EXECUTIVE SUMMARY FOR THE PUBLIC (ENGLISH)

RCRDC MPSA 345-2010-IVA, AMENDED I

Parcels 1 and 3 Quarry Project

I. Project Information

Project Name:	**RCRDC MPSA 345-2010-IVA, AMENDED I**
	Parcels 1 and 3 Quarry Project
Nature of Project:	**Resource Extractive Industry (Quarry)**
	Crushing Plant
Total Area:	**63.735 hectares**
Site Location:	**Brgy. Dalig, Municipality of Teresa, Province of Rizal (Parcel I)**
	Sitio Sumilang, Brgy. San Jose, Antipolo City (Parcel III)

II. Proponent Profile

Proponent Name:	**Rapid City Realty and Development Corporation**
Address:	167 Sumulong Highway, Mayamot, Antipolo City
Contact Person:	**Ms. Veronica Iñiguez Lee**
	President and General Manager
	Ms. Angelita Iñiguez Lee
	Treasurer
Tel. Nos.:	(632) 645-3694 / (632) 645-3915
	(632) 645-5150 / (632) 645-5166

III. Preparer Profile

Axceltechs, Inc.

Office Address:	Unit 10C, Lansbergh Place
	170 Tomas Morato, Quezon City
Authorized Representative/	**ENGR. PAULO NONI T. TIDALGO**
Contact Person (s):	Managing Director
Contact Number	(02) 376-0043

1.0 PROJECT LOCATION

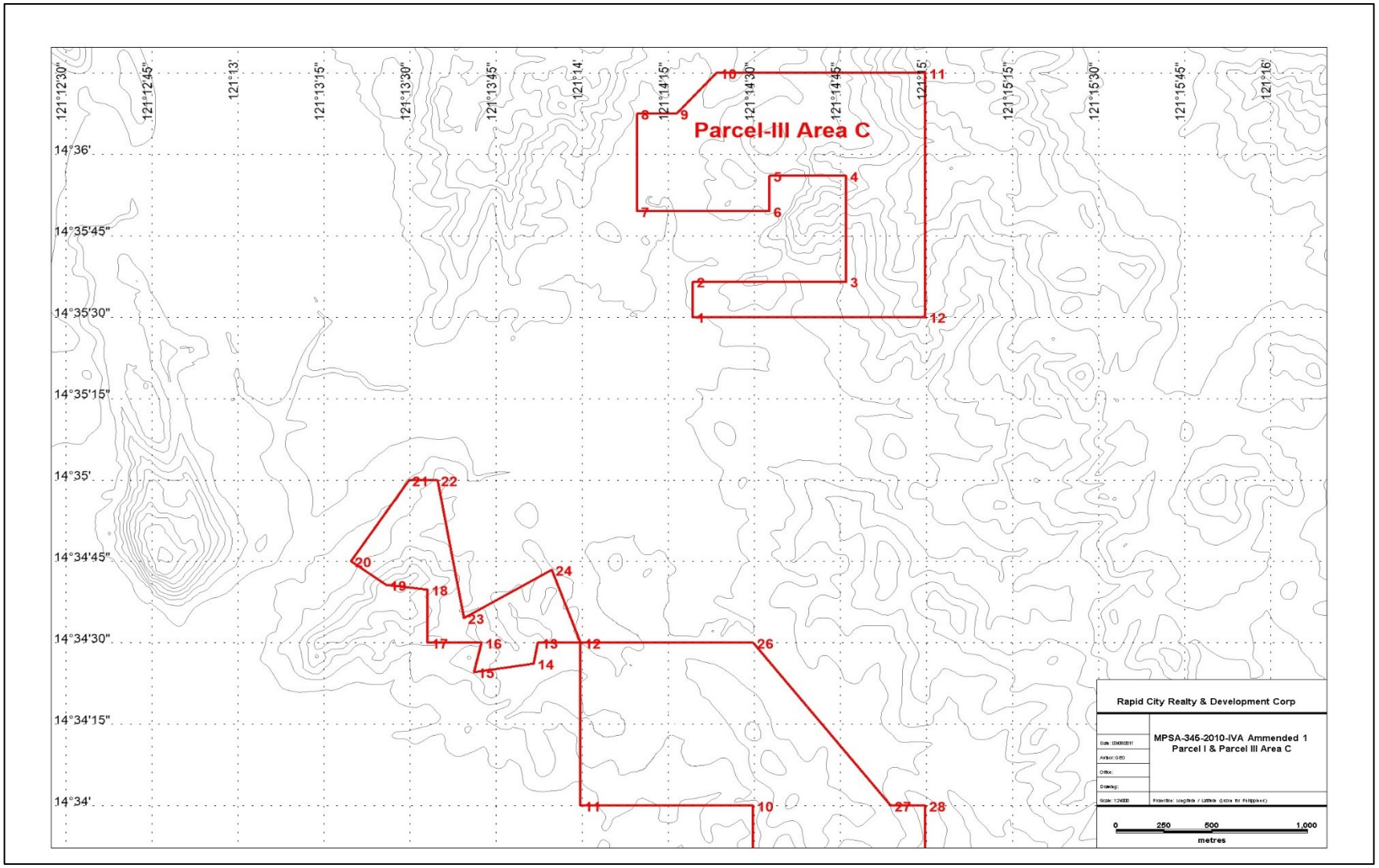
The Proposed Parcel I, Project Area 1 and Project Area 2 Quarry Project are both situated in Barangay Dalig, Municipality of Teresa, Province of Rizal covering 22.63 hectares of pozzolan and 19.397 hectares of silica/aggregates, respectively. The Proposed Parcel III, Area C Quarry Project is situated in Barangay San Jose, Antipolo City covering 21.708 hectares of silica/aggregates. Aside from being covered by RCRDC's mining rights under the MPSA, the surface rights or the total 63.735 -hectare area is also owned by RCRDC.

