PROJECT DESCRIPTION

1. Basic Project Information

Republic Cement Iligan Inc. (RCII) (formerly Iligan Cement Corporation) is a Filipino-owned Corporation that started its operation on February 15, 1971. The cement plant and practically most of its quarry areas are located within Barangay Kiwalan, City of Iligan, Province of Lanao del Norte.

Furthermore, **Republic Cement Iligan, Inc. (RCII)** has been granted Environmental Compliance Certificate (ECC) No. 0505-004-105 dated 25 July 2006 for its **Cement Manufacturing and Quarry Expansion Project** (issued by DENR Central Office). On the same note, RCII has another ECC No 10(35) 02 08-26 3037-50200 for Pier & Loading Facilities, issued by DENR Region 10. The said ECC's will not be affected by the expansion project.

Table PD-1. Project Fact Sheet/PD Summary

ITEM	Project Information
Nature of Project	**Proposed Increase in Clinker and Quarry Production**
Project Location	Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan, Iligan City, Province of Lanao del Norte
Nature of Project	Quarry and Clinker Production
Project Size	Limestone: 810,000 Metric Tons Per Year (no change) Shale: 800,000 Metric Tons Per Year (increase) Clinker: 3.70 Million Metric Tons Per Year (increase)

Table PD-2. Project Proponent/EIA Preparer

ITEM	Project Information
Project Proponent	**Republic Cement Iligan, Inc. (RCII)**
Proponent Address and Contact Details	Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan, Iligan City, Province of Lanao del Norte
Responsible Officer	Michael M. Madayag – Vice President for Operations and Plant Manager
EIA Preparer	**Technotrix Consultancy Services Inc. (TCSI)**
Preparer Contact Person	Edgardo G. Alabastro Ph.D.
Preparer Address and Contact Details	Unit 305 FMSG Building, #9 Balete Dr. Cor. 3rd St. QC 1112 Telephone No.: (02) 416-4625 Cellular No.: 09178255203 E-mail address: technotrixinc@gmail.com

2. Project Location, Area and Description

Iligan City is bounded to the north by the Province of Misamis Oriental, east by the Provinces of Bukidnon and Lanao del Sur, south by the Province of Lanao del Norte and west by Iligan Bay. The site is about 83 kilometer road distance southwest of Cagayan de Oro City and 55 kilometer road distance southeast of the Municipality of Laguindingan, where a major airport is located.

The Republic Cement Iligan, Inc. cement plant and the active quarry area are located at Barangays Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan, City of Iligan, Province of Lanao del Norte. The existing operations occupy an area of about 531.7178 hectares. See **Figure PD-1**.

The Proposed increase in clinker production will involve buildings, equipment, machinery, etc., which will be located in this same land/plant as is now existing.

Geographical Coordinates

The geographical coordinates of the project site/land are given in **Table PD-3**.

Table PD-3. Geographical Coordinates (RCII Plant Site) WGS 84

Corner	Latitude	Longitude
1	8°17.421'N	124°15.826'E
2	8°17.378'N	124°15.905'E
3	8°17.305'N	124°15.926'E
4	8°17.257'N	124°15.943'E
5	8°17.186'N	124°15.813'E
6	8°17.272'N	124°15.761'E
7	8°17.334'N	124°15.722'E
8	8°17.403'N	124°15.753'E

The map of the site in google earth is shown in **Figure PD-2; Figure PD-3** shows the map of the RCII facilities based on **Table PD-3** above and the quarry based on **Table PD-4** below.

Table PD-4 Geographical Coordinates (RCII MPSAs) WGS 84

MPSAs UNDER COMMERCIAL PRODUCTION		
AQL-41 (5) – Shale Quarry		
Corner	**Latitude**	**Longitude**
1	8°17'53.04"N	124°15'34.46"E
2	8°17'55.21"N	124°15'48.78"E
3	8°17'29.88"N	124°15'53.95"E
4	8°17'27.05"N	124°15'46.31"E
5	8°17'33.72"N	124°15'45.24"E
6	8°17'36.05"N	124°15'42.40"E
7	8°17'47.10"N	124°15'34.45"E
CHAMPACA-1		
Corner	**Latitude**	**Longitude**
8	8°17'17.67"N	124°16'41.30"E
9	8°17'24.49"N	124°17'7.08"E
10	8°16'59.40"N	124°17'14.01"E
11	8°16'52.51"N	124°16'47.97"E
MPSAs FOR EXPLORATION – NOT COVERED IN THIS ECC AMENDMENT		
CONAL/CLENT		
Corner	**Latitude**	**Longitude**
12	8°18'26.43"N	124°17'5.42"E
13	8°18'26.43"N	124°17'45.42"E
14	8°17'56.43"N	124°17'45.42"E
15	8°17'56.43"N	124°17'31.29"E
16	8°17'58.20"N	124°17'30.86"E
17	8°17'56.43"N	124°17'23.22"E
18	8°17'56.43"N	124°17'5.42"E
CHAMPACA 2,3 / ICC 12, 13, 14		
Corner	**Latitude**	**Longitude**
19	8°17'17.67"N	124°16'41.29"E
20	8°17'38.26"N	124°17'58.75"E
21	8°17'12.70"N	124°18'5.82"E
22	8°17'3.10"N	124°17'36.26"E
23	8°16'39.44"N	124°17'42.43"E
24	8°16'22.56"N	124°16'26.60"E
25	8°16'47.87"N	124°16'19.90"E
26	8°16'53.44"N	124°16'45.09"E

Map showing sitio, barangay, municipality, province, region boundaries, vicinity, proposed buffers surrounding the area

