CARMEN
COPPER
CORPORATION

November 28, 2022

MINES & GEOSCIENCES BUREAU
Region VII
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Time: 541

ENG'R. ARMANDO L. MALICSE
Regional Director and
Chairman of the MRF Committee
Mines and Geosciences Bureau VII
DENR Compound, Greenplains Subd.,
Banilad, Mandaue City

Dear Director Malicse:

In compliance with Section 171 of DENR Administrative Order No. 96-40, we are pleased to submit herewith the 2023 Interim Annual Environmental Protection and Enhancement Program (AEPEP) of Carmen Copper Corporation.

We trust our AEPEP is sufficient in form and substance, and meets the requirements of DAO 96-40.

Warm regards.

Very respectfully yours,

ALEXEI JEROME G. JOVELLANA
President & CEO

/AGJ L-2022-85

Don Andres Soriano, Toledo City, Cebu, Philippines, 6038
Tel No. (032) 888 -1200

CARMEN COPPER CORPORATION

2023 INTERIM ANNUAL ENVIRONMENT PROTECTION AND ENHANCEMENT PROGRAM

CARMEN COPPER CORPORATION

RECEIVING COPY

MINES & GEOSCIENCES BUREAU
Region VII
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January 25, 2023

ENG'R. ARMANDO L. MALICSE
Regional Director and
Chairman of the MRF Committee
Mines and Geosciences Bureau VII
DENR Compound, Greenplains Subd.,
Banilad, Mandaue City

Dear Director Malicse:

Submitting herewith the revised matrix of the company's 2023 Interim Annual Environmental Protection and Enhancement Program (AEPEP) based on the updated computation of Direct Mining and Milling Cost (DMMC) which was presented during special MRFC meeting held last January 24, 2023.

We hope that the submitted matrix conforms with the condition discussed and merits your approval.

Warm regards.

Very respectfully yours,

ALEXEI JEROME G. JOVELLANA
President & CEO

/AGII 2023-10

Revised 2023 Interim Annual Environmental Protection and Enhancement Program

CARMEN COPPER CORPORATION

MPSA 210-005-VII and MPSA 264-2008-VII

Activities[1]	Unit of Measure	Physical Component					Financial Component					Remarks
		Annual Target	Physical Targets				Annual Budget	Financial Targets				
			Q1	Q2	Q3	Q4		Q1	Q2	Q3	Q4	
1. Land Resource												
a. National Greening Program Plantation maintenance (100 Ha.)	No. of Mntce. Activity	2		1		1	687,450		343,725		343,725	Semi-Annual maintenance activities
b. Improvement of Nursery Facilities - Repair of Nursery Office - Repair of Potting Shed - Repair of Vermi Composting - Establishment of Nursery Orchidarium	No. of Facility	4		2		2	2,050,000		900,000		1,150,000	For Plant Nursery improvement
c. Operation and Maintenance of Waste Rock Dump Rehabilitation and Stabilization of Riverbank and left-over clearing (Airstrip, Odlum & Sigpit area)	No. of Mntce. Activity	4	1	1	1	1	16,500,000	4,125,000	4,125,000	4,125,000	4,125,000	Continuous maintenance activity
d. Operation and maintenance of roads and drainage within the Pit area	No. of Mntce. Activity	12	3	3	3	3	8,000,000	2,000,000	2,000,000	2,000,000	2,000,000	Continuous maintenance activity
e. Storage Facility for Housesold Electronic Wastes (Camp Housing area)	No. of Storage facility	3		3			180,000		180,000			new project
f. Construction of North Dike Project	No. of Project	1		1			34,520,000	8,630,000	8,630,000	8,630,000	8,630,000	new project
g. Establishment of Sigpit Selttling Pond Extension (Pond 1A and Pond 1B)	No. of Project	1	1				9,700,000	4,850,000	4,850,000			new project
h. Additional Two (2) unit Dump Trucks	No. of Truck	2	2				6,000,000	6,000,000				Additional fleet for desilting activity
i. Proposed Construction of Garbage Staging and Compost Facility	No. of Facility	1		1			1,780,000		1,780,000			To serve as a staging area of solid waste that will be generated from the mine site.
sub-total							***79,417,450***	***25,605,000***	***22,808,725***	***14,755,000***	***16,248,725***	
2. Water Resource and Quality												
a. Operation, Regular Maintenance and Improvement of Emergency Tailings Pond (ETP)	No. of Mntce. Activity	12	3	3	3	3	25,000,000	6,250,000	6,250,000	6,250,000	6,250,000	Continuous maintenance activity

b. Operation and Maintenance of Tailings Disposal System (Land Based, Slurry Pumps and Tailings Pipelines and Launders)	No. of Mntce. Activity	60	15	15	15	15	30,000,000	7,500,000	7,500,000	7,500,000	7,500,000	Continuous maintenance activity
c. Operation and maintenance of Sigpit Settling Pond, Spillway and Dikes	No. of Mntce. Activity	36	9	9	9	9	24,024,000	6,006,000	6,006,000	6,006,000	6,006,000	Continuous maintenance activity
d. Maintenance of One (1) Slake Lime set-up @ SBDT area	No. of Mntce. Activity	12	3	3	3	3	85,000	21,250	21,250	21,250	21,250	Continuous maintenance activity
e. Maintenance of Existing Used Oil Storage facility (Carmen HE & Machine Shop area)	No. of Mntce. Activity	24	6	6	6	6	180,000	45,000	45,000	45,000	45,000	Continuous maintenance activity
f. Maintenance of Oil-Water Separator Facilities (Carmen HE Main & Wash bay, Transport shop, Machine Shop & PED Yard areas)	No. of Mntce. Activity	60	15	15	15	15	1,400,000	350,000	350,000	350,000	350,000	Continuous maintenance activity
g. Maintenance of Wash Bays (Carmen HE and Transport shop)	No. of Mntce. Activity	24	6	6	6	6	200,000	50,000	50,000	50,000	50,000	Continuous maintenance activity
h. Maintenance of Environmental equipment (Water Quality Checker, Portable PH Meter, Online PH Meter, Flow Meter, etc.)	No. of Equipment	4		4			180,000		180,000			Continuous maintenance activity
i. Water Laboratory Expenses	No. of Samples	212	53	53	53	53	850,000	212,500	212,500	212,500	212,500	Continue monthly water sampling
k. Handling, Transport & Disposal of Hazardous Waste (133,000 kgs)	Kilograms	133,000	33,250	33,250	33,250	33,250	1,000,000	250,000	250,000	250,000	250,000	To properly disposed the hazardous waste generated by the company
l. Maintenance of Drainage system at Carmen Concentrator	No. of Mntce. Activity	12	3	3	3	3	362,400	90,600	90,600	90,600	90,600	Continuous maintenance activity
k. BTSF Discharge Pipeline Enhancement	No. of Project	1	0.5	0.5			12,000,000	6,000,000	6,000,000			new project
. Procurement of additional Oil/Chemical Spill Kit	No. of Kit	2		2			100,000		100,000			for replenishment of stock to be used in case of emergency
sub-total							***95,381,400***	***26,775,350***	***27,055,350***	***20,775,350***	***20,775,350***	
3. Noise and Vibration												
a. Conduct Regular Ambient Noise Monitoring at the ff area: Biga Brgy Hall, Sitio Hag-it, Sigpit Area, Sangi Port & Airstrip	No. of Sites	60	15	15	15	15	18,000	4,500	4,500	4,500	4,500	Continuous monitoring activity
sub-total							***18,000***	***4,500***	***4,500***	***4,500***	***4,500***	

4. Air Quality												
a. Maintenance of Environmental Equiment (High Volume Air Sampler, Portable Genset, Micro-Climate System, etc.)	No. of Equipment	3		3			100,000		100,000			Continuous maintenance activity
b. Conduct Regular In-house PM10 Air Sampling at Biga Brgy Hall, Sitio Hag-it, Sigpit (near Sigpit Waste dump), Primary Crusher, Sangi Port)	No. of Sites	60	15	15	15	15	74,000	18,500	18,500	18,500	18,500	Continuous monitoring activity Monthly air sampling using the Portable equipment (High Volume Air Sampler)
c. Operation and Maintenance of Environmental Heavy Equipment (Excavator - 3 and Dump Trucks - 5)	No. of Equipment	8		2	2	4	5,000,000	1,250,000	1,250,000	1,250,000	1,250,000	Continuous maintenance activity
d. Ambient Air Monitoring Station Shed (Biga and ASMC-La Salle area)	No. of Shed	2		2			120,000.00		120,000			To establish permanent station at the area
sub-total							***5,294,000***	***1,268,500***	***1,488,500***	***1,268,500***	***1,268,500***	
5. Biodiversity Conservation /Consideration												
a. Seedling Production (Forest & Fruit-Bearing trees)	No. of Seedlings	28,500	14,250	14,250			342,000	171,000	171,000			Seedling production and plantation, enrichment planting and seedling donations.
b. Mining Forest Program (Nursery operation and Tree Planting Activity)							-					
- *Tree Planting Activity*	No. of Ha.	6		0.5	3	2.5	150,000		12,500	75,000	62,500	
- *Enrichment Planting*	No. of Ha.	25		3	15	7	75,000		9,000	45,000	21,000	
c. Establishment of Bamboo plantation	No. of Ha.	30		5	15	10	105,000		21,000	52,500	31,500	
d. Maintenance of existing Reforested areas: (Reforestation/ mine revegetation)							-					Continuous maintenance activity
- *Ecopark Maintenance activity*	No. of Ha.	6	1.5	1.5	1.5	1.5	40,008	10,002	10,002	10,002	10,002	
- *Ringweeding and Brushing activity*	No. of Seedlings	25,000	6,250	6,250	6,250	6,250	100,000	25,000	25,000	25,000	25,000	
- *Pruning and Salvaging activity*	No. of Ha.	15	7.5	7.5			50,010	25,005	25,005			
- *Replanting activity*	No. of Seedlings	5,250			2,625	2,625	52,500			26,250	26,250	

- *Growth and Survival*	No. of Ha.	5	5				12,500	12,500				
e. Wildlife Monitoring within the mine site	No. of Monitoring activity	2	1		1		46,000	23,000		23,000		Continuous monitoring of wildlife with the mine site
f. Proposed Solar Power at Administrative Building	No. of Project	1			1		8,000,000		8,000,000			new project
g. Procurement of accessories for DLSR Camera intended for Wildlife monitoring as ff: - 150-600 Super Telephoto lens - AF 2X Teleconverter/ Extender EF 2X III	No. of item	2		2			125,000		125,000			
sub-total							***9,098,018***	***266,507***	***8,398,507***	***256,752***	***176,252***	
6. Social Issues												
a. IEC/Pulong-pulong to five (5) Sitios	No. of Activity	4	4				20,000	20,000				Continue informantion drive to the host/neighboring community
b. Conduct River Clean up on identified river within Toledo City	No. of Activity	4	1	1	1	1	100,000	25,000	25,000	25,000	25,000	In partnership with the barangay officials, organizations and community
sub-total							***120,000***	***45,000***	***25,000***	***25,000***	***25,000***	
7. Environmental Research/Proposal												
a. Re-validation of Environmental Baseline study (dry & wet season)	No. of Study	1	0.5			0.5	7,500,000	3,750,000			3,750,000	to revalidate the baseline study conducted last 2007-2008
b. Monkey Assessment Study	No. of Study	1		0.5		0.5	740,000		370,000		370,000	to assess the behavioral of monkeys species present at the mine site
sub-total							***8,240,000***	***3,750,000***	***370,000***	-	***4,120,000***	
8. Others (e.g. monitoring/trainings/workshops/conferences/linkages, etc.)												
a. Participate on related seminars and short courses	No. of Training	0					50,000		25,000		25,000	
b. Quarterly Monitoring and Meetings:												
- MRFC members per diem	No. of Meeting	5	2	1	1	1	200,000	80,000	40,000	40,000	40,000	
- MMT members per diem	No. of Monitoring	4	1	1	1	1	180,000	45,000	45,000	45,000	45,000	

c. Cross-visits and other related expenses	No. of Visit	1				1	150,000				150,000	
d. Material and Supplies for operationalization of MMT and MRFC	No. of lot	1	1				85,000	85,000				
sub-total							***665,000***	***210,000***	***110,000***	***85,000***	***260,000***	
Total RCF							**197,568,868**	**57,714,857**	**60,150,582**	**37,085,102**	**42,618,327**	
Total MTF							**665,000**	**210,000**	**110,000**	**85,000**	**260,000**	
Grand Total							**198,233,868**	**57,924,857**	**60,260,582**	**37,170,102**	**42,878,327**	

Prepared by:

Roy C. Sabijon
Superintendent
Environment Department

Recommending Approval:

Christopher John W. Salcedo
Assistant Vice-President
SHECC

Approved by:

Alexei Jerome G. Jovellana
President and CEO

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5	Location of Slope Stabilization Activities
6	Location of Probe Equipment
7	List of Mining and Support Equipment

MGB Form 16-3

Republic of the Philippines
Department of Environment and Natural Resources
MINES AND GEOSCIENCES BUREAU
North Avenue, Diliman, Quezon City

INTERIM ANNUAL ENVIRONMENTAL PROTECTION AND ENHANCEMENT PROGRAM

1.0 CORPORATE DATA

1.1 Project Name

Operation of Toledo Copper Mine

1.2 Company Name

Carmen Copper Corporation
Tax Identification No. (TIN): 233-903-100-000

1.3 Company Addresses

* *Corporate:* 503-P, 5F Five E-Com Center Pacific Drive, Mall of Asia, Pasay City 1300 Philippines

* *Mine site:* Barangay Don Andres Soriano, Toledo City, Cebu, Philippines

1.4 Contact Number/s

Tel. No. (032) 888-1200 / Fax No. (032) 888-1200 local 4710/4711

2.0 PROJECT DESCRIPTION

2.1 Location and Historical Background

The copper operation of Atlas Consolidated Mining and Development Corporation (Atlas, for brevity) embraces a group of mineral claims that are covered by existing Mineral Production Sharing Agreement (MPSA). The claims are located in Barangays Don Andres Soriano, Biga, Cantabaco, Bunga, Media Once, and Cambang-ug, all in Toledo City, and Barangay Uling, City of Naga and Brgy. Sinsin, Cebu City Province of Cebu. The mineral property spans a total area of 5,469.7619 hectares (Has.), 3,538.1489 Has. of which are covered with mining claims owned by Atlas, while the remaining 1,931.6130 Has. are covered by mineral claims belonging to other claim-owners who have existing operating agreements with Atlas.

The present mining operation are within mining claim areas covered by Mineral Production Sharing Agreement (MPSA) No. 210-2005-VII

(Carmen Area), and Mineral Production Sharing Agreement (MPSA) No. 264-2008-VII (Lutopan Mining Area).

Atlas first acquired the Toledo property from another company in 1953. In August of that year, construction of a 3,600-metric ton per-day (MTPD) concentrator commenced. In February 23, 1955, the first truckload of ore from the Lutopan open pit was delivered to the mill.

By 1962, as a result of continuous expansion of Atlas' mining and milling capacities, its concentrator was treating 15,000 MTPD of ore. In that year too, the first underground (UG) mine was developed and on June 19, 1966, ore production from the UG block-caving operation commenced at 5,000 MTPD and finally attained 11,000 MTPD in 1968.

In 1969, the 32,000 MTPD Biga concentrator project began and, two years later, started production. Atlas at that point in time had expanded its mine and milling capacities to 66,000 MTPD or about 18 times its original tonnage. In servicing the huge operations, the company also improved and expanded its support facilities, such as the 5.4 billion-gallon Malubog Dam water reservoir, the 93.5-megawatt power plants, its port facility, lime plant, iron and steel foundry, and a bustling community complete with housing, school, hospital and varied recreational facilities.

In 1973, Atlas geologists discovered the Carmen orebody. Work began on the Carmen project in June 1976 and production commenced 17 months later. The combined throughput of the then three concentrators reached 110,000 MTPD at their peak, some 30 times the original volume when Atlas began operations in 1955.

In the mid-80s, Atlas production began to taper off due to falling copper price and operational downsizing. By July 1985, the Biga concentrator suspended its operations, followed later by the DAS concentrator on December of the same year. By September 1986 Biga concentrator resumed its operation until March 1992. On August 16, 1994, all Atlas operations were suspended indefinitely after a major "mudrush" in the Carmen underground halted its production life.