Parcel I

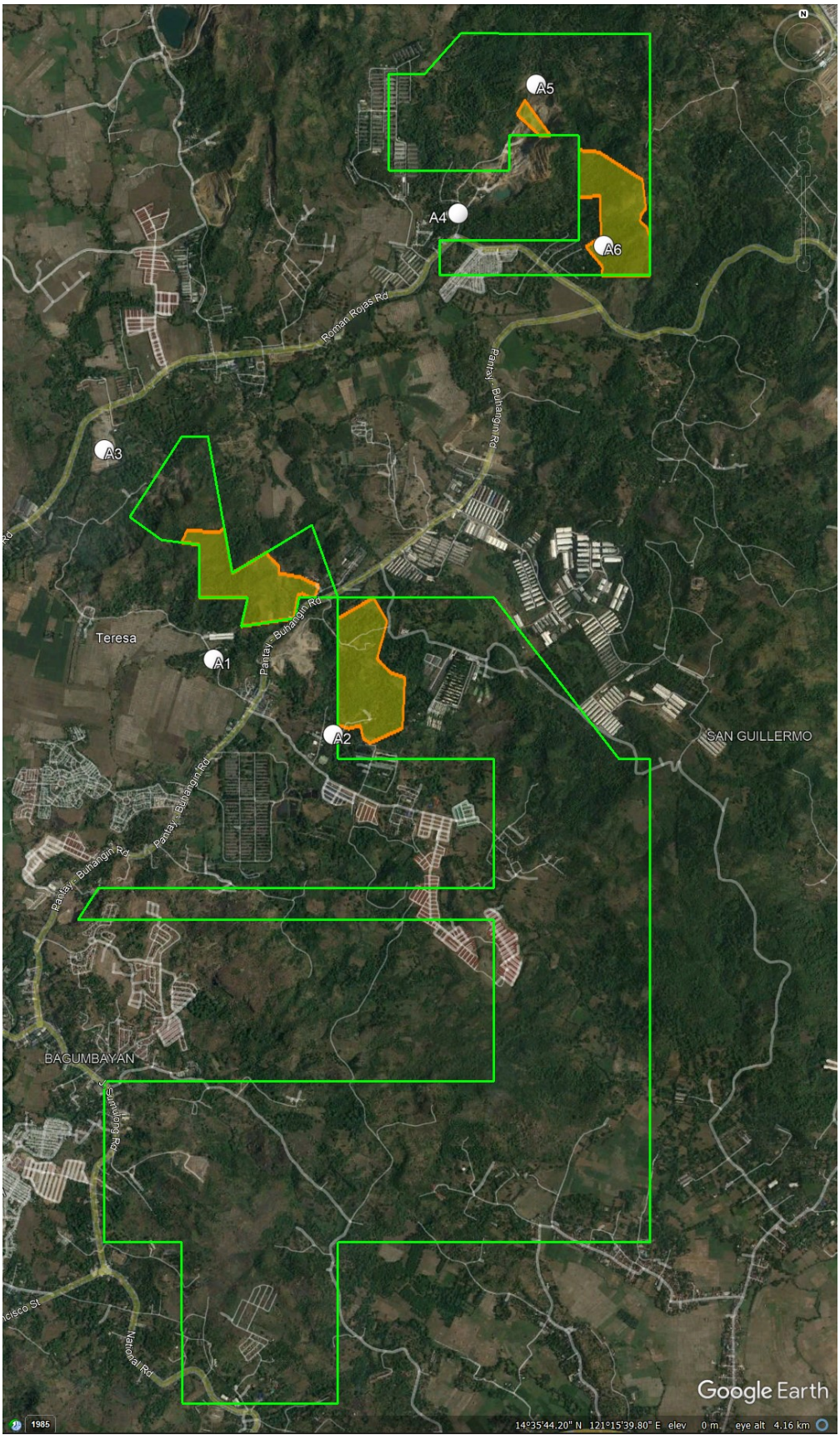
Corner	Latitude	Longitude
1	14°32'00.00"	121°13'30.00"
2	14°32'30.00"	121°13'30.00"
3	14°32'30.00"	121°13'15.00"
4	14°33'00.00"	121°13'15.00"
5	14°33'00.00"	121°14'30.00"
6	14°33'30.00"	121°14'30.00"
7	14°33'30.00"	121°13'10.00"
8	14°33'36.00"	121°13'14.00"
9	14°33'36.00"	121°14'30.00"
10	14°34'00.00"	121°14'30.00"
11	14°34'00.00"	121°14'00.00"
12	14°34'30.00"	121°14'00.00"
13	14°34'30.00"	121°13'52.52"
14	14°34'26.17"	121°13'51.82"
15	14°34'24.61"	121°13'41.37"
16	14°34'30.00"	121°13'42.67"
17	14°34'30.00"	121°13'33.32
18	14°34'39.82"	121°13'33.32
19	14°34'40.73"	121°13'26.08
20	14°34'45.00"	121°13'19.98
21	14°35'00.00"	121°13'30.00
22	14°35'00.00"	121°13'35.00
23	14°34'34.60"	121°13'39.70
24	14°34'43.50"	121°13'55.00
25	14°34'30.00"	121°14'00.00
26	14°34'30.00"	121°14'30.00
27	14°34'00.00"	121°14'54.00
28	14°34'00.00"	121°15'00.00
29	14°32'30.00"	121°15'00.00
30	14°32'30.00"	121°14'00.00
31	14°32'00.00"	121°14'00.00

