

EXECUTIVE SUMMARY

INTRODUCTION

M/s. GMG Cement Industries is planning to set up Cement Plant (550 TPD Clinker & 600 TPD Cement at Dag No.: 85 & 86 of K. P. Patta No.: 31, Village Sarutari, Mouza Sonpur, District Kamrup(M), Assam.

Around 4.96 acre (20067.06 sq.m.) private land is acquired for the proposed Cement Plant. There shall be no any rehabilitation and resettlements are involved

DETAILS OF THE PROJECT SITE

1. Location

a Dag No. & K. P. Patta No. : Dag No.: 85 & 86 of K. P. Patta No.: 31

b Site Village : Sarutari

c District : Kamrup (M)

d State : Assam

e Latitude : 25° 59' 34.59" N

f Longitude : 91° 53' 36.37" E

2. Nearest Railway Station : Digaru Railway Station

3. Nearest Airport : Lokopriyo Gopinath Bordoloi Airport

4. Nearest City : Guwahati

5. Nearest village : Sarutari

6. Nearest River : Digaru River

PROJECT COST

The total Project Cost is **Rs. 984.11 Lacs** It includes site development, building, all the plant Machinery and its installation and Environment Protection measures cost. Total capital cost for environmental pollution control measures would be **Rs. 41.30 lacs** and Recurring cost per annum would be **Rs. 6.195 lacs**.

DETAILS OF RAW MATERIAL CONSUMPTION ITS SOURCE, AVAILABILITY & TRANSPORTATION

The Raw material consumption, its source, availability & transportation is given in the following table:

SR. NO.	NAME OF THE RAW MATERIAL	CONSUMPTION MT/DAY	SOURCE & THEIR DISTANCE(KM)	MODE OF TRANSPORTATION
1.	Limestone	825.00	Meghalaya	By Road
2.	Clay	065.45	Byrnihat, Assam	By Road
3.	Iron Dust	009.35	Durgapur – 500 km, Bihar	By Road
4.	Coke Breeze	112.20	Byrnihat, Assam	By Road
5.	Fly Ash/B.F.Slag	236.40	West Bengal, Orissa, Jharkhand & Bihar	By Road
6.	Gypsum	012.00	Bhutan	By Road

BRIEF PROCESS DESCRIPTION

The raw materials like, limestone, pet coke, clay and gypsum will be used to manufacture cement. Lime stone will be crushed in the crushers. Then, crushed lime stone, clay, silica and coke breeze will be ground in the raw mill. In nodulizer, nodules will be prepared from the ground materials by addition of water. The

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REQUIREMENTS FOR THE PROJECT

Land: Around 4.96 acre (20067.06 sq.m.) Private land is acquired for the proposed Cement Unit (600TPD).

Water: Total water requirement of the proposed project is 130 KLD which shall be met through ground water using Bore Well. Water requirement will be mainly for nodules preparation & cooling 120 KLD (Make up quantity), Domestic use 3 KLD, for Dust Suppression 2 KLD and for gardening 5 KLD. Permission for the drawl of 130 KLD ground water will be taken from concerned authority i.e. “Central ground water authority”.

Electrical Energy: The estimated power requirement for the proposed project will be 5000 KW. Power supply for the proposed project will be taken from Assam State Electricity Board. During emergency or power failure one D. G. set of 1000 KVA capacity shall be utilize to fulfill power requirement.

Fuel: For the proposed cement plant 80 lit/hr Diesel will be required to run stand by D. G. Set. Diesel will source from the nearest petrol pump.

Manpower: The proposed cement plant will have great employment potential providing employment to approximately 60 full time persons.

SOURCES OF POLLUTION AND CONTROL MEASURES

Air pollution and control measures:

The particulate emissions are among the most significant impacts of cement manufacturing.

1. Sources of Air Pollution

Process Emission: There will be emission of particulate matter due to operation of Crusher, Hopper, Cement Mill, Silo and packing section.

Utility Emission: One D. G. set of 1000 KVA shall be utilize to fulfill power requirement in case of power failure. Emission from these sources will not be continuous as the D. G. sets will be used during emergency or in case of power failure.

Fugitive Emission: The fugitive dust emissions from the proposed plant would be significant and the sources will be (1) Raw materials handling, (2) Materials transfer points (bucket elevators, conveyor belts), (3) Loading of raw materials, (4) Packing of cement, (5) Unloading of cement bags and (6) Transportation of vehicles.

2. Air emission and its Control Measures

The major sources of pollution are particulate matter from the proposed cement plant.

Process Emission and control measures:

The unit will install Cyclone Separator followed by Reverse pulse jet type bag filter to control air pollutants. The stacks will be attached to the air pollution control equipments to disperse the air pollutants to the satisfactory levels. The details of proposed stacks and control equipments are as under.

