1 PROJECT DESCRIPTION

The Semirara Molave Coal Project is envisioned to simultaneously operate the existing Molave and Narra (East Panian) Pits and the proposed Acacia Pit expansion while implementing the accelerated rehabilitation activities for the mined out Panian Pit.

The proposed expansion area is Acacia Pit which is located northwest of the Molave pit.

The Environmental Compliance Certificate (ECC) for the Panian Mine (ECC Ref. Code 9805-009-302) issued on August 12, 1999 stipulated an annual production capacity of 1.7 million metric tons (MT). An amendment for an increase in annual production capacity to 2.7 million MT was applied for by SMPC and was duly approved on May 31, 2002. A subsequent application for an increase to 4 million MT annual production capacity as applied for and approved by the DENR Secretary on May 26, 2005. On 27th of May 2009, the ECC (Ref. Code 9805-009-302A) for the East Panian Expansion Project was issued by DENR increasing the total annual production capacity to 8 million MT.

In 2015, SMPC applied for an ECC amendment to expand its operations by opening a new mine pit called the "Molave Pit" with an estimated resource of 38 MMT. The annual coal production was proposed to be increased from 8 MMT to 12 MMT. The expansion project was named as Semirara Molave Coal Project which includes the simultaneous operation of the Panian, Narra (East Panian) and the new Molave pit. On April The ECC application for the Semirara Molave Coal Project covers an annual production capacity of 12 million MT. The ECC for the Semirara Molave Coal Project (Ref. Code ECC-CO-1601-0005) was issued last February 12, 2016. An amended ECC was consequently issued which allows a larger total annual production rate of coal of 16 million metric tons; expands the area of the Molave Pit at West Panian from 300 hectares to 400 hectares; the number of housing units the company is permitted to build from 700 to 1,100; and increases reservoir capacity to 10 million cubic meters from 8.98 million cubic meters. An amendment to the Coal Operating Contract (COC) No. 5 of SMPC was also issued by the Department of Energy (DOE) last August 06, 2018 (**Annex A**).

In May 28, 2020, SMPC was issued with ECC No. ECC-CO-2001-0001 allowing amendments to the projects Narra Pit area to expand to 550 Has. at a depth 350 mbsl and Molave Pit area to 680 Has at a depth of 350 mbsl; Sea Barrier/ Backfill Area 1800 Has with an elevation of 10 masl minimum to 60 masl maximum; additional 500 units Housing units; installation of 3 x 6.3 MW Standby diesel generator set; increased desalination plant capacity 4,000 cum/day output; additional reservoir capacity of 2M cum/day. Production capacity will remain at 16MMT per year.

Recent developments in SMPC's exploratory activities (from 2018 to present) resulted to the discovery of additional coal reserves at the Molave pit. With an additional 61 drill holes, open-pittable coal reserve was re-estimated and showed a substantial increase from the initial estimate of 68.5 MMT to 91.0 MMT. Due to this development and with the current price of coal, the management decided to increase the annual coal production from the recently approved 12 million metric tons to 16 million metric tons. The Molave pit was reconfigured by extending the pit limit towards the northern, western, and southern part increasing the total mine pit area from 400 hectares to 680.

1.1 PROJECT LOCATION AND AREA

The Semirara Molave Coal Expansion Project (the Project) is located within Brgy. Semirara, Municipality of Caluya, Antique. This project is the opening of Acacia Pit adjacent to the existing Molave and Narra pits of SMPC.

Thus, the Semirara Molave Coal Expansion Project includes the mined out Panian pit and the Narra and Molave pits coal mine operations.

The proposed expansion area is located at the north western part of Semirara Island. The Project expansion area is covered by the amended Coal Operating Contract (COC) No. 5 within coal blocks No. 28-G-214, -215, -254, -255, -256, -257, -295, -296, -297, -335, -336, -337 and 376 (**Figure 1-1Error! Reference source not found.**) of Sheet No. XI-10 with geographic coordinates indicated in **Table 1-1**. **Figure 1-2** presents the location of the project relative to the other islands of Caluya, province of Antique and the neighboring provinces of Mindoro.

The area, bound by the geographic coordinates of COC No. 5 for Semirara Island (Project Area), includes both coastal and land areas. The total area covered by the amended COC No. 5, including the coastal areas, is 13,000 hectares (a total of 13 COC blocks with 1,000 hectares per block).

TABLE 1-1: AMENDED GEOGRAPHIC COORDINATES OF COC NO. 5

Corner	North Latitude	East Longitude
1	12° 10’ 00’’ N	121° 19’ 30’’ E
2	12° 10’ 00’’ N	121° 22’ 30’’ E
3	12° 08’ 00’’ N	121° 22’ 30’’ E
4	12° 08’ 00’’ N	121° 25’ 30’’ E
5	12° 02’ 00’’ N	121° 25’ 30’’ E
6	12° 02’ 00’’ N	121° 24’ 00’’ E
7	12° 00’ 00’’ N	121° 24’ 00’’ E
8	12° 00’ 00’’ N	121° 22’ 30’’ E
9	12° 02’ 00’’ N	121° 22’ 30’’ E
10	12° 02’ 00’’ N	121° 21’ 00’’ E
11	12° 06’ 00’’ N	121° 21’ 00’’ E
12	12° 06’ 00’’ N	121° 19’ 30’’ E

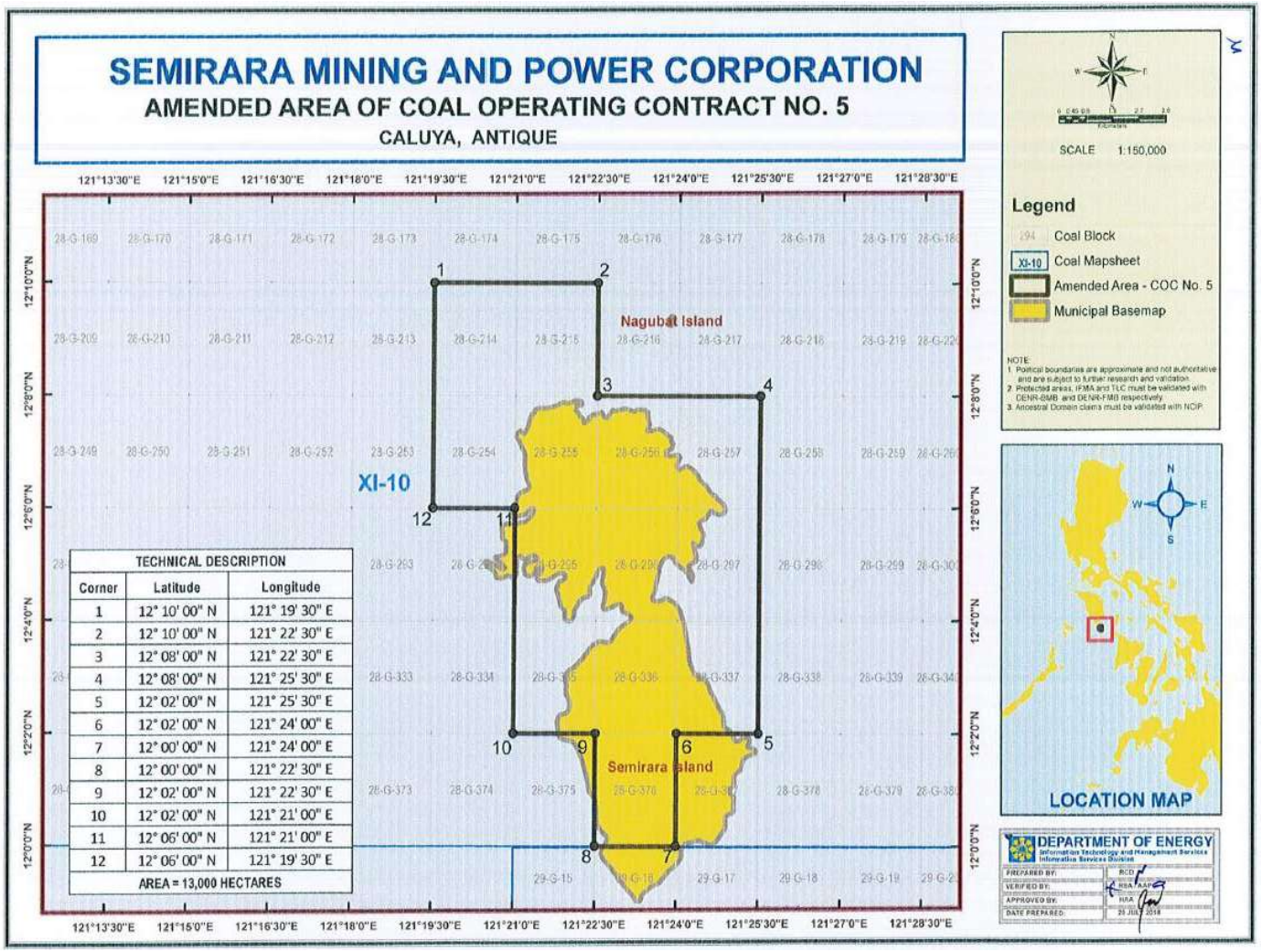


FIGURE 1-1: PROJECT AMENDED COC MAP

1.1.1 SITE ACCESSIBILITY

Semirara Island can be accessed by taking an airplane trip or bus trips via Batangas to the Municipality of San Jose, Mindoro Occidental located at the southern tip of Mindoro Island. Daily boat trips carry passengers to and from Semirara Island and the town of San Jose. The boats have a capacity of 6-10 tons and travel time is more or less three (3) hours depending on the sea and weather conditions.

The company also charters planes from Royal Star Aviation to service guests and employees to and from Manila. Manila-Semirara flights are usually scheduled on Mondays, Wednesdays and Fridays while Semirara-Manila flights are scheduled on Tuesdays, Wednesdays and Sundays.

Once in Semirara, company vehicles are available from the airstrip to various destinations via the existing road network. Outside the project area, tricycles are also available for hire to go around the island.

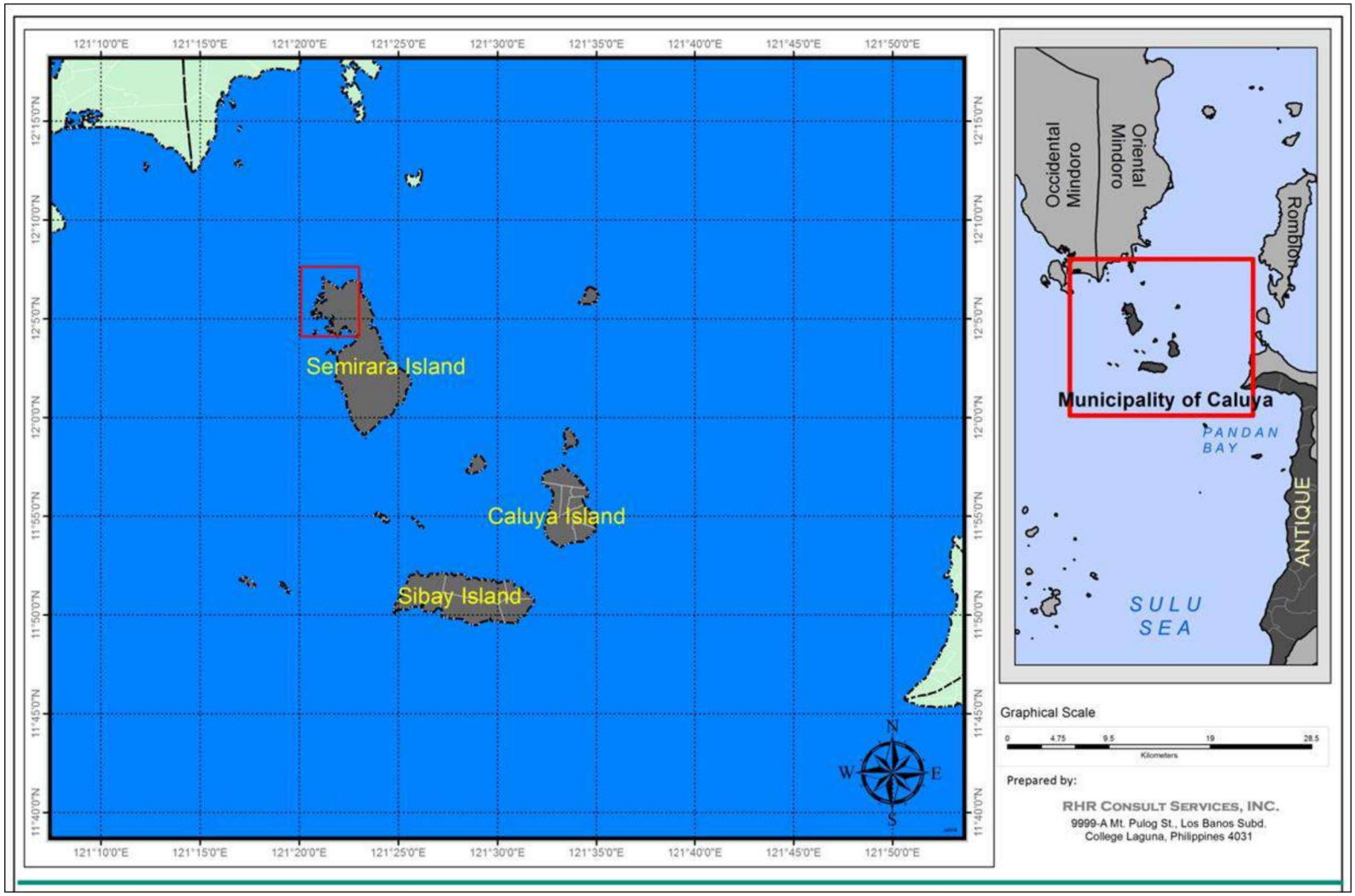


FIGURE 1-2: PROJECT LOCATION MAP

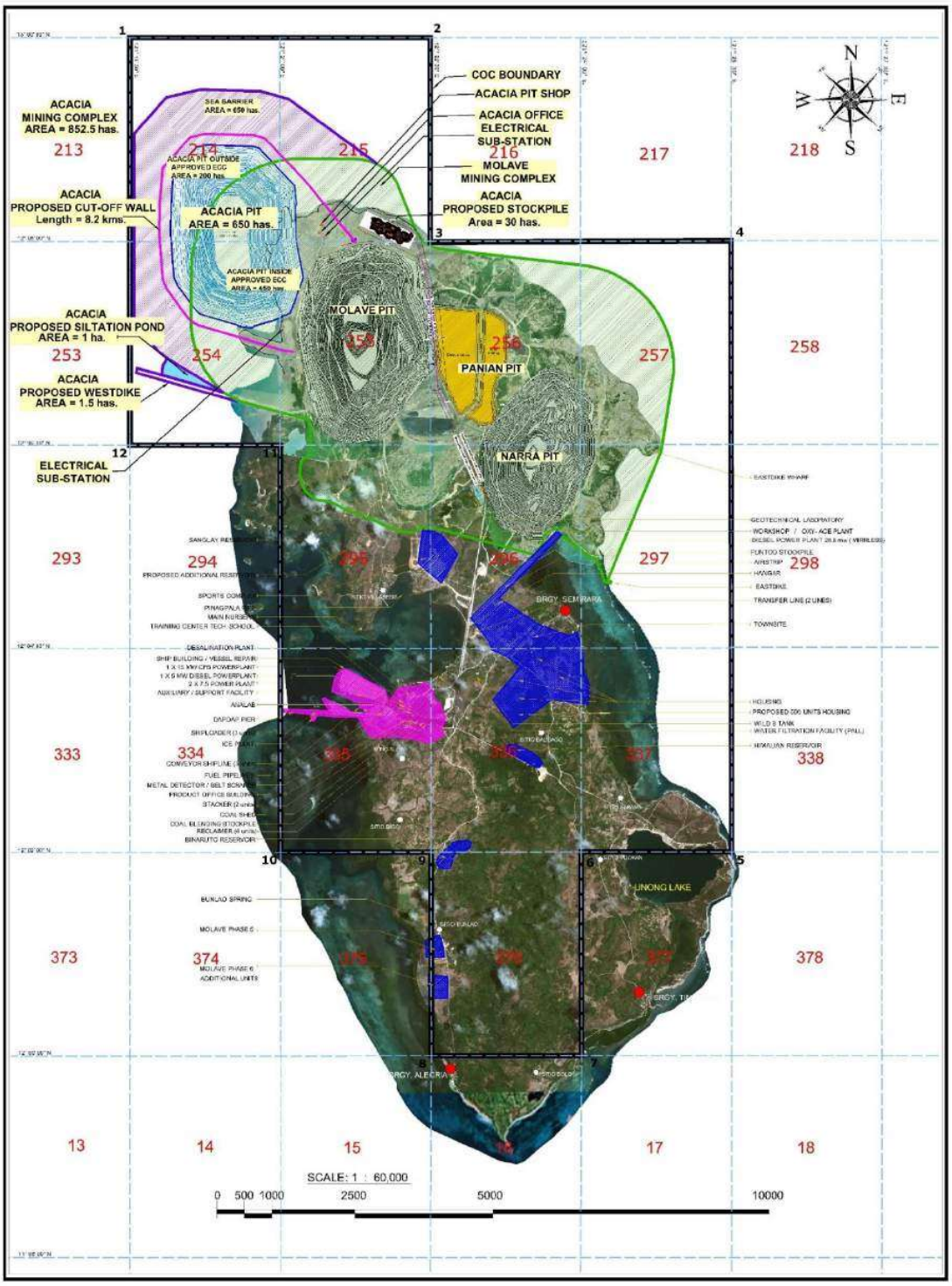
1.1.2 SELECTION OF DIRECT AND INDIRECT IMPACT AREAS

The project impact areas, illustrated in

FIGURE 1-3, were delineated based on the definition of the direct and indirect impact areas stipulated in the Revised Procedural Manual of DAO 2003-30 (2007).