Parcel III, Area C

Corner	Latitude	Longitude
1	14°35’30.00”	121°14’19.54”
2	14°35’36.52”	121°14’19.54”
3	14°35’36.52”	121°14’46.27”
4	14°35’56.04”	121°14’46.27”
5	14°35’56.04”	121°14’32.90”
6	14°35’49.52”	121°14’32.90”
7	14°35’49.52”	121°14’09.81”
8	14°36’07.50”	121°14’09.81”
9	14°36’07.50”	121°14’16.70”
10	14°36’15.00”	121°14’23.60”
11	14°36’15.00”	121°15’00.00”
12	14°35’30.00”	121°15’00.00”



Sketch Map of the Project (ECC Area)



Paligid ng Proyekto

1.1 Delineation of Impact Area

The area subjected to Environmental Impact Assessment (EIA) is based on the perceived direct and indirect impact area of the proposed project. As stipulated in DAO 2003-30, direct impact areas, in terms of physical environment, are those where all project facilities are to be constructed/situated and the designated project area. On the other hand, areas not directly subjected to any activities/construction and those outside the project area but are within the jurisdiction of the Municipality of Rizal and City of Antipolo (e.g. stretch of river draining the project area, communities along haul roads) are considered as indirect impact areas.

Consistent with the provision of DAO 2010-21, known as the "*Consolidated Implementing Rules and* Regulations *of the Philippine Mining Act of 1995"*, the direct impact barangay in Parcel Project Area 1 and Project Area 2 is Barangay Dalig while the indirect impact area is the Municipality of Rizal. In Parcel III Area C the direct impact area is Barangay San Jose specifically Sitio Abuyod while the indirect area is the City of Antipolo.

Table 1.1 summarizes the area covered by the project along with the identified direct and indirect impact areas.

Table 1.1. Direct Impact area per Environmental Aspect

Aspect	Direct Impact Area
Water	- Receiving water bodies of the quarry project - Underlying aquifer
Air	- Area/community near the periphery of the quarry (Barangay Dalig, Municipality of Teresa and Sitio Sumilang, Barangay San Jose, City of Antipolo)
Noise	- Area/community within the periphery of the quarry (Barangay Dalig, Municipality of Teresa and Sitio Sumilang, Barangay San Jose, City of Antipolo
Terrestrial	- Vegetated area within the MPSA (Barangay Dalig, Municipality of Teresa and Sitio Sumilang, Barangay San Jose, City of Antipolo)
People	- (Barangay Dalig, Municipality of Teresa and Sitio Sumilang, Barangay San Jose, City of Antipolo)

2.0 Project Alternatives

The Project area is within a Mineral Production Sharing Agreement (MPSA) entered into partnership of the Philippine Government with RCRDC. The intent of the MPSA is to utilize the mineral resources therein. Likewise, the proposed quarry areas within the MPSA belong to RCRDC.

There are no other alternative to extract these mineral resources but only thru quarrying. Extraction of mineral resources is dictated by the location, size, depth and quality of the mineral resource. Considering that the mineral deposit is near surface, loose and non-metallic, the only feasible method for the project is thru quarrying.

After the Project, since RCRDC is also into the business of realty, the Project area will be rehabilitated into a subdivision and/or farm lot project.

3.0 PROJECT COMPONENTS AND PROCESS

3.1 Project Components and Process

3.1.1 Quarry Operation

Method of operation to be utilized by the project is quarrying using conventional heavy equipment. The quarry operation will be divided into three (3) stages; the quarry development, the production stages and rehabilitation.

