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EPRMP SUMMARY FOR THE PUBLIC

1.0 PROJECT FACT SHEET

Name of Project	:	Proposed Additional 1.5MT Finish Mill (Mill 6) Project
Project Location	:	Barangay Minuyan, Norzagaray, Bulacan
Project Area	:	10,000 m^2
Project Type/ Nature	:	Cement Industry
Total Production Capacity of New Finish Mill 6	:	1.5 million tons
Total Cement Production	:	3.5 MT annually with New Finish Mill
Operation Duration	:	25 years (minimum)
Name of Proponent	:	Republic Cement & Building Materials, Inc.
Address	:	Brgy. Minuyan, Norzagaray, Bulacan
Contact Details	:	
Authorized Representative for ECC Application	:	Warlito D. Jaque – Vice President – Operations/Plant Manager

Republic Cement & Building Materials, Inc. (RCBM) Bulacan Plant secured its ECC with Index No. 9409-0060105C issued by the DENR Central Office on July 03, 1996 (**Annex A**) for the proposed Quarry and Cement Plant Expansion located in Brgy. Minuyan, Norzagaray, Bulacan. The ECC covers five hundred fifty-nine (559) hectares as the quarry site and an extraction rate not to exceed 1.75 million tons per year. The ECC limits the project to the use of "dry type" processing with a daily production rate of not more than 4400 metric tons of clinker.

Overall, the expansion project will substantially improve the production of cement and meet the increasing market demand of urbanization. It will also contribute to the national and local economic development and to the sustainable development agenda; and to the current development thrusts of the Philippines.

2.0 PROJECT PROPONENT

Republic Cement & Building Materials, Inc. [formerly Lafarge Republic, Inc., "Republic Cement" or "Company" or "RCBM" or "Bulacan Cement Plant" or "Bulacan Plant"] is a corporation organized under the laws of the Philippines. It was registered with the Securities and Exchange Commission (SEC) on May 3, 1955 primarily to engage in the manufacture, development and sale of cement, marble and all other kinds and classes of building materials, and the processing or manufacture of materials for industrial or commercial purposes. On February 4, 2005, the SEC approved the extension of the corporate term of the Company for another 50 years or until May 3, 2055.

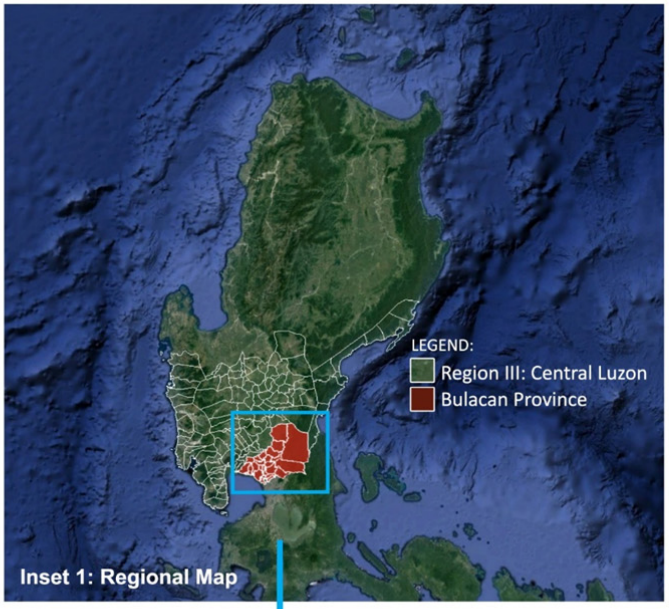
On June 26, 2012, the SEC approved the amendment of the Company's articles of incorporation to change the Company's corporate name from "Republic Cement Corporation" to "Lafarge Republic, Inc." On February 10, 2015, the SEC approved the amendment of the Company's articles of incorporation to specify its principal office address at Menarco Tower, 32nd St., Bonifacio Global City, Taguig, and Metro Manila, Philippines. On November 12, 2015, the SEC approved the amendment of the Company's articles of incorporation to change the Company's corporate name from "Lafarge Republic, Inc." to "Republic Cement & Building Materials, Inc."

