

Simberi sulphide project to proceed to feasibility study

St Barbara Limited (ASX:SBM) (the “Company”) will undertake a feasibility study of the Simberi Sulphide Project, supported by robust financial metrics indicated by the recently updated pre-feasibility study.

Mr Jetson, Managing Director & CEO, said:

“I am delighted to announce that the Board has approved to advance the Simberi Sulphide Project to the next stage and conduct a feasibility study. The 2016 PFS has been updated and validated by an independent review. The feasibility study will further optimise the work completed in the PFS and target a potential investment decision in Q3 March FY21. Jason Robertson, GM of Simberi Operations, and I are both very familiar with processing sulphide ore in PNG and consider the proposed plant flowsheet to be relatively straightforward.”

An update to the previously announced 2016 pre-feasibility study (PFS) for the Simberi Sulphide Project was completed in March 2020. The 2020 PFS was then validated by an independent review. The PFS confirmed that the Sulphide Project could extend mine life at Simberi to FY35.

The PFS was scoped to focus on low capital expenditure solutions that utilised existing infrastructure to the extent possible. It is based on an independent Mineral Resource estimate, which was released on 2 March 2020. The Reserves were estimated at a US\$1,300/oz gold price. Updated indicative parameters of the Sulphide Project based on the PFS are set out below.

It is proposed that the Sulphide Project will utilise existing infrastructure on Simberi Island, including the airport, power station, village and wharf. The existing semi-autogenous grinding (SAG) mill will be utilised in a new plant flowsheet, maintaining the ability to process separately oxide and sulphide ores.

The PFS indicates the production and sale of a concentrate as the preferred option, which avoids the requirement to establish downstream processing on the island.

The current mine plan anticipates the mill processing oxides into FY22. The FS and corresponding Environmental and Social Impact Assessment (ESIA) is expected to be completed in December 2020 at a cost of A\$5.4 million¹. The study anticipates a two year construction window, commencing Q3 March FY21. The Company has engaged with the PNG Conservation and Environmental Protection Authority (CEPA) regarding a variation to the existing environmental permit. As previously reported, the Simberi mining lease (ML136) extends to December 2028.

To minimise interruption to production, a decision to proceed on the Sulphide Project is desirable by Q3 March FY21. It is envisaged that further optimisation and value engineering activities will continue on the Project to support a possible future investment decision, including further investigation of the optimal balance between grinding and flotation time to maximise recovery.

¹ US\$ 3.5 million @ 0.65 AUD

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Key changes from 2016 PFS to 2020 PFS:

	2016 PFS	2020 PFS	Change (%)
Sulphide Ore Reserves	1.3 Moz	1.8 Moz	38
Total Gold Produced	1.0 Moz over 8 years	1.8 Moz over 13 years	80
Capital Expenditure	US\$100 M	US\$130 -150 M	40
AISC (midpoint)	US\$960/oz	US\$920/oz	(4)
Payback period	~ 6 years	~ 4 years	(33)

In addition to the key changes noted in the table above, the FS will also consider proposed changes to the PNG Mining Act which, as currently drafted, would render the project uneconomic.

Analyst Briefing

Craig Jetson, Managing Director & CEO, will brief analysts and institutional investors on the decision to undertake to feasibility study of the Simberi Sulphide Project at **1:00 pm** Australian Eastern Standard Time (UTC + 10 hours) on **Tuesday 5 May 2020**.

[Conference call details for analysts and investors now via Diamond Pass pre-registration](#)

Please click on the link below at least ten minutes before the call to register your details and obtain the conference call dial in details:

<https://s1.c-conf.com/DiamondPass/10006531-invite.html>

Once you have registered using the link above, please allow five minutes for your PIN to validate and dial in a few minutes before the scheduled commencement time to ensure you are registered in time for the start of the call.

A live audio webcast of the briefing will be available on St Barbara's website at stbarbara.com.au/investors/webcast/ or by [clicking here](#). The audio webcast is 'listen only' and does not enable questions. The audio webcast will subsequently be made available on the website.