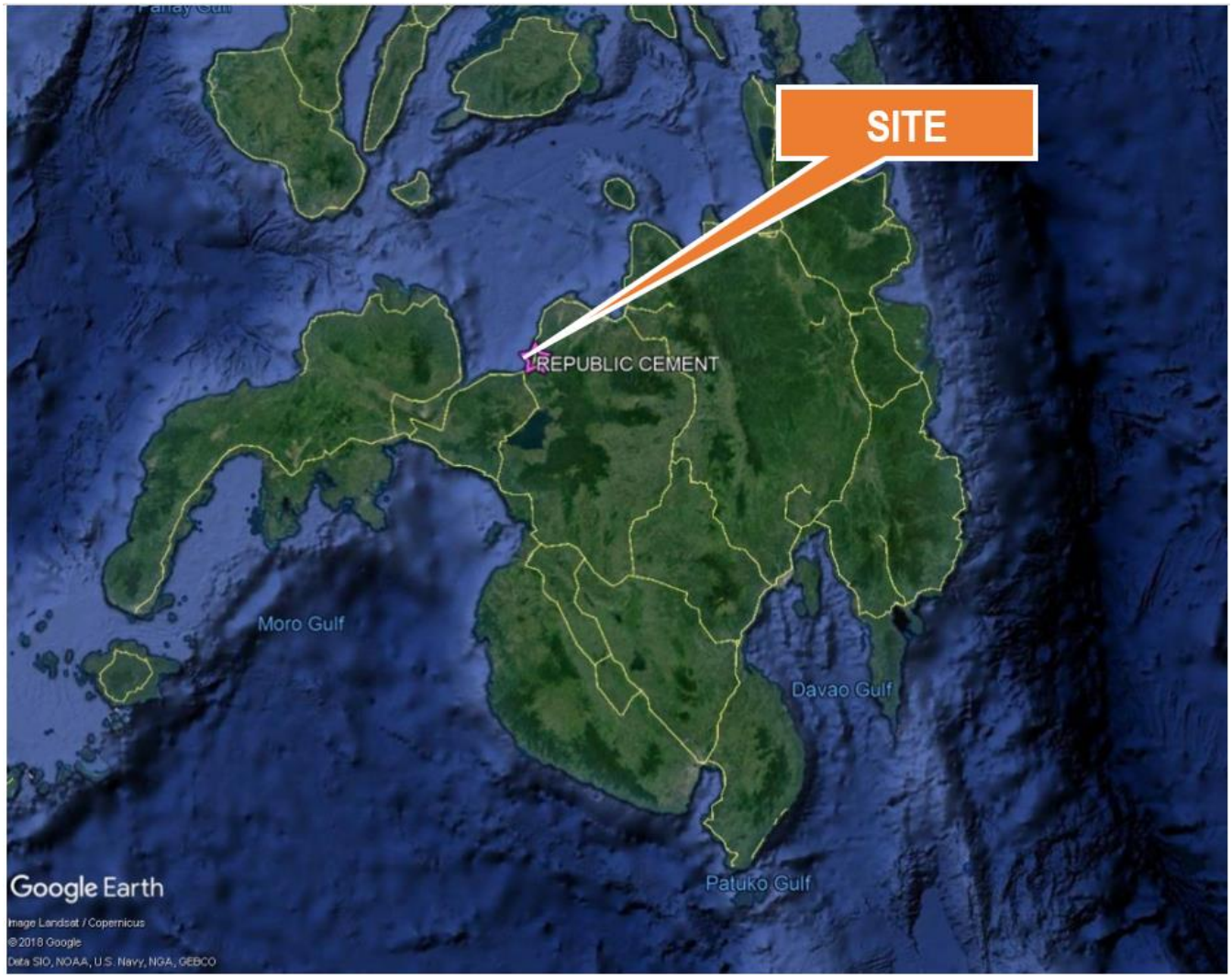
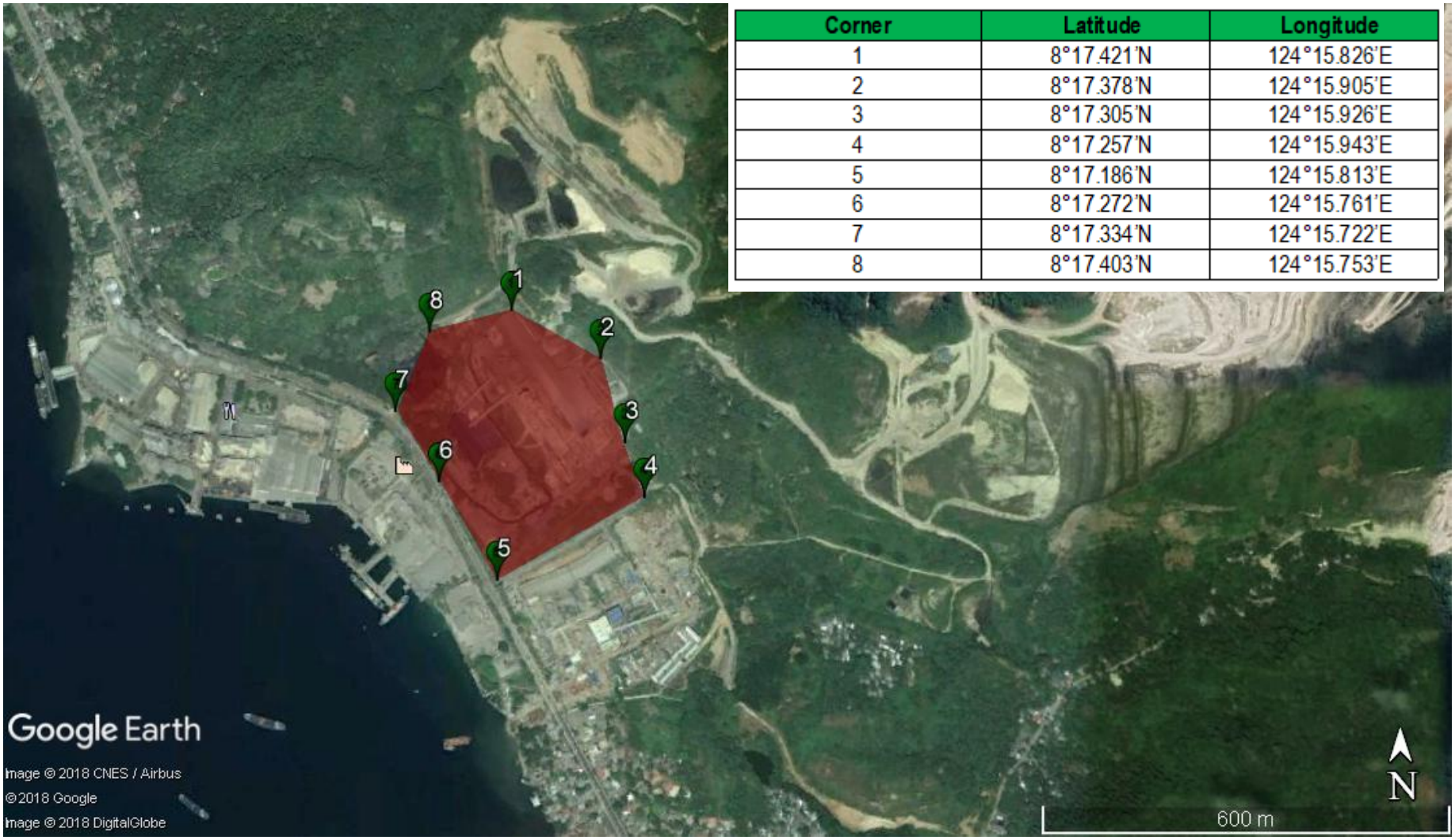


Figure PD-1. General Project Location



Corner	Latitude	Longitude
1	8°17.421'N	124°15.826'E
2	8°17.378'N	124°15.905'E
3	8°17.305'N	124°15.926'E
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6	8°17.272'N	124°15.761'E
7	8°17.334'N	124°15.722'E
8	8°17.403'N	124°15.753'E