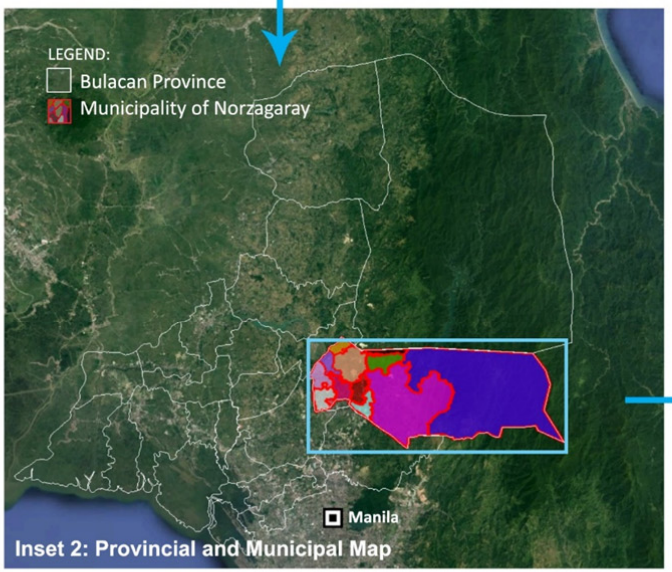
3.0 PROJECT DESCRIPTION

3.1 Project Location, Area and Accessibility

The existing RCBM Bulacan Plant, which covers a total land area of about 559 hectares, is geographically located at longitude 121°05'15"E and latitude 14°52'3"N and is situated at Barangay Minuyan, Municipality of Norzagaray, Bulacan. Barangay Minuyan is bound in the northwest by Barangay Matictic, in the east by Barangay San Mateo, in the west by Barangay Bitungol, and in the south by Barangay Bigte (**Figure 1)**. The proposed Mill 6 Project will be located within the RCBM Bulacan Plant compound occupying a total area of 10,000 sqm, which includes the Mill 6 Project facility, conveyors, a new cement silo and an upgraded packing facility.

Starting from SM Fairview, the Bulacan Plant may be accessed via Commonwealth Avenue going all the way to SM City San Jose Del Monte. Passing through the Quirino Highway, the RCBM – Bulacan Plant will be located 11.5 kilometers from SM City San Jose Del Monte. Certain places that will be passed along the way from SM Fairview are the Sacred Heart Novitiate in Novaliches, the North Caloocan Doctors Hospital in Caloocan, SM City San Jose Del Monte in Brgy. Tungkong Mangga, the Grotto of Our Lady of Lourdes in Brgy. Graceville and the Norzagaray Municipal Hall Annex in Brgy. Bigte.





