SOLID NORTH MINERAL CORPORATION

EPRMP Summary for the Public (ESP) – English

SNMC Quarry Expansion Project

San Ildefonso and Doña Remedios Trinidad, Bulacan

Submitted to

2023

Project Fact Sheet

Project Name	Solid North Mineral Corporation (SNMC) Quarry Expansion Project				
Project Location	Brgy. Akle, Brgy. Alagao, and Brgy. Buhol na Mangga, San Ildefonso Brgy. Talbak, Doña Remedios Trinidad Province of Bulacan				
Type of Project	▪ Quarrying of limestone, shale and pozzolan ▪ Limestone pulverizing				
Project Size	**Major Components**		**Existing Capacity (as per ECC)**	**Additional Capacity**	**Proposed New Capacity**
	Quarrying	**Limestone**	7.1 MMTPY	Additional 3.6 MMTPY	10.7 MMTPY
		Shale	0.81 MMTPY	Additional 0.34 MMTPY total Shale and Pozzolan Extraction Rate	1.9 MMTPY (combined shale and pozzolan)
		Pozzolan	0.75 MMPTY		
	Limestone Pulverizing		1.5 MMTPY	None	1.5 MMTPY
Project Area	**Major Component**		**Existing Area (as per ECC)**	**Additional Area**	**Proposed New Area**
	Quarrying	**Limestone**	16.32 has	265 has	281.32 has
		Shale	13.69 has	175.5 has	189.19 has
		Pozzolan			
	Limestone Pulverizing		14.89 has		

Summary of Major Components

Component	Specifications
Quarry Operations	
PARCEL 1 (LIMESTONE)	
Quarrying ▪ Excavation ▪ Explosives Blasting ▪ Extraction of limestone, shale and pozzolan ▪ Transfer of limestone, shale, and pozzolan from quarry area to plant site	

EQUIPMENT	NO. OF UNITS	SPARE
Hydraulic drills	3	1
Rock breaker	2	1
Hydraulic Excavator	5	1
50 tonner Off Road Haul Truck	14	3
Road Grader	1	
Water truck	1	1
Road compactor	1	
Fuel Truck	1	1
Hydraulic Excavator	1	
Rock breaker	1	
Hydraulic Drill	1	

Parcel 2 (Shale/Pozzolan)

EQUIPMENT	NO. OF UNITS	SPARE
Dozer	1	0
Hydraulic Excavator	1	0
Hydraulic Rock Breaker	1	0
Hydraulic Drill	1	0
Road Grader	1	0
Compactor	1	0
Water Truck	1	0
OH Truck	8	2
Hydraulic Excavator	1	
Bulldozer	1	
Dumptruck	1	

Limestone Pulverizing	
Limestone Crushing and Conveying	▪ 3 units 250 tons per hour (TPH) Double-Stage Reduction System composed of Jaw Crusher, Impact Hammer & Vibrating Screen
Limestone Grinding	▪ MTW215 European Type Trapezium Mill composed of 4 units with a rated capacity of 40 TPH each
Limestone Storage	▪ 9,953 MT capacity
Pulverized Limestone Storage & Bulk Loading	▪ 900 x 4 MT capacity
Pollution Control Facilities	

Bag filters	8/10,000-20,000 m^3/min
Siltation Pond 1	1,881 m^3
Siltation Pond 2	2,618 m^3
Catchment Pond 3	422 m^3
MRF and Composting facility	4 MT
Hazardous waste storage facility	150 MT
Project Cost	**Php 300 Million**
EPRMP Preparer	LCI ENVI CORPORATION **Engr. Jose Marie U. Lim, MSc.** EIA Team Leader Unit 8L-M Future Point Plaza 3 111 Panay Avenue, Brgy. South Triangle, Quezon City, Metro Manila, Philippines Tel. No.: (632) 8652-5890

