SHERIMA QUARRY INC PROJECT

EXPLORATION SUMMARY REPORT AND MINE PLAN

SHERIMA, ESSEQUIBO RIVER

Effective Date: September 8, 2021

Report Date: September 9, 2021

Prepared for
Debarah DeFreitas., Georgetown, Guyana

Report Prepared by

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Contents

1.0 SUMMARY

The Defreitas Sherima Quarry Permit is a stone aggregate project located at Kumaka, in the Mazaruni Mining district, county of Essequibo, Guyana, approximately 85 air kilometers SSW of the capital city of Georgetown, Guyana, S.A. Current access to the Permit is mainly by river namely from Parika on the Essequibo River to the project area located just South of the Sherima Landing, on the Left bank of the Essequibo River. Total travel time is ~3.5 hours. The Defreitas Sherima Quarry Permit comprised of one mining permit and the area under tenure totals 1,100 acres/4.45 sq kilometers.

Locally the geology of the area consists of the Bartica Gneiss Complex which has been intruded by the younger granites of the Kartabu Granite suite to the south-west of the proposed area with the metabasic rocks to the Northwest. The rocks within the proposed area consist essentially of biotite gneisses, gabbro and diorite (Cannon, 1964[1]). Mapping has identified a gabbroic dyke trending NE, ~100m wide along with multiple outcrops of the gneiss to the NW and SE.

Exploration work comprising of mapping and prospecting along creeks, ravines, ridge & spurs and access roads where available, where outcrops of two rock units namely the gabbro and gneiss were found within the Permit. A total of 12 outcrop samples were mapped with 6 grab samples of the Gabbro collected along with 6 samples of the gneiss (mostly weathered). Drainage, structures, road access along with target area for drilling were compiled and identified during the field exercise. Observations within the creeks and ravines showed that the overburden (saprolite) varied in thickness from 8-10m with a sand cover ~8m thick in some areas.

Based on the interpreted data, it is inferred that the Defreitas Sherima Quarry permit currently has a quarriable resource of **~0.89 million** tons of Gabbro with the mining pit (PIT) for phase 1, an inferred resource of **~0.7 million** tons of Gabbro with an estimated cost of **~USD$880,000** to bring the quarry into production with a production rate of **~140,000 tons per year (The gneiss which is estimated at 0.927 million tons is basement and not used in the resource but will be**

[1] Cannon, R.T, Geological Map Saxacalli to Omai, Essequibo River

mined at a later stage). It is recommended that a drilling program be carried out to confirm the locally interpreted geology along with the overburden thickness for the Saprolite/White sand and to establish a Reserve for the permit.

The production of Stone aggregates from the Defreitas Sherima Quarry project will be mainly for the local Guyana Market and will be sold locally within the construction industry, targeting the building of the Mabura/Lethem, Bartica and Regions 3 & 4 roads, housing and cement production.

Quarry Potential for Mining Permit

H-1048/MP/000 – Gabbro and Gneiss resource with an inferred resource of 1.8 million tons of stone aggregates (0.89 million tons Gabbro & 0.92 million tons Gneiss). Drilling will be needed to expand resource and confirm overburden depth. Proposed mining Pit is estimated to host ~0.7 million tons of gabbro stone aggregate with a mine plan proposed.

1.1 ACCESSIBILITY, PROPERTY DESCRIPTION, CLIMATE AND INFRASTRUCTURE

The Defreitas Sherima Quarry permit is located within the Mazaruni Mining district, county of Essequibo, Guyana, approximately 85 air kilometers SSW of the capital city of Georgetown, Guyana, S.A as the crow flies (Figure 1). Current access to the Permit is by via 4WD road from Linden to Rockstone, crossing the Essequibo River via Sherima to the project located on the left bank of the Essequibo River. Total travel time is ~3.5 hours will depend on state of all-terrain Linden/Rockstone access road (Figure 2). Alternative access is by river namely from Parika on the Essequibo River to the project area, ~500m from the Sherima river crossing.

Georgetown is the capital city of Guyana and is located at the mouth of the Demerara River where it discharges into the Caribbean Sea. The nearest commercial center to the Defreitas Sherima Quarry Permit is Bartica (Figure 2) where resupplies, basic and heavy equipment, parts along with fuel can be sourced. Equipment can be transported via “low-bed” or “TM” trucks from Georgetown to the Permit via linden.

Georgetown is a modern urban center with good road and air connections to the rest of the

Caribbean and the United States. There are regular scheduled flights to New York, Trinidad, Toronto and other major cities several times daily.

The Permit are covered by virgin tropical rainforest except for areas of mining and logging activities where trees were felled for use as mining timbers and local market. The general topography is low relief with large rainforest trees. The Timetikuru creek runs through the northern section of the Permit with the confluence of the Hubudi creek and the Essequibo River to the South.

Temperatures range from the about 23-25°C at night to 28-32°C during the day. The area is very humid with relative humidity rarely less than 70%.

Annual precipitation is in the order of 2,000 mm[2]. Although rain falls throughout the year, about 50 percent of the annual total arrives in the summer rainy season that in the regional area extends from April-May to the end of June. There is a second rainy season from November through January. Rain generally falls in heavy afternoon showers or thunderstorms. Overcast days are rare; most days include four to eight hours of sunshine from morning through early afternoon.

Climate and Length of Operating Season

There is only sparse temperature, precipitation, and humidity data available from the meteorological station at Bartica and Linden. The average temperature on site is estimated to be 26ºC, with minimum and maximum recorded temperatures of 18ºC and 36ºC, respectively. Humidity is relatively high with values ranging between 64% and 100% and an average value of 82%. Monthly average rainfall values have been estimated from the data seen from the Bartica station. The precipitation records gave an average annual precipitation of 2,620

mm. A wet season occurs in December to February and a second wet period in May to July of each year. Although exploration drilling can be carried out on a year-round basis, the dry season from July to November is the most advantageous time to carry out exploratory surveys such as mapping/sampling, drilling and geophysical surveys.

[2] Guyana Hydrometeorological Service

Infrastructure Availability and Sources

Proximity to Population Center

With the exception of some small temporary mining and logging camps along the river and the road to Mahdia and the Sherima crossing checkpoint, there are no significant population centers close to the mining Permit (Rockstone community is ~18km SE from the Permit as the crow flies). The closest town Linden is ~36 km away to the southeast. Georgetown is ~114 km away by road.

Power

There is no nearby electricity grid. Permanent power is currently generated within the general area by thermal power generators.

Water

Water for mining is readily available throughout the year from the Essequibo River and Timetikuru creek if needed, catchment ponds and from rainfall run-off.

Mining Personnel

Laborers with a variety of experience in heavy equipment operation are available in Georgetown, Linden, Bartica and Rockstone community.

Formal Boundary Description

A Tract of state land located in the Mazaruni Mining District No. 3 as shown on Terra Surveys Topographic Map 27SE, within the following boundaries;

Commencing from a reference point located at **Sherima Landing** located at geographical coordinates of longitude **58°34'16.7"W** and latitude **6°09'15.1''N**, thence at true bearing of **282°**, for a distance of approximately **1.67 miles** to **Point 1**, located at geographical coordinates of longitude **58°35'45''W** and latitude **6°9'24''N**, thence at true bearing of **180°**, for a distance of approximately **1 mile 541 yards**, to **Point 2**, located at geographical coordinates of longitude **58°35'46''W** and latitude **6°8'16''N**, thence at true bearing of **90°**, for a distance of approximately **1 mile 234 yards**, to **Point 3**, located at geographical coordinates of longitude **58°34'46''W** and latitude **6°8'16''N**, thence at true bearing of **34°**, for a distance

of approximately **219 yards**, to **Point 4**, located at geographical coordinates of longitude **58°34'43''W** and latitude **6°8'21''N**, thence at true bearing of **4°**, for a distance of approximately **828 yards**, to **Point 5**, located at geographical coordinates of longitude **58°34'44''W** and latitude **6°8'46''N**, thence at true bearing of **26°**, for a distance of approximately **133 yards**, to **Point 6**, located at geographical coordinates of longitude **58°34'43''W** and latitude **6°8'49''N**, thence at true bearing of **49°**, for a distance of approximately **128 yards**, to **Point 7**, located at geographical coordinates of longitude **58°34'40''W** and latitude **6°8'52''N**, thence at true bearing of **29°**, for a distance of approximately **263 yards**, to **Point 8**, located at geographical coordinates of longitude **58°34'36''W** and latitude **6°8'59''N**, thence at true bearing of **22°**, for a distance of approximately **264 yards**, to **Point 9**, located at geographical coordinates of longitude **58°34'33''W** and latitude **6°9'6''N**, thence at true bearing of **49°**, for a distance of approximately **301 yards**, to **Point 10**, located at geographical coordinates of longitude **58°34'26''W** and latitude **6°9'12''N**, thence at true bearing of **83°**, for a distance of approximately **55 yards**, to **Point 11**, located at geographical coordinates of longitude **58°34'25''W** and latitude **6°9'12''N**, thence at true bearing of **105°**, for a distance of approximately **174 yards**, to **Point 12**, located at geographical coordinates of longitude **58°34'20''W** and latitude **6°9'11''N**, thence at true bearing of **35°**, for a distance of approximately **157 yards**, to **Point 13**, located at geographical coordinates of longitude **58°34'17''W** and latitude **6°9'15''N**, thence at true bearing of **35°**, for a distance of approximately **382 yards**, to **Point 14**, located at geographical coordinates of longitude **58°34'23''W** and latitude **6°9'24''N**, thence at true bearing of **90°**, for a distance of approximately **1 mile 989 yards**, to the point of commencement at **Point 1**, thus enclosing an area of approximately **1,100 acres**, save and except all lands lawfully held or occupied.