Figure PD-2. Map of the Main RCII Plant Facilities on Google Earth Base Map

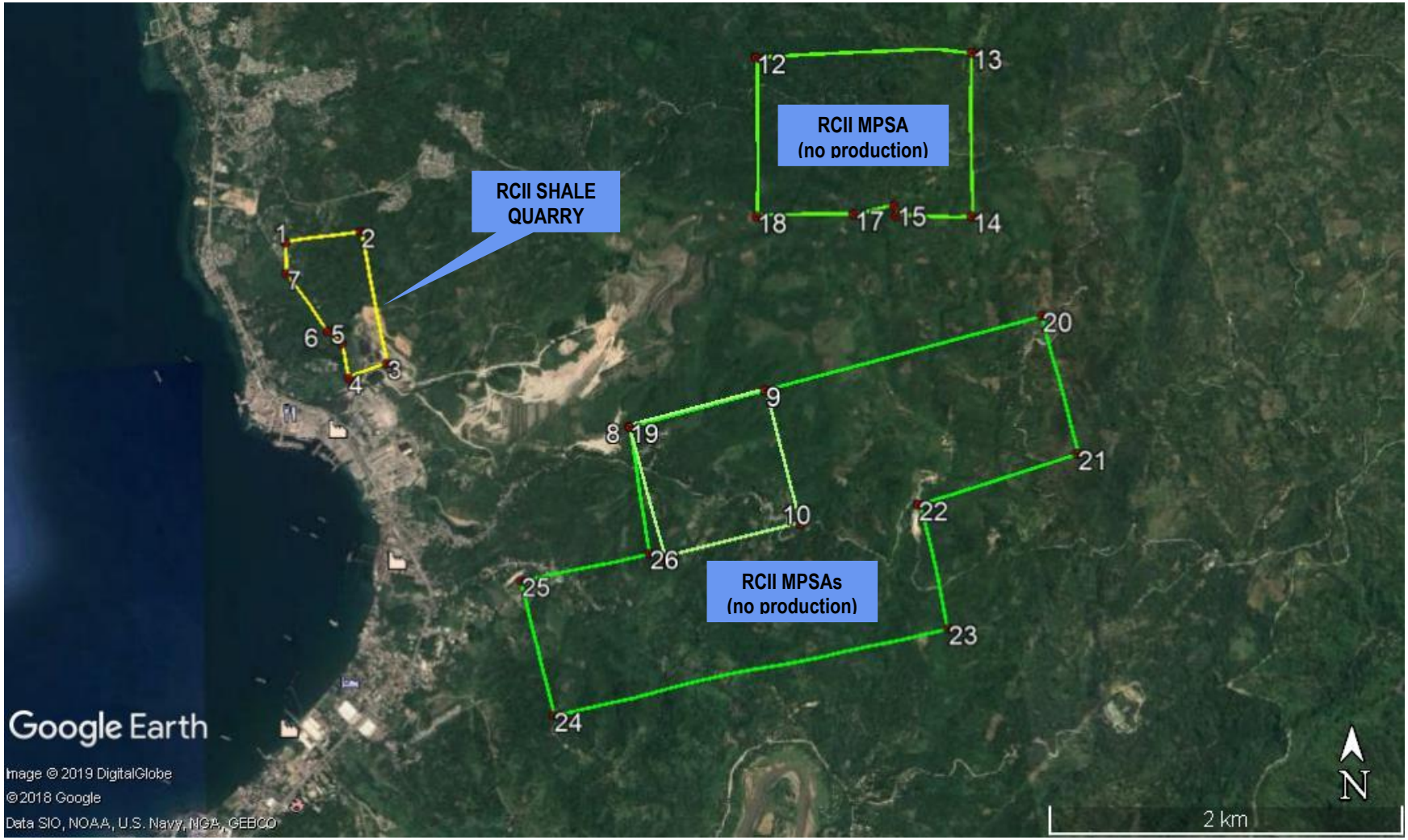

Figure PD-3. Map of RCII Shale Quarry and the MPSAs on Google Earth Base Map

Figure PD-4 shows the vicinity map while **Figure PD-5** shows the political boundaries of the project site.

