Expanded Ta Khoa Nickel Project Delivers Outstanding Value for Blackstone's Vertically Integrated Business

PFS confirms expansion to provide secure, sustainable and economic supply of nickel for Blackstone to produce NCM Precursor for the Lithium-ion battery industry

Blackstone Minerals Limited ("Blackstone" or the "Company") is pleased to announce completion of the Pre-feasibility Study (PFS) for its 90% owned Ta Khoa Nickel Project (TKNP) in northern Vietnam.

Under the PFS, the TKNP has been optimised to generate maximum value for the Company's overall development strategy. As such, the outcomes of the TKNP PFS have been integrated into Blackstone's overall business development plan to produce Nickel: Cobalt: Manganese (NCM) 811 Precursor products (refer Table 1). The TKNP and Ta Khoa Refinery Project (TKR) are collectively referred to as the Ta Khoa Project.

Table 1, Integrated Ta Khoa Project, Headline Economic Outcomes

	Base Case	Spot Case
Post-tax NPV_8 (US$bn)	1.99	3.57
Post-tax IRR	47%	69%
Payback (years from refinery first production)	1.8	1.3

The Ta Khoa Project represents an innovative and globally significant vertically integrated business strategy to deliver battery grade NCM Precursor products into the burgeoning lithium-ion battery industry. It has the potential to transform Vietnam's role in the movement towards the electrification of transportation and will generate significant socio-economic benefits for the communities in which we operate.

The primary objective of the TKNP is to provide high levels of reliability and security of nickel supply for the TKR. To achieve this objective, the PFS has determined that a larger beneficiation plant enables Blackstone to capture a high proportion of its flagship Ban Phuc disseminated sulfide (DSS) deposit. The TKNP beneficiation plant is then supplemented with feed from the Ban Chang and King Snake underground massive sulfide vein (MSV) deposits.

Key physical outcomes for the TKNP include:

1. **PFS Mining Inventory includes 64.5Mt at a grade of 0.41% Nickel for 264 kt Nickel**
2. **Ban Phuc Probable Mining Reserve of 48.7Mt at a grade of 0.43% Nickel for 210kt Nickel**
   - 76% of mill feed over the Life of Mine (LOM) is in the Probable Reserve category (*from the Indicated Resource category*)
   - 60% increase in contained Nickel metal compared to Scoping Study Base Case (refer ASX announcement 14 October 2020)
   - Increase in processing life from 8.5 years to 9.2 years compared to Scoping Study Base Case
3. **LOM PFS Concentrate Production is 1.9Mt at 8% Nickel for 151 kt Nickel**
   - 39% increase in Nickel in Concentrate Production compared to Scoping Study Base Case
   - ~50% of the TKR feed is provided by the TKNP

The economics of the Ta Khoa Project are underpinned by ~50% concentrate feed for the TKR being provided by the TKNP. The integrated valuation for the Ta Khoa Project, which includes value ascribed to the TKR, relies on technical parameters announced to the ASX on 26 July 2021 – "Blackstone Delivers Exceptional Downstream PFS Results." Parameters that have been updated since that announcement, which primarily relate to concentrate feed profile and macroeconomic assumptions have been detailed in this report. Blackstone owns 90% of the TKNP, however all studies, discussions and outcomes are presented on a 100% project basis.

Integrated Ta Khoa Project Physicals

- First concentrate production from the TKNP achieved in 2025 ramping up to nameplate design of 8.0Mtpa achieved in 2027
- TKNP steady state average annual nickel output (recovered in concentrate) of ~18ktpa (refer Figure 1)
- TKNP steady state average annual concentrate production of ~225ktpa
- Integrated Ta Khoa Project modelled assuming a life-of-operation for the TKR of 10.3 years
  - TKR steady state refining capacity of 400ktpa, with first production of NCM811 Precursor commencing in early 2025
  - ~50% of total concentrate supply from the TKNP, resulting in some stockpiling of TKNP concentrate and refinery – life extension (refer Figure 2)

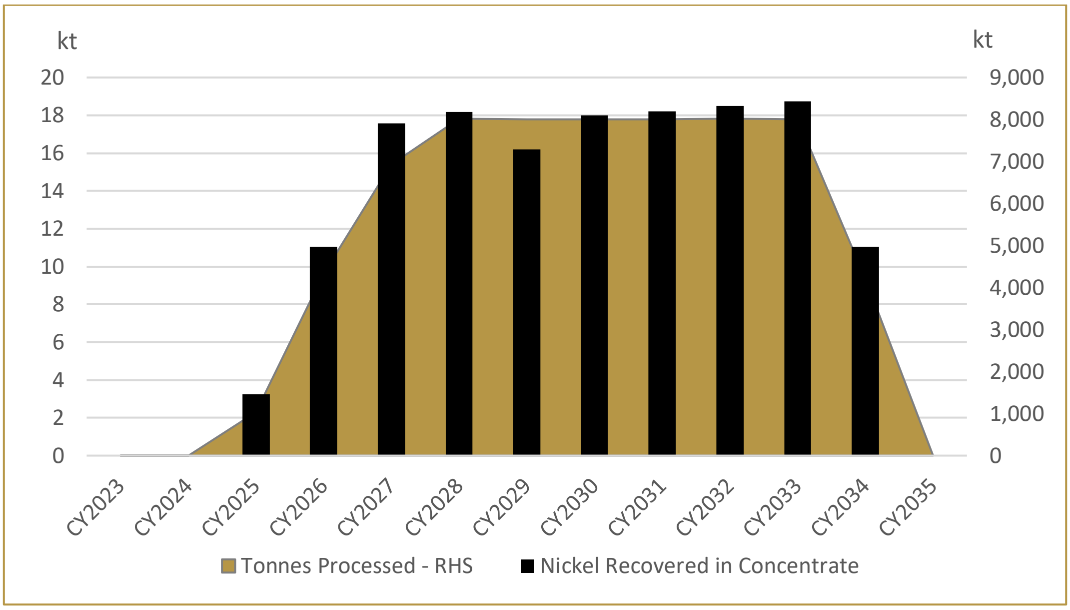

Figure 1: TKNP Processing Throughput & Nickel Recovered in Concentrate Profile

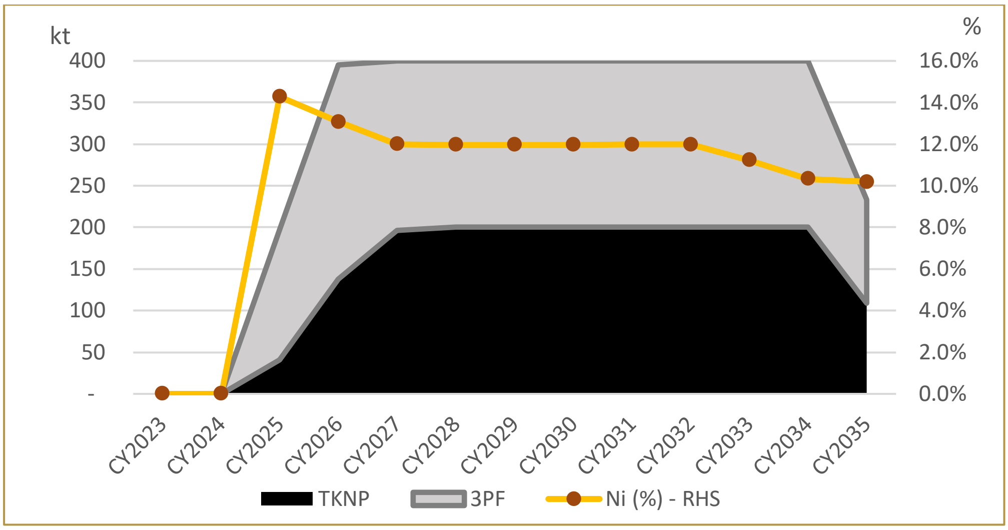

Figure 2: TKR Concentrate Feed Profile

Base Case Economics

- Average nickel metal price and NCM 811 Precursor price applied to the Ta Khoa valuation of US$20,000/t nickel and US$17,670/t NCM811 respectively, both well below spot prices as at the date of this report
- Total Ta Khoa pre-production capital of US$854m
- Maximum cash drawdown of ~US$771m incurred in 2025 (refer Figure 3)
- Payback period for the Ta Khoa Project of 1.8 years from first production by the TKR
- Average annual operating cash flow of US$533m
- Life-of-operations All-in-Sustaining Cost of US$12,253/t NCM811
- Life-of-operations All-in Cost of US$13,192/t NCM811
- Post-tax NPV$_8$ of US$1.99bn and an internal rate of return of 47%

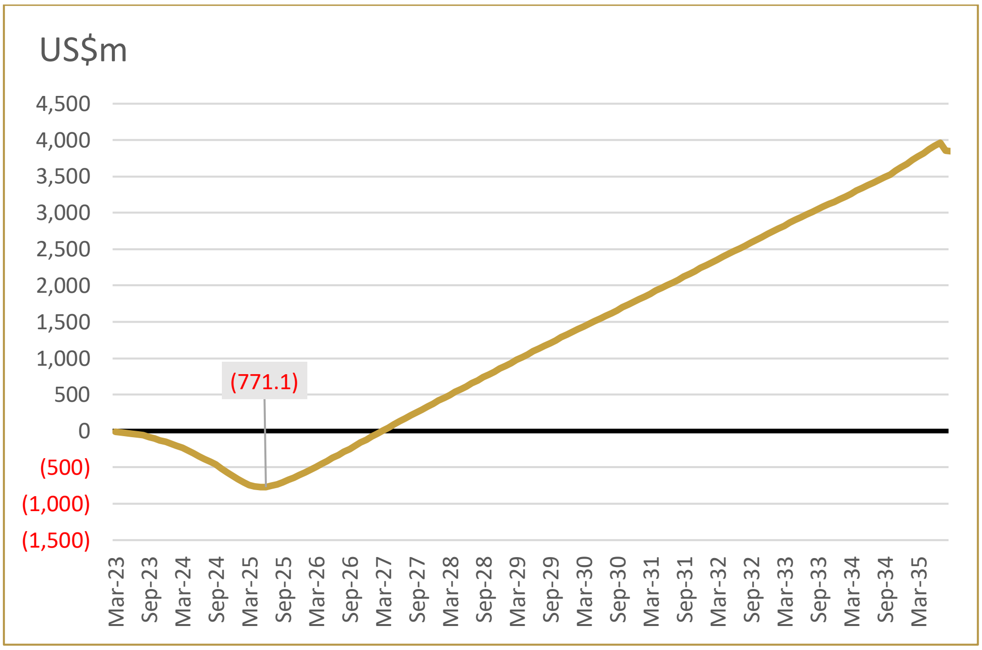

Figure 3: Cumulative Ta Khoa Project Post-tax Cash Flows

Management Statement

The expanded processing throughput design of 8Mtpa for the TKNP reflects the resource growth achieved by the Company over the past twelve months (refer ASX announcement 23 December 2021). The TKNP, underpinned by a base load feed from the Ban Phuc DSS deposit, demonstrates a clear pathway for Blackstone to secure a significant proportion of the overall nickel supply intended for the TKR Refinery.

Blackstone's development strategy is founded on the principles of sustainability, and the basis of the TKNP PFS demonstrates our commitment to sustainable mining. The TKNP PFS includes a fully electrified haulage fleet for open pit mining operations and an integrated waste land reform strategy based on the co-disposal tailings methodology, which are just a few of the early initiatives the Company is undertaking to move towards zero carbon.

The TKNP being a large-scale mining operation, is leveraged to nickel prices and generates a meaningful economic return on investment at current consensus price forecasts, which at the date of this report is well below spot prices. However, the true value of the TKNP is inextricably linked to the reliability and security of supply provided to the TKR and the significant value proposition of the TKNP and TKR combined. Benchmark Minerals Intelligence estimates that the supply available for battery related nickel demand will enter a supply shortage from 2026. To equilibrate nickel supply and demand, Blackstone believes that nickel prices will stay at current levels to incentivise investment. Concentrate feed from the TKNP forms part of an overall concentrate blend as Blackstone will also purchase third party feed to supplement overall feed to the TKR.

Blackstone intends to fund the Ta Khoa Project via a combination of equity and debt and has engaged Korea Development Bank (KDB) and BurnVoir Corporate Finance (BV) (refer ASX announcement 26 August 2021) as debt advisors. Initial discussions held with potential financial institutions performed by KDB and BV have shown positive interest for considering debt funding of the Ta Khoa Project.

Blackstone owns 90% of the TKNP and does not intend to dilute the Company's interest at a project level. Blackstone considers its controlling interest in the TKNP resource base as a major incentive for players in the lithium-ion battery industry to collaborate with the Company on its downstream ambitions. Further, the exploration potential of the Ta Khoa nickel sulfide district is largely untested. Blackstone is committed to ongoing exploration programs, with any future success having the potential to increase the proportion of concentrate feedstock provided by the TKNP to the TKR.

The Company is immediately progressing approval to commence Definitive Feasibility Studies for the TKNP. Importantly, following the successful capital raising of $60m (refer ASX announcement 1 November 2021) the Company is well capitalised to continue to de-risk the TKNP, which also includes additional resource definition, further metallurgical test work particularly synergistic recovery improvements by blending DSS and MSV mill feed and ongoing underground mining transecting the Ban Phuc DSS to provide bulk sample for pilot plant test work in Australia and Vietnam.

Ore Reserves & Additional Mining Inventory

Maiden Ban Phuc Ore Reserve:

The Ban Phuc DSS Ore Reserve estimate is based on the portion which was identified as having demonstrated economic viability within an optimised pit design and incorporated modifying factors such as mining recovery, waste dilution and economic considerations. The Ore Reserve estimate forms the basis for the production plan and economic model.

Inferred Mineral Resources included in the mining evaluation are excluded in the Ore Reserve (refer Table 2).

The open pit Ore Reserve was developed based on the following framework:

1. A pit optimisation study was completed, and an optimal pit shell selected for use as the basis for the pit design;
2. An operational pit design was completed that incorporated catch benches, detailed pit wall slopes based on geotechnical assessment, and truck haulage ramps;
3. Within this pit design, the ore tonnage is the summation of tonnes that meet or exceed the economic NSR cut-off criteria. The ore tonnage incorporates mining losses and mining dilution to arrive at the Ore Reserve;
4. Any material classified as Inferred Resource was excluded;
5. Blocks below a nickel grade of 0.3% Ni were excluded due to lower confidence due to reduced metallurgical test-work.

The Ore Reserve estimate for the Ban Phuc Open Pit is summarised in Table 2. The Indicated Resources in the mine plan are classified as 'Probable' Ore Reserves as of Dec 31, 2021.

Table 2, Ban Phuc Ore Reserve Statement

Classification	Tonnes (kt)	Ni (%)	Cu (ppm)	Co (ppm)
Proven	-	-	-	-
Probable	48,747	0.43	379	110
Total Reserve	**48,747**	**0.43**	**379**	**110**

Notes to accompany the Ore Reserves table:

1. The Qualified Person for the Ore Reserve estimate is Richard Jundis, P.Eng., of Optimize Group Inc. The estimate has an effective date of 31 Dec, 2021.
2. Ore Reserves are defined within a mine plan and incorporate 2% mining dilution and 2% overall metal losses.
3. Ore Reserves are based on Measured and Indicated Mineral Resource classifications only.
4. Ore Reserves are based on metal prices of US$16,800/tonne Nickel:Cobalt:Manganese 811 (NCM811), US$3.58/lb copper and US$18.60/lb cobalt. The pits are constrained within an optimized pit shell ranging from 17-49º overall wall slopes depending on rock type, and process recoveries that vary according to the recovery curves.
5. For each block, a total revenue and cost is generated. If the net profit is greater than 0, the block is flagged as ore; if profit less than zero, the block is flagged as waste. Mining costs average 1.89 $/t mined, processing costs are 10.40 US$/t processed, site general and administrative 1.00 US$/t processed, and nickel royalties 4.74 US$/t processed.
6. The estimate of Ore Reserves may be materially affected by metal prices, US$/VND$ exchange rate, environmental, permitting, legal, title, taxation, socio-political, marketing, infrastructure development or other relevant issues.
7. Totals may not sum exactly due to rounding.
8. Ore Reserves are a sub-set of Mineral Resources.

Mining Inventory (in addition to Ore Reserves):

Table 3 below summarises the mining inventory in the mine plan, which is in addition to Reserves.

Table 3, Mining Inventory (additional to Ore Reserves) by Prospect

Prospect	Tonnes (kt)	Ni (%)	Cu (ppm)	Co (ppm)
Ban Phuc	13,756	0.30	75	87
King Snake	594	0.74	4,763	280
Ban Chang East	658	0.69	4,817	414
Ban Chang West	759	0.41	2,343	279
Total[1]	**15,767**	**0.34**	**559**	**117**

([1]Mining Inventory included in the mine plan but not included in the Ore Reserve has a low level of geological confidence associated with this material and there is no certainty that further exploration work will result in the determination of indicated mineral resources or that the production target itself will be realised).

Total Mining Inventory:

The life of mine 'Mining Inventory' separated by Resource or Reserve classification is summarised below in Table 4. Probable Reserves contribute 76% of the life of mill feed material, equivalent to 80% of the contained nickel content.

Table 4, Mill feed Contribution by Material Classification

	Mill Feed		Ni Metal in Mill Feed	
Classification	Mt	%	kt	%
Probable Reserve	48,747	76%	210	80%
Additional Inventory	15,767	24%	54	20%
Total Mine Inventory	64,514	100%	264	100%

The Life of Mine mining inventory by source is summarised below in Table 5.