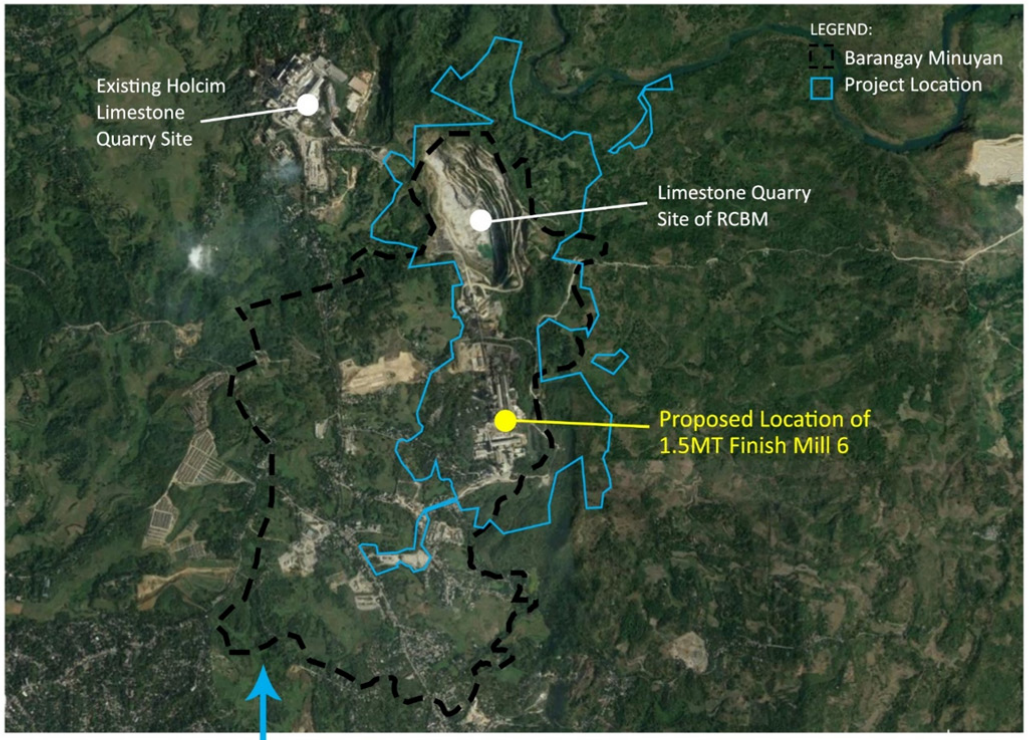


Figure 1. Project Location Map

ENVIRONMENTAL PERFORMANCE REPORT AND MANAGEMENT PLAN
QUARRY AND CEMENT MANUFACTURING WITH ADDITIONAL 1.5MT FINISH MILL 6 PROJECT

SCALE: 1: 24,000

0 0.5 1 2
Kilometers

DATA INFORMATION/SOURCE:
Basemap: GOOGLE EARTH IMAGERY, 2019
Source Figure: Norzagaray CLUP, 2011
Created by: APERCU CONSULTANTS, INC (2019)

REPUBLIC
A CRH-ABOITIZ COMPANY
apercu CONSULTANTS INC

3.2 Project Type and Process

The new finish mill will use a combination of a roller press to pre-grind the cement materials, followed by a ball mill to finalize the milling process **(Figure 3)**. **Figure 4** shows the layout of the proposed finish mill project. Existing material storages will be utilized for the new Mill 6, as well as the existing plant finish mills. New conveyors and transport systems will be included in the project to deliver these materials to the new Mill 6. A new fly ash silo will be installed adjacent to the Mill 6 Project.

From the new Mill 6 a new conveyor will be installed to take the finished cement to a new ~ 12,000T cement silo. Finally the cement will either be loaded into bulk trucks straight from the cement silos or transported to the adjacent pack house, which will be refitted to pack the cement into bags via a new roto packer with 8 spouts and an accompanying auto-palletizer for safer, faster and more efficient loading of bags onto pallets for loading on customer trucks. The new Finish Mill 6 will be fitted with dust collection systems capable of maintaining the housekeeping and cleanliness in the area.

The additional finish mill, will supplement the current/existing operations, particularly enhancing the cement grinding capacity without increasing clinker production.