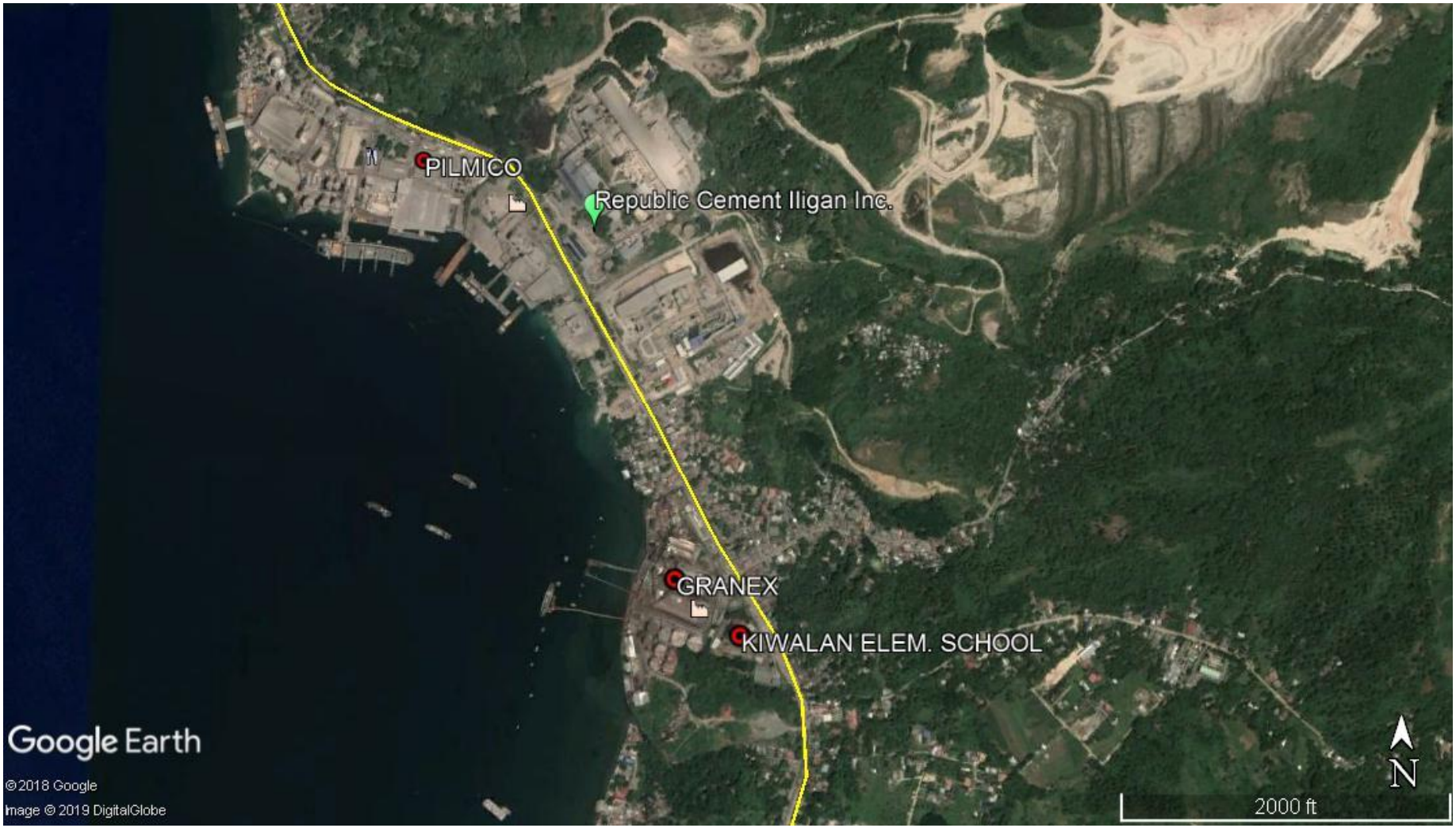

Figure PD-4. Vicinity Map of Proposed Project Site

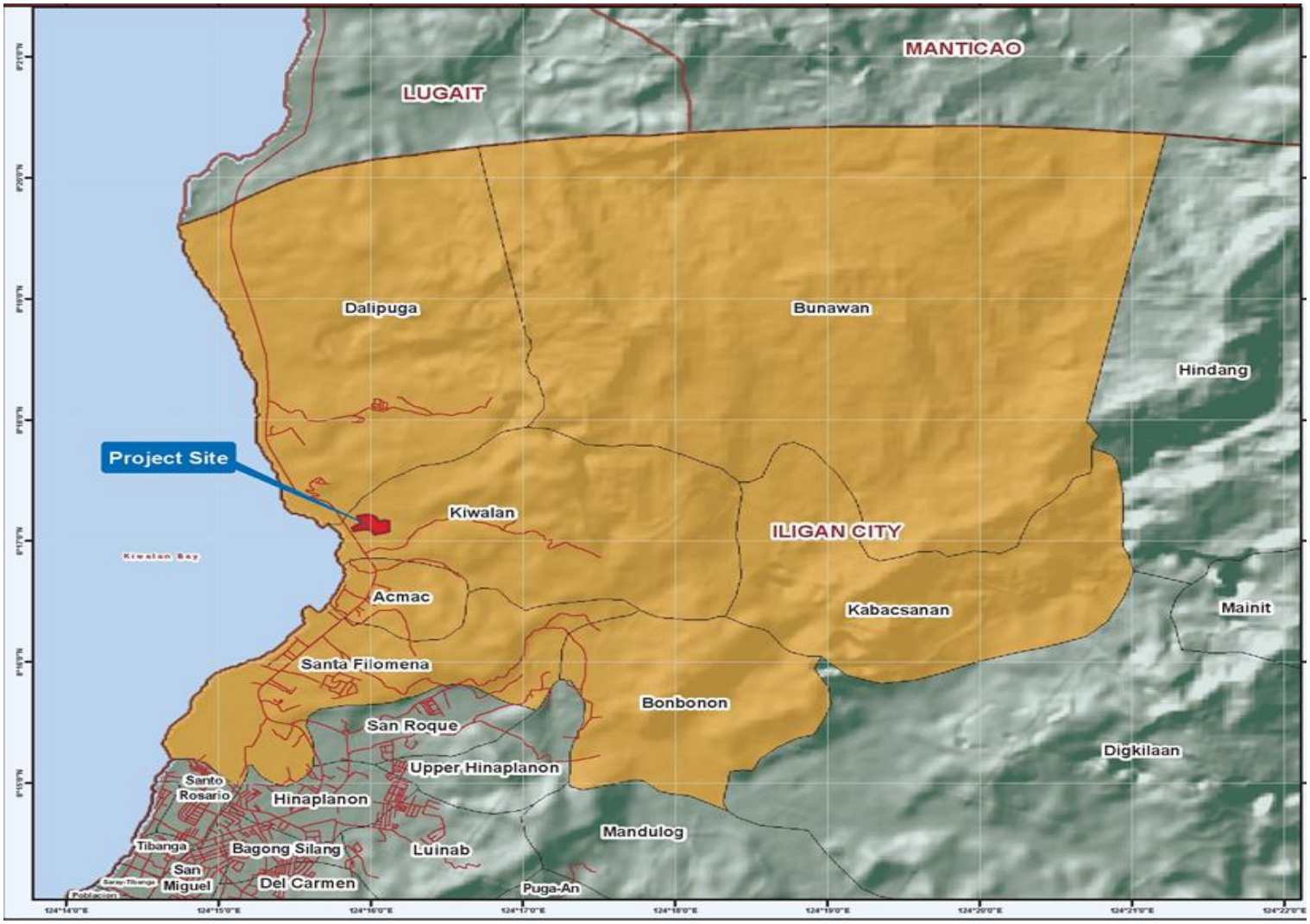

Figure PD-5. Map Showing the Political Boundaries of the Project Site

Figure PD-6. Map Showing the Access Ways to the Project Site

Accessibility

As may be seen in **Figure PD-6**, the site could be readily accessible to all forms of transportation, i.e. by land (road network seen in yellow dotted lines), sea (the Iligan Bay at the West) and air (by helicopter to site).

The long stretch of national highway and the Iligan Bay gives easy accessibility by land and by water respectively, for the transport of equipment, fuel and materials.

The site is accessible by passenger and private vehicles via the Cagayan-Iligan National Highway. The plant and the quarry areas are within the Cagayan-Iligan Growth Corridor. As such, it is situated adjacent to or near a number of industrial establishments.

Primary & Secondary Impact Areas

Rationale for selection primary & secondary impact areas

The guidelines provided by the Revised Procedural Manual relevant to MPSA 294-2009-III are used for the delineation of the DIA and IIA, to wit:

a) Direct impact area (DIA) is … the area where ALL project facilities are proposed to be constructed/situated and where all operations are proposed to be undertaken. For most projects, the DIA is equivalent to the total area applied for an ECC.

b) Indirect Impact Area (IIA) …an IIA can be the stretch of the river/s OUTSIDE the project area but draining the project site which can potentially transport Total Suspended Solids and other discharges from the project towards downstream communities.

c) …Further, the interphase/overlap of the biophysical DIA with socio-cultural environment shall define the socio-cultural DIA after the EIA is completed…

The EIA study area will focus on the identified direct and indirect impact areas of the Project. The direct impact area ("DIA") is the two (2) kilometers radius from project site where all project facilities are proposed to be located.

- The DIAs covers the entire RCII facilities (plant and quarry) as well as barangays Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan. Major waterbody is the canal shown in **Plate PD-1** and rivers considered part of the DIAs are the Tag-ibo creek and Matuog creek. Also included is the coastal area fronting the pier facilities used by RCII within Iligan Bay.

- The IIAs include areas but outside the project boundaries that may be affected by the project. Other areas/barangays within the City of Iligan that may be affected by the project are likewise included, depending on the results of the EIA.

Table PD-5 summarizes the Impact Areas.