Table 5, TKNP PFS Mining Inventory

Deposit	Tonnes (kt)	Ni (%)	Cu (ppm)	Co (ppm)
Ban Phuc	62,503	0.40	312	105
Ban Chang - East	658	0.67	4817	414
Ban Chang - West	759	0.41	2343	279
King Snake	594	0.74	4763	280
Total Mine Inventory	**64,514**	**0.41**	**423**	**112**

Key Ta Khoa Project Inputs & Outcomes

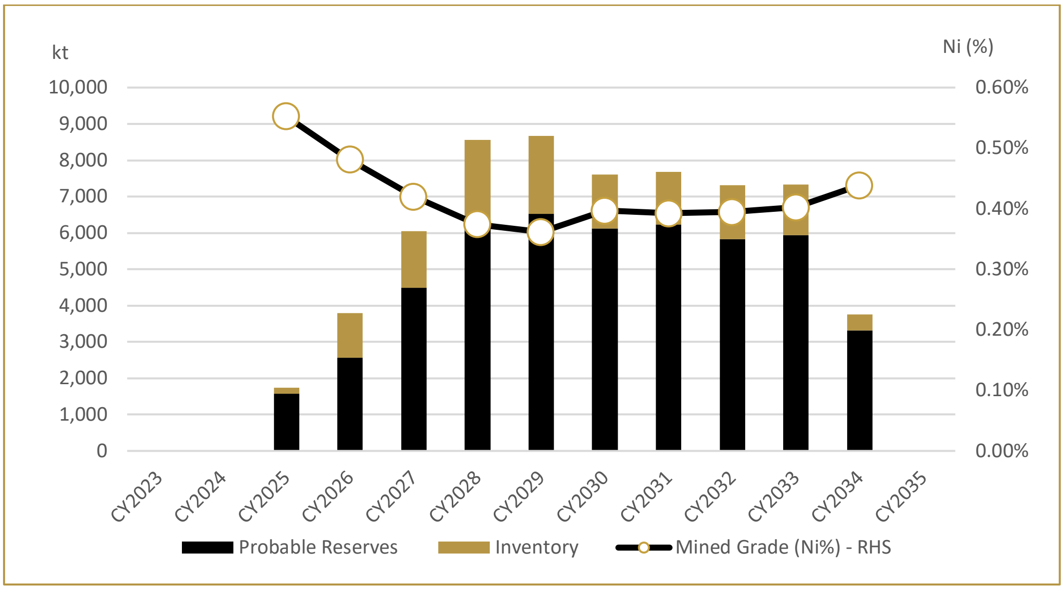

Figure 4: Ban Phuc Open Pit Mining Schedule (Ore Tonnes)

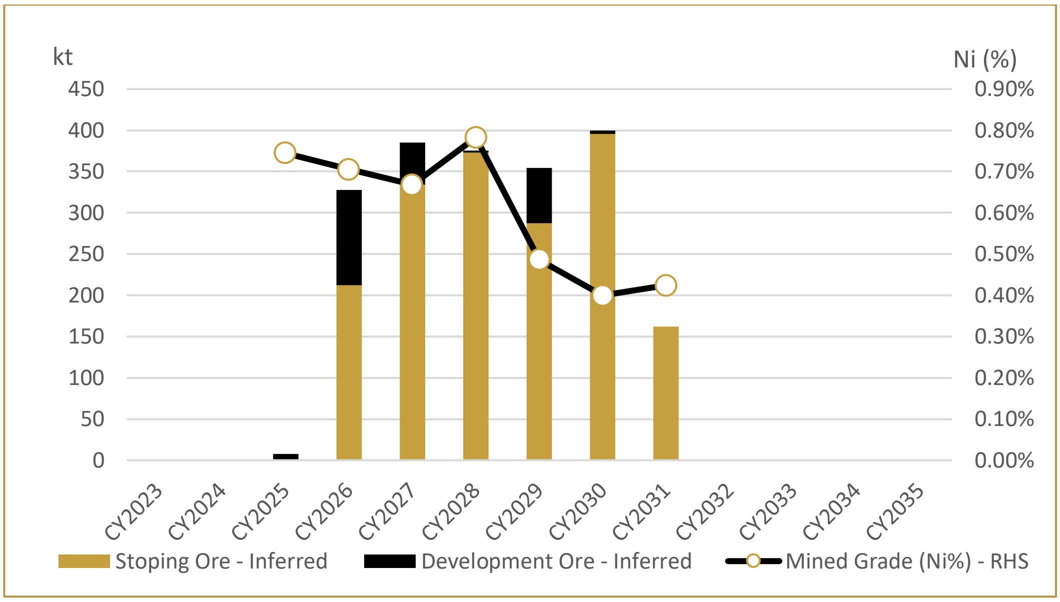

Figure 5: Underground Mining Schedule (Ore Tonnes)

Table 6, TKNP Life-of-Mine Physicals

TKNP – Life-of-Mine Physicals	Unit	Base Case
Open Pit Mining Inventory:		
Ore Tonnes Mined	kt	62,516
Strip Ratio (including pre-strip)	W:O	2.9
Nickel Grade	% Ni	0.40
Contained Nickel	**kt**	**252**
Underground Mining Inventory:		
Ore Tonnes mined	kt	2,011
Nickel Grade	% Ni	0.59
Contained Nickel	**kt**	**12**
Nickel in Concentrate Production:		
Processing Plant - Design Throughput	Mtpa	8
Tonnes Processed	kt	64,527
Average Nickel Grade Processed	% Ni	0.41
Metallurgical Recovery - Nickel	%	57
Nickel Recovered in Concentrate	**kt**	**151**
Avg Annual Nickel Recovered in Concentrate	***kt***	***16.4***
Concentrate Tonnes	*kt*	*1,884*
Nickel in Concentrate Grade	*% Ni*	*8.00*

Table 7, TKR Life-of-Operations Physicals

TKR – Life-of-Operations Physicals	Unit	Base Case
Processing Plant Capacity	ktpa	400
Life of Refinery	yrs	10.33
Concentrate Feed	kt	4,026
Ni in Concentrate Grade	%	11.9%
Co in Concentrate Grade	%	0.34%
Cu in Concentrate Grade	%	0.81%
Metallurgical Recovery - Ni into NCM Precursor Product	%	96.8%
Metallurgical Recovery - Co into NCM Precursor Product	%	96.7%
Metallurgical Recovery - Cu into Copper Cathode	%	93.1%
NCM811 Precursor Production Breakdown:		
Nickel recovered in NCM Precursor Product	kt	462
Cobalt recovered in NCM Precursor Product	kt	13
Cobalt make-up Quantities	kt	45
Manganese	kt	54
Hydroxide	kt	335
Total NCM811 Precursor Production	**kt**	**909**
Average Annual NCM811 Precursor Production	**ktpa**	**88.0**
Average Annual Refined Nickel Output	**ktpa**	**44.7**

Table 8, Integrated Ta Khoa Project Pre-Production Capital

Ta Khoa Pre-production Capital Summary	US$M
TKNP:	
Mining	71
Beneficiation Plant	145
On Site Infrastructure	14
Offsite Infrastructure	0
Construction Indirects.	15
Project Delivery	27
Owner's Costs	46
Provisions	45
TKNP Pre-production Capital	**363**
TKR Pre-production Capital	**491**
Total Ta Khoa Pre-production Capital	**854**

Table 9, Integrated Ta Khoa Project, All-in Sustaining Costs

Ta Khoa Project All-in-Sustaining Costs	US$m LOM	US$/t NCM811	US$/ TKR t conc refined	US$ / TKNP t ore processed
TKNP Cash Costs				
Mining	515	566	128	8.0
Processing	635	698	158	9.8
Integrated Land Waste Reform	103	113	25	1.6
G&A	55	60	14	0.9
Royalties	194	213	48	3.0
TKR Cash Costs				
Purchase of 3PF Ni & Co in Concentrate (Net of Penalties)	5,212	5,734	1,295	80.8
Refining	3,928	4,321	976	60.9
Logistics	114	125	28	1.8
G&A	28	31	7	0.4
Residue Storage	19	21	5	0.3
By-Product Credit (Copper)	-243	-267	-60	-3.8
Cash Costs	**10,560**	**11,616**	**2,623**	**164**
Sustaining Capital	457	503	114	7.1
Closure	122	134	30	1.9
All - in - Sustaining Costs	**11,139**	**12,253**	**2,766**	**173**

Table 10, Base Case vs Spot Case Price Forecast

Metal Price Assumption	Unit	BASE	SPOT
NCM811 Precursor	US$/t	17,670	22,982
Nickel Metal	US$/t	20,000	25,050
Cobalt Metal	US$/t	65,768	74,604
Cobalt Sulfate (21%)	US$/t	13,659	15,743
Manganese Sulfate (32%)	US$/t	1,427	1,427
Copper Cathode	US$/t	10,000	9,967

Note

- The Base Case price assumption for nickel metal and copper cathode have been referenced from Bloomberg Consensus data
- The Base Case price assumptions for cobalt metal and cobalt sulfate have been referenced from Benchmark Mineral Intelligence (BMI)
- The Base Case Manganese Sulfate price assumption is based on spot prices referenced from Shanghai Metal Markets (SMM)
- All spot case prices have been referenced from SMM as at 18 February 2022
- A 20% premium has been applied to determine NCM811 Precursor Price, a full explanation of BSX applied methodology is contained in the ASX announcement dated 26 July 2021

Table 11, Ta Khoa Project, Economic Outcomes

Ta Khoa Project Economic Outcomes	Unit	BASE	SPOT
Revenue - Sale of NCM811 Precursor	US$m	16,063	20,892
NCM811 Precursor Price (avg realised)	US$/t NCM811	17,670	22,982
C1 Cash Costs	US$/t NCM811	11,616	13,683
All-in Sustaining Cost	US$/t NCM811	12,253	14,320
All-in Cost	US$/t NCM811	13,192	15,259
Avg Annual Operating Cash Flow	US$mpa	533	818
Operating Cash Flow	US$m	5,503	8,453
TKNP Net Cash Flow (Pre-tax)	US$m	584	1,287
TKR Net Cash Flow (Pre-tax)	US$m	3,487	5,733
Net Cash Flow (Pre-tax)	**US$m**	**4,070**	**7,020**
Net Cash Flow (Post-tax)	**US$m**	**3,845**	**6,583**
Post-tax NPV (8% real)	**US$m**	**1,986**	**3,570**
IRR (Post-tax)	**%**	**47%**	**69%**
Capital Payback Period - from first production	**years**	**1.8**	**1.3**

Next Steps

The next key steps to progress the TKNP & TKR include:

Ta Khoa Nickel Project:

- Additional resource definition drilling at King Snake, Ban Chang and Ban Khoa, with potential to include Ban Khoa in future studies
- Further metallurgical testwork
- Completion of a Definitive Feasibility Study
- Detailed Engineering and Construction

- First concentrate production targeted in 2025

Ta Khoa Refinery:

- Definitive Feasibility Study supported by Pilot Plant Phase 1 testing by ALS in Australia
- Pilot Plant Phase 2 which will commence construction in Vietnam in 2022
- Formalisation of refinery ownership structure
- Confirmation of third-party feed (3PF) source agreements
- NCM Precursor Offtake agreements

The Company is aiming to confirm a final investment decision with respect to the Ta Khoa Project in early 2023.

Authorised by the Board of Blackstone Minerals Limited.

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Cautionary Statement

The Production Target referred to in this announcement refers to the JORC-compliant Mineral Resource estimate announced 23 December 2021 which forms the basis for the TKNP PFS in this report. Over the life of mine considered in the TKNP PFS, 76% of the mill feed originates from Probable Reserves and 24% from additional mining inventory including Inferred Mineral Resources; 70% of material mined from project start-up until capital has been paid back for the Ta Khoa Project is from Probable Reserves. The viability of the development scenario envisaged in the PFS therefore does not depend on Inferred Mineral Resources. 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 itself will be realised. The Inferred Mineral Resources are not the determining factors in project viability.

The Company has concluded that it has a reasonable basis for providing the forward looking statements included in this announcement. The reasons for this conclusion are outlined throughout this announcement. However, the assumptions and results of the PFS set out above and elsewhere in this announcement (“PFS Parameters”) have been developed through feasibility work completed to the level of AACE/AusIMM Class 4 (+/-25% accuracy) and the use of macroeconomic assumptions.

The PFS referred to in this announcement has been undertaken to assess the technical and financial viability of the TKNP. Further evaluation work, including a Definitive Feasibility Study (“DFS”) is required before the Company will be in a position to provide any assurance of an economic development case. The PFS is based on material assumptions which are provided in detail as well as summarised throughout this report. These include assumptions about the availability of funding and the pricing received for concentrate sold by the TKNP to the Ta Khoa Refinery Project. While the Company consider 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 this PFS will achieved. To achieve the outcomes in this PFS, the pre-production capital (including contingency) of US$854m, additional capital for pre-commitment activities such as a DFS, additional resource definition drilling, ongoing metallurgical test-work and working capital may be required but the Company notes that a recent equity injection of $60m was successfully completed in December 2021.

Investors should note that there is no certainty that the Company will be able to raise this amount of funding required when needed. It is also possible that such funding will only be available via equity funding which may have a dilutive effect on the Company’s share value. The Company may also pursue other strategies in order to realise the value of the integrate Ta Khoa Project, such as a sale, partial sale or joint venture of the TKNP or TKR. If this occurs, this could materially reduce the Company’s proportionate share of ownership of the Ta Khoa Project. Accordingly, given the uncertainties involves, investors should not make any investment decisions based solely on the results of the PFS.

Forward Looking Statements

This report contains certain forward-looking statements. The words "expect", "forecast", "should", "projected", "could", "may", "predict", "plan", “will” and other similar expressions are intended to identify forward looking statements. Indications of, and guidance on, future earnings, cash flow costs and financial position and performance are also forward-looking statements. Forward looking statements, opinions and estimates included in this announcement are based on assumptions and contingencies which are subject to change without notice, as are statements about market and industry trends, which are based on interpretations of current market conditions. Forward looking statements are provided as a general guide only and should not be relied on as a guarantee of future performance. Forward looking statements may be affected by a range of variables that could cause actual results or trends to differ materially. These variations, if materially adverse, may affect the timing or the feasibility of the development of the Ta Khoa Nickel Project.

The project development schedule assumes the completion for the TKNP a Definitive Feasibility Study (DFS) in 2023. A DFS for the Ta Khoa Refinery is also assumed to be completed in 2022. Development approvals and investment permits will be sought from the relevant Vietnamese authorities concurrent to studies being completed. Delays in any one of these key activities could result in a delay to the commencement of construction of the TKNP (planned in 2023). This could lead on to a delay to first production, currently planned for 2025. It is expected that the Company's stakeholder and community engagement programs will reduce the risk of project delays. Please note these dates are indicative only.

SUMMARY OF MATERIAL ASSUMPTIONS AND MODIFYING FACTORS

Material assumptions considered in the PFS for the mining and beneficiation studies completed:

MINING RESERVE – BAN PHUC OPEN PIT – MATERIAL ASSUPMTIONS

This pre-feasibility study analysed the combined case of the mining and processing of primary life of mine ore feed from the Ban Phuc deposit, and minor ore feed from two underground mines (King Snake and Ban Chang). The new Ore Reserve is from Ban Phuc only.
The Ore-Reserve is an outcome of this pre-feasibility study and, consequently, the key assumptions related to mining listed below are the same as for the Ore Reserve and the mining components of the Pre-Feasibility Study.

Reporting compliance matters relating to the reporting of Ore Reserves according to the JORC reporting code are included in JORC Table 1 – Section 4. As this is a new Ore Reserve for Ban Phuc - JORC Table 1 – Sections 1, 2 and 3 are included and are taken from the Mineral Resource update as presented in December 2021. There are no material changes to the underlying assumptions for the Mineral Resource.

TA KHOA NICKEL PROJECT - PRE-FEASBILITY STUDY MATERIAL ASSUPMTIONS (UPSTREAM BUSINESS)

Assumption/ Factor	Commentary
Study Status	The Study, including capital estimates, mining and processing costs, was completed to an accuracy of +/-25%, and was undertaken based on both open pit and underground mining methods from the existing resources. The proposed two stage processing route comprises a concentrator with single-stage crushing, milling (SAG + ball), flotation to concentrate (upstream unit), followed by a refinery utilising a Pressure Oxidation (POX) process with Mixed Hydroxide Precipitation (MHP) leaching and nickel refining via solvent extraction to produce NCM precursor (downstream unit). For the upstream unit, three production throughputs were assessed by CPC Engineering, namely 4.0 and 6.0 and 8.0 Mtpa. The metallurgical test work carried out to date indicates that nickel can be satisfactorily recovered from Ban Phuc DSS, Ban Chang and King Snake ore using conventional crushing, milling and flotation to concentrate. The test work is considered sufficient to determine that these Mineral Resources represent deposits with potential economic extraction.

	The estimation of capital, operating and closure costs was prepared by CPC Engineering, Golder and Simulus Engineers for the process plant, IWL, and refinery respectively. Optimize Group provided all open pit and underground mining engineering services. The optimised Ban Phuc DSS open pit design was used to generate the Life of Mine (LOM) production schedule. Similarly, the underground production schedules were developed from the MSO shapes, with relevant designs for development, ventilation and other infrastructure. Optimize group provided an estimate of mining, including haulage, rehabilitation and administration costs. A financial model assessing the TKNP was developed by BSX and integrated with the Company's financial model for the Ta Khoa refinery. The economic basis for the financial model is described in the Material Assumptions section relating to the TKR.

Global Mineral Resource

Considered in the PFS are Indicated and Inferred resources from the following deposits:

MINING CENTRE	Indicated															
		Ni	Ni Eq	Cu	Co	Au	Pd	Pt	S	Ni	Ni Eq	Cu	Co	Au	Pd	Pt
	Mt	%	%	%	%	g/t	g/t	g/t	%	kt	kt	kt	kt	kOz	kOz	kOz
Ban Phuc																
Oxide (>0.30% Ni)	4	0.54	0.64	0.07	0.01	0.02	0.07	0.07	0.04	23	27.1	3	1	3	10	9
Transitional (>0.30% Ni)	6	0.47	0.55	0.05	0.01	0.02	0.06	0.06	0.19	29	34.0	3	1	3	13	12
Fresh (>0.25% Ni)	91	0.36	0.42	0.02	0.01	0.01	0.05	0.04	0.26	331	383.7	21	9	36	137	124
Ban Phuc Subtotal	**102**	**0.38**	**0.44**	**0.03**	**0.01**	**0.01**	**0.05**	**0.04**	**0.25**	**383**	**444.8**	**27**	**10**	**42**	**159**	**145**
Ban Khoa (excluded from PFS)																
Ban Chang																
Oxide (>0.70% Ni)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transitional (>0.70% Ni)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fresh (>0.70% Ni)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ban Chang Subtotal	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
King Snake																
Oxide (>0.70% Ni)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Transitional (>0.70% Ni)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fresh (>0.70% Ni)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
King Snake Snake Subtotal	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Ta Khoa MSV Subtotal	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Ta Khoa Total	**102**	**0.38**	**0.44**	**0.03**	**0.01**	**0.01**	**0.05**	**0.04**	**0.25**	**383**	**444.8**	**27**	**10**	**42**	**159**	**145**

MINING CENTRE	Inferred															
		Ni	Ni Eq	Cu	Co	Au	Pd	Pt	S	Ni	Ni Eq	Cu	Co	Au	Pd	Pt
	Mt	%	%	%	%	g/t	g/t	g/t	%	kt	kt	kt	kt	kOz	kOz	kOz
Ban Phuc																
Oxide (>0.30% Ni)	8	0.36	0.41	0.02	0.01	0.01	0.03	0.03	0.02	27.5	31.3	2	1	2	8	8
Transitional (>0.30% Ni)	4	0.34	0.39	0.02	0.01	0.01	0.03	0.03	0.03	13.2	15.0	1	0	1	4	4
Fresh (>0.25% Ni)	10	0.29	0.33	0.01	0.01	0.01	0.02	0.02	0.12	28.0	31.5	1	1	2	6	7
Ban Phuc Subtotal	**21**	**0.33**	**0.37**	**0.01**	**0.01**	**0.01**	**0.03**	**0.03**	**0.07**	**68.8**	**77.7**	**3**	**2**	**6**	**18**	**19**
Ban Khoa (excluded from PFS)																
Ban Chang																
Oxide (>0.70% Ni)	0.0	0.88	1.46	0.55	0.05	0.05	0.2	0.2	0.1	0.1	0.2	0	0	0	0	0
Transitional (>0.70% Ni)	0.0	0.91	1.51	0.54	0.06	0.05	0.3	0.2	1.0	0.4	0.6	0	0	0	0	0
Fresh (>0.70% Ni)	0.6	1.20	2.00	0.73	0.07	0.05	0.4	0.3	13.6	7.8	13.0	5	0	1	7.5	6.2
Ban Chang Subtotal	**0.7**	**1.18**	**1.96**	**0.72**	**0.07**	**0.05**	**0.35**	**0.29**	**12.57**	**8.3**	**13.8**	**5**	**0**	**1**	**8.0**	**6.6**
King Snake																
Oxide (>0.70% Ni)	0.0	1.00	1.72	0.51	0.04	0.16	0.46	0.70	0.10	0.0	0.0	0	0	0	0	0
Transitional (>0.70% Ni)	0.0	1.05	1.92	0.64	0.04	0.12	0.60	0.98	1.00	0.1	0.3	0	0	0	0	0
Fresh (>0.70% Ni)	0.4	1.30	2.40	0.82	0.05	0.14	0.74	1.28	11.01	5.3	9.8	3	0	2	10	17
King Snake Snake Subtotal	**0.4**	**1.29**	**2.38**	**0.82**	**0.05**	**0.14**	**0.73**	**1.27**	**10.63**	**5.5**	**10.1**	**3**	**0**	**2**	**10**	**17**
Ta Khoa MSV Subtotal	**1.1**	**1.22**	**2.12**	**0.76**	**0.06**	**0.08**	**0.49**	**0.66**	**11.84**	**13.8**	**23.9**	**9**	**1**	**3**	**18**	**24**
Ta Khoa Total	**22**	**0.37**	**0.46**	**0.05**	**0.01**	**0.01**	**0.05**	**0.06**	**0.67**	**82.5**	**101.7**	**11**	**3**	**9**	**36**	**43**

In summary, Ban Phuc DSS has been estimated as an Indicated Mineral Resource of 102Mt @ 0.38% Ni for 383kt Ni and an Inferred Mineral Resource of 21Mt @ 0.33% Ni for 69kt Ni at a 0.25% Ni cut-off in fresh rock and at a 0.30% Ni cut-off above fresh rock.

Ban Phuc Disseminated Ni-Cu-Co-PGE Mineral Resource Estimate by Ni % cut offs and classification

Estimation Methodology

Estimation Methodologies are disclosed below in Section 3 of JORC Table 1 in this document (as previously disclosed in the December 2021 Mineral Resource update).