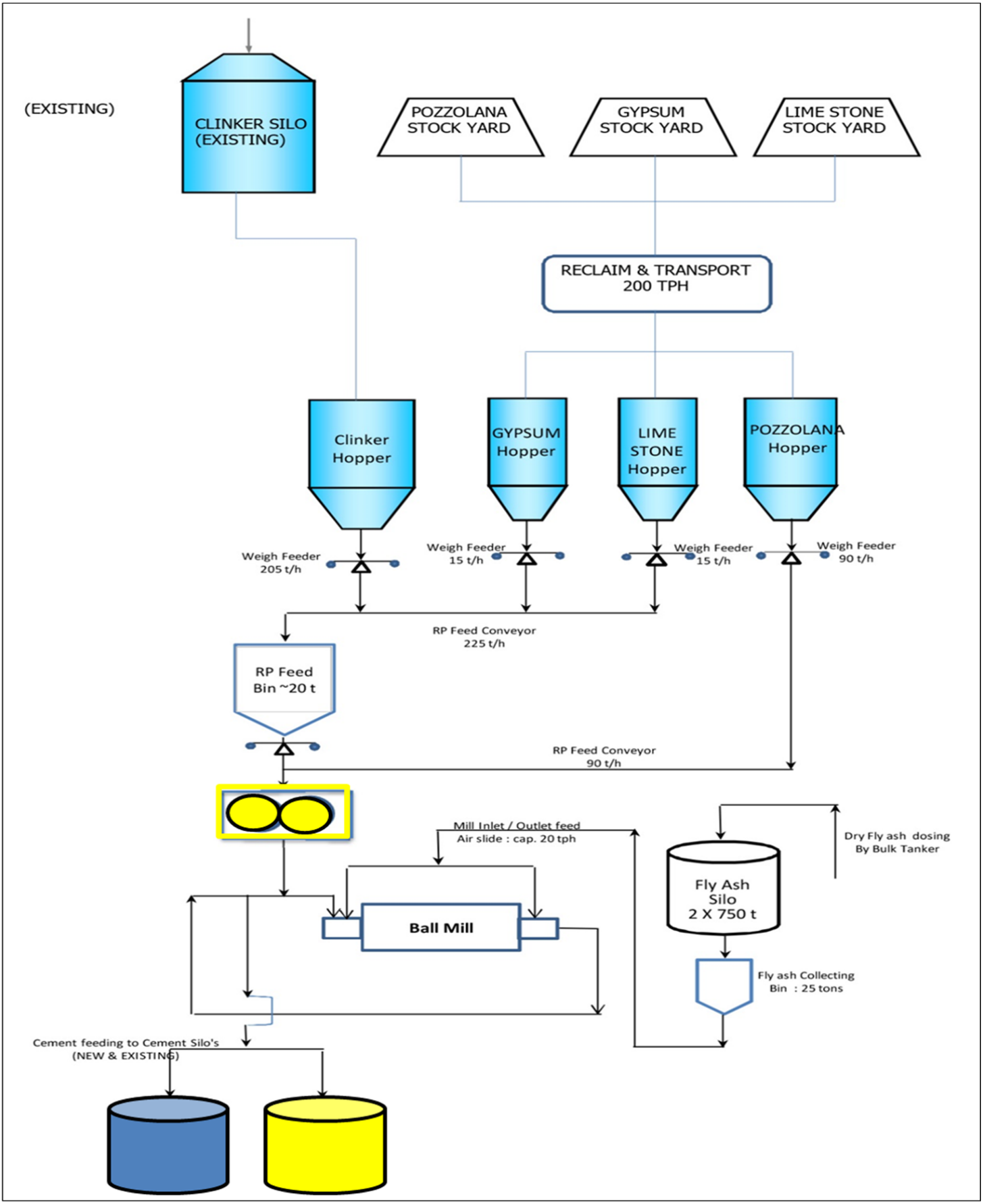


Figure 3. Finish Mill (Mill 6) Main Components and Cement Process Flow

Legend:
– Existing Facilities
– New Facilities

DATA INFORMATION/SOURCE:
Source Figure: RCBM, 2019
Modified by: APERCU CONSULTANTS, INC (2019)

3.3 Project Components and Capacity

The following matrix provides a list of the components that will be included as part of the new mill (**Table 1**).