Plate PD-1. Photograph of the small canal near the pier

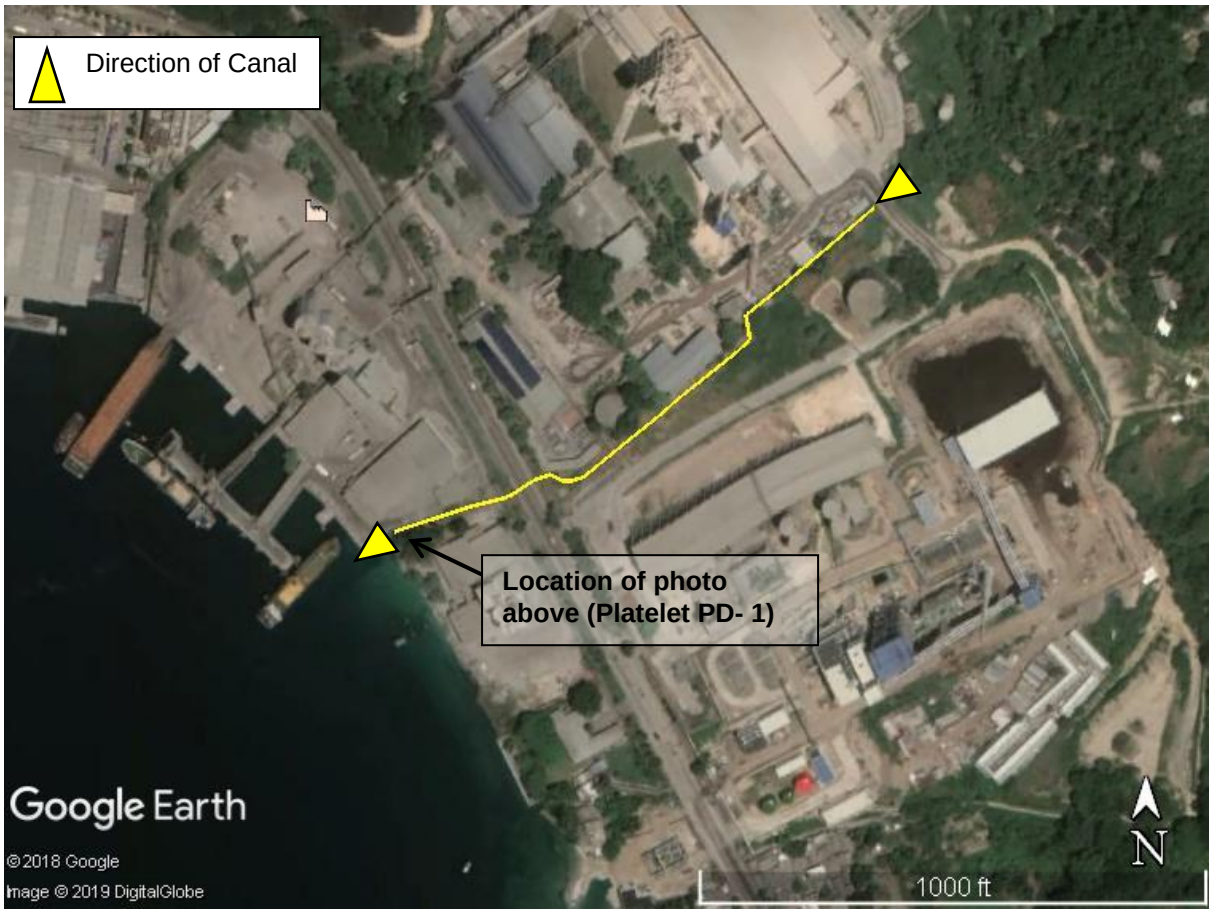

Figure PD-7. Google earth map showing the flow of small canal

Table PD-5. DIAs and IIAs (Pre-EIA)

Major Impacts	Remarks	Impact Barangays
DIRECT IMPACT AREA		
Disturbance of existing access/haul roads	Applicable only to haul/access roads from shale quarry to plant. Other roads already developed.	Brgys. Kiwalan and Dalipuga
Degradation of air quality	Unlikely. No Air Pollution Source Equipment (APSE). Only fugitive dusts which unlikely to reach ESRs (Environmentally Sensitive Receptors).	
Generation of solid and domestic wastes	Insignificant. Scraps during construction to be managed by Contractor. Soil wastes from quarrying are stockpiled and reused.	
INDIRECT IMPACT AREA		
Potential water resource competition	Not significant; underground water abstraction limited, from 2 existing deepwells.	
Normal vehicle movements impact (noise, vibration) on properties of the households residing along the haul and access roads for the proposed project.	Distant from ESRs	Brgys. Kiwalan and Dalipuga
The barangays/municipality which will benefit from the Company's SDMP	Enhancement	Brgys. Kiwalan, Dalipuga, Acmac, Bonbonon and Bunawan
Depletion of groundwater & degradation of quality	Not significant; underground water abstraction limited, from 2 existing deepwells. Siltation ponds in place.	
Impact on public access	Not relevant; public roads unaffected	
Threat to public health and safety	Not significant; No hazardous wastes, Safety and Health Protocols in place for all phases of production. Blasting is personally monitored by MGB – vibration always within allowable levels	

Based on the foregoing, the map of the DIA and IIA is shown in **Figure PD-8**.

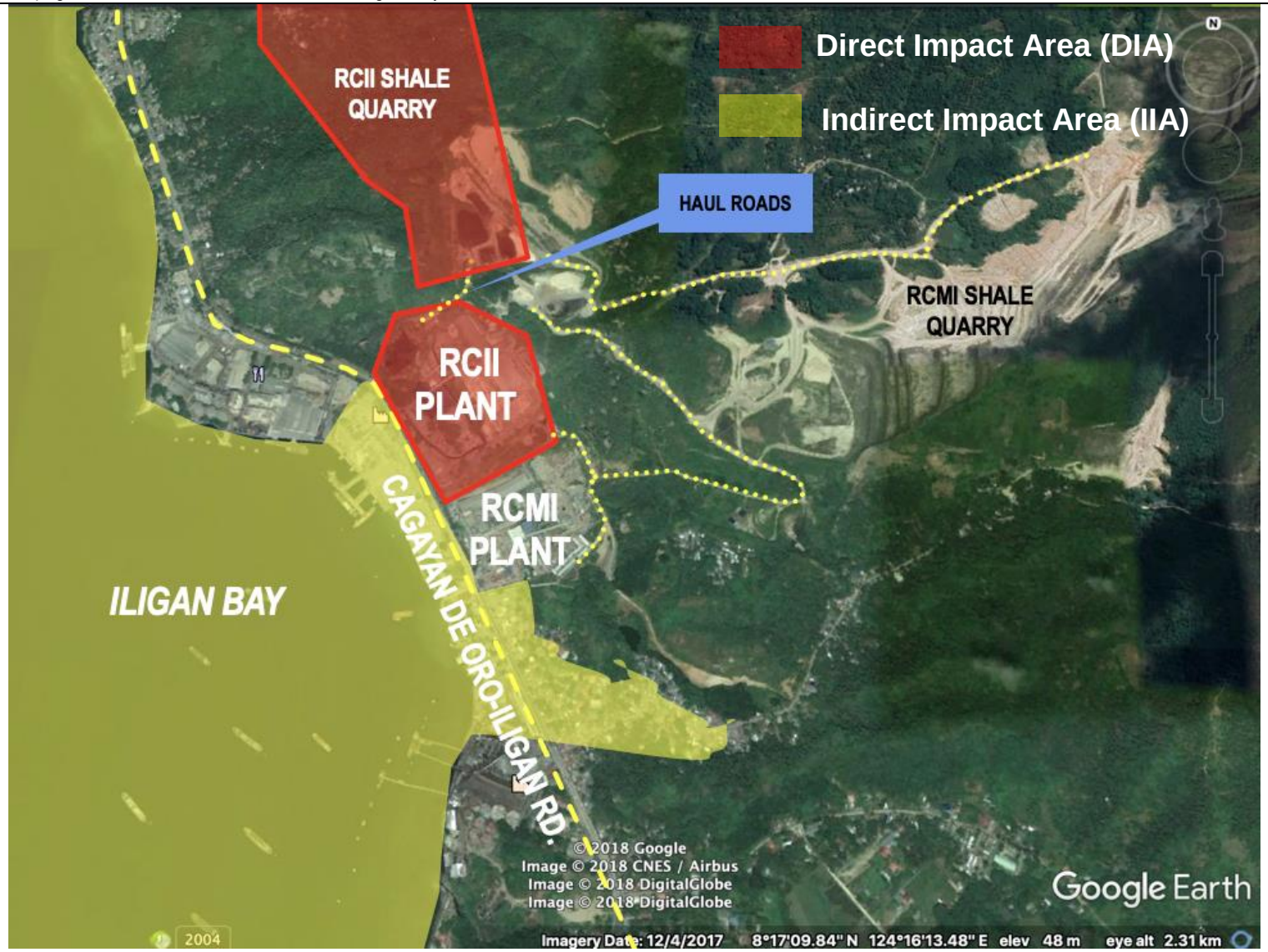

Figure PD-8. Map of the Direct Impact Area (DIA) and the Indirect Impact Area (IIA) (Pre-EIA)

3. Project Rationale

RCII believes that the construction of this project will contribute to the national and local economic development, to the sustainable development agenda and the current development thrusts of the Philippines as this project will be able to:

- Increase the clinker production capacity from 0.61 million metric tons per year to 3.70 million metric tons per year and Shale Quarrying production from 0.25 million metric tons per year to 0.80 million metric tons per year in order to support the future cement production requirement;

- Support and meet the fast growing demand of urbanization by increasing cement production capacity and that will contribute to increased local employment and increased tax revenue for the host community;

- Meet the increasing cement market demand by the private sector to support housing and industrial projects as well as that of the Philippine Government to support its Build-Build-Build Program.