Classification	All the Ta Khoa Mineral Resources are classified in accordance with the guidelines provided by the 2012 edition of the JORC Code. All classification considered the underlying data quality and the confidence that can be applied to the geological interpretation and the mineralisation grade continuity. <u>Disseminated Sulfide Style</u> At Ban Phuc, a significant portion of the deposit qualified as an Indicated Mineral Resource with the remainder designated as an Inferred Mineral Resource. To achieve an Indicated classification, the mineralisation nickel grade estimate had to informed by sample data that was within a nominal distance of 30 m. In practice, this means that much of the Indicated Mineral Resource is straddled by sampled drilling on 50 m section lines or better. Most of the Inferred Mineral Resource is located near surface between the two main mineralisation horizons. This region is intersected by drilling that targets deeper, higher grade mineralisation intersections, but for several logistical reasons, these intervals have not been sampled or assayed within the weathered parts of the deposit. At Ban Khoa, grade continuity, and the wider drillhole spacing and consequently lower associated confidence led to the entire deposit being classified as an Inferred Mineral Resource. <u>Massive Sulfide Vein Style</u> At Ban Chang and King Snake, the Mineral Resource RPEEE has been classified primarily on the basis of geological and grade continuity and available drillhole spacing. The current drillhole spacing did not adequately capture the geological and grade continuity, especially in the down-dip direction at either Ban Chang or King Snake, with both deposits being classified as Inferred Mineral Resources only. All reserves are classified as ‘Probable’.

Mining and Metallurgical Methods and Parameters	Mining PFS: Open pit and underground optimisations were undertaken in Deswik. Four stages were then selected, and full mine designs applied. Mining of the Ban Phuc DSS project has been assumed to be medium-scale using conventional open pit mining techniques. The mining process will include drill and blast as well as conventional load and haul operations. There is expected to be a limited amount of free dig material with the majority of material assumed to require drilling and blasting. Open-pit mining will be carried out using staged cut-backs with four identified stages incorporated within the LOM final pit. Underground mining will be carried using sub-level long-hole open stoping methods. Ore sorting may be considered. Except for the initial plant commissioning, transitional ore will be stockpiled temporarily and blended into the process feed with the fresh ore. Waste rock will be stockpiled separately on the eastern side of the pit. The metallurgical work carried out to date indicates that nickel can be satisfactorily recovered from Ban Phuc DSS ore using crushing, milling and conventional flotation techniques. The work is considered sufficient to determine that the Ban Phuc DSS Mineral Resource represents a deposit with potential economic extraction.
Mining Factors	In-situ deposit Mineral Resource Model are the basis for the mining models used for Life of Mine (LOM) planning and assessment reporting. The Mineral Resource Model provided as the basis of the LOM planning assessment are the OK resource estimates prepared by Optiro Pty Ltd after models provided by BSX. The BP OP resource model was re-blocked to 10m (east) by 10m (north) by 10m (elevation) for mining evaluation. Metal grades were supplied with the model as estimated proportional grades using the OK estimation technique. An estimated marginal cut-off grade was established at 0.25% Ni (fresh material) using an assumed long-term nickel price of US$17,045/t and a final product price of US$16,800/t for NCM Precursor. Royalties were calculated to be $4.34 USD/t milled. Mining costs used for the mine schedule were US$2.02/t mined, confirmed by in-country knowledge and experience. Process plant recoveries were estimated from grade recovery curves developed from bulk and variability flotation test work. For purposes of the baseline mining model, an input process cost for the 8.0Mtpa option was estimated at approximately US$10.40/t milled.

	Using the identified marginal Cut-off Grade, the proportion of ore per parcel and nickel grade above the Cut-off Grade were included within the mining model to allow export of the parcelled (ore + waste) blocks to the pit optimiser for open pit optimisation. Bulk mining (minimal selectivity) was assumed with 100t – 350t excavators feeding 50t - 140t rigid body haul trucks. A minimum mining width of 40m was assumed. Mining dilution and recovery were addressed in the mining block model through SMU analysis. Inferred Mineral Resources have been included for evaluation within the LOM planning. Ore Reserves have been declared for the Ban Phuc DSS project – as part of this study. The proportion of Inferred Mineral Resource material accounts for 17% of potential mill feed (including the minor addition of the UG mined tonnes). Mining Infrastructure requirements were assumed to be provided by the selected mining contractor with the mining performed on an outsourced basis. Grade control will be based on sampling from reverse circulation drilling spaced at approximately 10mE by 10mN with samples taken at 5.0 metre intervals downhole. All Grade Control sampling assays are assumed to be determined by acid digest on the mine site. Standard QAQC protocols will be applied which comprise of 1 in every 20 samples. Grade control drilling will precede ore identification and ore mark-out on a bench basis. Minimal infrastructure is required for the selected mining method.

Geotechnical Parameter

The pit slopes were assessed from a geotechnical model prepared by PSM with the oxide (upper material) requiring an estimated overall slope angle of 37^0, whilst slope angles of 17^0 to 56^0 were considered in fresh rock based on various modelled domains. The approach is summarised and illustrated below:

Geotechnical Zones	Inter-ramp Angle [1] (°)	Batter Face Angle (°)	Maximum Bench Height (m)	Minimum Berm Width (m)
1	37	50	10	5
2	42	55	20	8
3	46	60	20	8
4	27	55	10	13
5	49	65	20	8
6	17	40	10	21

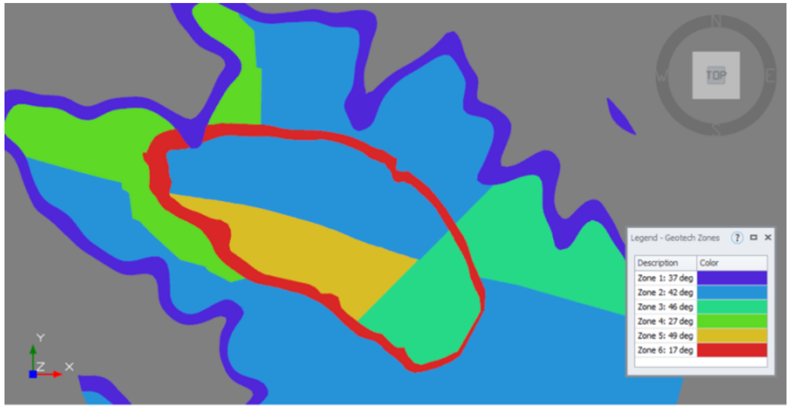


Figure 4-1: Design Pit Slopes by Zone (plan view)

Mine Scheduling

The mine scheduling programme includes revenue and cost information to maximise NPV. The scheduling software assesses the value generated by each block to determine whether the block is fed directly to the plant, stockpiled or treated as waste. Further financial analysis to determine more realistic absolute financial indicators and sensitivity analysis are performed separately using the tonnes and grades extracted from the schedule.

The mine design of the Ban Phuc DSS Project consists of a series of nested conventional pit layouts with orebody access provided by a series of ramps. The orebody can be considered a layered sequence consisting of oxidised, transition and fresh mineralized zones.

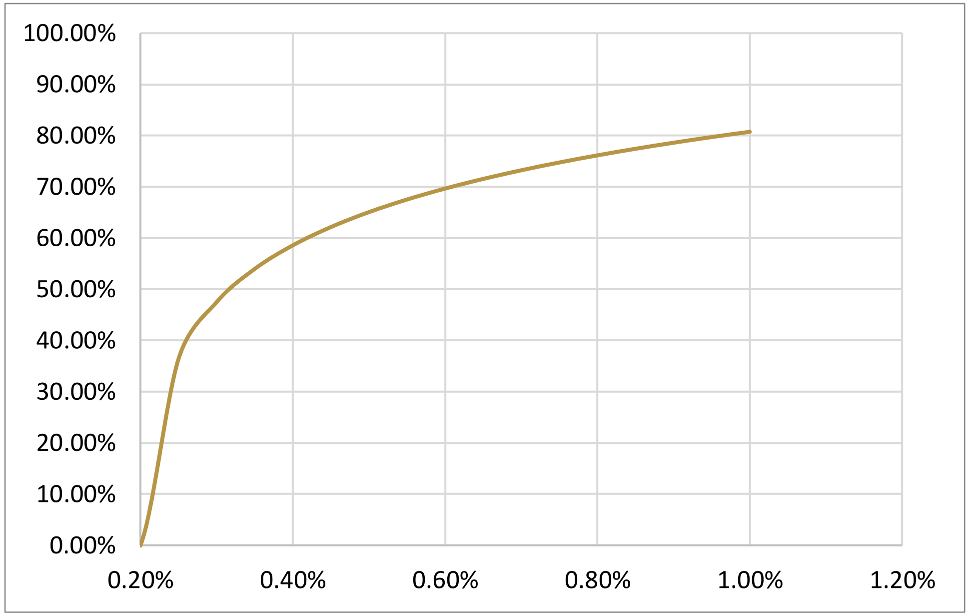
Mining will be of a conventional type back hoe and dump truck operation.

High-level mine production schedules were evaluated for two scenarios considered (6Mtpa and 8Mtpa mill throughputs) using a starter pit with subsequent pushbacks to the target pit size.

The schedules allowed an initial ramp up for the process plant in each case before full process plant production was assumed. In order to gain maximum value from the 8.0 Mtpa option, an estimated total peak rock movement of some 37Mtpa.

Mine Design Criteria	The mine design criteria and scenarios were developed to allow for the evaluation of several designs to provide plant feed rates of 6Mtpa & 8Mtpa. For the pit design, three weathering domains namely Oxidised– (completely oxidised, Transition – partially oxidised and Fresh - fresh rock Domain, were used to define pit bench heights, berm widths and slope angles, as discussed above. Individual geotechnical features have specific slope parameters considered.
Mining Cost	The PFS assumes a contractor based mining scenario. Mining costs have been sourced from in-country experience and have been developed from first principles, with the underlying modeling assuming an owner-operator basis. To determine rates under a contractor mining scenario an appropriate margin (reflecting current market conditions) was applied. This includes an upfront charge for contractor mobilisation. Mining equipment and infrastructure charges, after the commencement of first concentrate production, is classified as sustaining capital. All costs have been determined on a US dollar basis.
Metallurgy	The PFS metallurgical testwork program built upon historical testwork completed on the Ban Phuc DSS by Peter J Lewis & Associates & Dunstan Metallurgical Services (Report M0755B, March 2005). The PFS program was managed by BSX, and executed by ALS Laboratories Balcatta WA. A large master composite was prepared from 25 diamond drill holes (DDH) with a mass of approximately 670kg which represented a total of 733 metres of down hole (mdh) nickel mineralisation within the Ban Phuc geological resource. The testwork program included: • Crushing characterization tests (CWi, Abrasion index) • Comminution characterization including SMC Tests, JKDW, BRWi and BBWi • Flotation flowsheet work • Tailings and Concentrate thickening and filtration testwork Bulk sample selection was representative of the life of mine feed, with additional variability samples selected to reflect the overall variability. Metallurgical domaining was primarily focused on grade ranges to understand the grade recovery relationship of the ore body.

Element	Recovery
Ni Recovery (8% Concentrate)	57%
Co Recovery	74%
Cu Recovery	42%
Au Recovery	38%
Pt Recovery	48%
Pd Recovery	48%



Nickel Grade Recovery Curve

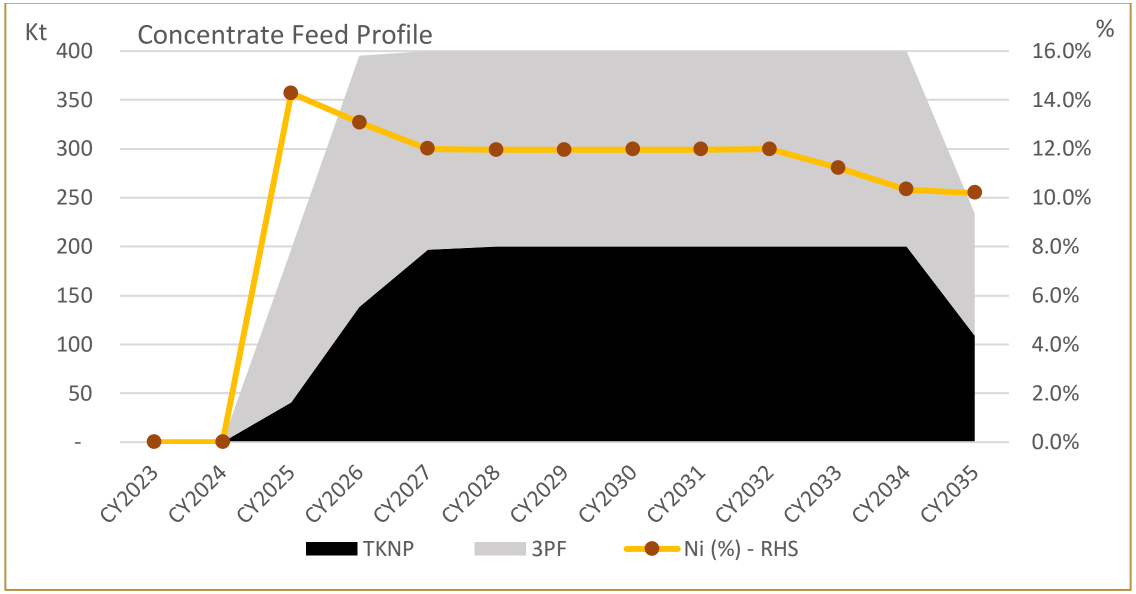
Processing Cost	Processing costs used for the pit optimisation and MSO process were provided by CPC, for operation of an 8Mtpa nickel concentrator in Vietnam.

Pit optimisations	Pit optimizations were run using the Deswik Pseudo flow module using revenue, costs and geotechnical inputs. The geotechnical pit slope angles from PSM consultants were coded into the block model and were used in the pit optimization processes. The Geotechnical Zone 6 is a shear zone that is approximately 20m wide and encapsulates the main ore zones in a U-shaped pattern. Zone 6 is relatively flat at the bottom and sub-vertical to surface. Initial pit optimization runs pushed the pit walls 60-80 meters from the Zone 6 and included excessive waste tonnes. It was recommended by PSM that the final pit walls may be designed closer to Zone 6 to reduce the waste tonnes and the pit slopes increased to 42-46 degrees. The parameters were adjusted according to the above recommendations and the final pit optimizations included a reduced amount of waste tonnes. Along the bottom of the orebody, PSM also recommended to design the final pit below the Zone 6 to avoid undercutting the shear zone along the contact.
Infrastructure	The PFS study includes allowances for all key project infrastructure, including: • Mining workshops • General and administration buildings • HV Power connection and distribution, • Water connections, • Warehouse, and stores • Expansion of existing accommodation facilities • Mine waste storage, • Concentrate storage shed, • Tailings filtration and storage, • Roads and access, • Water management and • Waste water treatment.

	All mining waste and processing takings will be stored in an Integrated Waste Landform. Golder was responsible for the design and cost estimation.
Cut-Off Parameters	For each block, the revenues and costs were calculated. Revenues are based on assumed metal prices and metallurgical recoveries. Costs include mining, processing, refining, general administration, fees, royalties, transportation, and other fees. The cut-off is based on blocks whether it generates a net profit and is flagged as ore or waste. As a result, the Nickel cut-off grades for transition and fresh rock material were determined to be 0.36% and 0.30% respectively.
Capital Costs	All capital costs have been developed to an AACE Class 4 (±25%) accuracy level. Open Pit Mine Capital costs are estimated for the pre-stripping mining, working capital and the purchase of fixed and mobile equipment. Processing and project infrastructure costs were estimated by CPC Engineering, based on budget equipment pricing and preliminary design MTO's. IWL costs were estimated by Golder Associates. Costs were developed from the design MTO's and the LOM production profile provided by BSX.
Operating Cost	The open pit mining costs were based on first principle calculations and bench marking costs from other Vietnamese mine operations. Processing and G&A costs were based on first principles build-up of activities and allowances. IWL costs were estimated by Golder Associates. Costs were developed from the design MTO's and the LOM production profile provided by BSX.
Environmental	The PFS environmental works depend heavily upon the previous approved EIA completed by BPNM. The current study has identified where the proposed works will impact beyond the existing EIA and with assistance from Vietnamese environmental advisors, BSX has commenced the baseline monitoring and assessment studies. BSX will submit a request for a new EIA as part of the DFS process to be commenced in 2022. Successful completion of this scope within the prescribed timelines are required for BSX meet the project development timelines Setout in this report.

Social	BSX has developed strong community support for the project, with strong development of relationships at the local, provincial and national political groups and government agencies. BSX employs teams to communicate and manage the development process. BSX will also be completing multiple social and community studies as part of the EIA process.
Audits or Reviews	BSX is engaging with international environmental advisors with Vietnamese experience to complete a gap analysis and audit of the planned environmental and social studies.

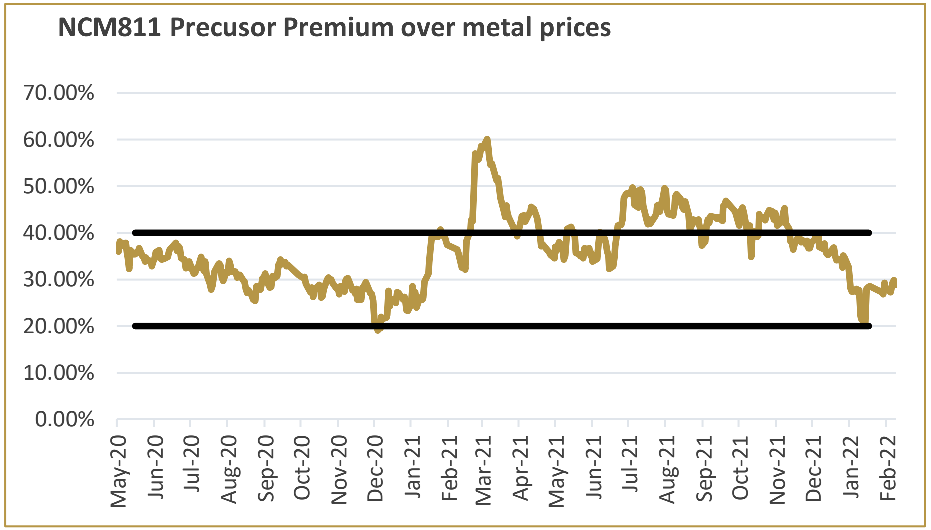
TA KHOA REFINERY (DOWNSTREAM BUSINESS)	
Assumption/ Factor	**Commentary**
Study Status	The Pre-feasibility Study presented in this report, focuses on the integration of the TKNP with the Ta Khoa Refinery (TKR). The TKNP and TKR are collectively referred to as the Ta Khoa Project. The integrated valuation for the Ta Khoa Project, which includes value ascribed to the TKR, relies on technical parameters presented to the ASX on 26 July 2021 – "Blackstone Delivers Exceptional Downstream PFS Results." Parameters that have been updated since that announcement, which primarily relate to concentrate feed profile and macroeconomic assumptions have been detailed in this report. The following sections summarise the material assumptions and modifying factors that underpin the Company's evaluation of the TKR, as their relevance is critical to the integrated valuation of the Ta Khoa Project presented in this report. The capital estimates and processing costs for the TKR, was completed to an AACE Class 4 Level, with an accuracy of +/-25% and was undertaken based on only open pit mining from the existing resources combined with third party concentrate feed (3PF). The proposed plant comprises a downstream Pressure Oxidation (POX) process with Mixed Hydroxide Precipitation (MHP) leaching and nickel refining via solvent extraction to produce NCM precursor. Two production throughputs were assessed by Simulus Engineers, namely 400ktpa and 800ktpa of nickel concentrate feed.
Concentrate Supply	A summary of the concentrate supply profile for the Base Case Ta Khoa Refinery is described below:



Blackstone considers there is a reasonable basis for securing concentrate supply for the Base Case Ta Khoa refinery, which assumes feed from the Ta Khoa Nickel project as well as 3PF. Indicative quantities and concentrate specifications have been received from all 3PF concentrate suppliers / partners included in this PFS. Based on current and confidential discussions, BSX is confident it can secure sufficient supply to meet the feed concentrate requirements.

Further, BSX is aggressively testing multiple DSS and MSV nickel targets within its 90% owned Ta Khoa Nickel Project. Although the level of resource confidence for several targets currently being assessed is not sufficient for inclusion in the TKR PFS, BSX considers there is potential for the TKR feed composition to eventually include a higher proportion of feed from the Ta Khoa Nickel Project.