Process and Technology

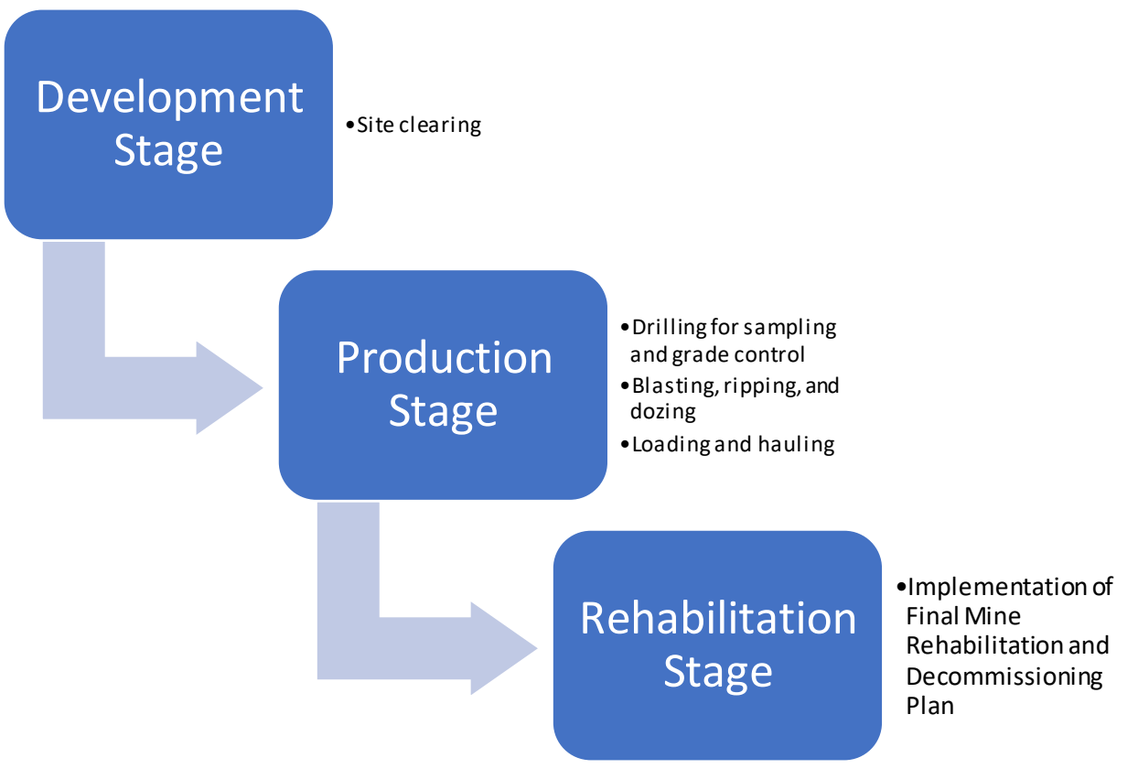

Figure 1: Quarry Production Process

Figure 2: Limestone Pulverizing Process

Resource Utilization

Water Supply and Demand

Figure 3 shows the water balance of the project. The total requirement of SNMC is 92 m^3/day, which includes water for domestic use, limestone pulverizing, flyash plant, and watering of roads and trees. The maximum capacity of the water source (Deepwell No. 1) is 1,253 m^3/day, which is more than enough to supply the requirement of SNMC. Additionally, SNMC has a lagoon with backup supply of 30,000 m^3.

