

# ASX ANNOUNCEMENT

11 June 2020



## NIFTY SCOPING STUDY IDENTIFIES LONG LIFE OPEN PIT WITH POSITIVE ECONOMICS

Metals X Limited (ASX: MLX) (**Metals X** or the **Company**) is pleased to announce the results of the Nifty Open Pit Scoping Study<sup>1</sup> (the **Study** or the **Project**) completed as part of the Company's Copper Assets Strategic Review<sup>2</sup>. The Study investigated the development of a major expansion to the historical oxide open pit at the Nifty Copper Operation (**Nifty**) to access and extract the sulphide Mineral Resource.

*This announcement must be read in the context of the Cautionary Statement on Page 4, the Footnotes that accompany this announcement, and the attached Scoping Study Summary Report.*

The Study reported the following key results<sup>3</sup>:

- 10-year open pit life providing approximately 23 million tonnes of sulphide feed to the existing concentrator, at an estimated average grade of 1.24% copper, with a waste-to-ore<sup>4</sup> strip ratio of approximately 7.6:1<sup>5</sup>.
- 250,000 - 270,000 tonnes of copper in concentrate at an average annual production rate of approximately 26,000 tonnes of copper in concentrate<sup>5</sup>.
- All-in sustaining cost (AISC<sup>6</sup>) of approximately A\$5,400 - A\$5,800 per tonne of copper produced (US\$1.67 - US\$1.79/lb) from the open pit sulphide operation. Treatment and refining costs are approximately A\$960 per tonne of copper sold (US\$0.30/lb).
- Estimated pre-production capital for the open pit sulphide operation of \$40 - \$60 million including studies, pre-production drilling, concentrator and infrastructure refurbishment, open pit pre-strip, and commissioning.
- At the current spot price of approximately A\$8,000 per tonne<sup>7</sup> (US\$2.54/lb), total pre-tax net cash flow of \$285 - \$315 million, pre-tax net present value (10% discount rate) of \$105 - \$125 million and a pre-tax internal rate of return of 32% - 36% for the open pit sulphide operation.
- Opportunity to recommission the existing heap leach Solvent Extraction/Electrowinning (**SX/EW**) facility to treat oxide ore mined from the open pit as well as reprocessing of the existing leach pads, to produce an additional estimated total 40,000 - 50,000 tonnes of copper as cathode<sup>5</sup> over eight years.

**Metals X Chief Executive Officer, Mr. Mike Spreadborough, commented:**

*"The results from the Nifty Open Pit Scoping Study are very exciting for our shareholders. The Study has identified the potential for a 10-year open pit operation producing approximately 26,000 tonnes of copper in concentrate a year with the opportunity for additional copper cathode production from a restart of the heap leach SX/EW facility – a significantly better outcome than recommencing underground operations."*

<sup>1</sup> This announcement must be read in the context of the Cautionary Statement on page 4. The Scoping Study been prepared with the intention of an accuracy range of ±35%. The Project benefits from the majority of the Production Target being in Indicated and Measure category, existing infrastructure and historical processing and operating data that provides confidence in the estimates used in the Study. The findings in the Study and the implementation of the Nifty Open Pit Project are subject to all necessary approvals, permits, internal and regulatory requirements and further works. The estimates are indicative only and are subject to market and operating conditions. They should not be construed as guidance.  
<sup>2</sup> Refer ASX announcements: 26 November 2019, Suspension of Operations at Nifty Copper Mine, and 22 January 2020, Copper Assets Strategic Review.

<sup>3</sup> All financials are in AUD unless stated otherwise. A\$/US\$ exchange rate of 0.68. Net Present Value is calculated at July 2020.

<sup>4</sup> Defined as all transitional and sulphide material delivered to the concentrator compared to waste and oxide material delivered to dumps for the open pit only option.

<sup>5</sup> Reference should be made to the Cautionary Statement on page 4 with regard to Production Targets.

<sup>6</sup> AISC is calculated as C1 cost plus sales & marketing costs, royalties, TSF lifts and other sustaining capital. AISC excludes treatment and refining charges (TC/RC) for copper concentrate of approximately \$960 per tonne of copper, at the assumed exchange rate of 0.68, comprising US\$75 per tonne of concentrate and US7.50 cents per lb of copper and 96.3% payable copper.

<sup>7</sup> Approximate closing copper spot price A\$8,000 per tonne of copper on 5 June 2020 (at A\$/US\$ exchange rate of 0.70).

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*“Importantly, given the existing processing plant and infrastructure at Nifty, the anticipated pre-production capital does not represent a significant impost to the Project. The relatively low unit costs of open pit mining, and long mine life, provide the foundation for a robust Project.*

*“We intend, subject to the completion of the Copper Asset Strategic Review, to immediately commence a Feasibility Study which will focus on further resource definition drilling, mine optimisation and design, and the open pit mining contract, all which have the potential to increase mine life and provide sustained earnings.*

*“The Feasibility Study will also investigate recommencing heap leach processing, allowing for the mined oxide ore to add further value to the Project.”*

## Project Description

The Study investigated the development of a standalone open pit at Nifty to mine copper sulphide Mineral Resources that had previously only been mined by underground methods. The new sulphide open pit will be developed as a major expansion to the historic oxide open pit.

The Project benefits significantly from utilisation of the existing sulphide ore processing capacity and infrastructure on site, which currently is being maintained in a ready-to-start condition, and from a long history of mining and processing of the Nifty resource which provides confidence in the mining and metallurgical assumptions in the Study.

Studies have confirmed that a development of an expanded open pit mine (Figure 1) provides superior economic benefits compared to recommencement of underground mining. The estimated cost per tonne of ore for open pit mining is materially lower than for the Nifty underground mining operation that was suspended in November 2019; this enables a higher proportion of the Mineral Resource to be economically extracted.

The Project will utilise the existing 2.8 million tonne per annum capacity copper concentrator, 25,000 tonne per annum capacity heap leach SX/EW facility, 21 MW power station, licensed and established waste dumps and tailings storage facility, accommodation village, and all-weather jet capable airstrip. The Study has assumed infrastructure upgrades are required to the mine village, power station and airstrip, and additional sustaining capital is required to maintain the infrastructure in a fit-for-purpose condition.

The Study, for the open pit optimisation, used the Nifty Sulphide Mineral Resource estimate as at 31 March 2019<sup>8</sup> and the Nifty Oxide Mineral Resource Estimate as at 31 March 2016<sup>9</sup>. The Company has subsequently released an updated Nifty Sulphide Mineral Resource Estimate as at 31 December 2019<sup>10</sup> which incorporated an additional approximate 30,000 meters of drilling and depletion from underground mining during the intervening period.

The Study provided the following Production Target<sup>5</sup> and preliminary economic evaluation metrics for the open pit:

- 10-year mine life providing approximately 23 million tonnes of sulphide feed to the concentrator, at an average grade of circa 1.24% copper, with an overall waste-to-ore strip ratio of approximately 7.6:1.
- 250,000 - 270,000 tonnes of copper in concentrate at an average annual production rate of approximately 26,000 tonnes of copper in concentrate<sup>5</sup>.
- Approximately 96% of concentrator feed identified in the Study has a Mineral Resource classification of Measured or Indicated.
- Copper recovery of approximately 91% overall with recovery of fresh and transitional feed between 91 - 93% and 81 - 84% respectively.
- Estimated start-up capital of \$40 - \$60 million including studies, pre-production drilling, refurbishment, pre-strip, and commissioning.
- All-in sustaining cost (AISC) of approximately A\$5,400 - A\$5,800 per tonne of copper produced (US\$1.67 - US\$1.79/lb) and C1 cost of approximately A\$4,350 - A\$4,750 per tonne of copper produced (US\$1.34 - US\$1.47/lb). Treatment and refining costs are approximately A\$960 per tonnes of copper sold (US\$0.30/lb).
- At the current spot price of approximately A\$8,000 per tonne<sup>7</sup> (US\$2.54/lb), total pre-tax net cash flow of \$285 - \$315 million, pre-tax net present value (10% discount rate) of \$105 - \$125 million and a pre-tax internal rate of return of 32% - 36%.

<sup>8</sup> Refer ASX announcement: 28 August 2019, 2019 Nifty Resource and Reserve Update.

<sup>9</sup> Refer ASX announcement: 16 May 2016 by Aditya Birla Minerals Limited, Mineral Resource Estimate Update (a wholly owned subsidiary of Metals X).

<sup>10</sup> Refer ASX announcement: 10 March 2020, Nifty Resource Update.

- EBITDA over life of mine of \$425 - \$455 million (at A\$8,000 per tonne<sup>7</sup> (US\$2.54/lb)).
- At assumed long term copper price of A\$8,500 per tonne<sup>11</sup> (US\$2.62/lb), total pre-tax net cash flow of \$405 - \$435 million, pre-tax net present value (10% discount rate) of \$170 - \$190 million and a pre-tax internal rate of return of 50% - 54%.
- EBITDA over life of mine of \$545 - \$575 million (at A\$8,500 per tonne<sup>11</sup> (US\$2.62/lb)).
- An estimated \$30 million of progressive rehabilitation is included in the Study. The rehabilitation liability will be updated following completion of further studies.

On a post-tax basis, the project economics will benefit from Metals X's significant accumulated tax losses.

The Study has evaluated the option of recommissioning the existing heap leach SX/EW infrastructure. The Study assumed reprocessing of 13 - 14 million tonnes of existing heap leach pads<sup>12</sup> with an estimated 2.6 million tonnes of oxide material at a grade of 0.9% Cu<sup>9</sup> expected to be mined as part of the proposed open pit operation. Over eight years an additional estimated total 40,000 - 50,000 tonnes of copper cathode<sup>5</sup> is expected to be produced, of which approximately 40% is oxide material from the open pit, at an AISC of A\$5,200 - A\$6,200 per tonne of copper cathode produced (US\$1.60 - US\$1.91/lb)<sup>13</sup>. At spot copper price of A\$8,000 per tonne (US\$2.54/lb), the heap leach operation will have a total cashflow (pre-tax) estimated at \$75 - \$95 million. At the assumed long-term copper price of A\$8,500 per tonne<sup>11</sup> (US\$2.62/lb), the heap leach operation generates a total cashflow (pre-tax) estimated at \$95 - \$115 million. Upfront capital is estimated at \$16 - \$20 million. The Study assumes recommencement of heap leach activities in parallel to sulphide material processing. Further studies will confirm the optimal sequencing given that open pit mining will impact the eastern end of the existing heap leach pads (Figure 1).

Several opportunities have been identified to be included in future studies including assessing the impact of the additional mineralisation defined by the 31 December 2019 Mineral Resource Estimate<sup>10</sup>. Preliminary analysis suggests this may materially extend mine life and improve project economics. A number of resource definition targets have been identified that have the potential to grow the Mineral Resource and further optimise the mining schedule.

A Feasibility Study, expected to take approximately eight months and cost approximately \$10 million including approximately \$3 million for resource definition drilling, is required on the proposed recommencement of operations at Nifty on a combined open pit and heap leach basis. Following the completion of the Feasibility Study, a Final Investment Decision (**FID**) is expected to be made in the first half of calendar year 2021. It is estimated that recommissioning and pre-production mining will take six months following FID. It is expected that the final submission of the Feasibility Study scope and cost and decision to proceed will be made by the MLX Board in July 2020.

The **Nifty Open Pit Scoping Study Summary** report provides technical details and preliminary economic analysis.



**Figure 1: Proposed Expanded Nifty Open Pit**

<sup>11</sup> Assumptions: long term copper price US\$5,780 per tonne and an exchange rate of 0.68 USD/AUD for A\$8,500 per tonne of copper.

<sup>12</sup> Refer ASX announcement: 16 May 2016 by Aditya Birla Minerals Limited, Mineral Resource Estimate Update (a wholly owned subsidiary of Metals X).

<sup>13</sup> It is assumed that the oxide ore is delivered to the heap leach pad location at zero cost given the alternative is to a location adjacent to the open pit waste dumps.



## Cautionary Statement

The Nifty Copper Open Pit Scoping Study (the **Study** or the **Project**) referred to in this ASX announcement and accompanying Study Report is conceptual in nature and has been undertaken to assess the potential for the redevelopment of Metals X Limited (**Metals X**) Nifty Copper Operation (**Nifty**) via an expansion of the historic open pit to mine the upper regions of the defined copper Mineral Resources using large-scale, low-cost open pit mining techniques.

