1 Project Description

The proposed Masbate Gold Pit Expansion Project – Phase I involves the development and operation of the 23-ha Montana Extension Pit and the 34-ha Colorado-Bangon Stage 3 Waste Rock Dump.

This will entail an expansion in area and not production capacity of the Masbate Gold Project (MGP). The gold ore from the new pit will be treated at the existing and unchanged process plant. All other current facilities and infrastructure of the MGP such as power plant, raw water dam, workshops, road network, etc. will be used without modification. There are no foreseen changes in power and water requirements.

The proposed project will retain the processes and technologies of the MGP which are covered by Environmental Compliance Certificate (ECC) No. 9804-003-120C. These include open pit mining to extract the ore, cyanidation process to produce the gold dore, and pollution control facilities such as the tailings storage, decant water treatment plant, sewage treatment plants, oil-water separators, and sedimentation ponds. Likewise, existing mining equipment and personnel shall be utilized to implement the project.

2 Project Location

The proposed Montana Extension Pit will be located at Brgys. Bangon and Syndicate between the existing Gold Bug Low-Grade Stockpile and the partially rehabilitated Colorado-Bangon Stage 2 Waste Rock Dump. The Colorado-Bangon Stage 3 Waste Rock Dump, located in Brgy. Bangon, will rise from the Stage 2 and serve as its vertical extension. Both barangays are part of the Municipality of Aroroy, Province of Masbate.

3 Examination of Alternatives

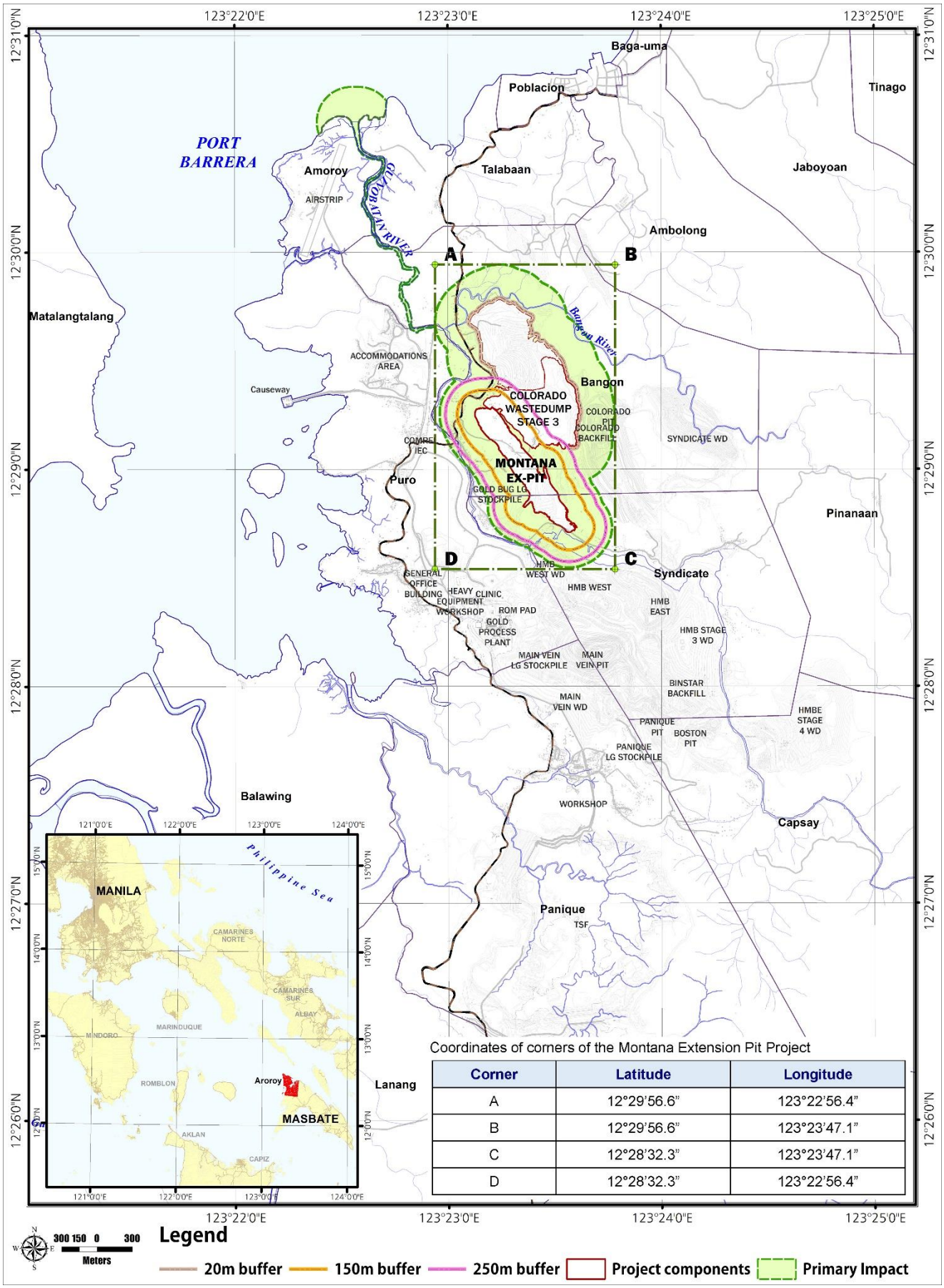
Maximized use of existing MGP facilities and infrastructures and minimized environmental impacts and risks guided the selection of the “best” alternative design and methodology for the proposed project.