The direct impact areas ("DIA") is the entire northern portion of Semirara Island where the Panian Pit, East Panian Pit, proposed Acacia pit and mine auxiliary facilities are located, all within the political boundaries of Barangay Semirara. Also included in the direct impact area are the marine waters surrounding the northern tip of the island. Indirect impact areas, on the other hand, are those outside the project boundaries or project's active area. In terms of socio-economic impacts, Barangay Semirara is the direct impact barangay while the adjacent barangays, Alegria and Tinogboc and the municipality of Caluya are indirectly affected by the project in terms of socio-economics.

FIGURE 1-3: PROJECT IMPACT AREAS



SEMIRARA MINING & POWER CORPORATION

A0

PROPOSED ACACIA MINING COMPLEX

1.2 PROJECT RATIONALE

1.2.1 NATIONAL ECONOMIC DEVELOPMENT

As part of the mandate of the Department of Energy (DOE), created under Republic Act 7638; the Philippine Energy Plan (PEP) was conceived and prepared for the period 1996 to 2025. The PEP was constituted to address the upsurge in economic growth and energy requirements. The plan intends to ensure the following:

- Sustain the momentum of indigenous energy resources and assure self-sufficiency and energy security of the country; and
- Promote fuel substitution and diversification in power generation. Diversification of indigenous power generation will decrease dependency on oil-based power generation and decreasing operating costs and improving reliability of power supply for the country.

In line with the PEP objectives, several new coal power plants have been initiated in the Philippines. The project shall supply fuel coal to the CALACA 2x300MW power plant with estimated 1.6 to 2.2 million metric tons per year consumption of Semirara coal as stipulated in the Coal Supply Agreement. Aside from the power sector, other industries like cement manufacturers are also shifting to coal, given the volatile costs of diesel or bunker fuel.

1.2.2 REGIONAL AND LOCAL ECONOMIC & SOCIAL DEVELOPMENT

At the local level, the Project will continue to provide employment opportunities to the residents of the Island. The Project directly or indirectly contributes additional income to the three barangays (Semirara, Alegria and Tinogboc) within the island and also to the municipal (Caluya) and provincial (Antique) government. The accrued direct benefits are taxes and employment, the improvement and development of local infrastructure, and the provision of basic services such as subsidized electricity. Indirect benefits include enhancement of economic activities in the area (big and small scale businesses).

1.2.3 COAL RESOURCE ESTIMATE OF MOLAVE AND NARRA

Since 1979, Semirara Mining and Power Corporation (SMPC, formerly Semirara Mining Corporation/Semirara Coal Corporation) has been producing high-volume coal from Semirara Island. SMPC has expanded to become the largest coal supplier in the country and also as a coal exporter to other countries. From an initial mine output of 1.7 MMT, the coal production of SMPC has soared to a rate of 8 MMT annually which is sourced from the current Panian coal mining operations, projected to be mined-out by 2016. Full mining operations shifted to Narra Mine (also referred to as Bobog Mine) in 2017 with annual production rate of more than 7 million tons (**Figure 1-4**). However, with the unexpected discovery of additional coal resources at Acacia and Molave, SMPC revised its mining plans to expand coal production up to 16 million MT tons annually.

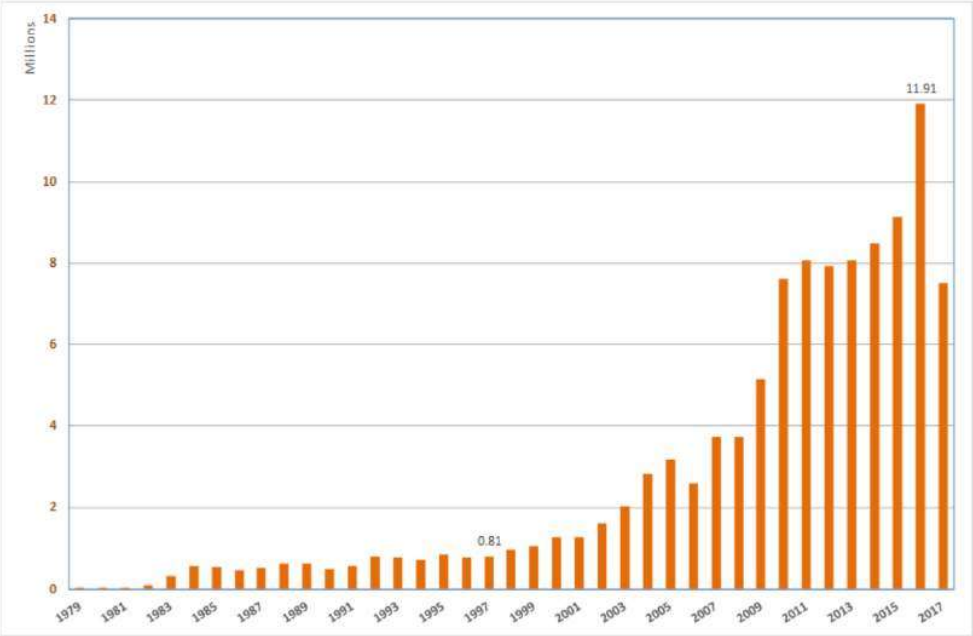


FIGURE 1-4: HISTORICAL PRODUCTION SINCE 1979

The estimated total mineable reserves down to 300 meters below sea level is at 90.9 million DMT, based on a cut-off thickness of 0.5 meters and a cut-off hating value of 7,000 BTU/lb. These mineable reserves consist of 15 seams ranging in thickness from 0.5 to 52.7 meters. As an upside to the Molave project, mining can be extended down to 350 l meters below sea level, which would increase the mineable reserve to 96.7 million metric tons at a stripping ratio of 8.97 cubic meters per metric ton of coal.

With an estimated overall mining recovery of 95%, this translates to total recoverable coal reserves of 86.4 million metric tons for a pit down to minus 300 meters pit bottom and 92.0 million metric tons for a pit down to minus 350 meters pit bottom.

As of December 31, 2017, 11.3 million metric tons had already been produced from Molave, leaving net recoverable reserves as of said date of 75.1 and 80.6 million metric tons for a pit down to -300 meters pit bottom and -350 meters pit bottom, respectively.

Considering that the project is already operating and that some of the mine facilities and equipment needed for the expansion are already existing, the development of the Molave and Narra Pits is the most cost-effective way to continuously meet the demand for inexpensive coal that is locally available. Coal consumption increase steadily as new coal-fired power plants are installed and industries switch to coal because of the highly volatile price of oil. Coal is used mainly in the generation of electricity and manufacture of cement. The expansion project is in-line with the country's goal to attain energy self-sufficiency.

1.3 PROJECT ALTERNATIVES

1.3.1 SITING CRITERIA

The proposed project expansion was based mainly on the Seismic Risk Analysis and Storm Surge and Tsunami Risk Assessment conducted for the Molave Mine. These studies had the following findings / conclusions:

a) The design Operating Basis Earthquake (OBE) for the Molave Open Cast Mine is estimated at magnitude M5.5 with a recurrence period of 15 years, which is the expected life of the SMPC mining operation. The PHGA for the in-situ rocks is equal to 0.17g. On the other hand, for the shallow, weak and loose soils, i.e., backfill, coral sands and claystones, the PHGA of 0.17g is magnified to 0.24g by the seismic amplifier coefficient of 1.39.

b) Of the three (3) main walls of the Molave Open Cast Mine, the north and west walls are stable in both static and pseudostatic conditions. In the east wall, all sections are stable in static condition. However, sections -E2, - E5 and -NE2 have FS = 1.0, which is below the required marginal pseudostatic FS of 1.1.

c) Using the four (4) criteria for liquefaction, the soils from Molave Mine are not prone to liquefaction.

d) The Molave Mine is categorized as “Safe Zone” since there is no active volcano within 200km radius of the Semirara Island. In this safe zone area, the volcanic risk to life and property is almost negligible.

e) Due to potential landslides during a M5.5 earthquake, unstable slopes in the backfill areas that have a Factor of Safety equal to 1.0 are recommended for unloading or removal of the backfill and coral sands at the crest of the slope sections -E2, -E5 and -NE2.

To minimize inundation, coastal areas must be i) extended 2.0 kilometers seaward; and ii) raised to more than 10.0m amsl elevation to act as storm surge/tsunami barrier (**Figure 1-5**).

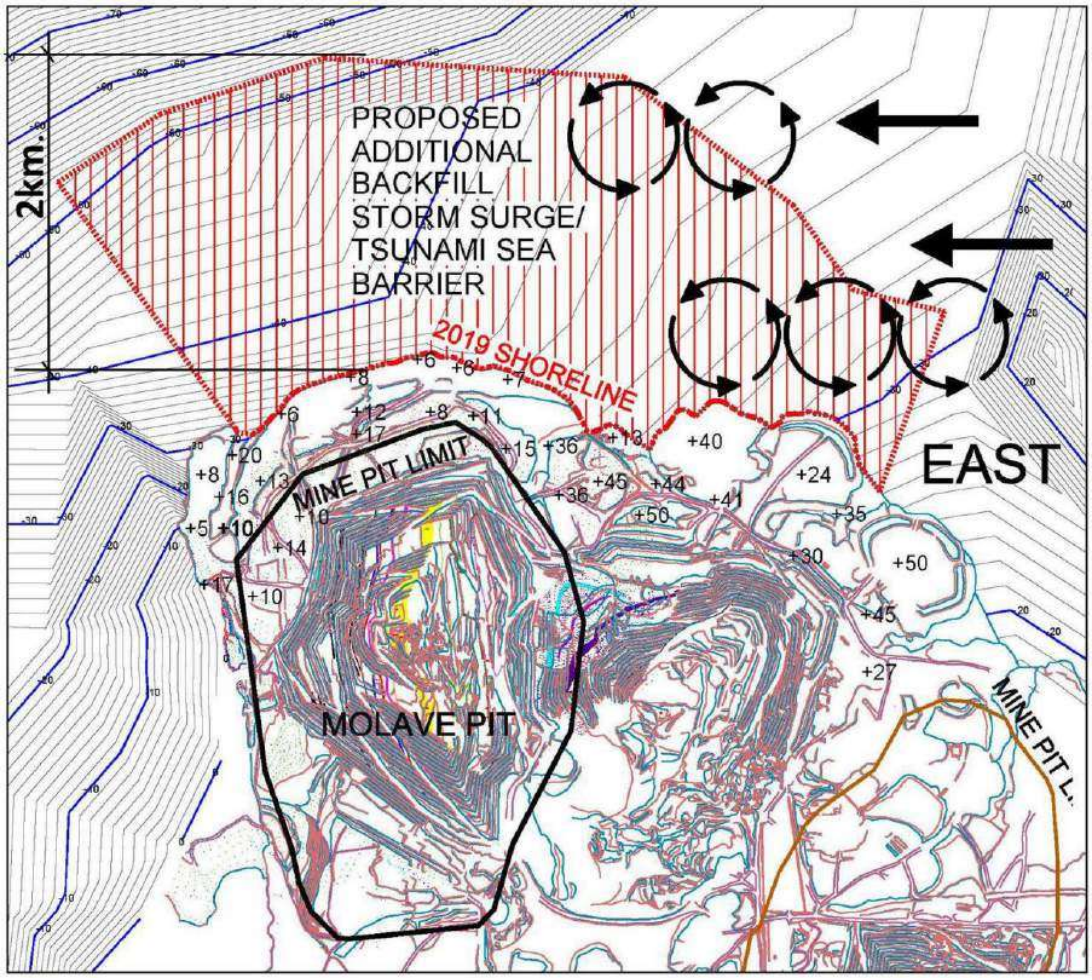


FIGURE 1-5: 1.5-KM TO 2.0-KM-WIDE ADDITIONAL BACKFILL AREA BEYOND THE 2019 MOLAVE MINE NORTHERN SHORELINE WITH A MINIMUM +10.0 MASL ELEVATION TO ACT AS STORM SURGE/TSUNAMI BARRIER.

1.3.2 TECHNOLOGY SELECTION

The current mining method of "Open Pit" using Excavators matched with 100-Tonner Dump Trucks shall be continuously employed to the project due to the similarity of geological formation of the Molave, Panian and Narra mine areas.

As recommended by the Seismic Risk Analysis and Storm Surge and Tsunami Risk Assessment reports (Geotecnica, 2019) conducted for the Molave Mine, to minimize inundation, coastal areas in the Molave Mine Area must be i) extended 2.0 kilometers seaward; and ii) raised to more than 10.0m amsl elevation to act as storm surge/tsunami barrier. The barrier will also be used by SMPC in its continuous exploration of the Molave mine area.

1.3.3 RESOURCES

Coal deposits are scattered over the Philippines but the largest deposit is located in Semirara Island, Caluya, Antique making the Semirara Mining and Power Corporation the largest coal producer in the country contributing about 92% of the local coal production. The entire Semirara Island has been classified as a coal mining reservation by virtue of Proclamation 649 of 1940.

There is a total recoverable coal reserves of 86.4 million metric tons for a pit down to minus 300 meters pit bottom and 92.0 million metric tons for a pit down to minus 350 meters pit bottom.

1.3.4 NO PROJECT ALTERNATIVE

The no project alternative is the option of not proceeding with the proposed expansion of the project. This option would result to the continuation of the Molave and Narra pits sites' current state. The safety and control of sea water seepage will still be managed by SMPC, however the potential additional 34 MMT estimated coal resource will not be utilized.

Considering that the project is already operating and that some of the mine facilities and equipment needed for the expansion are already existing, the development of the Acacia Pit is the most cost-effective way to continuously meet the demand for inexpensive coal that is locally available. Coal consumption increase steadily as new coal-fired power plants are installed and industries switch to coal because of the highly volatile price of oil. Coal is used mainly in the generation of electricity and manufacture of cement. The expansion project is in-line with the country's goal to attain energy self-sufficiency.

1.4 PROJECT COMPONENTS

1.4.1 MAJOR PROJECT COMPONENTS

Project major components are summarized in the table below. The major amendment for the project is the increase of the total mining complex area from 3,369.25 hectares to 4,369.25 hectares.

TABLE 1-2: MAJOR COMPONENTS

Project Component / Aspect	Description / Specifications	
	Existing / Approved	Proposed Modification / Expansion
▪ Mine Pit	Combined annual capacity = 16 MMT	No changes
	<u>Molave Open Pit</u> Status: Active ▪ Total Pit Area = **680 has** ▪ Ultimate Pit depth = **350 mbsl** ▪ Resource = **120 MMT** ▪ Reserve = **91 MMT** ▪ West Dike ▪ Facilities: o Molave Complex o Fuel Dispenser	No changes
	<u>Panian Open Pit</u> Status: South Panian Accelerated Rehabilitation ▪ Backfilling & Planting of trees	No changes. Continue Accelerated Rehabilitation Backfilling & Planting of trees.
	<u>Narra Open Pit ("East Panian")</u> Status: Active ▪ Total Pit Area = **550 has** ▪ Ultimate Pit depth = **350 mbsl** ▪ Resource = 72.7 MMT ▪ Reserve = **69.7 MMT** East Dike Extension ▪ Facilities: o Narra Complex o Fuel Dispensers	No changes
	Add'l Mining Complex= **1,000 hectares** Add'l Pit Area = **430 hectares** Total Mining Complex = **4,369.25 hectares** Total Pit Area = **1,630.00 hectares** (Panian Narra & Molave) Mining Complex expansion is due to: ▪ widening of sea barrier for safer mining operation and better control of sea water seepage. ▪ increase in pit area by 1,630 Has ▪ increase in coal reserve by 34MMT Confirmatory & exploratory drills	<u>Acacia Open Pit</u> Status: ▪ Total Pit Area = 650 has. ▪ Ultimate Pit depth = 350 mbsl ▪ Resource = 86.3 MMT ▪ Reserve = 66.3 MMT ▪ West Dike Extension ▪ Facilities: -Acacia Complex -Fuel Dispensers

Project Component / Aspect	Description / Specifications	
	Existing / Approved	Proposed Modification / Expansion
Sea Barrier / Backfill Area	1,800 has. Sea Barrier / Backfill Area Total Mining Complex = 4,369.25 has.	Additional 852.50 has. Sea Barrier / Backfill Area for Acacia pit Total Sea Barrier / Backfill Area = 2,652.50 has. Total Mining Complex = 5,221.75 has.
Coal Auxiliary Stockpile	Molave Coal Stockpile with a capacity of 3 MMT (30 hectares)	To be relocated within the mining complex area with additional conveyor line extensions (Line 1 and Line 2) near Acacia pit (See Figure 1)
	Puntod Auxiliary Stockpile with a capacity of 1.3 MMT (Area 16 hectares) Auxiliary Stockpiles Combined Capacity = 4.3 MMT	No changes. Auxiliary Stockpiles Combined Capacity = 4.3 MMT
Coal Washing Plant (CWP)	600mt/hr capacity located at Panian	No changes. Shared facility.
Coal Conveyance System for Shifting	Conveyor System: Line 1 & 2 from Molave Auxiliary Stockpile to CBS with 4 BWEs & 2 Stackers Belt Width: 1.4m Belt Length: 12.5 kms. Line1 Extension: 1.8 km. Line 2 Extension: 2.3 km. Total belt length = 16.6 km	Coal line 1&2 from Molave Auxiliary Stockpile to CBS with 4 BWE's & 2 Stackers ***Shifting of K1B line & TCA line for Narra Expansion** K1B line1 shifting = 1.30 km TCA line2 shifting = 1.67 km **Total belt length = 15.31 km**
Coal Conveyance System for Acacia pit		**Coal line 1&2 from Acacia Auxiliary Stockpile to CBS with 4 BWE's & 2 Stackers** Belt width = 1.4 M Belt length = 15.31 km Line1 extension = 4.35 km Line2 extension = 4.52 km **Total belt length = 24.13 km**
Coal line 1 = 4.35 km		**<u>Coal line 1 = 4.35 km</u>** **(Divided into 4-lines)** Conveyor Belt = 9,239.98 M Conveyor Drive = 12 units gearbox @320KW motor Conveyor Frames = 721 sets Conveyor rollers = 3,482 sets (CR) = 1,442 sets (RR)
Coal line 2 = 4.52 km		**<u>Coal line 2 = 4.52 km</u>** **(Divided into 4-lines)**

Project Component / Aspect	Description / Specifications	
	Existing / Approved	Proposed Modification / Expansion
		Conveyor Belt = 9,239.98 M Conveyor Drive = 12 units gearbox @320KW motor Conveyor Frames = 724 sets Conveyor rollers = 3,617 sets (CR) = 1,448 sets (RR)
Loading Pier	Dapdap Pier major components: ▪ Shiploaders ▪ Reclaimers ▪ 11.87km conveyor lines ▪ Set of crushers, sampling units and water spraying system	No changes. Shared facility.
	Dapdap Wharf, East dike wharf	No changes. Shared facility.
Coal Blending	Capacity = 140,000.00 MT Area = 7 hectares Major components: ▪ Stackers ▪ Coal Shed ▪ Product, Mechanical & Electrical Office ▪ Sampling shack ▪ Electrical Main Station ▪ Coal Silo 1 and 2 for Power Plants	No changes. Shared facility.