Table 1
Mill 6 Components

Components	Quantity	Capacity/Rate
Conveyor equipment	Several, assorted	200-230 tph
Material bins and feeders	Several, assorted	
Roller press	1	3200 kW
Ball mill	1	2100 kW
High efficiency separator	1	335 kW
Dust collectors	24 units	2100m³/hr to 13,500m³/hr
Roller press dust collector	1	30,000m3/hr
Separator Bag Filter	1	195,000m3/hr
Separator Cyclones	1	3200mm
Ball mill bag filter	1	52,000m3/hr
Cement silo	1	10,000 T
Fly ash silo	1	750 T
Belt Conveyor	1	200 to 230 tph

3.4 Resource Utilization and Alternatives

The proposed finish mill will utilize the following resources:

2.4.1 Support Facilities

Table 2 presents the support facilities of the RCBM.

Table 2
RCBM Support Facilities

Resources	Description
A. Water Supply	RCBM currently sources their water supply from: ○ local water supplier (25,208m³) ○ groundwater well (101,011m³) ○ rain (370,110m³) Rain is contained in the reservoir along with the existing recycled water amount of 265,165m³. The three water supply sources and the recycled water make up the total process water of 761,494m³. Process water is that used to manufacture cement and includes water for the dust suppression systems at the stockpile, plant and roads, and for washing out machinery. The existing water utilities will continuously be utilized and the water requirements for the construction phase of the expansion project will be primarily provided by water service providers. The Mill 6 project will use a closed-loop water system for cooling which will not require water during its operational phase.

	In cases when the service provider cannot meet the demand during construction, RCBM will tap into the reservoir water and the groundwater well inside the plant.
B. Electrical Supply	The proposed project is within the existing plant which is directly connected to the grid and purchases power from Independent Power Producers.
C. Manpower	Manpower requirement during construction will be handled by a Contractor(s) with an estimated number of 500 workers hired from the community where possible (except for certain specialists). During operations, RCBM Bulacan will tap its existing manpower.

2.5 Project Alternatives

The RCBM-Bulacan Plant was selected as the site for the new Finish Mill 6 to fit in with the existing facilities. The new Finish Mill 6 is located close to existing Finish Mills 1 to 5 to maximize efficiency and to utilize the excess clinker of the plant, which greatly affects the manufacturing cost and quality of the cement. Additionally, the quarry area is located in the RCBM-Bulacan Plant, which has ample limestone reserve with the MPSA already renewed for another 25 years (2019-2044). Lastly, Bulacan plant is more the most strategic than other RCBM plants since it is closer to the market.

If the project is not pursued, there will be no additional local tax contributions, which are used to fund the development programs of the barangays and municipalities. RCBM is one of the biggest taxpayers in Norzagaray, with tax payments approximately about 10 million pesos per year. Without the expansion taxes that will be generated will be much less. Local employment opportunities may also be affected since the projected number of jobs generated during the construction phase (about 500) will not materialize. With or without the expansion, the environment will continue to degrade, but with the project, the IECs conducted to the expansion will educate the people who can then participate and lessen its degradation.

2.6 Fuel Source Alternatives for the KILN

RCBM uses alternative fuels to complement coal and these include tire-derived-fuel and plastic-derived-fuel such as scrap tires and nonrecyclable plastics, refuse-derived fuel and biomass such as rice hulls as well as other manufacturing and industrial wastes allowed under its co-processing and TSD permit.
The sustainable approach to operating has the following effects and advantages:

1. Reduced use of fossil fuel, hence reduced CO_2 and other greenhouse gas emissions *(Aligned with Our commitment under Sustainability Ambitions);*
2. Maximize energy recovery from industrial by-products and qualifying wastes; and
3. Reduced dependence on fossil fuels, i.e. oil and coal; prolong non-renewable fossil fuel sources.
4. Use of RDF and plastic derived fuels will divert volumes from sanitary landfills in the Philippines and hence becoming a part of the waste management solution in the country;
5. Minimize flooding caused by improper disposal of garbage; and
6. Conserving natural resources and energy.

2.7 Technology Selection

The proposed finish mill is a combination of a roller press and a ball mill. Alternative technologies considered were:

- ball mills
- vertical mills
- horomills.