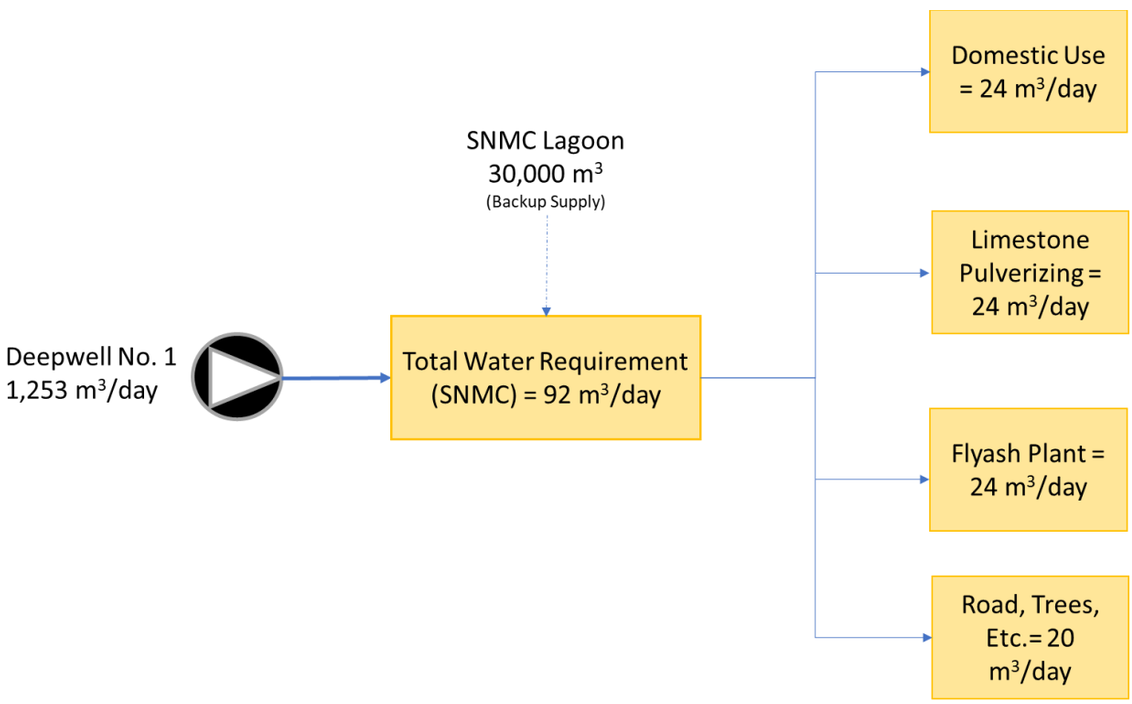

Figure 3: Water Balance of the Project

Power Supply and Demand

Manila Electric Company (MERALCO) has a substation powerhouse that supplies the electricity requirement of the plant with 15,000,000 kWh/year.

Proposed Location

The quarry sites of SNMC are within the MPSA 161-2000-III that is composed of two parcels.

- **Parcel 1** is within Brgy. Akle, Brgy. Alagao, and Brgy. Buhol na Mangga, San Ildefonso and Brgy. Talbak, Doña Remedios Trinidad
- **Parcel 2** is within Brgy. Alagao, San Ildefonso

The quarry sites for limestone will be within Parcel 1 while the quarry sites for the shale/pozzolan will be within Parcels 1 and 2.

The existing limestone pulverizing plant is within the lot of SNMC in Barangay Akle. A small portion of the lot is currently leased to Armstrong Fly-ash and Logistics Company, Incorporated, a fly-ash processing facility that is covered by a separate ECC. The impact of its operation was considered particularly on the cumulative impact on air quality.

Figure 4 shows the general location map of the project site, while Figure 5 shows the locations of the plant components.

Projected Timeframe

Activity/Milestone	2023				2024				2025
	1	2	3	4	1	2	3	4	1
1. Acquisition of applicable permits									
2. Filing of updated Final Exploration Report (FER)									
3. Commercial Operation									