With its advantages of being undertaken without impacting the surface and the generation of a much lesser volume of waste rocks, underground mining of the Montana Extension deposit was the preferred mining method. However, the ground conditions were found to be very poor and unsafe. Thus, the only viable alternative was open pit mining.

The analysis then focused on the mitigation of the impacts of open pit mining. Four sets of measures were identified:

1. Modifying the mode of extraction to maintain a safe distance from the roads and other civil works.

2. A mix of permanent and temporary resettlement – Those living within the footprint of the Pit and Dump up to a distance of 150 m from the pit edge and 30 m from the dump toe, i.e., the permanent exclusion zone (PEZ), will be permanently resettled. To mitigate their displacement, a Resettlement Action Plan with livelihood restoration will be implemented. The area from 150 m from the pit edge to 250 m, the temporary exclusion zone (TEZ), will be cleared of occupants only during blasting. The minimize inconvenience to the TEZ occupants, the frequency of blasting will be reduced to at least thrice a week and an Activity Center will be built for activities; training; information, education, and communication (IEC); and snacks and refreshments for the evacuees.



Coordinates of corners of the Montana Extension Pit Project

Corner	Latitude	Longitude
A	12°29'56.6"	123°22'56.4"
B	12°29'56.6"	123°23'47.1"
C	12°28'32.3"	123°23'47.1"
D	12°28'32.3"	123°22'56.4"

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3. To prevent fly rocks during blasting from hitting passing motorists, passengers, and vehicles along the adjacent stretch of the National Highway and the Syndicate Barangay Road, traffic will be temporarily stopped.
4. To mitigate visual impacts and for structural stability, the mined-out Pit and Dump will be rehabilitated immediately.

The open pit extraction will generate waste rocks aside from the ore. The best site for the waste rock dump in terms of minimized ground clearing and disturbance and distance from the pit is the Colorado-Bangon Stage 2 waste rock dump. An independent geotechnical assessment of the dump found it a safe and stable storage site for the waste rocks from the proposed pit.

Finally, for minimized environmental impacts and risks, especially those arising from construction, the project design sought to maximize the use of existing facilities and infrastructures of the MGP without modification.

4 Timeframe

From resettlement and ground preparation to operation and decommissioning, the proposed project will take five years to complete. The details are as follows.

Project Activities	Timing
Resettlement of households within the PEZ	Up to August 2018
Fencing, vegetation clearing, collection of topsoil, drainage works, construction of sediment control structures, and removal of weak materials and ground compaction for the waste rock dump	September to October 2018
Operation of the Montana Extension Pit and Colorado-Bangon Stage 3 Waste Rock Dump including progressive rehabilitation of the completed Dump layers	November 2018 to December 2020
• Decommissioning works, in-pit waste rock dumping, recontouring, soil conditioning, and revegetation of the Pit area • Rehabilitation of the last remaining Dump layer	2021
Monitoring and maintenance	2021 to 2023

5 Major Impacts and Residual Effects After Mitigation

The proposed project will have physical, biological, and human impacts. To manage the impacts, the project will follow the best-practice mitigation hierarchy of avoidance or prevention, minimization, rectification, and as a last resort, compensation. The following Table lays down the mitigation strategy for each major impact. Any post-mitigation residual impact is identified.