This technology was chosen because of its operational efficiency, it requires less maintenance, and it will use the existing cooling water closed-loop system for its operation.

4.0 PROJECT IMPACT AREA AND ANALYSIS OF KEY ENVIRONMENTAL IMPACTS

Direct Impact Areas (DIA) includes the area where the finish Mill 6 facilities are to be constructed and operated. Based on the results of the air quality modeling, the host barangay (Minuyan) is directly impacted by TSP emissions from regulated sources and unregulated sources; as well as from noise during the morning and daytime periods.

Since the plant uses a closed-loop water system, the direct impact area for water is maintained within the project boundary.

The location of the existing plant is classified as an industrial area. **Table 3** provides the impacts that are expected during the construction and the operational impacts of the entire plant, including that from Mill 6.

Table 3
Impacts and Mitigating Measures during the Construction and Operational Phase of the New Finish Mill 6

Affected Environmental Component	Potential Impact	Mitigating Measures
Construction Phase		
A. The Land	Increased traffic due to vehicles that will be used for the construction activities Increase in construction waste material	▪ Put up traffic management signages (proper ingress and egress locations; proper parking areas, etc.) ▪ Impose speed limits for vehicles ▪ Segregate construction waste and dispose in the existing MRF facility
B. The Water	Sewage effluent produced by on-site workforce	▪ Set-up temporary sanitary facilities (portable toilets) ▪ Ensure that disposal and maintenance of these facilities are managed by a licensed contractor
C. The Air	Air pollution from fugitive dust during ground clearing operations and structure erection. Increased fugitive dust from roads and trucks	▪ Dust suppression in active construction areas ▪ Compacting of exposed soil ▪ Provision of tarpaulin cover on trucks transporting construction materials ▪ Immediate hauling of spoils ▪ Impose speed restrictions on construction vehicles
	Air pollution from heavy equipment and standby power generators' emissions	▪ Regular maintenance of heavy equipment and motor vehicles ▪ Prohibit idling of engines when vehicles and equipment are not in use
	Noise from construction activities	▪ Regular maintenance of motor vehicles ▪ Provision of barriers and shielding stationary vibrating equipment ▪ Proper scheduling of noisy activities during day time

Affected Environmental Component	Potential Impact	Mitigating Measures
D. The People	Health and safety issues at construction workers' camp	▪ Conduct safety training programs for all new workers ▪ Orient all workers on existing plants protocols ▪ Provide proper sanitation, water supply facilities for construction workers and proper waste bins for construction work areas ▪ Ensure all workers use PPE ▪ Provide workers with access to RCBM's Clinic
Operational Phase		
A. The Land	Risk of contamination from hazardous waste	▪ Administer proper storage and handling of hazardous waste ▪ Properly categorize wastes for disposal or further treatment ▪ Allocate staging area to accommodate wastes before turning over to Waste Treaters and Disposal Contractors ▪ Ensure that personnel and equipment needed for oil spill response are always ready.
B. The Water	Contamination of nearby water bodies (Pintong Pala-pala Creek and Water Reservoir) from fugitive dust during the transfer of coal and other raw materials.	▪ Ensure trucks are covered with tarpaulin and trucks are washed prior to leaving raw materials area
C. The Air	Air pollution from Kiln operation Air pollution from coal mill	▪ Proper operation of the ESP, Bag filter and dust collectors ▪ Proper operation and maintenance of the CEMS
	Air pollution from TSP and PM10 from non-regulated sources (vents, conveyors, silos, finish mills, fugitive sources)	▪ Regular compacting of unpaved access roads • Formulation and implementation of a motor vehicle maintenance program, including emissions testing • Regular checking and maintenance of conveyor systems and vents
	Noise pollution	▪ Incorporation of noise criteria in the specifications and selection of equipment ▪ Use of effective noise-attenuating materials for the plant structure and walling ▪ Planting of the appropriate vegetation as buffer
	Contribution to climate change from greenhouse gas emissions	▪ Continue current GHG inventory program ▪ Formulate and implement a greening program
D. The People	Occupational hazards for workers frequently exposed to process units or facilities of the entire cement plant	▪ Provide proper sanitation and medical facilities to workers ▪ Properly dispose of wastes at allocated disposal sites ▪ Implement safety protocols at all times ▪ Provide preventive measures for potential fire and explosion hazards