In September 16, 2004, Carmen Copper Corporation ("Carmen Copper") was incorporated as a subsidiary company of Atlas Mining to operate the Toledo Copper Mine located at Barangay Don Andres Soriano, Toledo City.

Atlas Mining concluded a funding transaction with Crescent Asian Special Opportunities Portfolio (CASOP), a Singapore-based equity partner, to finance the Toledo Copper Mine rehabilitation and reopening. This development set into motion the clock to re-start the road to rehabilitation.

Full-scale rehabilitation of the Toledo Copper Mine commenced in September 2007.A year after, production resumed with a start-up milling

rate of 20,000 metric tons of copper ore per day and gradually increase its production to 40,000 metric tons per day.

General Environmental Setting - The mine site lies within an existing and previously developed area with facilities and infrastructures already in place. The major ore bodies and, for that matter the mining areas, strike in the northeast-southwest direction, with the Carmen ore body (and mine workings) situated at the center of that alignment. Barangay DAS and its commercial-residential center are situated on the southwest extension of the axis with their distances to the Carmen Pit perimeter and the nearest underground working (Ilag Diversion Tunnels) estimated at 3,000 and 500 meters, respectively.

The mine complex is drained by three major tributary systems, namely: Cumba-Guinquiotan River on the north; Sigpit-Hinulawan River at the center and Ilag River on the south. These tributaries eventually join the bigger Sapang-Daku River that in turn flows and discharges westward into the Tañon Strait. A mountain range rising on the east flank of the mine site acts as a divide that inhibits drainage flow to the Cebu East Coast.

The ore body is below Carmen Pit that forms huge elliptical excavation measuring about 1.0 x 1.5 km., with its bottom at +200M above sea level and highest elevation at +550M.

2.2 Mineral Resource and Ore Reserves

Carmen Pit's mineral resource as of June 2022 update was depleted from AMC 2017 block model (dilca303015v2d.mdl) constraining to year-end in-situ pit surface as of 30th June 2022. Mineral resource blocks with 'rescat<=3' values on the resource category of >=0.20 %Cu grade being the cut-off were declared. Furthermore, the estimate includes grades assigned to block caved area excluding tonnages within underground openings or drives.

Lutopan Pit's mineral resource update on the other hand was depleted from AMC 2010 block model for Lutopan (lumod_071010.dm) below lop_20150205 pit surface generated after mining had ceased and before backfilling of Lutopan commenced. Mineral resource blocks with 'rescat<=3' values on the resource category of >=0.20 %Cu grade being the cut-off were declared.

RESOURCE CATEGORY	LUTOPAN		CARMEN		TOTAL	
	Million Tonnes	%Cu	Million Tonnes	%Cu	Million Tonnes	%Cu
Measured	541.1	0.34	138.7	0.37	679.8	0.35
Indicated	13.9	0.29	66.8	0.35	80.7	0.34
Sub-Total	*555*	*0.34*	*205.5*	*0.36*	*760.5*	*0.35*
Inferred	16.5	0.23	29.3	0.27	45.8	0.26
Total	**571.5**	**0.34**	**234.8**	**0.35**	**806.3**	**0.34**

Carmen Pit's remaining mineral reserves was depleted from AMC 2017 block model (dilca303015v2d.mdl) with estimates computed using June 2022 month-end surface update (30th June 2022) and pit shell 26 (26_ca6atr.str) inclusive of 'rescat<=2' & 'rescat!=0' blocks as reserve category at >=0.20% Cu cut-off grade.

Lutopan Pit's remaining ore reserve was that of the AMC's declaration in 2017 as reflected in its report "AMC 2017 Mineral Resource and Ore Reserve Update Report" dated 25 May 2018. Mineral Reserves figures had been rounded down based on AMC's report i.e. from 214 Mt (per bench) down to 210 Mt final figure (Table E.3 Carmen and Lutopan Ore Reserve at 31 December 2017 at a 0.20% cut-off grade).

RESERVE CATEGORY	LUTOPAN		CARMEN		TOTAL	
	Million Tonnes	%Cu	Million Tonnes	%Cu	Million Tonnes	%Cu
Proved	140	0.31	123.1	0.38	263.1	0.34
Probable	70	0.31	49.2	0.34	119.2	0.32
Total	**210**	**0.31**	**172.3**	**0.37**	**382.3**	**0.34**

2.3 Access/Transportation

The CCC mine site is easily accessible by land, sea and air modes of transportation. Regular public overland transports ply the 50-km. Cebu City-Toledo City Route, via either the Manipis or the Naga-Toledo road, which passes through the mine site at Barangay Don Andres Soriano (DAS). From the main gate, a 65-km. network of company-owned mine roads gives access to vehicular traffic going to the different operational areas, offices, residential compounds, and likewise to the community centers and upland barangays.

2.4 Power Supply

The current power demand of CCC for its operation averaged 47MW for the 1st quarter of 2021. This power requirement increased to 50MW in 2021 and 2022 when the milling plant's throughputs stabilized at 50KTPD. In 2022 and onwards the power consumption is expected about 50MW when the mine production is at 50KTPD.

Presently, CCC's power supply is primarily provided by Toledo Power Company (TPC) based on Contract of Energy conversion Agreement (ECA) and Electric Power Purchase Agreement (EPPA). This is being generated from its Sangi Thermal Power Plant at Sangi, Toledo City. About zero point forty-one percent (0.41%) comes from Cebu Electric Cooperative (CEBECO III) and seven percent (7%) comes from the Wholesale Electricity Spot Market (WESM) power. The CCC 2 x 5 MW diesel plant is still at operational status but with only 1-unit available due to defects of DG 1 major components. The CCC 34.5kv power system is also directly connected to the Cebu-Negros-Panay (CNP) power grid and drawing amount of power as necessary or when WESM power is cheaper than its contracted power from TPC.

CCC has a double circuit loop power transmission facility from TPC in Sangi, Toledo City, CCC's mine site. Hence, CCC has the flexibility and guaranteed stable power supply.

2.4.1 Power Supply Reliability from Substations

2.4.1.1 Lightning Arresters – The focus now is the procurement of MV/LV Surge Arresters are to be installed in many 34.5KVA and 480V electrical installations at mine facilities where lightning strikes indiscriminately hit distribution lines during rainy seasons. Busting the electrical equipment and introducing serious downtime to affected facilities at mine operation. Hence, request was already initiated for the procurement of these MV/LV surge protection to provide a solution to this perennial problem emanating from this natural phenomenon.

2.4.2 Redundant Power Supply

2.4.2.1 Copper Thickener – A proposed emergency power generator is to be installed to keep the copper thickener circuit running to avoid the rake from getting stocked. It is further advised to place the 500kVA Emergency Generator to power up mule motors for rake continuous movement. Fortunately, the said 500kVA Emergency Power Generator is now being repaired and reconditioned at PDD Yard.

2.4.2.2 Sigpit Substation – Sigpit Substation is supplying power to Carcon Fresh Pump House which is the source of industrial water required for Carcon Plant operation. An alternative power line from Carcon Substation was envisioned then and hopefully be finalized by 2023. This should be realized because of the existing 34.5kV Sigpit lines' problematic condition due to age. However, stringent maintenance programs have been observed at all times to address unexpected outage of the supply lines brought about by external factors and unforeseen causes.

2.4.3.1 Substation Perimeter Canal - PED's problem on the drainage system at Carcon Switchyard was practically solved. The switch house drainage system at the back of the building was also modified and rerouted to divert the flow of submersible pump at Carcon Substation ready, during emergency cases.

2.4.3.2 PCB Storage Facility- While pure PCB transformers are stored at Transport area, storage that could fit all the identified PCB contaminated PCB-contaminated transformers. Some of the transformers were stored

PED Yard and others were at 2nd Lift Yard which violates the standard storage requirement. Finally, the proposed construction of covered storage space near 2nd Lift Old change Room ideal for PCB Storage Facility is finally constructed. And all the identified PCB contaminated transformers stored at PDD Yard and those at outside the 2nd Lift premises were finally transferred inside the new PCB Storage Facility.

2.4.3.3 Treatment and Disposal of PCB Contaminated Transformers - As mandated per EMB Memorandum Circular No. 2015-004, that all PCB Wastes shall undergo treatment and decontamination and to achieve the PCB Oil concentration to less than 2ppm (PCB Free). After complying and submission of the necessary documents to the office of Environmental management Bureau (EMB), CCC will commence next year 2023 its treatment, decontamination and disposal of 30 units of PCB Transformer Oil by 3rd Party Service provider accredited by EMB.

2.5 Mining and Support Equipment

The list of mining equipment required for the open pit operations, establishment of new access roads and maintenance of existing access roads and continues rehabilitations are shown in *(See Annex 7 - List of Mining and Support Equipment)*. Note: the list excludes units used by various contractors.

2.6 Workforce Information

The manpower breakdown of the mine as of October 31, 2022 comprises of **460** managerial staff and **1,899** rank-and-file personnel for a total workforce of **2,359**. This were broken down as by divisions and departments, as follows:

Mines Production Department	323
Drilling and Blasting	48
Mine Technical Services	188
Mine Group Office	1
Mine Geology/Geotechnical Engineering	43
Mine Maintenance Division	160
Mill Operation Division	427
Mill maintenance Division	218
Mill Group Office	2
Fabrication Shop	92
General Engineering	127
Security Division	230
Ancillary Equipment & Light Vehicles	96
Power Division	100
Office of the AVP-SHEC	3

Safety and Loss Control	14
Environment	15
Community Relations	28
Corporate Communications	2
SHEMS	1
Medical Services Division	54
Information & Communication Technology	33
Supply Chain Management	59
Assay Lab	43
Port Operation	34
Human Resource Management Division	61
Finance	59
Legal	7
Internal Audit	2
Office of the President	2
Mine Management Admin	4
Total manpower -	**2,476**

2.7 Mine Development Schedule

Ore mining will be mostly concentrated from the Southern portion of the Carmen Pit, from bench +210 down to bench-15, moving towards Central to Northern portion. About 21.91 million tonnes of ore is projected to be mined. *(See Annex 2 – Proposed 2023 Mine Plan/Production Schedule)*

3.0 SPECIFIC STRATEGY TO LIMIT AND CONTROL THE IMPACTS

The year 2023 programs will involve the continuation of onsite investigation/verification and assessment in order to address potential environmental impacts influenced by the CCC mining operations. However, for some major impacts identified and currently being monitored under the company's operation program, the environmental protection initiatives shall continue in this year's activities.

3.1 Land Resources

Identified critical areas and infrastructures are subject for continuous monitoring, rehabilitation, development, improvement, and protection.

3.1.1 Underground Development and Maintenance of SBDT

Repair and clean-up works of the 3.35mW x 3.12mH drain tunnel will continue. Occasional replacement of rotten/broken timber support at the high-back portions of the tunnel may also be done. Cleaning and de-silting of the ditches on both sides of the track way will be done regularly as well as replacement of broken/rotten track ties and rails. The stretch of tunnel to be maintained is about 2,060 meters that is the current distance from the Sigpit discharge portal to the Carmen Pit inlet. This underground infrastructure serves as conduit for the dewatering activity of Carmen Pit,

discharging open pit run-off water toward the established Sigpit settling ponds before flowing out toward the Sapangdaku River.

Moreover, the proposed second plugging will be considered next year as recommended during the SHES Audit team from MGB Central Office.

3.1.2 LBTDT Portal Biga and Bigacon Conveyor Tunnel Concrete Plugging

Will continuously be monitored by the engineering group to assure integrity of the structure.

3.1.3 Ore Mining

In accordance to the proposed 2023 mine plan, ore mining will be mostly concentrated from the Southern portion of the Carmen Pit, from bench +210 down to bench-15, moving towards Central to Northern portion. About 21.91 million tonnes of ore is projected to be mined *(See Annex 3 – Carmen Pit Ore Source)*.

a. Topsoil and Subsoil Management

Proper topsoil and subsoil management will be continuously observed on applicable areas prior to any stripping, mining and waste rock stockpiling activities.

Any topsoil that may still be removed during the progress of mining especially at Carmen Pit, will be properly stockpiled at Villaver area for future use in the rehabilitation of area/s that may no longer be affected by future m.

b. Waste Movement

Majority of the waste stripping will be done at the South, East and North side of Carmen pit, where the scheduled mining activities will be undertaken.

All the waste removed as part of ore production will be dumped either to the Marcona, Biga, Airstrip or Lutopan Waste dumps. Total capacity is approximately 180 million tonnes *(See Annex 4 – Mine Waste Rock Dumps area)*.

c. Unloading and stabilization of the North Carmen Pit slide

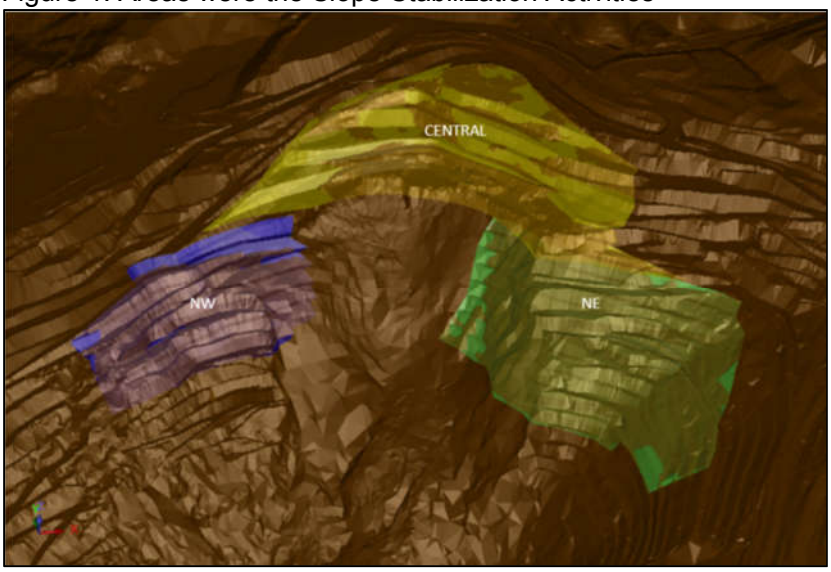
The spoil of the December 2020 landslide have been a major concern by CCC, in particular on the northern section of the Carmen Pit, as this poses risk to the equipment and pit personnel working at the lower benches.

CCC engaged P.T. Mining One to conduct geotechnical assessments to ascertain and address the above slope

instability concerns. Mining One's recommendations are in line and consistent with the CCC's engineering mitigating measure that commenced in May 2021 with scheduled completion by the end of year 2023.
The strategy is to prioritize the cutback on the northeastern and northwestern limb of the landslide to remove the potential unstable slope (no major deformational trends have been observed in the immediate 8-12 months), followed by a progressive cut down of the central section to allow for the stripping of spoil for ore extraction on the northern portion of the lower benches.

In addition, a series of wide berms ranging from 20 to 30 meters were being established on the landslide debris to serve as a catchment for falling rocks, and to ensure the safe pit operations below while slope stabilization activities are ongoing.

Figure 1: Areas were the Slope Stabilization Activities



CCC's application of radar technology to slope stability monitoring has proven to be reliable and accurate. It guarantees that the unstable slopes are well monitored while the aforementioned activities are still ongoing. CCC had deployed two (2) Slope Stability Radars on the eastern and western sections of the pit (as shown in the following image), attaining full area coverage with scan overlaps on the northern and southern portions of the pit *(See Annex 5 – Slope Stabilization Activities)*.