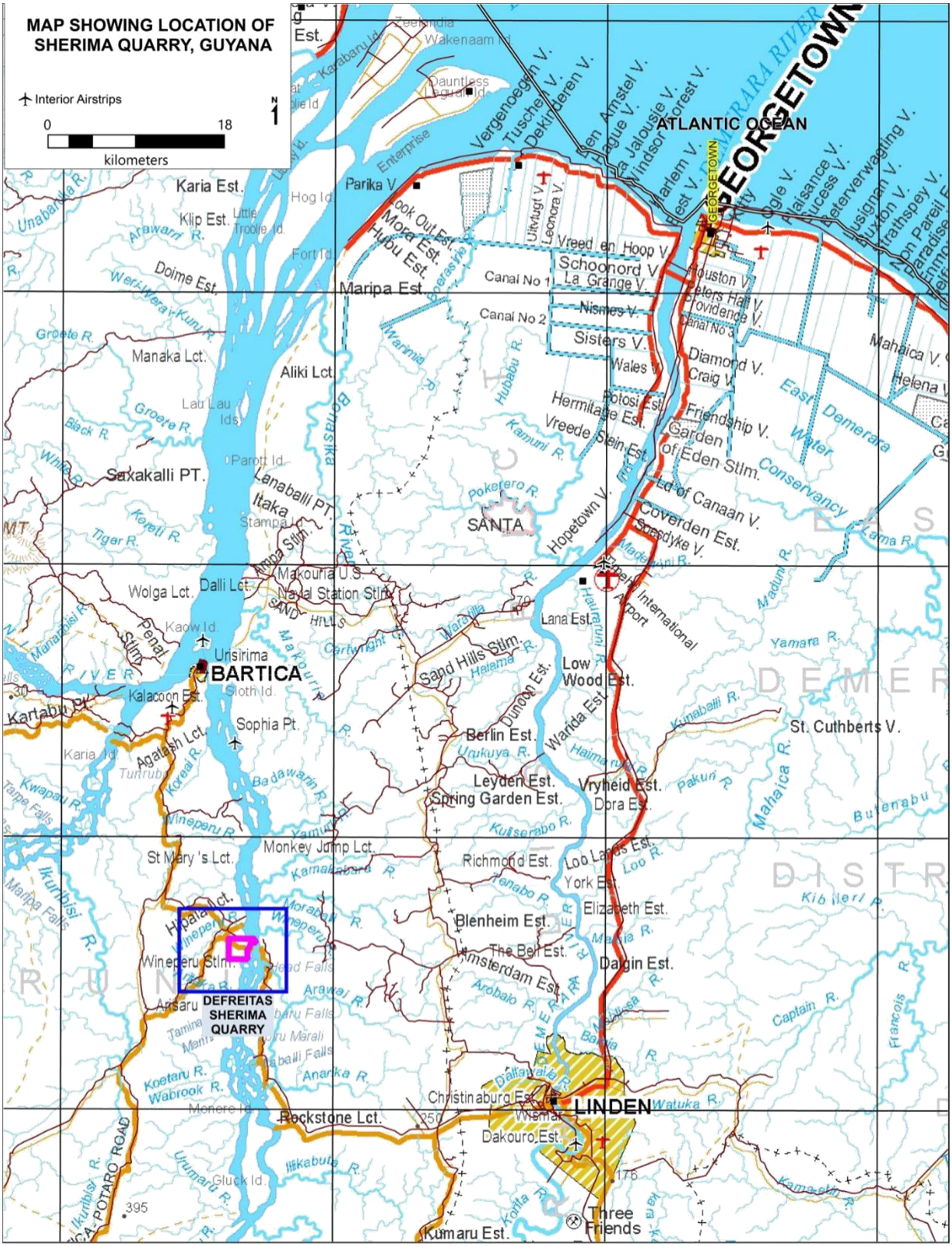


Figure 1: Access Map Defreitas Sherima Quarry Permit

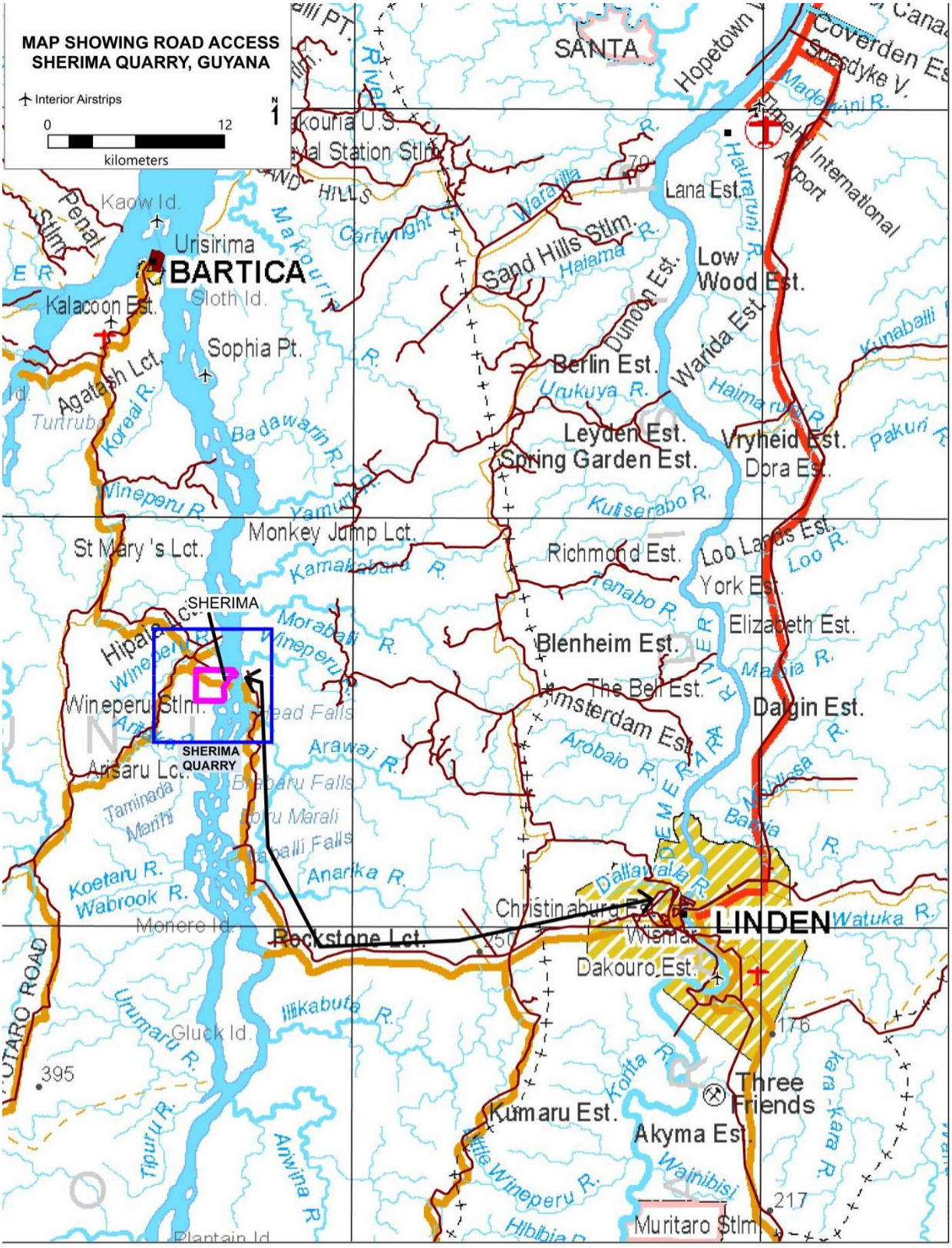


Figure 2: Road Access Map Defreitas Sherima Quarry Permit

1.2 OWNERSHIP

The Defreitas Sherima Quarry Permit is a medium scale Permit located on the left bank of the Essequibo River and the area under tenure totals 1,100 acres/ 4.45 sq kilometers. The permit cover sections of the Timetikuru creek and the confluence of the Hubudi creek. In Guyana, all mineral rights are vested in the state. Mineral policy is administered by the Ministry of Natural Resources and the Environment and the Commissioner of the Guyana Geology and Mines Commission (GGMC). The GGMC was created by legislative act in 1978 and later in the year amended to the current "Mining Act 1989". The Mineral title for the Permit is held in the name of Anita Hopkinson (Table 1) who has a buyout agreement with Debarah Defreitas. The boundary and corners of the Permit have been located on the ground utilizing GPS technology in accordance with GGMC Standards and checks with Land Management at GGMC shows that the Permit are in good standing and valid.

File_no	Applicant	Mineral_type	Permit_type	Status	Sheet_no	Acreage
H-1048/MP/000/21	Anita Hopkinson	Quarriable Stones	Mining Permit	GRNT	27SE	1100

Table 1: Table showing Details of Defreitas Sherima Quarry Mining Permit

1.3 GEOLOGIC SETTING; REGIONAL AND LOCAL GEOLOGY

The Defreitas Sherima Quarry permit is located within the Guyana Shield in northern South America as shown in Figure 3. The shield covers easternmost Colombia, southeastern Venezuela, Guyana, Suriname, French Guiana, and northeastern Brazil. The Guyana portion of the shield is subdivided geologically into a Northern and a Southern geologic province at a latitude of approximately 4.5 degrees north. The Northern Province is composed of a basement suite of rocks ranging in age from Archean to early Proterozoic, roughly between 2.12 and 1.9 billion

years of age[3]. These rocks appear to have been deposited in marine troughs that were filled with offshore sedimentary and volcanic deposits. Subsequent to their deposition, the troughs were compressed and metamorphosed into greenstone belts with associated mineralizing events, resulting in an auriferous terrain throughout most of northern South America in all rocks of this geologic age.

The Guiana Shield is a Paleo-Proterozoic granite-greenstone terrane forming the northern part of the Amazon craton. Subdivisions of the Amazon craton are based upon age determinations, lithologies, structural and geophysical trends. It is one of the largest cratonic areas in the world covering an area of about 4.3 x 105 km.

The metavolcanics, metabasic and metasedimentary greenstone belts forming the Guiana shield are in the Pastora-Amapa Province (2.2 Ga to 1.95 Ga) and subdivided into the Barama-Mazaruni Supergroup metasedimentary / greenstone terrane intercalated with Archean-Proterozoic gneisses. These rocks are intruded by Trans-Amazonian granites and mafic to ultramafic intrusions which the Bartica assemblage is part of[4](Figure 3).

[3] **Gibbs, A.K. and Barron, C.N., 1993:** The Geology of the Guiana Shield: New York, Oxford University Press, Oxford Monographs on Geology and Geophysics 22, 246 p

[4] **Voicu G., Bardoux M, Jébrak M. and Crépeau R., (1999):** "Structural, Mineralogical, and Geochemical Studies of the Paleoproterozoic Omai Gold Deposit, Guyana", Econ. Geol. V94, 1277-1304.

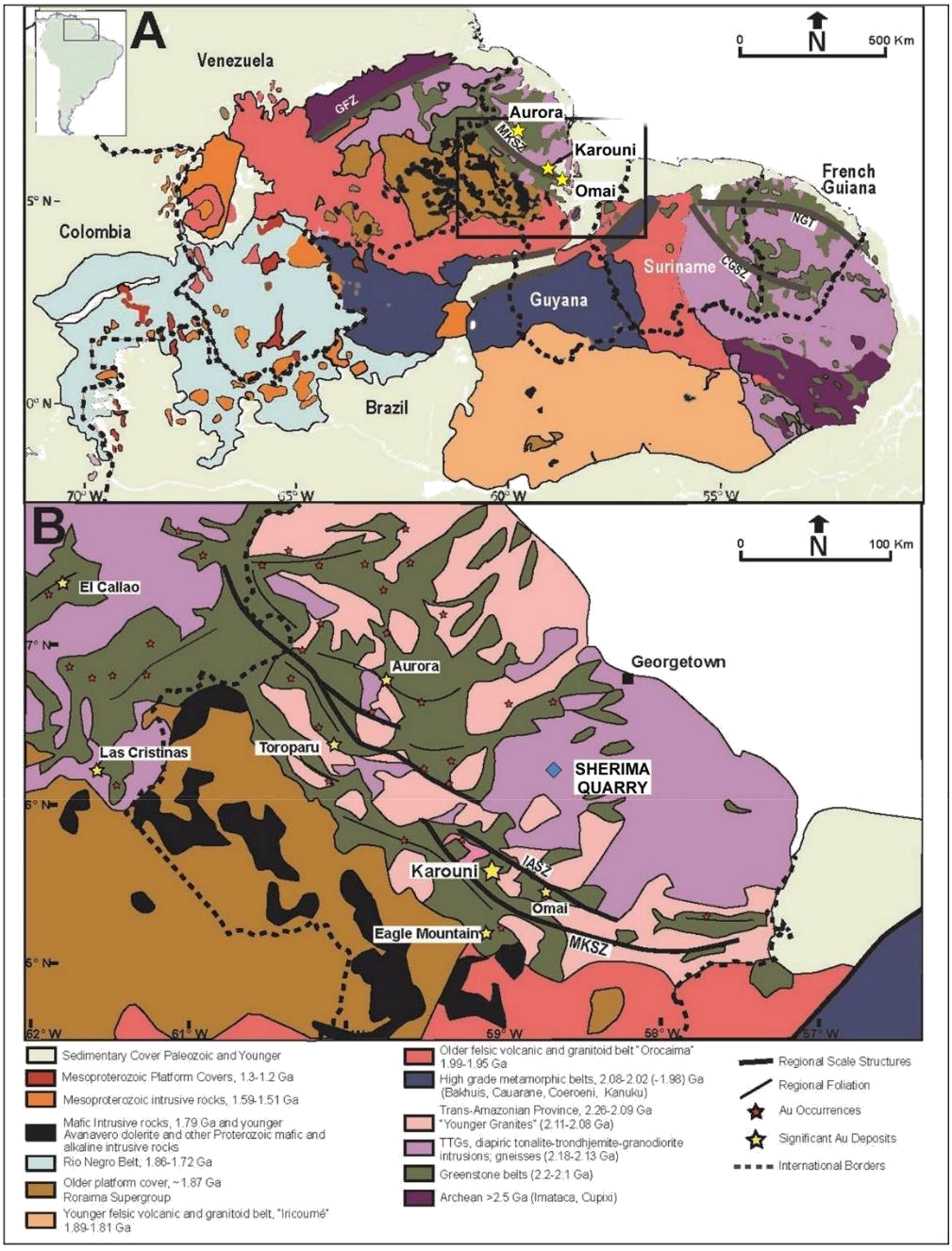


Figure 3: Regional Geology and Deposits, Guyana[5]

[5] A) Geology of the Guiana Shield (taken and modified from Tedeschi et al., 2018). B) Geology of northern Guyana highlighting major Mineral deposits, showing Defreitas Quarry location. Modified from the geologic maps of Guyana (Walrond, 1987), Suriname (Bosma et al., 1978), and Venezuela (Hackley et al., 2005). D. Abbreviations: CGSZ = Central Guiana shear zone, GFZ = Guri fault zone, IASZ = Issano-Appapari shear zone, MKSZ = Makapa-Kuribrong shear zone, NGT = Northern Guiana trough, TTG = tonalite-trondhjemite-granodiorite.