Increase in production entails a significant expansion of equipment and facilities particularly in mining and handling of product coal. The current mining direction could produce a total of 756.25 Million BCM of materials composing of 716.26 Million BCM of overburden and 55.98 Million MT of Coal at a stripping ratio of 12.79 for the years 2019 to 2022. In order to attain this, additional units of excavators and dump trucks shall be in place until 2022 as depicted in the following table:

TABLE 1-3: FLEET DISTRIBUTION FOR 2019-2022

PARTICULAR	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
	MOLAVE	MOLAVE NARRA	NARRA		NARRA ACACIA		ACACIA PIT			
EXCAVATOR	45	45	41	38	36	36	36	36	36	36
DUMP TRUCK	324-296	314-296	296-287	317-287	252	270	270	270	270	234
BULLDOZER	21	21	21	21	21	17	17	17	17	17
WHEEL DOZER	19	19	19	19	19	19	19	17	17	17
GRADER	13	13	13	13	13	12	12	12	12	12
SMALL PS	18	18	18	18	18	18	18	18	18	18

The current mining method at the Narra and Molave Pits is by trucks and excavators, with compliment bulldozers and payloaders. Bucketwheel excavators, which were used extensively at the Unong Pit are now confined to stacker-and reclaimer functions at the stockpiles and waste dumps.

1.4.2 SUPPORT FACILITIES

The matrix below summarizes the proposed enhancement/expansion of the support facilities of the Project.

TABLE 1-4: PROJECT SUPPORT FACILITIES

Project Component / Aspect	Description / Specifications	
	Existing / Approved	Proposed Modification / Expansion
Water Supply	Desalination Plant (Reverse Osmosis): 11,000 cu.m./day existing capacity out of the approved 14,000 cu.m./day	No changes. Shared facility.
	▪ Reservoirs: Sanglay 1& 2, Himalian, Binaroto	No changes. Shared facility.
	▪ Springs / Deepwells: Bunlao Spring, Panian Deepwells and Freshwater (FW #4) at Sitio Spring	No changes. Shared facility.
	▪ Water Filtration Facilities ▪ Water Tanks at Wild B (Total 15.5 Million Liters Capacity)	No changes. Shared facility.
Power Supply	Generator sets (Bunker/Diesel) ▪ Mirrlees 1 x 4.2 MW ▪ Wartsila 1 x 5.7 MW ▪ Wartsila 3 x 6.3 MW = 18.9 MW ▪ Total = 28.8 MW	No changes. Shared facility. ▪
	Coal Fired ▪ 2 x 7.5 MW Stocker type (reconditioned) ▪ 1 x 15 MW CFBC (1ST unit) The second unit 1x15 MW CFBC shall be built to supply power for the growing demand of electricity. This covered for a 30 MW-capacity CFBC power plant Total Projected Capacity (Coal-fired): 45 MW	Coal Fired: ▪ 2 x 7.5 MW Stocker type (for decommissioning) ▪ 1 x 15 MW CFBC (1ST unit) (no changes) ▪ The second unit 1 x 15 MW will be increased to 1 x 30 MW CFBC due to the decommissioning of 2x7.5MW. Total Projected Capacity 45 MW
Housing	▪ 300 housing units (Panian, Narra) ▪ 400 housing units (Molave) ▪ 400 housing units (Molave Expansion) ▪ 500 housing units (Additional) Total Housing Unit: 1,600 Area: 192 hectares	No changes. Shared facility.
Laboratories	▪ Coal analysis ▪ Oil, fuel, soil, CaO & H_2O analysis Upgrading of facilities to accommodate increase in Coal, Oil, Fuel, Soil, CaO & H_2O samples	No changes. Shared facility.
	Geotechnical Laboratory and core sampling facility	No changes. Shared facility.

Project Component / Aspect	Description / Specifications	
	Existing / Approved	Proposed Modification / Expansion
Pit Shops	▪ Pit Shop at Narra Pit ▪ Pit Shop at Molave Pit	▪ Pit Shop at Narra Pit ▪ Pit Shop at Molave Pit ▪ Pit Shop at Acacia Pit
Main Work Shop (MWS)	▪ Tire Shop ▪ Admin and HRD Bldg. ▪ Warehouse & Extension	No changes. Shared facility.
Plants	▪ Oxy-ace Plant ▪ Batching Plant/ Aggregate Stockpiles/ Culvert fabrication ▪ Proposed Cement Plant with approved ECC	No changes. Shared facility.
Infrastructures and other facilities	Other Supports (Mining, Shipping and Environment) ▪ Hazmat ▪ Marine Hatchery and Laboratories ▪ Aviary ▪ Siltation Ponds and pocket sumps ▪ Fuel Farm ▪ Fabrication Area/Sandblasting Facilities, Gantry, Shipping office ▪ Slipway/Drydocks, and Ship Building ▪ Pottery ▪ Humic Acid Plant ▪ Limestone Crush and Lime plant ▪ Dynamite Magazine ▪ Cell Site Towers ▪ Pinagpala Pier	No changes. Shared facility.
	Community Supports ▪ Divine Word School of Semirara Island Incorporated ▪ Semirara Training Center ▪ K-12 school bldg. ▪ Community Pier ▪ Ice Plant	No changes. Shared facility.
	▪ Sewerage Treatment Plant ▪ Hospital ▪ Sports Complex @ 42 has ▪ Air strip and Hangar @ 23 has ▪ Semirara Market, Bus Terminal, Churches, Foodcourt and Mess hall/Plaza ▪ Multi-purpose gyms ▪ Library	No changes. Shared facility.

1.4.2.1 WATER SUPPLY

1.4.2.1.1 WATER USE

SMPC developed Sanglay 1 Reservoir in 2004, Casay Reservoir in 2012, and Sanglay 2, Himalian and Binaroto Reservoirs in 2016 to ensure reliable supply of freshwater for industrial, domestic and irrigation use. Other sources of raw water include Bunlao Spring in Barangay Alegria, FW#4 at Sitio Spring, and deep well in Panian. In 2018, average daily consumption averaged 2,346.69 m^3. Most of the supply went to industrial purposes followed by domestic uses. With the opening of Molave, mining capacity will roughly increase by as much as 40%, thus, most facilities and support services will be expanded proportionately with the existing project operation. With the consequential increase in manpower and production, it is projected that water demand will increase to 23,622 m^3/day in 2019.

However the opening the Acacia pit will have no significant changes in water supply and consumption.

TABLE 1-5: WATER CONSUMPTION IN 2018

WATER SOURCE	UNIT	January	February	March	April	May	June	July	August	September	October	November	December	TOTAL	PURPOSE
Surface Water Total water withdrawal															
SANGLAY LAKE	m³	21,777	20,926	21,476	29,962	11,856	11,693	26,091	20,779	43,217	11,700	10,315	6,946	**236,736**	Domestic
	m³	21,777	20,926	21,476	29,962	11,856	11,693	26,091	20,779	43,217	11,700	10,315	14,060	**243,850**	Industrial
BUNLAO SPRING	m³	8,640	7,840	8,640	8,170	3,440	4,620	4,763	4,230	4,630	4,560	3,025	3,205	**65,763**	Domestic
FWW # 6	m³	10,105	7,605	6,805	6,509	3,237	4,502	4,305	4,860	4,263	4,850	4,002	4,023	**65,066**	Irrigation
SANGLAY SPRING	m³	9,400	10,100	10,400	9,890	5,501	5,150	5,260	5,326	5,102	5,002	4,630	4,236	**79,997**	Irrigation
TOTAL	**m³**	**71,699**	**67,397**	**68,797**	**84,493**	**35,889**	**37,657**	**66,509**	**55,973**	**100,429**	**37,812**	**32,287**	**32,470**	**691,412**	
Ground Water Total water withdrawal															
PUNTOD DEEP WELLS	m³	5,581	5,165	6,265	6,001	2,878	3,814	3,452	3,212	3,031	1,092	2,118	1,103	**43,711**	Domestic
	m³	5,581	5,165	6,265	6,001	2,878	3,814	3,452	3,212	3,031	1,092	2,118	1,103	**43,711**	Industrial
UNONG DEEP WELLS	m³	6,373	6,173	6,923	6,744	2,097	1,908	1,297	1,503	1,781	1,028	1,763	1,315	**38,904**	Domestic
	m³	6,373	6,173	6,823	6,744	2,097	1,908	1,297	1,503	1,781	1,028	1,763	1,315	**38,804**	Industrial
TOTAL	**m³**	**23,908**	**22,676**	**26,276**	**25,490**	**9,950**	**11,443**	**9,497**	**9,428**	**9,624**	**4,239**	**7,762**	**4,836**	**165,129**	
Seawater Total water withdrawal															
Intake For Desalination Plant	m³	-	-	-	165,538	343,319	320,300	357,683	332,371	236,161	322,809	334,211	347,646	**2,760,038**	
intake for 2x7.5 mw power plant	m³	1,789,800	1,439,000	1,244,400	1,677,000	1,675,700	1,695,887	1,841,981	1,363,245	-	888,688	905,804	864,667	**15,386,172**	
Intake For 15 Mw Power Plant	m³	1,803,273	1,472,584	1,583,551	1,660,963	1,769,212	2,644,852	2,690,218	2,757,400	2,636,965	2,378,382	2,333,679	1,839,814	**25,570,893**	
TOTAL	**m³**	**3,593,073.00**	**2,911,584.00**	**2,827,951.00**	**3,503,501.11**	**3,788,231.19**	**4,661,038.50**	**4,889,881.66**	**4,453,016.44**	**2,873,125.70**	**3,589,879.00**	**3,573,694.00**	**3,052,127.00**	**43,717,102.60**	

1.4.2.1.2 WATER SUPPLY ENHANCEMENT

Water for the project is currently sourced from rainwater five reservoirs (Sanglay 1, Sanglay 2, Casay, Himalian, and Binaroto) constructed strategically within the project area. Water from a developed spring (Bunlao Spring) and also from the dewatering wells is also being tapped. Raw water from these sources feeds into a filtration and refilling system which have been operational since 2012. The water filtration treatment plant can produce 145 cubic meters of filtered per hour while the refilling station has a capacity of 240 liters per hour or an average of 5,000 liters per day. SMPC provides domestic water to more than 300 households. Water tanks located at Wild B has a capacity of 15.5 million cu.m.

For Molave Pit expansion there was an impending scarcity of water supply for domestic and industrial use is one the major concerns due to influx of people in the island, not to mention the effect of climate change. For this reason, part of the application for the ECC amendment is the increase of capacity for the Desalination Plant from 7,000 cu.m/day (out of the approved 10,000 cu.m/day) to 14,000 cu.m/day. However no significant change of water consumption is projected with the opening of Acacia Pit.

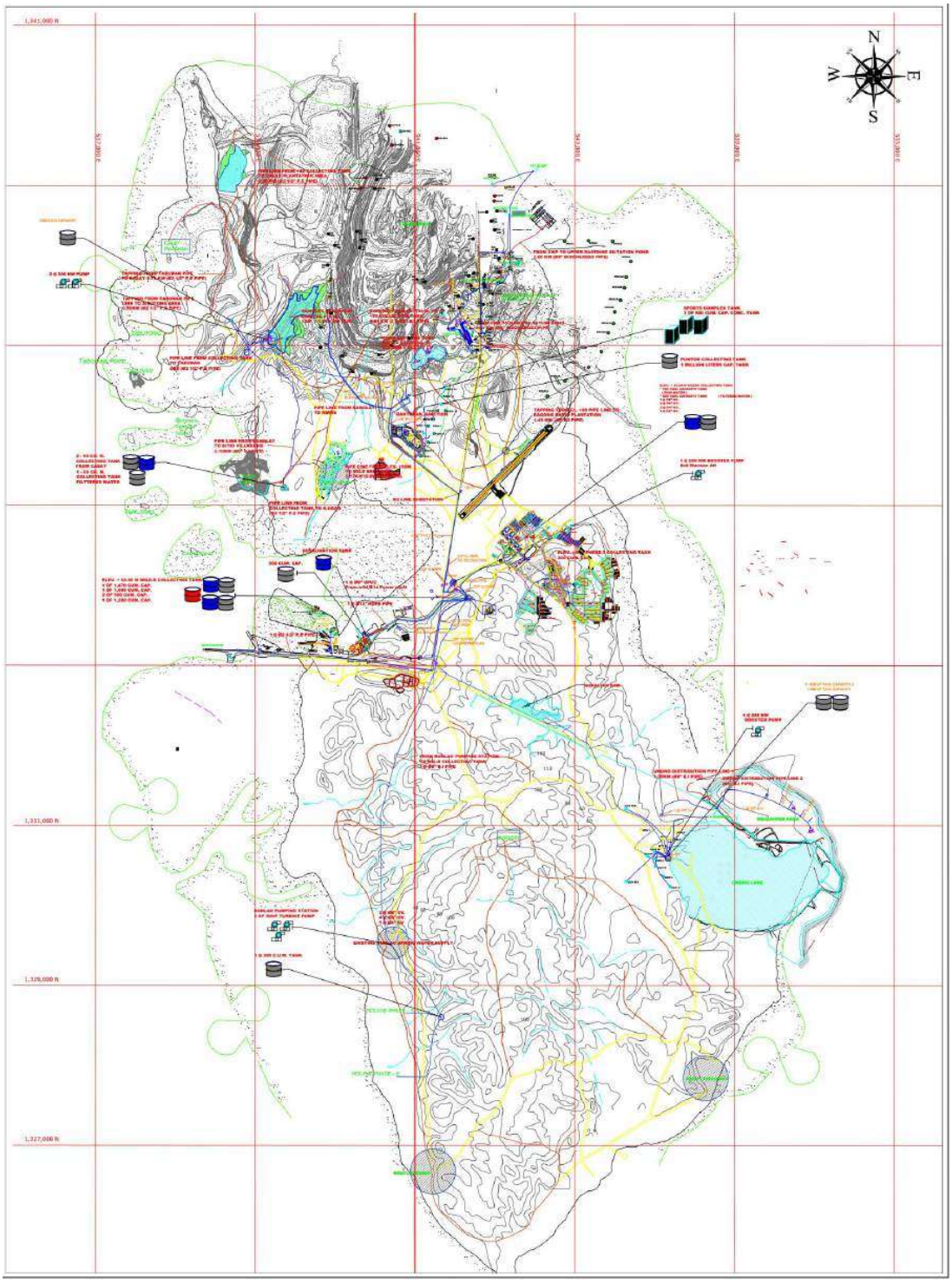


FIGURE 1-6: WATER DISTRIBUTION LAYOUT

1.4.2.2 POWER SUPPLY

Project present power requirement is sourced from the 2x7.5 MW and 1x15MW CFBC Coal Fired Power Plants. The second unit of 1x15MW CFBC shall be built to supply additional power supply for the project. This is already

covered by the existing ECC which covers the construction and operation of a 30 MW-capacity CFBC power plant. The project also utilizes a 4.2 MW Mirrlees and Wartsila 1x5.7 MW diesel engines as a standby generator sets. Additional 3 sets of Wartsila diesel engine with 6.3MW capacity totalling to 18.9 MW is proposed for the ECC amendment to accommodate additional power requirements of the project.

Company data show that power supplied to company housing facilities reached 5,878,161 kwh in 2014, while the communities on the island consumed 3,017,090 kwh.

With the operation of Acacia Pit there is a projected increase of power requirement. The 2 x 7.5 MW is already decreasing its efficiency to deliver the required power output to the mine. Besides, there is also a need to modify the plants pollution control facility for the compliance to RA 8749. Based on the cost benefit analysis, there is a need to retire and decommission the old plant 2 x 7.5MW and replace it by a new CFB plant with the same capacity.