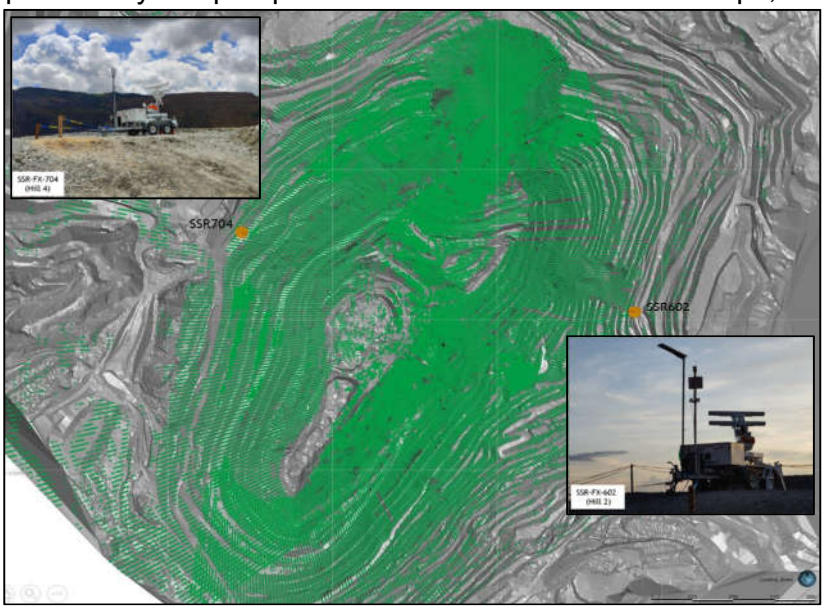
SSR-FX-602 and SSR-FX-704 units are managed by trained technical personnel equipped with the capability to identify areas with active ground deformation, estimate volume of the moving mass, forecast material detachment with sufficient lead time as observed with CCC's TARP on slope instabilities. The utilization of such technological improvements, decisions are

executed timely ensuring safe mine operations at Carmen Pit *(See Annex 6 – Location of Ground Probe at Carmen Pit)*.

Figure 2: Location were the SSR-FX-602 and SSR-FX-704 installed

d. Buffer Zone Management

Establishment and maintenance of appropriate buffer zones is well considered in all operation areas. Existing mine areas, particularly the pit operation area and waste rock dumps, will



be provided with an appropriate buffer zone safety, aesthetics and erosion monitoring/control.

Lutopan Pit activities – Buffer zone requirement will be appropriately observed for mine-related activities for the Lutopan pit periphery. Planting of appropriate trees species along the identified buffer zone will be conducted, for aesthetics and erosion control.

Carmen Pit operation – Appropriate Buffer zone was incorporated in the plans and established at the Lusong WRD side. A 20 meter buffer zone was established to in compliance to the requirements of DAO 2018-19 and to assure that all mining activities, open pits and waste rock dumps, will not encroach adjacent privately owned lots. Should there be any areas outside of Carmen Pit that may later be developed, the required buffer zone shall be observed.

e. Restoration/Rehabilitation

Progressive rehabilitation shall be undertaken for stability of pit walls by maintaining standard safety berms and bank slopes (appropriate for in-situ and fill areas of the pit) as well as

observance of the desired gradient of haul roads, access roads and ramps thru periodic maintenance.

Peripheral drainage systems shall be established and maintained to prevent flooding to the adjacent areas and the lower portions. Peripheral drainage system shall be constructed and maintained routing towards east and west of the Pit to minimize run-off water towards the pit bottom.

Settling pond at the Airstrip waste rock dump shall be regularly monitored and subjected for maintenance activities, if necessary, while identified sections of the Hinulawan/Sigpit river shall be appropriately maintain to assure the continuous and unobstructed flow of water.

f. Road Network

The CCC mine complex is served and crisscrossed by a network of primary, feeder roads, and mine haul roads that connects all operating points and facility sites needed for its mining activities.

Environmental Impacts/Issues

Roads and similar transport infrastructures impart a beneficial impact to the locality where they are established, especially in rural mining communities like Brgy. Don Andres Soriano, Brgy. Biga and other surrounding barangays.

Control/Mitigating Measures

i] The company will repair and restore all-weather road networks, particularly the vital access to Biga/Malubog and to Carcon/Sigpit terminals, and all essential in-mine infrastructures necessary for uninterrupted operations, hauling of ore, and access for rehabilitation and reforestation activities.

ii] The company will repair and maintain all appurtenant infrastructures like bridges, drainage lines, sumps, culverts, and traffic signs.

iii] The company will consider implementation of a tree-growing program for road sides and easement zones.

3.1.4 Ore Processing

3.1.4.1 Concentrator Continuing Process

The Carmen Concentrator produced 26,909 tons of copper metal as of October 31, 2022 - this is 32.02% lower or equivalent to 12,678 tons Cu metal deficit as compared to the target of 39,588 tons Cu for the period. The

decrease in metal production was attributed to the lower milling tonnage, mill head grade and overall metal recovery as compared to the target.

To further improve production performance, the following ongoing and upcoming projects are included and considered in the 2023 plan:

I. Crushing Plant

a) Tertiary Crusher #5 Rehabilitation – To rehabilitate the long down Tertiary Crusher #5 (Hydrocone Crusher) to serve as back-up unit. Manufacturing of the critical parts that will be installed in the unit are ongoing.

b) Installation of additional COS chute and rehabilitation of Primary Vibrating Screen 2E – Provision of additional COS chute and repair of long down Primary Screen 2E to augment screening requirement during wet season. As of October 2021, the chute and feed conveyor are already completed. Screen assembly repair and installation of rubber media is already ongoing.

c) Rehabilitation of Secondary Vibrating Screen #2 – On-going rehabilitation of long down Secondary Vibrating Screen #2 for additional screen capacity and efficiency improvement.

d) Undersize Chutes Revision – Revision of Primary Vibrating Screens undersize chutes to increase efficiency and prevent material hang-up.

II. Milling Plant

a) Installation of Insol Flotation Tails Pump – Installation of pump and return line to recirculate Insol Flotation Tails back to Rougher Circuit to increase copper recovery has been completed. Improvement in the new line requires new pipelines for more efficient insol tails delivery to rougher.

b) Lime Dosing System Enhancement – Revision of the existing Lime Dosing System for consistency and lower lime consumption. The enhancement begins with the mixing operation for consistent lime concentration followed by the improvement in dosing pipelines and control for optimum copper recovery and upgrading. The phase 1 of this project has been completed which is the line from holding tank to ball mill 1 replacement. Ongoing completion

of requirements for Phase 2 which is the new line from ball mill to cleaners.

c) Flotation Reagent and Flocculant Dosing System - Revision of flotation reagent lines and flocculant pipelines for better control and dosage optimization. Ongoing execution of mixing strategy in the flocculant batching plant exhibits consistent concentration for better flocculation and settling.

d) Cyclone Standardization – On-going enhancement in classification efficiency to increase metal recovery. Also, proper maintenance of ball mill cyclones and feed pumps for more efficient milling operation.

e) Conversion of Hydroseparator to Concentrate Thickener – Proposed re-engineering of the current hydroseparator tank to function as copper concentrate thickener in of unavailability of Concentrate Thickener 1 & 2.

3.1.4.2 Environmental Related Projects for 2023

a) Biga Settling Pond & Lime Slaking Facility – To counteract the effects of Acid Mine Drainage on the pH of the effluent water released from the settling pond, to maintain compliance to environmental standards and minimize the impact of mining on surrounding bodies of water.

b) Crushing Plant Dust Suppression System – Proposed enhancement of existing dust suppression system at Primary Crusher Line 1 and install similar system to Primary Crusher Line 2 to reduce dust emission.

c) Enhancement of Emergency Tailings Ponds (ETP) – On-going enhancement of ETP to increase its capacity for operational sustainability and prevent tailings contamination to water bodies during power failures, emergency shutdowns and trip-off of tailings disposal pumps.

d) Sigpit Settling Pond Enhancement – On-going enhancement of Sigpit Settling Pond to improve the containment and settling of suspended solid matters from ETP and Carmen Pit dewatering before discharging.

3.1.4.3 Tailings Disposal System

The final tailings from the milling plant are transported by gravity and currently distributed to seven (7) tailings thickeners. The tailings plant has a total of seven installed thickeners - six conventional type thickeners and one operational High Rate thickener.

The conventional type thickener has dimensions of 250 feet in diameter by 12 feet high and equipped with 15 HP peripherally driven rakes, while the high rate thickener has dimensions of 128 feet in diameter by 9 feet high and the rakes are driven by hydraulic power pack. The tailings are thickened to 50 to 60 % solids and converge at a common take-off sump through the underflow pipelines. From there, the tailings slurry flows by gravity to the stage 1 sump located near the tailings thickeners area before it is being pumped to its final disposal area at Biga Tailings Storage facility (BTSF).

The land-based tailings disposal utilizes two different pumping systems which consists of overland pipelines (7-18 inches in diameter). The first system involves a three-stage pumping setup that starts from the common sump at the Carmen Concentrator Tailings thickener area, then to the second and third stage pump station that operates in series configuration that consists of a sump with the final tailings being pumped via twelve centrifugal pumps passing through the 4-18 inch diameter pipelines. The second system consists of 6-units Diaphragm Positive Displacement Pumps (3-18 inches in diameter lines; 2-units in parallel per line) which passes along Carmen Pit up to elevation 525 meters then travels via gravity to Biga Tailings Storage Facility.

Water overflow recovered from build-up of tailings mass is being channeled through the decant tower which consists of a 30 inch diameter pipeline inside a tunnel and passes through a series of settling ponds before it flows to a combination of subterranean and above-ground pipelines towards the Sigpit Creek.

As of October 2022, the water elevation at Biga TSF is at **364 meters**. The decant tower had been extended by twice with a total of six meters to facilitate the increasing level of the pond and ensure the clarity of water exiting the pond. With the increasing level of the pond, a threshold tower structure was built to extend the existing decant tower capacity while preparing for the enhancement of BTSF.

3.2 Water Resources

3.2.1 Mine Water Supply

The major water supply of Atlas comes from the Malubog Reservoir that was constructed in 1971. It is situated some three (3) km. north of the Carmen concentrator or 12 km. of Barangay DAS. The reservoir consists of a man-made lake with an original pondage of about 20,441,223.63 cu. meter and a concrete dam across a gorge on the south that was once the natural drainage outlet. The entire reservoir has a potential watershed of about 7,000 ha. The dam overflow gravitates downstream to a smaller reservoir called the Sigpit Dam.

The Malubog Dam was designed with a safety factor of 2.0 against sliding and a factor of 1.5 against overturning from an earthquake load with 0.2 "*g"* acceleration. The structural resistance of the limestone gorge provides additional strength to the dam.

The previous total water demand from the Malubog Reservoir was about 58.67 cu.m/min distributed into 54.89 cu.m/min for industrial use and 3.79 cu.m/min for domestic household consumption inside the mine camp and outside in Barangay DAS. Two 3-km. main pipelines deliver this supply to the receiving sump at Abaca and to Carcon head tanks.

The present domestic water requirements still draw its supply from the Abaca sump that initially feed the raw stock to the nearby Water Treatment Plant for filtration and chlorination. The treated water is then stored to a 2,839.06 cu.m head tank before it is distributed to six smaller holding tanks strategically placed around the mine site.

Acceptable environmental impacts in so far as indigenous and usable water resource is concerned are as follows:

a] A stable Malubog Dam and reservoir that can supply continuous industrial and domestic water to the mine and households, and at the same time support aquatic life as secondary food source.

b] Maximum utilization of available water resources from existing supply.

c] Assured potable and treated water supply for domestic consumption.

d] Continued sharing of Malubog water supply with the surrounding communities.

The corresponding control strategies are as follows:

a] CCC will comply all applicable regulations and standards prescribed under DAO Nos. 34 and 35.

b] CCC will adopt water conservation as a company policy and practice both in industrial and domestic fronts. It will optimize used-water recovery and recycling in milling operation.

c] Water treatment plant operation and processes will be operated based on national standards.

d] Continuous inspection, repair and maintenance of Malubog Dam, sumps, holding and head tanks, treatment plant, and water delivery system will be implemented.

3.2.2 Acid Mine Drainage

By the nature and character of the CCC ore bodies which contain substantial amount of sulphide-rich rocks, mining and processing them have inevitably produced and will continue to generate above-normal levels of acid mine drainage (AMD). AMD are primarily produced as low-pH residuals from the exposed sulphide deposits, underground workings, open pit operations, and waste dumps, and secondarily from road cuts, stockpiles and mill drainage runoffs.

Specifically, the sources of the CCC AMD are identified in the following areas:

a) Carmen pit, which drainage outflow discharges to the Sigpit Biga Drain Tunnel (SBDT) and hence to the Sigpit Creek;

b) Waste dumps around the Lutopan catchments that drain toward and contained within the Lutopan Pit;

c) Waste dumps surrounding the Biga TSF draining toward and contained within the TSF facility;

d) Waste dumps north and east of the Biga pit that draining to the Malubog Reservoir.

3.2.3 Drainage System

The CCC mine complex is served by three major drainage systems namely: Cumba-Guinquiotan River at the north; Sigpit-Hinulawan River at the central portion; and Ilag River at the south. All these drainage systems eventually join the Sapang-Daku River that drains out towards Cebu's West Coast and to the Tañon Strait. A mountain range located east of the Atlas mine complex act as a divide that inhibits the flow of runoff water to the East Coast of Cebu.

3.2.4 AMD Control Measures

CCC, always conscious of its responsibility to protect the environment, has partially put in place and will continue to maintain a system to check acid mine drainage generation. It has always been the company's policy that all effluents flowing out of the mine complex must be within the standards prescribed by government regulations.

The AMD control strategies will consist of the following measures:

a) Backfilling of pit voids, such as, the storage and encapsulation of mill tailings within Biga pit;

b) pH control by dilution and chemical amendments to enhance mine drainage alkalinity and depress copper values;

c) Runoff water control by local drainage flow diversion and surface re-contouring;

d) Re-vegetation and afforestation of mine-disturbed pits and waste dumps to slow down oxidation of sulphide ores.

3.2.5 Water Dilution to Control pH Level

Sigpit Dam area @ Sigpit-Hinulawan River Junction

At Sigpit-Hinulawan River junction, the Sigpit Dam was constructed to serve as a secondary water reservoir, silt trap and monitoring point of effluents coming from the central portion of the mine complex. The dam is covered by Water Permit No. 1162 for industrial use. Though the dam does not serve as a reservoir, but the area just before the dam overflow serves as a mixing area where water from the Sigpit Settling ponds, Sigpit tributary and Hinulawan river merge before flowing over the dam.

The water flowing from Sigpit tributary and likewise from the Hinulawan River are suitable for dilution process since the pH level of the flowing waters are always slightly basic (7.0 to 8.0) principally because their headwaters are within the limestone formation.

3.2.6 Tailings Impoundment at Biga Pit

Per proposed land-based tailings disposal system where it will utilize Biga Pit as a containment pond, the encapsulation of mill waste that will eventually prevent oxidation of sulphide minerals exposed at the pit and in effect reduce, if not eliminate, generation of AMD therein. Further, the tailings mass is highly basic (pH = 10 to 11) in composition and therefore a potent depressant for neutralizing acid formation.

3.2.7 Chemical Amendments to Control pH Level

A slaked lime or lime slurry injection facility which has been in operation since August 1999 shall be maintained at the SBDT outlet to ensure and control that the quality of water being discharged is within the DENR standard.

3.2.8 Water Diversion and Surface Re-Contouring

Storm runoffs and subsurface water in Carmen and Biga pits presently flowing and seeping into predominantly pyritic zones will be redirected to limestone beds or areas with low-sulphide characteristics. Additionally, combined reshaping and re-contouring of pit and dump surfaces will also divert water inflow away from sulphide-rich areas. These interventions are expected to reduce volume loading of AMD from the surrounding waste dumps into the two pits.

3.2.9 Re-vegetation of AMD-Source Areas

To finally augment and enhance capping and other measures mentioned above, inactive pit walls and waste dumps slopes will be planted with well adapted trees and shrubs as a special component of the overall company-wide greening program.

3.2.10 Storage of Hazardous Materials

The identified hazardous materials (hazmats) of importance that CCC frequently store and handle in the operations are:

a] Hydro-carbon-based liquid fuels and related oil products.

b] Industrial gases such as LPG, hydrogen, acetylene, nitrogen, etc.

c] Mill reagents such as frothers, collectors, and flocculants.

d] Laboratory chemicals, such as acids, bases and similar reagents.

e] Paints, thinners, cleaning agents, and the like.

The acceptable environmental impacts emanating from the management of these materials are:

a] Handling, storage, use and disposal of these hazardous commodities are safe and in accordance with current statutory/regulatory standards.

b] Accidental spills and/or emissions of these materials are contained and handled quickly.

Control strategies to be applied are:

a] CCC will comply with all regulatory standards that control acquisition, handling, transporting, use, accounting and disposal of hazmats. Systems and procedures in managing hazardous materials will be updated to conform to the latest standards.

b] CCC will improve existing spill recovery facilities such as bunds, dikes or traps and provision of the same to unprotected storage areas.

c] The company will maintain emergency response and disaster control capability and resources. These include its emergency preparedness plan, evaluation procedures, training program, fire-fighting equipment, self-contained breathing apparatus, and emergency response crew.

d] The mine will enforce the use of only appropriate personal protective equipment in handling and disposal hazardous waste materials.

