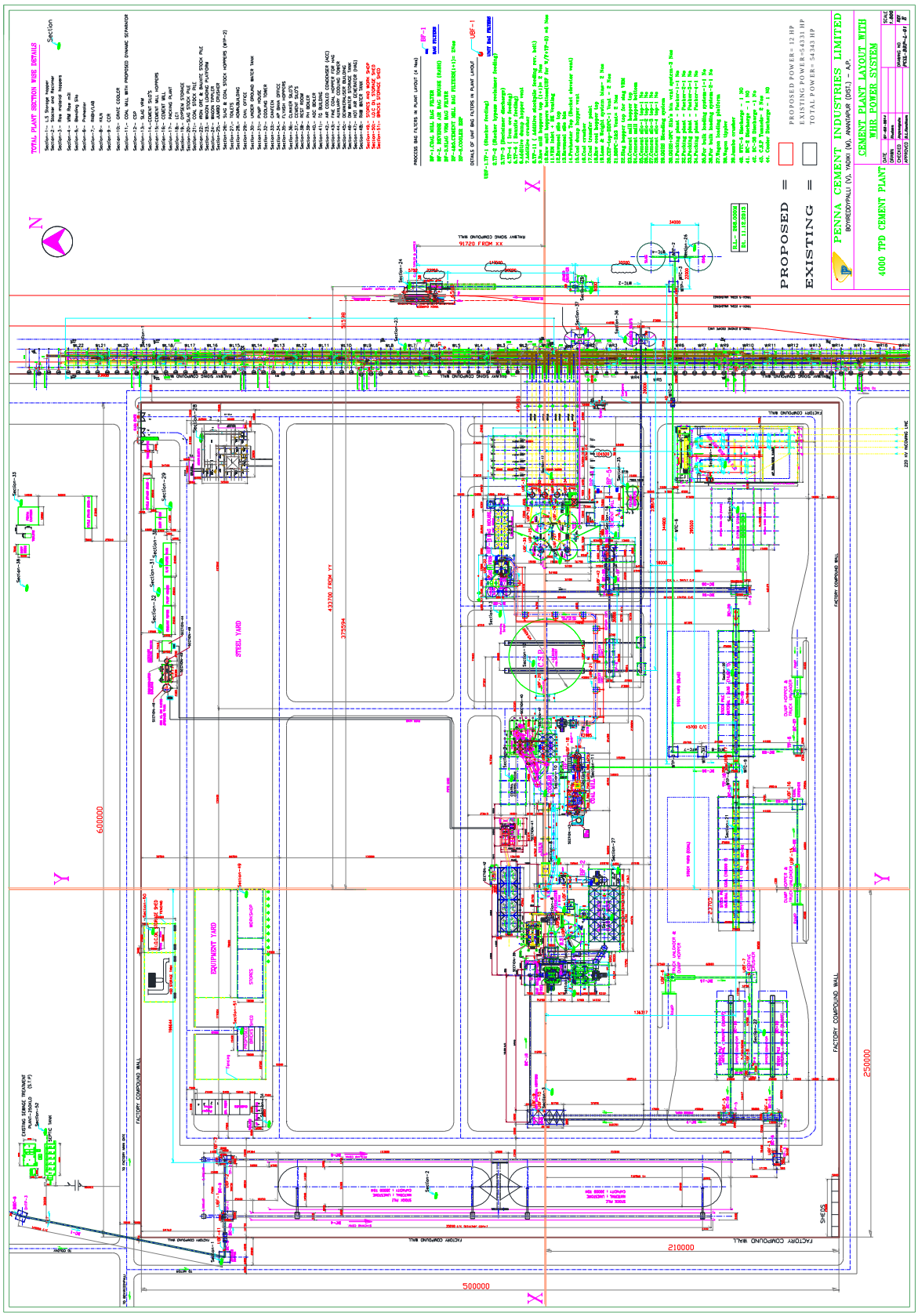
S.No.		Area (ha.)	
		Before expansion	**After expansion**
1	Plant area and roads	25	30
2	Colony with infrastructure	8	9.6
3	Parking area	5	1
4	Greenbelt	16	19.4
5	Vacant Land	6	-
Total		**60**	**60**

iii. Topography (along with map)

The existing PCIL Cement plant site is located at an elevation of 268 m above MSL.