Since the second unit of 1 x 15MW is not yet constructed and due to the decommissioning of the 2 x 7.5MW, a new 1 x 30 MW CFB plant will be constructed to compensate the power supply capacity of 45 MW and meet the increasing load demand of the mining operation.

1.4.2.3 ADDITIONAL HOUSING FACILITIES

SMPC previously has a total of 1,100 housing units. With the employment of additional staff for Molave Expansion operation, SMPC will construct additional 500 housing units. In Acacia pit project there will be no additional construction of housing facilities.

1.4.3 POLLUTION CONTROL FACILITIES

The matrix below summarizes the proposed enhancement/expansion of the pollution control facilities of the Project.

TABLE 1-6: POLLUTION CONTROL FACILITIES

Project Component / Aspect	Description / Specifications	
	Existing / Approved	Proposed Modification / Expansion
Power Plant Emission	2x7.5 MW Coal-Fired Power Plant: ▪ Mechanical Dust Separator Multi-Cyclone ▪ Wet Scrubber 1x15 MW Coal-Fired Power Plant (Circulating Fluidized Bed Technology): ▪ Electrostatic Precipitator ▪ Limestone Desulphurization ▪ Filter bag ▪ Continuous Emissions Monitoring Systems (CEMS) to monitor emissions of the power plant.	2x7.5 MW Coal-Fired Power Plant: ▪ Predictive Emissions Monitoring Systems (PEMS) to monitor emissions of the power plant. ▪ For decommissioning once the new 1 x 30MW will be operational

Project Component / Aspect	Description / Specifications	
	Existing / Approved	Proposed Modification / Expansion
Coal Transfer System	▪ Water sprinklers, and atomizers are installed along the conveyor line. ▪ Retractable chutes are installed at coal transfer. ▪ A coagulant / dust treated compound is added to water and the resulting solution is sprayed through nozzles into the conveyor lines	No changes. Shared facility.

1.4.3.1 POWER PLANT EMISSION

Air pollution control facility installed for the 2x7.5 MW Coal-Fired Power Plants are the Mechanical Dust Separator Multi-Cyclone and Wet Scrubber. The installed APCF was designed to minimize and control emissions of Particulate Matter. For the 1x15 MW Coal-Fired Power Plant, it utilizes modern Circulating Fluidized Bed Technology, also known as a "Clean Coal" Technology. It also utilizes Electrostatic Precipitator and Limestone Desulphurization designed to control emissions of Particulate Matter and Sulfur Oxides. A Continuous Emissions Monitoring System (CEMS) is also used in monitoring emissions of the 1x15 MW Coal-Fired Power Plant.

Predictive Emissions Monitoring System (PEMS) will be installed on the 2x7.5 MW Coal-Fired Power Plant to be used in monitoring emissions of the 2x7.5 MW Coal-Fired Power Plant.

The new 1 x 30MW will be installed with Electrostatic Precipitator (ESP); Flue Gas Desulfurization (FGD); Filter Bags and dust collectors. A Continuous Emissions Monitoring System (CEMS) will also be used in monitoring emissions.

1.4.3.2 COAL TRANSFER

Water sprinklers and atomizers are installed along the coal conveyor lines, bucket wheels, and on the product blending areas to reduce coal dust during transfer. Dust treat compound / coagulant is added to water and the resulting solution is sprayed though nozzles into the conveyor lines. The coagulant helps the small dust particle to stick together, forming larger particles and thereby settles preventing them from suspending in air during loading. Retractable chutes are also installed for loading coal on shipping vessels, lessening distance between discharge point to the ship; thus minimizing fugitive dust emissions during coal loading.

1.4.3.3 WASTE MANAGEMENT SYSTEM

Solid Waste Management Program (SWMP) shall be implemented to make the workplace a clean and safe environment by promoting scheme that would target reduction and minimize waste generation. Monitoring of solid wastes shall be conducted throughout the mining operation to ensure the solid waste generated in the mine site are stored in proper storage area.

Facilities such as Material Recovery Facility (MRF), Composting Facility and controlled dump site shall be maintained to support for the reuse or refurbishing of wastes generated.

There will be two storage areas for hazardous waste, the satellite and accumulative storage areas. Satellite storage area will be under the control of the department and/or the person generating the waste at the point

of generation while Accumulative Storage area will be the centralized storage area of collected waste from the departments.

Hazardous wastes storage areas will be regularly inspected to ensure that these types of wastes are properly contained in a leak-proof container and guidelines for a HW storage area are complied. Whereas, employees and subcontractors will be provided with trainings on potential dangers to human and the environment from hazardous wastes, its safety handling, and disposal procedures.

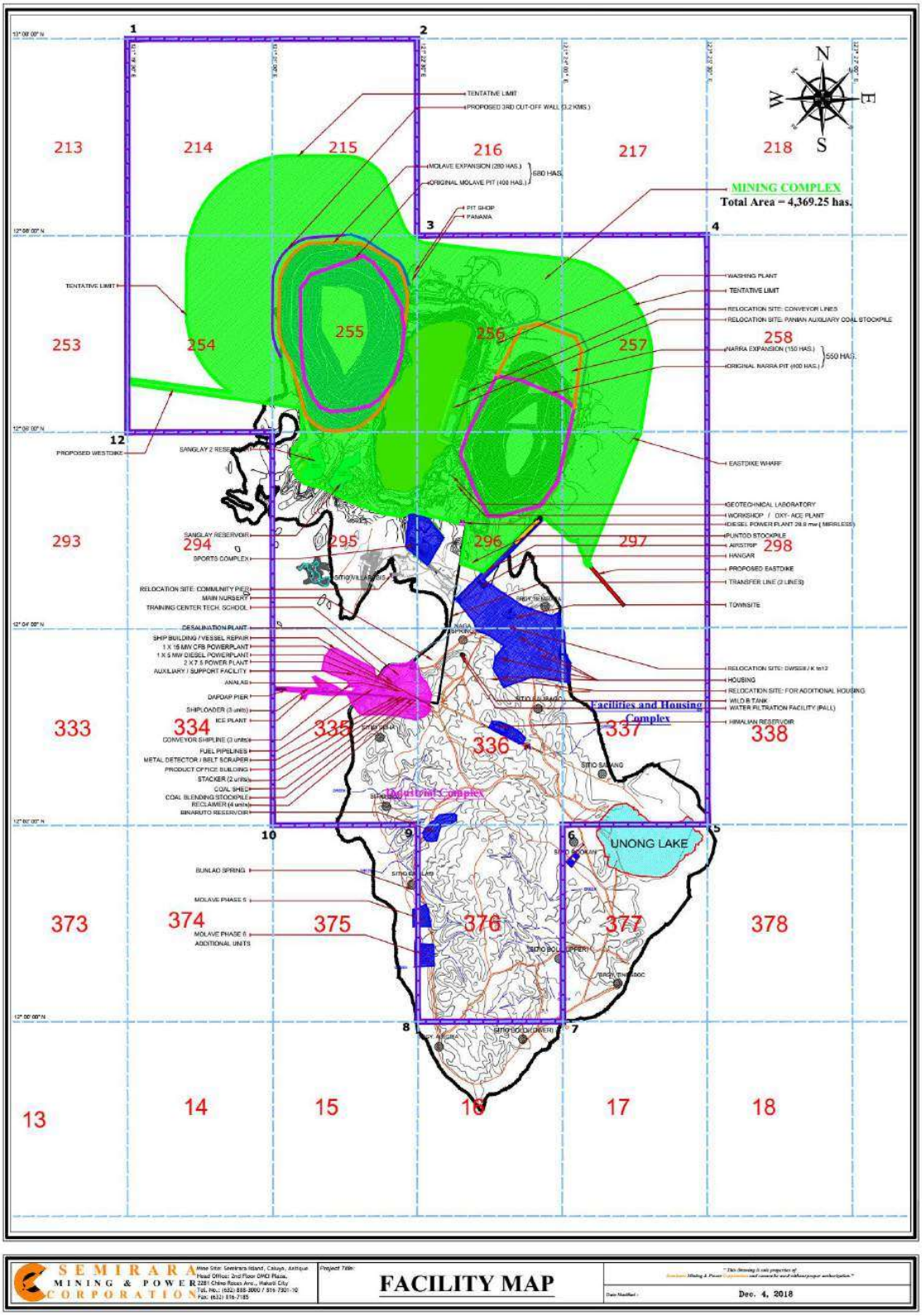


FIGURE 1-7: SITE DEVELOPMENT PLAN SHOWING THE GENERAL LAYOUT OF FACILITIES

1.5 PROCESS TECHNOLOGY

There are no changes to the current mining method of "Open Pit using Excavators matched with 100-Tonner Dump Trucks" being employed to the Molave and Narra Pits due to the similarity of geological formation.

The production flow of the project is illustrated in **Figure 1-8**

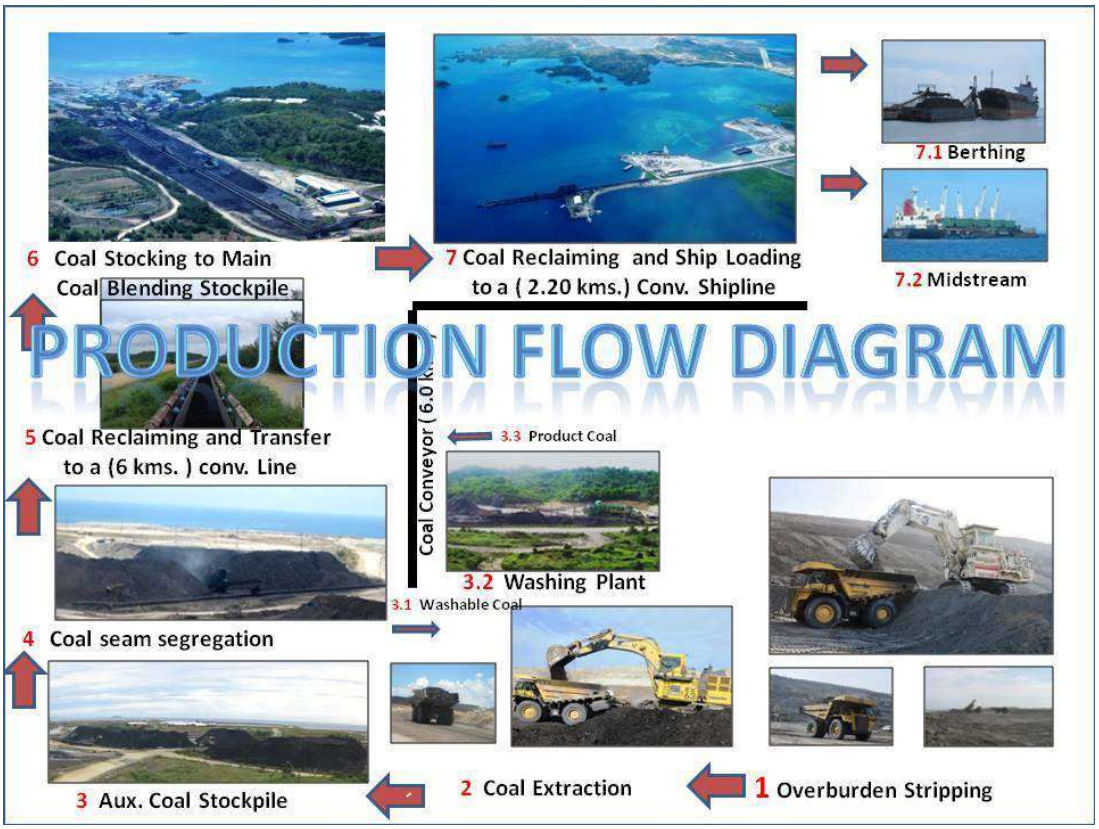


FIGURE 1-8: PRODUCTION FLOW DIAGRAM

1.5.1 MINE DESIGN PARAMETERS

The similarity of geological formation of the newly discovered deposit's with the Panian, Bobog; and adaptation of the same mining method "Open Pit using Excavators matched with 100-Tonner Dump Trucks," basically, the mining parameters to be employed is the same with that of the existing ones.

TABLE 1-7: MINE DESIGN PARAMETERS

For Backfill Material	
Pit Slope	20 Degrees
Bench Slope	45 Degrees
Bench Height	10 Meters
Bench Width	17.5 Meters
For In-Situ Material	
Pit Slope	25 Degrees
Bench Slope	60 Degrees
Bench Height	10 Meters
Bench Width	15.5 Meters
Ramp	
Road Width	30 Meters
Road Gradient	10% Maximum

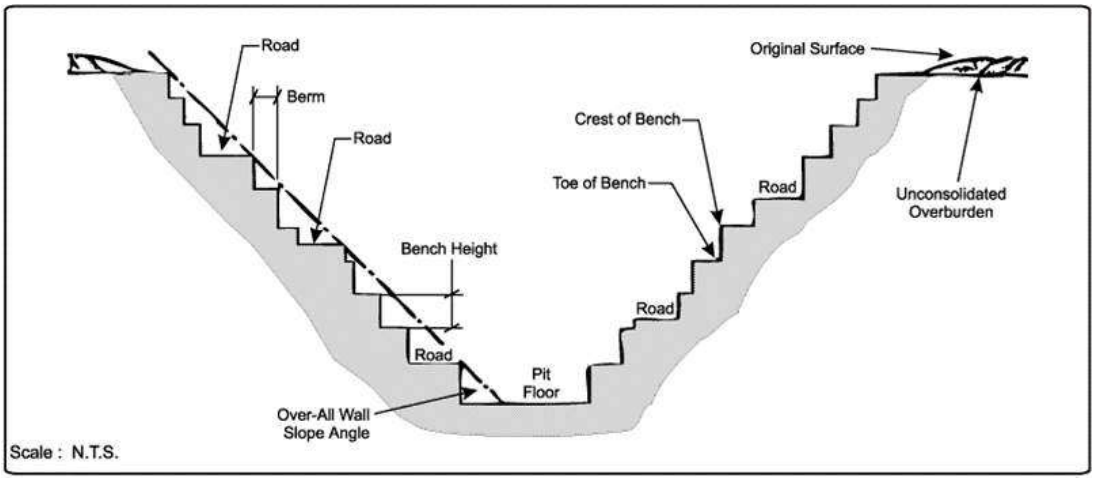


FIGURE 1-9: GEOMETRY INCORPORATING NEW SLOPE PARAMETERS

1.5.1.1 OVERALL SLOPE

Several studies had been conducted by different rock engineering consultants to determine the overall slopes of the existing and proposed pit in the island and came up with a maximum slope of 39 degrees. However with the latest study done by Geotecnica Consultants on Panian Pit after the July 2015 incident, they recommended to place a maximum of 25 degrees overall pit slope for in-situ while maximum 20 degrees pit slope for backfill materials, which shall be adopted for all mining operations of the Semirara Molave Coal Expansion Project (**Table 1-7**).

1.5.1.2 WORKING BENCHES

Bench slope shall have maximum of 60 degrees slope for in-situ while maximum 45 degrees slope for backfill materials, this shall be adopted for all mining operations of the Semirara Molave Expansion Coal Project (**Table 1-7**).

1.5.1.3 HAUL ROADS

In the same way as Panian, ramp design for the pits is essentially the same having a width of 30 meters and with a maximum slope of 10 percent road gradient (**Table 1-7**).

1.5.1.4 SURFACE DEWATERING & DRAINAGE SYSTEM

As usual, drainage canals are directed toward the shore passing through a settling pond similar to the discharge of surface dewatering pumps. It is expected that phase of excavation "pushbacks" will be faster compared to the present capacity, hence, catchment area for rain water become bigger. With this condition, there is also a need to enhance the dewatering system such as pumps, motors, pontoon, pipeline and other accessories.

1.5.2 SLOPE STABILIZATION MEASURES

Slope stabilization programs play a major role in the safety and productivity of the mines. The program focuses on the identification, control measures and monitoring of potential hazard associated with the pit walls.

1.5.2.1 CUT-OFF WALLS

This wall consists of a trench outside the pit limit cutting through the coral layer and filled with impervious material (clay) in order to block the entry of sea water. Similar to the existing pit, Molave will be requiring a 2,800 meters trench which will be connected to present cut-off wall. Due to the proposed reconfiguration and expansion of the Molave Pit, the cut-off wall will be extended by about 3.8 km to 5.0 km.

1.5.2.2 SUB-SURFACE DEWATERING WELLS

Deep dewatering wells (DWs) are installed in a ring around the open pit excavations to lower the water level and maintain a safe, dry site. Dewatering wells are driven up to 200 meters in depth. Drilling a pilot hole of 9 &7/8 inch tricone-type rock bit to have diameter hole of about 200 mm for the slotted PVC casing and a final of 14 & ¾ inch reaming borehole is conducted.

Due to the proposed Molave pit expansion, about 50 (maximum) DWs is programmed to be installed around the mine pit perimeter.

1.5.2.3 PIEZOMETERS (PZS)

Water levels in the piezometer are measured with a water level indicator. The water level indicator consists of a probe, a graduated cable or tape, and a cable reel with built-in electronics. The probe is lowered down the standpipe until it makes contact with water. This is signalled by a light and a buzzer built into the cable reel. The depth-to-water reading is taken from the cable or tape. PZs of about 27 units will be installed initially in between the DWs to measure the drawdown as needed. Due to the proposed Molave pit expansion, about 120 (maximum) PZs is programmed to be installed.

1.5.2.4 SLOPE & CRACK MONITORING SYSTEM

In the last quarter of 2013, the company acquired a Robotic Total Station (RTS), a theodolite to monitor movements of walls in an hourly basis with the aid of prisms installed strategically on pit walls. This system will be maintained in Panian not only after its production period but as well as during the backfilling of the pit. It will be removed only, once the pit gets stable. The same process will be undertaken on East Panian (Bobog) as initially planned.