Impact	Mitigation	Residual Impact
Change in surface landform	Open Pit: • Backfilling of mined-out pit with waste rocks from the Colorado Pit • Placement of final soil cover, re-contouring, soil conditioning, and revegetation. Waste Rock Dump (WRD): • Flattening of slopes • Installation of rock drains and cross drains	The pit hole will be filled to a free draining surface and revegetated. The WRD will look like a natural hill.

Impact	Mitigation	Residual Impact
	• Placement of final soil cover, soil conditioning, cocomatting, and vegetation.	
Landslides and mudflows from the WRD	• Foundation preparation by removal of soft soil and benching of ground surface on slopes • Non-deposition of soft materials and large rocks in the outer part of the dump; compaction of soft materials by truck movement • Batter slope of 34^{o} for strict monitoring and enforcement; topsoil progressively placed on the final slopes and vegetated as soon as practicable; water ponding in the dump should not be allowed – a drainage system should be integrated in the proposed design; placement of boulders at the toe dump as protection against scouring	Landslides and mudflows are continually evolving risks. This requires regular monitoring through walkover assessment with written and photographed record of observations, survey network of benchmarks for monthly monitoring, and piezometric standpipes installed in at least one section line in the dump for groundwater pressure monitoring.
Acid mine drainage (AMD)	• Integration of AMD prevention, minimization, and control into the mining process • Early characterization and classification of the acid generation potential of materials to be mined through static and kinetic tests, implementation of strategies to minimize the oxidation of sulfides, and where AMD formation is inevitable, the implementation of suitable long term control and treatment technologies • Control measures include diversion of unpolluted surface runoff away from AMD or the diversion of AMD away from unpolluted water bodies, selective handling and placement of potentially acid-forming (PAF) materials in a location where exposure to air and water is limited, and if necessary, encapsulation of PAF materials with non-acid forming (NAF) • In case active treatment is necessary, use of caustic soda.	The prevention, minimization, and control procedures will, at worst, generate low volume and moderately acidic drainage. This is treatable by NaOH. The formation of precipitates during neutralization is limited due to the high solubility of sodium salts. Thus, the effluent will be of high quality.
Erosion and sedimentation	• Minimized ground disturbance • Recovery and application of topsoil in the buffer zones and MGP's plantation sites • Location of stockpile sites away from water courses and prohibition of indiscriminate dumping of spoils especially down the slopes • Whenever practicable, flattening of slopes and reduction of slope lengths by silt fence or terrace channeling • Ground cover techniques using cut foliage and branches, rocks, and synthetic materials like tarp. • Use of properly sized, graded, and lined stormwater management system – A diversion channel keeps clean runoff away from disturbed areas; a dirty water channel conveys the runoff through check dams, vegetative filters, and settling ponds.	Clays, i.e., soil particles with diameter less than 4 µm, suspended in the pond water may flow out.

Impact	Mitigation	Residual Impact
Limited loss of vegetation and wildlife habitats	• Minimized ground disturbance through strict ground clearing clearance procedures • Balling and transplanting of endemic species with diameter at breast height of at most 15 cm at the buffer zone • Revegetation of buffer zones and immediate rehabilitation of mined-out or non-usable areas with endemic species and special attention to the pattern and connectivity of habitat patches to support the movement of faunal species and the transfer of materials among the habitats.	A total of 51 ha will be cleared and developed. Vegetation is primarily grassland and shrubland with patches of coconuts, bananas, and root crops. Slow moving animals, i.e., amphibians, are the most threatened by vegetation clearings.
Dust	• Minimized ground clearings and disturbance and good scheduling of works • Observance of speed limits • Surface graveling of roads to reduce the source of dust emission • Wet suppression at loading and processing areas and water sprays of roads. In anticipation of longer dry periods due to climate change, evaluation, trials, and if suitable, use of chemical dust suppressant or soil binder. • Revegetated buffer zones and other covers and fences • Immediate rehabilitation of mined-out or non-usable area.	Dust will be generated during blasting at the open pit, loading and unloading at the open pit and WRD, and movement of trucks at the roads. The last two are controllable with persistent wet suppression and water sprays. The first one is hard to control. Except during high windy days, the effects are usually localized.
Noise	• Minimized disturbance and good scheduling of works • Restriction of noisy activities during the “busy” and not resting hours of the day • Observance of speed limits • Use of less noisy and shielded equipment and mufflers • Regular maintenance and immediate repairs of equipment • Revegetated buffer zones, bund walls, and enclosures • Use of smart alarms to minimize noise of reversing alarms • Implementation of an effective community liaison program.	Excessive noise, especially during early days and at working areas close to residences, will always be a risk. Thus, an effective community liaison program is a must.
Fly rocks, vibration, and air-blast	• Reduction of maximum instantaneous charge by using delays, reduced hole diameter, and/or deck loading • Change of explosives burden and spacing by altering the drilling pattern, delay layout, or hole inclination • Ensuring that stemming depth and type are adequate • Elimination of exposed detonating cord and secondary blasting • Special care with broken face and use of deck loading where appropriate to avoid broken ground or cavities in the face.	These are risks which can only be reduced.