3.3 Noise Quality

CCC mining operations will inevitably generate unwanted sounds of varied intensity levels, particularly in certain areas where heavy equipment and mine machinery are operating. This problem will be more critical when these facilities are silted in confined spaces like enclosed structures such as plants, buildings and shops, or when the activities involve earthmoving, blasting or drilling.

However, the adverse impacts of noise to the people in the residential centers will range from minimal to nil on account of the large distance separating them from the operational areas. The negative effects will be localized at the point of immediate emission and the primary receptors will be the operators and people working nearby the source of noise.

The specific areas in CCC and activities with potentially high noise levels include but not limited to the following:

a] heavy equipment shops and points of operation

b] pump chambers

c] crushers and ball mill sections

d] off-highway truck operations

e] Tractor and loader operations

f] During blasting

Acceptable impacts associated with this issue are as follows:

a] Low incidence of hearing loss attributable to noise among identified primary receptors.

b] Implement company-wide hearing protection program.

The control strategies that will be adopted are:

a] CCC will adopt, as in procurement practices, proper equipment and process selection [buy units and utilize methods with low noise-generating specifications];

b] It will implement, as a matter of sound management, regular equipment servicing and maintenance [timely parts replacement or repair, frequent lubrication, bolt tightening, etc.];

c] Use of mufflers, insulation, dampers, baffles or sound-proofing will be availed of in noise-critical operations;

d] It will provide enclosures, cabs or barriers to isolate operators in noisy areas;

e] Controlled blasting [avoid overloading of explosives on blast holes] will be applied in quarries;

f] It will promote job rotation or reduced work duration;

g] It will implement and enforce the use of ear protection devices [ear inserts or muffs].

3.4 Air Quality

The identified emission produced from the mining activities that can impact on air quality are: dusts, mine gases, blasting fumes, and exhaust gases and fumes from power plant, mobile equipment, lime, kiln, generators, laboratory operations, and concentration process.

As expected in any mining operations, airborne dust will also be generated by the industrial activities. However, points of concern will be confined to the operational areas, specifically at the zones of direct emission and their immediate vicinities.

Among the identified dust-critical areas within the mining/milling zones are the following:

A. Open pit

* Dusty haul roads
* Blasting sites
* Rock drill sites
* Loading areas

B. Concentrator

* Coarse Ore Stockpiles
* Primary Crusher
* Fine Ore Bin
* Secondary-Tertiary Crusher
* Screening Plant
* Jaw Crusher
* FOB Belt Feeder Area

D. Plants and Shops

* Cooked Lime storage warehouse
* Lime Slaking Plant

There will be minimal dust attributable to the CCC mining activities impacting on residential and commercial/business zones because of the large separation distance between the source of mine dust emission and such population centers. Possible slight increase of normal dust concentration level in ambient air is however anticipated in working areas proximate to the operations.

Release of noxious gases or contaminated air from the operations that can affect the safety and health of the general population is a remote possibility again because of the separation distance factor. For instance, the location of the critical plants and shops is about 3 km. from the Barangay DAS center. Any gas pollutant emission will be restricted within the active zones, probably shops where fuel-burning equipment operate and industrial gases are stored or used.

Acceptable impacts are the following:

a] Low incidence of respiratory ailments attributable to the mining operations identified workers-receptors.

b] Availability of resources to ensure quick response to any toxic-gas induced emergency.

The corresponding control measures that CCC will apply are:

a] CCC will comply with all applicable regulations and standards prescribed by the Philippine Clean Air Act (R.A. 8749).

b] Dust suppression methods especially wetting of identified dust generating areas (access roads, mine haul roads, and similar dust-critical areas.

c] Adequate underground air supply and good ventilation engineering control.

d] Use of dust collectors (if applicable).

e] Controlled blasting to minimize dust and fumes.

f] Provision of enclosures and/or isolation barriers for operators.

g] Use of personal respiratory protective equipment.

3.5 Conservation Values

3.1.1 Nature Issues

The mineral owned and controlled properties of Atlas has a total area of 8,078.0165 hectares, 6,420.4072 hectares of which is outside the Atlas-CCC operating agreement, while the remaining 1,675.6093 hectares is covered under the Atlas - CCC Operating Agreement. Except for the mining areas of the idle Biga, Carmen, and Lutopan pits, and their immediate waste dump environs, which are either sparsely vegetated or devoid of forest cover, the overall landscape is dominantly verdant. Abundant second growth and planted trees are found in the residential compounds, along road networks, in reforested lands and rehabilitated old waste dumps. Some previously bare sections of the mine pits and recent waste dumps have isolated green patches that are starting to form colonies.

There are no rare birds or exotic wildlife in the minesite. Local bird species, like *gorion, tamsi, maya, tikling,* bats, sparrows, and a migratory species locally known as *tibonaas* inhabit the reforested zones. The common animals sighted are lizards, snakes, rats, butterflies, spiders, occasional monkeys, and the domesticated varieties.

The rivers contain no economically important fish or aquatic animal species since the local waterways are shallow and non-navigable. They dry up or carry little water load during summer months. However, abundant freshwater fish like *tilapia,* carp, and catfish varieties, most of which were originally seeded by the company, are thriving in the Malubog reservoir.

Acceptable levels of impact are as follows:

a. Expansion of the mine site forest cover with minimal degradation of existing flora due to illegal cutting of trees and future mine development.
b. Natural increase of aquatic and wild life population.

The adoptable control strategies that Atlas will adopt are:

a. Rehabilitation of denuded areas through resumed reforestation and afforestation.
b. Minimization of site clearing for future mine development.
c. Preservation and expansion of wild life habitat to promote and enhance natural breeding and diversity of fauna.

3.1.2 Visual Aesthetics

The issue is partly addressed in the preceding topics/sections on Land Resources - Buildings and Other Structures; and CCC Integrated Rehabilitation Program.

The acceptable impact levels are:

a. Mine surroundings, structures, buildings and improvements are orderly and appealing to the eye.
b. Final landform is , as closely as possible, compatible with the general topography.

CCC will institute the following equivalent control strategies to address the impact:

a. Future design and construction of mine sites, structures, and related improvements should consider visual-friendly aspects.
b. Reengineering and rehabilitation of unsightly mine premises and structures already in place.
c. Final mine site terrain and landscape shall conform as closely as possible to those provided for in the abandonment plan.
d. Bunding or shielding of visually-poor sites with vegetation or ornamental trees will be resorted to as a last option.

3.6 Heritage and Cultural Values

There are no heritage values and cultural practices that will be affected by the mining activities. Even during the previous operations, these factors was never an issue.

3.7 Social Issues

Harmonious relations and interdependence between CCC and the people within the host and surrounding communities that comprise the impact zones have in the past, and until now, characterized the socio-economic climate of the locality.

Since the current operations are situated within existing mine operation areas, dislocation of settlers and prior inhabitants is not a social issue. Other than the identified final mining areas for Carmen and Lutopan operation areas, no expansion of the general operating area is contemplated in the near future. Current informal settlers occupying company-owned land areas will still be allowed to occupy their current areas until the area will be subject to company use.

Use of access roads within the company premises will be open for the Barangay Biga community. Since the current access road from

Barangay Don Andres Soriano proper toward Barangay Biga is the most accessible and preferred by the community, Barangay Biga residents and local bus transport will be allowed access provided that all traffic rules, speed limit and other limitations, are properly observed.

The demonstrated control strategies that proved effective in the previous years of operation in addressing the social issues and which Carmen Copper will observe are:

a. Use of community-based consultations or *pulong-pulong* in resolving social conflicts that involve any activity of the company and the public;
b. Continue implementation of the company's Social Development and Management Program (SDMP) to assist the affected communities;
c. Apply safe, people-oriented and ecology-friendly approach to mine operations; and
d. Broader company involvement in local community affairs.

4.0 MONITORING, RESEARCH AND REPORTING STRATEGIES

4.1 Scope of Monitoring Activities

The monitoring program of the Operation Stage will consist of distinct sampling and measuring activities designed primarily to gather information for the early detection of undesirable environmental impacts so that appropriate response measures could be taken to remedy or reduce/restore them to acceptable levels. Its secondary purpose is to ensure that the CCC operation continuously works substantially complies with the applicable safety and environmental statutory requirements.

4.2 Monitoring Strategies and Program Components

The key monitoring components outlined below will address the corresponding environmental impacts identified and discussed earlier in this presentation.

The Environmental Management group in general is responsible in ensuring that the company's mining operation does not adversely affect the quality of the environment where it operates, through effective environmental quality monitoring and enforcement of existing Philippine Environmental Laws and company SHE Policy.

In summary, the following are the main tasks of the Environmental Management Section, to wit:

a) Develop and implement Ambient Quality Monitoring Program
b) Develop and implement Effluent/Water Quality Monitoring Program
c) Develop and implement Environmental Compliance and Audit Inspection Program
d) Compliance to Regulatory Requirements by:

- Securing environmental related Permits, Certificates and Registrations (prepare permit and certificate applications)
- Provides or submit reportorial requirements (prepare CMR, CMVR, Annual Reports, etc...)

e) Compliance monitoring of Permits and Certificates conditions
f) Perform Integrated Management System related functions as directed

4.2.1 Air Quality Monitoring Program

The purpose of monitoring ambient air quality is to determine compliance with the ambient air quality standards of RA 8749 otherwise known as "The Philippines Clean Air Act of 1999".

DENR Standards : DAO 2000-81
Monitoring Parameters: Total Suspended Particulates (TSP) 300 ug/NCM
Sampler: Environmental Management Section

Table no. 1 - Ambient Air Quality Monitoring Schedule

Monitoring Stations	Frequency	Duration
Biga Barangay Hall (Before Blasting)	2x a month	1 hour per sampling
Biga Barangay Hall (During Blasting)	1x a month	1 hour per sampling
Sitio Hag-it, Barangay Biga	2x a month	1 hour per sampling
Airstrip Waste Dumpsite	1x a month	1 hour per sampling
Sigpit Area (near Hinulawan River)	1x a month	1 hour per sampling
Port Facility	1x a month	1 hour per sampling

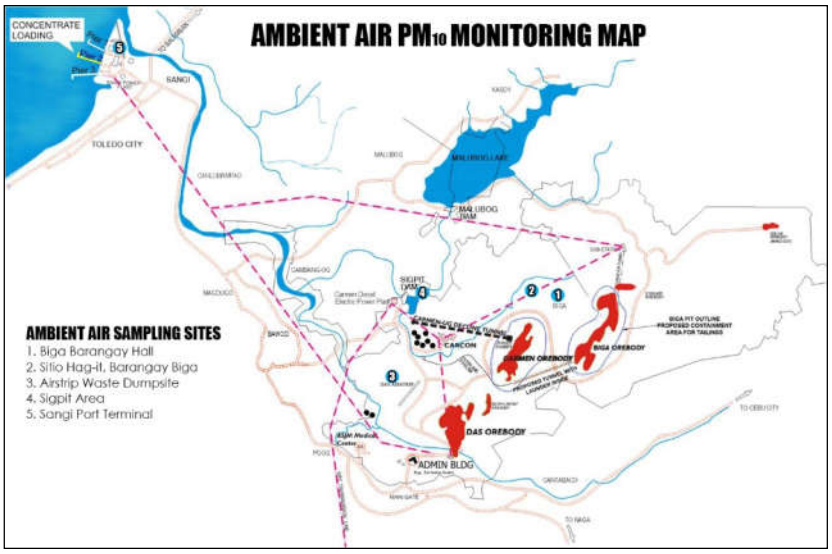


Figure 3: Ambient Air Quality Monitoring Map for PM10

DENR Standards : DAO 2013-13
Monitoring Parameters: *PM 2.5*

Tester : In-house as needed

Monitoring Stations	Frequency	Duration
Biga Barangay Hall	Once every six (6) days; months having 28-29 days should have four (4) complete sampling periods per month, months having 30-31 days should have four (5) complete sampling periods per month	24 hours per sampling
CCC Recreation – Brgy. DAS		

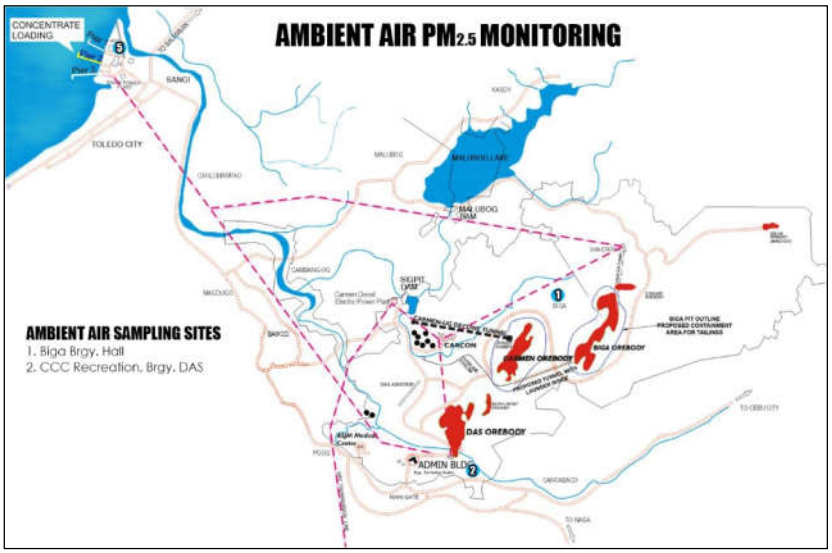


Figure 4: Ambient Air Quality Monitoring Map for $PM_{2.5}$

4.2.2 Ambient Noise Monitoring

The purpose of monitoring ambient noise is to determine compliance with the National Pollution Control Commission (NPCC) Memorandum Circular No. 002 Series of 1980 "Amendments to Article 1 (Noise Control Regulations), Rules and Regulations of the National Pollution Control Commission (1978)".