The regional geological map is a compilation of work by different authors spanning a significant period of time. Rock type descriptions are necessarily general and used to identify large-scale differences between meta-sedimentary, meta-basic and meta-volcanic horizons within greenstone belts. These observations are limited by poor exposure due to intense tropical weathering obscuring primary mineralogy and mineral fabrics[6].

The rocks within the proposed area consist essentially of gabbro and gneiss with the gneiss more readable identifiable on a regional scale (Figure 4). Mapping to date has identified a potential gabbroic dyke ~300 m x 100m (inferred from Outcrop data) tending NE along with multiple outcrops of gneiss (Figure 6).

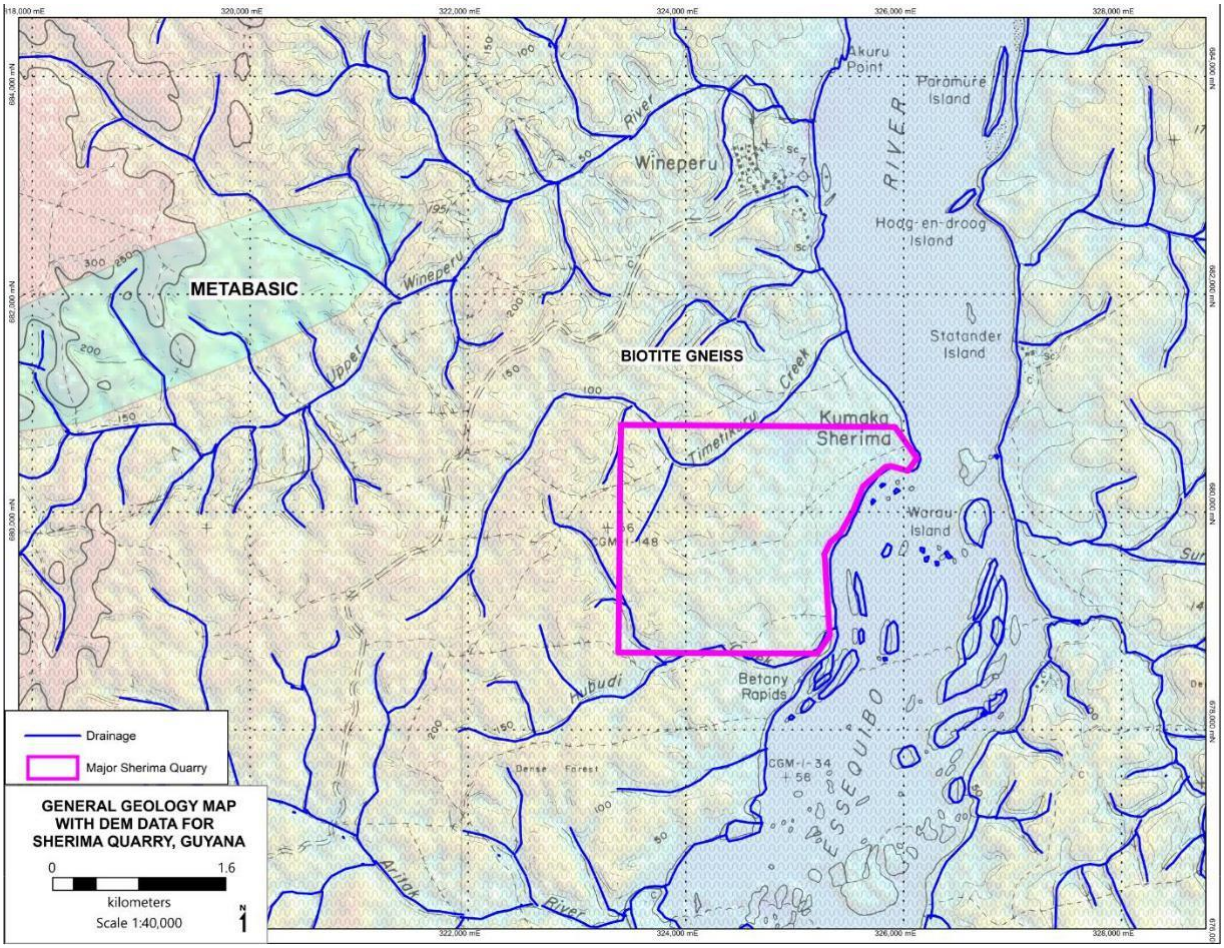


Figure 4: Regionally Geology map for Kumaka area, Defreitas Sherima Quarry permit

[6] Annual Report 1969, Geological Survey of British Guyana.

Three dominant structural fabrics are recognized in Guyana, a system of significant east-west, northwest-southeast and northeast-southwest structures. The regional magnetic survey data is sufficient to interpret structural features at the property scale with NE-SW, N and NW-SE lineaments (Figure 5) noted within the general area. These structures, mainly the NE trending are used in interpreting the small gabbroic dykes which are noted to follow this trend.

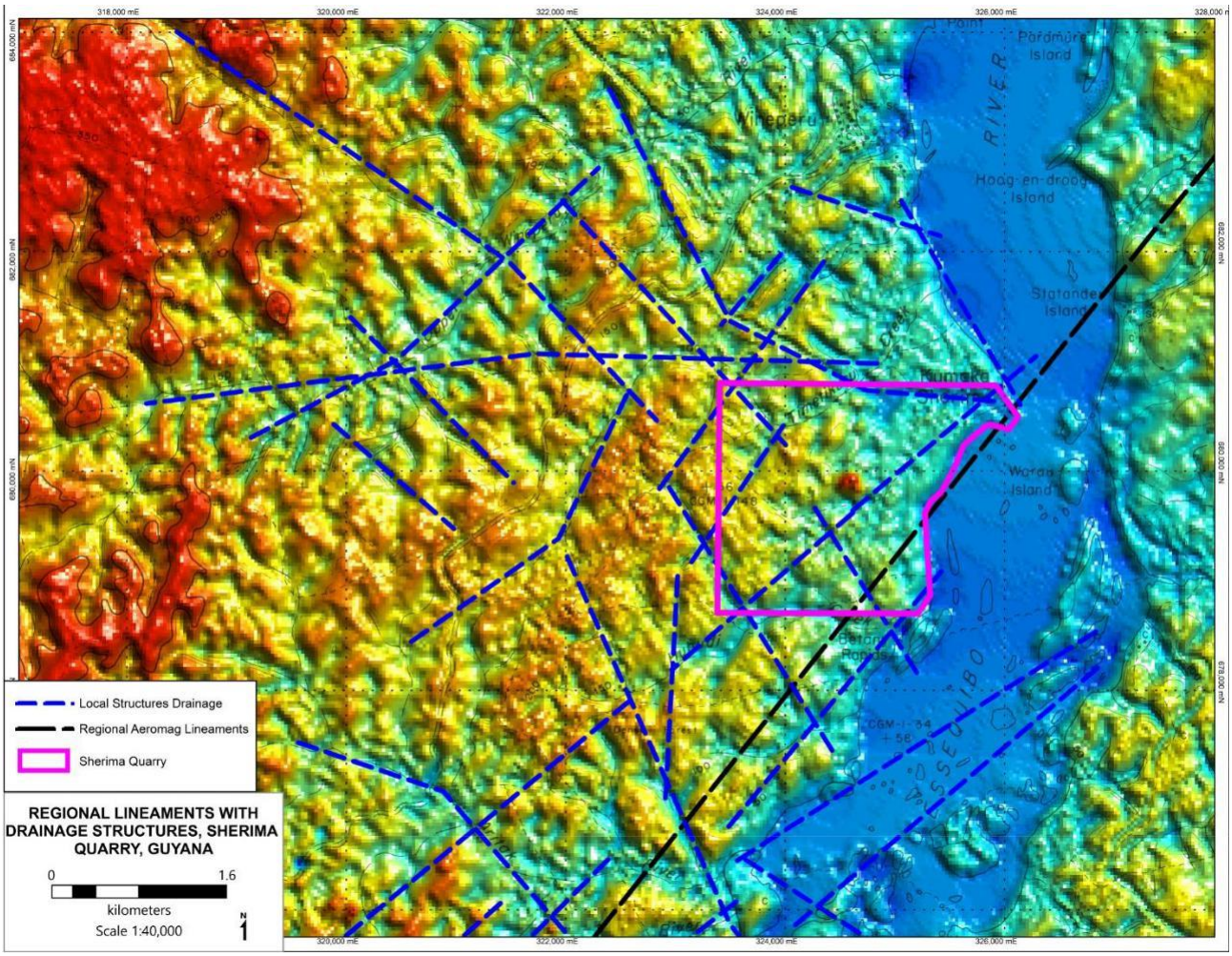


Figure 5: Regional Lineaments structure map for Defreitas Sherima Quarry area

Locally within the Defreitas Sherima Quarry Permit area based on field mapping and outcrop data, the general geology is the Gneiss of the Bartica complex, which are intruded by younger granites (just SW of the permit lower boundary), then by a gabbro-norite dykes which are all

overlain by saprolite with Fe-rich duricrust (formed from the weathering of the mafic dyke) in some sections and white sand (Figure 6).

Thus, the Geologic sequence would be interpreted as follows:

- Deposition of the greenstone basement, medium to fine grained.
- Intrusion produced by a granodiorite pluton, producing metamorphism in the volcanic sequence (metavolcanism), alteration by sericite, carbonate, epidote, biotite, deformation (folding and shearing).
- Intense erosion of the greenstone basement rocks.
- Structural events that produce shearing and faulting, tension, and compression with ductile-brittle features in the host rocks (the greenstone basement and the granodiorite) with the intrusion of small mafic dykes(gabbro-norite). These structural events with general trend NE-SW, N and NW-SE generate Graben/Horst and Fold structures in regional area, as a part of a sequential fault and folding system.
- The erosion process continues. During all the erosion processes, first a mechanical and later chemical, the silica within the gneiss/granodiorite weathers to sand which contributes to the White sand series[7] seen within the regional area and the Fe from the mafic dykes forming an Fe-rich duricrust.