The Study is preliminary in nature and, in addition to Measured and Indicated Mineral Resources, includes Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied that would enable them to be categorised as Ore Reserves. Mineral Resources are not Ore Reserves and do not have demonstrated economic viability.

The Study includes a preliminary economic analysis based on a number of possible production targets (**Production Target**) and assumptions on Modifying Factors and evaluation of other relevant factors estimated by a Competent Person to be at the level of a Scoping Study.

The Study outcomes, Production Target and forecast financial information are based on information that is considered to be at Scoping Study level. The information applied in the Study is insufficient to support the estimation of Ore Reserves. While each of the Modifying Factors was considered and applied, there is no certainty of eventual conversion to Ore Reserves or that the Production Target will be realised. Further exploration and evaluation studies are required before Metals X will be in a position to estimate any Ore Reserves or provide any assurance of an economic development case.

Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the Study. The Study is based on the Nifty Sulphide Measured, Indicated and Inferred Resources as estimated by Metals X in the Mineral Resource Estimate released on the ASX on 28 August 2019, the Nifty Oxide Mineral Resource released on the ASX by Aditya Birla Minerals Limited as at 31 March 2016, and the Heap Leach Mineral Resource Estimate released on the ASX by Aditya Birla Minerals Limited as at 31 March 2015. Metals X has subsequently released an updated Nifty Sulphide Mineral Resource Estimate on the ASX on 10 March 2020 which increased the available Mineral Resources. Metals X is not aware of any other new information or data that materially affects the information included in that release. All material assumptions and technical parameters underpinning the estimates in these ASX releases continue to apply and have not materially changed.

Of the Mineral Resources scheduled for extraction in the Study Production Target, approximately 68% are classified as Measured, 28% as Indicated and 4% as Inferred. 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 conversion of the Inferred Mineral Resources to Indicated Mineral Resources or that the Production Target itself will be realised.

This ASX announcement and accompanying Study Report contains a series of forward-looking statements. The words “expect”, “potential”, “intend”, “estimate” and similar expressions identify forward-looking statements. Forward-looking statements are subject to known and unknown risks and uncertainties that may cause the actual results, performance or achievements to differ materially from those expressed or implied in any of the forward-looking statements in this report and are not a guarantee of future performance.

This ASX announcement and accompanying Study Report regarding the Metals X business or proposed business, which are not historical facts, are forward-looking statements that involve risks and uncertainties. These include Mineral Resource Estimates, metal prices, capital and operating costs, changes in project parameters as plans continue to be evaluated, the continued availability of capital, general economic, market or business conditions, and statements that describe the future plans, objectives or goals of Metals X, including words to the effect that Metals X or its management expects a stated condition or result to occur. Forward-looking statements are necessarily based on estimates and assumptions that, while considered reasonable by Metals X, are inherently subject to significant technical, business, economic, competitive, political and social uncertainties and contingencies. Since forward-looking statements address future events and conditions, by their very nature, they involve inherent risks and uncertainties. Actual results in each case could differ materially from those currently anticipated in such statements. Investors are cautioned not to place undue reliance on forward-looking statements.

Metals X has concluded that it has a reasonable basis for providing these forward-looking statements and the forecast financial information included in this ASX announcement and accompanying Study. This includes a reasonable basis to expect that it will be able to fund the development of the Nifty Copper Open Pit Project upon successful delivery of key development milestones. The detailed reasons for these conclusions are outlined throughout the ASX announcement and accompanying Study. While Metals X considers all of the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the Study will be achieved.

There is no certainty that Metals X will be able to source the required development funding, estimated within the Study when required. Metals X considers that there is a reasonable expectation that a project of this scale will be able to be funded with a combination of debt and equity. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of Metals X shares. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the Study.

No Ore Reserve has been declared. This ASX announcement and accompanying Study have been prepared in compliance with the current JORC Code (2012) and the ASX Listing Rules. All material assumptions, including sufficient progression of all JORC modifying factors, on which the Production Target and forecast financial information are based, have been included in this ASX announcement and accompanying Study.

## Competent Persons Statement

### Competent Person Statement – Nifty Sulphide Mineral Resource

The information in this announcement that relates to the Nifty Sulphide Mineral Resources as at 31 March 2019 and 31 December 2019 have been compiled by Metals X Limited technical employees under the supervision of Mr Kane Hutchinson BSc., who is a member of the Australasian Institute of Mining and Metallurgy. Mr Hutchinson is a full-time employee of the Company and has sufficient experience which is relevant to the style of mineralisation and types of deposit under consideration and to the activities which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Hutchinson consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

### Competent Person Statement – Nifty Oxide and Nifty Heap Leach Mineral Resource

The information in this announcement that relates to Mineral Resources for Nifty Oxide and Nifty Heap Leach has been extracted from Aditya Birla Minerals Limited's (a wholly owned subsidiary of Metals X) Mineral Resource Estimate Update, released on 16 May 2016 and is available to view at <http://www.asx.com.au> (ASX:ABY). The Oxide Mineral Resource Estimate is at 31 March 2016 and the Heap Leach Mineral Resource Estimate is at 31 March 2015 and both were reported in accordance with JORC Code 2012 guidelines. Metals X confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. Metals X confirms that the form and context in which the Competent Persons' findings are presented have not been materially modified from the original market announcement. In all Resources tables, significant figures do not imply precision. Figures are rounded according to JORC Code guidelines.

### Competent Person Statement – Production Target and Modifying Factors

The information in this announcement that relates to the Production Target, assumptions on Modifying Factors and evaluation of other relevant factors are based on and fairly represents information and supporting documentation that has been compiled for this announcement and have been compiled under the supervision of Mr Linton Putland BEng (Mining), MSc (Mineral Economics) & Member AusIMM. Mr Putland is a consultant to Metals X. Mr Putland has reviewed and approved the technical content of this announcement. Mr Putland is a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012). Mr Putland consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears.

## About Metals X Limited

Metals X Limited (ASX: MLX) is an ASX-listed mining company with a portfolio of high quality base metals assets including 50% ownership of Australia's largest tin mine through the Renison Tin Operation (Bluestone Mines Tasmania JV) located in Tasmania, the Nifty Copper Operation, the Maroochydore Copper Project, and extensive exploration tenements in the Paterson Province, all located in the east Pilbara region of Western Australia, and the world class Wingellina Nickel-Cobalt Project also located in Western Australia.

**This announcement has been authorised by the Board of Directors of Metals X Limited**

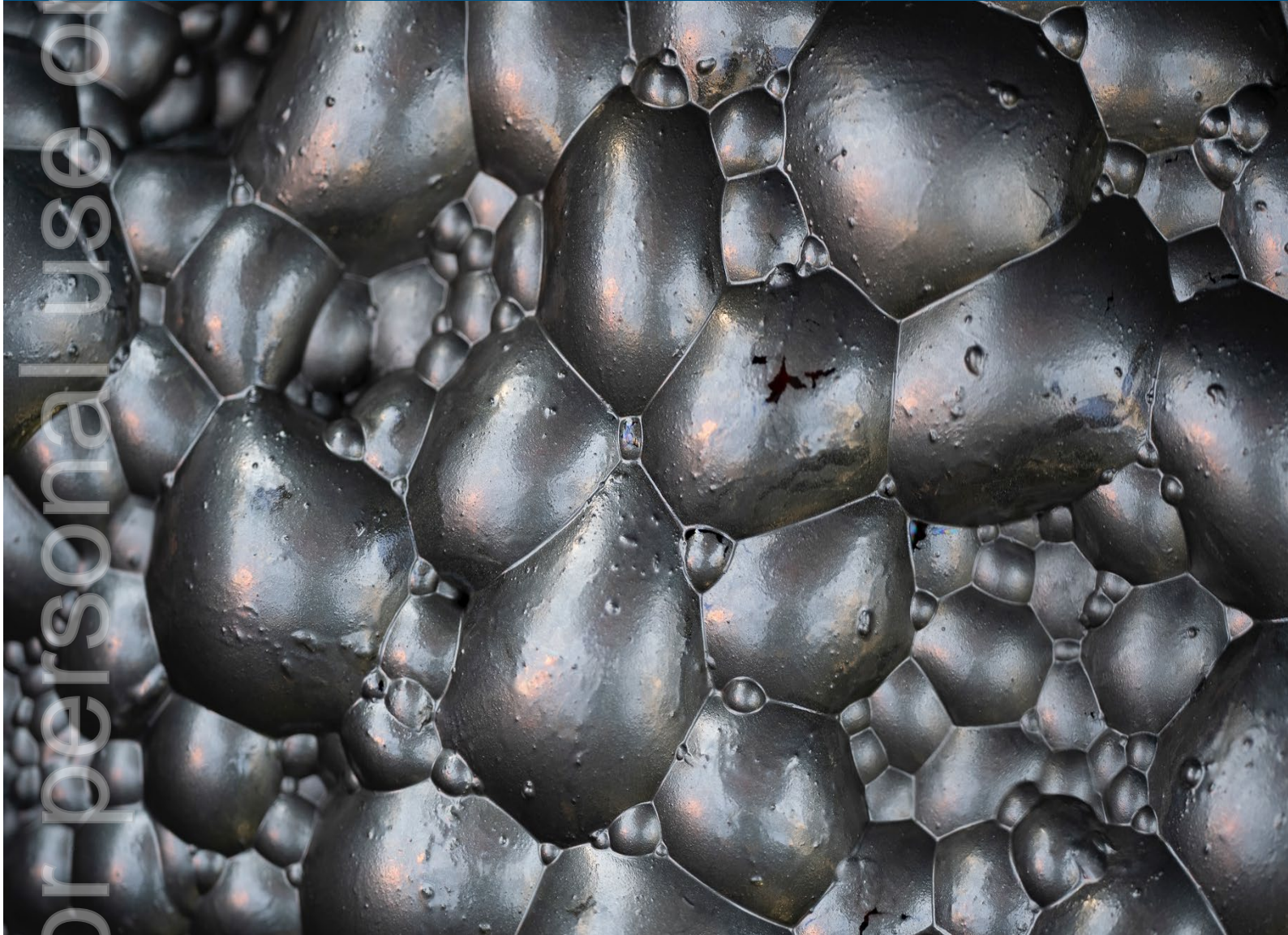
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# **NIFTY COPPER OPERATION**

## **Open Pit Scoping Study Summary Report**

11 June 2020

*Issued as an attachment to ASX announcement, 11 June 2020,  
Nifty Scoping Study Identifies Long Life Open Pit with Positive Economics.*

## CAUTIONARY STATEMENT

The Nifty Copper Open Pit Scoping Study (the **Study** or the **Project**) referred to in this report is conceptual in nature and has been undertaken to assess the potential for the redevelopment of Metals X Limited (**Metals X**) Nifty Copper Operation (**Nifty**) via an expansion of the existing open pit to mine the upper regions of the defined copper Mineral Resources using large-scale, low-cost open pit mining techniques.

The Study is preliminary in nature and, in addition to Measured and Indicated Mineral Resources, includes Inferred Mineral Resources that are considered too speculative geologically to have the economic considerations applied that would enable them to be categorised as Ore Reserves. Mineral Resources are not Ore Reserves and do not have demonstrated economic viability.

The Study includes a preliminary economic analysis based on a number of possible production targets (**Production Target**) and assumptions on Modifying Factors and evaluation of other relevant factors estimated by a Competent Person to be at the level of a Scoping Study.

The Study outcomes, Production Target and forecast financial information are based on information that is considered to be at Scoping Study level. The information applied in the Study is insufficient to support the estimation of Ore Reserves. While each of the Modifying Factors was considered and applied, there is no certainty of eventual conversion to Ore Reserves or that the Production Target will be realised. Further exploration and evaluation studies are required before Metals X will be in a position to estimate any Ore Reserves or provide any assurance of an economic development case.

Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the Study. The Study is based on the Nifty Sulphide Measured, Indicated and Inferred Resources as estimated by Metals X in the Mineral Resource estimate released on the ASX on 28 August 2019, the Nifty Oxide Mineral Resource released on the ASX by Aditya Birla Minerals Limited as at 31 March 2016, and the Heap Leach Mineral Resource estimate released on the ASX by Aditya Birla Minerals Limited as at 31 March 2015. Metals X has subsequently released an updated Sulphide Mineral Resource estimate on the ASX on 10 March 2020 which increased the available Mineral Resources. Metals X is not aware of any other new information or data that materially affects the information included in that release. All material assumptions and technical assumptions underpinning the estimates in these ASX releases continue to apply and have not materially changed.