Monitoring Stations	Frequency
Biga Barangay Hall (Before Blasting)	Monthly
Biga Barangay Hall (During Blasting)	Monthly
Sitio Hag-it, Barangay Biga	Monthly
Airstrip Waste Dumpsite	Monthly
Sigpit Area (near Sigpit Waste Dump)	Monthly
Sangi Port Terminal	Monthly

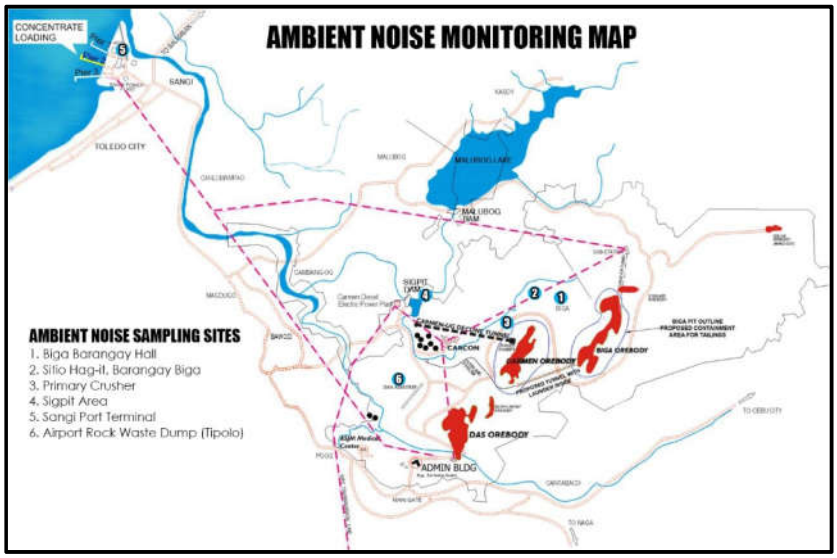


Figure 5: Ambient Noise Monitoring Map

4.2.3 Effluent /Water Quality Monitoring Program

The objective of monitoring the effluent/water quality is to determine compliance with RA 9275 otherwise known as "The Philippines Clean Water Act of 2004", and its implementing rules and regulations.

a) Surface Water Monitoring
Water Standard: *DAO 2016-08 "Revised Water Quality Guidelines"*
No. of Monitoring Stations: 12
Sample Analysis: Environmental Management Section

❖ Thrice a Week and Monthly (pH and TSS)

- Hinulawan River
- Outfall Ilag Diversion
- Sigpit Creek/Spillway
- Sigpit Confluence
- Abaca River
- Malubog Dam
- Ginkiotan River (Upstream)
- Ginkiotan River (Downstream)
- Yogyogan River
- Cumba River

❖ Monthly (pH and TSS) 3rd Party Laboratory

- Abaca River
- Outfall Ilag Diversion
- Cumba River
- Yogyogan River
- Ginkiotan River

- Malubog Dam
- Sigpit Creek/Spillway
- Hinulawan River
- Sigpit Confluence

❖ Quarterly (pH, TSS, TDS, Arsenic, Cadmium, Chromium, Copper, Iron, Lead, Mercury, Zinc, Sulfate, Nitrate, Cyanide) – 3rd Party Laboratory

- Abaca River
- Cumba River
- Yogyogan River
- Ginkiotan River
- Malubog Dam
- Hinulawan River

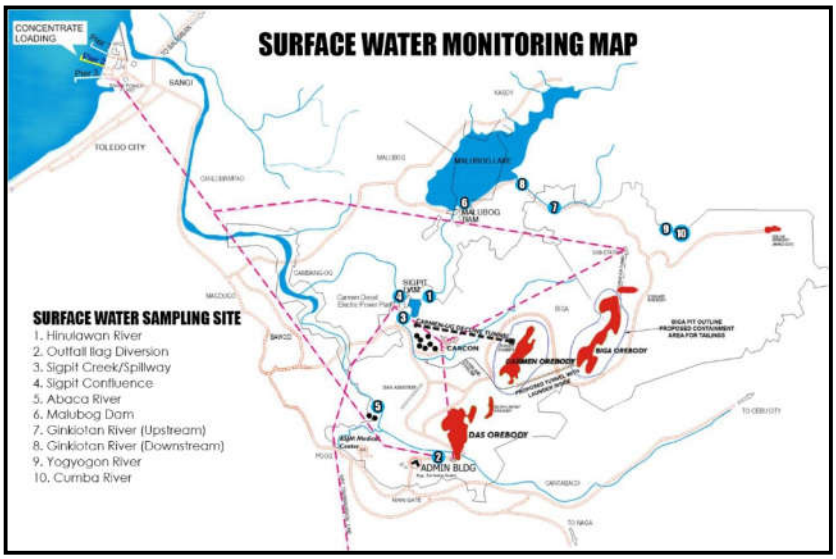


Figure 6: Water Quality Monitoring Map for Surface Water

b) Mine Drainage Water Monitoring
Water Standard: *DAO 2016-08 "Revised Water Quality Guidelines"*

No. of Monitoring Stations: 1
Sample Analysis: Environmental Management Section

❖ Thrice a Week and Monthly (pH and TSS)
- SBDT Discharge

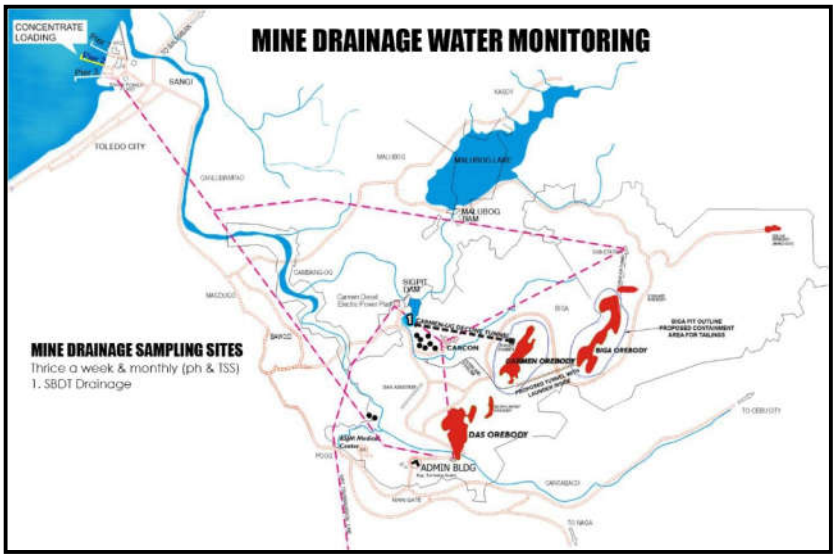


Figure 7: Water Quality Monitoring Map for Mine Drainage

c) Ground Water Monitoring

Water Standard: *Philippine National Standards for Drinking Water (PNSDW).*
No. of Monitoring Stations: 8
Sample Analysis: Environmental Management Section and 3rd Party Laboratory

❖ Quarterly (pH, TSS and Turbidity)

- Barangay Cantabaco (Pang-pang near clothes washing area)
- Atlas drilling area Camp 8, Toledo City
- Barangay Biga (near bamboo tree)
- Barangay Bagakay (along the road)

❖ Semi-Annual (pH, TSS, Nitrate, Sulfates, Cyanide, Arsenic, Cadmium, Copper, Iron, Lead, Mercury, Zinc)

- Sitio Tipolo, Barangay Media One (5 Sampling Stations)

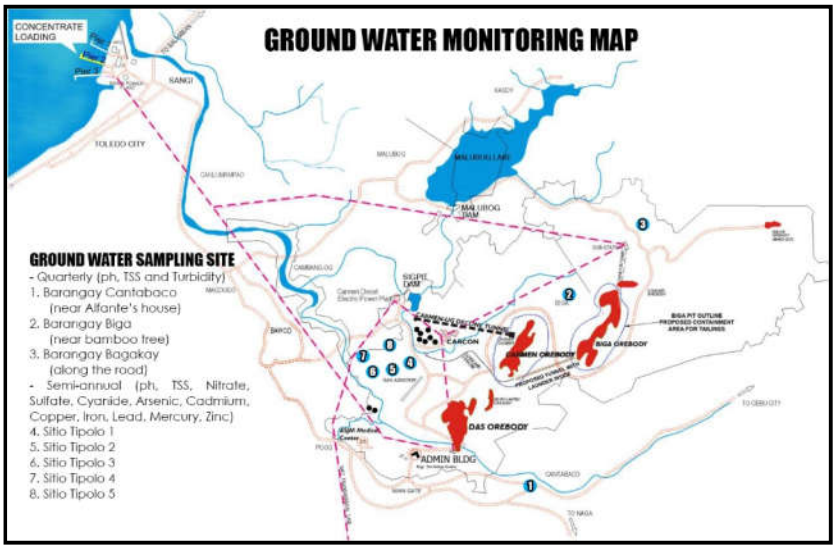


Figure 8: Water Quality Monitoring Map for Ground Water

d) Waste Water/Effluent Monitoring (Oil-Water Separators)
Water Standards: *DAO 2016-08 "Revised Water Quality Guidelines"*
No. of Monitoring Stations: 7
Sample Analysis: Environmental Management Section and *3rd Party Laboratory

❖ Once a Week (pH and TSS)
- PED Yard
- Machine Shop
- Transport Shop
- Carmen H.E. Shop
- Carmen H.E. Wash Bay
- Power Plant

❖ Monthly (Oil/Grease, pH and TSS) 3rd Party Laboratory

- PED Yard
- Machine Shop
- Transport Shop
- Carmen H.E. Shop
- Carmen H.E. Wash Bay
- Power Plant

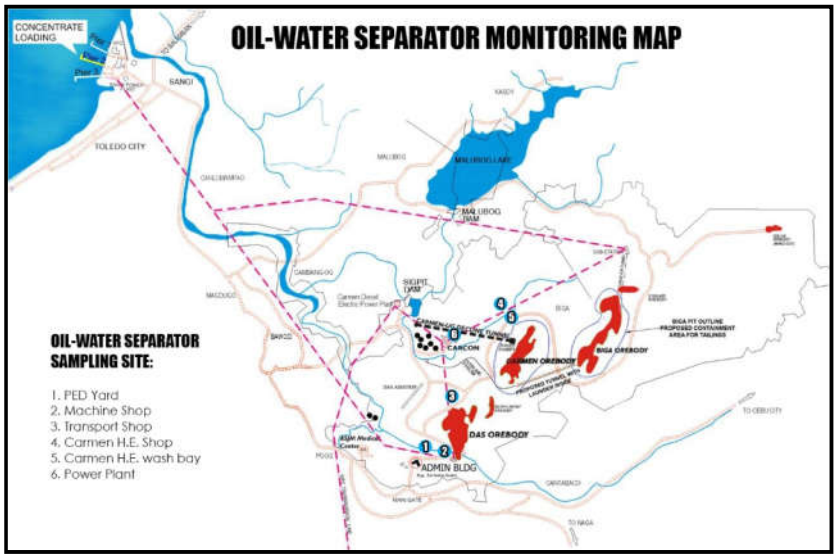


Figure 9: Water Quality Monitoring Map for Oil-Water Separator

e) Settling Ponds
Water Standards: *DAO 2016-08 "Revised Water Quality Guidelines"*
No. of Monitoring Stations: 6
Sample Analysis: Environmental Management Section and 3rd Party Laboratory

- ❖ Thrice a Week (pH and TSS) – Inhouse Monitoring
  - Biga Impounded Water
  - Biga 12-Chamber Settling Pond Effluent
  - Biga Settling Pond Effluent Pipeline at Malubog Dam
  - Settling Pond No. 4
- ❖ Monthly (pH, TSS, TDS, Arsenic, Cadmium, Chromium, Copper, Iron, Lead, Mercury, Zinc, Sulfate, Nitrate, Cyanide) – 3rd Party Laboratory
  - Biga Effluent
- ❖ Quarterly (pH, TSS, TDS, Arsenic, Cadmium, Chromium, Copper, Iron, Lead, Mercury, Zinc, Sulfate, Nitrate, Cyanide) – 3rd Party Laboratory
  - Sigpit Settling Pond Effluent

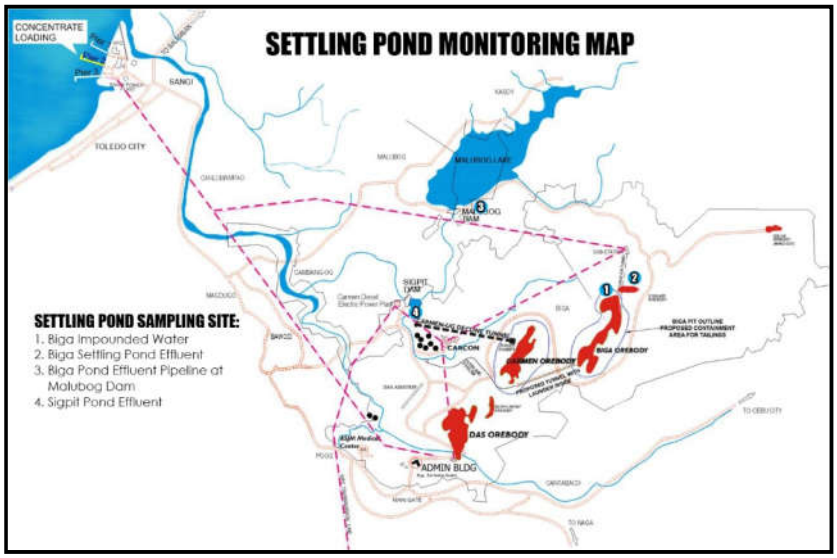


Figure 10: Water Quality Monitoring Map for Settling Pond

f) Septic Tanks/Vaults
Water Standards: *DAO 2016-08 "Revised Water Quality Guidelines"*
No. of Monitoring Stations: 6
Sample Analysis: Environmental Management Section and 3rd Party Laboratory

- ❖ Monthly (pH, TSS, Color, Temperature, BOD, Oil and Grease, Surfactant, Ammonia, Nitrate, Phosphate, Fecal Coliform) – 3rd Party Laboratory
  - CCC Hospital
  - CCC Admin Building
- ❖ Monthly (pH, TSS, Temperature, COD, Oil and Grease, Phosphate, Chloride, Ammonia, Nitrate, Arsenic, Cadmium, Chromium, Copper, Zinc, Lead, Fecal Coliform) – 3rd Party Laboratory
  - CCC Power Plant

g) Toxicity Characteristic Leaching Procedure (TCLP) Monitoring
Water Standard: DAO 2016-08 "Revised Water Quality Guidelines"
No. of Monitoring Stations: 1
Sample Analysis: 3rd Party Laboratory

- ❖ Semi-Annual (Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Sliver)
  - Biga Influent

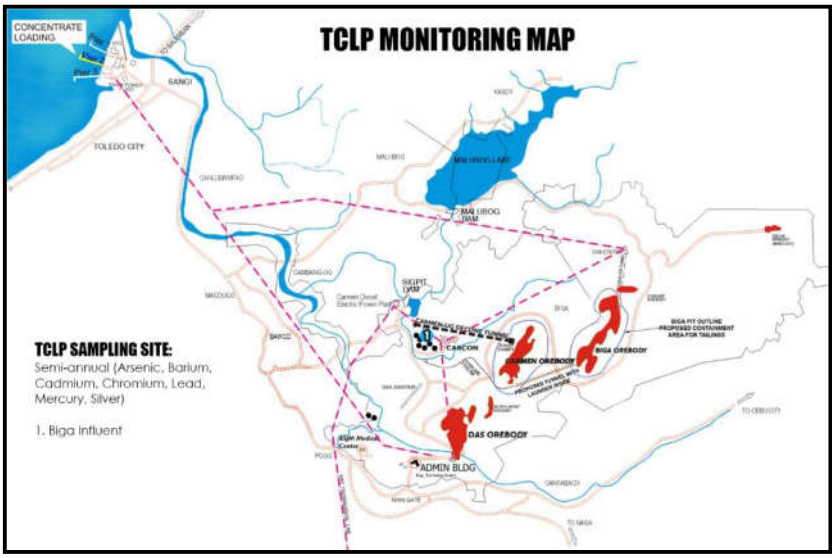


Figure 11: Water Quality Monitoring Map for TCPL

4.2.4 Environmental Compliance Audit/Inspection Program

The purpose of environmental compliance inspection and audit is to determine overall compliance of the company as well as service contractors with applicable environmental laws. Further, to determine conformance to the standards of the company's Integrated Management System.

Nos. of Facilities: All mine site facilities including service contractors
No. of Environmental Auditors: 4
No. of CCC Facilities: 80
No. of Service Contractors: 23
Frequency of Monitoring: Once a month audit/inspection of the facility

4.2.5 Compliance to Regulatory Requirement

The environmental management section is tasks in securing environmental permits and the renewal thereof. The sections prepares permit applications until it is submitted to the DENR-EMB and other concerned government agencies. These permits and certificates includes but not limited to the following:

a) Permit to Operate Acquisition

a.1 Permit to Operate Renewal

- On-process permit POA-18-E-072253-011 issued on January 11, 2018 issued by DENR-EMB7 will expire on May 18, 2021.

a.2 Permit to Operate New Application

- As needed

b) Discharge Permit Acquisition

b.1 Discharge Permit Renewal

- DP-17-A-072253-009 issued by DENR-EMB7 will expire on January 13, 2021 for Biga Pit. (For Approval)
- DP-R07-22-02524 issued by DENR-EMB7 will expire on May 3, 2023 for CCC Hospital.
- DP-R07-22-01460 issued by DENR-EMB7 will expire on February 24, 2023 for Carcon Power Plant.
- DP-R07-22-01232 issued by DENR-EMB7 will expire on February 16, 2023 for CCC Machine Shop.
- DP-R07-22-03577 issued by DENR-EMB7 will expire on June 7, 2023 for CCC Transport Washbay.
- DP-R07-22-01458 issued by DENR-EMB7 will expire on February 24, 2023 for CCC Heavy Equipment Wash Bay.
- DP-R07-22-02217 issued by DENR-EMB7 will expire on April 22, 2023 for CCC Heavy Equipment Shop.
- DP-R07-22-01457issued by DENR-EMB7 will expire on February 24, 2023 for CCC PED Yard.
- DP-R07-21-03670 issued by DENR-EMB7 will expire on July 20, 2023 for CCC Admin Building and ICT Building.
- CCC Sigpit Settling Pond (New Application) On Process

b.2 Discharge Permit New Application

- As needed

c) Hazardous Wastes Generator's I.D.