To enhance slope monitoring, SMPC implemented a Slope Stability Radar (SSR) with the aim of (1) monitoring the movement of slopes especially in open pit mines, (2) give an alarm of impending accelerated slope movement prior to slope failure, and (3) improve mine planning and design. This system shall be continued and implemented for the Semirara Molave Coal Expansion Project.

The number and location of the monitoring equipment installed will vary as mining progresses. Priority areas would be the active area of the mine pit.

1.6 PROJECT SIZE

The major amendment for the project is the increase of the total mining complex area from 4,825.25 hectares hectares to 5,221.75 . The entire project is still within the 13,000 hectare amended COC area granted to SMPC. Summary of project size is presented in the table below.

TABLE 1-8: COMPARISION OF EXISTING AND PROPOSED MODIFICATION IN TERMS OF PROJECT SIZE

Project Aspect	Description / Specifications	
	Existing	Proposed Modification / Expansion
Total Project Area (Land area amended COC No. 5 Contract Area, Semirara Island)	The area bound by the geographic coordinates of the amended COC No. 5 for Semirara Island (Project Area) includes both coastal and land areas. Based on the technical description of COC No. 5, within the contract area is a **land area of 13,000 hectares**, more or less.	None. The proposed expansion is still within the boundaries of amended COC No. 5.
Total Project Footprint	The existing total footprint area is **4,369.25 hectares** which is within the boundaries of COC No. 5	The proposed expansion will involve an increase in mining complex of backfill area/sea barrier resulting to a total Mining Complex project area of **5,221.75** hectares.
Mine Pit Area	- **1,630 hectares** **- Panian = 400 has (under rehabilitation)** **- Molave = 680 has** **- Narra (East Panian) = 550 hectares**	- **Additional 650-hectare mine pit area totaling to 1,880 hectares combined pit area** **- Molave = 680 has (no changes)** **- Narra (East Panian) = 550 hectares (no changes)** **- Acacia = 650 hectares**
Industrial Complex Project Footprint Area	**158 hectares**	**No changes.**
Facilities and Housing Complex Project Footprint Area	**298 hectares**	**No changes.**
Total Coal Production Capacity (Annual)	**16 MMT**	No changes.

The five-year combined production target for Molave and Narra Pit will be at 14 Million MT for the first two years (2018-2019) and was increase to 16 Million MT in the succeeding years (2020-2022). In SMPC's previous Work Program 2018-2022 submission, SMPC was slated to produce 16M MT beginning 2018, however, due to the directive of the DOE to rehabilitate the southern portion of Panian, SMPC has redirected its equipment towards the accelerated backfilling of South Panian. Presented below is the 5-year (2018-2022) production forecast of SMPC.

TABLE 1-9: PRODUCTION FORECAST

SCENARIO 1

Coal Production in Million Metric Ton (MMT)				
Year	**Molave**	**Narra**	**Acacia**	**COMBINED TOTAL**
2022	16.00			16.00
2023	11.83	2.88		14.71
2024	0.60	15.40		16.00
2025		15.10		15.10
2026		12.23	0.00	12.23
2027		4.23	6.10	10.33
2028			14.00	14.00
2029			15.00	15.00
2030			10.86	10.86
2031			10.77	10.77
TOTAL	**28.43**	**49.84**	**56.73**	**135.00**

SCENARIO 2

Coal Production in Million Metric Ton (MMT)				
Year	**Molave**	**Narra**	**Acacia**	**COMBINED TOTAL**
2022	16.00			16.00
2023	11.83	2.88		14.71
2024	0.60	15.40		16.00
2025		16.00		16.00
2026		15.56	0.44	16.00
2027			16.00	16.00
2028			16.00	16.00
2029			15.00	15.00
2030			9.29	9.29
TOTAL	**28.43**	**49.84**	**56.73**	**135.00**

1.7 DEVELOPMENT PLAN, DESCRIPTION OF PROJECT PHASES AND CORRESPONDING TIMEFRAMES

1.7.1 PRE-MINING PHASE/ SITE DEVELOPMENT

No significant expansion of equipment and facilities particularly in mining and handling of product coal will be implemented during this phase. The usual support equipment such as dozers, small power shovels and graders has no increased as well to support the activities in the mine. Upgrading of support facilities (to mining operation) will also start during this phase.

This project is an opening of Acacia Pit of SMPC. The Semirara Molave Coal Expansion Project still includes the mined out Panian pit and the Narra and Molave pits coal mine operations. The Molave and Narra pits will have a depth of 350 mbsl each and an area of approximately 680 hectares and 550 hectares, respectively. Basically, the primary objective of site development is to control seawater intrusion and to protect the pit from getting swamped by high waves. The following seawater control measures are therefore necessary prior to the operation phase:

- A sea barrier to protect the mine from getting swamped by high waves, as well as to seal off or minimize the hydraulic connection between the sea and the substratum between the reef.
- A cut-off wall through the coral line sand and gravel on the periphery of the mine to serve as an impermeable barrier against seawater seepage.
- Dewatering wells will be drilled after the construction of the cut-off wall. It will be used primarily to depressurize the area by lowering the ground water level to reduce the weight and stabilize the slope during mine operation.
- A surface dewatering system consisting of pumps, pontoons and pipelines will be put in place to pump out accumulated water in the pit and to dry up working areas during the wet season.

1.7.2 OPERATION

The current mining method of “Open Pit” using Excavators matched with 100-Tonner Dump Trucks shall be continuously employed to the project due to the similarity of geological formation of the newly discovered deposit with the Panian and Narra mine areas. Subsequent detailed drilling within the 138-hectare most promising area of Molave Pit has confirmed a substantial coal resource suitable for open pit mining.

1.7.2.1 MINING DIRECTION

Semirara Mining and Power Corporation (SMPC) changed its mining strategy due the continuous seepage influx in Narra pit. SMPC's current mining direction is to complete Molave before shifting to Narra. Narra's operation was halted at the beginning of March 2019 and all equipment were transferred to Molave. Two excavators were assigned for stripping quarry material to be used for road surfacing.

The current mining direction could produce a total of 1,591.97 Million BCM of material composing of 1,495.54 Million BCM of overburden and 135.00 Million MT of Coal at a stripping ratio of 11.08 for the years 2022 to 2030.

In addition, the rehabilitation program for Panian and the surrounding areas inside the mining complex will continue as part of the company's commitment to environmental sustainability with accelerated program developed for south Panian. North Panian on the other hand, will be backfilled progressively until its completion in 2022 with an estimated backfilling volume requirement of 300 Million BCM.

To ensure a safe and continuous operation, cut-off-wall is to be constructed in northern part of both pits. Also, offshore backfilling will be extended to the northern part of the Molave pit. Sea barrier backfilling has commence on January 2020 and will continue until 2030.

To mitigate seepage influx, surface dewatering wells will also be maintained.

Year	Molave (Remaining)				Narra				Acacia				COMBINED TOTAL			
	Total Material	Overburden	Total Coal	Strip Ratio	Total Material	Overburden	Total Coal	Strip Ratio	Total Material	Overburden	Total Coal	Strip Ratio	Total Material	Overburden	Total Coal	Strip Ratio
2022	189.06	177.63	16.00	11.10									189.06	177.63	16.00	11.10
2023	130.25	121.80	11.83	10.30	56.87	54.82	2.88	19.03					187.12	176.62	14.71	12.01
2024	6.26	5.83	0.60	9.72	165.28	154.28	15.40	10.02					171.54	160.11	16.00	10.01
2025					157.50	146.72	15.10	9.72					157.50	146.72	15.10	9.72
2026					140.75	132.02	12.23	10.79	13.07	13.07	0.00		153.82	145.09	12.23	11.86
2027					28.78	25.76	4.23	6.09	124.61	120.26	6.10	19.71	153.40	146.02	10.33	14.14
2028									154.52	144.52	14.00	10.32	154.52	144.52	14.00	10.32
2029									155.83	145.12	15.00	9.67	155.83	145.12	15.00	9.67
2030									155.67	147.92	10.86	13.62	155.67	147.92	10.86	13.62
2031									113.50	105.80	10.77	9.82	113.50	105.80	10.77	9.82
TOTAL	**325.58**	**305.26**	**28.43**	**10.74**	**549.19**	**513.59**	**49.84**	**10.30**	**717.20**	**676.68**	**56.73**	**11.93**	**1,591.97**	**1,495.54**	**135.0**	**11.08**

TABLE 9: SCENARIO 1 SEMIRARA PRODUCTION FORECAST AND STRIP RATIOS (2022 - 2030)

Year	Molave (Remaining)				Narra				Acacia				COMBINED TOTAL			
	Total Material	Overburden	Total Coal	Strip Ratio	Total Material	Overburden	Total Coal	Strip Ratio	Total Material	Overburden	Total Coal	Strip Ratio	Total Material	Overburden	Total Coal	Strip Ratio
2022	189.06	177.63	16.00	11.10									189.06	177.63	16.00	11.10
2023	130.25	121.80	11.83	10.30	56.87	54.82	2.88	19.03					187.12	176.62	14.71	12.01
2024	6.26	5.83	0.60	9.72	177.43	166.43	15.40	10.81					183.69	172.26	16.00	10.77
2025					181.76	170.34	16.00	10.65					181.76	170.34	16.00	10.65
2026					133.12	122.01	15.56	7.84	50.13	49.82	0.44	113.22	183.25	171.83	16.00	10.74
2027									196.73	185.31	16.00	11.58	196.73	185.31	16.00	11.58
2028									197.93	186.50	16.00	11.66	197.93	186.50	16.00	11.66
2029									179.57	168.86	15.00	11.26	179.57	168.86	15.00	11.26
2030									92.84	86.20	9.29	9.28	92.84	86.20	9.29	9.28
TOTAL	**325.58**	**305.26**	**28.43**	**10.74**	**549.19**	**513.59**	**49.84**	**10.30**	**717.20**	**676.68**	**56.73**	**11.93**	**1,591.97**	**1,495.54**	**135.00**	**11.08**

Table 10: SCENARIO 2 - Semirara Production Forecast and Strip Ratios (in Million BCM, MT)

TABLE 1-10: COAL PRODUCTION

SCENARIO 1- Coal Production in Million Metric Ton (MMT)				
Year	**Molave**	**Narra**	**Acacia**	**COMBINED TOTAL**
2022	16.00			16.00
2023	11.83	2.88		14.71
2024	0.60	15.40		16.00
2025		15.10		15.10
2026		12.23	0.00	12.23
2027		4.23	6.10	10.33
2028			14.00	14.00
2029			15.00	15.00
2030			10.86	10.86
2031			10.77	10.77
TOTAL	**28.43**	**49.84**	**56.73**	**135.00**

SCENARIO 2- Coal Production in Million Metric Ton (MMT)				
Year	**Molave**	**Narra**	**Acacia**	**COMBINED TOTAL**
2022	16.00			16.00
2023	11.83	2.88		14.71
2024	0.60	15.40		16.00
2025		16.00		16.00
2026		15.56	0.44	16.00
2027			16.00	16.00
2028			16.00	16.00
2029			15.00	15.00
2030			9.29	9.29
TOTAL	**28.43**	**49.84**	**56.73**	**135.00**

1.7.2.1.1 MINING DIRECTION

1.7.2.1. 1.1 SCENARIO 1

Year 2022

For the year 2022, the mine operation will focus in Molave pit. A total material of 189.06 million bcm will be moved, comprising of 177.63 million bcm overburden and 16.00 MMT coal with a strip ratio of 11.10:1. The excavated overburden will be used as backfill material for North Panian rehabilitation and Acacia enclosure dike construction. In-pit dumping in Molave will also be conducted on the 2nd half of the year *(See Figure 3.)*

In preparation for the opening of Narra pit by 2023, there will be a site preparation on the 1st quarter of 2022. This includes the reactivation of Puntod Stockpile area and the shifting of existing conveyor lines 1 and 2 to prevent their overlap with Narra pit limit *(See figure 4 and 5.)* The Puntod stockpile will serve as a complement with the existing Molave stockpile for the coal production in Narra pit.

Year 2023

For the year 2023, Narra pit will be opened with a target of 56.87 million bcm total material, which comprise of 54.82 million bcm of overburden and 2.88 MMT coal will be mined, at a strip ratio of 19.03:1. The overburden from Narra pit will be used as backfill material for North Panian rehabilitation and Narra sea barrier. While Molave pit will continuously produce 130.25 million bcm total material, comprising of 121.80 million bcm overburden and 11.83 MMT coal, with a strip ratio of 10.30:1. Waste material from Molave pit will be used as backfill material for Acacia enclosure dike construction and in-pit dumping.

In summary, the combined total material from Molave and Narra pits is 187.12 million bcm, which comprise of 176.62 million bcm overburden and 14.71 MMT coal, with a strip ratio of 12.01:1 *(See Figure 6.)*

Year 2024

For the year 2024, the coal reserves from Molave pit will be depleted; with a remaining total material of 6.26 million bcm, comprising of 5.83 million bcm overburden and 600,000 MT of coal, with a strip ratio of 9.72:1. While in Narra pit, a total material of 165.28 million bcm will be excavated, which compose of 154.28 million bcm overburden and 15.40 MMT coal, at a strip ratio of 10.02:1. To summarize, the total material excavated from the two pits is 171.54 million bcm, which comprises a total of 160.11 million bcm overburden and 16.00 MMT coal with a strip ratio of 10.01:1 *(See Figure 7.)*

Year 2025

Narra pit as the sole coal producer for the year, is expected to produce 157.50 million bcm of total material, comprising of 146.72 million bcm overburden and 15.10 MMT coal at strip ratio of 9.72:1. *(See Figure 8.)*

Year 2026

For the year 2026, the stripping of overburden in Acacia pit will commence with a target of 13.07 million bcm of overburden. While Narra pit will continuously produce 140.75 million bcm of total material, comprising of 132.02 million bcm overburden and 12.23 MMT coal at strip ratio of 10.79:1. *(See Figure 8.)*

In preparation for the opening of Acacia pit by 2027, Molave coal stockpile will be scheduled for relocation near Acacia pit; consequently, the conveyors line 1 and 2 will be extended to the proposed new coal stockpile location *(See Figure 9.)*

Year 2027

For the year 2027, the coal reserve from Narra pit is expected to be depleted; with a total remaining material of 28.78 million bcm, which comprise of 25.76 million bcm overburden and 4.23 MMT coal at strip ratio of 6.09:1. Its mining equipment will be transferred to Acacia pit, which is expected to produce a total material of 124.61 million bcm, with 120.26 million bcm overburden and 6.10 MMT coal at strip ratio of 19.71:1. The overburden

from Acacia pit will be used to continuously construct Acacia sea barrier and to backfill the depleted Molave pit. In summary, a total material of 153.40 million bcm is mined, comprising of 146.02 million bcm waste and 10.33 MMT coal, with a strip ratio of 14.14:1 *(See Figure 10.)*

Year 2028

For the year 2028, the Acacia pit will be the only source of coal. It is expected to move a total material of 154.52 million bcm, which comprise of 144.52 million bcm overburden and 14.00 MMT coal, at a strip ratio of 10.32:1. Its excavated overburden will be used to backfill the Acacia sea barrier and Molave pit *(See Figure 11.)*

Year 2029

By the year 2029, the mine operation will produce a total material of 155.83 million bcm from Acacia pit, comprising of 145.12 million bcm overburden and 15.00 MMT coal at strip ratio of 9.67:1 *(See Figure 12.)*

Year 2030

By the year 2030, as the operation in the Acacia pit nears to its completion, the fleet capacity will be reduced and projected to move 155.67 million bcm total material. This comprises of 147.92 million bcm overburden and 10.86 MMT coal with a strip ratio of 13.62:1 *(See Figure 13.)*

Year 2031

By the year 2031, the coal reserve from Acacia pit is expected to be depleted on the 1st quarter, with total remaining material of 113.50 million bcm, which comprises of 105.80 million bcm overburden and 10.77 MMT coal at strip ratio of 9.82:1 *(See Figure 14.)*

Conclusion

To summarize, the mine operation of Molave pit, from year 2022 to 2024, is expected to produce a total material of 325.58 million bcm, comprising of 305.27 million bcm overburden and 28.43 MMT coal, at 10.74:1 strip ratio. While in Narra pit, the mine operation from year 2023 to 2027 will produce a total material of 549.19 million bcm, consisting of 513.59 million bcm overburden and 49.84 MMT coal, at strip ratio of 10.30:1. Lastly, in Acacia pit, the total material to be produced from the year 2026 to 2031 is 717.20 million bcm, with 676.68 million bcm overburden and 56.73 MMT coal at strip ratio of 11.93:1 *(See Table 9.)*

The combined total material of the three (3) pits is determined to mine 1,591.97 million bcm, with 1,495.53 million bcm overburden and 135.00 MMT of coal at strip ratio of 11.08:1 *(See Table 9.)*