[7] Bleackley D, 1957; Geomorphology, Observations and Geological history of the Coastal plain of British Guiana

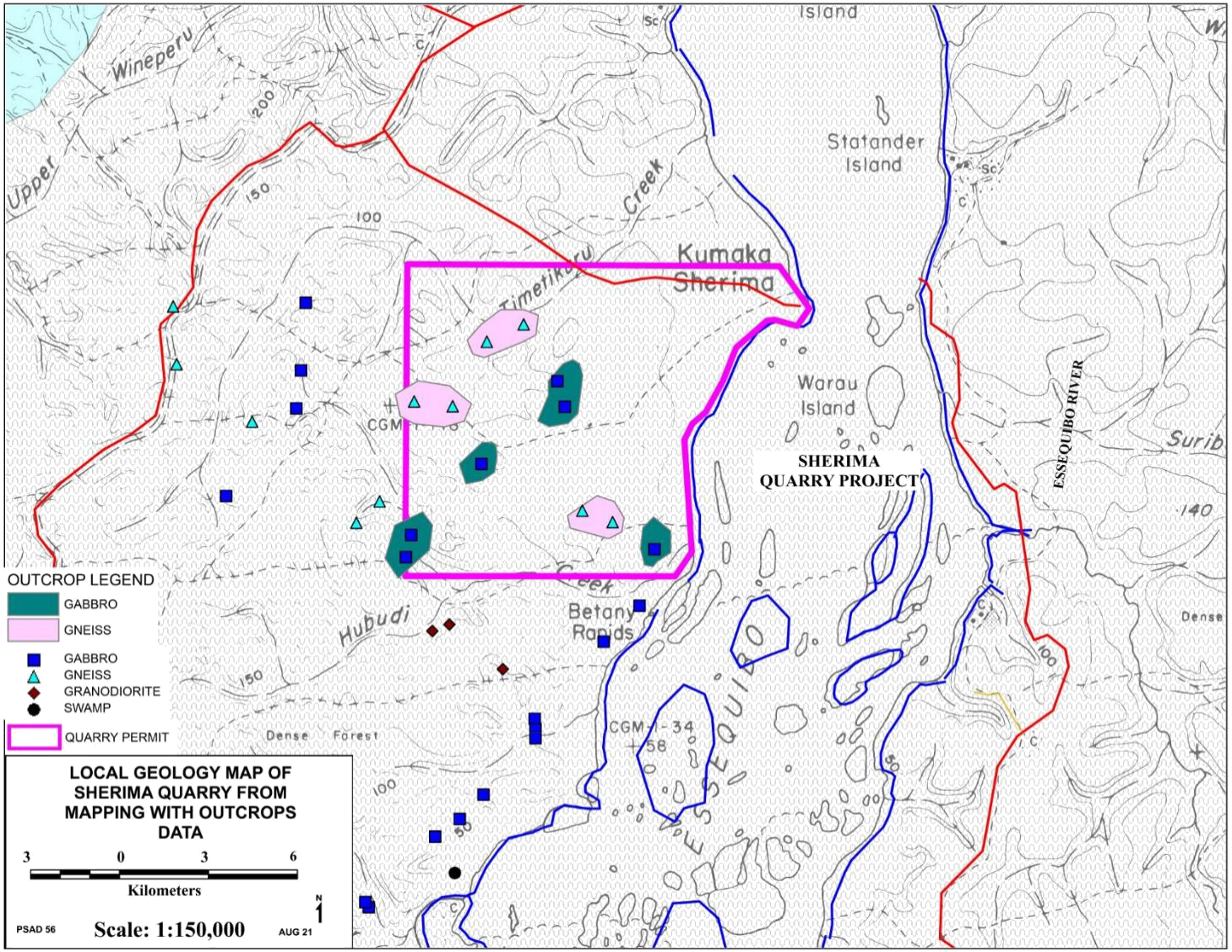


Figure 6: Local Geology Map for Defreitas Sherima Quarry Permit based on Field Mapping

1.4 ADJACENT PROPERTIES

There are several Quarry Permits located North, NE and NW of the Defreitas Sherima Quarry Permit (Figure 7). The nearest quarry license to the north is Diamond Quarry Inc. ~8km North of the Defreitas Sherima Quarry Permit. The Toolsie Persaud St. Mary's Quarry which is currently operational, is ~12km North of the Permit. GGMC has granted several medium scale Permits for gold and base metals within the immediate area.

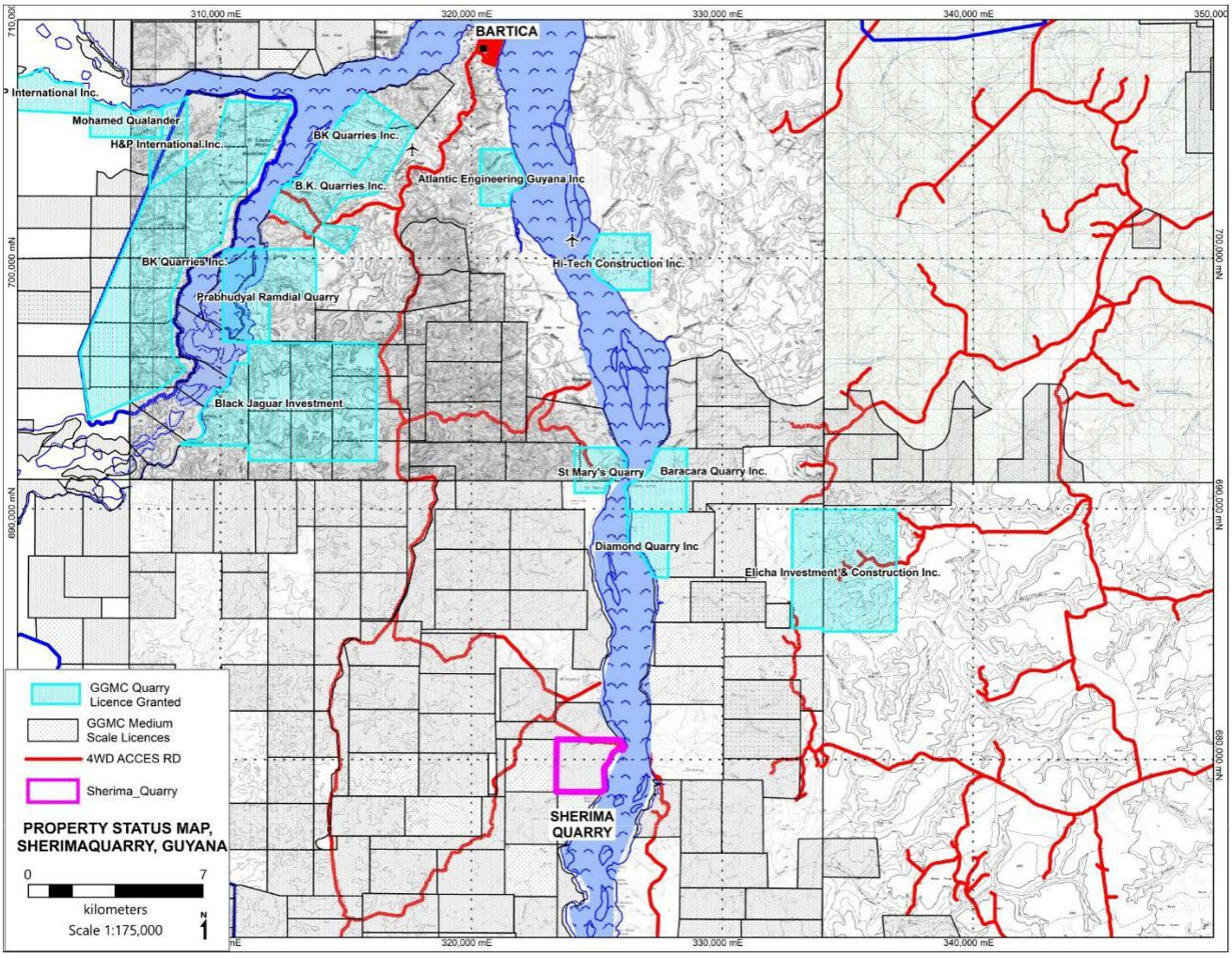


Figure 7: Property Status Map for Regional Area, Defreitas Sherima Quarry Permit

1.5 PREVIOUS WORK

There are currently no mining or logging activities (evidence of past logging were noted during the field exercise) recorded within the Defreitas Sherima Quarry Permit. The first written report of the area is The Geology of the Goldfields of British Guiana by Harrison, Sir J.B. (1908), who described the dolerite(gabbro) and granite outcrops located along the Essequibo River (Teperu, Butakari, Monkey Jump) as potential quarriable material for the colony.

In 1960, R.T. Cannon compiled a Geologic map for the area, which showed outcrops of Gneiss and Gabbro along the Essequibo River, namely at Teperu, Rockstone and Sherima. In 1963, P. Allen compiled the Granites of Northern and Central Guyana which showed a number of these intrusives within the regional area. In 1965, the UN in partner with Terraquest and flew Airborne magnetics for the regional area covering the Permit.

1.6 EXPLORATION

In December 2020, a field mapping exercise was carried out within the mining Permit. A team of 4 personnel comprising of a Geologist technician with field technicians carried out a 2-day field mapping and prospecting exercise within the Permit where outcrops were mapped and sampled with the aim to identify the Gabbroic/Dolerite dyke in the field along roads, trails, creeks, ravines and along ridge & Spur areas. The overall goals of the exercise were as follows;

- To collect data in the field regarding rock types and contact, structures, weathering, and their patterns,
- To make observations of outcrops along a path across the area through stream and ridge/spur and ravine traverses,
- To collect rock samples,
- Identify overburden thickness,
- Ascertain access route for area,
- Identify target area(s) for drilling, if possible,
- Identify area(s) for proposed pit for mining startup.

A surface traverse was carried out by the team, mapping and prospecting any notable features and outcrops along with ravines and creeks checked. From the traverse done, a total of 11 outcrops were mapped of which 6 samples were of the gabbro-norite dyke, and 6 samples of the Gneiss (Figure 8 & Pictures below). Drainage and road access were also mapped (Figure 9) with some areas overlain by White sand.

Based on the observations from the creeks and ravines, it is estimated that the thickness of sand cover varies from 8m while the saprolite (weathered bedrock) overburden varies from 8-10m (note that the true thickness will be determined from drilling). The field mapping identified an ~300 x 100m NE striking gabbro-norite dyke based on field interpretation.

Gabbro Outcrop

Gabbro Outcrop

Gneiss Outcrop

Gneiss Outcrop

Outcrops of Gneiss and Gabbro seen from Field Mapping and Prospecting as shown within Figure 8