- Carmen Copper Corporation has been issued with Hazardous Wastes Registration Certificate docketed as DENR GR R7 07-22-00288 for the entire Minesite facilities including Hospital

d) Chemical Control Order (CCO) Registrations

- As needed

Further, prepare and submit reportorial requirements to the DENR-EMB and other concerned government agencies. These reports includes but not limited to the following:

a) Semi-Annual Compliance Monitoring Report (CMR)

Table no. 2.a - Compliance Monitoring Report Schedule

ECC No.	Project Name	CMR Submission Schedule	
		1st Half	2nd Half
ECC-RO7-1012-0379	Atlas Mines Airport Site Waste Rock Dump Site/Landfill Project	July 15, 2023	January 15, 2024
ECC No. 07 06 12-29 0278 0120 (3rd Amendment)	Toledo Copper Mine Biga Pit Tailings Storage Facility and Marcona Waste Rock Dump Development Project		
ECC-RO7-0909-0051	CCC 25 MW Thermal Power Plant		

b) Quarterly Self-Monitoring Reports (SMR)

Table no. 2.b - Self Monitoring Report Schedule

Project Name	SMR Submission Schedule			
	1Q	2Q	3Q	4Q
Admin Building and ICT Building	April 15, 2023	July 15, 2023	October 15, 2023	January 15, 2024
CCC Hospital				
Machine Shop				
Batching Plant				
Carmen HE				
Carcon Facility				
Carcon Power Plant				
Biga Pit Tailings Disposal				
Sangi Port Terminal				
PED Yard				
Main Assay Laboratory				
Transport Shop				
Carmen Pit				

c) Annual Inventory Report

Table no. 2.c – Annual Inventory Report Schedule

Chemical Name	Annual Inventory Report Submission Schedule
• PCB Transformers	January 15, 2023
• Asbestos Roofing	

4.2.7 Compliance Monitoring of Permits and Certificates conditions

To ensure that the conditions stipulated in the environmental permits and certificates issued to the company are complied, the

environmental management section conducts compliance monitoring semi-annually monitoring.

Table no. 2.d ECC Conditions Monitoring Schedule

ECC No./DP No./P0 No.	Project Name	CMR Submission Schedule	
		1st Half	2nd Half
ECC-RO7-1012-0379	Atlas Mines Airport Site Waste Rock Dump Site/Landfill Project	July 15, 2023	January 15, 2024
ECC No. 07 06 12-29 027 8 0120	Toledo Copper Mine Biga Pit Tailings Storage Facility and Marcona Waste Rock Dump Development Project		
ECC-RO7-0909-0051	CCC 25 MW Thermal Power Plant		
DP-16-L-072253-011-Renewal	CCC Hospital		
DP-17-A-072253-009	Carmen H.E. Wash Bay, Carmen H.E. Shop, P.E.D. Yard, Transport Wash Bay, Biga Pit Dewatering Activity, Machine Shop		
POA-18-E-072253-011	Carmen Concentrator , 2nd Lift Underground Pit- One (1) Unit 1,750 KVA Diesel Fired Generator Set, Machine Shop- two (2) Units blacksmith furnace, Power Plant- two (2) Units Pielstick Generator Set. Cement Batching Plant- 1 unit hopper, 1 unit loading chute, 2 units belt conveyor system and 1 unit cement loading chute. Admin Building- One (1) unit 224 KW Standby Generator Set. Main Assay Laboratory- 2 units electric furnace, 1 unit diesel-fired furnace, 3 units electric oven, 3 units crusher maintenance, 2 units splitter machine, 4 units pulverizer machine and 10 units laboratory hot plates, 6 units laboratory hot plate provided with fume hood leading to other corresponding acid scrubber. CCC ASJM Hospital- 1 unit 132 kW diesel fired generator set. Carmen H.E.- 1 unit 500 kVA “CAT” diesel engine generator set”. Sangi Port Facility -1 unit conveyor system provided with canopy/enclosures and three (3) units concentrate bins provided with enclosure, 1 unit 1,000 kVA “Cummins” Generator Set. Quality Assurance Department Assay- Sangi		

	laboratory- 4 units memmert oven, 1 unit triton splitter, 1 unit Essa 3D Digital (Test Sieve) and 1 unit impulse sealer. Carmen Pit- 2 units 500 kVA "Cummins" Diesel-Fueled Generator Set each equipped with Exhaust Muffler and Silencer		

4.2.8 Other Activities

Safety, Health, Environment Management System (SHEMS) Performs tasks related to the company's IMS as directed.

Process documentation requirements in the pull-out of Hazardous Wastes such as:

- Apply Permit to Transport Hazardous Wastes
- Issue Pre-Transport Checklist
- Apply Manifest Form
- Facilitate securing Certificate Of Treatment
- Update Monthly Hazardous Waste Inventory

4.3 Mine Revegetation and Enhancement Program

Major mine re-vegetation/reforestation activities will be undertaken as part of the overall environmental protection and enhancement program of the company including nursery facilities rehabilitation and maintenance. Continues production of vermi-cast through Vermi-Composting method.

4.3.1 Seedlings Production

Seedling production will not only focus on the production of planting stocks for mine re-vegetation and enrichment planting, but more so, it will also give attention to the production of forest and fruit tree seedlings for distribution to interested local communities, LGU's, non-government organizations, and private entities. The additional seedling production is carry out in support to the government expanded National Greening Program (eNGP) and in compliance to ECC provision.

Native tree species with high probability of survival will be included in the planting stock production and selective species trial planting on the mine site.

Repair of nursery facilities will be undertaken to continue the efficient seedling production activities. Facilities planned to be repaired/improved are the following; Concreting of nursery

signage, potting shed, nursery office, vermicomposting facility and orchidarium shed.

4.3.2 Revegetation

Planting of exotic and native tree species in waste dump or mine out areas not anymore used in mine operation activities will continue. Closer spacing in between hills will be adopted at 2 m X 2 m to have a quicker green cover. For this year, planting will be undertaken on Waste Rock Dump (WRD) and other areas not anymore use by the mine operation.

The established plantations of at least 3 to 5 years old were enrich with native trees following the planting distance of 5m x 5m. Enrichment planting were done to enhance the said plantations with diverse native trees of forest-fruit tree species, increase ground cover and probably restore the area to its natural state. Fruit bearing trees and other food plants will be introduced in the area to bring back native vegetation and provide food to wildlife.

The 2017 to 2018 plantations of Lusong Waste Rock Dump is the particular area considered with very low soil pH resulting to very low survival rate of the planted seedlings. Continuous replanting will be initiated on the said areas to replenish mortality. Organic fertilizer (Durabloom) was applied to hasten the growth and survival of the replanted seedlings.

Support to the government programs and compliance of ECC provisions in relation to tree planting activities will be undertaken. The company are allocating funds for the national greening program and bamboo initiatives.

This year, a tripartite MOA involving the Company, MRFC and UNIFAMCO, a DENR assisted PO was finally realized on the first week of October 2022. The NGP project covered by the MOA is 100 hectares located in Bunga, Toledo City. The PO started the plantation establishment on the last week of October 2022. Seedlings stocked raised by PO members were utilized for the recent plantation establishment. It was agreed in the MOA that the plantation establishment of the 100 hectares shall be completed within 2022. Maintenance and protection activities will be implemented in the succeeding year until 2025.

The Company commits to MGB 7 for the establishment of 60 hectares bamboo plantations within and outside mining claims.

For 2022, there were three (3) Assisted POs of the company accepted the implementation of the bamboo production project. The POs are located within the Company mining claims of Toledo City. These are the Santa Cruz Farmers Association (SCFA) in Loay, Bagakay Farmers Association (BFA) in Bagakay and

Pandong Bato Farmers Association (PBFA) in Pandong, Media Once.

Each PO were given a target of 10 hectares within their coverage area with the planting distance of 7m X 7m. The total target area for bamboo plantation project to be covered was 30 hectares. Bamboo seedling production started on February 2022. The bamboo plantation establishments of the 3 POs started on September 2022 which will be completed before December of this year. Maintenance and protection activities will be implemented in the succeeding year. The completion of the remaining 30 hectares target area for bamboo plantations committed by the company will be executed in 2023.

4.3.3 Maintenance of planted trees

Bigger time will be allocated for the improvement of planted sites. Conduct of pruning and thinning of the established plantations will continue. Likewise, replanting of areas identified as problematic site will be enhanced through the following:

- Use of Large Planting Materials for enrichment on areas with stunted planted seedlings.
- Possible amelioration of organic materials and lime on areas known to have a very low pH.
- Replanting using proven tree species to thrive in very low pH soil.

4.3.4 Research

The company will provide logistical and financial assistant to the implementation of the study titled **"Performance of Different Cloned Climax Species Integrated in Existing Tree Plantation within Mined-out Areas of Carmen Copper Corporation**" This study is on its 4th year and conducted by ECOSYSTEMS RESEARCH & DEVELOPMENT BUREAU (ERDB) through its Mining and Degraded Areas Rehabilitation Research Center (MDARRC). Final report is expected before the end of 2022. A further collaborative maintenance activities of the established site is being considered for another 3 years.

A collaborative **biodiversity study** between the company and **Cebu Technological University Argao Campus**. Generally, the assessment covers plant, macrofungi (mushrooms), bats and other mammals, birds, amphibians & reptiles, and arthropods. Data collection both for dry and wet season have been gathered and final report writing is on-going. Timeline for the final report and presentation to management is by the end of December 2022.

A re-validation of **Environmental Baseline** is being proposed. It will be a comprehensive study which will cover the flora and fauna

of the mine site, the river systems surrounding the mine down to the adjacent marine area of the Sangi Port. This will be done to assess the environmental indicators before and during company's mining activities.

4.3.5 Forest Protection

The deployment of volunteer forest guards will continue. A closer coordination between the security office and deployed forest guards will be workout to improve implementation of forest laws and company policies in relation to trees. The company will provide communication equipment to the forest guards to have a fast communication between them and security personnel on site.

Information, Education and Communication (IEC) campaigns will be continued to promote environmental awareness and conservation of the company's environment and natural resources. This will be carried through but not limited to; pulong-pulong/meeting, dialogue, installation of signages, and conduct of short seminars as need arise.

4.3.6 Reporting Practices

CCC will comply with the reporting and record-keeping requirements of the Mine and Geosciences Bureau (MGB) and Environmental Management Bureau EMB) of the DENR. For this purpose, the company will adopt the agencies' existing standard formats and procedures in documenting, compiling, and submitting environmental reports.

For serious incidents involving pollution and similar environmental emergencies during rehabilitation and subsequent operations, the company will notify MGB and/or EMB promptly of the events within reasonable period of time. Formal written report of any such incident will be rendered and submitted to any of the two agencies after a thorough investigation had been conducted.

5.0 TOTAL COST OF AEPEP

The estimated cost of the Carmen Copper Corporation Environmental Protection and Enhancement Program for CY 2023 is shown in the respective EPEP Matrix under the MPSA no. 210-2005-VII and MPSA no. 264-2008-VII *(refer Table no.3).*

Table no. 3 - Summary of 2023 Interim AEPEP Program Matrix

SUMMARY OF 2023 INTERIM AEPEP

DESCRIPTION	Amount
RCF	
A. LAND RESOURCES	98,917,450.00
B. WATER RESOURCE AND QUALITY	95,381,400.00
C. NOISE AND VIBRATION	18,000.00
D. AIR QUALITY	6,694,000.00
E. BIODIVERSITY CONSERVATION / CONSIDERATION	9,093,498.00
G. HERITAGE AND CULTURAL VALUES (not applicable)	-
H. SOCIAL ISSUES	120,000.00
I. ENVIRONMENTAL RESEARCH	8,566,500.00
Sub-total	**218,790,848.00**
MTF	
J. OTHERS (MRFC/MMT/TRAININGS/SEMINARS, etc.)	665,000.00
Grand Total	**219,455,848.00**

6.0 CONTACT OFFICERS

Prepared by:

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Endorsed by:

MR. CHRISTOPHER JOHN W. SALCEDO
MEPEO/PCO
AVP – SHECC

Approved by:

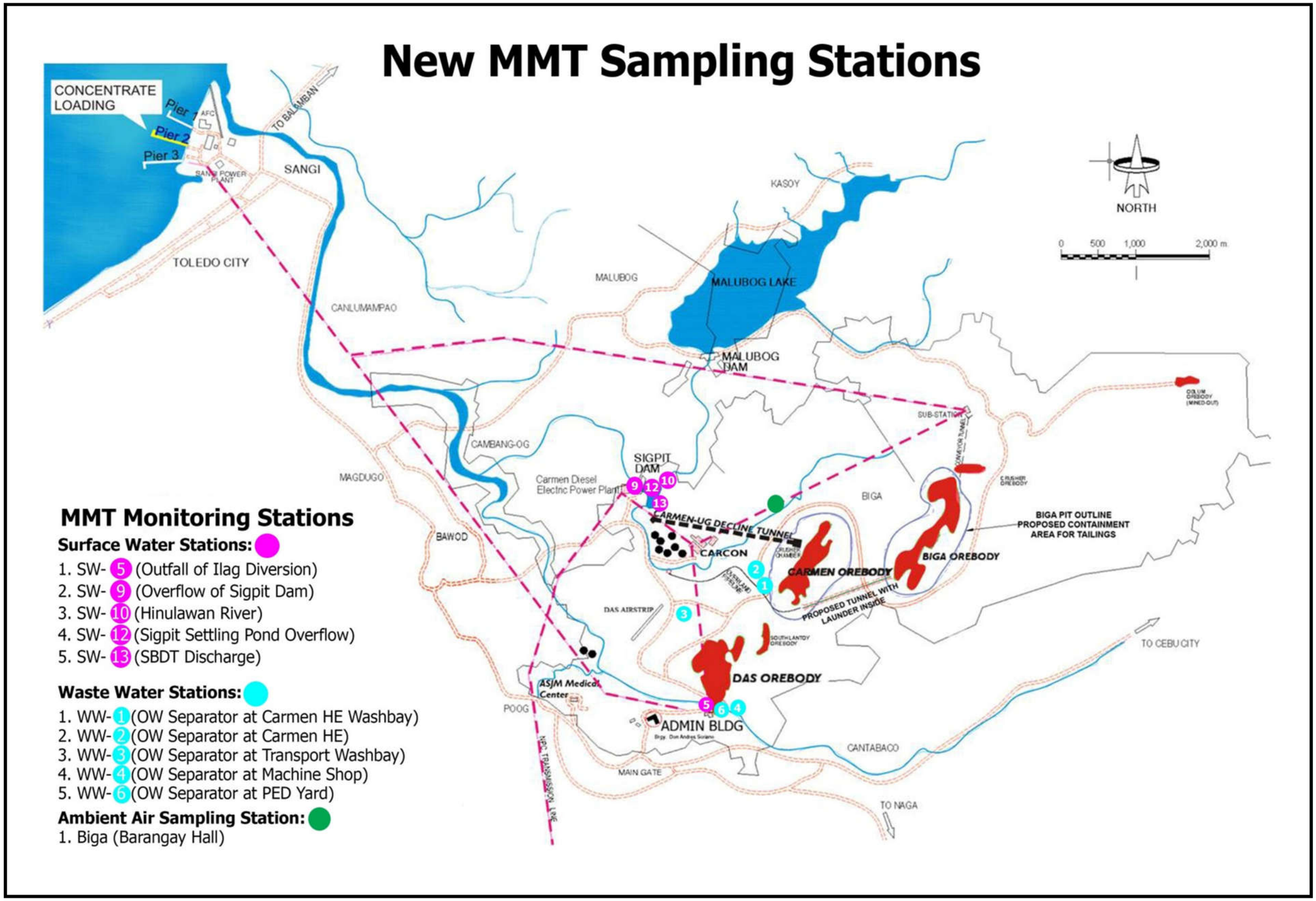
MR. ALEXEI JEROME G. JOVELLANA
President & CEO

Annexes: **Carmen Copper Corporation Operation Program**

ANNEX - 1	-	*Sampling Sites for Multi-Partite Monitoring Team*
ANNEX - 2	-	2023 Mine Plan/Production Schedule
ANNEX - 3	**-**	*Carmen Pit – Mine Ore Source*
ANNEX - 4	-	*Waste Rock Dumps*
ANNEX - 5	-	Location of Slope Stabilization Activities
ANNEX - 6	-	Location of Probe Equipment
ANNEX – 7	**-**	*List of Mining and Support Equipment*