4. Project Alternatives

Inasmuch as the project involves simple capacity expansion, alternatives/options for project implementation are both simple and limited.

4.1 Criteria for Process/Technology Selection

The standard process and technology will be applied by RCMI; these are based on the standards and process/technology of the Republic Cement Group adopting global standards and technologies and best practices.

The process involved in the planned project expansion is illustrated diagrammatically below:

Figure PD-9. Process Flow Diagram for the Expansion Project.

The RCII production is linked with that of the RCMI. The former starts with the quarrying up to the clinker storage which will be supplied to RCMI. In turn, the RCMI cement production only includes cement milling, storage, packing, and dispatching

- **<u>Quarrying, Crushing and Drying of Raw Materials</u>**

  RCII adopts the open pit type of quarrying procedures which it has successfully been employing in all its quarry/cement plant projects.

  Extraction of raw materials is done using the open-pit (quarrying) mining method. Quarrying is done from top to bottom to ensure safety in mining operation.

  Shale operations is concentrated at AQL-41 (5) which is developed towards elevation 30 MASL (B-30) as the final quarry floor within the southern half portion of the mining claim. The northern half of the quarry will be developed from elevation 90 m down to elevation 50 MASL (B-50).

  Shale quarry operations involves mainly bulldozer ripping, dozing and stockpiling to designated loading levels. Stockpiled shale materials are loaded by 6-7 yard wheel loaders to 35-ton off-highway trucks for delivery to the nearby crusher of RCII. Active benches will be

pushed back at 5-meter bench heights but final bench height will be at 10 meters height with 7 meters sub-benches to guarantee slope stability.
Crushing Methods

Raw materials are brought to the crusher for crushing. Crushed materials are made to pass through a series of screen to filter out larger sized materials. Maximum size of 800mm will be reduced to 150mm in the primary jaw crusher. The secondary crusher product is passed thru a screen to maintain a product output of 25-30 mm particle size. Oversized materials are then feed back to the secondary crusher for further reduction. All crushed materials are stored in the storage building ready for drying.

Drying Methods

Two drum dryers with a capacity of 145 TPH dries those crushed materials at correct sizes to its desired moisture content. These dryers are fired using mixed fuel: bunker and other fuel alternatives. Materials are fed at the feed inlet of the cylindrical drum and counter currently dried by hot gas produced from the dryer furnace. Controlled drum revolution, and dryer internal lifting flights allow sufficient material surface dispersion inside the dryer to effect moisture removal. Dried materials are then conveyed to the storage building ready for raw milling.

Grinding and Blending of Raw Materials

From the storage hall, the dried raw materials are proportioned and fed to a hopper and conveyed to the ball mill for the grinding process. At a capacity of 140TPH, the mill will produce raw meal at a desired target fineness of 11% retained at 90 um sieve diameter. Raw meal is then conveyed to the raw meal storage silo for proper blending. Further blending is done in the homogenizing silo to ensure complete mixing of the raw meal to target CaCO3 consistency level.

- **Clinkering Process**

The raw meal from the raw mix silo is conveyed through a bucket elevator onto the four-stage pre-heater tower. The meal is then fed o the first stage cyclone at a feed rate of 110 TPH and feed temperature of normally 50°C. The meal then suspend from the first stage cyclone (top) to the fourth stage cyclone (bottom). This preheating process ensures efficient heat transfer to dry and preheat the meal before the calcination process in the kiln. The available hot gas exhausted from the kiln is responsible for this heat transfer preparing the meal for the kiln burning.

The prepared meal is then fed from the fourth cyclone to the feed end. It is then calcined at temperature from 805°C to 1,200°C at the calcining zone. Formation of liquid phase and other minerals is observed in the transition zone at 1200°C to 1400°C. Clinkering then finally occurred at the sintering zone of the kiln where the zone temperature reaches the peak temperature of 1450°C. Clinker if formed and is slowly cooled bringing the temperature down from 1450°C to 1290°C in the cooling zone of the kiln.

Clinker is then discharged from the kiln to the Air Quenching Cooler for quick cooling further from 1290°C to 100°C. From the cooler, the clinker is transported to the clinker storage for stocking and ambient cooling.

- **Blasting**

Blasting will be employed in the quarrying operations as is already being employed at this time. Hence, no **added** environmental impacts nor risks are seen.

4.2 Criteria for Resource Utilization

The raw material option is necessarily limited for clinker production. The raw materials includes limestone (coming from the RCMI limestone quarry) and shale that come from RCII.

4.3 Alternatives Considered in the Decision of Proposed Location of Project Facilities / Components

The most feasible location/project site is in the existing facilities of RCII. The land is owned by RCII; hence there will be no issue on "Authority Over the Site" and the site is distant from the population centers.

5. Project Components

The coverage of this EPRMP is shown below:

Current/Existing ECC	Proposed ECC
Clinker Production: 0.61 MMTY Shale Quarrying Production: 0.25 MMTY Limestone Quarrying Production: 0.81 MMTY	Clinker Production: 3.70 MMTY Shale Quarrying Production: 0.80 MMTY Limestone Quarrying Production: 0.81 MMTY (**NO CHANGE ; WITHIN THE RCMI QUARRY**)

**MMTY : Million Metric Tons Per Year*

5.1 Support Facilities (i.e. energy/power generating facility, water supply system)

There will be no major facilities to be constructed in the area. The electricity requirement will be tapped from the National Power Corporation (NPC) lines.

Underground water extraction will be from the 2 existing company-owned deepwells to be used for domestic consumption, process water and water sprinkling along roads for dust control.

5.2 Pollution control devices and corresponding facilities being served or connected

Table PD-6 shows the existing list of major components, support pollution control devices and other environmental management safeguards used in project operation.

For the proposed new kiln line with a capacity of 3.70 million metric tons per year, it has new raw material storage, raw mill, kiln and cooler, and other support facilities equipped with bag filter dust collector as pollution control device,. In addition, the new kiln line will be equipped by state of the art New Bag House System as air pollution control device, which is more efficient compared to the conventional Electrostatic Precipitator.

Table PD-6. Summary Table of Air Pollution Control Facilities/Devices (APCF and APCD)

Area	Section	Type of APCF	Existing		Proposed	
			Capacity (CMH)	Operating Hours per Day	Capacity (CMH)	Operating Hours per Day
DRYER	Rotary Drum Dryer	Bag Filter Dust Collector	135,000	24	- same -	- same -
	Auxiliary (at dryer discharge)	Baghouse Dust Collector	14,000	24	- same -	- same -
	Bucket Elevator, Belt Conveyors, Material Storage	Baghouse Dust Collector	8,700	24	- same -	- same -
RAW MILL	Weigh Feeders	Baghouse Dust Collector	11,300	24	- same -	- same -