NCM811 Precursor Price	BSX performed an analysis of the NCM 811 Precursor price on the SMM website compared to the individual constituent metal prices being nickel, cobalt and manganese. The analysis indicates that NCM811 Precursor has typically traded at a premium of 20-40% to metal prices. Blackstone applied a premium of 20% to the individual constituent metal prices. The underlying nickel and cobalt metal prices to which a premium was applied was referenced from forecast data from Bloomberg & Benchmark Minerals Intelligence. There was

	limited forecast price data for manganese metal and as such current observable market prices were applied (as referenced from SMM) The average realised NCM Precursor Price assumed in the Base Case TKR valuation of US$17,670/t is significantly lower than current spot market prices (as referenced from SMM). 
Metallurgical Methods and Parameters	The key metallurgical parameters assumed in the TKR PFS test-work and engineering study include:

	Units	Value
Basis of design data	000	
Site Operation		
Operating hours / year	hpa	7,448
Annual feed throughput	tpa	400,000
Design throughput	tph	53.7
Number of trains	number	2
Availability		
Hydromet plant availability	%	91.3
Reagents availability	%	95.0
Utilities availability	%	98.0
Overall availability	%	86.8
Utilisation (overall)	%	85.0
Feed		
Type of feed	text	Sulphide concentrates
Moisture	%	8.0
Bulk density	t/m3	2.2
Angle of repose	degrees	30.0
Concentrate grade (dry solids)		
Co	%	0.30
Cu	%	1.10
Mn	%	0.05
Ni	%	11.5

These metallurgical parameters have been supported by the following testwork:

WBS	Description
100	Concentrate Handling / Blending
200	Pressure Oxidation Leaching (POX)
300	Copper Solvent Extraction (CuSX)
400	Neutralisation / MHP production
500	Magnesium removal - Crystallisation
600	Ni-Co refining – Multiple stages of Solvent Extraction
700	NCM ternary precursor (NCM 811 precipitation)

Metallurgical overall recovery reported from batch test-work and SysCAD process modelling:

Metallurgical Recovery – Ni into NCM Precursor Product	%	96.8
Metallurgical Recovery – Co into NCM Precursor Product	%	96.7
Metallurgical Recovery – Cu into Copper Cathode	%	93.1

It should be noted that there are common areas of the overall plant for the two trains such as the following:

- Concentrate storage area
- Concentrate repulping area
- Kieserite storage and loading area
- Copper electrowinning and loading area
- Oxygen plant.

Project Implementation

BSX's preferred strategy is to execute a hybrid contracting strategy. Engineering and procurement activities to be contracted on a lump sum, fixed prices basis, with construction management to be on a cost reimbursable basis. The construction contractor would be incentivised to meet budget and schedule targets through a reward / incentive scheme.

Infrastructure

BSX engaged a local Vietnamese based consulting firm specialising in Vietnamese logistics, infrastructure and local investment law, to conduct location and logistics study to help determine the optimum TKR location. A detailed location and infrastructure review

	and trade-off study was completed to identify the optimum refinery location, inclusive of an in depth discovery phase with engagement with local governments and industry bodies. All analysis to date indicates that the TKR should be located either in Son La or Phu Tho provinces. Both of these provinces demonstrated great government support, ease of access to renewable power, suitable residue storage options and availability of suitable land. Project Infrastructure included in the PFS evaluation includes the following: • Plant Administration and Support Buildings • Accommodation facilities • Production Buildings • Access Roads • Residue Storage Facilities (RSF) • HV Power Supply • Water Supply • Waste Management

Capital Costs	The capital cost estimate for the TKR and associated infrastructure has been developed to a Class 4 (±25%) level, in alignment with the AACE Cost Estimate Classification System, as applied in the Mining and Mineral Processing Industries (47R-11) and the AusIMM Cost Estimation Handbook, 2nd Edition. The estimate base date is Q3 2021. A minimum of 98 % of mechanical equipment costs are sourced from the Simulus equipment cost database, with at least 90 % of the costs, by value, having been received within six months of the capital estimate date following the process described above. The upfront project capital cost estimate of US$491m for the Base Case Ta Khoa Refinery capital does not include amounts for pre-commitment activities such as a DFS and pilot plant development. The process plant and infrastructure costs were estimated by Simulus Engineers, the Optimize Group and Blackstone Minerals. The costs for the Residue Storage Facility were provided by BSX. The capital costs include owner's project cost and contingency as calculated by Simulus Engineers.

Capital Cost Area (US$M)	Base Case
Process Plant	245
Site Infrastructure	16
Residue Storage	8
Owners Direct	43
Precommitment Costs	-
EPCM	51
Owners Costs	47
Contingency	82
Total Project Capital	491

Operating Cost	The estimate conforms to the requirements of an AACE /AusIMM Class 4 Estimate and is deemed to have an accuracy of ± 25%. The largest operating costs for the Ta Khoa Refinery include the purchase of nickel and cobalt in concentrate. Nickel concentrates typically trade at a discount to the underlying metal price (currently ~65-80%. An independent consultant has been employed by BSX to provide guidance nickel concentrate pricing. It is important to note that on an integrated basis, the revenue generated by the TKNP on the sale of concentrate is equal to cost of the TKR purchase cost, for a net impact of zero on the integrated Ta Khoa Project valuation. As such, the operating cost base for the TKR, as presented in the table below, only includes the purchase of third-party concentrate feed. The major refining cost component relates to the purchase of cobalt and manganese make up quantities to produce NCM811 at the correct specification. The economic modelling for the TKR PFS assumes that cobalt sulfate and manganese sulfate is purchased to achieve this. A forecast for cobalt sulfate prices was referenced from Benchmark Mineral Intelligence and a forecast price for manganese sulfate based on recent observable prices from Shanghai Metal Markets (SMM) data. All other material operating cost assumptions, other than for logistics, were provided by Simulus Engineers with contributions from other parties including BSX Owner's Team. These include reagents, power, maintenance, labour and G&A. Logistic costs were determined as part of the location trade off study, for which BSX engaged a local Vietnamese based consulting firm specialising in Vietnamese logistics, infrastructure and local investment law.

Base Case Operating Costs	US$M (Life of Operations)
Purchase of 3PF Ni & Co in Concentrate (Net of Penalties)	5,212
Refining	3,928
Logistics	114
G&A	28
Residue Storage	19

Environmental	BSX's goal is to build a processing plant utilising green technology and by using renewable energy from hydroelectric plants to reduce carbon emissions and provide economic opportunities for employees and local businesses. The Project is classified by the Investment Law and Environmental Law into a 'Group One' category - holding a high risk of adverse environmental impacts according to the Vietnamese laws on environmental protection. This means, careful management of environmental risks determined through studies and baseline assessments, in addition to community engagement, will be priority of site-based and corporate teams.

Social	Preliminary studies show that both preferred locations for the TKR are in line with local socio-economic development plans of the provinces and have the potential, if executed and managed well, to meet high ESG standards. The project values the community in which it works and takes seriously its community and environmental obligations to ensure the community benefits from all stages of the project's activities. We have a history of operating responsibility and have the endorsement of the local community to operate. Our social and community values are demonstrated in the relationships we share with the local community, the economic and employment opportunities we provide, and engagement we have on environmental activities such as rehabilitation and waste management.
Risk Management	A risk register has been established for the project and risk management process have been established. Key risks identified to date include: • Permitting Risk • Feedstock and End-Product Pricing • Evolving Battery Chemistry • Reagent Supply Quality and Availability • Processing Risk • Concentrate Supply Risk • Environmental and Community Relations • COVID 19 • Project and Operations Logistics • Funding
Exclusions	The Ta Khoa Project evaluation excludes potential opportunity to incorporate chlorination leaching of the POX residues to recover Platinum Group Elements (PGEs) including palladium, platinum and rhodium using a conventional flowsheet. Specifically, concentrate residue samples have been tested and determined to be amenable to chlorination leaching (refer ASX announcement 27 May 2021). BSX will continue to perform test work to optimise initial results with the intention to include a circuit for the recovery of PGEs in the final TKR design.

Investment Evaluation	For evaluating the economics of the integrated Ta Khoa Project, a financial model assessing real post-tax unleveraged free cash flows at the project / asset level has been prepared. A monthly financial model has been deemed appropriate by BSX to evaluate the timing of upfront capital expenditure, to reflect an appropriate the ramp up/ commissioning of the Refinery as well as suitably capture variability in concentrate feed composition over the life-of the operations. The financial model assumes a start date and valuation date of 1 March 2023 and does not include pre-commitment costs that will be expended by BSX prior to a Final Investment Decision (FID). Given historically low global interest rates that persist at the time of compiling this report, BSX considers real project level post-tax discount rate of 8% applied to value the Refinery to be reasonable. A review of recent broker reports and several recent similar studies published on the ASX have also adopted a real project level post-tax discount rate of 8%. The valuation currency is USD. Revenues, capital costs and the majority of operating were estimated in USD and therefore exchange rate exposure was limited in the economic evaluation. The key operating cost with exposure to exchange rates were royalties, which were converted to USD estimate based on conversion factor of 1USD = 23160 VND The financial model assesses real post-tax unleveraged free cash flows at a project / asset level. The economic modelling performed by BSX does not assume any real escalation to revenue or cost inputs into the model. Tax has been modelled for the TKNP and TKR individually, given that both of these assets have different applicable tax regimes. The TKNP is subject to a 20% corporate tax rate. The TKR has significant corporate tax incentives available as summarised in the table below.

Years of Operation	%	Corporate Tax Rate
0-4	%	0%
5-13	%	5%
14-15	%	10%
>15	%	20%

The project evaluation model has been reviewed by BurnVoir corporate finance, and the following key economic assumptions are applied in the valuation of the integrated Ta Khoa Project:

Price Forecast (US$/t), Life – of – operation avg.	Base Case
NCM811 Precursor	17,670
Nickel Metal	20,000
Cobalt Metal	65,768
Cobalt Sulfate (21%)	13,659
Manganese Sulfate (32%)	1,427
Copper Cathode	10,000

BLACKSTONE MINERALS

Looking forward. Mining green.

Ta Khoa Nickel Project

Upstream PFS Report

February 2022

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Contributor	Responsibility
ALS Metallurgy	Metallurgical test-work and minerology
Benchmark Mineral Intelligence	Nickel and cobalt market analysis
BluVein	Design, operational modelling and capital cost estimate for dynamic charging infrastructure
BPNM	Geological drilling, logging and sample selection, metallurgical test-work and interpretation
BSX	Resource modelling and geological interpretation
BurnVoir	Financial Model Review
CPC Engineering	Process Design, and plant engineering, process operating cost estimates, capital cost estimates (Process Plant, NPI and General and Administration)
Golder Associates	Geochemistry, integrated waste landform (IWL) design, and cost estimation
Metso-Outotec	Tailings and concentrate thickening and filtration test-work
Optimise Group	All mining design, including pit optimisation, scheduling, cost estimation and mining infrastructure and off-site infrastructure design
Optiro	Mineral resource estimation
PSM Consulting Ltd	Mine and plant site geotechnical design and recommendations, hydrogeological interpretation

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Abbreviations

Acronym / Abbreviation	Description
AACE	American Association of Cost Engineers
AMR	Asian Minerals Resources
AMRN	Asian Minerals Resources Nickel Limited
BEHV	Battery Electric Heavy Vehicle
BPNM	Ban Phuc Nickel Mines
BSX	Blackstone Minerals Ltd
COXAMA	Mechanical Engineering Company of Son La Province
CPC	CPC Engineering
DFS	Definitive Feasibility Study
DHEM	Downhole EM
DOIT	Department of Industry and Trade
DONRE	Department of Natural Resources and Environment
DSS	Disseminated Sulfide
DTM	Digital Terrain Models
EMC	Electric Mining Consortium
ESIA	Environmental and Social Impact Assessment
HV	Heavy Vehicle or High Voltage (depending on context)
LV	Light Vehicle
IWL	Integrated Waste Landform
MHP	Mixed Hydroxide Precipitate
MOIT	Ministry of Industry and Trade
MONRE	Ministry of Natural Resources and Environment
MSO	Mineable Shape Optimisation
MSV	Massive Sulfide Vein
MTO	Material Take Off
NiEQ	Nickel Equivalent
NCM / NCM811	Nickel Cobalt Manganese hydroxide precursor
NSR	Net Smelter Return
OEM	Original Equipment Manufacturer
OG	Optimise Group
OP	Open Pit

Optiro	Optiro Pty Ltd
PC	Peoples Committee
PFS	Pre-feasibility Study
PGE	Platinum Group Elements
PSM	PSM Consulting Ltd
ROM	'Run of Mine'
RPEEE	Reasonable Prospects of Eventual Economic Extraction
SS	Scoping Study
TKNP	Ta Khoa Nickel Project
TKR	Ta Khoa Refinery
TSF	Tailings Storage Facility
VGS	Vietnamese Geological Survey

Units

Unit	Description
g/t, gpt	Grams per tonne (equivalent to PPM)
kt	Thousand tonnes
ktpa	Thousand tonnes per annum
km	Kilometre
kV	Thousand volt
LoM	Life of Mine
Mt	Million Tonne
MV	Million Volt
MW	Million Watt
m	metres
***pa**	Per annum rate for preceding unit ie Mtpa, million tones per annum
ppb	Parts per billion
ppm	Parts per million (equivalent to g/t)

1 INTRODUCTION

1.1 General

Blackstone Minerals Limited (BSX), an Australian owned exploration and mining company is developing three closely related projects in the north of Vietnam. BSX's vision is to be a leader in the battery revolution and it's mission is a simple one:

Green Batteries. Brighter Future.

BSX intends to deliver on this mission in cooperation with it's partners, by developing the world's first integrated operation capable of delivering the greenest, nickel based, mine-to-consumer battery products.

This report summarises the outcomes of the recent Pre-feasibility Study (PFS, or the Study) completed on the Ta Khoa Nickel Project (TKNP, or the Project). The Study has been completed to an AACE Class 4 level.

In October 2020, BSX presented a Scoping Study (SS) for the TKNP which considered various means of refining nickel concentrate produced from Disseminated Sulfide (DSS) material at the Ban Phuc deposit, in one combined integrated business. The SS indicated that there were multiple economic production scenarios, but the preferred scenario produced a Nickel-Cobalt-Manganese (NCM) 811 precursor product via a mixed hydroxide precipitate (MHP) intermediate product.

Since completion of the SS, the project has been split into three sub-projects:

- Ta Khoa Nickel Project (TKNP) and;
- Pilot Plant Phase 2
- Ta Khoa Refinery Project (TKR)

The TKR was the subject of a stand-alone PFS completed in July 2021, known as the Ta Khoa Downstream PFS, it is not discussed herein. Please refer to the ASX Announcement dated 26th July 2021, titled "Blackstone Delivers Exceptional Downstream PFS Results" for further detail.

1.2 Project Overview

Ban Phuc Nickel Mines (BPNM), a 90% owned subsidiary of BSX, owns and previously operated the underground Ban Phuc Nickel mine. The operation treated approximately 1Mt over 3 years through the Ban Phuc Nickel Concentrator from ore sourced from the underground mine. The original underground mine is depleted.

The mine infrastructure includes a 450ktpa sulfide concentrator, 200-person accommodation, geology core shed and various other infrastructure. BPNM also has tenure over 150km2 of land surrounding Ban Phuc and includes 25 additional early-stage exploration targets.

Adjacent to the existing underground mine lies the undeveloped Ban Phuc disseminated sulfide resource (Ban Phuc DSS). This deposit forms the cornerstone of this PFS study. This study includes supplementary feed from the following satellite deposits:

- Ban Chang (Massive Sulfide) and;
- King Snake (Massive Sulfide)

The TKNP refers to the planned development of an open pit mine to extract nickel from the Ban Phuc DSS, the development of the various satellite deposits, and construction of a new nickel concentrator and related infrastructure.

1.3 Property Description & Location

The Project is located approximately 180 km west of downtown Hanoi, near Ban Phuc Village in Son La Province, in the north-west of the Socialist Republic of Vietnam, at Latitude 21.19°, Longitude 104.33° (World Geodetic System 1984 - WGS84). (Refer to Figure 1-1). The nearest towns are Hat Lot, approximately 30km to the north-west and Bac Yen, approximately 25 km to the east. The nearest major population centre is the provincial capital Son La, approximately 55km to the north-west. The site is approximately 3km from the Da River Hydro-Electric Dam Reservoir. The elevation across the site ranges from 100m to 550m above sea level.

Figure 1-1, Project Location

1.4 History

The discovery of a large, outcropping gossan zone at Ta Khoa containing secondary copper mineralisation is tentatively attributed to the Vichy French or occupying Japanese in 1945. Early exploration work was conducted by Vietnamese geologists with Russian and Chinese assistance in the mid 1950's and early 1960's, and was initially focused on copper. In 1956, Russian geologists identified the massive Ni-Cu-sulfide body at Ban Phuc and in 1963, with Chinese assistance, a maiden resource was defined. Around this time (1959-1964) regional exploration programmes involving surface sampling, trenching, magnetic surveys, diamond drilling, driving of adits and sinking of shafts resulted in the definition of Ni-Cu sulfide mineralisation at several additional prospects within the immediate Ban Phuc area such as Ban Khoa, Ban Chang and Suoi Dan (King Snake).

In 1993 Asian Minerals Resources (AMR) established BPNM through a wholly owned subsidiary, AMR Nickel Limited (AMRN) and two Vietnamese companies, Mineral Development Company (MIDECO) and the Mechanical Engineering Company of Son La Province (COXAMA). The State Committee for Cooperation and Investment issued to BPNM Investment License No. 522/GP which granted exploration access of 600km^2.

AMR was listed on the TSX-V in April 2004 and announced it had signed a memorandum of understanding with MIDECO to acquire it's 20% equity interest in the Ban Phuc Project for a total equity of 90%. COXAMA holds the remaining 10% interest. The Vietnamese Government approved this transaction in August 2005.

A preliminary assessment of the MSV project was completed in April 2005 and incorporated preliminary baseline studies for environmental aspects. Ausenco went on to complete a feasibility study in September 2005 in conjunction with the development of an environmental and social impact assessment (ESIA).

BPNM was granted a mining license for MSV sulfides contained within a 7-hectare area in 2007. The first phase of mining commenced in 2008. Both the upper and lower portals were cut and in excess of 1km of decline development drives were completed however depressed nickel prices due to the global financial crisis resulted in operations at Ban Phuc being suspended.

In 2013 the Vietnam Deputy Prime Minister, via a proposal of the Ministry of Natural Resources and Environment (MONRE), granted BPNM with an exclusive non-auction mining rights zone of 99km^2 for three prospective areas in Son La Province; Hong Ngai, Ta Khoa and Ta Hoc.

Construction of the concentrator recommenced in 2012 and the mine was brought into full scale production during 2013. In the final quarter of 2016 Ban Phuc was placed in care and maintenance largely due to the depletion of the MSV ore reserve and low nickel prices. Concentrate sales from the production period contained 20,998 tonnes of nickel, 10,245 tonnes of copper and 676 tonnes of cobalt.

In July 2018 AMR executed the divestment of AMR Nickel and its BPNM assets to Ta Khoa Mining Limited (TKM). In May 2019 BSX entered into a 12-month exclusive binding option agreement to purchase AMRN with the option being exercised in April 2020.

1.5 Ownership & Leases

The 150 km^2 Ta Khoa Concession is covered by the Foreign Investment Licence, 522 G/P, which Ban Phuc Nickel Mines Joint Venture Enterprise (BPNMJVE) was granted on January 29th, 1993. BPNM now operates under the current Investment Certificate No. 241022000033 which was originally granted July 30th 2007 by the Son La People's Committee. The Investment Certificate indicates a Project area of 150km^2 without specifying land for exploration, exploitation, processing plant etc. and creates an overall legal protection for the Company with respect to the 150km^2, i.e., no other investor can apply for investment in this land area. A new Exploration Licence (1366/ GP-BTNMT) was granted on the 10th of July 2014 by MONRE covering an area of 34.7 km^2 within the 150km^2.

BPNM was granted a Mining License covering the Ban Phuc deposit on 17 December 2007. As prescribed under Vietnam's constitution and Vietnamese Law, all land is owned by the state. Under the Land Law 2003 and the Decrees on implementation of the Land Law 2003, the state allocates land use rights to land users; the land use rights are regulated under the land law and it's implementing regulations and managed by the provincial People's Committee (PC) and the provincial Department of Natural Resources and Environment (DONRE) of the province where the land is located.