Development phase is the stage in quarrying where preparation for full blasts production will be carried out. It will involve stripping, removal of vegetative covers and the overburden, drill and blasting, establishment of bench face and a floor, drainage canals and access roads to the deposit. The production bench will be divided into a series of slices of ten (10) meter high and a 70° bench slope during production stage and five (5) meters in development areas. Development work will generally start from the uppermost portion of the area and progresses downward. A portion of the deposit will be sliced until a bench face with a slope of about 70° and a floor width of 30 meters, will be formed enough to sustain the safe movement of quarry equipment. Once a bench is formed, a new working level below (10m) will be worked out to form another set of production bench. Should topography warrant, the cycle of creating a new working level (benches) at lower elevation will continue until desired target is reached. Pozzolan will be extracted while access and benches are being established.

Generally, the working parameters of the pozzolan quarry will be the following:

Devt / Prod'n stage		Final Pit
Bench slope	70° - 75°	30°
Bench height	10m	5m
Bench width	5m (min.)	15m
Pit slope	60° (max.)	45°

During quarry development work, it is expected that overburden or waste material will be produced. The said overburden will be utilized as backfilling materials for the progressive rehabilitation.

The extraction or production stage is the actual removal of the deposit from the developed (cleared) benches. The major activities in this stage are drilling for quality control and blasting, ripping and dozing on ground followed by loading and hauling.

Blasted pozzolan materials from the bench will be loaded by either a wheel loader or power shovel excavator into a dump truck and/or Off Road Highway Truck and will be transported to the stockpile area. The cycle of drilling for quality control, blasting, excavation, loading and hauling continues until all programmed benches have been subjected for production and resource exhaustion.

3.1.2 Drilling and Blasting

Drilling and Blasting will be part of the production operation for hard ores. Blasting shall be performed in outmost care and with the highest degree of practice in safety. Only blasting contractor that has the most advance blasting technology, duly registered and has the necessary license from government agency shall be awarded with the contract.

Non-electric detonation will be use for the initiation of the blasting sequence. This is to minimize the effect of blasting such as air blast, excessive ground vibration and fly rock. To avoid any accident from happening, a strict blasting procedure will be followed in coordination with the contractor and the company.

3.1.3 Crushing Plant

A 1,000,000 MT/year capacity crushing plant will be constructed for Parcel I Project Area 2 Quarry Project and Parcel III Area C Quarry Project. Crushing involves reduction of the ore into sizes suitable for the client requirement.

Typical quarry cycle involves the following:

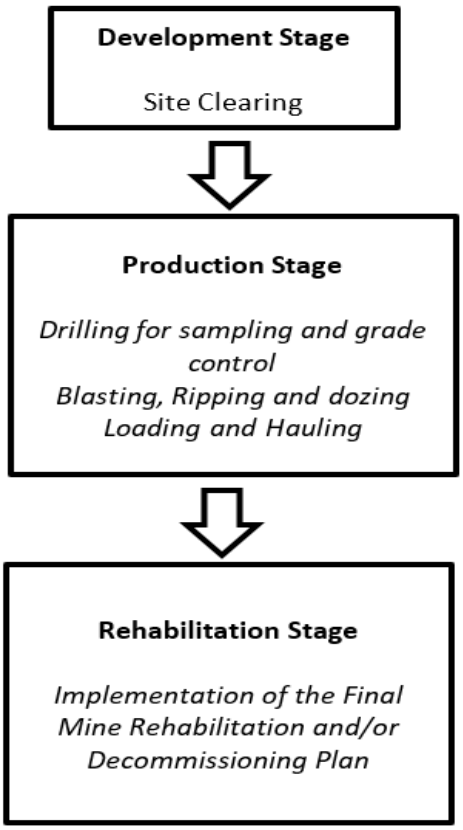
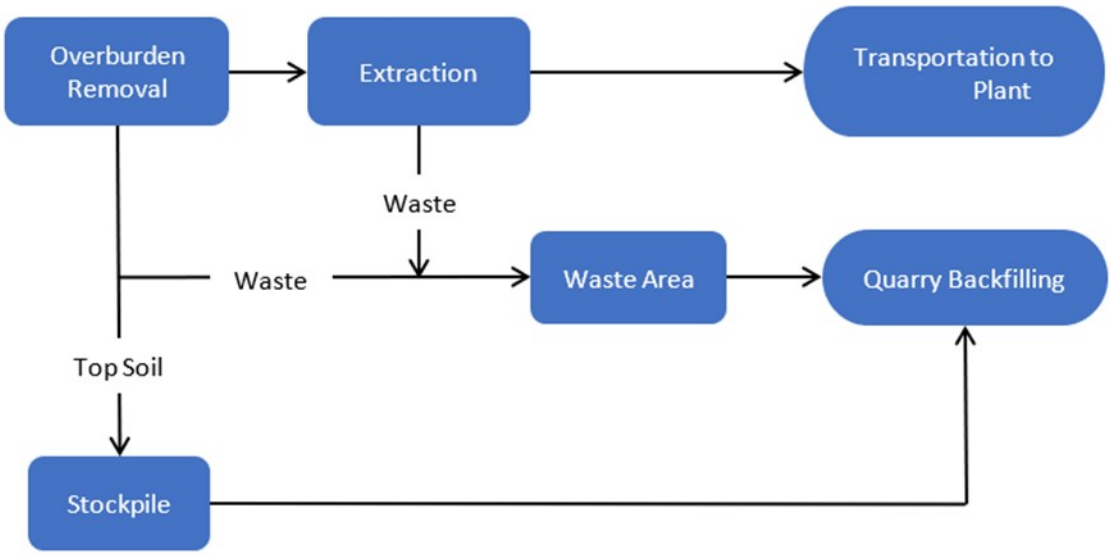