Of the Mineral Resources scheduled for extraction in the Study Production Target, approximately 68% are classified as Measured, 28% as Indicated and 4% as Inferred. 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 conversion of the Inferred Mineral Resources to Indicated Mineral Resources or that the Production Target itself will be realised.

This report contains a series of forward-looking statements. The words "expect", "potential", "intend", "estimate" and similar expressions identify forward-looking statements. Forward-looking statements are subject to known and unknown risks and uncertainties that may cause the actual results, performance or achievements to differ materially from those expressed or implied in any of the forward-looking statements in this report and are not a guarantee of future performance.

This report and ASX announcement regarding the Metals X business or proposed business, which are not historical facts, are forward-looking statements that involve risks and uncertainties. These include Mineral Resource estimates, metal prices, capital and operating costs, changes in project assumptions as plans continue to be evaluated, the continued availability of capital, general economic, market or business conditions, and statements that describe the future plans, objectives or goals of Metals X, including words to the effect that Metals X or its management expects a stated condition or result to occur. Forward-looking statements are necessarily based on estimates and assumptions that, while considered reasonable by Metals X, are inherently subject to significant technical, business, economic, competitive, political and social uncertainties and contingencies. Since forward-looking statements address future events and conditions, by their very nature, they involve inherent risks and uncertainties. Actual results in each case could differ materially from those currently anticipated in such statements. Investors are cautioned not to place undue reliance on forward-looking statements.

Metals X has concluded that it has a reasonable basis for providing these forward-looking statements and the forecast financial information included in this report and ASX announcement. This includes a reasonable basis to expect that it will be able to fund the development of the Nifty Copper Open Pit Project upon successful delivery of key development milestones. The detailed reasons for these conclusions are outlined throughout the accompanying report and ASX announcement. While Metals X considers all of the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the Study will be achieved.

There is no certainty that Metals X will be able to source the required development funding, estimated within the Study when required. Metals X considers that there is a reasonable expectation that a project of this scale will be able to be funded with a combination of debt and equity. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of Metals X shares. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the Study.

No Ore Reserve has been declared. This report and ASX announcement have been prepared in compliance with the current JORC Code (2012) and the ASX Listing Rules. All material assumptions, including sufficient progression of all JORC Modifying Factors, on which the Production Target and forecast financial information are based, have been included in this report and ASX announcement.



## LIST OF CONTENTS

SCOPING STUDY HIGHLIGHTS .....	1
OVERVIEW .....	2
GEOLOGY AND MINERAL RESOURCES .....	4
INFRASTRUCTURE AND SERVICES.....	7
MINING .....	8
METALLURGY AND PROCESSING .....	11
ENVIRONMENT AND APPROVALS .....	14
FINANCIALS .....	15
RISKS AND OPPORTUNITIES.....	19
PROJECT IMPLEMENTATION .....	20
COMPETENT PERSONS STATEMENT.....	21

## COMPANY PROFILE

Metals X Limited (ASX: MLX) (Metals X or the Company) is an ASX-listed mining company with a portfolio of high quality base metals assets including 50% ownership of Australia's largest tin operation through the Renison Tin Operation (Bluestone Mines Tasmania JV) located in Tasmania, the owner of the Nifty Copper Operation and the Maroochydore Copper Project located in the east Pilbara region of Western Australia, extensive exploration tenements in the Paterson Province, and the world class Wingellina Nickel-Cobalt Project also located in Western Australia.



## SCOPING STUDY HIGHLIGHTS

The Nifty Open Pit Scoping Study (the **Study**) has demonstrated positive economics from development of an open pit mining operation based on a major expansion of the historical oxide open pit at Metals X's Nifty Copper Operation (**Nifty**) to access and extract the sulphide Mineral Resource. The existing sulphide ore concentrator and infrastructure is utilised, with metallurgical recoveries and costs based on historical operating performance<sup>1</sup>:

- Ten-year mine life providing approximately 23 million tonnes of sulphide feed to the concentrator with an average feed grade of approximately 1.24% copper.
- Overall waste-to-ore strip ratio of approximately 7.6:1.
- 250,000 - 270,000 tonnes of copper in concentrate at an average annual production rate of approximately 26,000 tonnes of copper in concentrate<sup>1</sup>.
- Approximately 96% of identified concentrator feed has a Mineral Resource classification of Measured or Indicated.
- At the assumed long term copper price of A\$8,500 per tonne<sup>2</sup> (US\$2.62/lb), total pre-tax net cash flow of \$405 - \$435 million, pre-tax net present value (10% discount rate) of \$170 - \$190 million and a pre-tax internal rate of return of 50% - 54% for the open pit sulphide operation.
- EBITDA over life of mine of \$545 - \$575 million.
- Estimated pre-production capital of \$40 - \$60 million including studies, pre-production drilling, pre-strip, refurbishment, commissioning, ramp-up and working capital.
- All-in sustaining cost (AISC<sup>3</sup>) of approximately \$5,400 - \$5,800 per tonne of copper produced (US\$1.67 - US\$1.79/lb).
- On a post-tax basis, the project economics will benefit from Metals X's significant accumulated tax losses.

Studies have confirmed that a development of an expanded open pit mine provides superior economic benefits compared to recommencement of underground mining. The estimated cost per tonne of ore for open pit mining is materially lower than for the Nifty underground mining operation that was suspended in November 2019; this enables a higher proportion of the Mineral Resource to be economically extracted.

In addition to the open pit, the Study has also evaluated the option of the refurbishment of the existing heap leach Solvent Extraction/Electrowinning (SX/EW) facility and retreatment of the existing heap leach pads, supplemented with oxide material expected to be mined from the proposed open pit<sup>4</sup>. This option reported the following standalone economics:

- Eight-year operation processing a total of 13 - 14 million tonnes of existing heap leach pads, at an average grade of approximately 0.4% copper, and an estimated 2.6 million tonnes of additional oxide material, at an average grade of approximately 0.9% copper, mined from the proposed open pit.
- Approximately 2.1 million tonnes under leach per year, producing an estimated total 40,000 - 50,000 tonnes of copper cathode over the life of operation<sup>1</sup>.
- Estimated upfront capital of \$16 - \$20 million including studies, pre-production drilling, metallurgical test work, permitting, plant refurbishment and first fill.
- At the assumed long term copper price of A\$8,500 per tonne<sup>2</sup> (US\$2.62/lb), total cashflow (pre-tax) is estimated at \$95 - \$115 million, with EBITDA of \$115 - \$135 million.
- All-in sustaining cost of \$5,200 - \$6,200 per tonne of copper cathode produced (US\$1.60 - \$1.91/lb).

Several opportunities have been identified for future study including assessing the impact of the additional mineralisation defined by the 31 December 2019 Mineral Resource estimate. Preliminary analysis suggests this may materially extend mine life and improve project economics. A number of resource definition targets have been identified that have the potential to grow the Mineral Resource base, and to further optimise the mining schedule.

<sup>1</sup> Reference should be made to the Cautionary Statement with regard to Production Targets.

<sup>2</sup> Assumptions: long term copper price US\$5,780 per tonne at 0.68 USD/AUD for A\$8,500 per tonne of copper.

<sup>3</sup> AISC is calculated as C1 cost plus sales & marketing costs, royalties, TSF lifts and other sustaining capital. AISC excludes treatment and refining charges for copper concentrate of approximately \$960 per tonne of copper, at the assumed exchange rate of 0.68, comprising US\$75 per tonne of concentrate and US7.50 cents per lb of copper and 96.3% payable copper.

<sup>4</sup> It is assumed that the oxide ore is delivered to the heap leach pad location at zero cost given the alternative is to a location adjacent to the open pit waste dumps.

## OVERVIEW

Metals X Limited's (ASX: MLX) (**Metals X**) Nifty Copper Operation (**Nifty**) is located on the western edge of the Great Sandy Desert in the north-eastern Pilbara region of Western Australia, approximately 350 km southeast of Port Hedland (Figure 1).

Nifty has been operating and processing copper ores since 1993. Initially, copper oxide ores were mined from an open pit with recovery via a heap leach and SX/EW facility to produce copper cathode. The operation transitioned to an underground sulphide mine in 2004 with construction of an underground decline and a 2.8 Mtpa sulphide concentrator. First copper concentrate was produced in March 2006. Open pit mining operations ceased in June 2006 and heap leaching operations ceased in January 2009. Metals X acquired Nifty in late 2016 after an off-market takeover of then owner, Aditya Birla Minerals Limited. In November 2019<sup>5</sup>, underground mining and processing operations were suspended.

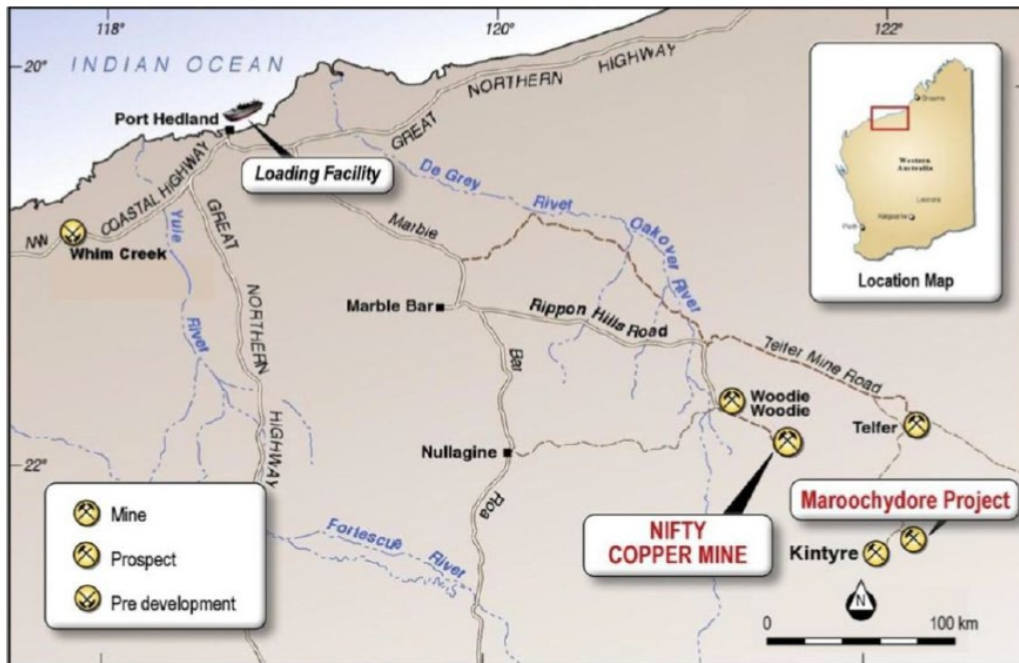


FIGURE 1 – LOCATION OF NIFTY COPPER OPERATION

The Nifty Open Pit Scoping Study (the **Study** or the **Project**) was commissioned as part of Metals X's Copper Assets Strategic Review<sup>5</sup>. The Study investigated the development of an expansion to the historical open pit at Nifty with the benefits of utilising the existing and proven processing infrastructure on the site. The Study also evaluated the option of the treatment of oxide ore mined from the open pit through the recommissioning of the existing heap leach Solvent Extraction/Electrowinning (**SX/EW**) infrastructure.

The Study has been completed to an overall Scoping Study level of accuracy of +/- 35%.

Metals X engaged leading global mining services provider, Mining Plus Pty Ltd (**Mining Plus**), to undertake open pit optimisation studies as part of the Scoping Study.

The Mineral Resource estimate used for the study included the Nifty Oxide Mineral Resource as at 31 March 2016<sup>6</sup>, the Heap Leach Mineral Resource estimates as at 31 March 2015<sup>7</sup> and the Nifty Sulphide Mineral Resource estimate as at 31 March 2019<sup>8</sup>. The Company has subsequently released an updated Nifty Sulphide Mineral Resource estimate as at 31 December 2019<sup>9</sup> that included approximate 30,000 m of additional underground diamond drilling. This drilling resulted in approximately a 10% increase (approximately 50,000 tonnes) in contained copper with a reasonable proportion of this located

<sup>5</sup> Refer ASX announcement: 26 November 2019, Suspension of Operations at Nifty Copper Mine, and 22 January 2020, Copper Assets Strategic Review.