Area	Section	Type of APCF	Existing		Proposed	
			Capacity (CMH)	Operating Hours per Day	Capacity (CMH)	Operating Hours per Day
	RGM Separators	Multiclones	42,000	24	- same -	- same -
	Air Blending Silos	Bag Filter Dust Collector	6,630	24	- same -	- same -
	Raw Mix Silos	Bag Filter Dust Collector	7,200	24	- same -	- same -
PYRO-PROCESS	Rotary Kiln	Electrostatic Precipitator	146,160	24	- same -	- same -
	Air Quenching Cooler (AQC)	Electrostatic Precipitator	265,980	24	- same -	- same -
	Air Quenching Cooler (AQC) - discharge to storage	Bag Filter Dust Collector	5,700	24	- same -	- same -
COAL STORAGE AREA	Coal Vertical Roller	Bag Filter Dust Collector	41,340	24	- same -	- same -
	Fine Coal Silo	Bag Filter Dust Collector	5,100	24	- same -	- same -
FINISH MILL 1	Weigh Feeders	Bag Filter Dust Collector	10,140	24	- same -	- same -
	Mill	Bag Filter Dust Collector	100,800	24	- same -	- same -
FINISH MILL 2	Weigh Feeders	Bag Filter Dust Collector	12,600	24	- same -	- same -
	Mill	Bag Filter Dust Collector	84,000	24	- same -	- same -
Packhouse 1	Rotopacker No. 2	Bag Filter Dust Collector	27,016	24	- same -	- same -
	Rotopacker No. 4	Bag Filter Dust Collector	27,016	24	- same -	- same -
	Cement Silos	Bag Filter Dust Collector	16,210	24	- same -	- same -
Packhouse 2	Rotopacker No. 3	Bag Filter Dust Collector	24,000	24	- same -	- same -
	HBBF	Bag Filter Dust Collector	16,980	24	- same -	- same -
	Cement Silos	Bag Filter Dust Collector	8,700	24	- same -	- same -

Table PD-7. Summary Table of Air Pollution Control Facilities/Devices (APCF and APCD) for New Kiln Line

REPUBLIC A CRH-ABOITIZ COMPANY	TENTATIVE LIST OF MAJOR EQUIPMENT SPECIFICATIONS FOR 6500 TPD CLINKERIZATION PLANT REPUBLIC CEMENT IGILAN	Design Tribe
DESCRIPTION		
Primary Crusher		
-Material	Limestone	
-Type	Impact crusher	
-Rated Capacity	600 tph	
-Feed Size	1000 mm (max)	
-moisture	15% (Max)	
-product size	95%<75 mm ,90 mm (max)	
Limestone (Stacker and reclaimer)		
-Type	Circular	
-Capacity (stacker)	1000 tph	
-Capacity (Reclaimer)	500 tph	
-Material	Limestone	
-Pile Capacity (MLS)	32000 Mt	
-Pile Dia	~85 m	
Cross belt analyser	Limestone & Shale analysis	
Shale (Stacker and reclaimer)		
-Type	Circular	
-Capacity (stacker)	1000 tph	
-Capacity (Reclaimer)	500 tph	
-Material	Shale	
-Pile Capacity (MLS)	11000 Mt	
-Pile Dia	~60 m	
Coal (Stacker and reclaimer)		
-Type	Circular	
-Capacity (stacker)	300 tph	
-Capacity (Reclaimer)	150 tph	
-Material	Coal	
-Pile Capacity (MLS)	40000 Mt	
-Pile Dia	~100 m	
Vertical Roller Mill		
-Type	Raw Mill VRM	
-Rated Capacity	510 tph	
-Product Size	12 to 15 % on 90 Mic	
Bucket Elevator		
-Type	Chain Bucket Elevator	
-Material	Mill Feed & Mill Recirculation	
-Rated Capacity	850 tph	

DESCRIPTION	
Raw Mill Fan	
-Volume	~ 111,000 m3/Hr
-Pressure Drop	-1200 mmwg
Booster Fan for Cooler Gases to Raw Mill	
-Volume	~ 270800 Nm3/Hr
-Pressure Drop	-300 mmwg
RABH	
-Volume	6,50,000 - 10,00,000 m3/hr
-Pressure Drop	150 mmwg
Fan For Bag House /RABH	
-Volume	10,63,080 m3/Hr
-Satic Pressure	-1000 mmwg
Bucket Elevator (Silo feeding)	
-Type	Belt Bucket Elevator
-Material	Blending Silo Feeding
-Rated Capacity	510 tph
Blending Silo	
-Type	Inverted Cone
-Material	Raw Meal
-Rated Capacity	15000 MT
-Diameter	~18 Mts
-Rated Extraction Rate	2 x 220 tph
Bucket Elevator	
-Type	Belt Bucket Elevator
-Material	Preheater Feeding
-Rated Capacity	2 x 220 tph
Vertical Roller Mill For Coal	
-Type	VRM
-Rated Capacity	53 tph
-Product Size	15 % on 90 Mic
Bag house	
-Volume	~3,00,000 M3/Hr
-Pressure Drop	-850 mmwg
Bag House Fan	~3,03,500 M3/Hr
Booster Fan for kiln gases to Coal Mill	
-Volume	~85000 Nm3/Hr
-Pressure Drop	-650 mmwg

DESCRIPTION	
Pre heater	
Stages	5
Stream	2
KILN	
-Capacity	6500 tpd
-Size	5.0 -5.6 Mts (Approx.)
-Length	75 Mts (Approx.)
P.H Fan	
-Quantity	2
-Capacity	~489600 M3/hr
-Static Pressure	-750 mmwg
Clinker Cooler	6500 tpd (Guaranteed)
Clinker Crusher	
-Hydraulic Drives	~ 4 x 22.5 Kw
Cooler Vent Fan	
-Capacity	6,00,000 m3/hr
-Static Pressure	-200 mmwg
Clinker Silo	
Capacity	54000 Mt
Size	40 Mts Dia
All Belt Conveyors And Conveying Equipment required for Plant	
Weigh Bridge	
Capacity	1 Nos - 80 t - Unmanned
Plant Utilities	
Water/Air/Insulation/Fire fighting/Refractory	