NO. OF STACK	STACK ATTACHED TO	NAME & QUANTITY OF FUEL USED	POLLUTION CONTROL EQUIPMENT	STACK HEIGHT & DIAMETER	POLLUTANTS (APCB LIMIT)
1.	RM Crushing dust collector	- A multi bag	pulse jet type Ht.-12 M Dia.- 0.5 M	SPM<150mg/Nm ³	section
2.	RM		- Exhaust duct with venting Proportioning fan as humidity is to be controlled	Ht.- 12 M Dia.- 0.5 M	SPM<150mg/Nm ³
3.	RM Grinding		- A multi bag pulse jet type Section dust collector	Ht.- 15 M Dia.- 0.5 M	SPM < 150 mg/Nm ³

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NO. OF STACK	STACK ATTACHED TO	NAME & QUANTITY OF FUEL USED	POLLUTION CONTROL EQUIPMENT	STACK HEIGHT & DIAMETER	POLLUTANTS (APCB LIMIT)
4.	Raw Mix Blending storage	- A multi bag pulse jet type & dust collector		Ht.- 12 M Dia. - 0.5 M	SPM < 150 mg/Nm ³
5.	Kilns (3 no.) 112.2 MT/Day	Coke breeze - A multi bag pulse jet type dust collector followed by Wet scrubber		Ht.- 30 M Dia. -1.2 M	SPM < 150 mg/Nm ³ SO ₂ < 100 ppm NO _x < 50 ppm CO ₂
6.	Cement Grinding	- A multi bag pulse jet type dust collector		Ht.- 15 M Dia. - 0.8 M	SPM < 150 mg/Nm ³
7.	Cement Blending cum Storage & Packing House	- Twin cyclone Separator followed by Reverse pulse jet type bag filter		Ht.- 12 M Dia. - 0.8 M	SPM < 150 mg/Nm ³

Note: The emission of particulate matter from process stacks will be limited to 50 mg/Nm³ as per CREP Guidelines given by CPCB.

Utility Emission and control measures:

NO. OF STACK	STACK ATTACHED TO	NAME & QUANTITY OF FUEL USED	POLLUTION CONTROL EQUIPMENT	STACK HEIGHT & DIAMETER	POLLUTANTS (APCB LIMIT)
1.	D. G. set of 1000 KVA Capacity	Diesel 80 Lit./hr	Acoustic Enclosure As per CPCB's guidelines		SPM < 150 mg/Nm ³ SO ₂ < 100 ppm NO _x < 50 ppm

3. Fugitive emissions control measures

- Raw materials loading and unloading will be done in the covered area.
- Raw materials will be stored in the covered structure.
- All the conveyors will be provided with conveyor cover.
- The automatic bagging machine will be provided. The suction of bag filter will be provided at the packing section.
- The sprinkling of water will be done along the internal roads in the plant in order to control the dust.
- All the workers and officers working inside the plant will be provided with disposable dust masks.
- Green belt will be developed around the plant to arrest the fugitive emissions.
- Bag filter will be cleaned regularly.
- Maintenance of air pollution control equipments will be done regularly.

Waste Water Generation and its treatment:

There will be no waste water generated due to the process. Only domestic wastewater will be generated which is 2.5 m³/day. The domestic waste water shall be diverted into a septic tank followed by soak pit.

Noise Pollution and control measures:

The noise levels near the sources such as Crusher, Cement Mill, D. G. Set, material handling, Loading unloading, etc. will be higher during the operational phase but general noise levels within plant are expected to remain below 75 dB(A). In order to mitigate the noise levels during the operational phase effective noise control measures like Encasement of noise generating equipments, a thick greenbelt will be developed all around the plant boundary to act as noise attenuator, Proper and suitable acoustic barrier will also be provided around areas generating high noise and Effective preventive maintenance and vibration measurement of all rotating equipment will be taken

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Solid waste generation and its disposal method:

Dust collected from air pollution control equipment will be 100% recycled in the process. Other solid wastes will be used/spent oil and bags, used/spent oil will be sold to authorized reprocessors and discarded bags will returned to Raw Materials suppliers.

BASELINE ENVIRONMENTAL STATUS

The baseline environmental quality of Air, water, soil, noise, socioeconomic status and ecology has been assessed in the winter season (October, 2010 to December, 2010) in a study area of 10 km radial distance from the project site.

Air Environment:

The ambient air samples were collected from eight locations and analyzed for PM, SO₂, NO_x & CO for identification, prediction, evaluation and assessment of potential impact on ambient air environment. Design of network for ambient air quality monitoring location was based on guidelines provided by CPCB. The arithmetic mean values of PM, SO₂, NO_x & CO are found within permissible limit at all the locations.

Water Environment:

To assess water quality, surface water and ground water samples were collected from different locations. Results of all the water parameters were found within permissible limit.