The Cement plant is located near Boyirredipalli Village, Yadiki Mandal, Tadipatri Taluka, Ananthapur District of Andhra Pradesh. The site falls between A) 15°3'35.20"N- 77°56'52.51"E B) 15°3'51.44"N- 77°56'52.03"E C) 15°3'52.10"N- 77°57'12.06"E D) 15°3'35.82"N- 77°57'12.55"E North latitude and East Longitude with an average altitude of 276m above MSL. The area falls within Survey of India Toposheet no. 57/E/16 [1:50000 scale].

FIG – 4
PLANT LAYOUT



Nearest railway line connecting Rayalacheruvu - Tadipatri of South Eastern Railway line is located at a distance of 11.1 km to WSW direction from the site. Tadipatri is major town is located at a distance of 18.1 km in SSE direction.

The area is well connected by road and rail. The National Highway (NH-44) connecting Dhone – Gooty is located at a distance of about 29.5 km in WNW direction. The nearest railway station is located at Tadipatri which is 17.7 km in SSE direction.

Penneru River – 11.4 km – S and Maruna Vagu – 8.9 km – WSW are the nearest waterbodies in the 10 km radius of the plant site.

Yadiki RF is the Nearest Forests at a distance of 8.4 km in WNW dirsction. The Nearest Airport from the Plant site is Kadapa Airport – 106.1 km – SE

Due to availability of rich limestone deposits, major cement plants, which are located within 10 km are BMM Cements Limited – 3.0 km – ENE and Ultratech Cement – 7.5 km – SE

There are no national parks/wild life sanctuaries/eco sensitive zones within 10 km radius of the cement plant and mine sites.

iv. Existing land use pattern (agriculture, non-agriculture, forest, water bodies (including area under CRZ), shortest distances from the periphery of the project to periphery of the forests, national park, wild life sanctuary, eco sensitive areas, water bodies (distance from the HFL of the river), CRZ, in case of notified industrial area, a copy of the Gazette notification should be given.

The existing cement plant is located in Boyareddypalli Village**.** No additional land will be required for proposed expansion project.

- There are no national parks or wildlife sanctuary within 10 km of the subject plant area.
- No ecologically sensitive area such as tropical forests, biosphere reserves, important lakes or coastal area rich in coral formation fall within 10 km of the plant area.

- There are no sensitive places of notified archaeological, historical or tourist importance within 10 km from the plant area.

v. Existing Infrastructure

For transporting cement from the cement plant to the market and obtaining raw materials like coal, gypsum and other additives, well connected road/rail is available.

vi. Soil Classification

The proposed new line will be located in existing plant area. No additional land will be required for proposed new line.

Soil in the area is found to be clayey in texture with clay percentage in the range 40 - 70%.

vii. Climate data from secondary sources

The tropical climate of the region is manifested in hot and humid summer, moderately monsoon and mild winter seasons. May is the hottest month in the year. The maximum temperature during the day time was recorded as 45.6 ^{0}C and December the coldest with the temperature during the day time falling down to about 34.4^{0}C. The night temperature in winter can be as low as 6.7^{0}C. The months of December, January & February are considered to have pleasant climate.

viii. Social infrastructure available

A well-equipped Occupational Health center is provided at colony, which has full time male and lady medical officers assisted, by compounders and nurses. Necessary free medicines and medical aid is available for the company employees.

A good canteen is provided for the benefit of the employees. The canteen serves tea & snacks at subsidized rates to the employees.

Adequate number of shelters with fans, drinking water etc. for taking food and rest are provided for the benefit of the employees.

Safe hygienic drinking water is provided at the plant. Drinking water facility is available near rest shelters.

A full-fledged Training hall is available in the PCIL cement plant complex. The training to workmen is provided on basics as well as for refreshers.

The employees are provided with well-designed houses having electricity and water connections.

For the education facility of employee's children School is provided at our colony.

5. PLANNING BRIEF

i. Planning concept (type of industries, facilities, transportation etc) town and country planning / development authority classification.

This is expansion project of existing cement plant within the present PCIL cement plant complex. Additional civil structures will be required for proposed unit.

ii. Population projection

The total manpower at the existing plant is 550. 100 additional manpower is required.

Apart from the jobs, the company provided medical and educational facilities to the employees which were availed by the people around the plant. Adequate recreational facilities for the staff of the company and the local people were created.

iii. Land use planning (breakup along with greenbelt etc.,)

This is expansion project of existing cement plant. The present land use pattern of the existing PCIL cement plant complex is given in **Table-2.** No additional land will be required for proposed expansion project

iv. Assessment of infrastructure demand (physical & social)

Few additional housing facility will be created within the existing colony.

v. Amenities / Facilities

All infrastructure facilities such as education, health facilities and other social facilities are adequate at district headquarter which site makes the region adequate in amenities.