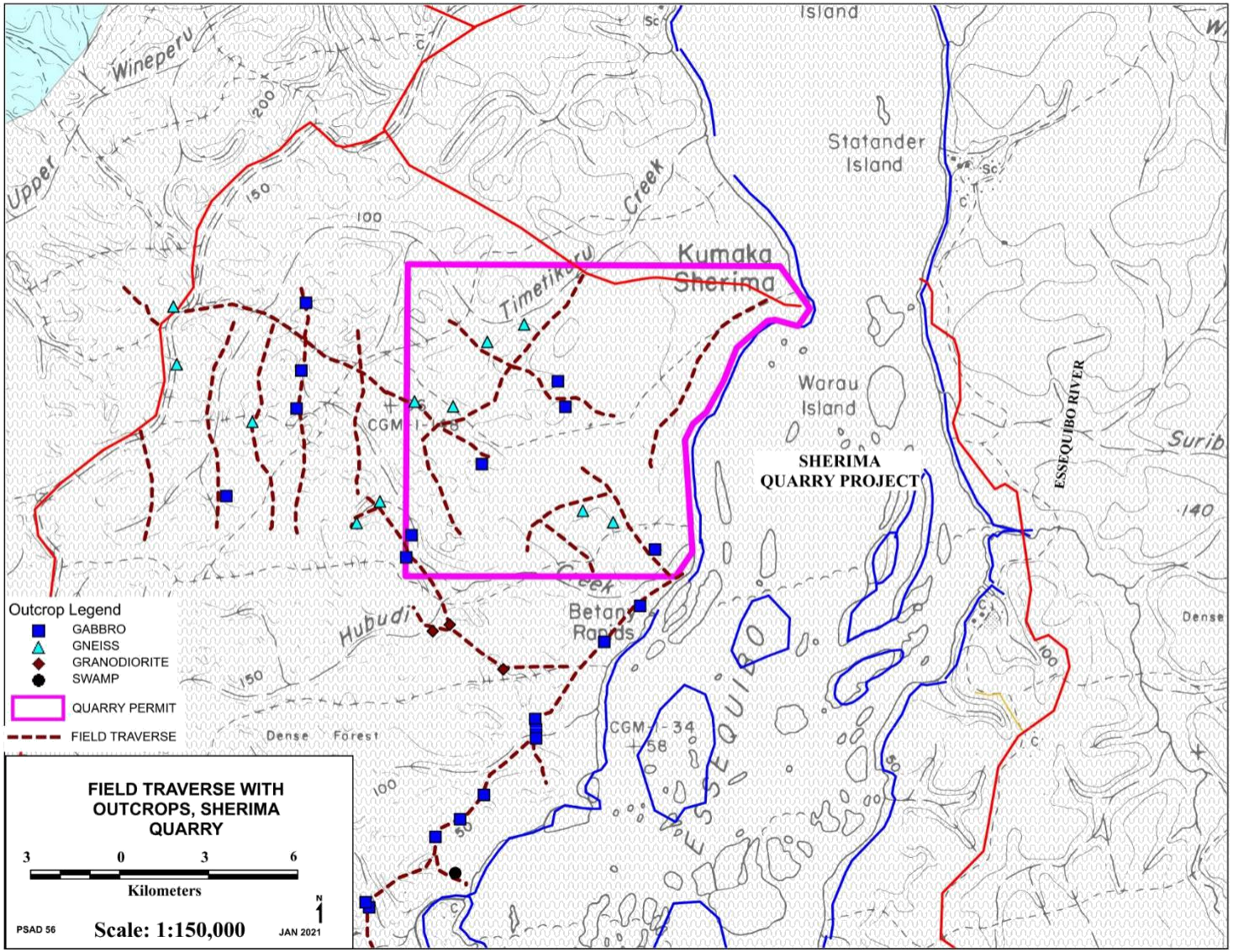


Figure 8: Traverse Map with Outcrop data, Defreitas Sherima Quarry field exercise

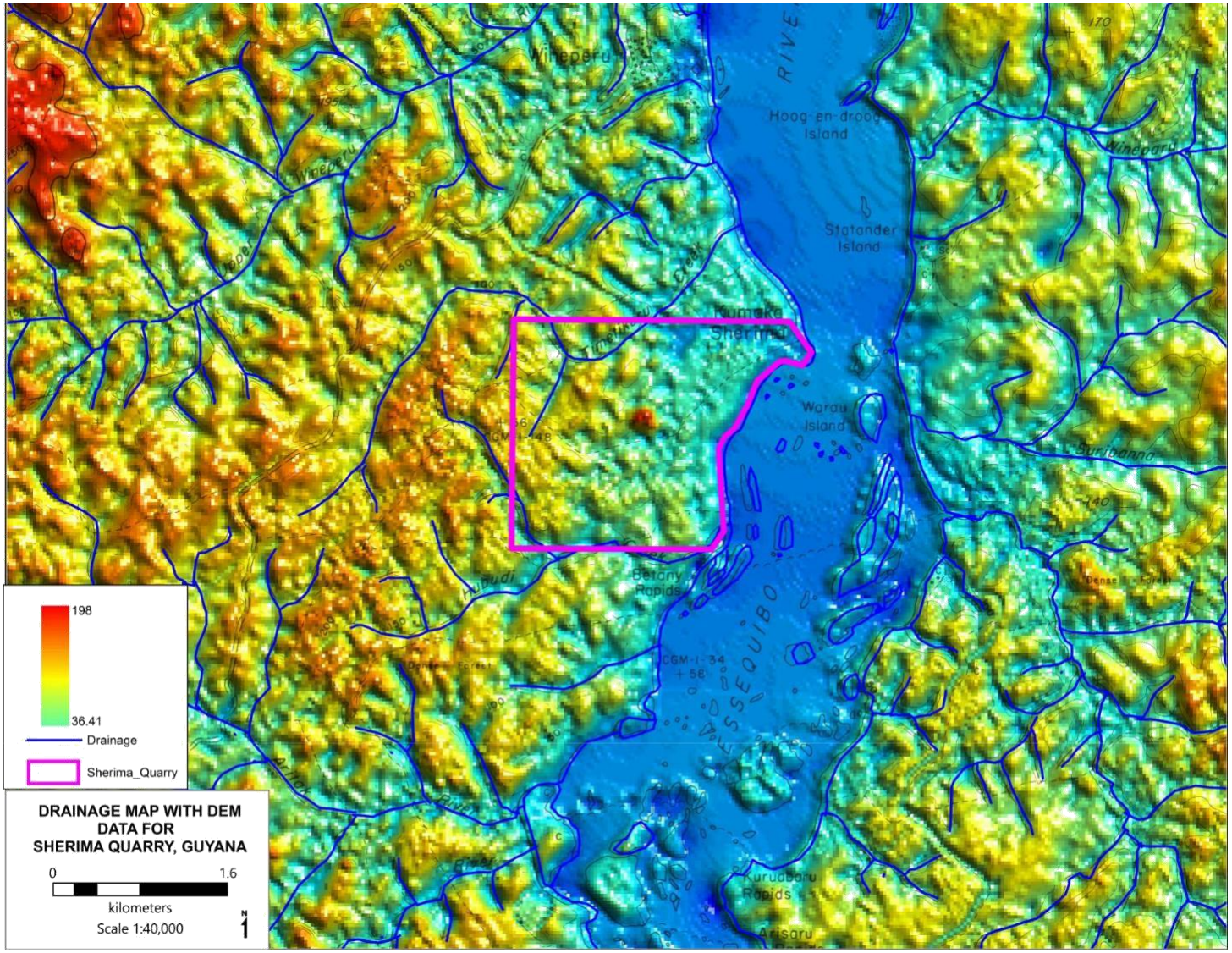


Figure 9: Drainage map for Defreitas Sherima Quarry Permit based on Field Traverse and DEM (elevation) regional data

1.7 RESOURCE ESTIMATION

Based on the mapping and prospecting carried out within the Permit from which outcrop data was acquired, the author was able to derive an estimated Inferred Quarriable resource for the Defreitas Sherima Quarry Permit for the gabbro-norite and gneiss units. In interpreting the local geology, which was significant for the resource estimation, the author combined data from the DEM (elevation)/Topography along with Airborne magnetics, structures, and regional geology (Figure 10).

Based on the interpreted data, it is inferred that the Defreitas Sherima Quarry Permit currently has a quarriable resource of ~0.89million tons of Gabbro and ~0.9 million tons of Gneiss with the mining pit (PIT) for phase 1, an inferred resource of ~0.7 million tons (Figure 11). Table 2 below shows the breakdown of this inferred quarriable resource calculation for each permit.

Table 2: Inferred Quarriable Resource for Defreitas Sherima Quarry Permit

ROCK TYPE	ID	AREA SQ M	DEPTH	SPECIFIC GRAVITY	ESTIMATED TONNAGE
GABBRO	ZONE A	30000	10	2.98	894,000.00
	PIT	**23470**	**10**	**2.98**	**700,000.00**
GNEISS	ZONE B	35000	10	2.65	927,500.00

Note:

- **The Specific gravity used was taken from St. Mary's Quarry for Gabbro.**
- **A depth of 10m for the Gabbro and Gneiss was used in the resource calculation.**
- **Based on definition of "Inferred Resource", the author used the criteria of JORC and 43NI-101 (see Appendix I) in using this terminology for the Quarriable resource for the Defreitas Sherima Quarry permit**

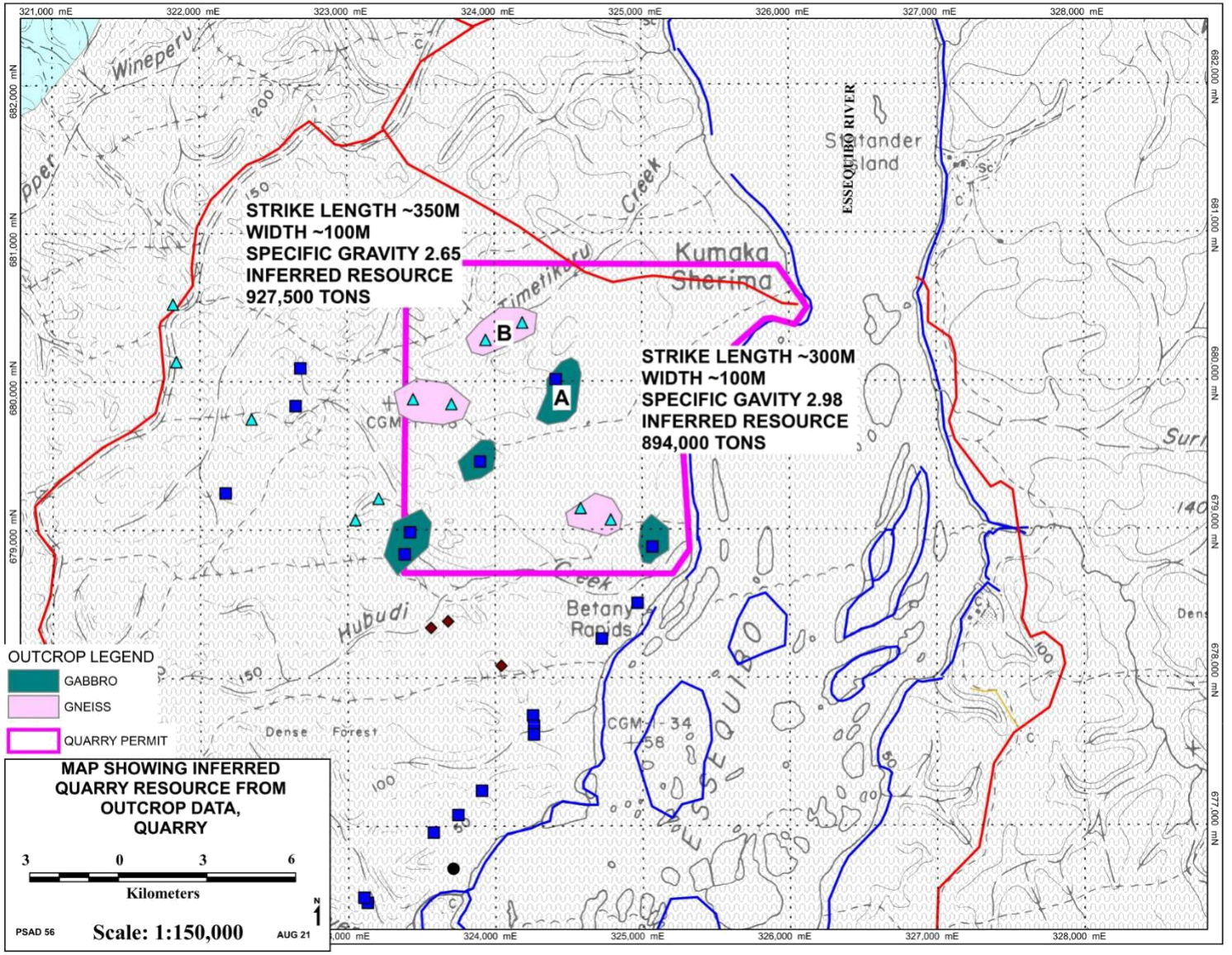


Figure 10: Map showing Estimated Quarriable resource for Gabbro for Defreitas Sherima Quarry Permit