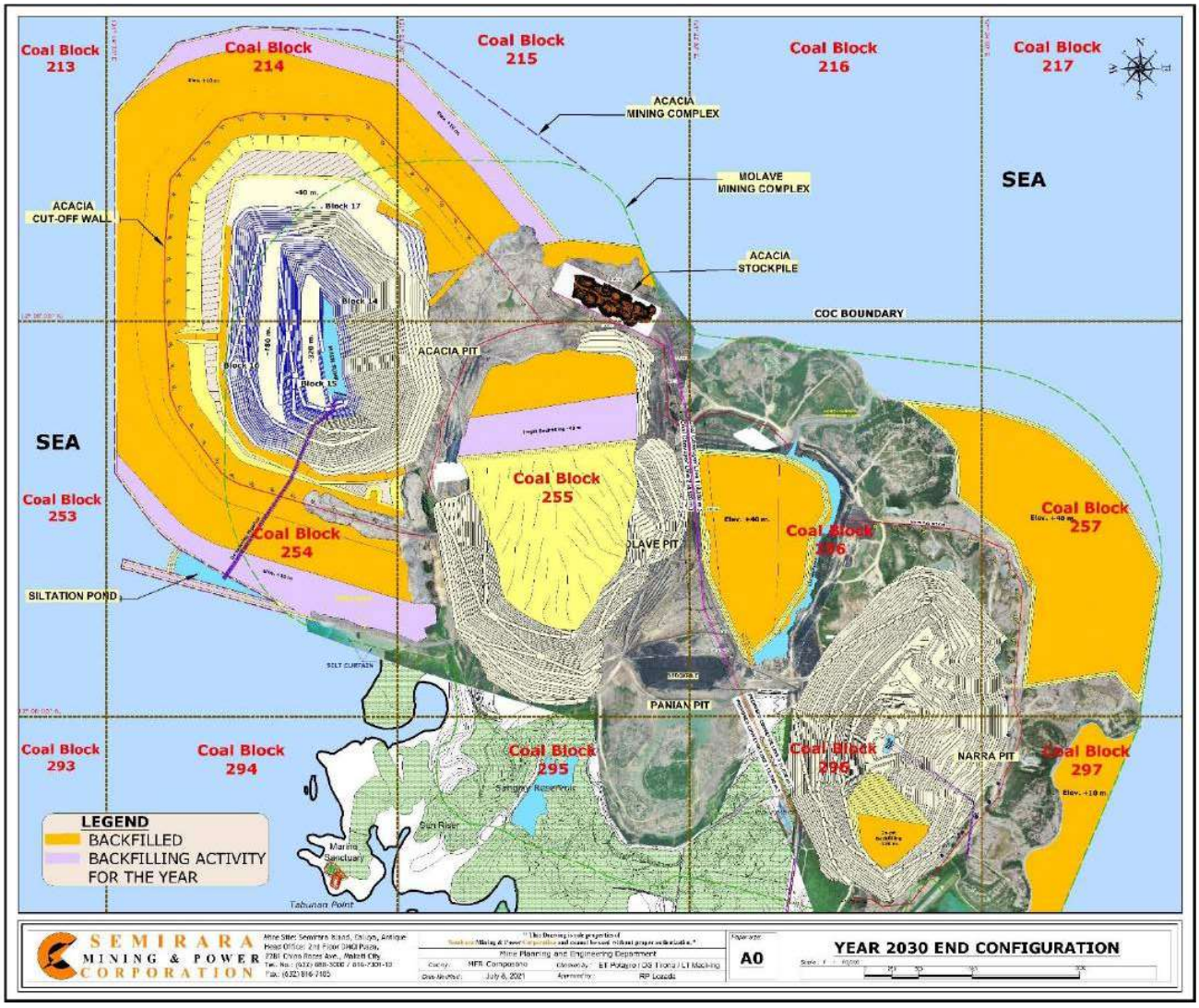
1.7.2.1. 2 SCENARIO 2

In Scenario 2, the production period for Molave pit will be retained from year 2022 to year 2024. The total material excavated from Molave pit will be retained to 325.58 million bcm.

While in Narra pit, coal production is expected to commence in 2023 and to be completed in 2026, which is a year earlier compared to the completion year set in Scenario 1.

Lastly, in Scenario 2, the Acacia pit is expected to be operational as early as 2026, which is a year earlier compared the commencement date set in Scenario 1. Consequently, the coal reserve from Acacia pit is expected to be depleted a year earlier compared to Scenario 1 *(See Tables 9 and 10.)*

FIGURE 1-10: 2030 END CONFIGURATION



1.7.2.2 EXPLORATION AND DRILLING PROGRAM

Commercial operation of the Molave mine is expected to end in 2023 while Narra mine will be much later. These mining activities require a very dynamic drilling program and a vigorous exploration campaign not only to cope with the safety, geotechnical, and hydrogeological aspects of mining areas but equally important is also to discover additional coal resources that would replenish mined-out reserves. This will offset rapid depletion of coal reserves and ensure long-term sustainability of the Semirara Mining and Power Corporation (SMPC) business.

The exploration and drilling program includes the following activities within SMPC's coal contract area in Semirara Island, Caluya, Antique:

1. Exploration of potential extensions of coal seams within the adjacent areas of identified coal deposits and deeper coal resources for underground mining;

2. Drilling requirements of the open pit mines (i.e. Molave and Narra) to address concerns on slope stability, water seepage, groundwater monitoring, and coal continuity thru confirmatory drilling;
3. Seismic surveys (if necessary) to gather/enhance sub-surface geological and structural data of under-explored areas and identified coal deposits; and
4. Studies on coal bed methane potential of Semirara Island.

1.7.2.2.1 FURTHER EXPLORATION AT SEMIRARA ISLAND

Further exploration work in Semirara island generally consists of diamond drilling and seismic survey (if necessary) in untested and under-explored potential areas, such as:

1. In the immediate vicinities of identified coalfields (i.e. Acacia, Molave, Narra, Himalian, and Unong) to find coal extensions for possible expansion and/or underground mining;
2. In under-explored areas like the Himalian-Alegria area; and
3. For studies on coal bed methane potential of Semirara Island.

1.7.2.2.2 SEISMIC SURVEYS (IF NECESSARY) AND DEEP EXPLORATION DRILLING

Results of previously conducted seismic surveys and deep exploration drilling (more than 400m deep) at the southern part of Molave and other areas has confirmed coal occurrence and coal seam extensions at depths of up to 900 meters below ground level. This would warrant for a deep exploration drilling program in several target areas to gather geological data necessary for studies on the viability of underground mining after exhaustion of open-pit reserves or if economic pit limits have been reached.

Additional seismic surveys will be conducted (if necessary) as an exploration tool to probe the sub-surface geology and geological structures for indication of coal seams in areas with no drilling data and to complement geological interpretation and correlation of drilling results from exploration holes.

Deep drilling and seismic surveys are also essential tools that maybe utilized for studies on coal bed methane potential.

1.7.2.2.3 GEOTECHNICAL AND HYDROGEOLOGICAL DRILLING

Several hydrogeological and geotechnical holes that were installed at the start of the mine as measures for stable slopes (dewatering wells and horizontal drains) and for monitoring purposes (piezometer) have been affected as mining advanced further to the North of Molave mine. It is necessary to replace these to ensure safety and minimize, if not eliminate, the hazards of slope failures.

Other geotechnical holes are also necessary for ground investigation and de-pressurization purposes, while other holes are drilled for fresh-water supplies.

1.7.2.2.4 CONFIRMATORY AND DEVELOPMENT DRILLING

These holes are drilled to confirm areas for development, location of faults, and to solve doubts and geological uncertainties within mining areas. Closer-spaced drilling are also done to increase levels of confidence in resource/reserve estimation and in compliance with the requirements of the Philippine Mineral Reporting Code.

1.7.3 DECOMMISSIONING/ABANDONMENT/REHABILITATION

1.7.3.1 REHABILITATION

The implementation of Rehabilitation Plan in Panian Pit started in southern portion on 2017. The Southern Panian Pit has reach to its backfilling final stage, reforestation is being implemented during the rainy season and in-pit backfilling will advance in the North Panian Pit.

Throughout the rehabilitation operation, it will employ the same method of backfilling and reforestation.

1.7.3.1.1 2019 REHABILITATION

January – June

A total of 32M bcm overburden materials will be backfilled in South Panian with an elevation of +5 meter. The earth materials that was directed in the South Panian Pit came from the operation of Molave Pit. No additional equipment will be acquired during the progressive rehabilitation. At the end of the backfilling at South Panian, a rolling topography from +5 to +8 meter will be in place.

July – December

By this time, backfilling of the South Panian has already completed with a total area of 168 has. Reforestation will commence in this rainy season to ensure the survival of the newly planted trees. The reforestation activity will be conducted in a fast pace taking advantage of the favorable weather to plant new trees. Reforestation covers the planting and the maintenance of the planted trees.

The areas will be revegetated with Beach Agoho, establishing newly cultivated crops in which categorized as the first batch of seedlings that will be a great help in conditioning the soil. Beach Agoho will be the only plant to propagate in the area until by the end of 2019 since the soil will become good enough to accommodate native trees caused by the reverting back of the nutrients once loss when hauled, thus, cultivating of high value trees will be possible.

While reforestation is implemented in southern part, in-pit backfilling will advance in the North Panian Pit. The earth materials that will be dumped in the northern portion will come from the nearest area of Molave Pit where excavation is actively conducted.

Simultaneously, Tungao Area will also be backfilled of about 20M BCM mainly for exploration purposes.

1.7.3.1.2 2020 REHABILITATION

Backfilling activities will be continuously conducted in the North Panian Pit; the earth materials that will be directed to the northern portion of Panian Pit will come from the Molave Pit as this time of year it will be the only active pit mining operation. More or less the level of +10meter will be maintained in the backfilled area.

Likewise, dumping in 215 block or the northern side of Molave Pit will be accomplished for sea barrier purposes essentially to protect the mine pit from seawater seepage. Maintenance of planted trees in South Panian will also be actively conducted.

1.7.3.1.3 2021 REHABILITATION

To further advance the rehabilitation operation, continuous in-pit backfilling will be implemented in the North Panian Pit with the overburden materials coming from the nearest excavation site of Molave Pit. The rehabilitated areas will be maintained at +10-meter level.

This year, dumping of earth materials in 254 block will be accomplished to serve as sea barrier for the protection of the western side of Molave Pit. Alongside of the backfilling in 254 block, construction of 2.5 km West Dike will be planned out to control silt from spreading as carried by waves and sea current and affecting nearby protected areas like Tabunan Marine Santuary.

1.7.3.1.4 2022-2023 REHABILITATION

Continuous in-pit backfilling of the remaining northern portion of Panian Pit to rehabilitate the mined-out pit. In addition, backfilling in 214, 215 and 254 blocks will be conducted to extend the sea barrier.

Some of the areas around North Panian were still unplanted with trees, so another objective of this year is to have the remaining part of the areas that were not accommodated in the previous year to rehabilitate.

The Narra pit will starts its operation upon exhaustion of coal in Molave Pit. While actively mining the Narra Pit, reforestation and maintenance of blocks 214, 215 & 254 will be simultaneously conducted. Narra Pit Operation is estimated to be completed by year 2027 “depends on the coal release” and by this period also, the abandonment and decommissioning plan will be fully implemented.

For a better visualization of 5-year progressive mine rehabilitation, refer to the year-end configurations of 2019, 2020, 2021, 2022, 2023 and minelife (**Figure 1-10** to Error! Reference source not found.).

1.7.3.2 REFORESTATION

1.7.3.2.1 SEEDLINGS COLLECTION

For storing and growth of reforestation and agro-reforestation species, nurseries are located near the pit. Each nursery sites have different variety of plants such as hardwood, fruit-bearing and ornamental plants.

As a starter, Beach Agoho, an endemic species will be planted to condition the soil before introduction of another species once the soil is rich. A total of 45 kilograms of seeds (15kg/month) will be collected to suffice the area requirement of 168 hectares that will be rehabilitated.

1.7.3.2.2 SEEDLINGS PREPARATION

The primary plant species that will be introduced in the rehabilitated areas is Beach Agoho because it grows vigorously on barren lands. It is adaptable to poor soil condition, wind resistant and is very effective to control soil erosion along slopes and loose soil materials. The abundance of highly branched twigs absorbs wind energy; the leaves that litter in the ground becomes humus that will enhance soil fertility and help intercrop species to survive in the semi-arid areas. Its root nodules also help fix the atmospheric nitrogen.

At sowing/ bagging/ pricking, the activity will be germination of seeds, watering of plants, and compost application are some of the many activities that are performed in the nursery. Some germinated seeds are raised in months prior to planting in the field. It will start from the first batch of collection of Beach Agoho seeds up until we reach 420,000 pcs of spouts to be planted.

1.7.3.2.3 ROLLING TOPOGRAPHY AND GROUND PREPARATION

Earthwork activities involve ground grading and contouring it will be done a month before the backfilling is done at South Panian. Developing rolling topography by grading and contouring the ground before planting are necessary for the following reasons: (1) to soften the soil to ease the plantation, (2) for crops to hold properly on the ground; (3) to avoid water flooding/ponding at the surface which will help directing the water to flow to the canals, and (4) to build irrigation for the plants. Only then, establishing of holes for seedlings can take place as ground preparation.

1.7.3.2.4 TOP SOIL COVERING

After the contouring of the ground, covering top soil will be the next activity. Mixture of soils, composts (a product of the Bioreactor/Composting Facility from biodegradable waste) that will enhance the nutrients of the soil and humic acid (that extracted out of waste coal) as soil conditioner to help plants to absorb the nutrients came from the compost. An estimated of 119-loads of a 100-tonner dump truck to totally cover the 168 hectares with top soil.

1.7.3.2.5 REFORESTATION/ REVEGETATION

Preparation of the surface for vegetation at the southern most part shall be done before June 2019 because it will be the beginning of its re-vegetation led by the Reforestation Team until September in the same year. It targets to start as soon as wet season begin which favorable condition for plantation activity.

Maintenance of newly planted crops will be conducted to minimize the mortality rate of established areas. Twenty percent (20%) of total target hills (which is 420,000 hills) or additional 84,000 hills will be ready to replace any dead crops.

Revegetation of backfilled areas for 2020 and onwards, will depends on the areas that will be endorsed by the Mine Planning and Engineering Department (MPED). Then the Reforestation Team will design and implement the approved reforestation budget and program.

TABLE 1-11: REFORESTATION ACTIVITIES IN SOUTH PANIAN

Month	Seedlings Collection	Seedlings Preparation	Reforestation/ Revegetation
Jan	15 kg		
Feb	15 kg	105,000 hills	
Mar	15 kg	105,000 hills	
Apr		105,000 hills	
May		105,000 hills	
Jun		84,000 hills	105,000 hills
Jul			105,000 hills
Aug			105,000 hills
Sep			105,000 hills
Oct			42,000 hills
Nov			42,000 hills
Dec			

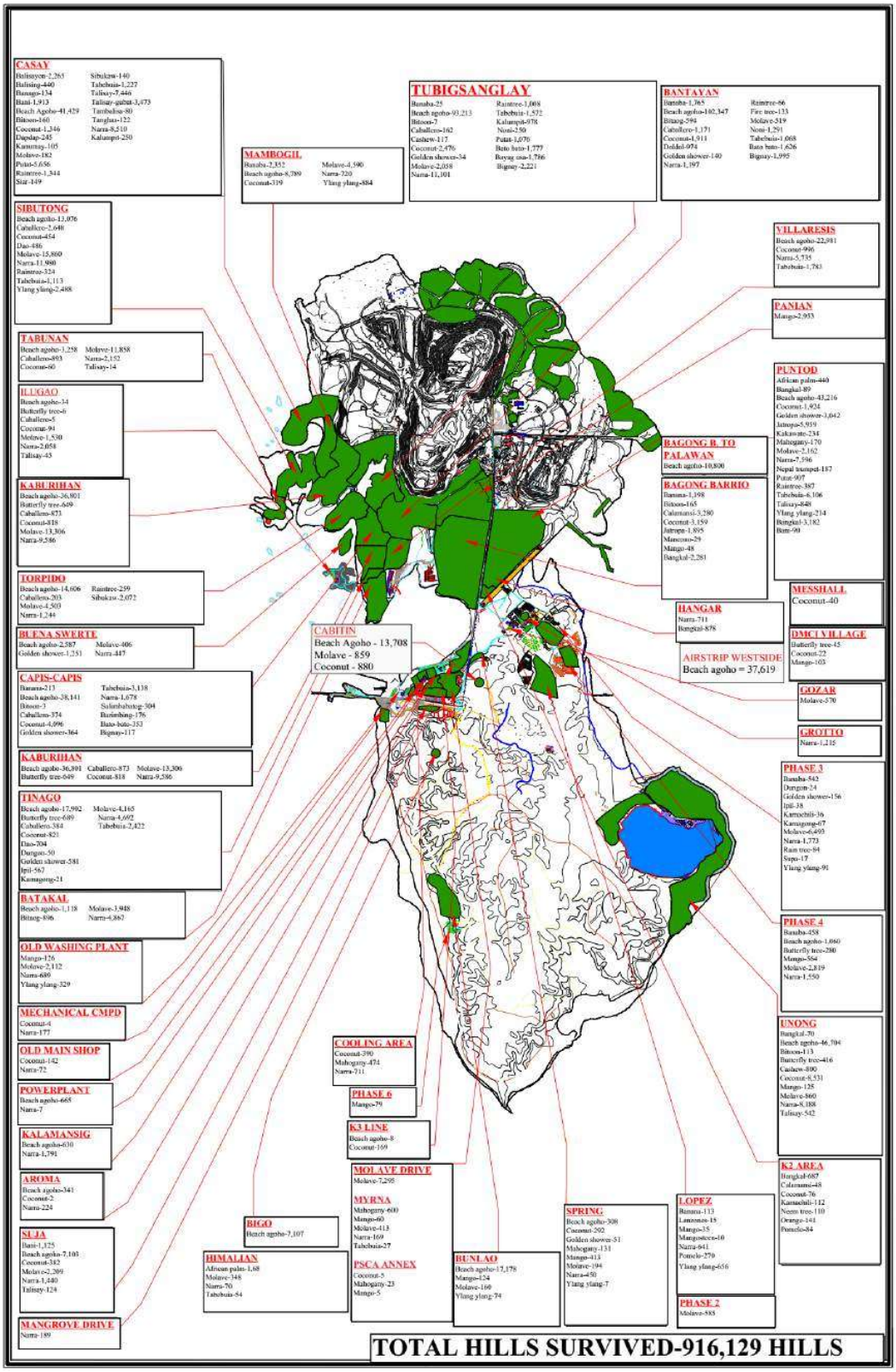


FIGURE 1-12: REFORESTATION PROJECT AS OF DECEMBER 2018

1.7.3.3 DECOMMISSIONING PLAN

The existing 2x7.5MW coal power plant shall be subjected for decommissioning once the second unit of 1x 30 MW CFBC coal fired power plant is operational. The preparation of the decommissioning plan shall be based on the following strategy:

- Formation of company management organization whose duties and responsibilities are to plan and supervise the activities of the rehabilitation and decommissioning program;
- Selection of qualified personnel required in the implementation of rehabilitation / decommissioning;
- Inventory and assessment of equipment / machineries;
- Assessment of the suitability of the equipment, buildings and other facilities for further rehabilitation/restoration, reuse elsewhere or turnover to the community.
- Removal of reusable equipment, building parts, and/or facilities from the site and demolition of condemned structures.
- Turnover of reusable buildings and other facilities not used to the community upon its request or concurrence.
- Implementation of decommissioning activities with close supervision from the management team;
- Physical assessment of the team on the accomplishment of the decommissioning of facilities and equipment;
- Recommend for rehabilitation of the areas affected by the decommissioning activities.
- Description of any special procedures or precautions to be used to ensure safety during decommissioning;
- All facilities shall be decommissioned with precautionary measures in handling remaining stocks of chemical reagents and delicate laboratory instruments.
- Safety procedures in handling and storing chemical reagents are indicated in the material data sheet (MDS) and therefore shall serve as guide during decommissioning of the plant facilities and the stored chemicals. The company's chemist shall take the responsibility in the supervision of the activity. After collecting the remaining chemical reagents and transported the same to a safe location and final destination, dismantling of the building structures will follow.