6. PROPOSED INFRASTRUCTURE

i. Industrial area (processing area)

The following are the major equipment proposed under the new production line

Main Machinery	**Item**	**Type**	**Capacity**
	Limestone Crusher	Single stage impactor type Crusher	900 tph
	Limestone Stacker	Luffing Boom Type Stacker	900 tph
	Limestone Reclaimer	Bridge Type Reclaimer	500 tph
	Raw Material Grinding	VRM	380 TPH
	Coal Grinding	Vertical Roller Mill	45 TPH
	Preheater / Calciner	Single String 5 Stage Preheater with Inline Precalciner - 5000 TPD	
	Kiln	Rotary Kiln - 3000 tpd	
	Clinker Cooler	Grate Cooler – 3000 tpd	
	Cement Grinding	Ball Mill with Roller press as pre grinder	200 TPH
	Packing Plant	Rotary Packer	100 tph
Main Storages	**Item**	**Type**	**Capacity**
	Limestone Stock pile	Longitudinal Stockpile	2x 30000 t
	Chemical gypsum Stockpile	Closed stockpile	3000 t
	Raw Meal Silo	RCC	10000 t
	Fly Ash Silo	RCC	2000 MT
	Clinker Silo	RCC	40000 MT
	Cement Silo	RCC	2 X 8000 t

ii. Residential area (non-processing area)

Residential colony is located nearer to the plant. The Waste water from colony and plant is treated in the Sewage Treatment Plant.

iii. Greenbelt

PCIL has already developed greenbelt in an area of 16 ha in and around the PCIL cement plant complex. PCIL is taking up more area(4 Ha)under greenbelt development programme.

iv. Social infrastructure

PCIL has well defined CSR policy to Carryout social development and welfare measures in the surrounding villages. Under CSR activity PCIL will initiate community development projects, in the fields of health, education and environmental preservation, in the study area around the plant as is done in their existing units.

v. Connectivity (traffic and transportation road/rail/metro/water ways etc)

For transporting cement from the cement plant to the market and obtaining raw materials like coal, gypsum and other additives, well connected roads are available. The National Highway (NH-7) Dhone – Gooty is located at a distance of about 29.5 km in WNW direction.

vi. Drinking water management (source & supply of water)

existing cement plant is having safe drinking water facility. RO water is supply to all the employee and contract workmen & surrounding villages.

vii. Sewerage System

Existing STP will be utilized for treatment of domestic wastewater after expansion of project.

viii. Industrial waste management

The production of cement will be based on completely dry process; hence no process waste water will be generated from the plant. Also the cooling water will be through a closed circuit system. The only waste water generated will be domestic waste water from residential township and the same will be treated in STP and used for green belt development.

Hazardous wastes like spent oil from construction equipment, DG sets etc., generated in small quantities during construction and operational phase would be appropriately stored & handled and properly disposed off in accordance with the provisions of the Hazardous Waste Management Rules, 2010.

ix. Solid waste Management

No solid waste is generated from the cement plant. The dust collected in the pollution control devices is being 100% recycled back to the process.

x. Power requirement & Supply/Source.

The peak power consumption in the PCIL Cement plant complex including mine is 25 MW. Total power requirement for the PCIL cement plant complex is met from grid. An additional power of 15 MW is required for the proposed expansion project.

7. REHABILITATION AND RESETTLEMENT (R&R) PLAN

The new Unit is coming up in the existing complex owned by PCIL and the R&R does not arise.

8. PROJECT SCHEDULE & COST ESTIMATES

The project is expected to be completed in a period of 18 months from the date of receipt of all the approvals from statutory authorities. The estimated cost of the project is Rs. 800 crores.

9. ANALYSIS OF PROPOSAL (FINANCIAL RECOMMENDATIONS)

The capital cost, for the proposed production enhancement project, works out to Rs. 800 crores**.** Financial institutions will be funding the project.

Growth of infrastructure, Irrigation and housing scenario automatically drives the increased requirement of Cement in the market. Based on the growing demand in the South East region of the country for Cement over the next 10 years, the proximity of the project location to this market is an advantage with respect reduction in freight of cement to these markets. The financial viability also show a good Rate of return from the project. Considering the above PCIL is planning to go ahead with the project, once it gets all the statutory approvals for this enhancement project.