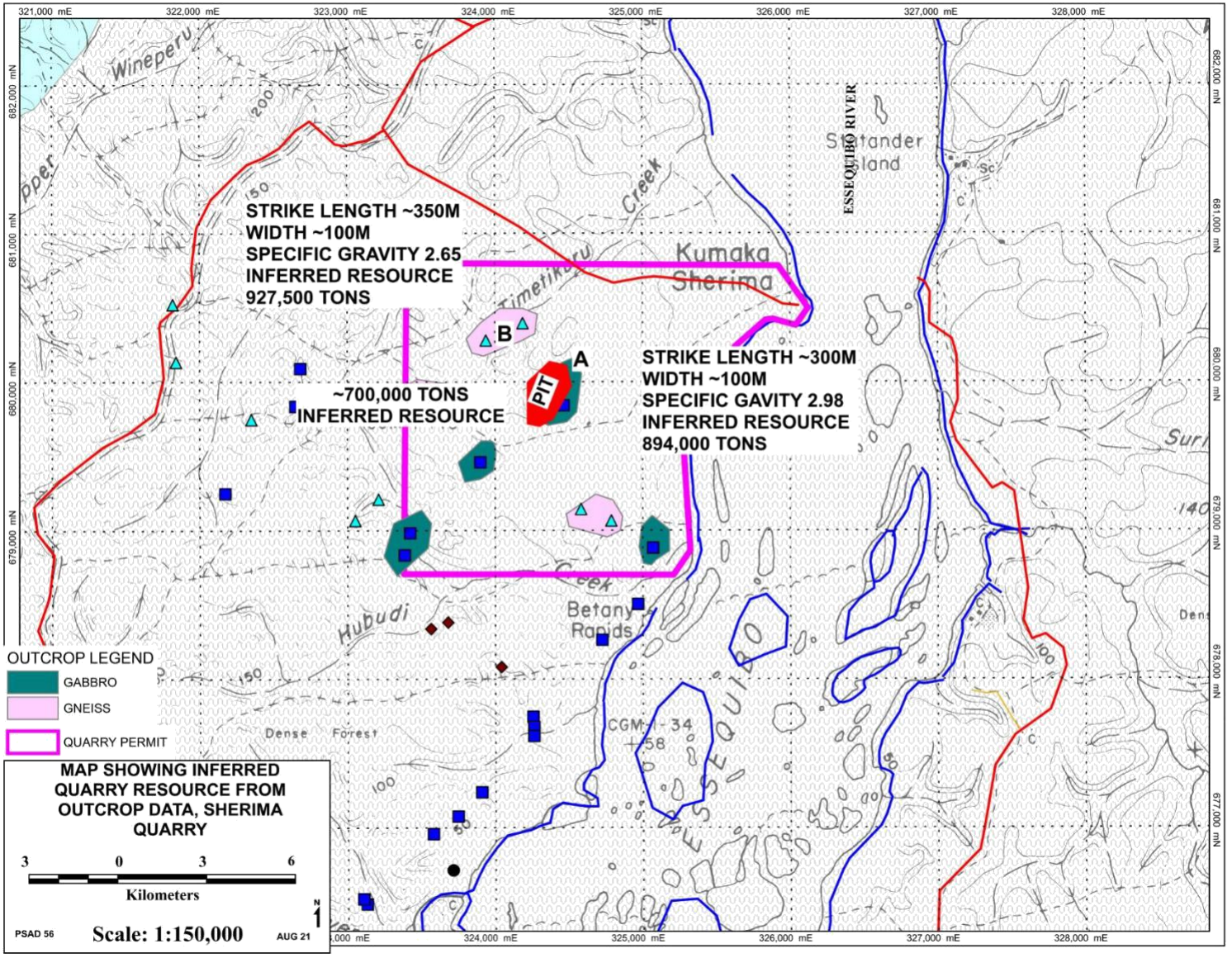


Figure 11: Map showing Estimated Quarriable Resource Proposed Mining PIT, Defreitas Sherima Quarry

1.8 Mining Methods

Quarry mining operations planned for the Defreitas Sherima Quarry project will be open pit with benching and blasting, with the planned mining pit hosting an estimated resource of **700,000 tons Gabbro (It is planned to mainly mine the Gabbro in the initial start-up of the Quarry)**. Given that additional work is needed to convert this resource into a reserve, the mining plan below details a proposed mining operation of 0.7 million tons over 5 years at an average of 140,000 tons of stone aggregates produced per year with an investment cost of **~USD$880,000 (GY$189,200,000).**

1.81 Production Objective

The production objective for the Defreitas Sherima Quarry is to produce riprap and aggregates for the local Guyana market. The estimated mine life based on the proposed exploitable resource for the proposed Pit is 5 years (Note that this resource will be upgraded significantly with extensive drilling and will expand the lifetime of the mine). Over the 5-year period, 70% of the quarrying material will be aggregates with 30% rip-rap. Initial production will focus on ¾", ½", Gabions, 1st Grade and Sifting for local construction and road building industry. It is expected that the Quarrying Operation will commence 3rd Quarter, 2022 with an initial mine life of ~5 years. It is therefore estimated that for 2022, 70,000 tons of aggregates and Rip-rap will be produced. From 2023 to 2026 the estimated production (final Product) will be 150,000 to 170,000 tons in the 2nd – 4th years and 150,000 tons in the 5t h year with 40,000 tons being Rip- Rap and 110,000 tons being aggregate. The table below gives a proposed breakdown.

Table 3: Proposed Production by Year for Defreitas Sherima Quarry

Product (1,000 tons)	Years					TOTAL
	2022	2023	2024	2025	2026	
Rip-Rap	20	50	50	50	40	**210**
Aggregates	50	100	110	120	110	**490**
TOTAL	**70**	**150**	**160**	**170**	**150**	**700**

1.82 Products

The proposed quarry will produce the following products:

STONE AGGREGATES	Product market
3/4"	ROAD CONSTRUCTION
1/2"	CONSTRUCTION
7/8"	CONSTRUCTION
5/8"	CONSTRUCTION
3/8"	CONSTRUCTION
1 1/2" MINUS	CONSTRUCTION
SIFTING	CONSTRUCTION
BOULDERS	SEA DEFENCE
GABIONS	ROAD CONSTRUCTION
1ST GRADE	ROAD CONSTRUCTION

1.83 Mine and Process Methodology

As mining is done on undisturbed areas, vegetation will be removed according to EPA regulations, and overburden along with topsoil will be stockpiled for reclamation efforts. Once a desirable surface is exposed, the gabbro will be excavated via ripping with appropriate tracked equipment and blasting. The first cut will be carried out within the Proposed Pit (see Mine Plan) with the overburden cleared and stockpile within the "Overburden Stockpile Dump" area located ~300m Southwest of the Pit. The equipment used (Table 3) will be;

- Komatsu 220L Excavator
- Caterpillar D6R Bulldozer
- Caterpillar 950L Wheel loader
- VOLVO A60G Articulated truck 60 Ton

In general, a series of high-walls and benches trending chiefly North-northeasterly will be created. Areas too hard to be ripped by tracked excavators will be drilled and blasted. Blasting will be done using ANFO (ammonium nitrates and fuel oil) explosives which are readily available locally and the blast pattern proposed will be a standard 6 x 7 matrix. Note that Blasting pattern can change depending on mining conditions. All blasting and related activities will be supervised by locally

experienced blasting and mining engineers. A jack hammer will be used to break oversize boulders in the pit and at the crusher grizzly.

Overall pit configuration will reflect local geological conditions of rock orientation and stability. The pit will closely follow a north-north easterly orientation, and the approximate 70° dip of bedding will affect high-wall and bench construction. Construction of 30 foot high-walls with 70° faces and 20 foot benches would produce a 1:1 (45°) overall slope. If high-walls were 25 feet high with 70° faces and 25-foot benches, the overall slope would be about 1.34:1 (horizontal to vertical; -36° slope). Exact high-wall to bench ratios will depend on site specific conditions. Maximum height of high-walls would probably be around 30-35 feet. Where steep high-walls are developed, they will be designed and maintained in compliance with regulations.

Pit wall slopes and bench widths are dependent on the types of rock involved and the size of equipment working the mine faces. High-walls developed in coherent rock being worked by large excavators can be higher and steeper than high-walls in loose material being worked by small equipment.

Once the desired material is broken loose in the open pit, it will be transported by front end loaders and dump trucks to a primary crusher and loading facility located within the northeastern part of the permit. Stockpiles will be established to store run-of-mine and crushed material such that crushing and loading capacities will not be exceeded. The Crushing Plant is rated at 100 tons/ operating hour. This size specification for the crusher is as follows:

Siftings:

¼” Minus, 3/8” Minus, ½” Minus, ¾” Minus, 1” Minus (all Aggregates)

Rip-rap

Boulders

Crushing will be accomplished only during daylight hours (8-10 hours per day). Materials (rip-rap and aggregates) will stockpile and shipped via barge and trucks to the targeted market mainly road construction and sea defense. Some materials will be used for cement manufacturing and local construction industry. The quarry with be operated 8-10 hours a day (plant operation). Out-

loading will be done with one 2000 h.p tug and two 1000- ton barges (one equipped with extremely heavy metal decking for rip-rap). The estimated barge turnaround time is 50 hours (23 hrs. on the river, 12 hrs. at the quarry (on-loading) and 1 5 f o r o f f -loading), efforts will be made to reduce on this barge turnaround time by reducing on the on -loading and off-loading times. It is estimated that ~140,000 tons of quarriable products will be transported per annum for the local road construction projects.

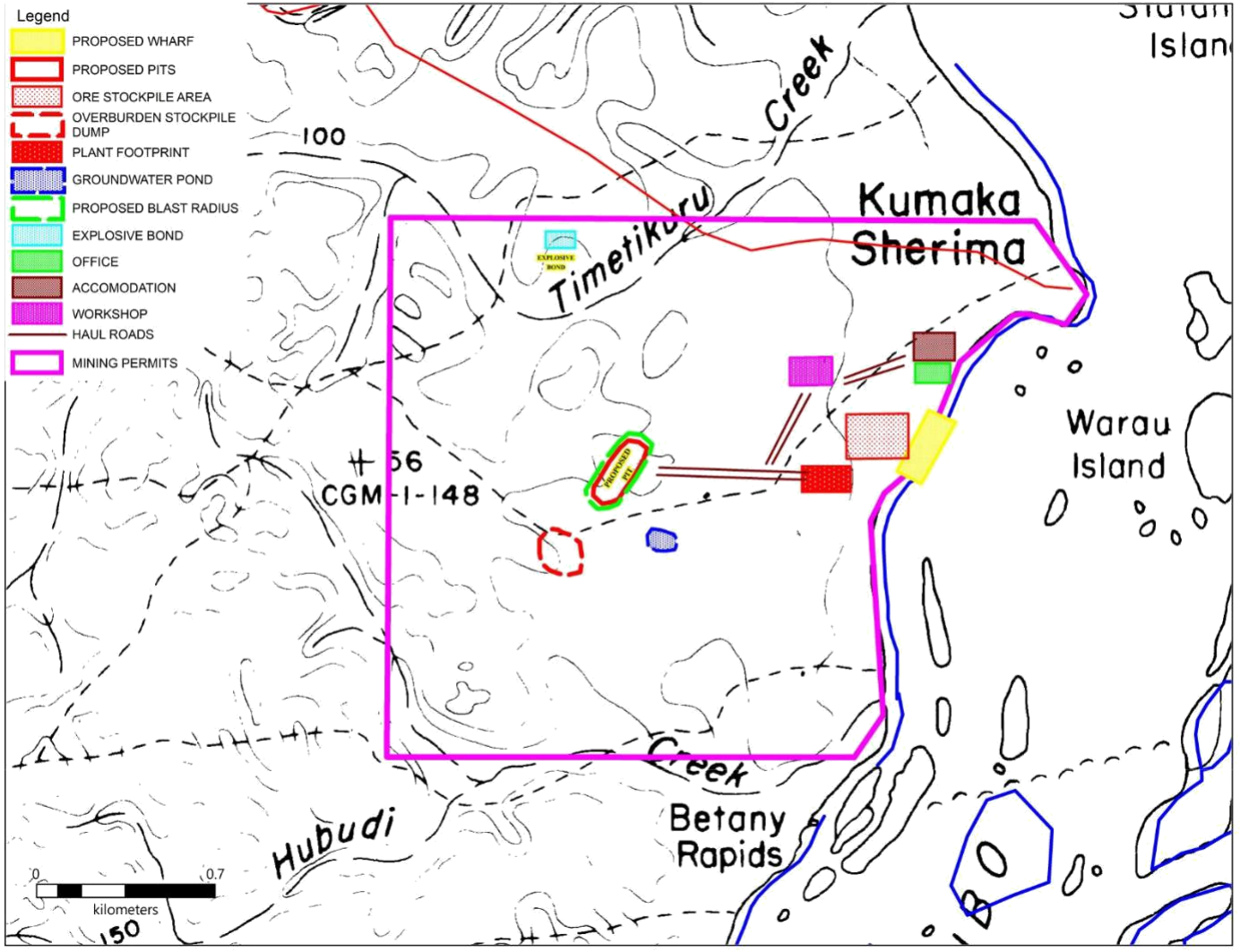
River dredging will be required at the Defreitas Sherima Quarry for continuous river transport (for all Tides) upon startup of the quarrying operations which is located just south of the Sherima Landing.