5.3 Footprint of proposed layout of project facilities.

This is shown in **Figure PD-10** below**.**

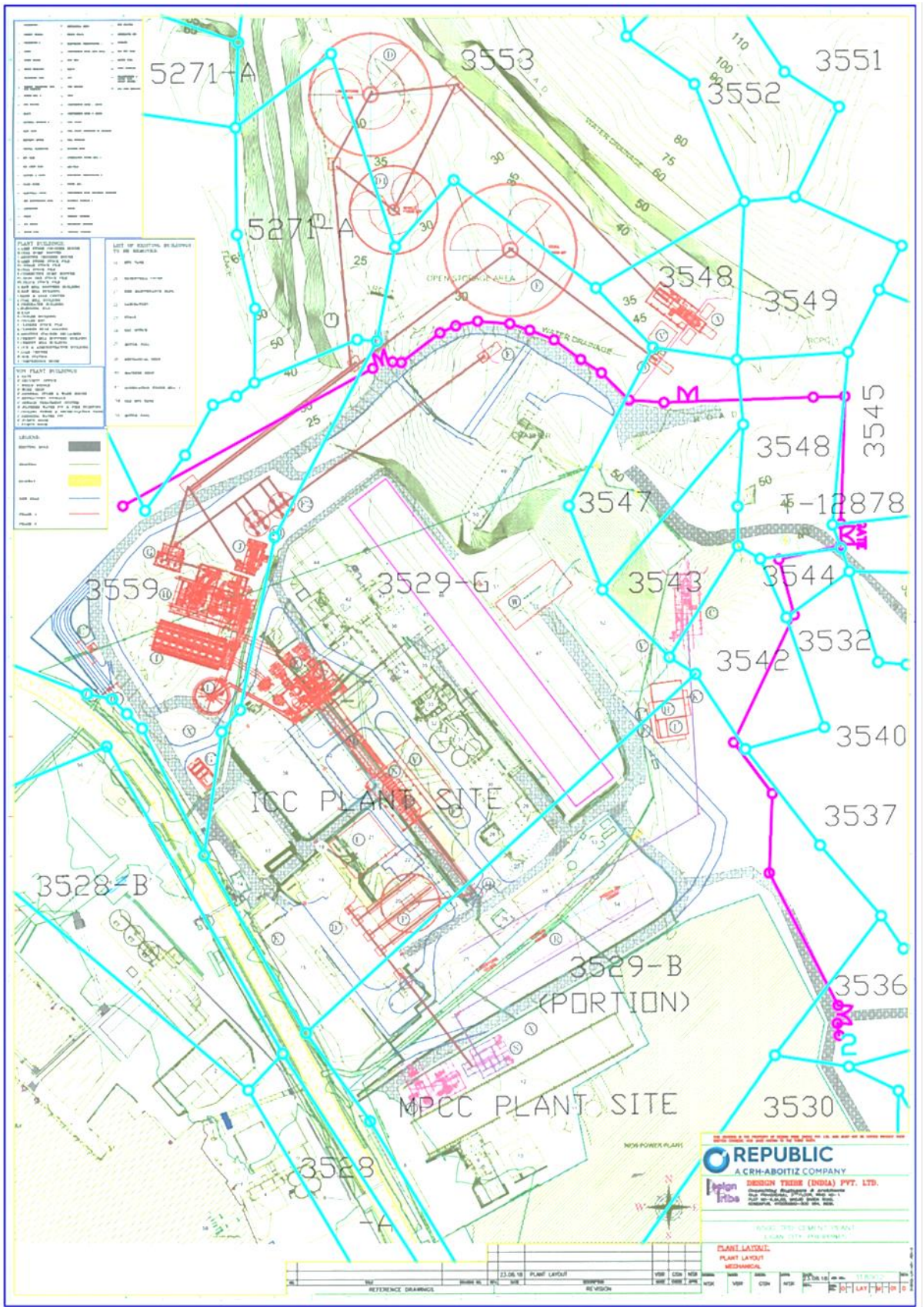

Figure PD-10. Existing Plant Layout (RCII) Superimposing Therein the Layout of the Expansion Facilities (Redline Drawing)

6. Process / Technology This is Section 4.1 above.

6.1 Waste Management System

The solid waste management program were embodied by three (3) levels for the collection/disposal of solid wastes. Level I is for offices and control rooms installed with collecting bins labeled as paper, food wastes and plastic, cans & glasses. Level II are color-coded bins strategically located throughout its plant and quarry areas. Level III are storage facilities for waste recovery and are as follows:

- Scrapyard - for metal scraps only
- Material Recovery Facility (MRF) - for non-biodegradable/recyclables for use as Alternative Fuel
- Hazardous Waste Storage Facility – for solid waste classified as hazardous
- Temporary Used Oil Storage – for waste oil and oil contaminated wastes
- Reusable Parts – for reusable mechanical parts
- Compost Pit – for biodegradable

Residual wastes are collected by a contractor as scheduled and are disposed to Bonbonon Sanitary Landfill.

Asbestos-containing materials, clinical wastes, and other hazardous wastes are temporarily stored and segregated at the Hazardous waste storage facility with proper labeling and with secondary containment. Busted fluorescent bulbs are placed inside plastic drums and sealed to prevent spillage in case bulbs are broken. Emergency oil spill kit is also provided in the facility.

For quarry operations, soil wastes (overburden) are stockpiled at designated quarry waste dump area. Overburden is used as backfilling materials for low-lying areas, and/or for the rehabilitation of mined-out areas. Overburden is also used as safety berms at haul roads.

7. Project Size

Referring to **Figure PD-10,** the land areas and the production rates are provided in **Table PD-6.**

The entire MPSA area covers 31.08 hectares of which only the AQL-41 (5) is utilized as existing shale quarry. The shale quarrying expanded operation will be within the same area.

The production rate is Clinker: 3.70 Million Metric Tons Per Year, Limestone: 810,000 Metric Tons Per Year, and Shale: 800,000 Metric Tons Per Year.

8. Development Plan, Description of Project Phases and Corresponding Timeframes

A description of the activities during the various project phase will provide inputs for impact Identification, environmental management plan and social impacts/appropriate socially-oriented program.

8.1 Pre-construction/ Pre-operational phase

This involves the exploration stage, project planning, the securing of appropriate Clearance(s) and permit(s) from the DENR / EMB principally the ECC and from the MGB, such as the MPSAs. Feasibility studies which include economics evaluation are integral part of this phase.

8.2 Construction/Development phase

Site preparation is essentially minimal because the land on which the facilities are to be constructed are developed.

Plates PD-2. Typical Photographs of Project Site RCII


REPUBLIC

Plates PD-3. Typical Aerial (Drone) Photographs of Project Site

8.3 Operational phase

This involves the actual quarrying, clinkering, up to storage. The cement manufacturing operations is not included in the expansion project.

8.4 Abandonment phase

By nature of the project, there will be no residual effects on land, water and air. Progressive rehabilitation shall be done on mined-out quarry areas.

Abandonment/commissioning will mean the stoppage of the operations. There will be no need for soil and water remediation. No significant amount of Hazardous Waste substances will be involved or generated by the project.

Projected Timeframe

Table PD-8. Project Timeframe

	Activity	Timeline (Month/Year)
1	Project Start-up and engineering (i.e. technical study, layout, costing)	July 2018 - Sept 2019
2	Permitting	Sept 2018 - Sept 2019
3	Contracting and acquisition of machinery	Jan 2019 - Dec 2019
4	Construction works and installation of machinery	Jan 2020 - Jan 2023
5	Commissioning	Jan 2023

9. Manpower

Manpower requirement during construction will be handled by a Contractor(s) with an estimated number of 800 workers hired from the community where possible (except for certain specialists). During operations, RCII will tap its existing manpower.

Most of the workers of RCII, including workers of its contractors, come from Iligan.

10. Indicative Project Investment Cost

The indicative project investment cost is approximately Php 16.4 billion.

11. Initial Environmental Impacts and Management Plan (IMP)

Table PD-9. Initial IMP

Environmental Aspects	Major Impacts	Option for Mitigation
LAND	Disturbance of the existing terrestrial flora and fauna; Minimal, land is developed	Revegetation as maybe necessary Avoidance
	Disturbance of the site topography/landform	Insignificant
	Construction of new access roads	Not needed
	Impact in existing land tenure issue/s	Not relevant
	Erosion Plant Quarry	Not relevant, site is generally flat and already developed Benching, progressive rehabilitation, siltation ponds Quarrying methodology approved by MGB
	Generation of Domestic and Solid Wastes Plant/quarry workers During construction phase, more wastes due to construction work force.	Minimal, number of persons involved small. Recycle/disposal To be managed by Contractor.
WATER	Potential disturbance of aquifers	Not significant. Limited underground water extraction and confined to quarry only. Process is DRY. No significant effluent waste discharges.
	Discharge of treated waste water to adjacent surface water bodies	
	Depletion of groundwater quality	
AIR	Degradation of air quality	Buffer zones Proper equipment maintenance
	Normal vehicle impact (noise, vibration) on properties of the households residing along the haul and access roads for the proposed project.	Use of silencers and mufflers for heavy equipment
PEOPLE	The host barangays/municipality which will benefit from the Company's SDP	Enhancement
	Threat to public health and safety	IEC, medical missions, Safety and Health Protocols, regular monitoring