Indicative parameters from the 2020 Simberi Sulphide Project PFS

Scope	<ul style="list-style-type: none"> Produce and sell gold concentrate from sulphide ores and gold doré from oxide ores Minimise capital expenditure, use existing infrastructure
Ore Reserves at 31 Dec 2019²	<ul style="list-style-type: none"> Sulphide: 24.9 Mt @ 2.3 g/t Au for 1,827 koz of contained gold Oxide: 9.4 Mt @ 1.1 g/t Au for 346 koz of contained gold³ Consistent with the current life of mine plan, the PFS schedule and economic evaluation includes some Inferred Resources⁴ sitting within the Measured and Indicated pit shell comprising oxide, sulphide and transitional material of 8.5 Mt @ 1.3 g/t Au for 365 koz of contained gold. Transitional material is reported as sulphide in Ore Reserves, and is consistent with historic Ore Reserves statements. In practice, however, transitional material is treated as oxide material in the mine plan and schedule, as it recovers in the plant without material detrimental impacts provided it is <30% of the material processed. Treating transitional material through the sulphide circuit would incur unnecessary processing costs and reduce payables for concentrate.
Capex	<ul style="list-style-type: none"> US\$130 to 150 million (in current dollars) comprising: <ul style="list-style-type: none"> US\$93 to US\$108 million processing plant (inc. ~ 10% contingency) US\$32 to US\$35 million owner operated mining fleet⁵ US\$5 to US\$7 million general site infrastructure Life of Mine sustaining capital of US\$45-50 million
Strip ratio	<ul style="list-style-type: none"> 2.9 (for life of mine from FY21 for combined oxide and sulphide)
Mill throughput	<ul style="list-style-type: none"> 3.5 Mtpa processing oxide ore (for approx. first 2 years of project) 2.7 Mtpa processing sulphide ore (following oxide ore)
Indicative Production Profile (after applying recovery)	<ul style="list-style-type: none"> Oxide production of ~80 koz for FY21 and ~110 koz FY22, then ~1.6 Moz over 10 years comprising predominantly sulphide production for FY23 to FY32, then process ~200 koz oxide stockpiles for last 3 years
Sulphide recovery	<ul style="list-style-type: none"> c. 80%
Output	<ul style="list-style-type: none"> Gold-rich sulphide concentrate @ 30+ g/t Au from sulphide ores Gold doré from oxide ores
All-In Sustaining Cost⁶	<ul style="list-style-type: none"> US\$890/oz to US\$950/oz⁷ calculated as (Opex + Royalty + Sustaining Capex) ÷ Production
Concentrate payable	<ul style="list-style-type: none"> Up to 90% payable
Project break-even gold price	<ul style="list-style-type: none"> US\$1,100/oz
Payback period (after tax)	<ul style="list-style-type: none"> ~ Four years (from start of two year construction period) @ US\$1,350/oz gold price and WACC plus premium discount rate
PFS accuracy	<ul style="list-style-type: none"> -10% / +20%

2 Refer ASX release 2 March 2020 'Ore Reserves and Mineral Resources Statements for Simberi Gold Mine as at 31 December 2019'

3 Parts of the existing oxide reserve are contained within the Sulphide Project pit shell, and are subject to optimisation of the existing oxide operation

4 Inferred Resources per Ore Reserves and Mineral Resources Statements for Simberi Gold Mine as at 31 December 2019 released 2 March 2020. There is a low level of geological confidence associated with inferred mineral resources and there is no certainty that further exploration work will result in the determination of indicated mineral resources or that the production target will be realised

5 Capex on new fleet only does not include sustaining capital incurred over the sulphide mine life. Contract mining to be assessed as an alternative

6 AISC is a non-IFRS measure, and expressed in nominal terms, refer Q3 March FY20 Quarterly Report released 28 April 2020

7 Does not include concentrate payable

Disclaimer

St Barbara Limited ("Company") has prepared this announcement. The material contained in this announcement is for information purposes only. This release is not an offer or invitation for subscription or purchase of, or a recommendation in relation to, securities in the Company and neither this release nor anything contained in it shall form the basis of any contract or commitment.

This announcement contains forward-looking statements that are subject to risk factors associated with exploring for, developing, mining, processing and the sale of gold. Forward-looking statements include those containing such words as anticipate, estimates, forecasts, indicative, should, will, would, expects, plans or similar expressions. Such forward-looking statements are not guarantees of future performance and involve known and unknown risks, uncertainties, assumptions and other important factors, many of which are beyond the control of the Company, and which could cause actual results or trends to differ materially from those expressed in this announcement. Actual results may vary from the information in this announcement. The Company does not make, and this announcement should not be relied upon as, any representation or warranty as to the accuracy, or reasonableness, of such statements or assumptions. Investors are cautioned not to place undue reliance on such statements.

This announcement has been prepared by the Company based on information available to it, including information from third parties, and has not been independently verified. No representation or warranty, express or implied, is made as to the fairness, accuracy or completeness of the information or opinions contained in this announcement.

The Company estimates its reserves and resources in accordance with the Australasian Code for Reporting of Identified Mineral Resources and Ore Reserves 2012 Edition ("JORC Code"), which governs such disclosures by companies listed on the Australian Securities Exchange.

Competent Persons Statement

Mineral Resource and Ore Reserve Estimates

The information in this report that relates to Mineral Resources or Ore Reserves is extracted from the report titled 'Ore Reserves and Mineral Resources Statements 30 June 2019' released to the Australian Securities Exchange (ASX) on 21 August 2019 and the report titled 'Ore Reserves and Mineral Resources Statements for Simberi Gold Mine as at 31 December 2019' released to the ASX on 2 March 2020. The reports are available to view at www.stbarbara.com.au and for which Competent Persons' consents were obtained. Each Competent Person's consent remain in place for subsequent releases by the Company of the same information in the same form and context, until the consent is withdrawn or replaced by a subsequent report and accompanying consent.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original ASX announcements released on 21 August 2019 and 2 March 2020 and, in the case of estimates of Mineral Resources or Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the original ASX announcements continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original ASX announcements.

Full details are contained in the ASX releases dated 21 August 2019 'Ore Reserves and Mineral Resources Statements 30 June 2019' and 2 March 2020 'Ore Reserves and Mineral Resources Statements for Simberi Gold Mine as at 31 December 2019' available at www.stbarbara.com.au.