Figure 3.1. Quarrying Cycle

The process flow diagram of the quarry operation involves the following:



Basically, the topsoil extracted from the quarry area will be used as mixing ba , thus, generation of waste materials is considered to be very minimal.

1. **Primary Crushing**

Raw material is transported from the quarry using Off Road Dump Trucks and unloaded into the hopper of the primary crushing plants. Typically, the crushing operation is adjacent to the quarry. From the hopper, the material is brought to the primary jaw crushers via the apron feeder.

The boulders with a maximum size of 0.80 meter are initially crushed in the primary crushers to reduce the size down to 0.25 meter maximum and are conveyed to the surge pile by the jaw conveyor.

2. **Scalping**

Directly underneath the surge pile is an underground vibrating feeder which feeds the surge pile materials through a conveyor up to the initial screening stage known as the scalping screen.

Materials larger than the maximum scalping screen opening of 3" to 4" are conveyed to the secondary crushing stage while materials that passed through the 1½" to 2" screen go to the base course or the sub base course product stockpile.

3. **Secondary Crushing**

The secondary crushing is done using a cone crusher and after this stage, the materials are conveyed via the main conveyor going to the vibrating sizing screens.

4. **Screening/Sorting**

The process involves segregation of materials that were crushed into smaller particles and these reduced particles passed through the multi layered vibrating screens. From the screens, the materials are conveyed directly to the different finished product stockpiles.

The vibrating screens equipped with high-pressure water spray bars consist of four (4) decks of different wire screens control that screens and separate different sizes of aggregates. The oversize materials of the vibrating screens are then fed to tertiary crushers for further size reduction and are conveyed back to vibrating screens.

The first deck of the vibrating screen produces G-1 aggregates; the second deck is ¾" aggregates; the third deck is $^{3}/_{8"}$ aggregates; and the last deck is sand (S-1).

The sand in pulp is fed to the spiral classifier where a clean and higher quality of sand is separated from the water.

The overflow of the spiral classifier is discharged to the settling pond wherein the clear water is recycled to the Plants. The fine materials are recovered and mixed with base course materials.

5. Stockpiling of Finished Product

From the tertiary crushers, materials are conveyed back to the vibrating screens by the return conveyor and from the screens then to the individual finished product stockpiles via the stacker conveyor. The finished products namely, G-1, 3/4", 3/8" and S-1 are held in stockpiles ready for distribution.

The process flowsheet is shown in ***Figure*** 3.2.

3.1.4 Siltation Pond

A series of siltation pond will be constructed within the project area. Sediments shall be impounded from the first to the third pond in succession. The ponds shall be made of compacted earth, rock, and strategically placed adjacent to the quarry active area. Silt-laden runoff draining from the quarry area will be routed to the siltation pond to allow settling of silt materials. Effluent coming from the silt pond shall comply with applicable water quality standards prior to release to the nearby surface waters.

3.1.5 Stockpile Area

3.1.5.1 Stockpile Location

Stockpile locations will be subject to the following management actions.

- Grazing stock (Goats and cattle were observed on site during soil assessments by the Axceltechs EIA Assessment team), machinery and vehicles will be excluded.
- Overland water flow onto or across stockpile site will be kept to a practical minimum.
- Where possible, stockpile sites will be selected to maximize protection from `the prevailing winds, particularly if the material is friable in nature (e.g. sand or silt).

Establishing stockpiles within a buffer treed zone, may be appropriate for these circumstances.

- All long-term topsoil material stockpiles will be located outside the active mine path and away from drainage lines.
- Drainage from higher areas will be diverted around stockpile areas to prevent erosion.
- As required, sediment controls will be installed downstream of stockpile areas to collect any run-off.
- Topsoil stockpile locations will be strategically located to assist the sequence of future rehabilitation.

3.1.5.2 Stockpile Design

Separate stockpiles for the topsoil and subsoil will be formed in low mounds of minimum height (3 m maximum) and maximum flat surface area, consistent with the storage area available. Stockpiling using a greater number of low (<2 m high) mounds, rather than a few high spoil type dumps, is preferable. The reason for this is the weight and related compaction potential of the different types of soil.