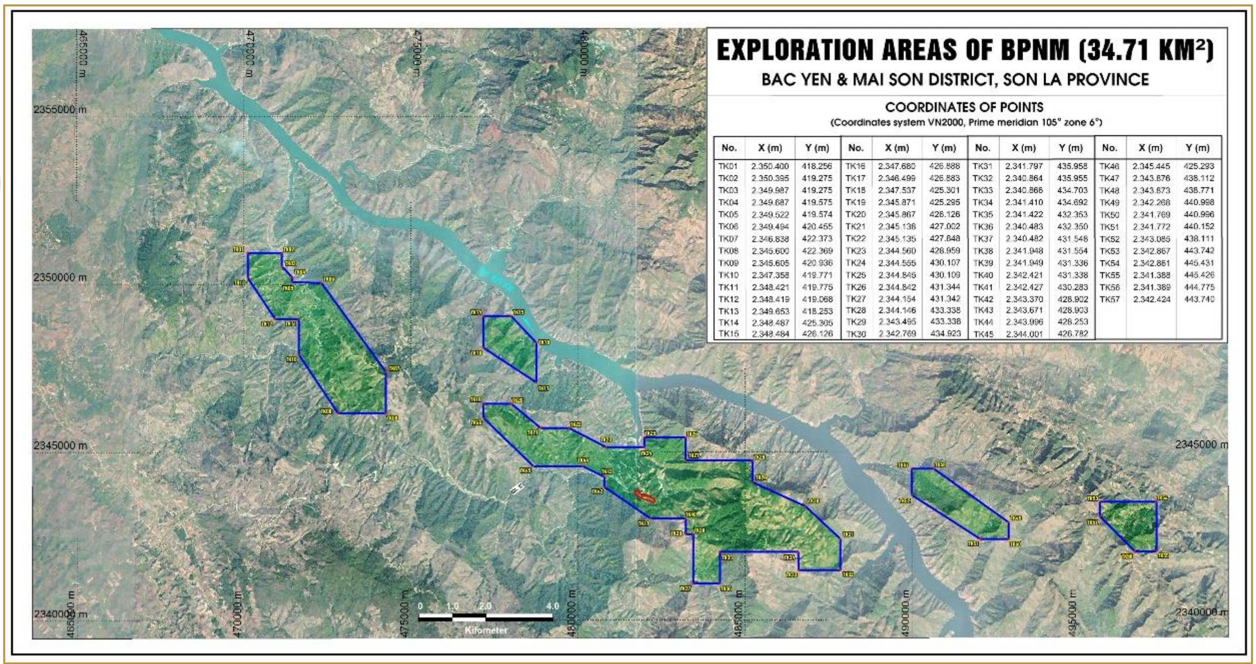

Figure 1-2, Ta Khoa Concession Licences

2 GEOLOGY & RESOURCES

2.1 General

The latest Ta Khoa Mineral Resource was published in December 2021 (refer 'Ta Khoa Mineral Resource Update' - ASX announcement 23 December 2021), for data closed out in October 2021. The statement included an update for the Ban Phuc DSS and included new estimates for the Ban Khoa DSS and the Ban Chang and King Snake MSV deposits. Metallurgical and geotechnical drilling is ongoing at Ban Phuc. Resource, metallurgical and geotechnical drilling is ongoing at Ban Khoa, Ban Chang and King Snake. All ongoing work will contribute to modelling and evaluations for all four deposits and possibly others, for the planned DFS.

2.2 Local Geology

The Ta Khoa Project is in a magmatic Nickel–Copper–PGE sulfide district associated with the Song Da Rift, a major crustal suture zone, and the Emeishan Large Igneous Province that extends for 1,000 km from northern Vietnam into southern China and hosts several Ni-Cu-PGE deposits.

The licenses are located within the Ta Khoa anti-form which is a domal feature within the Song Da Rift Zone. The core of the anti-form is dominated by gneisses and schists of the Devonian Nam Sap Formation, which is mantled by calcareous schists and marbles of the Ban Phuc beds. The Ban Phuc beds form the wall-rock host of the Ban Phuc and Ban Khoa DSS deposits and the Ban Chang and King Snake MSV deposits. The unit is favourable host horizon for many of the mafic and ultramafic intrusions and dykes mapped on the dome.

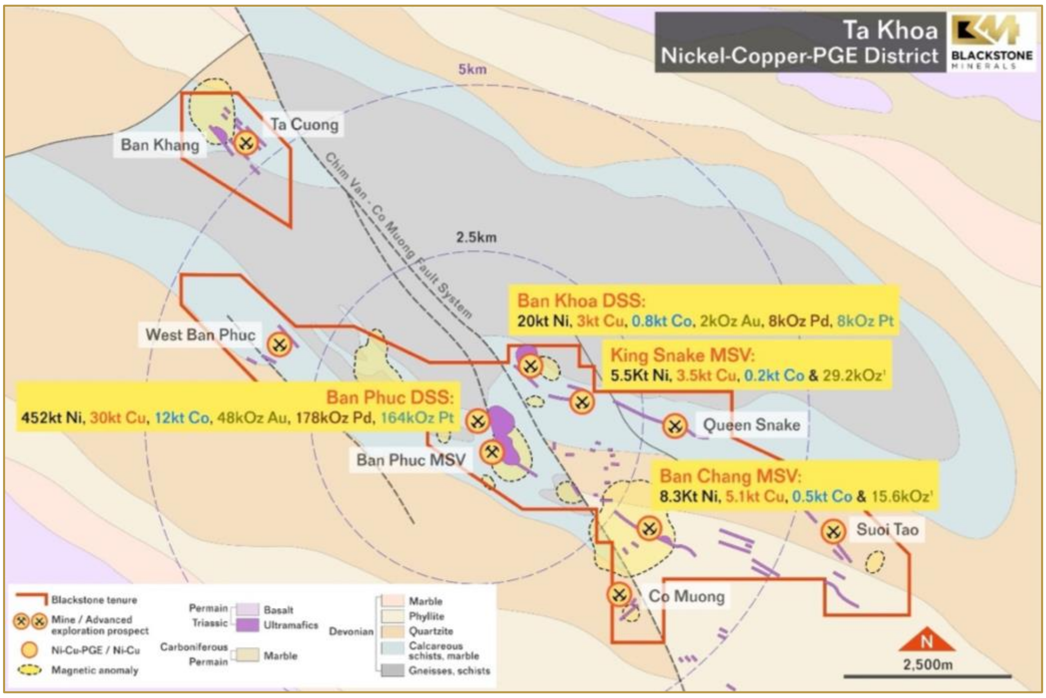

Figure 2-1, Ta Khoa Nickel District

Two main types of Ni–Cu–PGE sulfide deposits are recognised within the Ta Khoa district:

1) DSS deposits within large ultramafic intrusions, of which the Ban Phuc ultramafic intrusion is the best known and hosts the Ban Phuc DSS deposit and the similar Ban Khoa DSS deposit

2) MSV within or locally related to narrow ultramafic dykes or locally within sedimentary wall rocks. At Ban Chang for example, zones of disseminated, semi-massive and stringer sulfides are associated with massive to semi-massive sulfide veins.

2.3 Mineral Resources

2.3.1 Ban Phuc DSS

The Ban Phuc intrusion is one of the larger outcropping ultramafic bodies in the Song Da Rift with dimensions of 940 m by 220-420 m, an outcrop area of 0.25 km^2 and preserved depth of up to 470 metres below surface. It hosts the largest known resource of disseminated Ni-Cu-Co (& PGE) sulfides in the license area. The intrusion is comprised of serpentinised dunites and peridotites (with some gabbroic differentiates in it's upper parts). The intrusion is elongate and trough-shaped with a north-westerly trend corresponding to the strike of the Devonian metasedimentary host rocks. It has intruded along the trend of a discontinuous unit of calcareous Ban Phuc beds. The trough-shaped mineralised domains, which are parallel to the folded shaped of the intrusion.

The 2021 Ban Phuc resource is summarised in Table 2-1 below.

Table 2-1, Ban Phuc Mineral Resource Summary

Ban Phuc Resource	Mt	Ni (%)	NiEQ (%)	Cu (%)	Co (%)	Au (g/t)	Pd (g/t)	Pt (g/t)	S (%)	Ni (kt)	NiEQ (kt)	Cu (t)	Co (t)	Au (kOz)	Pd (kOz)	Pt (kOz)
Indicated Resources	102	0.38	0.44	0.03	0.01	0.01	0.05	0.04	0.25	383	445	27	10	42	159	145
Inferred Resources	21	0.33	0.37	0.01	0.01	0.01	0.03	0.03	0.07	69	78	3	2	6	18	19
Total	**123**	**0.37**	**0.43**	**0.02**	**0.01**	**0.01**	**0.04**	**0.04**	**0.22**	**452**	**523**	**30**	**12**	**48**	**178**	**164**

2.3.2 Ban Chang & King Snake MSV

The Ban Chang prospect is located 2.5km east of the Ban Phuc deposit adjacent to the Chim Van – Co Muong fault system. The prospect geology consists of a tremolitic dyke swarm within phyllites, sericite schists and sandstones of the Sap Viet Horizon. The MSV mineralisation consists of two west-east striking, steeply south dipping veins which are 580m apart along strike. The eastern vein consists of a vein of massive sulfide which has a disseminated ultramafic outer domain encapsulating the MSV.

Table 2-2, Ban Chang Mineral Resource Summary

Ban Chang Resource	Mt	Ni (%)	NiEQ (%)	Cu (%)	Co (%)	Au (g/t)	Pd (g/t)	Pt (g/t)	S (%)	Ni (kt)	NiEQ (kt)	Cu (kt)	Co (kt)	Au (kOz)	Pd (kOz)	Pt (kOz)
Inferred Resources	0.7	1.2	2.0	0.72	0.07	0.05	0.4	0.3	13	8	14	5	0.5	1.2	8.0	6.6

King Snake is located approximately 1km north of the Ban Phuc disseminated nickel sulfide deposit (refer to Figure 2-1). The King Snake prospect is a typical magmatic MSV of high-grade brecciated Ni-Cu-Co-PGE associated with tremolite-altered mafic-ultramafic dykes developed along a shear zone within the calcareous sediments and quartz-mica schists of the Ban Phuc Horizon.

Table 2-3, King Snake Mineral Resource Summary

King Snake Resource	Mt	Ni (%)	NiEQ (%)	Cu (%)	Co (%)	Au (g/t)	Pd (g/t)	Pt (g/t)	S (%)	Ni (kt)	NiEQ (kt)	Cu (kt)	Co (kt)	Au (kOz)	Pd (kOz)	Pt (kOz)
Inferred Resources	0.43	1.3	2.4	0.8	0.05	0.14	0.7	1.3	11	5.5	10	3.5	0.2	1.9	10	17

2.3.3 Ban Khoa DSS

The Ban Khoa disseminated nickel sulfide deposit is hosted by a synclinal or trough-shaped serpentinised peridotite, approximately 1km north of the Ban Phuc disseminated nickel sulfide deposit. The Ban Khoa mineralisation comprises broad zones (approx. 150 - 190m thick) with disseminated nickel sulfides throughout the serpentinite, as well as with localised lenses of heavily disseminated nickel sulfide and PGEs, similar to the Ban Phuc deposit.

Ban Khoa is in a preliminary development phase and is currently not included in this study. Following the Company's initial resource drilling program at Ban Khoa, BSX has recently started the next phase of infill drilling. Additional drilling and mining evaluation studies will be performed to assess underground potential and additional metallurgical test work is underway to understand blending performance, with the intention of including Ban Khoa as part of the TKNP DFS.

Table 2-4, Ban Khoa Mineral Resource Summary

Ban Khoa Resource	Mt	Ni (%)	NiEQ (%)	Cu (%)	Co (%)	Au (g/t)	Pd (g/t)	Pt (g/t)	S (%)	Ni (kt)	NiEQ (kt)	Cu (kt)	Co (kt)	Au (kOz)	Pd (kOz)	Pt (kOz)
Inferred Resources	6.2	0.31	0.39	0.05	0.01	0.01	0.04	0.04	0.9	20	24	3	0.8	2.1	8.4	8.4

The resource for the project are summarised below in section 2.3.4.

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2.3.4 Ta Khoa Nickel Project Resources

Table 2-5, Ta Khoa Mineral Resource (JORC Code 2012), 30th October, 2021

	Indicated															Inferred														
MINING CENTRE		Ni	NiEQ	Cu	Co	Au	Pd	Pt	Ni	NiEq	Cu	Co	Au	Pd	Pt		Ni	NiEq	Cu	Co	Au	Pd	Pt	Ni	NiEQ	Cu	Co	Au	Pd	Pt
	Mt	**%**	%	%	%	g/t	g/t	g/t	**kt**	kt	kt	kt	kOz	kOz	kOz	**Mt**	%	%	%	%	g/t	g/t	g/t	kt	kt	kt	kt	kOz	kOz	kOz
Ban Phuc (DSS)																														
Oxide	4	0.54	0.64	0.07	0.01	0.02	0.07	0.07	23	27	3.1	0.5	2.9	10	9.3	8	0.36	0.41	0.02	0.01	0.01	0.03	0.03	28	31	1.6	0.7	2.4	8.2	8.5
Transitional	6	0.47	0.55	0.05	0.01	0.02	0.06	0.06	29	34	3.3	0.7	3.5	13	12	4	0.34	0.39	0.02	0.01	0.01	0.03	0.03	13	15	0.6	0.3	1.2	3.9	4.1
Fresh	91	0.36	0.42	0.02	0.01	0.01	0.05	0.04	331	384	21	9.2	36	137	124	10	0.29	0.33	0.01	0.01	0.01	0.02	0.02	28	32	0.6	0.8	2.2	6.2	6.9
Ban Phuc total	102	0.38	0.44	0.03	0.01	0.01	0.05	0.04	383	445	27	10	42	159	145	21	0.33	0.37	0.01	0.01	0.01	0.03	0.03	69	78	2.8	1.9	5.9	18.3	19
Ban Khoa (DSS)																														
Oxide	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	0.33	0.41	0.05	0.01	0.01	0.06	0.06	0.8	1.0	0.1	0.0	0.1	0.4	0.4
Transitional	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.33	0.40	0.05	0.01	0.01	0.04	0.04	0.3	0.4	0.0	0.0	0.0	0.1	0.1
Fresh	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.9	0.31	0.38	0.05	0.01	0.01	0.04	0.04	19	23	2.8	0.8	2.0	7.8	7.8
Ban Khoa total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.2	0.31	0.39	0.05	0.01	0.01	0.04	0.04	20	24	2.9	0.8	2.1	8.4	8.4
Sub-total - **DSS**	102	0.38	0.44	0.03	0.01	0.01	0.05	0.04	383	445	27	10	42	159	145	27	0.32	0.37	0.02	0.01	0.01	0.03	0.03	88	101	5.7	2.7	8.0	27	28
Ban Chang (MSV)																														
Oxide	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	0.88	1.46	0.55	0.05	0.05	0.22	0.20	0.1	0.2	0.1	0.0	0.0	0.1	0.1
Transitional	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04	0.91	1.51	0.54	0.06	0.05	0.25	0.23	0.4	0.6	0.2	0.0	0.1	0.3	0.3
Fresh	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.6	1.20	2.00	0.73	0.07	0.05	0.36	0.30	7.8	13	4.8	0.5	1.1	7.5	6.2
Ban Chang total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.70	1.18	1.96	0.72	0.07	0.05	0.35	0.29	8.3	14	5.1	0.5	1.2	8.0	6.6
King Snake (MSV)																														
Oxide	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.002	1.00	1.72	0.51	0.04	0.16	0.46	0.70	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transitional	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	1.05	1.92	0.64	0.04	0.12	0.60	0.98	0.1	0.3	0.1	0.0	0.1	0.3	0.4
Fresh	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.4	1.30	2.40	0.82	0.05	0.14	0.74	1.28	5.3	9.8	3.4	0.2	1.8	9.7	16.8
King Snake total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.43	1.29	2.38	0.82	0.05	0.14	0.73	1.27	5.5	10.1	3.5	0.2	1.9	10.0	17.3
Subtotal – MSV	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.1	1.22	2.12	0.76	0.06	0.08	0.49	0.66	14	24	8.5	0.7	3	18	24
Ta Khoa Total	**102**	**0.38**	**0.44**	**0.03**	**0.01**	**0.01**	**0.05**	**0.04**	**383**	**445**	**27**	**10**	**42**	**159**	**145**	**28**	**0.36**	**0.44**	**0.05**	**0.01**	**0.01**	**0.05**	**0.06**	**102**	**126**	**14**	**3**	**11**	**45**	**52**

Notes to Table 2-5:

1. Some numerical differences may occur due to rounding
2. The resource reporting lower cut-off grades have changed from the previous 2020 Mineral Resource:
    a. Cut-off grade reporting lower limit:
        i. DSS: Ban Phuc, Oxide & Transitional = 0.30% Ni, Fresh = 0.25% Ni – previously reported at 0.30% Ni for all material types
        ii. MSV: Ban Chang & King Snake = 0.70% Ni – MSV's not previously reported by Blackstone Minerals
3. Nickel Equivalent calculations are:
    a. Ban Phuc Ni Eq (%) = Ni (%) + 0.270 x Cu (%) + 2.76 x Co (%) + 0.336 x Pd (g/t) + 0.139 x Pt (g/t) + 0.190 x Au (g/t)
    b. Ban Khoa Ni Eq (%) = Ni (%) + 0.517 x Cu (%) + 1.95 x Co (%) + 0.314 x Pd (g/t) + 0.129 x Pt (g/t) + 0.244 x Au (g/t)
    c. Ban Chang & King Snake Ni Eq (%) = Ni (%) + 0.617 x Cu (%) + 2.24 x Co (%) + 0.331 x Pd (g/t) + 0.165 x Pt (g/t) + 0.252 x Au (g/t)
4. The Ban Phuc Mineral Resource Update includes all available drill holes drilled up to and including BP21-41 (Completed June 2021)
5. The Ban Khoa Mineral Resource Update includes all available drill holes drilled up to and including BK21-13 (Completed May 2021) – drilling and testing is ongoing at the prospect (at Dec 2021)
6. The King Snake Mineral Resource includes drill holes drilled up to and including KS21-26 (Completed June 2021) – drilling and testing is ongoing at the prospect (at Dec 2021)
7. The Ban Chang Mineral Resource includes drill holes drilled up to and including BC21-34 (Completed June 2021) – drilling and testing is ongoing at the prospect (at Dec 2021)
8. The effective date of the Mineral Resource reported is 30th of October 2021, (the approximate cut-off date of the information included in the Mineral Resource), however no new data for the DSS deposits was collected after June 2021. Drilling has been continuous at Ban Chang and King Snake for all of 2021.
9. The Ta Khoa mineral concessions are held by Ban Phuc Nickel Mine LLC, Vietnam (BPNM). Blackstone Minerals owns 90% of BPNM. Resources are presented on a 100 % basis.

3 MINING STUDY

3.1 Introduction

A mining study was completed by Optimize Group (OG) for the TKNP PFS. The mining study included baseline feed from the Ban Phuc open pit mine, as well as supplementary feed from the satellite Ban Chang and King Snake underground MSV deposits.

Multiple scenarios were considered under the PFS, including:

- **Scenario 1:** Parallel open pit and underground development delivering 8Mtpa blended mill feed with electrification of the open pit haulage fleet (Base Case).
- **Scenario 2:** Parallel open pit and underground development delivering 8Mtpa blended mill feed with conventional diesel haulage (Comparison Case).
- **Scenario 3:** Stage development with initial start-up with the existing 450ktpa concentrator receiving MSV feed from the satellite deposits, then the open pit starting later

This report focuses on **Scenario 1** only as it provided the best strategic alignment for the company's objectives combined with strong economics. The study has resulted in the definition of an Ore Reserve for the Ban Phuc DSS.

3.2 Mining Inventory

The TKNP consists of the four deposits discussed in Section 2, Ban Phuc OP, Ban Khoa OP, King Snake UG and Ban Chang UG. For the purpose of stating Ore Reserves, only the Ban Phuc OP is included as King Snake, Ban Chang nor Ban Khoa resource are currently classified as Inferred. Drilling to upgrade all three deposits is expected to be completed early in 2022. Feed from King Snake and Ban Chang has been included in the combined life of mine mill feed inventory however Ban Khoa has not been included in this study.

3.2.1 Ore Reserves & Additional Mining Inventory

The Ban Phuc DSS Ore Reserve estimate is the portion of the resource which is having demonstrated to have economic viability within an optimised pit design which incorporates key modifying factors such as mining recovery, equipment scheduling, waste dilution and other economic considerations. The Ore Reserve is 76 % of the production plan and economic model.

Inferred mineral resources included in the mining evaluation are excluded from the Ore Reserve (refer Table 3-1).

The open pit Ore Reserve was developed in a three-step process.

1) A pit optimisation study was completed, and an optimal pit shell selected to for use as the basis for the pit design;

2) An operational pit design was completed that incorporated catch benches, detailed pit wall slopes based on geotechnical assessment, and truck haulage ramps
3) Within this pit design, the ore tonnage is the summation of tonnes that meet or exceed the economic NSR cut-off criteria. The ore tonnage incorporates mining losses and mining dilution to arrive at the Ore Reserve.
4) Any material classified as inferred Resource was excluded
5) Blocks below a nickel grade of 0.3% Ni were excluded due to lower confidence due to reduced metallurgical testwork

The Ore Reserve estimate for the Ban Phuc Open Pit is summarised in Table 3-1. The indicated resources in the mine plan are classified as 'Probable' Ore Reserves as of Dec 31, 2021.