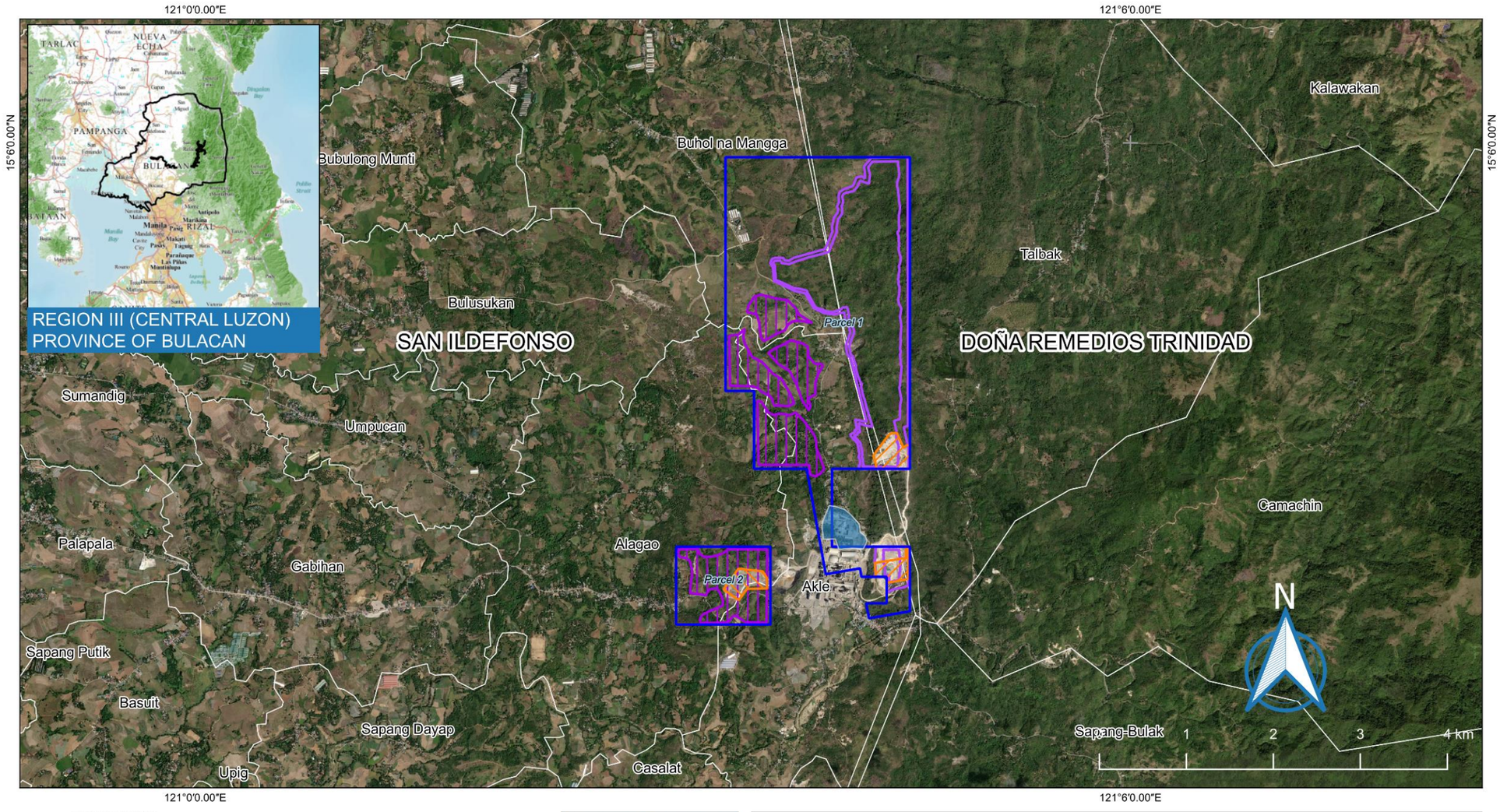

Figure 4 General Location Map

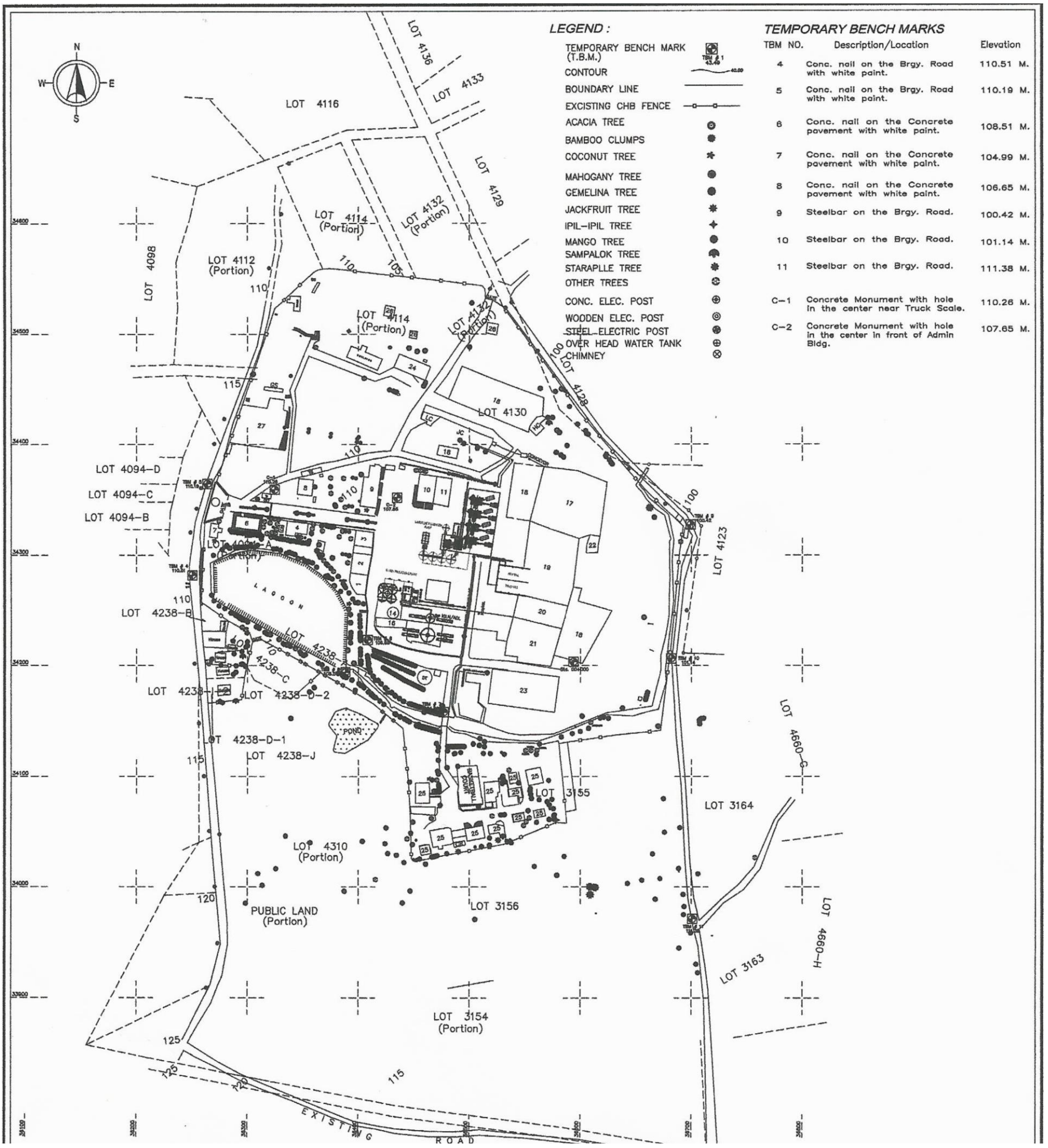

Figure 5 Locations of Plant Components

Summary of Impacts and Residual Effects after Mitigation

The main project impacts of the proposed Project for each environmental component are summarized in the following table:

Envt'l Aspect	Envt'l Component	Impact	Mitigating and Enhancement Measure	Target Efficiency
Quarry development and operations	The Water	Possible clogging of drainage and siltation of nearby rivers due to surface runoff from quarry areas	• Continue to operate and maintain existing sedimentation ponds to capture surface run-off and allow settling of particulates prior to discharge • Construct, operate and maintain sedimentation ponds in the proposed quarry expansion areas • Design and maintenance of road gradient • Construct and maintain drainage canals along haul roads, along bench toe and canals leading to the sedimentation ponds • Continue monitoring the effluent quality of siltation ponds • Continuous development and maintenance of buffer zones around the existing and additional quarry areas.	Results of effluent monitoring are within DENR 2016-08 Class C General Effluent Standards
	The Air	Increased levels of ambient PM_{10} and TSP due to quarry operations which may lead to air pollution and may pose health hazards to the workers and nearby community	• Continue watering the quarry sites and roads. • All trucks are covered. • Implementation of speed limit for the trucks • Continuous development and maintenance of buffer zones around the existing and additional quarry areas to act as natural barriers • Provision of PPEs to the workers	• Result of ambient air monitoring for TSP is within DAO 2000-81 • 100% compliance of workers on always wearing of complete PPEs
	The People	Increased occupational health and safety risks because of explosives use Possible impacts of blasting in the area are ground shaking (vibrations) and presence of fly-rocks, which may cause property damage	• Proper storage of magazines • Continuous extensive training for selected personnel in handling and operating explosives • Issuance of alarms and warning devices prior to and during blasting operations • Implement optimum blasting design through optimum blast holes pattern and optimum explosives loading to eliminate vibrations and fly rocks.	• Ground vibration will not be a nuisance to nearby residents. • No complaints from nearby community.
	The Land	Modification of existing terrain or drainage pattern in the quarry areas	• Maintain bench slopes at 75 degrees while quarry slopes at 45 degrees. • Monitor slopes for potential failures. • Continuous reforestation of mined-out areas through progressive rehabilitation	

Envt'l Aspect	Envt'l Component	Impact	Mitigating and Enhancement Measure	Target Efficiency
	The Land, Water	Removal of topsoil in the quarry areas. Improper management of topsoil/overburden may cause siltation of the nearby rivers due to surface run-off	• Continue implementing topsoil management plan that is compliant to DAO 2018-19 • Provision of topsoil storage facility • Immediate backfilling of topsoil during progressive rehabilitation	
	The Land	Loss of vegetation which cause loss of habitat for the existing fauna species in the quarry areas	• Continue implementing management plans and protection/conservation strategies in the quarry areas • Avoidance of unnecessary tree cutting. Perform earth-balling for trees when necessary • Plant nurseries are being operated and maintained. • Retaining and managing viable habitat units within and surrounding the project's development block areas • Continuous implementation of Mining Forest Program and National Greening Program activities • Conduct trainings, seminars and field demonstrations on company personnel on how to identify, care, propagate these threatened native tree species • Continuous implementation of approved Environmental Protection and Enhancement Program • Continuous reforestation of mined-out areas through progressive rehabilitation • Continuous development and maintenance of buffer zones around the existing and additional quarry areas.	
	The Air	Noise generation during blasting	• Quarry operations limited during daytime • Continuous development and maintenance of buffer zones around the existing and additional quarry areas to act as natural barriers	Results of ambient noise monitoring is within applicable NPCC standards
Operation of limestone pulverizing plant	The Air	Dust generation during limestone processing	• Operate and maintain filter bags in the equipment • Daily watering of dusty areas to avoid fugitive emissions from area sources	100% compliance to DAO 2000-81
	The Land, Water, People	Improper management of hazardous wastes that may cause soil contamination, water pollution and may pose health risks to the workers and nearby community.	• Hazardous wastes are managed in accordance to the requirements of RA 6969 • Proper maintenance of the on-site temporary storage area within the project site • The proper treatment and disposal of the hazardous wastes is done by a DENR-accredited waste transporter and/or TSD facility.	100% compliance to RA 6969
Use of heavy equipment	The Water, Land	Surface water, groundwater and land contamination due to oil spills and leaks from equipment	• Maintain canal in the maintenance and repair area of vehicles and equipment	Oil and grease in surface and ground water should