<sup>6</sup> Refer to ASX announcement: 31 March 2016 by Aditya Birla Minerals Limited, Mineral Resource Estimate Update.

<sup>7</sup> Refer ASX announcement: 16 May 2016 by Aditya Birla Minerals Limited, Mineral Resource Estimate Update.

<sup>8</sup> Refer ASX announcement: 28 August 2019, 2019 Nifty Resource and Reserve Update.

<sup>9</sup> Refer ASX announcement: 10 March 2020, Nifty Resource Update.



at the western end of the optimised pit shells. Preliminary analysis suggests that optimisations using the Nifty Sulphide Mineral Resource estimate as at 31 December 2019 will have a positive impact on the optimal pit shells and materially extend mine life and improve project economics.

The Study is based on the following assumptions:

- The Project will utilise the existing 2.8 Mtpa capacity copper concentrator, 25,000 tpa capacity heap leach SX/EW facility, 21 MW power station, licensed and established waste dumps and tailings storage facility, accommodation village and all-weather jet capable airport.
- The open pit will be mined over approximately 10 years in four stages at an average strip ratio of 7.6:1 to produce a total of approximately 23Mt of concentrator feed at an average grade of 1.24% Cu.
- Average annual copper-in-concentrate production of 26,000 tonnes per annum<sup>1</sup>.
- The heap leach SX/EW facility will operate for eight years, producing approximately 44,000 tonnes of copper cathode from an estimated 2.6 Mt of oxide ore mined from the open pit, at an expected grade of approximately 0.9% Cu and from the restacking and reprocessing of approximately 14Mt at a grade of 0.44% Cu from the partially-spent existing leach pads<sup>1</sup>.
- Copper concentrate and copper cathode is trucked to a storage facility located at Port Hedland, approximately 350km from Nifty, before shipping for smelting and refining.

The development of an open pit operation at Nifty, as an expansion to the existing open pit, requires minimal works given that the majority of infrastructure and services are already in place, and have been maintained in a ready-to-start condition since suspension of operations in November 2019<sup>5</sup>.

It is expected that when the Project is at full production it will employ in excess of 300 personnel, with owner processing operations and contract open pit mining.

The Study, completed to a Scoping Study level, demonstrates a technically feasible and economically attractive development of an open pit operation, utilising the existing processing facilities and infrastructure. The Company believes that this positive outcome of the Scoping Study supports progressing to a full Feasibility Study.



## GEOLOGY AND MINERAL RESOURCES

### GEOLOGY

The Nifty copper deposit is hosted within the Neoproterozoic Broadhurst Formation which comprises part of the Yeneena Supergroup. Within the deposit area the host rocks are divided into four informal members: the Footwall Beds, the Nifty Carbonate Member, the Pyritic Marker and the Hangingwall Beds (Figure 2).

The deposit comprises supergene oxide, sulphide and transitional mineralisation above stratabound hypogene sulphide mineralisation hosted by carbonaceous and dolomitic shales, principally within the Nifty Carbonate Member. This includes the Middle Carbonate Unit (**MCU**) and the Lower Carbonate Unit (**LCU**). Hypogene mineralisation is localised in the north-eastern limb and keel of the 15°SE plunging Nifty Syncline and extends for >1,300 m down plunge. Mineralisation is simple, with the only major sulphide minerals being chalcopyrite and pyrite, with minor sphalerite and galena.

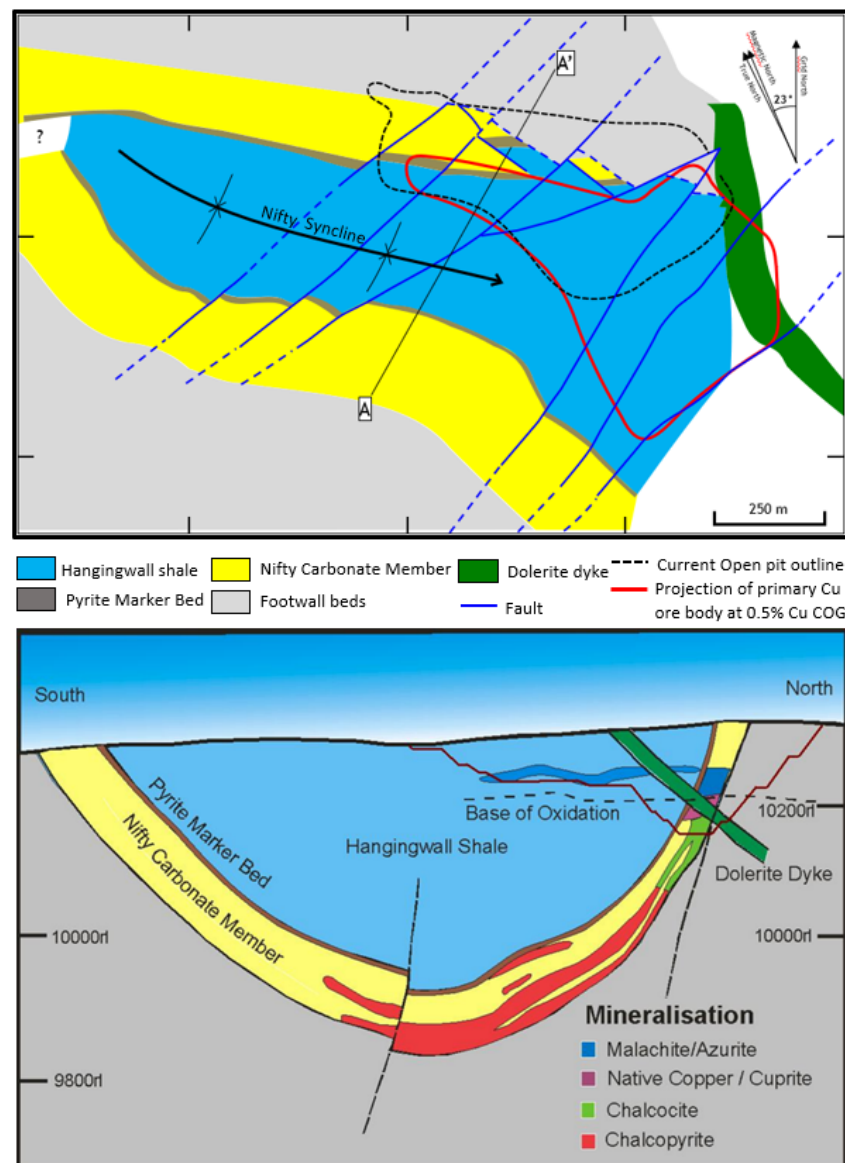


FIGURE 2 – SCHEMATIC GEOLOGICAL PLAN & X-SECTION OF THE NIFTY COPPER DEPOSIT



Weathering of the deposit has altered the mineralisation to a depth of around 200 m, with three main styles of copper mineralisation occurring:

- Oxide dominated mineralisation comprising malachite, azurite, cuprite and native copper which extends to depths of up to 100 m below the surface.
- Supergene secondary sulphide mineralisation overlying the base of oxidation. This style of mineralisation is dominated by chalcocite and occurs typically between 100 m and 200 m below the surface.
- Primary sulphide mineralisation in quartz-dolomite altered carbonates and shales. The primary copper mineral is chalcopyrite with minor covellite and bornite. Pyrite is a common gangue mineral but only occurs with chalcopyrite on the margins of the deposit. The primary sulphide mineralisation is located mainly in the keel of the syncline.

The historic open pit is situated around the northern limb of the syncline and previously mined oxide ore, transitional ore and some of the supergene mineralisation.

## DEFINED MINERAL RESOURCES

The Mineral Resource estimates for Nifty have been prepared in accordance with the JORC Code (2012 Edition).

The Mineral Resource estimate used for the study included the Nifty Oxide Mineral Resource as at 31 March 2016<sup>6</sup>, the Heap Leach Mineral Resource estimate as at 31 March 2015<sup>7</sup> and the Nifty Sulphide Mineral Resource estimate as at 31 March 2019<sup>8</sup> (**2019 MRE**). The Company has subsequently released an updated Nifty Sulphide Mineral Resource estimate as at 31 December 2019<sup>9</sup> (**2020 MRE**).

There have been no material changes to these Mineral Resource estimates since the dates of these publications.

The Nifty Oxide and Heap Leach Mineral Resource estimates were undertaken by Aditya Birla Limited which is now a wholly owned subsidiary of Metals X. These estimations were prepared with the assistance of external specialist Mineral Resource consultants. A review of these estimations was undertaken by the Company as part of the Study, which confirmed that the parameters used were appropriate and the estimation process followed good industry practice.

TABLE 1 – NIFTY COPPER OPERATION - MINERAL RESOURCE ESTIMATES

Used For Pit Optimisations	Deposit	Mineral Resource Category	Mt <sup>A</sup>	Grade %Cu	Copper Tonnes <sup>A</sup>
	2019 Nifty Sulphide <sup>B</sup>	Measured	23.43	1.66	388,100
		Indicated	7.12	1.32	94,300
		Inferred	5.73	1.10	63,100
		Total	36.28	1.50	545,600
	Nifty Oxide <sup>C</sup>	Measured	1.43	0.91	13,000
		Indicated	1.22	0.86	10,000
		Inferred	1.68	0.83	14,000
		Total	4.33	0.86	37,000
	Nifty Heap Leach <sup>D</sup>	Measured	-	-	-
		Indicated	9.93	0.45	44,700
		Inferred	2.59	0.41	10,600
		Total	12.52	0.44	55,100
	Total Scoping Study Resource	Measured	24.86	1.61	401,100
		Indicated	18.27	0.81	149,000
		Inferred	10.0	0.88	87,700
Total		53.13	1.20	637,700	

Notes:

- Tonnes are reported as million tonnes (Mt) and rounded to the nearest 10,000; Cu tonnes are rounded to the nearest 100 tonnes; rounding may result in some slight apparent discrepancies in totals.
- Calculated by Metals X using a cut-off grade of 0.75% Cu.
- Calculated by Aditya Birla Minerals Limited (a wholly owned subsidiary of Metals X) as at 31 March 2016 using a cut-off grade of 0.40% Cu.
- Calculated by Aditya Birla Minerals Limited (a wholly owned subsidiary of Metals X) as at 31 March 2015 using a cut-off grade of 0.20% Cu.

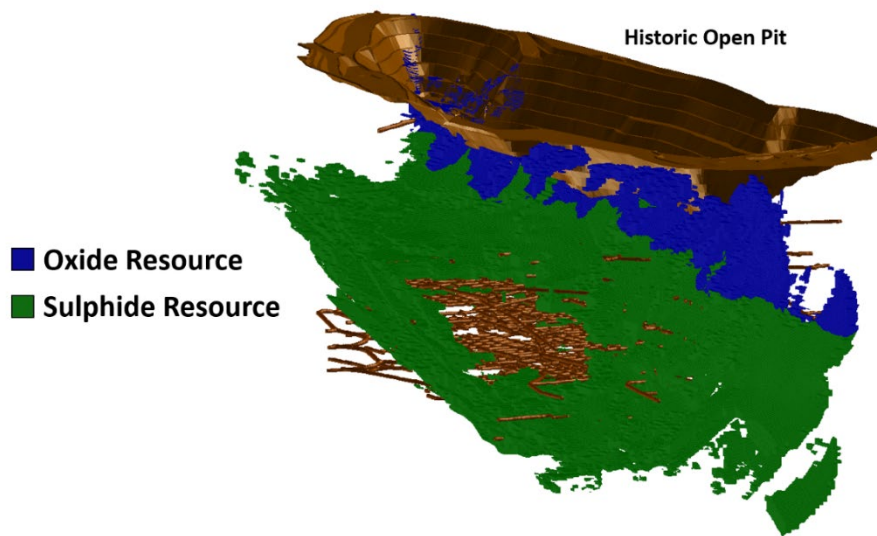


FIGURE 3 – ISOMETRIC VIEW OF COMPONENT MINERAL RESOURCE ESTIMATES USED IN THE STUDY

## RESOURCE DEFINITION OPPORTUNITIES

A review of the oxide and sulphide resource models relative to the expanded open pit considered in the Study identified three key areas of potential additional copper mineralisation, that if confirmed by drilling, could be available earlier in the mining schedule if confirmed by further open pit optimisation:

- **Northwest Target:** Defined by a current low-grade zone in the resource block model (0.2% - 0.6% Cu) located where the north limb of the Nifty Syncline flattens into the keel. The target is a 140 m long x 90 m wide x 60 m high section of the key host MCU and LCU which is currently poorly drilled and based on geological modelling, is expected to host higher grade copper mineralisation.
- **West End Target:** Defined by an area adjoining immediately to the west and up-plunge of the Study optimised open pit shell and which currently comprises a poorly drilled zone of Inferred resources (approximately 3.9 Mt at 0.69% Cu) hosted in the MCU and LCU (Figure 4). This target is of particular significance as being located in the up-plunge shallower position; any additional defined mineralisation could potentially provide additional mill feed earlier in the mining schedule.
- **Southeast Supergene Target:** Defined by an area of poorly drilled oxide copper mineralisation located at the south-eastern edge of the historic open pit. The current Inferred resource of 877 kt at 0.96% Cu remains open to the south and southeast.