1.8 MANPOWER

Manpower requirement is expected to increase by 492 employees during the construction phase while additional manpower of 526 is estimated during the operation phase. **Table 1-12** presents the existing Molave workforce while **Table 1-13** presents the additional manpower requirement for the Molave Expansion.

TABLE 1-12: MOLAVE EXISTING WORKFORCE

Department	No of staff
Mining Department	
Accounting	16
Admin Division	3
Analytical Laboratory	24
Electrical	108
Drilling	205
Geology	123
Human Resource	14
Internal Audit	41
Security	310
Materials Control	88
Mechanical Services	277

Department	No of staff
Mine Planning & Engineering	30
Mobile Maintenance	504
Power Plant	119
Product	124
Resident Manager's Office	5
Safety	61
Mine Truck & Shovel Operation	1,138
Sub-Total	**3,190**
Non-Mining Department	
Coal Handling	116
Civil Works Department	79
Commissary	21
Community Relation Office	5
Foodmatch Canteen	25
HRD Cooperative	9
Medical Section	27
Pottery	23
Marine Biology	10
Ice Plant	5
Humic Acid Plant	10
Admin-ASD	148
Semirara Training Center	6
Shipping	380
Sub-Total	**864**
TOTAL	**4,054**

TABLE 1-13: MOLAVE EXISTING WORKFORCE

Department	No of staff
Construction Phase	
Electrical	21
Security	62
Mechanical Services	55
Mobile Maintenance	100
Safety	12
Mine Truck & Shovel Operation	227
Civil Works Department	15
Sub-Total	492
Operation Phase	
Analytical Laboratory	4
Electrical	21
Drilling	41
Geology	24
Security	62
Materials Control	17
Mechanical Services	55
Mine Planning & Engineering	6
Sub-Total	**526**
TOTAL	**656**

1.9 PROJECT COST

ANNEX A:

Aerial Photo

ANNEX B:

Proof of Conduct of IEC

INFORMATION, EDUCATION, COMMUNICATION PROGRAM ON THE ECC MODIFICATION OF SEMIRARA COAL MINING PROJECT (ACACIA PIT PROJECT)

SMPC FOOD COURT | September 04, 2021 | 01PM- 05PM

Minutes of the Meeting

I. AGENDA AND PROGRAM FLOW

The IEC meeting for the modification of Acacia Pit Project is scheduled on September 04, 2021, 1:00pm until 5:00pm at the SMPC food court. The event is divided into two parts; presentation and open forum.

PROGRAMME

- Welcome remarks
- Presentation of agenda
- Open forum
- Closing remarks

II. PARTICIPANTS

The meeting is attended by 48 participants coming from different sectors enumerated in the required invited stakeholders in Section 5.2 of DAO 2007-15.

SECTOR		**ATTENDEES**
Local Government Unit	Municipality of Caluya	
	Barangay Semirara	2
	Barangay Alegria	6
	Barangay Tinogboc	10
Barangay Health Workers		1
Housing Area Officials		8
People's Organization		2
Local Institutions	Education	1
	Market	
Company		18
TOTAL		**48**

III. MEETING

The meeting formally started at 1:40 PM as Rachelle Ann N. Lauricio welcomed the participants from different sectors. She explained the program flow and the agenda for the meeting such as the future plans of SMPC and all the things needed to know about the goals and objectives of the company for the upcoming years.

The ECC Modification of Semirara Coal Mining Project is presented by Engr. Janesto S. Diaz, Jr. He started by telling that the project is needed to be done for the continuous supply of coal to be used by power plants not only in Semirara but also in the whole country particularly in Luzon and Visayas.

Engr. Diaz presented the timeline of the different mining projects operated by the company starting from Panian Pit, East Panian Expansion Project, Molave Coal Project, and the latest project which is the Acacia Pit Project. As shown in the power point presentation, this project, which is shaded in color violet covering an area of around 850 hectares, will be located northwest of Sitio Tungao of Semirara Island (figure 1). Engr. Diaz emphasized that the cross-marked area on the map will be the location of the project while the color green corresponds to the mining complex where the activities of SMPC is shown. Engr. Diaz explained that the color violet and green areas are separated because the latter area has the approval of DENR with regards to the limit where backfilling is to be done based from the latest Environmental Compliance Certificate (ECC) conditions approved by DENR-EMB for the Semirara Coal Mining Project of the Semirara Mining and Power Corporation. According to him, the area in violet is not within the approved ECC therefore SMPC applied for a new ECC which is the modification of the current ECC.

The significant schedule of activities for Acacia Pit project is presented by Engr. Diaz. An enclosure dike will be started in 2022 and is expected to be finished by 2023. Dewatering will be done in 2024 and overburden stripping will be finished by 2025. First quarter of 2026 is the expected production of coal. Engr. Diaz also showed the Semirara Production Forecast and Strip Ratios. According to him, in 2022 and 2023, coal will still be produced from Molave Pit. Meanwhile, the company will be starting to produce coal from Narra Pit in 2023. The remaining coal in Molave Pit will be totally exhausted by the end of 2024 while coal reserves from Narra Pit will be utilized until 2026. Engr. Diaz added that the company will start to produce coal from Acacia Pit starting in the year 2026 and will last in 2030.

An open forum followed to give a platform to ask, clarify, and discuss issues regarding the project and it was facilitated by SMPC Environmental Management Department Head, Engr. Janesto Diaz, Jr., Rachelle Ann N. Lauricio also encouraged the participants to ask questions.

Closing remarks were given by Rachelle Ann N. Lauricio, IEC officer. The IEC ended at 4:00 in the afternoon.

FIGURE 1.Project description of the Acacia Pit Project

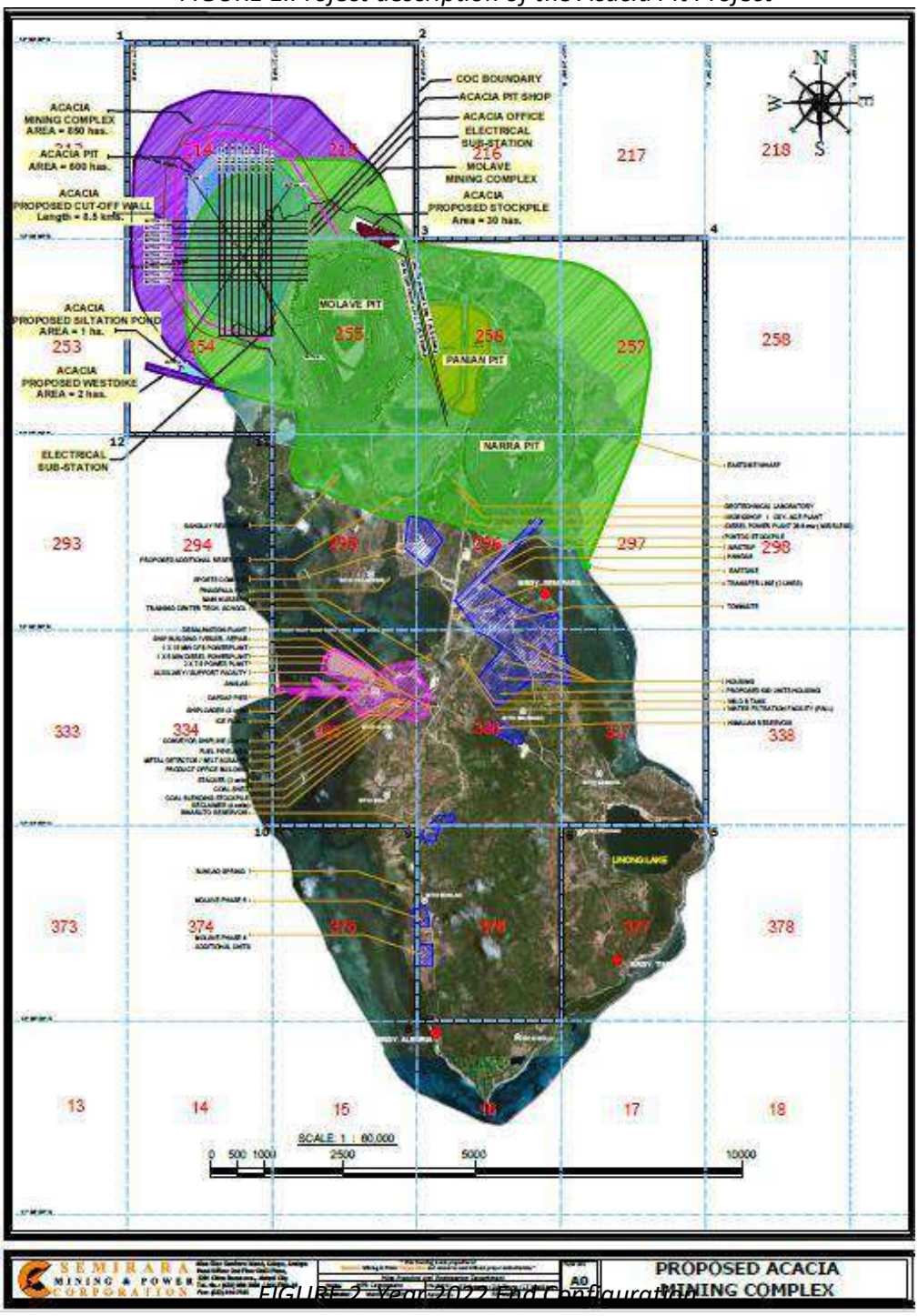
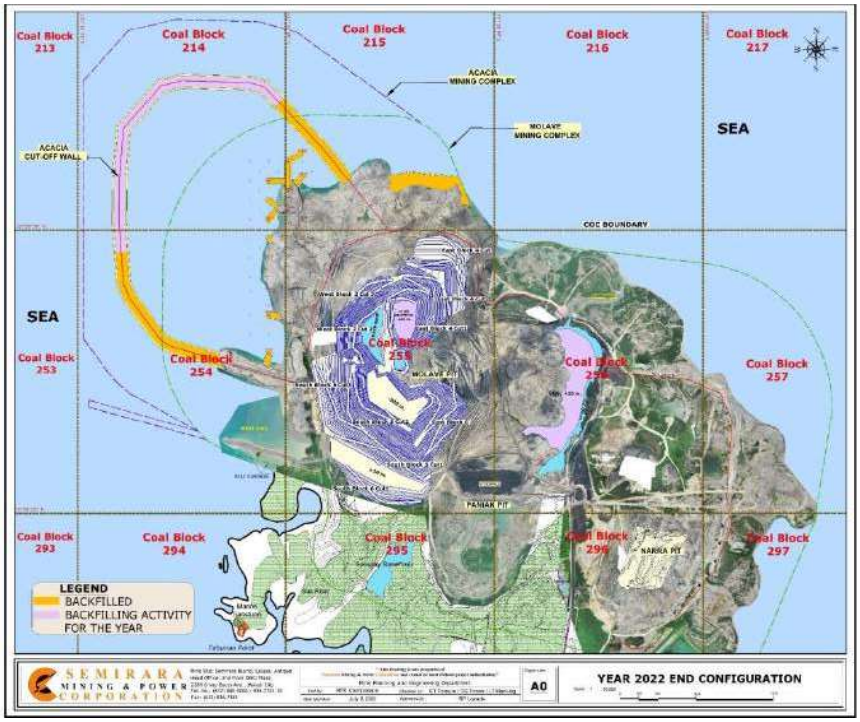


FIGURE 2. Year 2022 End Configuration



IV. OPEN FORUM

- **Romeo B. Malixi, Brgy. Captain (Tinogboc)**

Malixi: Engr. Diaz, I just want to know if how far are we from Bulalakaw? Are we still far? Is it possible to construct a pier in Acacia so that the travel time will be lessened?

JSD: Sir Ed's still computing if how much is the distance. We're still looking at the google map.

Malixi: Are we still far from the limit? Is there a possibility to go beyond it?

JSD: The limit that the DOE granted us for our last ECC …

Malixi: We applied for an extension of our coal blocks right? Sea dumping won't be avoided then. That's why my first question is if we are gonna go beyond the limit?

JSD: We extended our block. The approved blocks are 214, 215, and 216. Then we removed the two blocks below. So now, this is our present block, indicated by the black line. These are the blocks approved by the DOE, the department of energy, to grant us a coal operating contract

extension. So now, we are not going beyond the coal block. We are still within the coal block. We won't extend it beyond the limit.

Malixi: If ever there is a plan to have another extension, will the DOE still allow it?

JSD: If we are going to extend it at the upper part, it is still possible. But if we do it at the western portion, then surely, we will go beyond the limit. And that is strictly monitored by the DOE. While we are doing dumping now, the DOE will regularly visit the area and conduct a survey to ensure that we are still inside the block limit assigned to us.

- **Modesta Pionelo, Brgy. Captain (Alegria)**

Pionelo: Good afternoon to everyone. Sir, once the operations in the Acacia Pit commenced and is already productive, will Brgy. Alegria and Brgy. Tinogboc receive a royalty share?

JSD: The Company gives a royalty tax to the government and the government is the one that distributes it to the LGU of the province of antique. The province of Antique gives it to the Municipality of Caluya and to the barangays. So most probably, the royalty share that will be received by Brgy. Alegria will come from the share of the municipality. From barangay, municipality, then province. There are three sectors receiving the royalty tax that is given by the operations of SMPC.

Bernard M. Cadigal, Community Development Officer: In the present system, the one that receives the biggest share of royalty is the host barangay. That is a law. There will be no problem for the company because all we do is to pay the right amount of royalty that is being divided by the three sectors. So SMPC won't be able to do anything regarding the distribution of royalty shares because of the mandate of the existing law. So if possible, we want to appeal to the congressman or any competent person and ask them to review this law and try to consider the fact that SMPC is located in an island with three barangays. Although the mining activity is located in Brgy. Semirara, the two barangays of Alegria and TInogboc is still partially affected by these operations.

RNL: Thank you sir Bong, let us support sir Bong. Let's consult the DOE regarding the matter of this royalty share.

- **Elsie Lantaca, AGS Housing Association**

Lantaca: How do we ensure the safety of the employees once the operations in the acacia pit starts?

Ben S. Lawangon, Safety Officer: We have different safety programs that are being implemented and these programs are being revised according to arises happening in the pit. There are constant changes happening in our pits that's why our safety programs are adapted far from the active excavation. First of all, in our safety programs, we use different equipment, like the SSR, that can detect wall movements. We also have a next program wherein we will be able to detect the distance of the wall from the worker.

Danilo S. Tirona Jr., Geology-Department Head: One of the methods that we use to ensure the safety of the Acacia Pit is this process that we are doing. If you have any suggestions, we can incorporate them. For the technical side, the company conducts risk assessments. We assess every possible situation that can happen during the mining operation. That's why we were able to conclude that the most probable method is to construct an enclosure dike then build a cut-off wall before pumping out the water. After pumping, we'll make sure to assess if the final design is according to the design that can withstand any possible failure. We conduct this IEC to incorporate your suggestions and comments, and for the technical side, the risk assessment, to ensure the safety of the operations.

- **Romeo B. Malixi, Brgy. Captain (Tinogboc)**

Malixi: What are you going to use for your seawall?"

JSD: We will use the excavated materials from the Molave and Acacia Pits. That's why it is very important for the ECC to be approved as early as possible for the company to start its activity. It will also be advantageous to the company the early approval of the ECC so we can release our coal in 2026. There is still an ongoing study on the optimum thickness and volume of the sea barrier/ barricade for it to withstand the pressure coming from the sea.

Malixi: What is our expected depth?

JSD: -60m below sea level.