Envt'l Aspect	Envt'l Component	Impact	Mitigating and Enhancement Measure	Target Efficiency
			• All maintenance activities shall be conducted in designated area with concrete flooring • Proper maintenance of the drainage system within the maintenance area • Proper maintenance of OWS • Implement oil spill response program • Use sawdust, rice hulls, or coir dusts to absorb the oil spills • Constant and periodic monitoring of ground and surface water quality	remain within DENR standards
	The Air	Increased levels of SO_2, NO_x brought about by vehicle and equipment emissions	• Daily watering of dusty areas to avoid fugitive emissions from area sources	100% compliance to DAO 2000-81
Influx of workers	The Water	Surface and ground water contamination due to discharge of untreated wastewater	• Sanitation facilities are provided with septic tanks • Regular desludging of septic tanks	
	The Land, Water, People	Improper management of solid wastes that may cause soil contamination, water pollution and may pose health risks to the workers and nearby community.	• Implementation of a solid waste management plan consistent with RA 9003 • Hauling of solid wastes by accredited haulers	100% compliance to RA 9003
Effect of operations on economy	The People	Increased tax revenue	Proper registration, tax contribution, land registration and other laws/ordinances shall be followed	
		Increased employment opportunities	Priority in hiring of personnel shall be given to the directly affected residents.	
		Traffic congestion in Barangay Akle	Ensure that delivery trucks are parked in the parking space provided by **SNMC** Follow traffic management implemented by LGU.	
		Road safety hazards including road damage due to ingress and egress of heavy equipment and large vehicles.	Comply to truck load requirement. SNMC shall have an agreement with the LGU regarding road maintenance.	

Identified Key Stakeholders

The following project stakeholders have been identified based on the stakeholder groups indicated in Section 5 of DENR Administrative Order No. 2017-15:

- **LGUs in areas where all project facilities are constructed/situated and where all operations are undertaken (a)**
  - Municipality of San Ildefonso, Bulacan (host municipality)
  - Municipality of Doña Remedios Trinidad (host municipality)
  - Barangay LGU of Akle, San Ildefonso (host barangay)
  - Barangay LGU of Alagao, San Ildefonso (host barangay)
  - Barangay LGU of Buhol na Mangga, San Ildefonso (host barangay)
  - Barangay LGU of Talbak, Doña Remedios Trinidad (host barangay)

- **Government agencies with related mandate on the type of project and its impacts (b)**
  - DENR EMB Region III (Central Luzon)
  - Mines and Geosciences Bureau (MGB) Central Office
  - MGB Region III (Central Luzon)

- **Interest groups, preferably those with mission/s specifically related to the type and impacts of the undertaking (c)**
  - Senior Citizens Association
  - Women Sector
  - Youth Sector

- **Local institutions (d)**
  - Akle Elementary School
  - Alagao Elementary School
  - Buhol na Mangga Elementary School
  - Talbak Elementary School
  - Akle High School
  - Alagao High School
  - Buhol na Mangga High School
  - Talbak High School
  - Church Organizations

No "households, business activities, industries that will be displaced" (d) and "people whose socio-economic welfare and cultural heritage are projected to be affected by the project especially vulnerable sectors and indigenous populations" (e) have been identified for the project.

Other stakeholders for the project include the local peace-and-order groups (i.e., PNP, Brgy. Police) and concerned non-government organizations (NGOs).

Project Proponent's Statement of Commitment and Capability to Implement Necessary Measures to Prevent Adverse Negative Impacts

The institutional organization of SNMC for the project is shown in Figure 6. The organization is formed to achieve the following:

- Economical and safe operations and maintenance of the quarry and limestone pulverizing plant project components;
- Implementation of the company policies;
- Environmental compliance and sustainability; and
- Promotion and enhancement of the social acceptability of the proposed project.

The institutional organization will involve Solid North Mineral Corporation's top-level management, since this group is responsible for providing the corporate direction and policies of the company. The policies shall then be disseminated to department heads and managers for implementation of the company personnel, including those who will be working on the operations of the proposed project.

SNMC will establish an institutional partnership with relevant government agencies, various stakeholders, and the local host community in relation to the SNMC Quarry Expansion Project. This partnership is necessary to maintain a transparent and positive relationship for the Project and its stakeholders.