Long term stockpiles will be revegetated to minimize loss of soil quality. Revegetating stockpiles will minimize weed infestation, maintain soil organic matter levels, maintain and or regaining the soil structure and, promote microbial activity and maximize the vegetative cover of the stockpile.

Stockpiles to be retained for a period greater than six months will be sown with a cover crop if a natural vegetative cover is not intended to be established. Topsoil stockpiles will be clearly signposted for easy identification and to avoid any inadvertent losses. The establishment of declared plants on the stockpiles will also be monitored and control programs implemented as required.

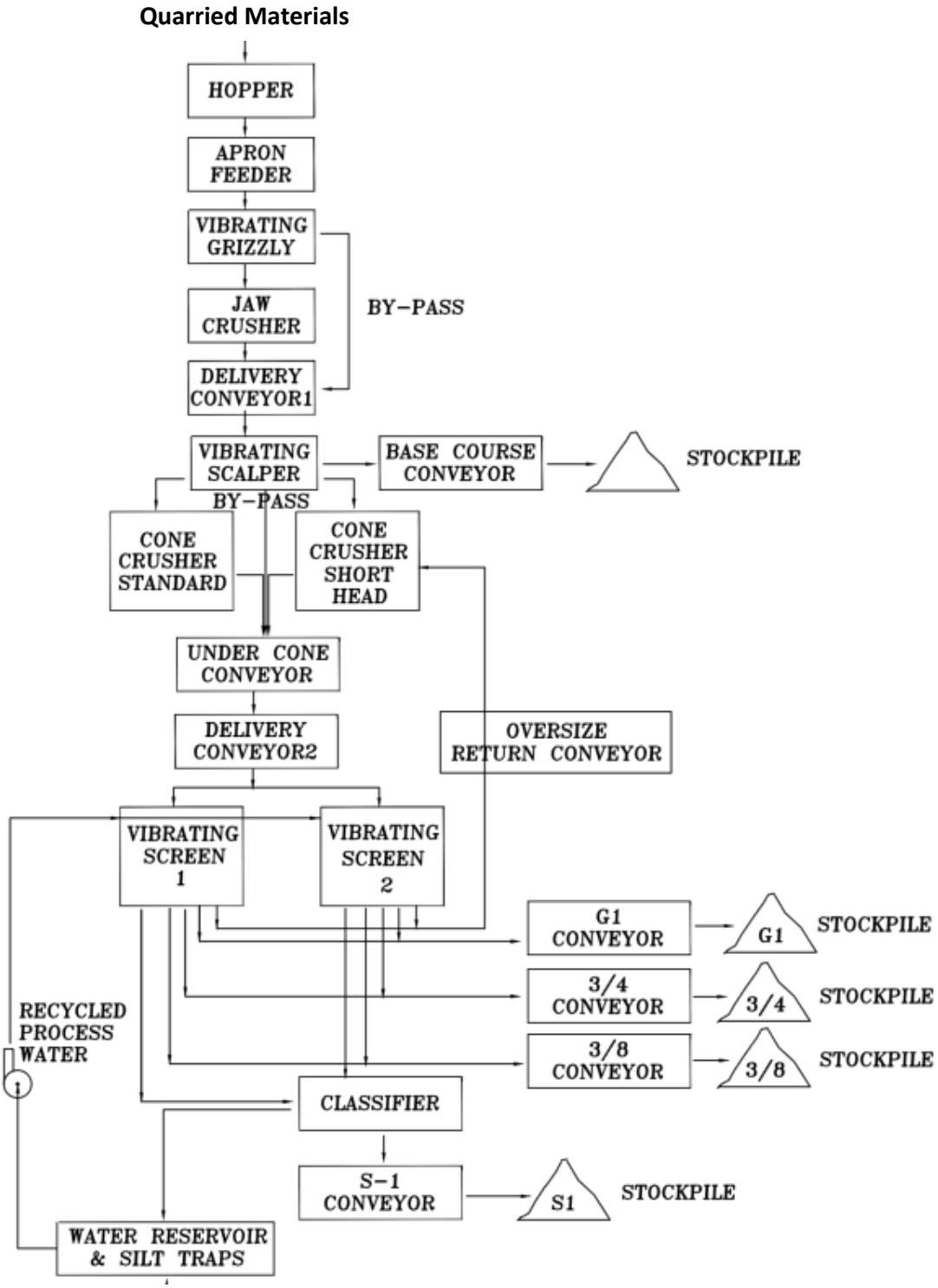
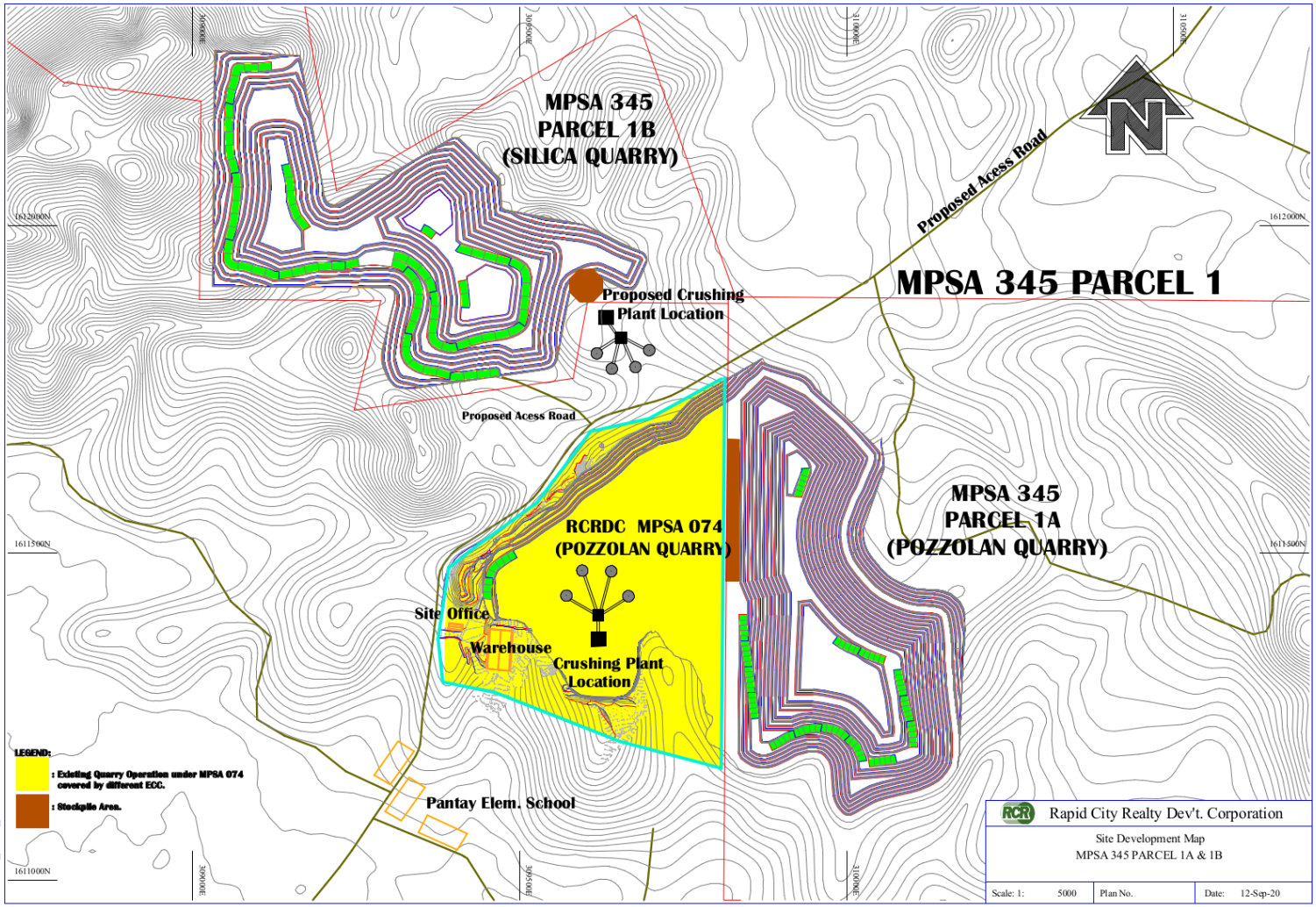