Table 3-1, Ban Phuc Ore Reserve Statement

Classification	Tonnes (kt)	Ni (%)	Cu (ppm)	Co (ppm)
Proven	0	0	0	0
Probable	48,747	0.43	379	110
Total Proven and Probable	48,747	0.43	379	110

Notes to accompany Ore Reserves table:

1. The Qualified Person for the Ore Reserveestimate is Richard Jundis, P.Eng., of Optimize Group Inc. The estimate has an effective date of 31 Dec, 2021.
2. Ore Reserves are defined within a mine plan and incorporate 2% mining dilution and 2% overall metal losses.
3. Ore Reserves are based on Measured and Indicated Mineral Resource classifications only.
4. Ore Reserves are based on metal prices of US$16,800/tonne Nickel:Cobalt:Manganese 811 (NCM811), US$3.58/lb copper and US$18.60/lb cobalt. The pits are constrained within an optimized pit shell ranging from 17-49º overall wall slopes depending on rock type, and process recoveries that vary according to the recovery curves.
5. For each block, a total revenue and cost is generated. If the net profit is greater than 0, the block is flagged as ore; if profit less than zero, the block is flagged as waste. Mining costs average 1.89 $/t mined, processing costs are 10.40 US$/t processed, site general and administrative 1.00 US$/t processed, and nickel royalties 4.74 US$/t processed.
6. The estimate of Ore Reserves may be materially affected by metal prices, US$/VND$ exchange rate, environmental, permitting, legal, title, taxation, socio-political, marketing, infrastructure development or other relevant issues.
7. Totals may not sum exactly due to rounding.
8. Ore Reserves are a sub-set of Mineral Resources

3.2.2 Mining Inventory

Table 3-2, below summarises the mining inventory in the mine plan, which is in addition to Ore Reserves.

Table 3-2, Mining Inventory (additional to Ore Reserves) by Prospect

Prospect	Tonnes (kt)	Ni (%)	Cu (ppm)	Co (ppm)
Ban Phuc	13,756	0.30	75	87
King Snake	594	0.74	4,763	280
Ban Chang East	658	0.69	4,817	414
Ban Chang West	759	0.41	2,343	279
Total[1]	15,767	0.34	559	117

([1]Mining Inventory included in the mine plan but not included in the Ore Reserve has a low level of geological confidence associated with this material and there is no certainty that further exploration work will result in the determination of indicated mineral resources or that the production target itself will be realised).

3.2.3 Total Mining Inventory

The life of mine Mining Inventory separated by resource or reserve classification is summarised below in Table 3-3. Probable reserves contribute 76% of the life of mine feed material, equivalent to 80% of the contained nickel content.

Table 3-3, Mill feed Contribution by Material Classification

	Mill Feed		Ni Metal in Mill Feed	
	Mt	%	kt	%
Probable Reserve	48,747	76%	210	80%
Additional Inventory	15,767	24%	54	20%

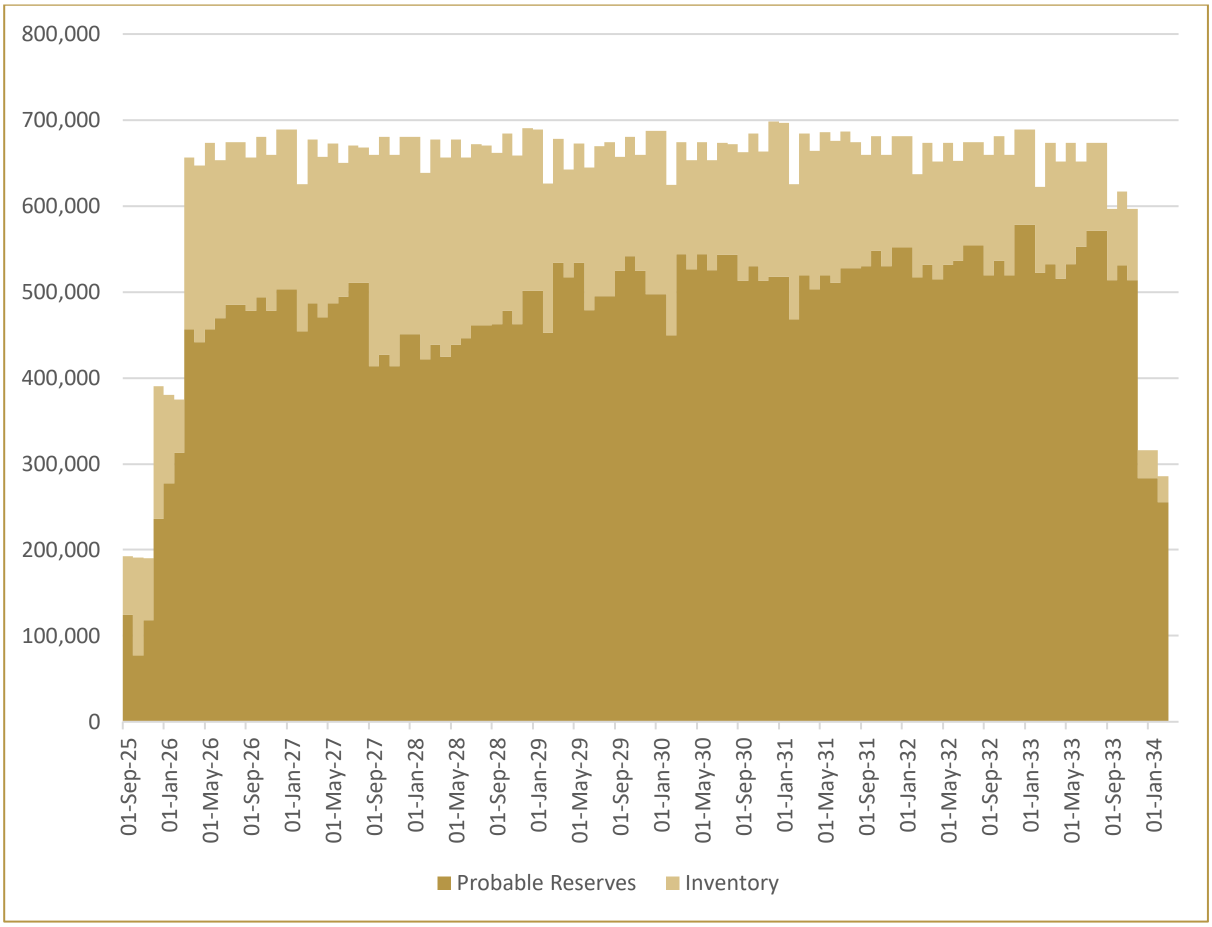

Figure 3-1, Life of Mine Mill Feed Profile identifying Probable Reserves

The Life of Mine mining inventory is summarised below in Table 3-4.

Table 3-4, TKNP PFS Mining Inventory

Classification	Tonnes (kt)	Ni (%)	Cu (ppm)	Co (ppm)
Ban Phuc	62,503	0.40	312	105
Ban Chang - East	658	0.69	4817	414
Ban Chang - West	759	0.41	2343	279
King Snake	594	0.74	4763	280
Total Mine Inventory	64,514	0.41	423	112

3.3 Operating Strategy

The TKNP mining study design and operating cost models (open pit and underground) were developed on an Owner-Operated basis to provide the required granularity for implementation and comparison of the electrified and diesel fleet. Whilst no decisions have been made, BSX's preferred operating strategy is Contractor Mining for both open pit and underground operations.

BSX has commenced initial discussions with potential contracting partners and will look to increase engagement through 2022.

This report is based on a Contractor Mining model, built up from the first principles Owner-Operated model. Further details are provided in Section 8.

3.4 Key Assumptions

The following tables summarise the key economic and operational assumptions used in the TKNP mining study.

Table 3-5, Commodity Price Assumptions

Commodity	Unit	Price (USD)
Ni Metal Price	USD/t	17,045
Au Metal Price	USD/oz	1,620
Cu Metal Price	USD/lb	3.58
Co Metal Price	USD/lb	18.60
Pd Metal Price	USD/oz	2,513
Pt Metal Price	USD/oz	1,250
NCM Price	USD/t	16,800

Table 3-6, Mining Fees

Fee	Unit	Price (USD)
Open Pit Mining Right Fee	USD/t proc.	1.75
Open Pit Enviromental Fee	USD/t proc.	2.87
Ni Royalty	USD/t proc.	4.34

Table 3-7, Open Pit Mining Costs

Cost Area	Unit	Price (USD)
Ban Phuc Open Pit Mining Cost (Oxides)	USD/t proc.	1.41
Ban Phuc Open Pit Mining Cost (Trans.)	USD/t proc.	1.71
Ban Phuc Open Pit Mining Cost (Fresh)	USD/t proc.	2.02
Incremental Waste Haulage Cost	USD/km/tonne	0.11

Table 3-8, Underground Mining Costs

Cost Area	Unit	Break Even Cut Off	Marginal Stoping Cost	Development Ore
King Snake Underground Mining Cost	USD/t proc.	32.23	20.49	55.23
Ban Chang East Underground Mining Cost	USD/t proc.	28.99	25.87	44.07
Ban Chang West Underground Mining Cost	USD/t proc.	28.91	19.64	38.47
Underground G&A Mining Cost	USD/t proc.	7.00	-	-

Table 3-9, Upstream Processing Costs

Cost Area	Unit	Price (USD)
Upstream Proc Cost	USD/t proc.	10.40
Upstream Stay in business Cost	USD/t proc.	5.00
Upstream General & Administration	USD/t proc.	1.00
Concentrate Transport to Refinery	USD/t conc.	8.00
Concentrate Moisture Content	%	0.08

Table 3-10, Upstream Processing Recoveries

Element	Recovery
Ni Recovery (8% Concentrate)	57%[1]
Co Recovery	74%
Cu Recovery	42%
Au Recovery	38%
Pt Recovery	48%
Pd Recovery	48%

Notes:

1. Ni Recovery variable with grade, as per Figure 3-2 below.

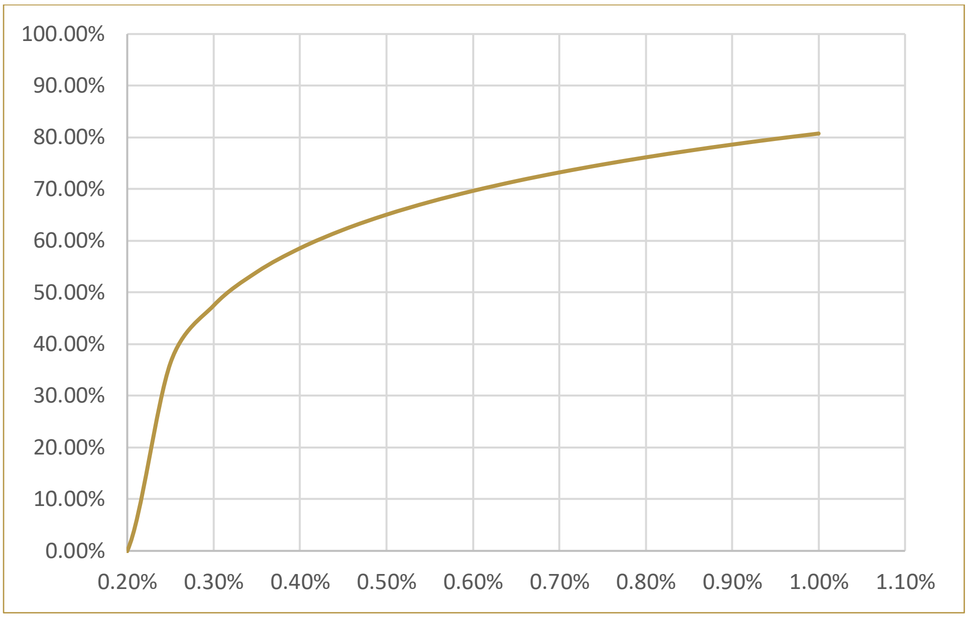

Figure 3-2, Nickel Grade Recovery Curve

Table 3-11, Downstream Processing Costs

Cost Area	Unit	Price (USD)
Downstream Proc Cost	USD/t conc.	402.75
Downstream G&A	USD/t conc.	21.60
Downstream Sustaining Capital	USD/t conc.	53.70
Downstream PGE Refining Costs	USD/t conc.	172
NCM Transportation to Port	USD/t NCM	25.00
Ratio NCM t : Ni t	Ratio	1.98

Table 3-12, Downstream Processing Recoveries

Cost Area	Unit	Recovery (%)
Ni Recovery	%	95
Cu Recovery	%	98
Co Recovery	%	98
Au Recovery	%	83
Pt Recovery	%	83
Pd Recovery	%	83

BLACKSTONE MINERALS

3.5 NSR and Optimisation

3.5.1 General

The open pit shell optimisations and underground minable shape optimisations (MSO) have been determined on a net smelter return (NSR) basis. A NSR is a representation of relative realised value for a block in the geological block model, similar to a cut-off grade, but it incorporates contributing value from all by-products and includes adjustments to account for all costs and losses.

The revenue calculation for each block takes into account: the quantity of the contained metals, including by-products and their milling and refining recoveries, payable metal factors and metal prices. The cost calculation for each block includes: mining costs, processing costs, stay-in-business costs, general administration costs, mining and environmental fees, royalties, the concentrate transport and smelting costs, and the metal refining costs. The cost of any stockpiling of ore and re-handling to the crusher are included in the mine operating costs, because the movement to and from the stockpile is to a large extent a result of seeking to improve operating efficiencies for the mine equipment. No provision or allowance was applied for reduced recoveries due to aging of ore on stockpiles. The sustaining capital costs for the process plant are included. If the total revenues are greater than total costs for a given block, then it is flagged as "Mill Feed" and added to the ROM stockpile.

3.5.2 NSR1 and NSR2 Considerations

In the early stages of the TKNP, the NSR values were calculated for two scenarios:

1. NSR1: NSR calculation includes upstream processes to produce nickel sulfide concentrates for sale.
2. NSR2: NSR includes both upstream and downstream processes to produce battery grade NCM811 and other precious metals for sale.

The Ban Phuc block models were coded for NSR1 and NSR2 values, and preliminary pit optimisations were performed for both scenarios. These are not the final pit optimisations, but the results demonstrate the impact of using NSR1 versus NSR2 calculations.

3.5.2.1 NSR 1 Results (Conventional Concentrate Sales)

The Deswik Pseudoflow software module was used to perform the pit optimisations. The revenue and cost fields were used to generate pit shells at Revenue Factors (RF) from 0.5 to 2.0. Figure 3-3 shows the location of the mill feed blocks using the NSR1 formulas.

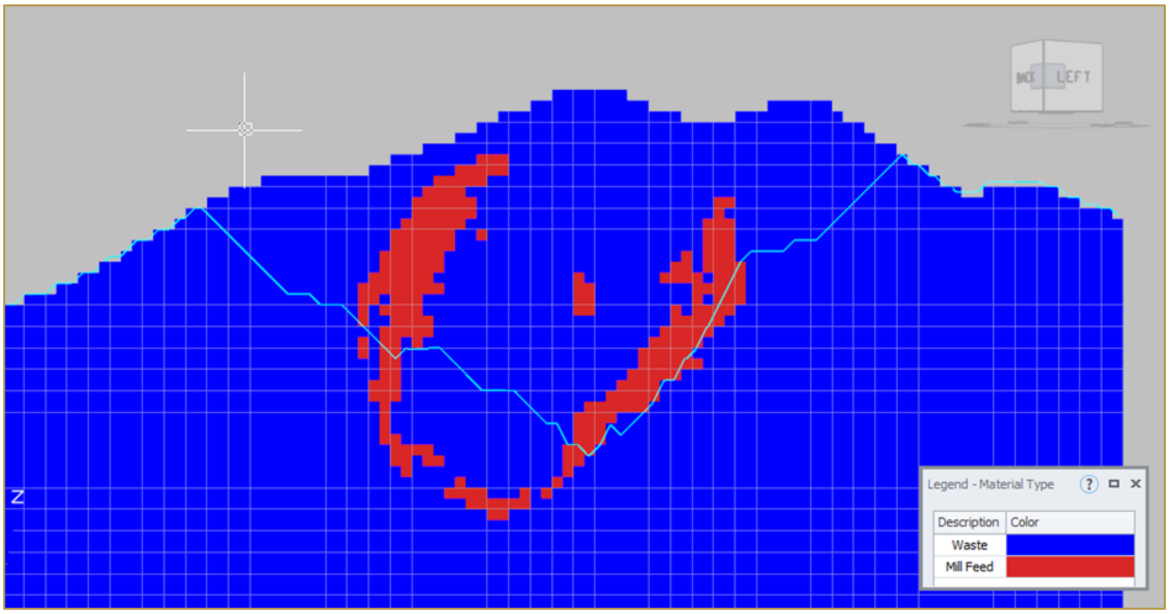

Figure 3-3, Cross-section of NSR1 Block Model

3.5.2.2 NSR 2 Results (Refinery NCM Product)

NSR2 calculations incorporate the value added by the downstream refining processes. Revenue is based on the sale of NCM811, by-products and PGEs. Costs are then increased for the incremental processing cost associated with the refinery. Figure 3-4 shows the NSR2 block model. A much higher volume of the block model is flagged as mill feed, as compared to the NSR1.

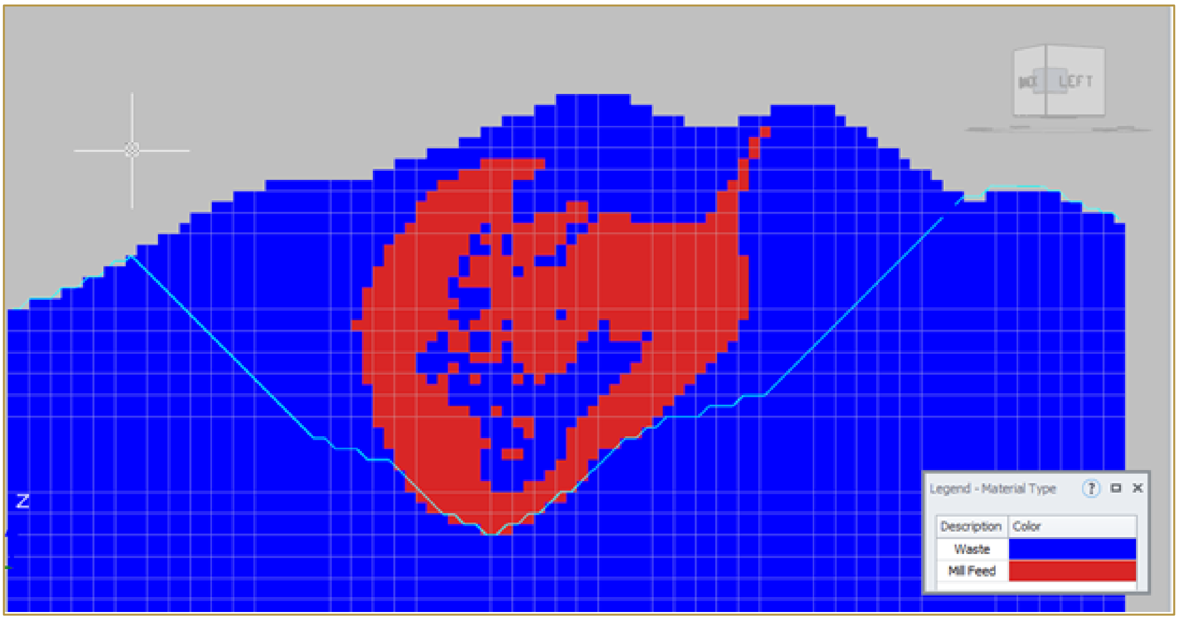

Figure 3-4, Cross-section of NSR2 Block Model

The optimised NSR2 pit shell contained 64 Mt of Mill Feed and 141 Mt of waste, which would result in a mine life of 8 years with a stripping ratio of 2.2. The NSR2 scenario best reflects the BSX development plans for the asset, and the Ban Phuc pit, and was the basis of all subsequent optimisations.

BLACKSTONE MINERALS

3.6 Open Pit Mining

3.6.1 Geotechnical Study

A geotechnical pit slope design evaluation was carried out by PSM Consulting Ltd (PSM) in August 2021. PSM created a geotechnical model from a recent geotechnical site investigation. The distribution of rock mass units were listed, and the major structural features identified. Then, the controlling failure mechanisms were established for the open pit location.