5.0 IDENTIFIED STAKEHOLDERS

As discussed in **Section 4.0**, the project impact area includes the host barangay, which is the Barangay Minuyan where the project is located. The direct impact area was maintained inside the plant since the plant is using a closed-loop system.

As per requirement of DAO 2017-15, the stakeholders identified to be invited to the public hearing is presented in **Table 4**.

Table 4
Identified Stakeholders for the Public Hearing

Stakeholders	Address
Concerned National Government Agencies/ Offices and Government Unit	
DENR-EMB Central Office	Diliman, Quezon City
DENR-MGB Central Office	Diliman, Quezon City
Concerned Regional and Provincial Government Agencies/ Offices and Government Unit	
Office of the Governor	City of Malolos, Bulacan
DENR-EMB Region III Director	City of San Fernando, Pampanga
DENR Region III Director	City of San Fernando, Pampanga
DENR-PENRO Bulacan	City of Malolos, Bulacan
Concerned offices in Norzagaray Municipality	
Office of the Mayor	Norzagaray, Bulacan
Vice Mayor	Norzagaray, Bulacan
Department Heads	Norzagaray, Bulacan
MENRO	Norzagaray, Bulacan
Municipal Engineer	Norzagaray, Bulacan
Municipal Tourism Officer	Norzagaray, Bulacan
Public Employment Service Office (PESO)	Norzagaray, Bulacan
Municipal Social Welfare and Development Office	Norzagaray, Bulacan
Municipal Health Office	Norzagaray, Bulacan
Municipal Planning and Development Office	Norzagaray, Bulacan
Barangay Minuyan LGU	Norzagaray, Bulacan
Concerned Communities and Peoples Organization	
Religious Groups	Municipality of Norzagaray, Bulacan
Academe and School Heads	Municipality of Norzagaray, Bulacan
Parent-Teacher Associations	Municipality of Norzagaray, Bulacan
Residents of Brgy. Minuyan	Municipality of Norzagaray, Bulacan
Cooperatives	Municipality of Norzagaray, Bulacan
Business groups/sectors	Municipality of Norzagaray, Bulacan
Transport Sector (TODA)	Municipality of Norzagaray, Bulacan
Women	Municipality of Norzagaray, Bulacan
Senior Citizens	Municipality of Norzagaray, Bulacan
Youth	Municipality of Norzagaray, Bulacan
OFW groups	Municipality of Norzagaray, Bulacan
Cultural Sector	Municipality of Norzagaray, Bulacan
Civic groups	Municipality of Norzagaray, Bulacan
NGOs	Municipality of Norzagaray, Bulacan

6.0 INFORMATION ON WHERE TO GET A COPY OF THE EPRMP FOR FURTHER INFORMATION

The draft Environmental Performance Report and Management Plan (EPRMP) and this ESP will be posted in the EMB website (www.emb.gov.ph) at least 20 days before the public hearing. Upon completion of the review, a copy of the final EPRMP will be available to the public from the following government unit and agencies:

Agency	Address
DENR – EMB	DENR Compound, Visayas Avenue, Diliman, 1100 Quezon City, Philippines
Provincial Government of Bulacan	City of Malolos, Bulacan
Municipal Government of Norzagaray	Norzagaray Municipal Hall, Norzagaray, Bulacan
Barangay Office of Minuyan	Minuyan Barangay Hall, Del Monte – Norzagaray Rd, Norzagaray, Bulacan

A copy will also be available from the office of RCBM at 15/F Menarco Tower, 32nd Street, Bonifacio Global City, Taguig City.