Figure 3.2. Aggregates Plant Material Flowsheet

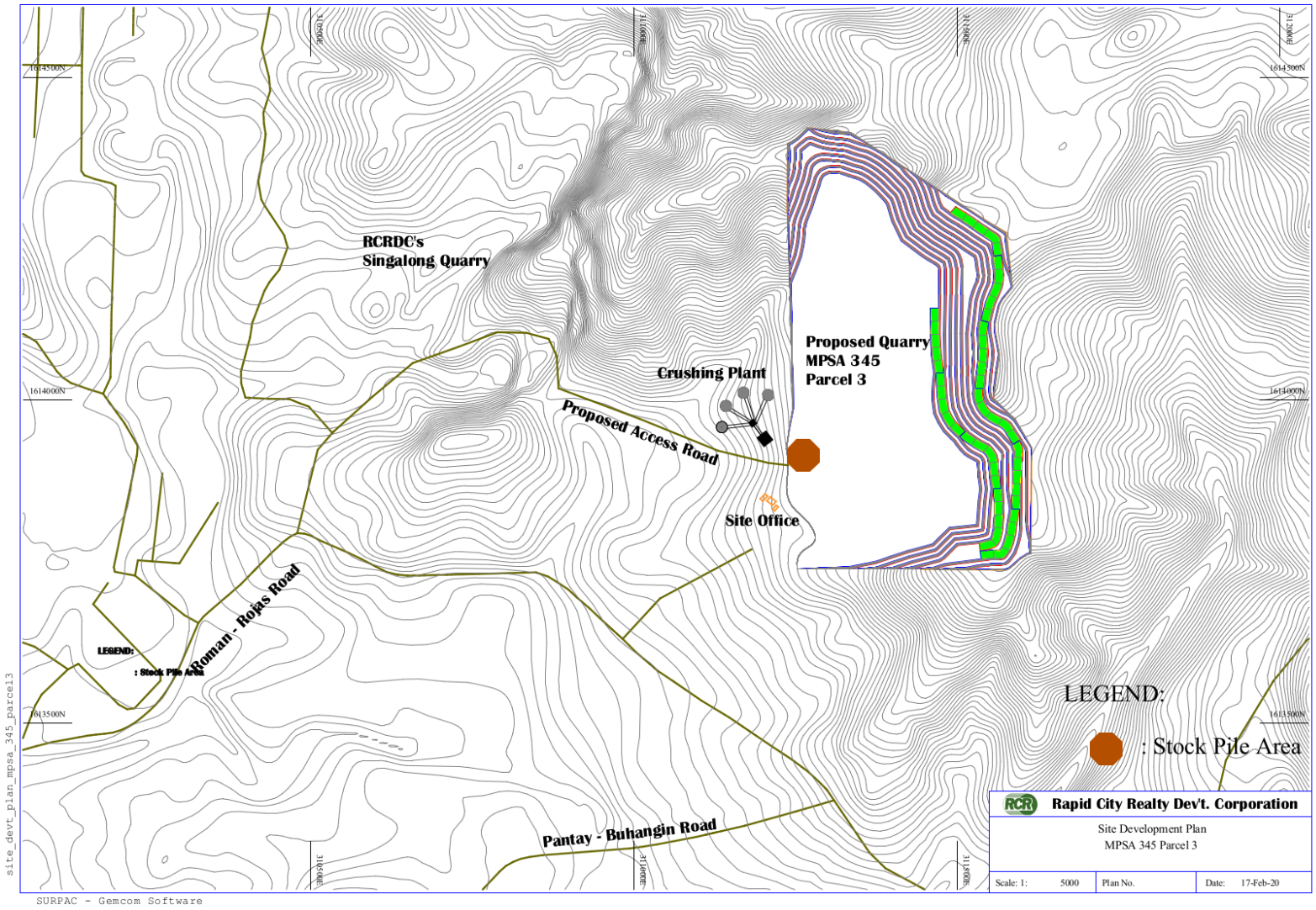
3.1.6 Access and Haul Roads

Quarry development will start from the construction of access/haul road within the quarry site, which is designed to facilitate opening of benches. The haul roads will be maintained at a width

of 15 meters or three times the width of the largest quarry equipment with a maximum grade of 8-12%. Pre-emptive measures through implementation of appropriate slope/ground failure monitoring plan will be adopted to identify any instability at an early, non-critical stage so that safety measures can be initiated to prevent or minimize impacts.



Site Development Map – Parcel 1



Site Development Map – Parcel 3

4.0 MAJOR IDENTIFIED IMPACTS AND MITIGATING MEASURES

EIA Study Module	*Impact*	*Mitigation*
Terrestrial Ecology	Loss of vegetation due to site clearing	– Progressive rehabilitation of disturbed areas
Land	– Loss of top soil due to ground/site preparation activities	– Rehabilitation/revegetation planning will be conducted in accordance with the EPEP
	– Increase in surface erosion and down slope sedimentation brought about by quarry development activities – Top soil removal – Change in topography due to blasting activity	– To minimize the impact on the natural topography, quarry activity will be conducted in conformance with the mining plan and bench parameter of at least 3m bench width and minimum of 10m bench height. – Erosion/ sedimentation controls will be installed to mitigate surface erosion and the consequent down slope or downstream sedimentation.
Water Quality	Siltation / degradation of surface water quality	– Construction of a drainage system connecting all drainage canals to a series of adequately-sized settling ponds. – Construction of drainage canals at the bench toe to prevent scouring or roads. – Regular desilting of settling ponds especially before and during the wet season. – Enhancement of the riparian ecosystem if applicable.
Air ad Noise	– Local increase in TSP, SOx, NOx and noise levels – Air pollution due to Quarry operation	– Proper and regular maintenance of equipment – Water spraying; quarry activities to be confined during daytime as much as possible

EIA Study Module	*Impact*	*Mitigation*
		– Strictly implement covering of hauling trucks and water spraying; – Preventive maintenance of vehicles and equipment – Imposition of speed limits – Provision of dust and noise PPEs to employees

5.0 LIST OF STAKEHOLDERS

- Brgy. Dalig
- Sitio Sumilang, Brgy. San Jose
- Municipality of Teresa
- Antipolo City
- Province of Rizal