The slope design parameters were formulated for individual zones according to the geotechnical conditions and the recommended slope design parameters to manage the associated failure mechanisms. Zones with similar slope parameters are combined into geotechnical zones. Table 3-12 presents the recommended slope design parameters for the Ban Phuc open pit.

Table 3-13, PSM Recommended Slope Design Parameters

Geotechnical Zones	Inter-ramp Angle (1) (°)	Batter Face Angle (°)	Maximum Bench Height (m)	Minimum Berm Width (m)
1	37	50	10	5
2	42	55	20	8
3	46	60	20	8
4	27	55	10	13
5	49	65	20	8
6	17	40	10	21

3.6.2 Pit Optimisations

3.6.2.1 Optimisation Set-Up Process

A series of pit optimisation analyses were completed to help select the optimal pit. A summary of the optimisation input parameters used are shown in Table 3-13. The original block model was a sub-blocked model in Datamine format. The recommended pit wall angles were coded in the block model using the geotechnical zone solids and given inter-ramp angles (as per Table 3-13). Then, the block model was regularised using block sizes of 10 m x 10 m x 10 m. In the block model regularisation process, the grades were diluted by 2% and there are overall metal losses of 2%. NSR2 was coded for each block in the block model. The Deswik Pseudoflow Pit Optimisation tool was then used to generate pit shells at different revenue factors from 0.4 to 2.0.

3.6.2.2 Optimisation Results

Pit optimisation was performed using Deswik Pseudoflow software and validated using Whittle software. The results of the pit optimisations using different revenue factors are shown in Figure 3-5.

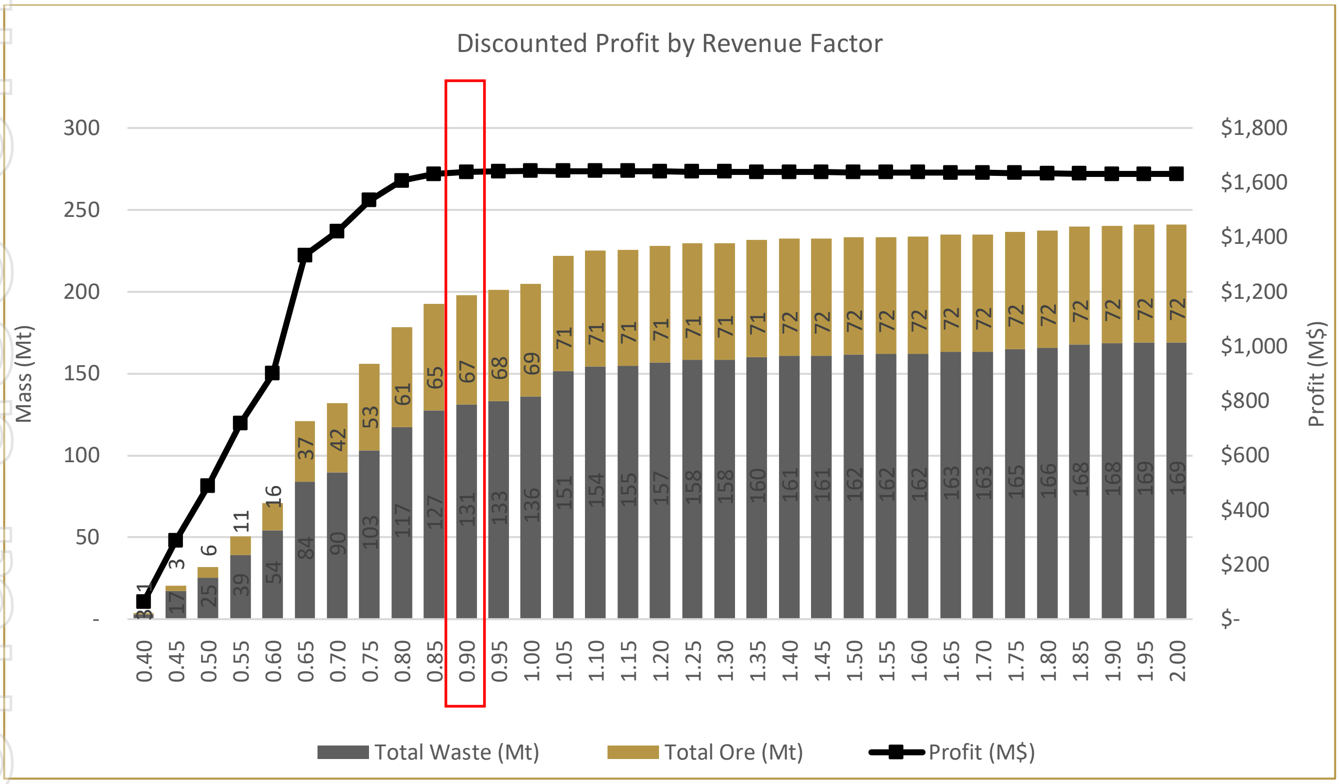

Figure 3-5, Final Pit Optimisation

3.6.3 Open Pit Design

3.6.3.1 General

BSX intends that the Ban Phuc mine will be developed as a conventional open pit operation using hydraulic excavators in backhoe configuration, battery electric rigid body trucks and hydraulic drills, as the primary mining equipment. The PFS mine plan was prepared using a peak mine production rate of 35 Mt/y and a mine operating life of 10 years, in addition to the pre-production period of 10 months. The mill feed will be delivered to the crusher pad adjacent to the plant site at an average rate of 8.0 Mt/y. The process facility is planned to operate for 10 years after pre-production.

Several areas will be constructed for the Original Equipment Manufacturers (OEMs), construction materials storage yards and stockpile pads, in addition to the preparation of platforms at the plant site. A stockpile area will be required during the pre-production period for the operating stockpiles for management of the mill feed.

The final pit will have a top elevation of 1,560m and a pit bottom elevation of 1,090m, with a total depth of 470 m. Mining will commence at the start of pre-production with the mining of the in-pit and ex-pit borrow sources to provide materials for the construction of the initial roads, infrastructure and IWL.

Clearing, grubbing and topsoil stripping to expose waste material will be carried out by BSX equipment fleet. Pre-stripping includes removal of the overburden and preparation of the initial mining faces for BSX operating equipment fleet and personnel. Pre-stripping activities by the contractor will also include the construction of the initial roads, stockpile platforms and other platforms, as well as earthworks for the process plant and infrastructure construction.

3.6.3.2 Selectivity, Dilution, and Ore Losses

Selectivity, dilution and recovery of the resource are applied in the mine design and planning process. Selectivity is the intentional separation during the loading process of materials of different characteristics (e.g. waste from ore). Dilution is sometimes separated into internal and edge dilution. Internal dilution refers to grade adjustments within mining boundaries or ore polygons, and edge effects refer to the ore loss and dilution by waste in the ore/waste boundary. The balance of dilution and ore loss is the difference between the in-situ Ore Reserve and the quantity delivered to the process facility by the mine (i.e. the ROM Reserve).

In converting the geological block model from sub-blocked to a regularised one with an SMU of 10 m x 10 m x 10 m, the dilution and ore losses were calculated to each be 2%.

3.6.4 Waste Storage and the Integrated Waste Landform

3.6.4.1 General

BSX considered two options for storage of tailings and waste:

- Conventional valley fill tailings and mining waste dump or
- Co-disposal of tailings and waste into an IWL.

Design of the IWL was completed by Golder and is discussed in detail in Section 6.2. The conventional mining waste dump design was completed by OG and was retained as second preference for development.

3.6.4.2 Waste Dump

For the conventional waste dump scenario, all mine waste will be deposited into the King Snake and Suoi Dan Valleys, over the existing TSF1. The Northern section of the waste dump cover the portals of the King Snake underground mines. Therefore the Southern section of the Waste Dump is built in the first six years, during which the King Snake deposit is mined. Then the last four years, the Northern section of the waste dump is utilised.

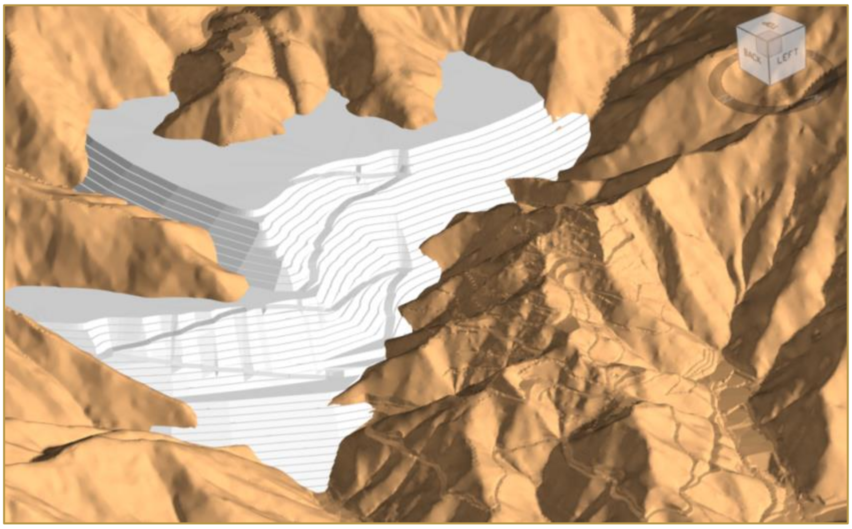

Figure 3-6, Conventional Waste Dump

3.6.4.3 Integrated waste landform

The integrated waste landform will function like a conventional waste dump with respect to waste placement. The IWL will incorporate various zones of engineered fill with additional placement requirements above the standard waste dump tip and compact. Figure 3-7 below indicates the availability of waste compared to the IWL demand for the life of the mine.

There is a comfortable buffer between waste demand and production for the entire life of mine.

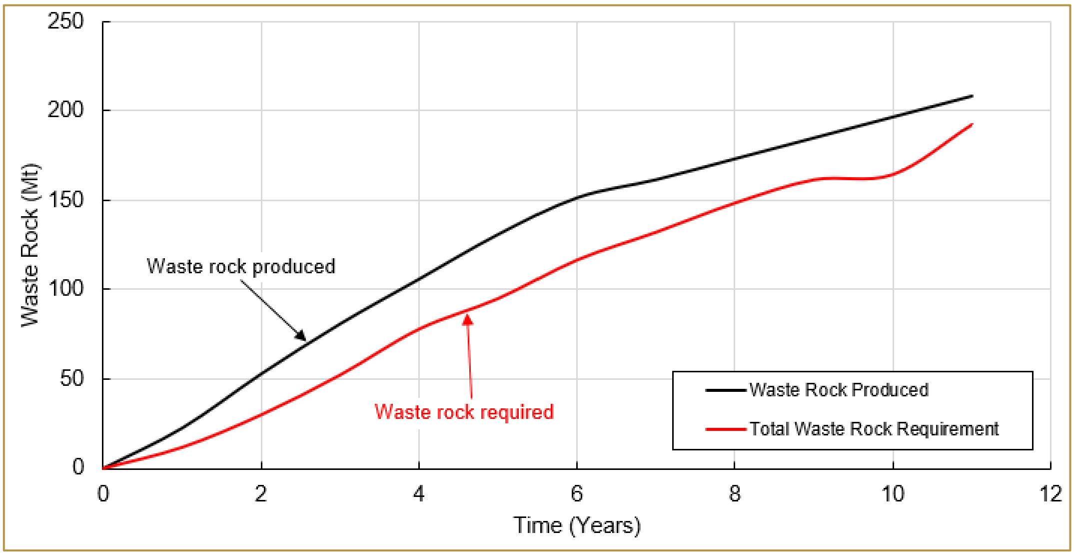

Figure 3-7, Mining Waste Supply and IWL Demand

3.6.5 Drill and Blast

Production drill hole will be 115mm in diameter in ore and 140mm in waste rocks. The drill pattern depends on the material type.

Ore is blasted with a powder factor of 0.31 kg/t and for fresh material and 0.25 kg/t for transition material. Waste transition rock is blasted with a powder factor of 0.17 kg/t and waste fresh rock is blasted with a powder factor of 0.26 kg/t.

3.6.6 Electrification Study

3.6.6.1 Battery Electric Vehicles

In early 2021, BSX began discussions with multiple Battery Electric Heavy Vehicle (BEHV) OEM's to source information regarding upcoming BEHV's suitable for use at Ban Phuc. BSX has a confidential agreement with a provider who provided detailed design, performance and costing data for a 90t BEHV which became the basis of the Company's haulage fleet. No commitments have been made by BSX to any OEM, and BSX will continue to investigate the possible options for electrification and decarbonisation of the mining fleet.

3.6.6.2 Dynamic Charging

A major hurdle for electrification of an open pit mining fleet is the battery size and range of the BEHV. Conventional means of charging battery electric vehicles depends on static charging stations where the BEHV is parked while the battery is charged, or where the battery is swapped through a battery exchange process. These solutions can be practical for scenarios with smaller mining trucks, but as the trucks get larger in the medium to large open-pit environment, the batteries also grow significantly. This results in extended battery charging times and very large batteries (6 to 10t) which become a handling issue when trying to change out the battery at a battery change station, which would be required every two to three hours.

Through its involvement in the Electric Mining Consortium (EMC), BSX was introduced to BluVein, who are focused on development of dynamic charging systems for the mining industry. Dynamic charging refers to in-motion charging of mining fleet, where charging occurs while the vehicle is in motion through the normal haul cycle. To achieve this, BluVein have partnered with EVIAS to modify their highway dynamic charging system for use in the mining industry.

Installed on haul roads, the BluVein charging system would be used, in conjunction with the vehicles regenerative braking system, to do away with the need to have static charging or battery change-out stations.

BSX partnered with BluVein for the TKNP PFS to deliver a PFS level design for a BluVein system to suit the project needs. Working with data provided by the BEHV OEM, BluVein completed preliminary design and cost estimates for the TKNP along with customised adaptor to suit the BEHV trucks.

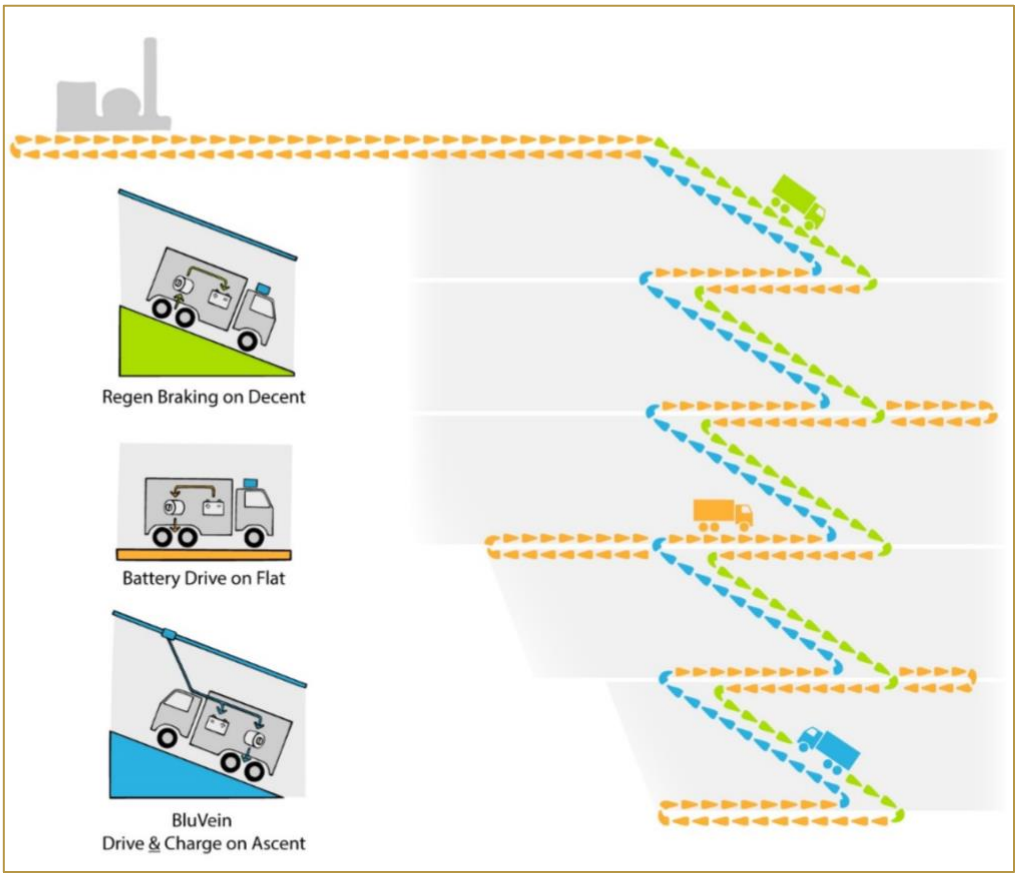

Figure 3-8, BluVein Open Pit Application

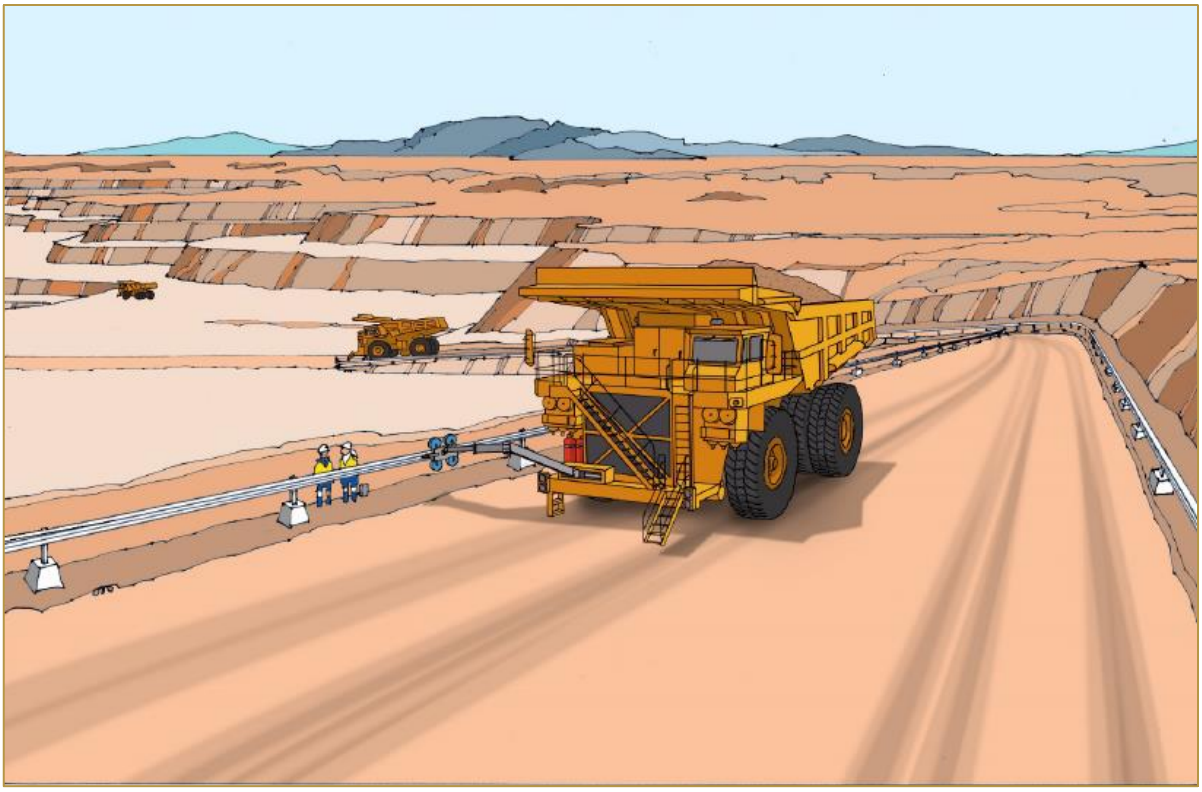

Figure 3-9, Open Pit BluVein Dynamic Charging Application

3.6.6.3 HaulSim Fleet modelling

Working with BluVein, OG utilised the RPM Global HaulSim package to simulate haul cycles for three stages of pit development. This study was critical for confirmation of electric fleet design parameters, as well as determining the dynamic charging infrastructure requirements at various stages of the mine development. This simulation stage confirmed the practicality of fully electrified open pit haulage, with very limited need for static charging.

3.6.6.4 Electric vs Diesel Haulage Trade-off Study Results

The Electric vs Diesel Haulage trade-off study was completed assuming no change in mine design, nor with production schedule, only swapping diesel haul trucks for electric. This was considered a conservative approach, given that:

- Trucks on the BluVein dynamic charging infrastructure can travel faster up ramps than diesel counterparts, resulting in potentially fewer trucks required for the same production rate.
- The pit ramp design could be re-optimised for the steeper gradients achievable with an electric haul truck.