Annex 1

New CCC Sampling Map



Annex 2

2023 Mine Plan/Production Schedule

Mining Physicals
Carmen Pit S1

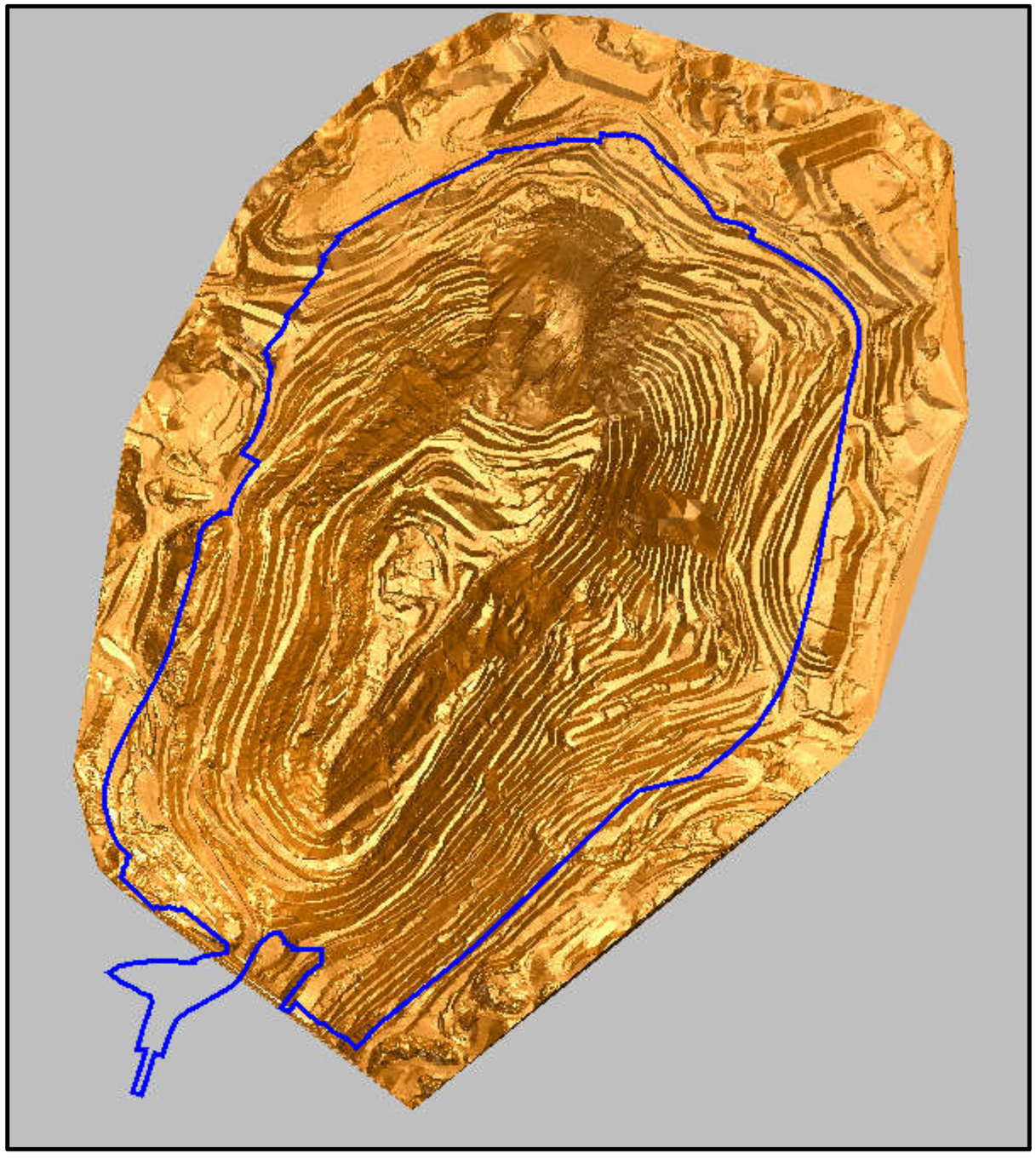
	01-Jan-23	01-Feb-23	01-Mar-23	01-Apr-23	01-May-23	01-Jun-23	01-Jul-23	01-Aug-23	01-Sep-23	01-Oct-23	01-Nov-23	01-Dec-23	2023 Total
Plan Tonnes & Grade													
Carmen Pit Ore	1,825,369	2,000,194	1,893,881	1,177,031	1,730,681	1,615,710	1,988,978	1,681,256	1,919,575	1,884,650	1,876,031	2,347,868	21,941,224
Ore Grade (%)	**0.287**	**0.286**	**0.315**	**0.275**	**0.288**	**0.289**	**0.292**	**0.299**	**0.288**	**0.337**	**0.334**	**0.303**	**0.300**
Carmen Pit Waste	3,444,630	2,759,805	3,376,117	3,922,967	3,539,319	3,484,290	3,281,021	3,588,743	3,180,424	3,385,350	3,223,968	2,832,619	40,019,254
Total Pit Tonnes	**5,269,999**	**4,759,999**	**5,269,999**	**5,099,999**	**5,270,000**	**5,100,000**	**5,269,999**	**5,270,000**	**5,100,000**	**5,269,999**	**5,099,999**	**5,180,487**	**61,960,478**
Ore to Crusher	1,550,000	1,400,000	1,550,000	1,500,000	1,550,000	1,500,000	1,550,000	1,550,000	1,500,000	1,550,000	1,500,000	1,550,000	18,250,000
Feed Grade (%)	**0.301**	**0.300**	**0.301**	**0.300**	**0.300**	**0.302**	**0.300**	**0.301**	**0.323**	**0.317**	**0.318**	**0.317**	**0.307**
Plan Tonnes Per Day (TPD)													
Total Pit TPD	**170,000**	**170,000**	**170,000**	**170,000**	**170,000**	**170,000**	**170,000**	**170,000**	**170,000**	**170,000**	**170,000**	**167,112**	**169,755**
Ore to Crusher	50,000	50,000	50,000.00	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	6.00 50,000	50,000

Mining Physicals
Carmen Pit Life of Mine

	2023	2024	2025	2026
Plan Tonnes & Grade				
Carmen Pit Ore	21,941,224	17,498,304	17,780,044	24,016,683
Ore Grade (%)	**0.300**	**0.381**	**0.301**	**0.326**
Carmen Pit Waste	40,019,254	44,642,981	40,619,948	19,783,316
Total Pit Tonnes	**61,960,478**	**62,141,285**	**58,399,992**	**43,799,999**
Ore to Crusher	18,250,000	18,300,000	18,250,000	18,250,000
Feed Grade (%)	**0.307**	**0.374**	**0.305**	**0.346**
Plan Tonnes Per Day (TPD)				
Total Pit TPD	**169,755**	**169,785**	**160,000**	**120,000**
Ore to Crusher	50,000	50,000	50,000.00	50,000