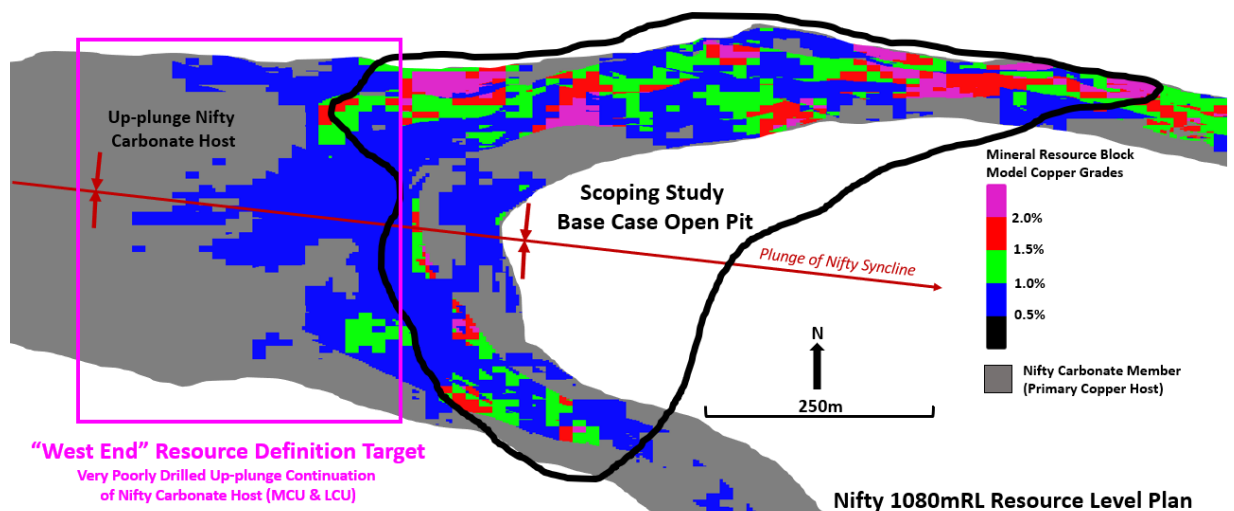


FIGURE 4 – WEST END' RESOURCE DEFINITION TARGET



## INFRASTRUCTURE AND SERVICES

Nifty is a fully permitted operation supported by existing infrastructure and services (Figure 5) that are already in place and have been maintained in a ready-to-start condition since suspension of operations in November 2019<sup>5</sup>.

Key infrastructure in place and maintained include:

- 2.8 Mtpa sulphide concentrator.
- 25 ktpa copper cathode heap leach SX/EW facility (permitting for restart required).
- 21 MW gas turbine power station.
- Water supply and reticulation systems including bore field operation.
- Mine village with capacity exceeding 400 persons.
- Jet-capable all-weather airstrip.

The Study has assumed infrastructure upgrades to the mine village, power station, and airstrip. Further studies will assess the initial and sustaining capital requirements to ensure the infrastructure is in a fit-for-purpose condition and maintained for the life of the mine.

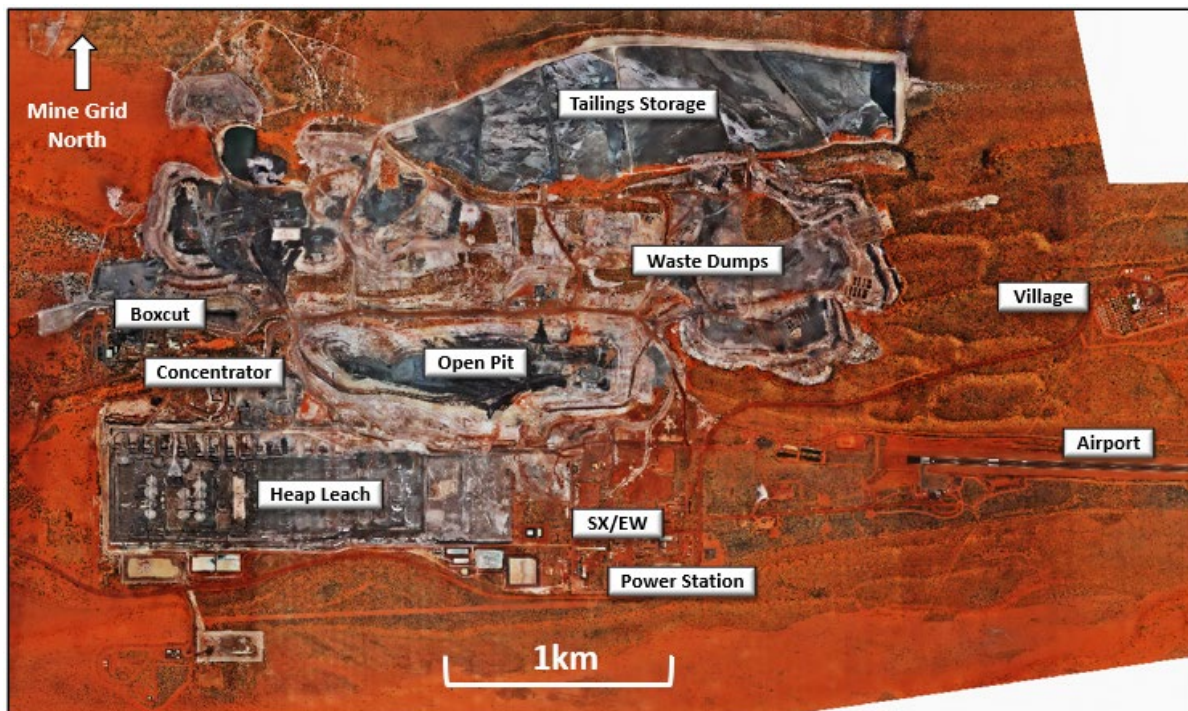


FIGURE 5 – NIFTY COPPER OPERATION - EXISTING KEY INFRASTRUCTURE & SERVICES

## MINING

Metals X engaged leading global mining services provider, Mining Plus Pty Ltd (**Mining Plus**), to undertake open pit optimisation studies as part of the Study.

The Study assumed traditional excavator – truck open pit mining with all mining activities to be performed by a mining contractor.

### MINING ASSUMPTIONS

Pit wall angles used in the Study's open pit optimisation were based on the existing walls in the historical open pit as reported in Table 2. This assumption was made on the basis that, other than in the 'subsidence zone', the walls have remained stable since completion of mining of the historical open pit in 2006. The subsidence zone, which is located in the southeast corner of the historical open pit, occurred during 2014 when underground mining activities resulted in a hangingwall failure of a number of large stopes.

In areas where open pit mining will excavate into the existing underground mine, the slope angles were reduced to 32 degrees to reflect the requirement for additional long-term stability.

**TABLE 2 – OPTIMISATION STUDY PIT WALL ANGLES**

Material	Overall Wall Angle ("OWA")	Optimisation Wall Angles
Oxide	37°	Nth wall = 40°; Sth wall = 35°
Transitional	33°	Nth wall = 50°; Sth wall = 35°
Chalcocite	38°	Nth wall = 50°; Sth wall = 35°
Fresh	42°	Nth wall = 60°; Sth wall = 45°
Leach Pad	29°	Nth wall = 30°; Sth wall = 30°
Backfill	29°	Nth wall = 30°; Sth wall = 30°

Mining costs have been assumed at contractor rates provided by Mining Plus, cross checked against industry benchmarks for calibration. Mining assumptions for both productivity and cost are based on a 120 tonne diesel hydraulic excavator - 120 tonne truck fleet combination, which, due to possibly being smaller than optimal, may provide cost and productivity opportunities in the future.

Cut-off grades were calculated for the various ore types based on benchmarked mining costs, recent historical processing, G&A, site support, sales and recent metallurgical recovery, concentrate grades and marketing performance for the Project.

**TABLE 3 – ESTIMATED CUT-OFF GRADES**

Material	Diluted Cut-off (%Cu)	Dilution (%t)	Undiluted cut-off grade (%Cu)
Oxide	0.67	10%	0.75
Trans	0.52	10%	0.58
Sulphide	0.47	10%	0.53

An overall mining dilution factor of 10% was applied to all mill feed blocks and a mining loss of 5% was also applied in all optimisation scenarios.

### OPEN PIT OPTIMISATION AND SCHEDULES<sup>1</sup>

Open pit optimisations were carried out to identify and quantify a potential Production Target within optimal Pit Shells. The open pit optimisation was undertaken utilising Dassault Systèmes Australia (Geovia) Whittle™ software, which generates a series of nested Pit Shells using "Revenue Factors" based on a set of financial and other assumptions such as costs and metal prices. The Pit Shells giving the highest undiscounted cashflow values for a given set of optimisation assumptions were then selected for scheduling.

An Open Pit Life-of-Mine (**LOM**) schedule was completed for the Project based on a sulphide ore treatment rate of 2.8 Mtpa through the existing copper concentrator.



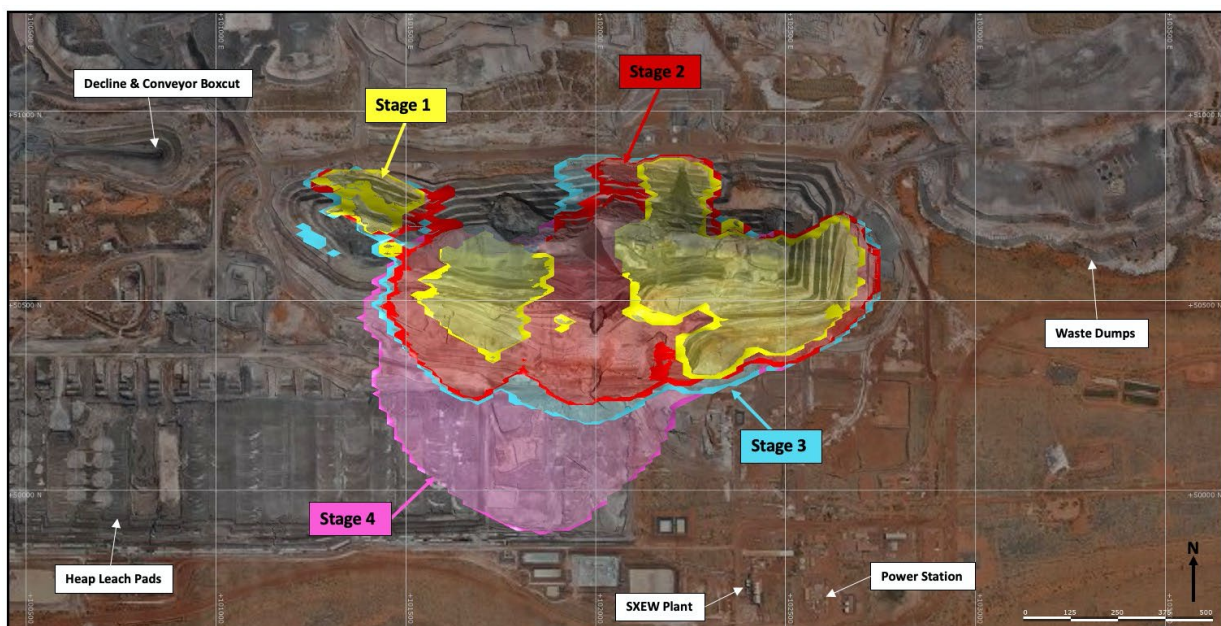
Table 4 presents the tonnes and grades of the Mineral Resources enclosed within the Whittle Optimal Pit Shell, which is the basis of the Production Target and LOM mining schedule. The Production Target presented in this section is inclusive of Inferred Resources (4% of total tonnage) and thus does not constitute an Ore Reserve estimate that complies with JORC reporting requirements. The Production Target is inclusive of dilution and recovery assumptions.