Noise Environment:

Ambient noise level monitoring of background & transportation was done at same locations where ambient air monitoring was carried out. The noise levels of the study are found low and within the stipulated standards of CPCB for the respective designated areas.

Soil Environment:

The general Topography of the study area varies from low-lying plains to highland having small-hillocks. Soil samples were collected from eight different locations and physico-chemicals properties were analyzed. All the parameters are found within limit.

Socioeconomic Environment:

Baseline information of socio-economic data has been collected from EIC and Census handbook for the four major indicators viz. demography, civic amenities, economy and social culture, literacy, occupational structure.

Ecology:

Keeping in view, the importance of biological component of total environment due to the proposed project, biological characterization of terrestrial and aquatic environments, changes in species diversity of flora and fauna in terrestrial as well as aquatic systems were studied for impact analysis due to proposed project activity. The details of flora / fauna species and the wildlife habitat in the area covering 10 km radius have been collected to determine the existence of rare and/or endangered species.

ENVIRONMENTAL IMPACT ASSESSMENT

Impact on Air Environment:

During Construction Phase:

During construction phase, dust will be the main pollutant, which would be generated from the site development activities and vehicular movement on the road. To mitigate these impacts, regular sprinkling of water will be done at the construction site.

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During Operation Phase:

Prediction of impacts on air environment has been carried out by using the Industrial Source Complex –Short Term (ISCST3) dispersion model which is a steady-state Gaussian plume model. Maximum incremental concentration for SPM is 3.4 µg/m³, for SO is 4.8 µg/m³ and for NO_x is 1.7 µg/m³ at a distance of 1 km. After the implementation of the proposed project, this concentration is found to be well below the permissible NAAQS norms for rural/residential zone. Therefore, the proposed activity is not likely to have any significant adverse impact on the air environment.

Impact on Water Environment:

Total water requirement for the proposed plant will be 130 KLD. Water requirement shall be met from the Ground water using bore-well; permission for the drawl of water will be taken from CGWA/SGWB. Moreover company will adopt rain water harvesting, which reduce impact on ground water availability. As no water is required in the manufacturing process and therefore no industrial wastewater will be generated. Only waste water i.e. 2.5 KLD domestic waste water shall be generated, which will be treated through soak pit/well.

Impact on Noise Environment:

The proposed industrial operations will generate noise in the premises and noise levels in the immediate surrounding will be slightly increased. The impact of noise will be for long term but insignificant, till no settlement developed in immediate vicinity. Adequate protective measures in the form of ear plugs will be provided to the workers working in high noise areas.

Impact on Socio-economic Environment:

There will be increase in direct and indirect employment due to proposed project. There will be positive long term impact in the surrounding area due to the proposed project in the study area.

Impact on Soil:

Dust generated by the cement manufacturing plant consists primarily of alkaline particulates from the raw and finished material. Dust collected from air pollution control equipment will be 100% recycled in process. Hence, the proposed activities will not likely to have any significant adverse impact on the soil environment.

ENVIRONMENTAL MANAGEMENT PLAN

Air Pollution Control Measures:

There will be emission of dust due to operation of crusher, raw mill, kiln and cement mill. The control the dust emissions, the unit will install air pollution control equipments as given under.

SR. NO.	SECTIONS POLLUTION CONTROL EQUIPMENTS
1	Crushing Section & raw materials silos Reverse pulse jet type bag filter
2.	Raw Mill & Blending Silo Reverse pulse jet type bag filter
3.	Vertical Shaft Kilns Wet Scrubber, Reverse pulse jet type bag filter
4.	Clinker crusher & Cement Mill feed hopper Reverse pulse jet type bag filter
5.	Cement Mill Reverse pulse jet type bag filter
6.	Packing Section Reverse pulse jet type bag filter

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To control fugitive emissions, the following measures are proposed.

During unloading of lime stone sprinkling of water will be done to suppress dust emission.

Raw materials will be stored in the covered structure.

The automatic bagging machine with bag filters will be installed for packing.

The sprinkling of water will be done along the internal roads in the plant in order to control the dust.

All the workers and officers working inside the plant will be provided with disposable dust masks.

Green belt will be developed around the plant to arrest the fugitive emissions.

Bag filters will be cleaned regularly. Preventive maintenance will be done regularly for all air pollutants control equipments.

Noise Pollution Management:

The greenbelt proposed around the boundary of the plant will attenuate the noise emitted by the various sources in the plant.

Earplugs will be provided for the personnel working close to the noise generating units as a part of safety policy.

All rotating machinery will be well lubricated regularly to reduce noise transmission.

Greenbelt Development:

About 1.64 acre (6622.13 sq.m) area i.e. 33 % of total plant area shall be developed as green belt at plant boundary, road side, around offices & buildings and Stretch of open land. Total investment in green belt development shall be Rs. 6 lacs.