Impact	Mitigation	Residual Impact
	• Sounding of siren and clearing of and restricting access to blast area and safety buffer zone • Suspension of vehicular traffic within the buffer zone during blasting • Regular community information and consultation program.	
Physical and economic displacement	• Limiting the physical displacement of households by establishing a PEZ and a TEZ • Relocation of all households and structures within the PEZ to a resettlement site. A Resettlement Action Plan (RAP) to address the physical and economic displacement will be developed in consultation with the households and funded by FRC. • People living inside the TEZ to vacate their residences at least thrice a week during blasting. Food and cash incentive may be given. They will be brought to an Activity Center for activities; training; information, education, and communication (IEC); and snacks and refreshments.	Around 296 households and 364 structures will be physically displaced. A total of 1,187 small-scale miners residing or working inside the PEZ will be affected.
Risk of fly rocks to motorists, commuters, and pedestrians during blasting along stretches of the National Highway and Syndicate Barangay Road within 250 m from the pit edge	• The road users will be asked to wait at a safe area until the blast is completed. • Food and cash based on the waiting time and hourly minimum wage may be given.	Inconvenience to affected motorists, commuters, and pedestrians.

6 Project Proponent and Capability

Proponent Name	Filminera Resources Corporation (FRC)
Contact Details	
Authorized Representative	Sulpicio B. Bernardo III
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EIA Preparer	BMP Environment & Community Care, Inc. (BMP)
Contact Details	
Contact Person	Rolando V. Cuaño, Ph.D.
Designation	President
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FRC holds the mining tenements and is responsible for the mining of gold ore. Phil. Gold Processing & Refining Corp. (PGPRC) buys the gold ore from FRC and operates the process plant.

FRC, PGPRC, and their contractors have operated the MGP since 2009. Until 2017, the MGP provided the following socio-economic benefits:

- Employment to an average of 1,881 personnel annually, of which 1,259 or 67% are Aroroy residents
- Total taxes and fees paid by FRC and PGPRC to the local and national government of P 1.087 billion and P 5.769 billion, or a total of P 6.857 billion.
- Total expenditures under the Social Development and Management Program (SDMP) of P 380.9 million for infrastructure, education, health, livelihood, and culture to the eight host barangays of Amoroy, Balawing, Bangon, Capsay, Lanang, Panique, Puro, and Syndicate.
- Beginning 2014, the SDMP was expanded to assist the other 33 neighboring barangays of Aroroy Municipality. Total expenditure for these barangays until 2017 reached P 68.3 million.
- The MGP also spent P 43.5 million for community development in areas outside of Aroroy.

Compliance by the MGP with the ECC conditions and approved environmental, safety and health, and social management plans is evaluated quarterly by the Multi-Partite Monitoring Team (MMT) through a site visit, works and facility assessment, and sampling of the air, noise, and water. The MMT is composed of officials from the Regional Offices of the Mines and Geosciences Bureau (MGB) and Environmental Management Bureau (EMB), Provincial Environment and Natural Resources Offices (PENRO) of DENR Masbate and the Provincial Local Government of Masbate, and Aroroy Municipal Officials, namely, the Municipal Health Officer, Municipal Agricultural Officer, and Municipal Environment and Natural Resources Officer. In all of its Quarterly Compliance Monitoring and Verification Reports (CMVRs) from 2011 to 2017, the MMT reported compliance by the MGP with all ECC conditions.

7 Information on EPRMP Availability

The project's Environmental Performance Report and Management Plan (EPRMP) is downloadable at the EMB website www.eia.emb.gov.ph, through the Notice of Public Hearing/Consultation link. The hard copies of this document, EIS Summary for the Public, and the EPRMP are available in the following offices:

- EIA Management Division Office of the EMB
  DENR Compound, Visayas Avenue, Diliman, Quezon City
- EMB Region 5
  Regional Center Site, Rawis, Legazpi City
- Municipal Planning and Development Office
  Municipality of Aroroy, Province of Masbate