A total of 96% of material in the Production Target is in either the Measured (68%) or Indicated (28%) Resource classification category.

**TABLE 4 – MINERAL RESOURCE CATEGORIES CONTAINED IN WHITTLE OPTIMAL PIT SHELL (PRODUCTION TARGET)<sup>1</sup>**

Category	Million Tonnes (Mt)	Grade (%Cu)	Contained Copper (tonnes)	Proportion (% of total Cu)
Measured	14.45	1.3	195,000	68%
Indicated	7.65	1.1	82,000	28%
Inferred	1.17	1.1	12,000	4%
<b>Total</b>	<b>23.27</b>	<b>1.2</b>	<b>289,000</b>	<b>100%</b>

The LOM mining schedule (Figures 6, 7 and 8) indicates that mining will occur in at least four pit stages over 10 years and will produce a total of approximately 23 Mt of concentrator feed at an average waste to ore strip ratio of 7.6:1. The pit stages and mining schedules have been developed from the optimisation pit shells; detailed pit design or pit staging criteria has not been completed. Further studies will re-optimize the pit shells, pit staging configuration, strip ratios, and waste and concentrate feed requirements, following the update to the Mineral Resource after further planned resource definition drilling.



**FIGURE 6 – OPEN PIT STAGES**

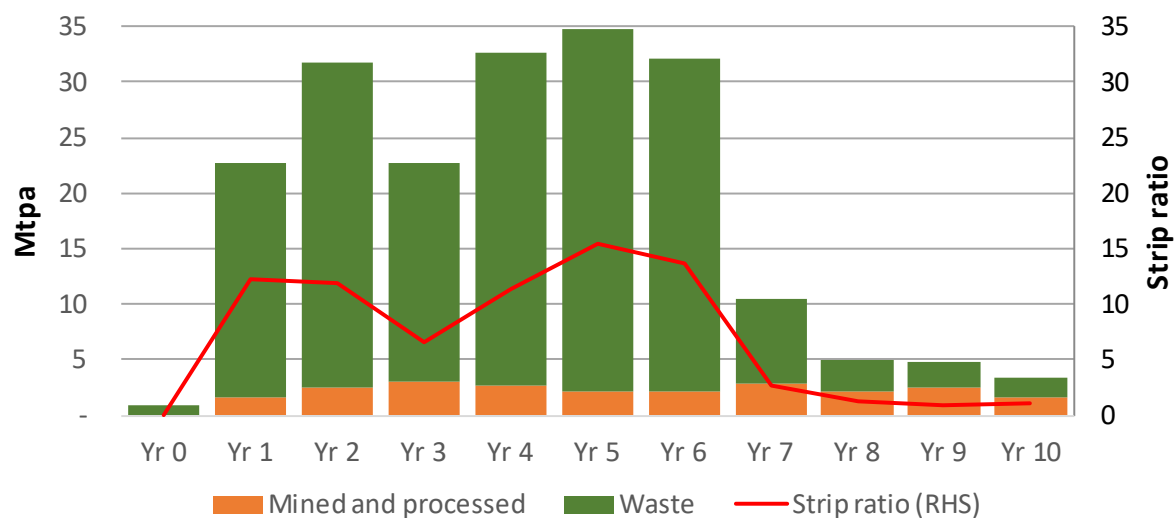


FIGURE 7 – LOM OPEN PIT MINING SCHEDULE

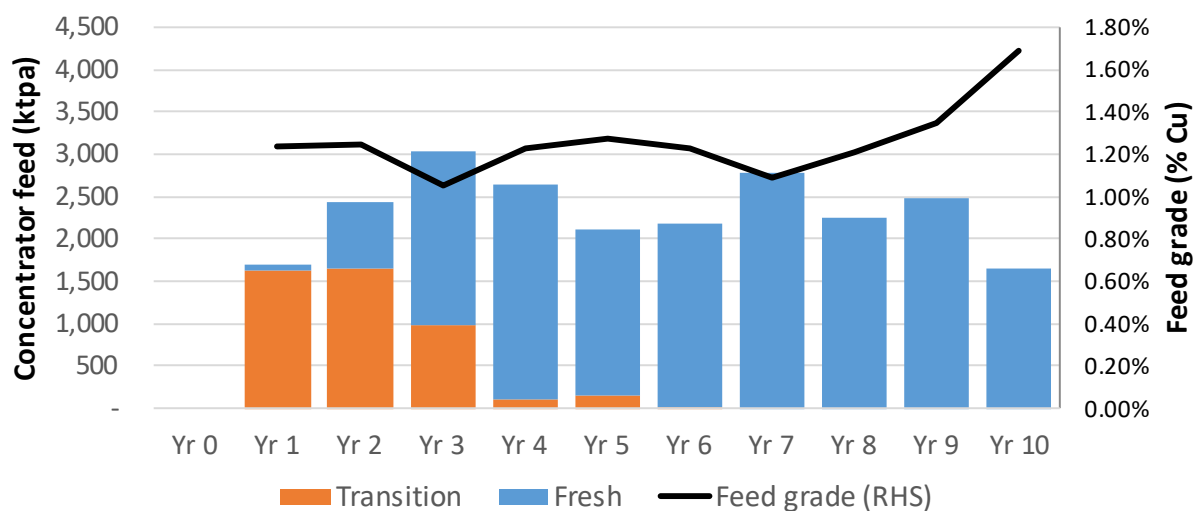


FIGURE 8 – LOM CONCENTRATOR OPEN PIT FEED

## METALLURGY AND PROCESSING

A variety of ore types have been processed at Nifty since 1993, with initial processing of oxide ore via a heap leach and SX/EW operation. First copper concentrate was produced in 2006 with production continuing until the operation was placed into care and maintenance in November 2019.

Over the life of Nifty, 219,076 tonnes of cathode copper have been produced from the heap leach SX/EW facility and 495,832 tonnes of copper in copper concentrate has been produced from the concentrator facility.

The Study evaluated the option of oxide material produced from the open pit being processed through the heap leach and SX/EW processing plant; the open pit only option has assumed that oxide material was treated as waste and stockpiled adjacent to the waste dumps, while the transitional and sulphide material will be processed through the concentrator.

### COPPER CONCENTRATOR

During 2019, the concentrator processing plant at Nifty achieved throughput rates of 370 tonnes per hour or 3 Mtpa for sustained periods. Based on this performance the Study has assumed a long term sustained processing rate of 2.8 Mtpa.

The processing plant infrastructure comprises;

- ROM pads with >100,000 tonne capacity.
- Primary surface jaw crusher.
- Conventional flotation concentrator including SAG mill, ball mill, flotation cells, filter plant, concentrator thicker, tails thickener and paste fill plant.



PHOTO 1 – NIFTY SULPHIDE CONCENTRATOR



Over the 10-year open pit life modelled in the Study, 23 million tonnes are processed through the concentrator at an average grade of 1.24% copper (Figure 9). A total of 262,000 tonnes of copper in concentrate is produced.

All sulphide copper ores historically processed at Nifty were sourced from either the open pit or underground operations. Consequently, metallurgical performance is well understood and recorded. The Study assumes a similar metallurgical performance to that historically achieved through processing of the respective ore types and processing routes<sup>10</sup>.

Sulphide ore processing recovery and cost assumptions used in the Study, based on actual historical data from Nifty, include:

- Copper recovery from fresh sulphide ores of between 91 – 93% with an average of 92.4%.
- Copper recovery from transitional ores of between 81-84% with an average of 83.4%.
- Overall copper recovery for the 10-year production profile of approximately 90.7%.

While transitional material has previously been successfully processed through the concentrator, additional metallurgical test work has been recommended as part of future studies. Over the 10-year open pit life, a total of 970,000 dry metric tonnes of copper concentrate is produced, at a concentrate grade of 27% Cu, for 262,000 tonnes of copper in concentrate<sup>1</sup>.

The copper concentrate produced is a clean, high value concentrate containing negligible penalty elements.

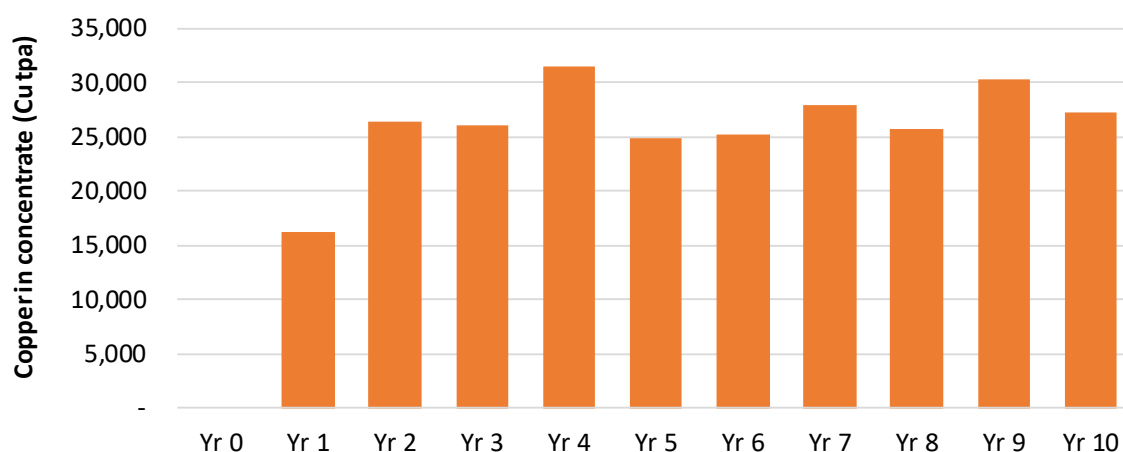


FIGURE 9 – COPPER IN CONCENTRATE PRODUCTION

## HEAP LEACH & SX/EW PLANT

The Heap Leach & SX/EW facility at Nifty has previously operated at annualised rates of 25,000 tpa of cathode copper. However, the facility has been on care & maintenance since 2009. As part of the Study, the specialist hydrometallurgical electromechanical consultant, NewPro Consulting and Engineering Services Pty Ltd (**NewPro**)<sup>11</sup>, were engaged to review the condition of the infrastructure, estimate refurbishment costs and provide metallurgical performance and operational cost guidance.

The NewPro review concluded that the heap leach and SX/EW plant and infrastructure is in fair condition and can be refurbished to produce up to a targeted 6,500 tonnes per annum of cathode copper.

<sup>10</sup> Refer to ASX Announcements for Aditya Birla Minerals Limited (ASX:ABY) and Metals X Limited (ASX:MLX), Quarterly Reports and Annual Reports for historical processing performance.

<sup>11</sup> New Pro Consulting and Engineering Services Pty Ltd - process plant and project delivery consultant, with significant expertise in hydrometallurgical plant.

Re-start of the heap leach SX/EW facility at Nifty involves:

- Refurbishment of existing heap leach agglomeration, stacking/materials equipment, and irrigation systems.
- Construction of additional leach pad capacity.
- Refurbishment of existing solvent extraction (SX), and electrowinning (EW) facilities; only necessary sections of the SX/EW facilities to match the expected production rates from the heap leach will be refurbished..
- Re-instatement of supporting reagent/utility systems.

The Study assumes recommencement of heap leach activities in parallel to the recommencement of sulphide material processing. Further studies will confirm the optimal sequencing given that open pit mining will impact the eastern end of the existing heap leach pads (Figure 5).