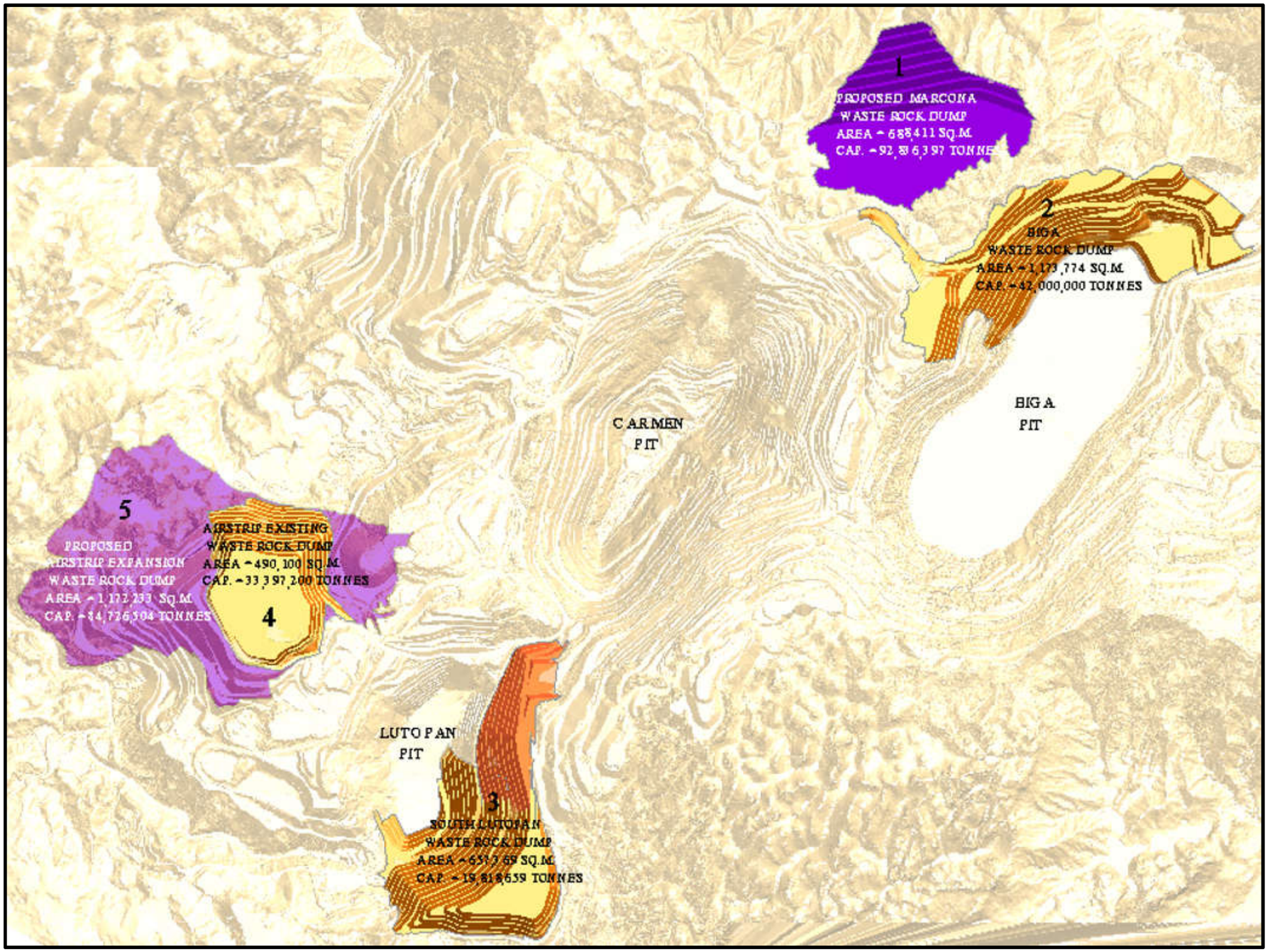
Annex 3

Carmen Pit – Mine Ore Source



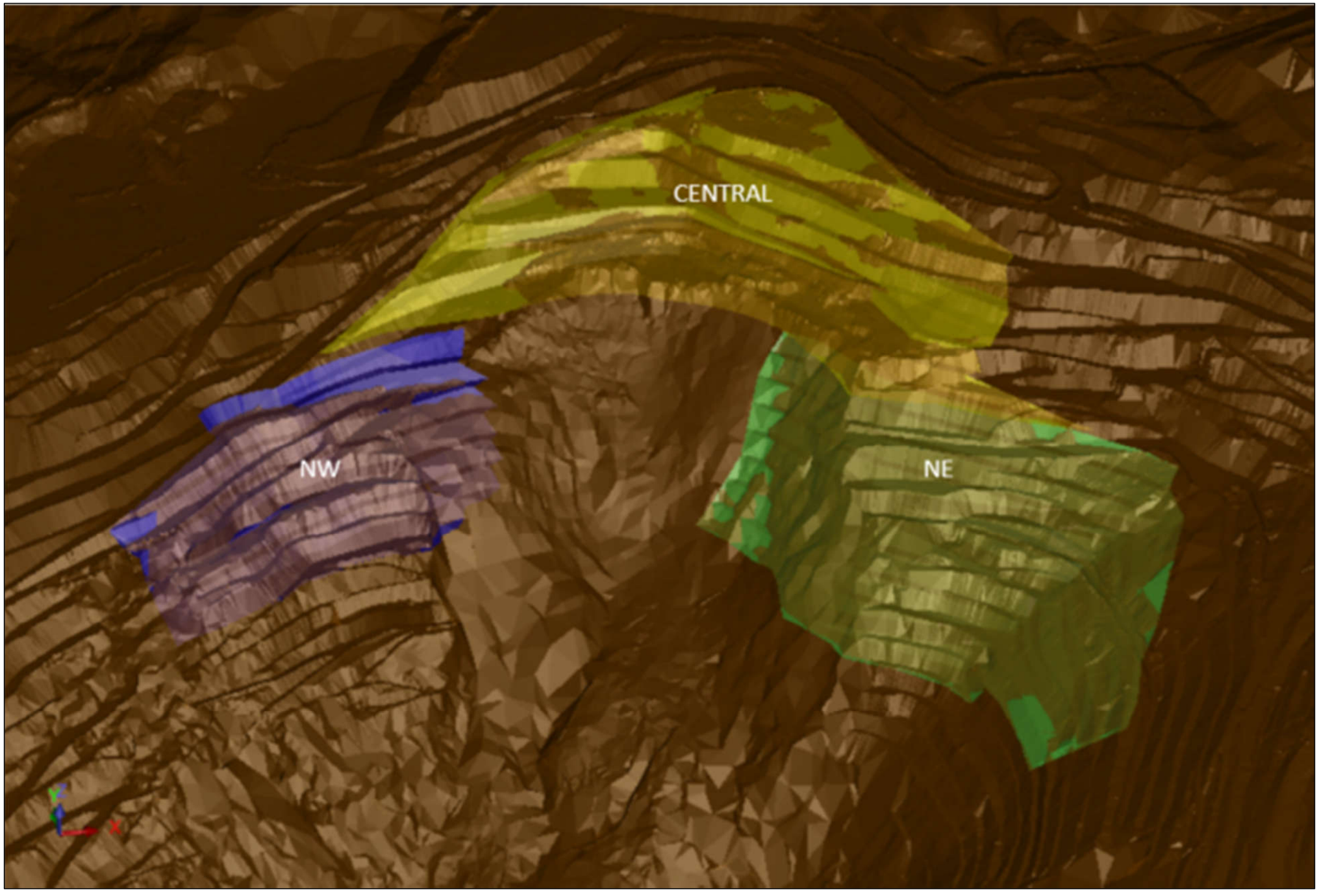
Annex 4

Mine Waste Rock Dumps Area



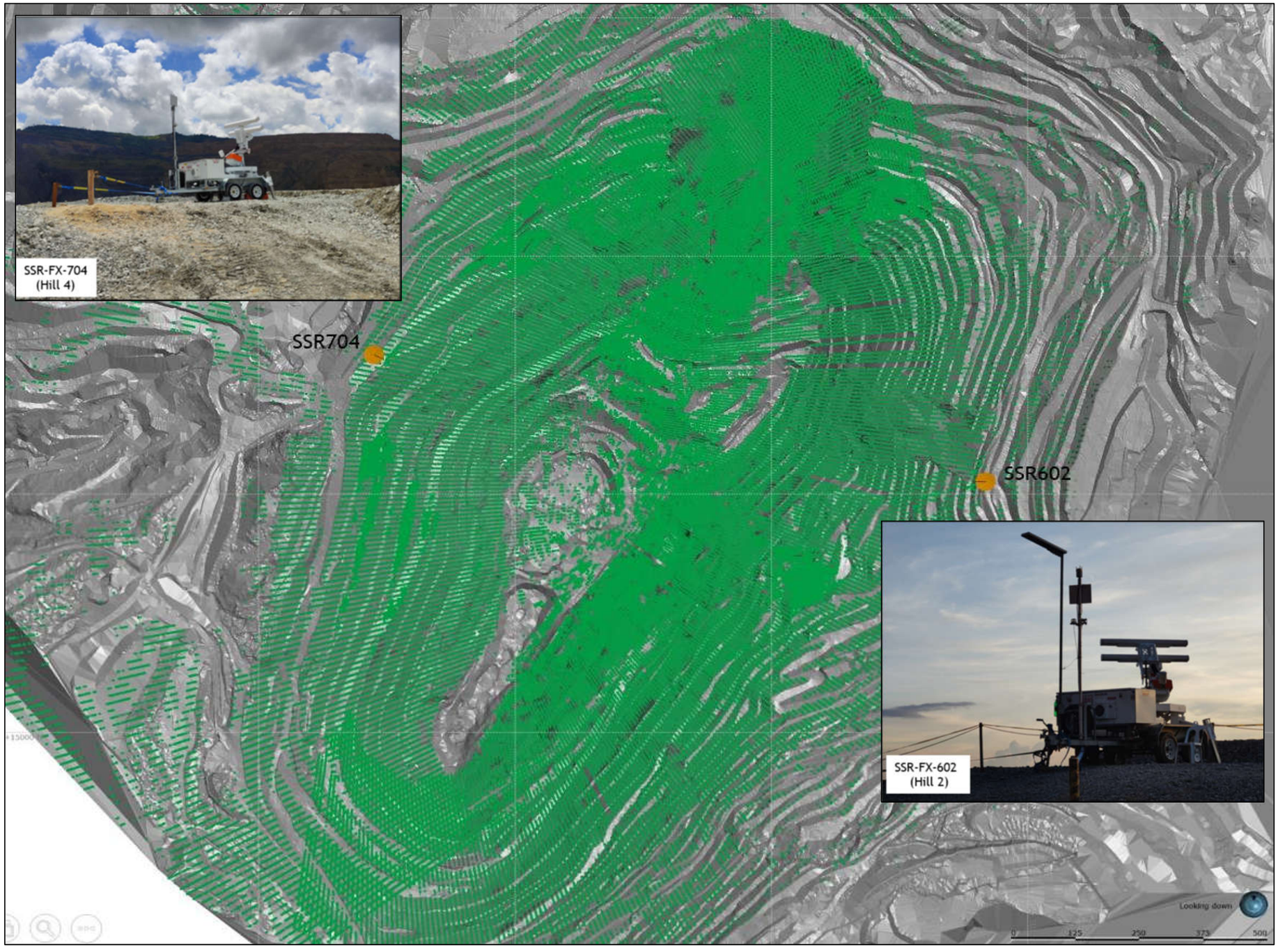
Annex 5

Areas were the Slope Stabilization Activities



Annex 6

Location were the SSR-FX-602 and SSR-FX-704 installed



Annex 7

List of Mining Equipment and Supprt Equipment

CCC MINING EQUIPMENTS AND SUPPORT EQUIPMENTS			
H.E. MAINTENANCE DEPARTMENT - MONITORING			
FLEET	Unit No.	Equipment Type / Model	Status
a). Excavators (Loading and Gen. Services Equipments)			
KOMATSU	EX05-14	PC2000	OPERATIONAL
CATERPILLAR	EX05-15	CAT 336	OPERATIONAL
CATERPILLAR	EX05-17	CAT 336	OPERATIONAL
KOMATSU	EX05-18	PC2000	OPERATIONAL
KOMATSU	EX05-19	PC2000	Down
KOMATSU	EX05-20	PC2000	OPERATIONAL
KOMATSU	EX05-21	PC2000	OPERATIONAL
KOMATSU	EX05-22	PC2000	OPERATIONAL
KOMATSU	EX05-23	PC2000	OPERATIONAL
KOMATSU	EX05-24	PC2000	OPERATIONAL
KOMATSU	EX05-25	PC270-8	OPERATIONAL
KOMATSU	EX05-30	PC2000	OPERATIONAL
KOMATSU	EX05-31	PC2000	OPERATIONAL
HITACHI	EX05-32	EX1900-6	OPERATIONAL
HITACHI	EX05-33	EX1900-6	Down
VOLVO	EX05-34	EC750DL	OPERATIONAL
VOLVO	EX05-35	EC750DL	OPERATIONAL
b). Trucks - Komatsu and Caterpillar (Hauling Equipments)			
KOMATSU	12-65	HD785-7	FOR REPAIR
KOMATSU	12-70	HD785-7	OPERATIONAL
KOMATSU	12-72	HD785-7	Down
KOMATSU	12-73	HD785-7	OPERATIONAL
KOMATSU	12-74	HD785-7	OPERATIONAL
KOMATSU	12-75	HD785-7	OPERATIONAL
KOMATSU	12-76	HD785-7	OPERATIONAL
KOMATSU	12-77	HD785-7	OPERATIONAL
KOMATSU	12-78	HD785-7	OPERATIONAL
KOMATSU	12-79	HD785-7	OPERATIONAL
KOMATSU	12-80	HD785-7	Down
KOMATSU	12-81	HD785-7	Down
KOMATSU	12-82	HD785-7	OPERATIONAL
KOMATSU	12-83	HD785-7	Down
KOMATSU	12-84	HD785-7	OPERATIONAL
KOMATSU	12-85	HD785-7	OPERATIONAL
KOMATSU	12-86	HD785-7	OPERATIONAL
KOMATSU	12-87	HD785-7	OPERATIONAL
KOMATSU	12-88	HD785-7	OPERATIONAL
KOMATSU	12-89	HD785-7	Down
KOMATSU	12-90	HD785-7	OPERATIONAL
KOMATSU	12-91	HD785-7	OPERATIONAL
KOMATSU	12-92	HD785-7	OPERATIONAL
KOMATSU	12-93	HD785-7	OPERATIONAL
KOMATSU	12-94	HD785-7	OPERATIONAL
KOMATSU	12-95	HD785-7	OPERATIONAL
KOMATSU	12-96	HD785-7	OPERATIONAL
KOMATSU	12-97	HD785-7	OPERATIONAL
KOMATSU	12-98	HD785-7	OPERATIONAL
KOMATSU	12-99	HD785-7	OPERATIONAL
KOMATSU	12-100	HD785-7	OPERATIONAL
KOMATSU	12-101	HD785-7	Down
KOMATSU	12-102	HD785-7	OPERATIONAL
KOMATSU	12-103	HD785-7	OPERATIONAL
KOMATSU	12-104	HD785-7	OPERATIONAL
KOMATSU	12-105	HD785-7	Down
KOMATSU	12-106	HD785-7	OPERATIONAL
KOMATSU	12-107	HD785-7	OPERATIONAL
KOMATSU	12-108	HD785-7	OPERATIONAL
KOMATSU	12-109	HD785-7	OPERATIONAL
KOMATSU	12-110	HD785-7	OPERATIONAL
KOMATSU	12-111	HD785-7	Down
KOMATSU	12-112	HD785-7	OPERATIONAL
KOMATSU	12-113	HD785-7	OPERATIONAL
KOMATSU	12-114	HD785-7	OPERATIONAL
KOMATSU	12-115	HD785-7	Down
KOMATSU	12-116	HD785-7	OPERATIONAL
KOMATSU	12-117	HD785-7	OPERATIONAL
KOMATSU	12-118	HD785-7	OPERATIONAL
KOMATSU	12-119	HD785-7	Down
KOMATSU	12-120	HD785-7	OPERATIONAL
KOMATSU	12-121	HD785-7	OPERATIONAL
KOMATSU	12-122	HD785-7	OPERATIONAL
KOMATSU	12-123	HD785-7	Down
KOMATSU	12-124	HD785-7	OPERATIONAL
KOMATSU	12-125	HD785-7	OPERATIONAL

KOMATSU	**12-126**	HD785-7	**OPERATIONAL**
CATERPILLAR	**12-127**	CAT777-E	**OPERATIONAL**
CATERPILLAR	**12-128**	CAT777-E	**OPERATIONAL**
CATERPILLAR	**12-129**	CAT777-E	**OPERATIONAL**
CATERPILLAR	**12-130**	CAT777-E	**OPERATIONAL**
CATERPILLAR	**12-131**	CAT777-E	**OPERATIONAL**
CATERPILLAR	**12-132**	CAT777-E	**OPERATIONAL**
CATERPILLAR	**12-133**	CAT777-E	**OPERATIONAL**
CATERPILLAR	**12-134**	CAT777-E	**OPERATIONAL**
CATERPILLAR	**12-135**	CAT777-E	**OPERATIONAL**
CATERPILLAR	**12-136**	CAT777-E	**OPERATIONAL**
CATERPILLAR	**12-137**	CAT777-E	**OPERATIONAL**
CATERPILLAR	**12-138**	CAT777-E	**OPERATIONAL**
CATERPILLAR	**12-139**	CAT777-E	**Down**
CATERPILLAR	**12-140**	CAT777-E	**OPERATIONAL**
CATERPILLAR	**12-141**	CAT777-E	**Down**
CATERPILLAR	**12-142**	CAT777-E	**OPERATIONAL**
d). Drills (Drilling Equipments)			
EPIROC	**CR4-04**	ROC L8	**Down**
EPIROC	**CR4-05**	ROC L8	**OPERATIONAL**
FURUKAWA	**CR4-07**	HCR910-DS	**OPERATIONAL**
EPIROC	**CR4-09**	FLEXIROC D65	**OPERATIONAL**
EPIROC	**CR4-10**	FLEXIROC D65	**OPERATIONAL**
EPIROC	**CR4-11**	FLEXIROC D65	**OPERATIONAL**
EPIROC	**CR4-12**	FLEXIROC D65	**OPERATIONAL**
GP830	**CR4-14**	GP830	**OPERATIONAL**
e). Auxiliary (Support and Gen. Services Equipments)			
DOZERS			
KOMATSU	**BD6-04**	KOMATSU D375A-6	**OPERATIONAL**
KOMATSU	**BD6-05**	KOMATSU D375A-6	**Down**
KOMATSU	**BD6-08**	KOMATSU D375A-6	**Down**
CATERPILLAR	**BD6-09**	CAT D8R - Dozer	**Down**
CATERPILLAR	**BD6-11**	CAT D8R - Dozer	**Down**
CATERPILLAR	**BD6-12**	CAT D9R - Dozer	**Down**
KOMATSU	**BD6-15**	KOMATSU D155	**OPERATIONAL**
KOMATSU	**BD6-16**	KOMATSU D375A-6	**Down**
CATERPILLAR	**BD6-17**	CAT D8R - Dozer	**OPERATIONAL**
CATERPILLAR	**BD6-18**	CAT D8R - Dozer	**OPERATIONAL**
CATERPILLAR	**BD6-19**	CAT D8R - Dozer	**OPERATIONAL**
CATERPILLAR	**BD6-20**	CAT D8R - Dozer	**OPERATIONAL**
KOMATSU	**BD6-21**	KOMATSU D155	**Down**
KOMATSU	**BD6-22**	KOMATSU D155	**OPERATIONAL**
KOMATSU	**BD6-23**	KOMATSU D155	**OPERATIONAL**
WHEELDOZERS			
KOMATSU	**WD33-02**	KOMATSU WD600	**OPERATIONAL**
KOMATSU	**WD33-03**	KOMATSU WD600	**Down**

GRADERS			
CATERPILLAR	**GD9-03**	CAT14M	**OPERATIONAL**
KOMATSU	**GD9-04**	KOMATSU GD825-2	**Down**
KOMATSU	**GD9-05**	KOMATSU GD825-2	**Down**
KOMATSU	**GD9-07**	KOMATSU GD825-2	**OPERATIONAL**
KOMATSU	**GD9-08**	KOMATSU GD825-2	**OPERATIONAL**
KOMATSU	**GD9-09**	KOMATSU GD825-2	**OPERATIONAL**
COMPACTORS			
BOMAG	**VR44-03**	BW219D-4 - Compactor	**OPERATIONAL**
BOMAG	**VR44-05**	BW219D-4 - Compactor	**OPERATIONAL**
KOMATSU	**WT46-05**	HD785-5 (Water Truck)	**OPERATIONAL**
KOMATSU	**WT46-06**	HD785-5 (Water Truck)	**OPERATIONAL**
OTHER SUPPORT EQUIPMENTS (Carcon and Contruction Dept. Units)			
CATERPILLAR	**EX5-16**	CAT320 (1.8 corm) - Excavator	**OPERATIONAL**
KOMATSU	**EX5-27**	PC130-8	**OPERATIONAL**
CATERPILLAR	**EX5-28**	CAT 320	**Down**
CATERPILLAR	**EX5-29**	CAT 320	**OPERATIONAL**
VOLVO	**GD9-06**	VOLVO G960	**OPERATIONAL**
KOMATSU	**GD9-10**	KOMATSU GD535	**OPERATIONAL**
CATERPILLAR	**BD6-10**	CAT D8R - Dozer	**OPERATIONAL**
CATERPILLAR	**BD6-14**	CAT D9R - Dozer	**OPERATIONAL**
CATERPILLAR	**WL34-01**	CAT 950H - Wheel Loader	**OPERATIONAL**
CATERPILLAR	**BL35-01**	CAT 416F - Backhoe Loader	**OPERATIONAL**
TADANO	**HC1-02**	TADANO CRANE GR800-E - Mobile Crane	**OPERATIONAL**
CATERPILLAR	**VR44-06**	CAT CS-533E - Compactor	**OPERATIONAL**
Mine Maintenance and other services			
ATLAS COPCO	**AC30-02**	AIR COMPRESSOR - PORTABLE	**OPERATIONAL**
KAESER M31	**AC30-05**	AIR COMPRESSOR - PORTABLE	**OPERATIONAL**
KAESER M31	**AC30-06**	AIR COMPRESSOR - PORTABLE	**OPERATIONAL**
ATLAS COPCO	**AC30-07**	AIR COMPRESSOR - STATIONARY	**OPERATIONAL**
ATLAS COPCO	**AC30-08**	AIR COMPRESSOR - PORTABLE	**OPERATIONAL**
ATLAS COPCO	**AC30-09**	AIR COMPRESSOR - PORTABLE	**OPERATIONAL**
ATLAS COPCO	**AC30-10**	AIR COMPRESSOR - PORTABLE	**OPERATIONAL**
WELDER/COMPRESSOR/GENERATOR	**WM 10-02**	MILLER BIGBLUE AIR PAK	**OPERATIONAL**
WELDING MACHINE	**WM 10-05**	LINCOLN BIG RED	**OPERATIONAL**
WELDING MACHINE	**WM 10-06**	MILLER BIGBLUE AIR PAK	**OPERATIONAL**

TOWER LIGHT	**LT48-19**	Pramac	**OPERATIONAL**
TOWER LIGHT	**LT48-20**	Pramac	**OPERATIONAL**
TOWER LIGHT	**LT48-21**	Atlas Copco Highligh V5 PLUS Z482	**Bar down**
TOWER LIGHT	**LT48-22**	Atlas Copco Highligh V5 PLUS Z482	**OPERATIONAL**
TOWER LIGHT	**LT48-24**	Atlas Copco Highligh V5 PLUS Z482	**OPERATIONAL**
TOWER LIGHT	**LT48-25**	Atlas Copco Highligh V5 PLUS Z482	**OPERATIONAL**
TOWER LIGHT	**LT48-26**	Atlas Copco Highligh V5 PLUS Z482	**OPERATIONAL**
TOWER LIGHT	**LT48-27**	Atlas Copco Highligh V5 PLUS Z482	**Accident Repair**
TOWER LIGHT	**LT48-28**	Atlas Copco Highligh V5 PLUS Z482	**OPERATIONAL**
TOWER LIGHT	**LT48-29**	Atlas Copco Highligh V5 PLUS Z482	**OPERATIONAL**
TOWER LIGHT	**LT48-30**	Atlas Copco Highligh V5 PLUS Z482	**OPERATIONAL**
TOWER LIGHT	**LT48-32**	Atlas Copco Highligh V5 PLUS Z482	**OPERATIONAL**
TOWER LIGHT	**LT48-33**	Atlas Copco Highligh V5 PLUS Z482	**OPERATIONAL**
TOWER LIGHT	**LT48-34**	Atlas Copco Highligh V5 PLUS Z482	**OPERATIONAL**
TOWER LIGHT	**LT48-35**	Atlas Copco Highligh V5 PLUS Z482	**Accident Repair**
TOWER LIGHT	**LT48-37**	Atlas Copco Highligh V5 PLUS Z482	**OPERATIONAL**
TOWER LIGHT	**LT48-38**	Atlas Copco Highligh V5 PLUS Z482	**OPERATIONAL**
TOWER LIGHT	**LT48-39**	Atlas Copco Highligh V5 PLUS Z482	**OPERATIONAL**
Articulated Dumptrucks			
VOLVO	**14-05**	A40G	**OPERATIONAL**
VOLVO	**14-06**	A40G	**OPERATIONAL**
VOLVO	**14-07**	A40G	**OPERATIONAL**
VOLVO	**14-08**	A40G	**OPERATIONAL**
VOLVO	**14-09**	A40G	**OPERATIONAL**
VOLVO	**14-10**	A40G	**OPERATIONAL**