Water will be routinely sprayed from a water tanker onto roadways and active stockpiles, and water spray bars will be installed on crushing equipment. Roads and process areas within the facility will be periodically graded and bermed to allow for safe travel and to control surface drainage.

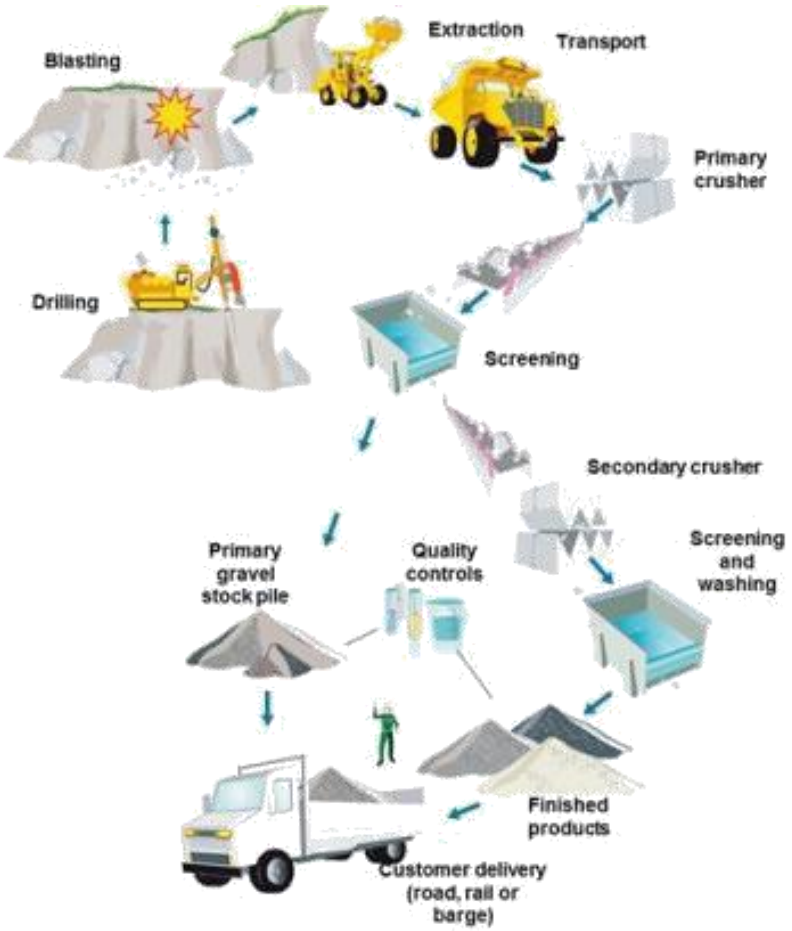
The following equipment are proposed to be used in the mining and processing of quarrying material at the Defreitas Sherima Quarry;

Table 4: Proposed Equipment for Quarry mining at Defreitas Sherima Quarry

No.	Machinery Details for Model Quarry
1	Stitch drill (JRD50) with one Jack hammer and parts
2	Compressor 375 CFM with air hose and air tank
3	Excavator Komatsu 220L
4	Wheel Loader 25 tons Caterpillar
5	Bulldozer D6 Caterpillar
6	Volvo A60G Haul Trucks
7	Manual jackhammer



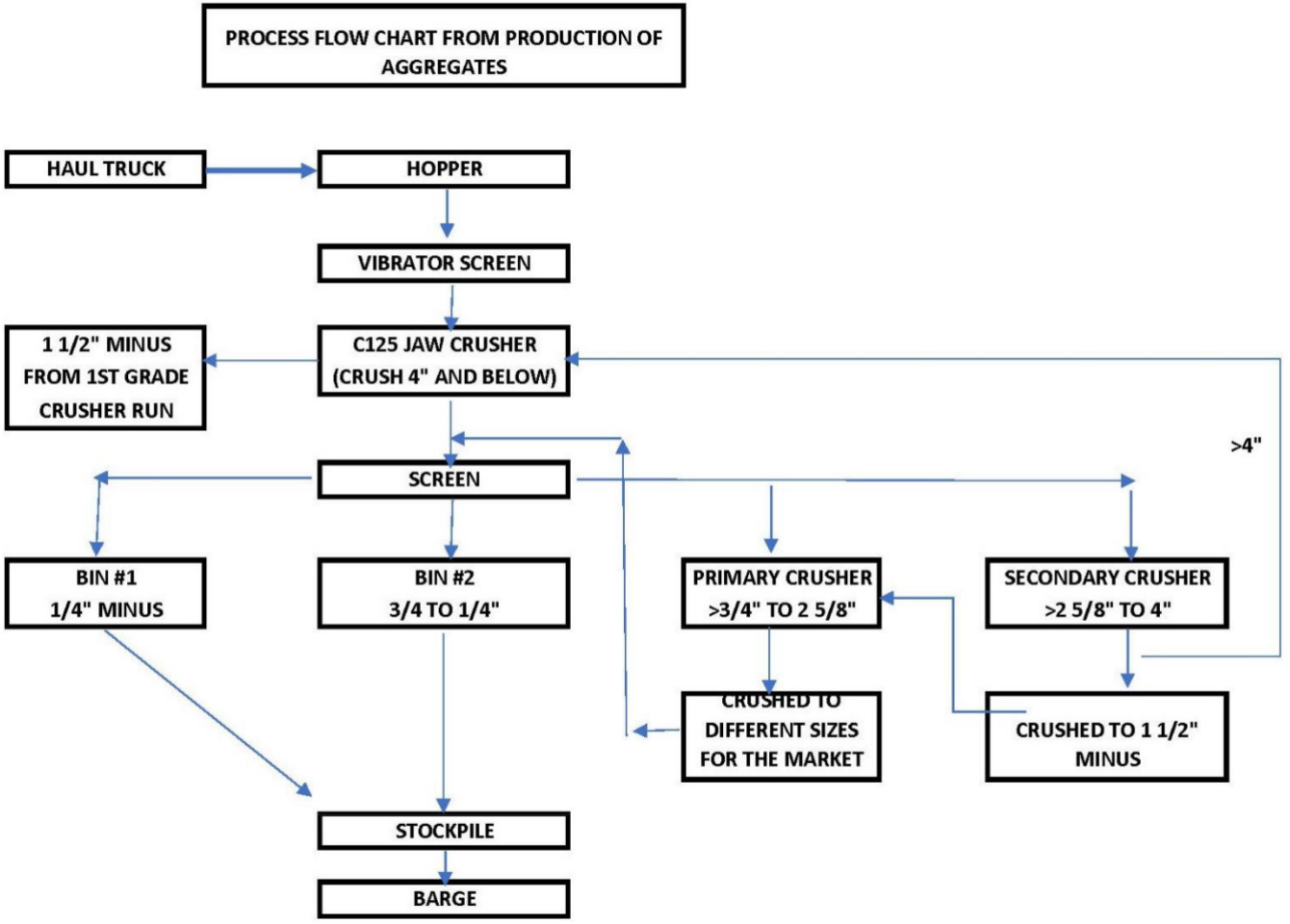
CONCEPTUAL MINING PLAN FOR DEFREITAS SHERIMA QUARRY



CONCEPTUAL MINING PROCESS

CONCEPTUAL PLANT FOR DEFREITAS SHERIMA QUARRY

CONCEPTUAL PROCESS FLOW DIAGRAM



1.84 DRILLING AND BLASTING TECHNIQUES

Drilling and blasting will be carried out to fracture the rock to enable mechanical excavation. Holes will be drilled behind the working face and filled with an explosive (ANFO explosive). When detonated, the rock is broken into manageable fragments and transported for further crushing and processing. Multiple blast holes will be drilled with the help of 32 mm drill rods, Jack Hammer and Air Compressor of 375 cfm capacity. The plan at Defreitas Sherima Quarry is to have inhouse blasting services, with a blasting engineer to supervise all blasting activities. Below is the proposed blasting plan for the Defreitas Sherima Quarry.

At the Defreitas Sherima Quarry, blasting of the quarriable material will be done twice a month and the type of blasting proposed is Fragmentation Blasting. The target is to blast ~11,700 tons of material per month of which 90%-94% should be fragmentation.

Based on the mining advance, the Quarry foreman would first indicate to the Blast foreman the area selected for blasting. The area is then cleared and cleaned using an Excavator and Dump truck. The drilling pattern is then marked out which is checked by the Blasting and Drilling foremen. At the Quarry, a 6ft x 7ft (burden x spacing) pattern is proposed since locally this has shown to improve the percentage of fragments produced from blasting.

The pattern is then drilled. For each pattern, there are ~150 holes which will be drilled to a depth of 30ft. While the drilling is ongoing, the Sargent of the onsite Police Outpost is informed of the imminent blast and for preparations to be made for usage of explosives since they will be responsible for the securing of the explosives at site. Once the pattern has been drilled, it is then checked by the Blast foreman to make sure there are no blockages and that the required depth of the hole is met.

The number of explosives for the blast pattern is then calculated (Table 5) and the explosives then transported from the Explosive magazine bond to the blasting pattern with the assistance of the Police. The explosives to be used is the ANFO (ammonium nitrate/fuel oil) which is a bulk industrial explosive. For the 6'x7' blasting pattern at the quarry, a total of 24,750lbs ANFO of explosive is used (Table 5). The powder factor used is 0.56 kg/ cubic meter.

Once the holes are loaded, it is covered with stemming to complete charging. The HTD (millisecond connector) is then connected to the designated shot pattern. The detonator cord is then connected to the HTD then the blasting wire is connected to the battery to set off the blasting of the pattern in sequence. For the blasting, there is a 42 second delay between each blast row when detonated. The blast force is targeted mainly towards the "Free Face" (area into the mine) of the mine and the blasting footprint is ~100 ft in this direction. Due to the potential of "flyrock" (rock that is ejected from the blast site in a controlled explosion in mining operations) from the blast, the surrounding area will be evacuate during the blasting exercise. Before the detonation is initiated, a warning consisting of a Siren which is mounted on the crushing plant, is sounded to warn of the impending blast. This siren is only turned off when the Blast foreman has given the greenlight that the blast was a success. Also, all entrances to the blast site are secured by the Guyana Police force unit prior to the blasting.

Once the blasting is completed, after 1 hour, the area is checked by the Blasting foreman to confirm that there have been no misfires. Once the area has been cleared, it is handed over to the quarry foreman for mining. The material is then checked where the amount of Oversize (boulders >36"), fragments (<30") and boulders (18"-36") are noted. The oversized is then broken up by the Jackhammer but in cases where this cannot be done, these oversizes are usually blasted back during the next blasting session.