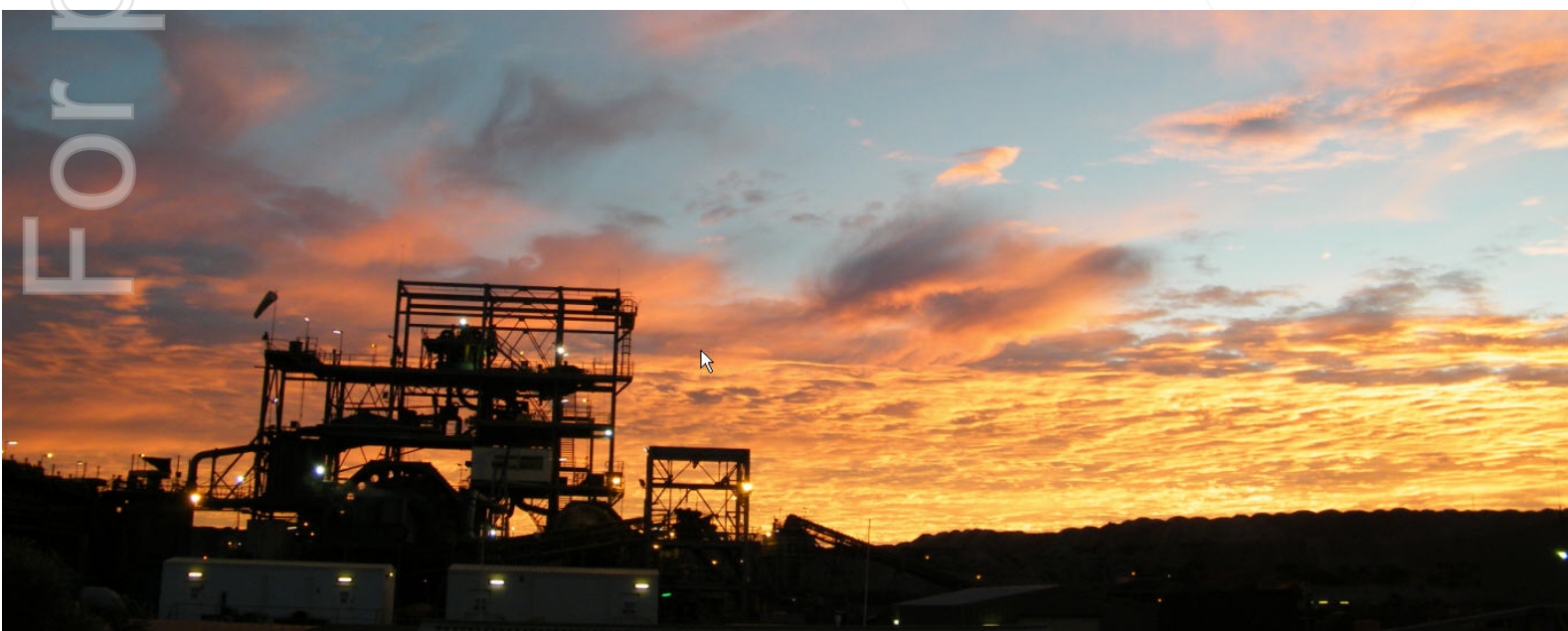
Copper recoveries from the partially spent historical heap leach pads and from additional oxide material from the open pit has been based on actual historical data. In addition, as part of the Study, sighter metallurgical test work was undertaken including copper sequential leaching, to determine remnant acid soluble copper, and gangue acid consumption analysis. As a result, key metallurgical assumptions include:

- Copper recovery from historic leach pads of 40%.
- Copper recovery from “fresh” oxide ores of 74%.
- Gangue acid consumption within historic leach pads of 14.5 kg/t.
- Gangue acid consumption within new fresh oxide ores of 55 kg/t.

While Nifty oxide ores have previously successfully been processed through heap leach & SX/EW, additional metallurgical testwork has been recommended as part of future studies.

Based on the completed Study it is expected that over an eight year operational life, the SX/EW facility will produce approximately 44,000 tonnes<sup>1</sup> of copper cathode through leaching and processing:

- 2.6 Mt of additional oxide material mined from the open pit at a grade of approximately 0.9% Cu.
- Reprocessing, via re-mining and re-stacking of approximately 14 Mt of partially spent ore located on the existing leach pads at an estimated average grade of approximately 0.44% Cu.



## ENVIRONMENT AND APPROVALS

### PERMITTING

Nifty is a fully permitted and licenced mining operation and is located on Mining Lease M271SA.

The Tailings Storage Facility (TSF) is fully licensed and permitted with existing sufficient capacity for the initial two years of the Project. There is sufficient area for the proposed expanded TSF facilities to support the ten years of operation proposed in the Study.

Additional licencing and approvals will be required for the expanded waste dumps and TSF as part of the on-going operation to match the Production Target and restart of the heap leach SX/EW operation. These proposals would be submitted, and approvals sought during future studies and initial mining and processing phases of the Project. It is anticipated that these approvals will take three to six months.

It is expected that when the Project is at full production it will employ in excess of 300 personnel with owner-operator processing operations and contract open pit mining.

### ENVIRONMENT AND REHABILITATION

The Company continues to meet its environmental obligations. The open pit offers the opportunity for significantly improved integrated landforms which will benefit the environment and assist with reducing total earthworks required for ongoing rehabilitation. These opportunities are currently being further developed as part of the Company's mine closure planning.





## FINANCIALS

### CAPITAL

Estimated total pre-production capital for the open pit is approximately \$49 million (Table 5) and the heap leach (standalone) option is approximately \$18 million (Table 6), including Feasibility Study, metallurgical testwork, pre-production drilling, pre-strip, move from care & maintenance back into operation, ramp-up and working capital.

**TABLE 5 – OPEN PIT CAPITAL COST ESTIMATE**

Item	Pre-Production	LoM	Total
Study & transition from C&M	\$6.9M		\$6.9M
Pre-production drilling	\$3.3M		\$3.3M
Pre-strip	\$8.2M		\$8.2M
TSF Lift	\$4.0M		\$4.0M
Infrastructure Upgrade	\$8.3M		\$8.3M
Owners Costs	\$1.7M		\$1.7M
Contingency	\$7.4M		\$7.4M
Stores/working capital	\$5.0M		\$5.0M
Other pre-production	\$4.8M		\$4.8M
Refurbishments in Year 2		\$9.0M	\$9.0M
Additional TSF		\$12.0M	\$12.0M
Other sustaining Capital		\$41.0M	\$41.0M
<b>Totals</b>	<b>\$49.5M</b>	<b>\$62.0M</b>	<b>\$111.5M</b>

*Note: The open pit feasibility study costs includes the heap leach study, drilling and metallurgical test work. Due to rounding, numbers presented may not add up precisely.*

**TABLE 6 – HEAP LEACH (STANDALONE) CAPITAL COST ESTIMATE**

Item	Pre-production	LoM	Total
Study	\$0.6M		\$0.6M
Pre-production Drilling	\$0.6M		\$0.6M
Metallurgical Testwork	\$0.7M		\$0.7M
Permitting	\$0.1M		\$0.1M
Direct costs	\$13.5M		\$13.5M
Owner's costs	\$1.4M		\$1.4M
First Fill & Working Capital	\$0.7M		\$0.7M
Sustaining capital	-	\$2.2M	\$2.2M
<b>Totals</b>	<b>\$17.6M</b>	<b>\$2.2M</b>	<b>\$19.8M</b>

*Note: Due to rounding, numbers presented may not add up precisely.*

In addition to the above capital, an estimated \$30 million of progressive rehabilitation is included in the Study. Currently a rehabilitation liability of \$38 million has been recognised by Metals X. The liability will be updated following completion of further studies. Further work is required in regard to mine closure planning and integrated and rehabilitated landforms in further studies.

### OPERATING COSTS

The operating costs for the Study are shown in Table 7. Mining costs have been assumed at contractor rates, cross checked against industry benchmarks for calibration. Concentrator, G&A, sales & marketing, royalties and sustaining capital are based on historical Nifty costs, Heap leach SX/EW operating costs were estimated based on a combination of historical costs and estimates undertaken by NewPro.

TABLE 7 – OPEN PIT OPERATING COST ESTIMATE

Item	\$M LoM	\$/t processed	\$/t Cu produced
Mining	641	27.54	2,447
Processing	423	18.18	1,616
G&A	130	5.57	495
<b>C1 cost</b>	<b>1,194</b>	<b>51.29</b>	<b>4,558</b>
Sales & marketing	108	4.62	411
Royalties	113	4.85	431
<b>Cash operating cost</b>	<b>1,415</b>	<b>60.76</b>	<b>5,400</b>
Sustaining capital	53	2.29	203
<b>All-in sustaining cost (AISC)</b>	<b>1,468</b>	<b>63.05</b>	<b>5,603</b>

Note: treatment and refining charges (TC/RC) have not been included in operating costs for the open pit as copper will be sold as concentrate and revenue reported net of TC/RCs from payable copper as is standard practice.

TABLE 8 – HEAP LEACH OPERATING COST ESTIMATE

Item	\$M LoM	\$/t processed	\$/t Cu produced
Mining/handling	51	3.06	1,156
Heap Leach	117	7.05	2,659
SX	29	1.75	659
EW	33	2.02	763
Reagent/other	2	0.13	47
<b>C1 cost</b>	<b>232</b>	<b>14.01</b>	<b>5,284</b>
Sales & marketing	4	0.26	99
Royalties	13	0.78	295
<b>Cash operating cost</b>	<b>249</b>	<b>15.05</b>	<b>5,678</b>
Sustaining capital	2	0.13	49
<b>All-in sustaining cost (AISC)</b>	<b>251</b>	<b>15.18</b>	<b>5,727</b>

## ROYALTIES

Copper produced at Nifty is subject to Western Australian State Government royalties which vary depending upon the form in which the mineral is sold. Copper in concentrate is subject to a 5.0% ad-valorem royalty and copper cathode to a 2.5% ad-valorem royalty. The royalty value subject to the royalty percentage is based on gross invoice values net of allowable deductions including certain transport costs as detailed in the Mining Regulation 1981.

A third-party royalty agreement (**South32 Royalty**) exists between Nifty Copper Operations Pty Ltd and BHP Royalty Investments Pty Ltd (now South32 Limited) for a defined area that includes the State Agreement M271SA. Under the terms of the South32 Royalty, a royalty of 1.5% of the realised value of commercial production is payable on any copper exceeding a cumulative 800,000 tonnes of contained metal. Between commencement of the Nifty oxide operation and 30 November 2019, when the sulphide concentrator completed milling all available ores and operations were suspended, Nifty has produced approximately 715,000 tonnes of copper from the royalty area as defined under the South32 Royalty.

## COPPER PRICE

The Study assumes a long term copper price of US\$5,780 per tonne of copper at an exchange rate of 0.68 USD/AUD for A\$8,500 per tonne of copper. The price assumption is based on the average of recent consensus forecasts for the next 10 years for both copper and exchange rate.

## COPPER MARKETING

All copper concentrate production from Nifty is subject to the existing off-take agreement with Hindalco Industries Limited of India. Under the terms of the contract, treatment and refining charges are adjusted annually to international benchmark. Typically, payable copper net of treatment and refining charges is 88 – 90% of the copper price.

For the Study, TC/RCs are assumed at US\$75 per dry metric tonne of concentrate and US\$7.5c/lb of copper, with 96.3% of copper payable. This results in a net deduction off the assumed copper price of A\$960 per tonne of copper at the assumed exchange rate of 0.68.

Offtake arrangements for copper cathode production from the heap leach will be negotiated in accordance with typical contracts based on international benchmarking.

## CASH FLOW

The preliminary economic analysis provides a cumulative net pre-tax cashflow of the combined open pit and heap leach of \$523 million as shown in Figure 10.

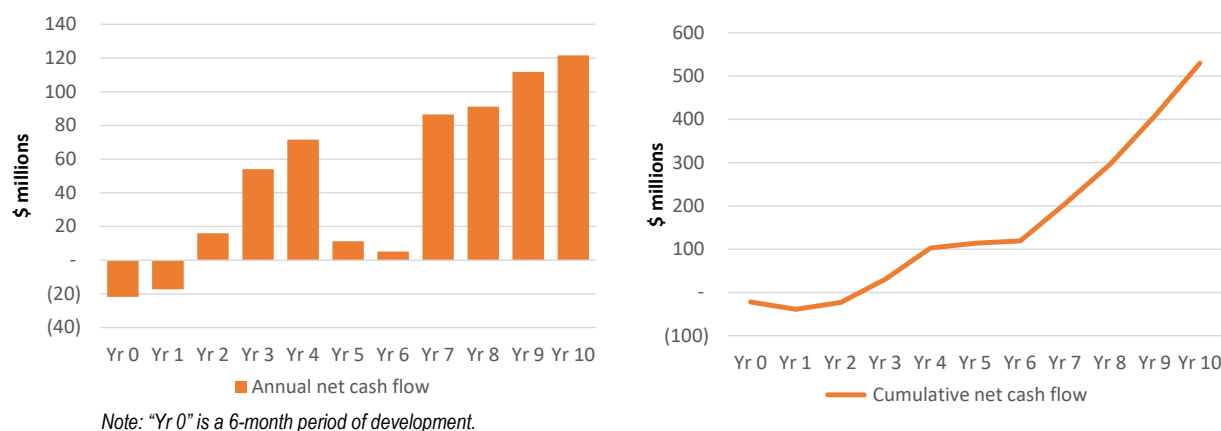


FIGURE 10 – ANNUAL AND CUMULATIVE NET CASH FLOW (PRE-TAX) FOR COMBINED OPEN PIT AND HEAP LEACH

## EVALUATION

A summary of the results of the preliminary economic analysis conducted in the Study is shown in Tables 9 and 10. The analysis shows positive economics and a high rate of return for the open pit, standalone heap leach option and the combined operation. Pre-production capital includes the Feasibility Study and associated drilling and testwork costs.