SNMC commits to:

- Comply with the conditions that will be stipulated in the ECC and other related environmental laws;
- Foster mutually beneficial partnership and cooperation with host communities;
- Promote sustainable use and responsible development of resources by adopting appropriate technologies;
- Develop livelihood programs and upgrade skills of host communities to contribute and enhance the quality of life; and
- Develop training programs for its employees which will ensure that they will be continually prepared for the tasks assigned to them.

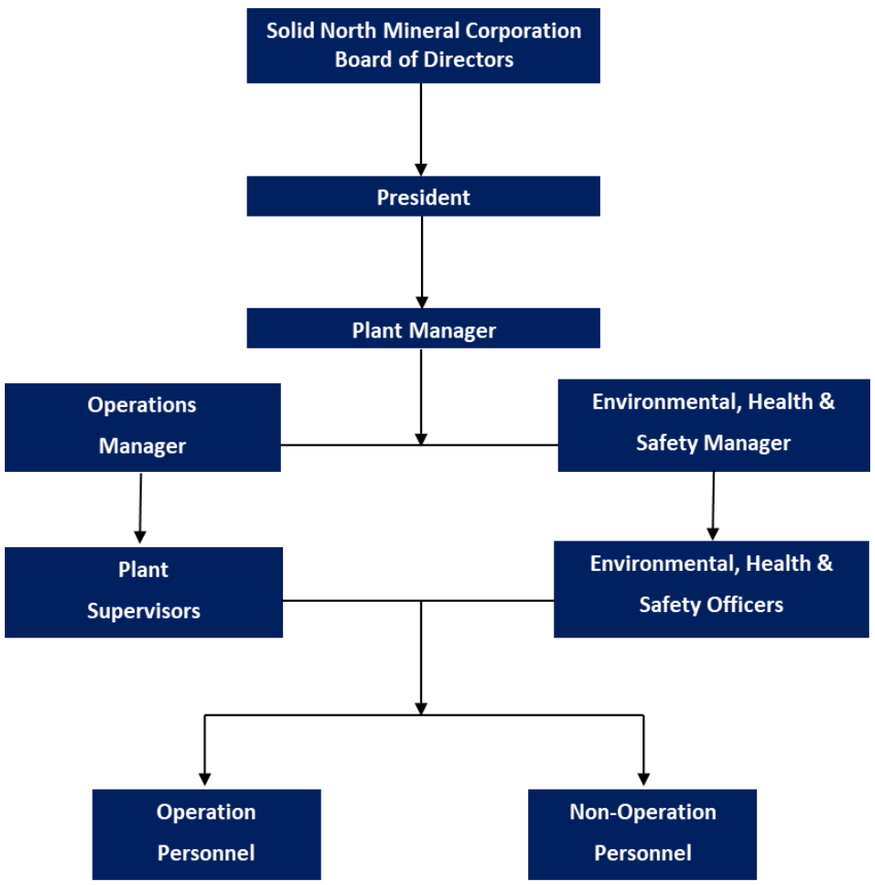

Figure 6 Organizational Chart for Institutional Plan

For more information on the **SNMC Quarry Expansion Project,** you may contact the following:

Proponent Name	SOLID NORTH MINERAL CORPORATION
Proponent Authorized Representative	**Mr. John Paul L. Ang** CEO **Leoner S. De la Torre** — Mining Engineer **Gerald Guiab** — Pollution Control Officer
Proponent Address and Contact Details	153 EDSA, Brgy. Wack-Wack, Mandaluyong City, Metro Manila, Philippines Contact no.: (02) 219-3857
EIA Preparer (Consultant)	LCI ENVI CORPORATION
Preparer Contact Person	**Engr. Jose Marie Lim, MSc.** EIA Team Leader
Preparer Address and Contact Details	Unit 8L-M Future Point Plaza 3 111 Panay Avenue, Brgy. South Triangle, Quezon City, Metro Manila, Philippines Tel. No.: (632) 8652-5890