Table 5: Calculation of ANFO total Explosive pounds for 6'x7' drill pattern

DEFREITAS SHERIMA QUARRY	
ANFO EXPLOSIVE	
DEPTH OF HOLE	30 FT
LBS PER HOLE	165
TOTAL LBS OF EXPLOSIVE	**24,750**

1.85 GROUND AND SURFACE WATER MANAGEMENT

Ground water occurs at a shallow depth at the proposed Defreitas Sherima Quarry with part of the Timetikuru and Hubudi creeks within the quarrying concession. If significant ground water accumulates in an active pit, it may be pumped for use in processing and dust control. Ground water

level and quality measurements will be recorded periodically during mine operations and within the proposed pit if ground water is encountered there. The Dozer and excavator will have to be utilized to establish both top level and quarry floor level drainage. Dykes and drains will be established on top of the quarry face and drains will be drilled and blasted around the quarry face and drains will be drilled and culvert to the Timetikuru Creek, a pump and sump may be necessary to facilitate the initial drainage of the quarry floor. Priority will be given to the maintenance of these drainage systems for a clean/ dewatered quarry. The mine water pond is proposed approximately 100m * 200m for the quarrying operation ~260m SE of the proposed quarry pit.

In the Environmental Management Plan (EMP), additional details are set out on parameters to be tested for surface runoff and ground water seepage.

1.88 MACHINERY REQUIREMENTS;

A balance mix of imported and locally available machinery has been selected to maintain optimum level of productivity and efficiency.

No.	Machinery Details for Model Quarry	Quantity	Total Cost GUY$	Unit Duty
1	Hydraulic Jacking Plant with Jacking Capacity of 100 tons Complete	1	$15,000,000.00	Plant for crushing
2	Hydro pushing plant with Pushing Capacity of up to 75 tons Complete	1	$10,000,000.00	Plant for sorting
3	Stitch drill (JRD50) with one Jack hammer and parts	2	$4,500,000.00	Blasting prep
4	Manual jackhammer	2	$800,000.00	Blasting Prep
5	Compressor 375 CFM with air hose and air tank	1	$1,200,000.00	Blasting and other work
6	Excavator Komatsu 220L	1	$19,000,000.00	Quarrying raw material
7	Wheel Loader 25 tons Caterpillar	1	$12,000,000.00	Loading raw material
8	Bulldozer D6 Caterpillar	1	$15,000,000.00	Stripping of topsoil/overburden
9	Volvo A60G Haul Trucks	2	$25,000,000.00	Cart raw material
10	Water Cart 3000 liters	1	$4,500,000.00	Allaying dust
11	Barges	2	$8,000,000.00	Shipping material
12	Toyota Double Cab Pickup	1	$6,000,000.00	Operations
13	Welding Plant electric	1	$755,000.00	Operations
14	Oxygen Cylinder	1	$30,000.00	Operations
15	Water Pump 5.5 HP (3'x3')	1	$225,000.00	Operations
16	Diesel Tank	1	$520,000.00	Operations
17	Gas Welding Plant with Complete kit	1	$1,500,000.00	Operations

18	Water Pump 6.5 HP (petrol)	1	$220,000.00	Operations
19	Generator 15 KVA	1	$750,000.00	Operations
	TOTAL		**$125,000,000.00**	

1.9 EXISTING AND REGIONAL INFRASTRUCTURE

There is one operating quarry located ~12km North of the proposed Defreitas Sherima Quarry which is the Toolsie Persaud St. Mary's Quarry. There is river access for tugs and barges using the Essequibo River all year round. Road access from the site is also readily available to take the product (stone aggregates) to market (Bartica). The local markets targeted are roads and housing construction industry. Infrastructure development in country is expected to rise significantly by 2022 based on the current government 10 years infrastructure plan.

1.10 MARKET STUDIES AND CONTRACTS

Summary of Information

The information contained in this report has been obtained from independent vendors and/or estimated from first principles based on the author experience in Guyana.

Market Studies

Stone Aggregates is the main product to be produced by the Defreitas Sherima Quarry. Final products will initially consist of 1st Grade, Gabions, ¾", ½" and Siftings and additional sizes added as the market dictates.

1st Grade will be produced mainly for road construction and will target the building of the Linden/Mabura and Bartica roads. It is expected that ~10% of the production will be 1st Grade.

Gabions will be produced also for road construction mainly for revetment, embankments, canals and dams. It is expected that ~15% of the production will be Gabions

¾" will be produced for road construction mainly as a base for roads targeting the Linden/Mabura, Bartica and Regions 3 & 4 roads. It is expected that 50% of the production will be ¾".

½" and Siftings will be produced for concrete and building construction and will target the local housing market. It is expected that ~10% of the production will be ½" and Siftings.

All stone aggregates produced will be initially sold locally within the Guyana Market. Studies will later be commissioned to look at the feasibility of markets within neighboring countries and Caribbean.

1.11 INTERPRETATION AND CONCLUSIONS

Geology and Resources

The field mapping and prospecting exercise carried out within the Defreitas Sherima Quarry Permit were able to achieve all the Exploration goals set out for the field team. Outcrops were readable identified in the field with the Gabbro-norite dyke and gneiss which are quarried regionally and found within the permit. Observations within the creeks and ravines showed that the sand overburden varied in thickness from~8m and the saprolite varied in thickness from 8-10m.

A resource estimation using the data collected from the field exercise, identified an Inferred quarriable resource of **0.89 million tons of Gabbro** and **0.9 million tons of Gneiss** with a resource of **~0.75 million tons of Gabbro** from the pit projected for 1st phase mining.

Mining

Within the Mining Permit one mining pit has been identified as phase 1 operation initially for mining at ~140k tons per year for ~5 years at an estimated startup cost of USD$880,000. Mining will be done as an open pit operation with blasting and extraction of the stone aggregates.

Project Implementation

The Project implementation is expected to start in 1st Quarter, 2022 with drilling and resource definition then production by 3rd Quarter 2022 upon arrival of equipment to the site.

Market

The produced stone aggregates will be sold mainly within the local Guyana market targeting the Linden/Mabura, Bartica and Regions 3 & 4 roads corridor along with the housing industry.

1.12 RECOMMENDATIONS

It is recommended that a drilling program be carried out to confirm the locally interpreted geology along with the overburden thickness for the White sand and Saprolite and to establish a Reserve for the permit. The author has identified two target areas (Figure 12) based on the field exercise done to date for this drilling exercise that targets mainly the gabbro.

Drilling/Geology/Resources:

Drilling should be carried out within the Permit to expand on the inferred stone aggregates resource for the proposed mining pit and along with having a better understanding of the geology, overburden depth and reserve. It is estimated that a budget of USD$150,000 should cover this proposed drilling program of ~900m.

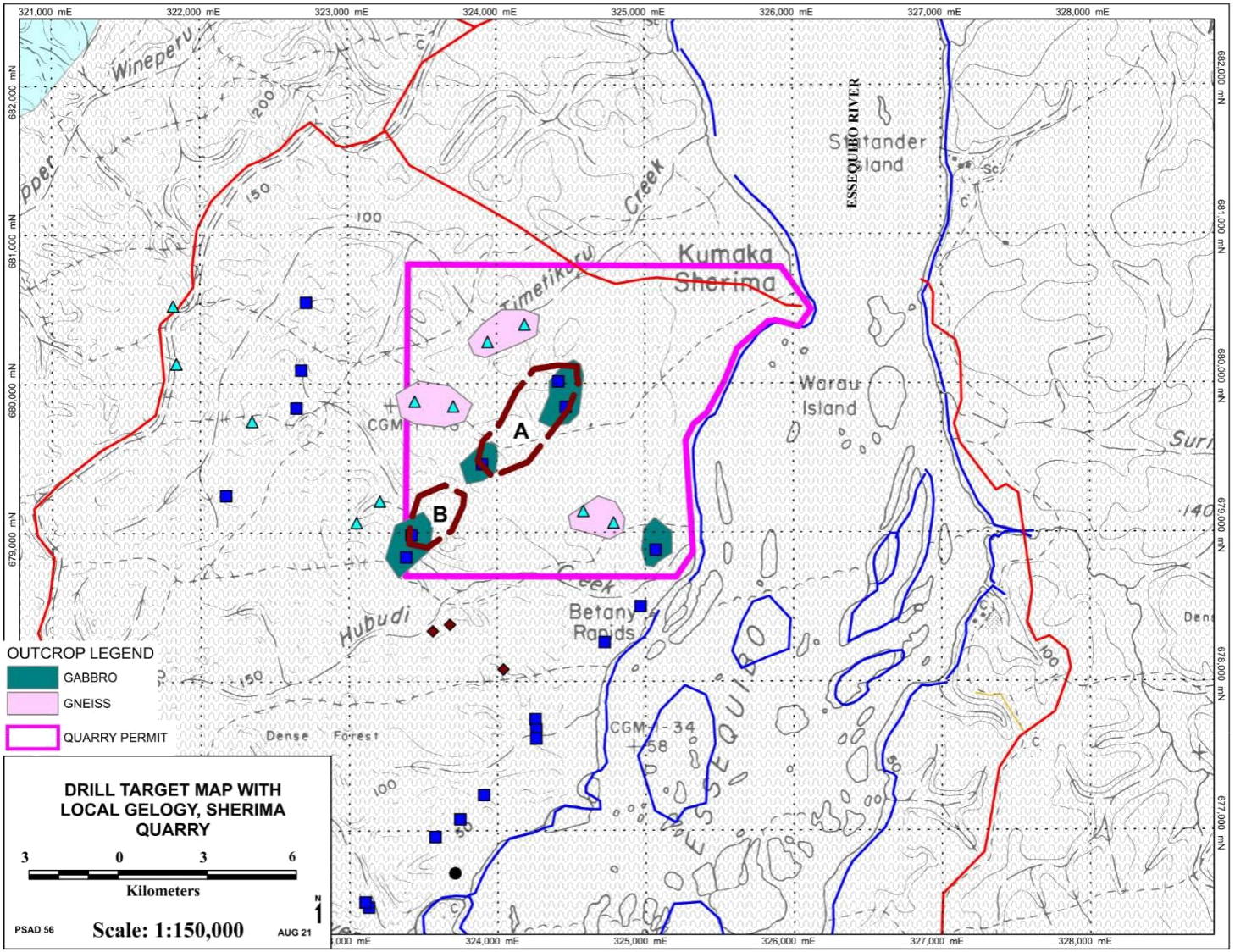


Figure 12: Map showing proposed Drill Target areas, Defreitas Sherima Quarry area

2.0 STATEMENT OF QUALIFICATIONS

The principal author of this report is Bjorn Jeune BSc who is an Exploration Geologist with over 20 years' experience in prospecting and exploration of precious minerals, base metals, stone aggregates, bauxite and mine development and currently works as a consultant for a number of local and foreign exploration and mining companies in Guyana. He has participated in completing NI-43-101 reports for companies listed on the Toronto Stock Exchange and contributed to the feasibility, resource evaluation and mine planning for Sacre-Coeur's Million Mtn Gold project, Gran Colombia Sona Hill and Toroparu Deposits and First Bauxite Bonasika/Sand Hills Project.

He has previously worked within the regional area visiting the Teperu, St. Mary, Moraballi and Monkey Jump Quarries.

Bjorn Jeune

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APPENDIX I Definition of Inferred mineral resource
Definition of Inferred Mineral Resource

An 'Inferred Mineral Resource' is that part of a Mineral Resource for which tonnage, grade and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and assumed but not verified geological and/or grade continuity. It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes which may be limited or of uncertain quality and reliability". (Clause 20 of 2004 JORC Code)

Inferred Mineral Resource

That part of a Mineral Resource that can only be estimated with a low-level of confidence. Reasons for low confidence may include: Inadequate geological knowledge, Limited sampling data and Data of uncertain or poor quality. Uncertain geological and/or grade continuity "Low" in this context means usually not sufficient to allow the application of technical and economic parameters to be used for detailed planning. Therefore, Inferred Resources may not be converted directly to Ore Reserves (CIM NI43-101 code)

APPENDIX II: National Production, Stone Aggregates 2014-2018

Year	National Production	St. Mary` s and BK's Quarry Production	% for Country
2014	840,074	467,303	56%
2015	373,162	277,524	74%
2016	412,177	291,351	71%
2017	448,161	325,500	73%
2018	637,708	457,303	72%
2019		615,578	