Net Present Value (NPV) and Internal Rate of Return (IRR) are calculated at July 2020 at the proposed commencement date of the Feasibility Study. Revenue is expressed net of treatment and refining charges, with payable copper approximately 96.3%.

On a post-tax basis, the project economics will benefit from Metals X's significant accumulated tax losses.

TABLE 9 – NIFTY SCOPING STUDY VALUATION METRICS (PRE-TAX)

Valuation	Units	Open Pit	Heap Leach	Combined
NPV @ 10%	\$M	181	61	242
NPV / Initial Capex	ratio	3.7	3.5	3.6
IRR (% pa)	% pa	52	106	61
PAYBACK	years	3	2	2.5

TABLE 10 – NIFTY SCOPING STUDY KEY PRODUCTION AND FINANCIAL METRICS FOR LIFE OF MINE

Metric	Units	Open Pit	Heap Leach	Combined
Copper production	T Cu	262,000	44,000	306,000
Net revenue	\$M	1,975	373	2,348
C1 costs	\$M	(1,193)	(232)	(1,425)
Sales & marketing, royalties	\$M	(222)	(17)	(239)
EBITDA	\$M	560	124	684
Pre-production capital	\$M	(49)	(18)	(67)
Other project capital	\$M	(9)	-	(9)
Sustaining capital	\$M	(53)	(2)	(55)
Rehabilitation	\$M	(30)	-	(30)
Net cashflow	\$M	419	104	523

Note: all rehabilitation is charged against the open pit. There may be apparent discrepancy in totals due to rounding.



## SENSITIVITY

Sensitivities for NPV (pre-tax) for the key value drivers of the open pit and heap leach are shown in Figures 11 and 12. The sensitivities in the graphs are individual, not cumulative.

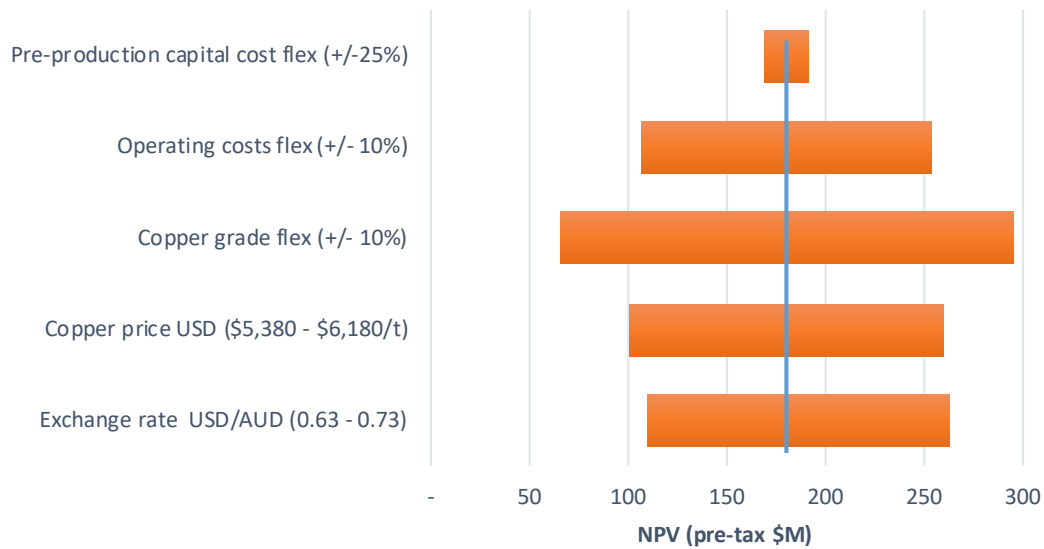


FIGURE 11 – OPEN PIT NPV SENSITIVITY ANALYSIS

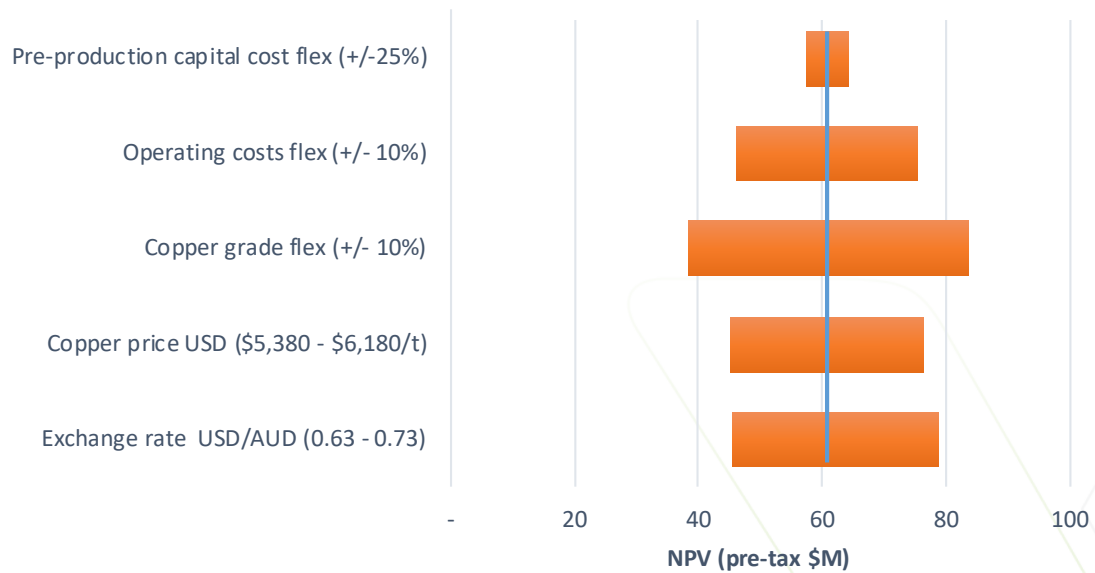


FIGURE 12 – HEAP LEACH NPV SENSITIVITY ANALYSIS

## RISKS AND OPPORTUNITIES

### OPPORTUNITIES

- Studies to date show no fatal flaws.
- 96% of the Resources that underpin the Production Target are Measured and Indicated Resource categories. This provides a high degree of confidence in the Project and is expected to result in the delineation of a significant Ore Reserve at the completion of the Feasibility Study.
- The Project is fully permitted for the open pit, with site infrastructure including a power station, accommodation camp and all-weather jet capable airstrip being maintained with the ability for a rapid re-start.
- The deposit has been mined and processed previously and is well understood, including its metallurgical recovery characteristics.
- The Project is highly leveraged to the copper price with a relatively low upfront capital cost and AISC.
- The Study assumes a relatively small-scale mining fleet, typical of those used in open pit mining in the eastern Goldfields of Western Australia. The size and scale of the proposed pit would provide the opportunity to reduce mining costs through selection of larger sized equipment than that assumed in the Study.
- Resource definition drilling planned for the Feasibility Study will target key target zones in the open pit where historical drilling is sparse. This is expected to add additional material to the Mineral Resource.
- The 2020 Mineral Resource estimate reported increased contained copper. It is expected that pit optimisations on the basis of this resource will result in a larger Production Target.

### RISKS

- Negative copper price and exchange rate fluctuations present a threat to the Project.
- The proposed open pit requires significant cutback of the historical pit walls, mining in and through the subsidence zone and deepening of the existing pit. Geotechnical and pit wall stability will be a risk for the Project and as such are a key component of the Feasibility Study, including geotechnical drilling and further geotechnical studies.
- Recoveries and leach times for the heap leach. The proposed Feasibility Study includes drilling of the existing pads and further metallurgical column leach test work.

## PROJECT IMPLEMENTATION

The Study has demonstrated that the development and operation of large-scale open pit mining, through expansion of the historical open pit at Nifty, is both technically and financially feasible and attractive. Following the release of this Study, the forward work program involves completion of a Feasibility Study.

The Feasibility Study will utilise the services of suitably experienced resource, mining, metallurgical and engineering consultants under the management of Metals X. The Feasibility Study is estimated to cost approximately \$10 million including approximately \$3 million for resource definition drilling.

Key areas of focus for the Feasibility Study will include:

- Resource definition drilling and Mineral Resource update.
- Open pit geotechnical drilling, modelling and assessment.
- Mining studies.
- Waste management assessment and planning.
- Metallurgical test work and processing review.
- SX/EW facility refurbishment studies.
- Site facilities refurbishment studies.
- Water Management studies.
- Landform, waste dumps and tailings storage facility studies.
- Operational strategies including organisation capabilities and design.
- Project execution planning.
- Risk management.
- Project approvals.

Completion of a Feasibility Study is expected to take approximately eight months and recommencement of ore production six to nine months post completion of the Feasibility Study dependent on a Final Investment Decision. The cost of the Feasibility Study, and its formal commencement, is still subject to a formal submission to, and decision by, the Metals X Board of Directors.

There is no certainty that Metals X will be able to source the required development funding, estimated within the Study to be in the order of approximately \$60 - \$80 million, when required.

Metals X has engaged in discussions with potential funders and considers that there is a reasonable expectation that a project of this scale will be able to be funded with a combination of debt and equity. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of Metals X shares. Metals X believes there are a number of different steps that could be considered to fund the development, including placements and/or rights issues, joint venture partner to earn an interest in the project by funding the development activities, loan or mezzanine equity facilities, and streaming or royalty funding.

The Metals X Board and Management have a broad experience in the resources industry. They have played leading roles in the exploration, development, production and funding of resource projects.

Whilst Metals X believes that there is a reasonable expectation that funding for the Project would be available as required, there is no guarantee or assurance that it will be secured.



## COMPETENT PERSONS STATEMENT

### COMPETENT PERSON STATEMENT – NIFTY SULPHIDE MINERAL RESOURCE

The information in this report that relates to the Nifty Sulphide Mineral Resources as at 31 March 2019 and 31 December 2019 have been compiled by Metals X Limited technical employees under the supervision of Mr Kane Hutchinson BSc., who is a member of the Australasian Institute of Mining and Metallurgy. Mr Hutchinson is a full-time employee of the Company and has sufficient experience which is relevant to the style of mineralisation and types of deposit under consideration and to the activities which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves”. Mr Hutchinson consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

### COMPETENT PERSON STATEMENT – NIFTY OXIDE AND NIFTY HEAP LEACH MINERAL RESOURCE

The information in this report that relates to Mineral Resources for Nifty Oxide and Nifty Heap Leach has been extracted from Aditya Birla Minerals Limited’s (a wholly owned subsidiary of Metals X) Mineral Resource Estimate Update, released on 16 May 2016 and is available to view at <http://www.asx.com.au> (ASX:ABY). The Oxide Mineral Resource estimate is at 31 March 2016 and the Heap Leach Mineral Resource estimate is at 31 March 2015 and both were reported in accordance with JORC Code 2012 guidelines. Metals X confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. Metals X confirms that the form and context in which the Competent Persons’ findings are presented have not been materially modified from the original market announcement. In all Resources tables, significant figures do not imply precision. Figures are rounded according to JORC Code guidelines.

### COMPETENT PERSON STATEMENT – PRODUCTION TARGET AND MODIFYING FACTORS

The information in this report that relates to the Production Target, assumptions on Modifying Factors and evaluation of other relevant factors are based on and fairly represents information and supporting documentation that has been compiled for this report and have been compiled under the supervision of Mr Linton Putland BEng (Mining), MSc (Mineral Economics) & Member AusIMM. Mr Putland is a consultant to Metals X. Mr Putland has reviewed and approved the technical content of this report. Mr Putland is a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012). Mr Putland consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.



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