Malixi: What will be your sea barrier?

JSD: While we are dumping on the area, our geologists and engineers are conducting analysis about the strength of our sea barrier.

- **Edelyn Rodriguez, Teacher-Semirara National HS**

Rodriguez: Does SMPC have planned mitigating measures for the damage to the coral reefs? If not, are there any planned activities for the certain portion that will be affected during the dike enclosure activity?

JSD: Generally, if we conduct an activity in that area, we will surely create an effect on the coastal marine resources. For now, we are conducting a study if there are still corals present in -60m below sea level because corals are present in the shallow area of the sea and it also need sunlight. If the area is not reached by sunlight, there will be no corals. If you will see something, most probably it will be a rock formation or “mud” where local fisherman termed it as “putik”. The depth of the project will be beyond the area where corals can live. However, we will still be disturbing the coastal marine resources that is why we will conduct additional studies on the areas that will be disturbed by the mining activity, with the help of DENR and our third party technicians, experts in the marine field, like marine biologists. They will give us a recommendation on what to do on the disturbed areas once they’ve finished their study. SMPC is always ready to implement these mitigating measures. Just like what we are doing to our Tabunan Marine Hatchery wherein we propagate giant clams. These giant clams’ help in propagating fish in the area. Along with these our support to the three barangays, is our marine protected areas. SMPC will extend help to these three barangays to maintain and propagate these marine protected areas. The objective of these areas is to preserve and increase the fish population. Another project is to create MOA with the three barangays for the company to disperse giant clams in their own marine protected areas.

Rodriguez: I have a suggestion, is it possible to conduct an orientation on the teachers about the marine life present in the island? So that we can incorporate it in our lessons or we can use it during contextualization of the lessons.

RNL: Actually, we already gave storybooks to Semirara Elementary School. We turned over our storybook about giant clams and the Paaralan ni Tatay. It is still ongoing but yes, I agree with

ma'am's suggestion to orient the teachers for a more effective way of teaching about the giant clams.

- **Gretchen Poquita, Housing Representative**

Poquita: Good afternoon to everyone. I'm sure everyone knows that the license of SMPC is valid until 2027 only. So if you will continue to open the Acacia pit, does it mean additional working years and privilege to the residents of Semirara?

JSD: Thank you for that question. As you can see, our projected mining activity is until 2030 but the permit is only until 2027. The only thing that will expire is the permit but the source will still be available. We still have remaining resources from Himalian and other areas. But, it is up to the DOE, the government, if they will grant us extension as the operator of the coal operating contract for the next 50 years and they will decide based on the results of the bidding. However, the company, Semirara Mining and Coal Corporation, they would really like to extend the operation here. That is why we are doing our best, so when 2027 comes, we will be endorsed by the community, the lgu, to the DOE so we will be awarded another 50 years as the contractor. SMPC is just a contractor, the true owner of the coal here in Semirara is the government which is under the Department of Energy. Some people have doubts about what will happen to Semirara after 2027. The DOE will be conducting a bidding to determine who will be the next operator of the COC here in Semirara. Because like SMPC, there are still other contractors and operators.

RNL: Don't worry ma'am, the SMPC is trying its best to be the best contractor. So we are humbly asking for your cooperation and help us become the best. That support will be very highly appreciated.

- **Anonymous:** Are there any fisherfolks that will be affected in the area?

JSD: So far, there are no fisherfolks living in that area because it is located purely on the sea. The last fisherfolk to be relocated in Pinagpala is the group of Kagawad Joel and his family.

- **Joel Ignacio, Semirara Fisherfolk Association**

Ignacio: Good afternoon, I'm from the Semirara Fishermen Association. It's about the additional operation of Semirara Mining and Power Corporation. Besides bleaching, there are no major effect. The additional operation would be advantageous to us fisherfolks because it would mean we're getting closer to Bulalakaw. Because during the Amihan Season, if we can cross, starting from edge of Tungao, to Semirara, to the edge of Maasin, an area of Bulalakaw, if we can shorten the distance, it would mean less accidents. We have no problem regarding travel from the other side because we have Fastcats available, but it would mean more travel expenses. If we will merge with Bulalakaw, we can use motorcycles to travel to Mindoro. For the affected marine resources, they will surely be replaced. If you can see during the first operation, we can only catch "*isdang bato*", but now there are any other fish present in the area like "t*alakitok*" and many other kinds of fish. Actually, during the first part of the operation, it's very hard to catch fish but after it, many kinds of fish returned to the area. That's why in the Tambak area, all fishermen can say that their catch increased greatly. So for us, there will be no problem. It will be advantageous to us get closer to Bulalakaw because it would mean easier delivery of fish products.

• **Greg Duran, tricycle driver association- President**

Duran: Good afternoon to everyone, as long as the company is here, if we will be granted extension, it woud mean good income and privelege to us tricycle drivers because of additional residents, additional jobs. But if ever we'll really get closer to Bulalakaw, won't we affect the waters of Bulalakaw?

JSD: If we will conduct a dumping activity, of course it will have effects like light sediment transport, increased turbidity of waters, but that is included in the study we will be doing. Where will the sediments be going, what will be the areas affected? While doing the activity, we already know the possible effects in the nearby areas. There is the east dike in Banua and the west dike in Casay. Those dikes will be the one trapping or arrest the sediments to prevent it from going to the waters. In Barangay Semirara there is the "Eastdike" where I noticed lately that some residents of Banua would go to the Eastdike to go beaching because of the tall beach agoho in the area."

- **Gretchen Poquita, Housing Representative**

Sir, these are good comments, on behalf of the housing association, this is a good news for all employees of the company. Every employee has their own doubts about their future due to the expiration of the permit in 2027. So does this mean another opportunity for all residents of Semirara? This means hope especially during the covid-19 pandemic. So this is good news.

- **Romeo B. Malixi, Brgy. Captain (Tinogboc)**

Malixi: I just want to know why do we need to change the name to Acacia if it is just an extension of Molave?

JSD: That is a good question Kap. Actually, this is not an extension. These are two different pits. We will not be extending the Molave pit, we will make another pit and we will call it the Acacia pit. The modification in our ECC is the additional dumping of 850.

- **Susana Reyes, Brgy. Kagawad (Alegria)**

Reyes: "If we are gonna dump in Acacia, we would be shortening the distance between Semirara and Bulalakaw. Would that mean we will be a part of Mindoro?"

JSD: we are just 18kms away from Bulalakaw and it is equivalent to travel distance of 2 Tinogbocs to and fro Barangay Semirara.

Semirara to Tinogboc is 11kms, 15 mins using a motorcycle but we lessened it to 5 mins because of the improved roads. So for me, it all depends on how our LGU will defend us. We are not really familiar about this issue. Maybe it's a false news being spread in facebook. I think it won't be easy for Mindoro to claim the island of Semirara.

BMC : Liwagaw has a history. Although Semirara is a part of Mindoro before, that would be a different discussion. The delineation of boundary of our municipal waters would be our main concern because if we base it in the law, the delineation of municipal waters is 15kms away from the edge of the municipality. So if we have an 18km difference, it will overlap with Bulalakaw's boundary, which will have a 3kms difference. If they measure their boundary too, it will also have the same distance of 3kms. That's where the conflict can arise. But base on my understanding, if there is an overlapping between boundaries, the center of the two boundaries will be the designated boundary. The issue of illegal fishing would also be a concern because if a Bulalakaw fisherman went inside our boundary, he can use the argument of also being inside theirs, while also being inside our boundary.

- **Elsie Lantaca, AGS Housing Association**

Lantaca: As a wife of an employee of SMPC, is it possible for us to be toured inside the operations?"

JSD: We also want you to be part of our IEC program so that you would also be familiar with the mining operations. We already started with the brgy. Officials, municipal officials, LGU staffs and students but we stopped because of the pandemic. The scheduled tour of the students was every Saturday but we halted the activity because the students were not allowed to go out due to the implemented community quarantines. Social gatherings are also banned. But you just have to approach ma'am Rachelle if you want to be scheduled for a tour. The company also wants you to tour around, not only in our mining operations, but also to the other SMPC projects, especially in our environmental projects like Tabunan, Aviary, and Rehab of the South Panian.

V. PHOTO DOCUMENTATION








VI. ATTEDANCE SHEET

SEMIRARA MINING & POWER CORPORATION

IEC ATTENDANCE SHEET

Date	September 4, 2021
Venue	Foodcourt
Purpose	ECC Modification – Acacia Pit Project
Participants	Residents of [redacted] Semirara/ Island Envi and IEC group

	NAME	DESIGNATION	SIGNATURE
1	Lorena Domingo	Secretar - Tinagbac	
2	Vangelinda Fernandez	Kagawad - Tinagbac	
3	Dante Tabanyag	Kagawad - Tinagbac	
4	Greg Duran	Pres. - SEMIDDA	
5	Ailyn Delos Santos	BHERD - Semirara	
6	Janice Lim	PPC chairman	
7	Cherry Mae Cabarrubias	AGS - Housing Assoc.	
8	Ekie Lantaca	AGS - Housing Assoc	
9	Modesta P. Pinuela	P- B	
10	Marwin M. SerasPE	SIS-C	
11	Luzviminda C. Reyes	Brgy. Kagawad	
12	Gretchen Pagunta	Kgd. coordinator	
13	ROMEO B. MACIAS	P. BANANTAY	
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SEMIRARA MINING & POWER CORPORATION

IEC ATTENDANCE SHEET

Date	September 4, 2021
Venue	Foodcourt
Purpose	ECC Modification – Acacia Pit Project
Participants	Residents of ~~Brgy.~~ Semirara Island Envi and IEC group

	NAME	DESIGNATION	SIGNATURE
1	Rosalinda Lopez	Brgy. Kaagwad	
2	Noel Madarcos	Brgy. Kaagwad	
3	MILLER V. ERODIAS	BRGY. KAGILID	
4	LOUGIES MESA/CO	BRGY KAGILID	
5	EFREN B. EMON	BRGY KAGILID	
6	Ismael a. Madarcos	KAGILID	
7	Ronilo T. Dizon	"	
8	CHRISTOPHER	MQR	
9	ALVIN MANUEL	KREA 1	
10	Wally A. Dano	SMPC (Environmental	
11	Jane Faye Tubongbanua	SMPC - Environmental	
12	Rachel Louice Columna	SMPC - Environmental	
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SEMIRARA MINING & POWER CORPORATION

IEC ATTENDANCE SHEET

Date	September 4, 2021
Venue	Foodcourt
Purpose	ECC Modification – Acacia Pit Project
Participants	Residents of ~~Brgy. Semirara~~ Semirara Island/ Envi and IEC group

	NAME	DESIGNATION	SIGNATURE
1	Teresita A. Dalwamp	Fed. President (Women's)	
2	HAZIEL HARINA	A-2 coordinator	
3	Analy Camacho	A-2	
4	Edelyn G. Rodriguez	MTI (Semirara ES)	
5	Rosannie A. Peñaflorida	SK chairman (Tinagbu)	
6	JOEL M. IGNACIO	(SZHFA)	
7	MARIZA S. CORDOVA	AG - COORDINATOR	
8	Mrd Karen Magaso	DMN	
9	Wesel Ann Aguirre	A-5	
10	Justine Loreen P. Bolbon	SMPC - Environmental	
11	KIVEN F. BONITE	SMPC - ENVIRONMENTAL	
12	MARK AUDREY S. DULDULAO	SMPC - ENVIRONMENTAL	
13	RUFINO A. LIMBO JR	SMPC - ENVIRONMENTAL	
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ANNEX C:

Barangay Resolution

MARK LIANN D. EULOGIO
SK Chairman / Temporary Presiding Officer

JIMMY M. ARANDA
Barangay Kagawad

ROXANNE L. SMITH
Barangay Kagawad

ROSIE G. CALINOG
Barangay Kagawad

ULDIOLYN G. JALIQUE
Barangay Kagawad

LUCIO V. ROLDAN
Barangay Kagawad

MARITESS Z. DELOS SANTOS
Barangay Kagawad

JOLER F. MAMING
Barangay Secretary

Republic of the Philippines
Province of Antique
Municipality of Caluya
Barangay Semirara
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Office of the Sangguniang Barangay

EXCERPT FROM THE MINUTES OF THE 3rd SPECIAL SESSION OF THE SANGGUNIANG BARANGAY OF BARANGAY SEMIRARA, MUNICIPALITY OF CALUYA, PROVINCE OF ANTIQUE HELD AT BARANGAY SEMIRARA SESSION HALL AT 10:00 O'CLOCK IN THE MORNING ON OCTOBER 7, 2021

-PRESENT-

PRESENT

Hon. Mark Liann D. Eulogio	- SK Chairman/ Ex- officio/ Temporary Presiding
Hon. Jimmy M. Aranda	- Barangay Kagawad
Hon. Roxanne L. Smith	- Barangay Kagawad
Hon. Rosie G. Calinog	- Barangay Kagawad
Hon. Uldiolyn G. Jalique	- Barangay Kagawad
Hon. Lucio V. Roldan	- Barangay Kagawad
Hon. Maritess Z. Delos Santos	- Barangay Kagawad

ON OFFICIAL BUSINESS

Hon. Catherine Lim-Tahum	- Punong Barangay
Hon. Brenda M. Jocson	- Barangay Kagawad

Resolution No. 040
Series of 2021

"A RESOLUTION STRONGLY ENDORSE THE APPLICATION OF THE "ACACIA PIT COAL MINING PROJECT" AS NEW COAL PIT PROJECT OF SEMIRARA MINING & POWER CORPORATION."

Sponsored by: Committee on Environmental Protection
Chairman : Brenda M. Jocson
Vice-Chairman : Uldiolyn G. Jalique
Members : Lucio V. Roldan & Maritess Z. Delos Santos

WHEREAS, Semirara Mining and Power Corporation that presently operates the coal mining operations in Molave Pit is in need to develop another area for coal pit operation to secure a sustainable source of coal needed supply of fuel primarily to sustain the need of power requirement in the country;

WHEREAS, the proposed coal pit is located seaward at the north-western tip of the Semirara Island.

WHEREAS, this coal pit project is denominated as "Acacia Coal Project" which is still within the jurisdiction of the Barangay Semirara, Caluya, Antique;

WHEREAS, this project shall cover an expansion area of 1,450 hectares making our mining complex expanded to 5,675.25 hectares;

WHEREAS, the production capacity will still remain at 16 million metric tons however this additional deposit will provide additional source of coal supply for several years more;

WHEREAS, the significance schedule of activities for acacia pit project will include enclosure of dike for year 2022, complete enclosure of dike for 2023, dewatering on 2023 and dewatering overburden for 2025;

WHEREAS, expected to produce coal in 2026, however the activity will start right after the issuance of Environmental Compliance Certificate (ECC) and subject to environmental survey for the possible impact in our marine resources before the implementation and it is based on the environment impact assessment;

WHEREAS, the said acacia coal project is within the coal operating area of Semirara Mining & Power Corporation and expanding of three (3) coal blocks in 214, 215, and 254 at the north-western pit of the Semirara Island;

WHEREAS, the said expansion was included and approved by the Department of Energy (DOE), it was upset from the portion of Alegria transfer to the upper portion of coal blocks 214, 215, 254;

WHEREAS, whatever the impacts to marine resources, the Semirara Mining and Power Corporation will mitigate the project to tabunan marine laboratory, and hatchery;

WHEREAS, the existing mine site is not sufficient to supply the production because based on the schedule of Semirara Mining & Power Corporation "Molave Pit" is operation only until year 2024, Narra Pit until 2026, and the reason to expand is to get additional reserved mine and to extract additional coal for the continuous operation of coal in the Island;

WHEREAS, the Semirara Mining & Power Corporation shall focus on the mitigation programs on the possible impact of this expansion to marine environment, and the dust itself cannot affect the community because it this expansion is distant away from the community;

WHEREAS, the total mining complex is about 850 hectares and out of 850 hectares the most pit is only 600 hectares and the remaining areas of 850 hectares will be the sea barrier, protection and wall of pit;

WHEREAS, the Sangguniang Barangay of Barangay Semirara strongly supports for the expansion and application of Semirara Mining and Power Corporation (SMPC) for the Acacia Coal Mining Project;

NOW THEREFORE, on motion made by Hon. Maritess Z. Delos Santos, and duly seconded by Hon. Jimmy M. Aranda, be it:

RESOLVED, as it is hereby resolved to pass **A RESOLUTION STRONGLY ENDORSE THE APPLICATION OF THE "ACACIA PIT COAL MINING PROJECT" AS NEW COAL PIT PROJECT OF SEMIRARA MINING & POWER CORPORATION.**

RESOLVED FURTHER, to furnish the copy of this resolution to the Office of the Municipal Mayor Hon. Rigil Kent G. Lim, Office of the Municipal Vice- Mayor Hon. Genevive L. Reyes, Office of the Sangguniang Bayan of Caluya, Antique and Semirara Mining & Power Corporation for their information and appropriate action.

Carried this 7th day of October 2021 at Barangay Semirara, Caluya, Antique Philippines.

JIMMY M. ARANDA
Barangay Kagawad

ROXANNE L. SMITH
Barangay Kagawad

ROSIE C. CALINOG
Barangay Kagawad

ULDIOLYN G. JALIQUE
Barangay Kagawad

LUCIO V. ROLDAN
Barangay Kagawad

MARITESS Z. DELOS SANTOS
Barangay Kagawad

Certified Correct:

JOLER F. MAMING
Barangay Secretary

Attested:

MARK LIANN D. EULOGIO
SK Chairman/Temporary Presiding Officer

Approved:

CATHERINE LIM-TAHUM
Punong Barangay