Key comparison physicals are summarised below in Table 3-14.

Table 3-14, Electric vs Diesel Haulage Comparison

Parameter	Units	Diesel Fleet	Electrical Fleet
Haul Fleet Size	#	28	28
Diesel Consumption	ML	70,611	0
Power Consumption	MWh	0	250,897

3.6.7 Life of Mine Planning

3.6.7.1 Life of Mine Production Schedule

Figure 3-10 below summarised the life of mine material movements from the Ban Phuc Open Pit.

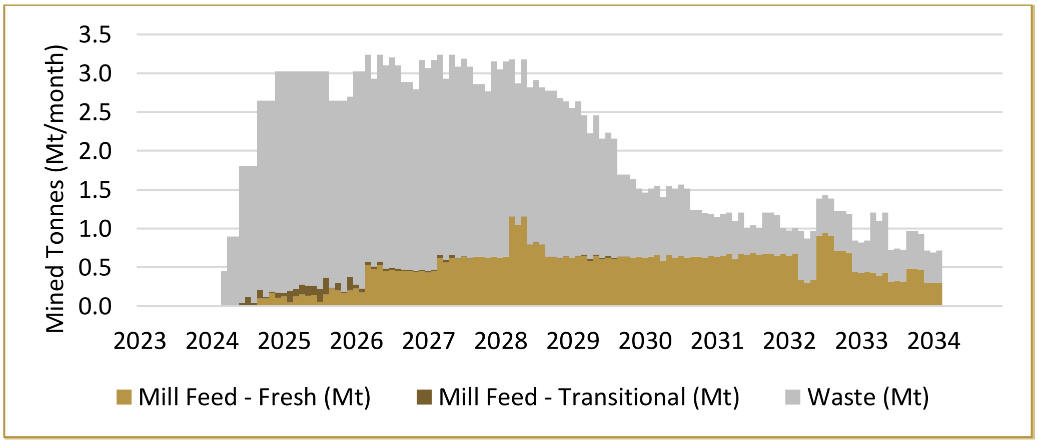

Figure 3-10, Life of Mine Pit Production

Table 3-15, Ban Phuc Life of Mine (LoM) Physicals

	LoM Total	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Total Material Movement (Ore & Waste) (Mt)	243.21	1.35	29.36	34.95	36.81	36.49	32.48	21.48	15.64	12.67	13.61	8.38
Total Waste (Mt)	180.70	1.35	27.62	31.16	30.76	27.93	23.80	13.86	7.95	5.36	6.27	4.63
Oxide Waste (Mt)	51.03	1.28	15.77	14.81	12.04	4.20	2.70	0.23	0.00	0.00	0.00	0.00
Transition Waste (Mt)	43.46	0.07	7.56	10.49	11.97	9.44	3.12	0.80	0.00	0.00	0.00	0.00
Fresh Waste (Mt)	86.21	0.00	4.28	5.87	6.75	14.29	17.98	12.83	7.95	5.36	6.27	4.63
Total Ore (Mt)	62.52	0.00	1.74	3.79	6.05	8.55	8.68	7.62	7.68	7.32	7.34	3.75
Subtotal Transition Ore (Mt)	2.41	0.00	0.81	1.08	0.27	0.06	0.10	0.09	0.00	0.00	0.00	0.00
Subtotal Fresh Ore (Mt)	60.10	0.00	0.93	2.71	5.78	8.50	8.58	7.53	7.68	7.32	7.34	3.75

3.7 Underground Mining

3.7.1 Geotechnical Studies

The current geotechnical analysis is based upon RQD data collected from drill data, and compiled within Deswik. From the RQD data a series of assumptions were made based upon best mining practices and first-hand knowledge of the mining area. Utilising these assumptions, a stability range was created and a conservative estimate was used to determine stope size, rib pillar location, and expected dilution. For this analysis the modified stability graph by Potvin (1988) was utilised.

The RQD information was brought into Deswik from the drill hole data provided by BSX. The drillholes were then analysed in relation to the expected stoping locations and an average RQD was determined.

The geotechnical analysis indicated that maximum stope sizes of 20m long by 20m high would create a balance between stope stability and minimising the necessity to recreate a drop raise. Further to this, 1.5m thick rib pillars will be left every 18.5m within the King Snake and 2m rib pillars will be left every 18m within the Ban Chang East and West.

Based upon the expected range of stability, no allowance for cable bolting or secondary stope support was added outside of the rib pillars described above.

Further study of the geotechnical parameters and analysis will be required prior to the publication of a Definitive Feasibility Study.

3.7.2 Mineable Stope Optimiser

3.7.2.1 NSR and Cut-off NSR

The NSR2 cut-off was used for Minable Shape Optimisation (MSO), which varied based on the deposit. The breakeven cut-off assumes a long-hole stopping bottom up mining method utilising unconsolidated rock fill. The full operating costs inclusive of mining, processing (upstream and downstream), and General & Administration (G&A) have been utilised in the calculations. Capital Costs, including sustaining capital have been excluded.

As each mine has a different haulage and production profile, three cut-off grades were used. Two stoping cut-off grades were also used. The break-even cut-off grade covers all operational waste development costs. Within this model a marginal stope cut-off grade was added. Stopes utilising the marginal cut-off grade require no additional waste development.

Table 3-16, NSR Cut-off Values

Item	King Snake	Ban Chang East	Ban Chang West
Development ore cut-off	$48.69	$48.89	$51.58
Stope Ore Cut-Off	$40.73	$28.67	$28.62
Marginal Stope Ore Cut-Off	$28.82	$22.95	$23.84

3.7.2.2 Modifying Factors

The longhole open stoping bottom-up mining method within a mining horizon is utilised in all three deposits and lends itself well to recovery of material. Each mining horizon is composed of 3 levels totalling 60 vertical meters. All stopes on a level will need to be backfilled with loose unconsolidated fill prior to any stoping happening on the next mining horizon.

To maintain stope stability and schedule flexibility, a 4.0m sill pillar will be left every 60 vertical meters (sill recovery = 56m/60m =93%). This pillar will be 4m thick which will provide a pillar ratio of 1.3 as each sill is 3m wide as dictated by the ore drive width. Furthermore, within the King Snake a 1.5m thick rib pillar will remain every 18.5m of stope length.

This translates to a stope recovery of 92.5% (stope recovery = 18.5m/20m = 92.5%). Within the Ban Chang East and West the rib pillar will be 2m thick every 18m of stope length. This translates to a stope recovery of 90% (18m/20m). For both the King Snake and the Ban Chang deposits a mining recovery of 95% was utilised. This provides a total recovery of 87.9% for the King Snake and a recovery of 85.5% for the Ban Chang East and Ban Chang West projects.

All mine development is assumed to have a 5% overbreak.

The following dilution factors were applied to the deposits based on the geotechnical stability analysis:

- King Snake: 33%
- Ban Chang East: 33%
- Ban Chang West: 33%-50%

The following mining recoveries were applied to the deposits:

- King Snake: 88%
- Ban Chang East: 86%
- Ban Chang West: 86%

All ore densities were calculated utilising the geological block model density field.

3.7.3 Underground Mine Design

3.7.3.1 General

Underground mining at the TKNP incorporates long-hole mining methods in order to address the deposit geometry and anticipated ground conditions. The deposits will be accessed, and services will be provided by declined portals with a maximum grade of 15%. The ramp will also be used for ore and waste haulage from the underground operations.

The Ban Chang East and West underground developments are based upon a two-portal design which takes advantage of the local topography. This design allows for bottom-up development and eliminates the need for vertical development. This also results in flow through ventilation with exhaust fans at the upper portal and all main haulage being completed on a down ramp. King Snake will have a two-portal design that mimics the Ban Chang deposits for the initial three levels. Once the initial three levels have been completed the King Snake transitions to a traditional top-down ramp development design.

The King Snake and Ban Chang East deposits will initially be mined simultaneously. The Ban Chang West will come online as the other operations are completed. Longitudinal long-hole retreat will be used in all three deposits with levels 20m apart and a 4.0m sill pillar every third level. The use of sill pillar provides flexibility to the mine plan by offering additional stoping fronts.

The deposits are narrow, subvertical, and tabular. Due to this regularity production mucking will be carried out using 6t LHDs with line of site remote capabilities.

Stopes will be backfilled using unconsolidated rockfill (URF). It is expected that the haul trucks will backhaul material from surface and conventionally dump directly into a level remuck. From the level remuck material will be dumped into the stopes from the overcut using the 6t LHDs.

Longitudinal long-hole retreat towards the centre access is forecasted to be used in all three deposits. The sub-level intervals are fixed at 20m for all the deposits and the stopes will be filled with URF.

The mining method is illustrated in Figure 3-11, showing a longitudinal section of the stoping method and the stoping dimensions. Within the King Snake the ore zone is an average of 1.5m thick, and within the Ban Chang East and West the ore zone is on average 2.5m thick. Due to the thickness of the ore zone and to minimise dilution within the ore development the overcut and undercut accesses the level ore drives have been driven at 3m wide by 4m high.

The undercut and overcut drift are driven into ore and the mining will start from the lower access, retreating towards the main access drift. Nominal stope lengths are 20m, but in some instances, stopes will have reduced lengths to ensure profitability. Once a stope section is finished up to the rib pillar, URF is introduced from the upper cut.

To maximise the scheduling flexibility of the stope drill stopes can be drilled with either upper holes or down holes. However, "uppers" will be drilled from the level below a sill pillar. Each stope will be started with a drilled slot raise which will be extracted in 2 blasts. Upper stopes will be started with an inverse drop raise which will be extracted in 1 blast. The raises are expected to be a minimum of 1.8m x 1.5.

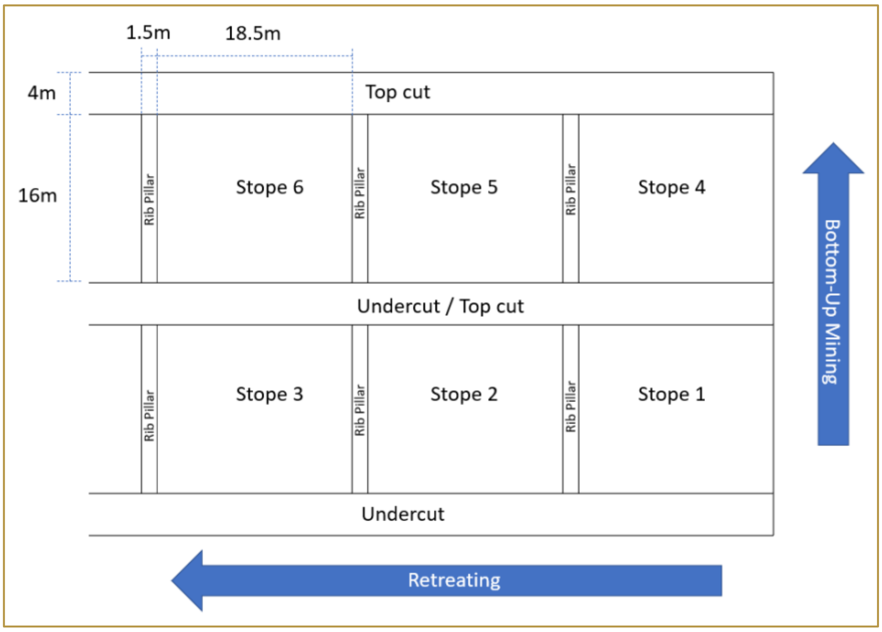

Figure 3-11, Typical Longitudinal Design

This stoping system is advantageous in reducing waste development but requires multiple active stoping sequences to maintain the planned production rate. Sill pillars are placed throughout the mine to divide the mining horizons and provide multiple stoping areas.

The stope drilling for the Ban Chang East and West will utilise a 64mm drill hole with drill hole spacing of 1m and ring spacing of 1.5m which gives a drill density of 0.244m/ore tonne. The King Snake has more narrow stopes averaging 1.5m thick. Again utilizing 64mm drill holes with drill spacing of 1m and ring spacing of 1.2m, this gives a drill density of 0.508m/ore tonne.

Ammonium Nitrate/Fuel Oil (ANFO) is expected to be the primary blasting agent for both development and production.

The combined productivity assumptions for the productivities are shown in Table 3-17. The productivity rates are maximum rates achievable by the equipment fleet. The mine plans are based upon mill feed requirements, and other factors. Equipment will not be utilised to the full potential at all times.

3.7.3.2 Stope Design

Stopes were designed using the Deswik.SO software. Level spacing is 20m sill to sill. However, the top level in the mining horizon is 16m, in order to incorporate a 4m sill pillar. The minimum mining width in King Snake is 1.5m and 2.0m in Ban Chang East and West.

3.7.3.3 Productivity Assumptions

The productivity rates used to develop cycle times for stoping, development and other unit rates are based upon equipment availability and utilisation. Productivity rates did not vary with depth.

3.7.3.4 Ground Support

All mine development will have bolting and screening to 1.5m from the sill. Face bolting and screening has not been included.

The ground support criteria utilised to determine the development cycle times were based upon the following criteria in Table 3-19. The ground support criteria will be updated and expanded following a full geotechnical analysis of all underground mines.

Table 3-18, Productivity Assumptions

Item	King Snake	Ban Chang West	Ban Chang East
Maximum Production Drilling Rate (m/day)	120	120	120
Maximum Production Mucking rate (tpd)	1,100	1,100	1,100
Maximum URF Placement. (m3/day)	398	486	486
Dilution (%)	33%	33%-50%	33%
Recovery (%)	88%	86%	86%
Drill Factor (drill m/tonne)	0.5081	0.2439	0.2439
Maximum Haulage t/day	1,800	1,800	1,800
Maximum Development m/day	17	8.5	8.5

Note: productivities shown above are maximum rates. The Life of Mine schedule will have used variable production rates

Table 3-19, Ground support criteria

Heading Size	Bolting Pattern	Bolting Type	Screening
5mw x 5mh	1.2m x 1.5m	2.4m Split Set	Welded Wire Mesh installed to a height of 1.5m from the sill
4mw x 4mh	1.2m x 1.5m	1.8m Split Set	Welded Wire Mesh installed to a height of 1.5m from the sill
3mw x 4mh	1.2m x 1.5m	1.8m Split Set	Welded Wire Mesh installed to a height of 1.5m from the sill

3.7.3.5 Backfill

The longhole mining method selected for the project assumes all stope voids are filled with URF, upon which will become the base for the next mining lift.

Backfill productivity was estimated at 1,000 tpd, with all material being brought from surface to the underground areas and then moved into stopes via remote LHD. Over the life of the mine, the estimated waste rock produced totals approximately 219,254m^3 of in situ material, utilising a swell factor of 30% there will be approximately 285,000m^3 of waste material. Across all three mines there will be an approximate required backfill volume of 314,384m^3, leaving a 29,353m^3 differential of insufficient backfill. This can be provided from the open pit waste as required. The backfill will be required to fully extract the expected 2.01 Mt ore mined underground.

3.7.3.6 Preproduction Development

Each mine requires between 5 and 11 months of development before extraction can begin. Preproduction will begin in H2/2025 for King Snake and Ban Chang East, and in H1/2028 for Ban Chang West.

3.7.3.7 Access

Each of the 3 mines will be accessed via ramps from surface. Both Ban Chang East and Ban Chang West will have two portals, one at the bottom, being driven upwards to a second at the top. This will allow for flow through ventilation. The lower portals will be the main access, and surface infrastructure will be located here.

King Snake will also have two portals to allow for flow through ventilation for the top part of the mine. However, to access the majority of King Snake a ramp will be down-driven from the main portal and vent raises will be used for return air.

Ramp dimensions are 5m high by 5m wide and allow for equipment clearances and ventilation ducting during the development phase of each operation. This will allow for the required ventilation air velocity limits in the ramp which will be upcasting ventilation in Ban Chang East and West and downcasting fresh air in King Snake. The maximum grade of the ramp is 15%.

3.7.3.8 Lateral Development

Lateral development will be 5m high by 5m wide for the main ramps and ancillary development, 4m high by 4m wide for the cross-cut level accesses and reduced further to 4m high by 3m wide for the ore drives. Ramps provide adequate clearance for all equipment, including the haul trucks. Trucks will not access the ore drives, they will instead be loaded by the LHD equipment.

Figure 3-12 illustrates the typical development profiles.

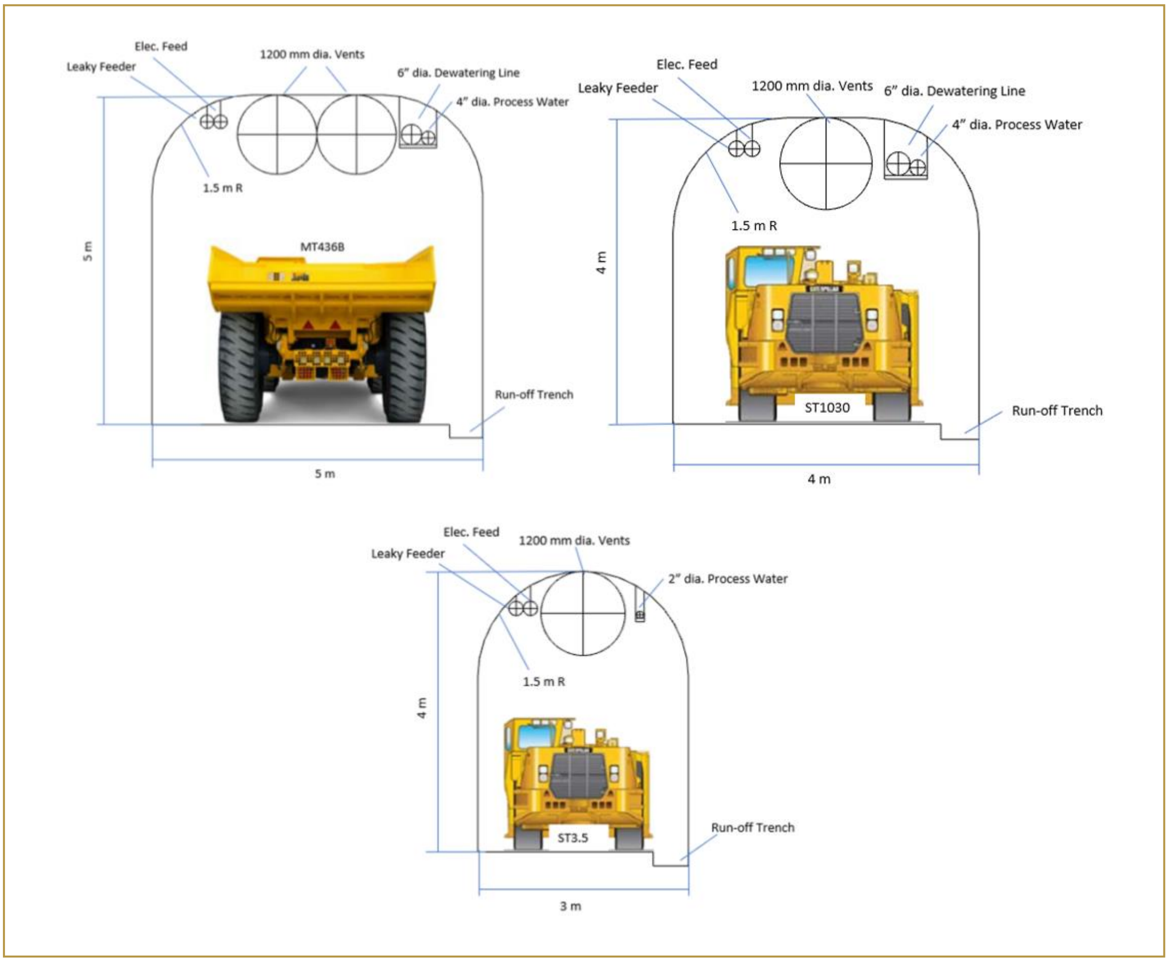

Figure 3-12, Typical Development Sections

3.7.3.9 Vertical Development

Ventilation raises are only required in King Snake and will be developed as drop raises utilising the production drills. These raises are no longer than 20m in true length with a minimum dip of 60° and a maximum dip of 90°. Steel ladder escapeways will be installed in raises to provide emergency egress for workers.

The raise will be drilled and blasted to 4m x 4m and backfilled with waste. The muck pile will act as the work platform allowing the crew to install 1.8m split set bolts on a 1.2m x 1.2m pattern and Welded Wire Mesh. As the raise ladderway and ground support is installed the muck pile will be drawn down. This cycle will continue until the escapeway is completed.

3.7.3.10 Ore and Waste Handling

Ore and waste will be removed from both the development faces and stopes with 10 t and 6 t LHDs. Ore from the stopes will be loaded into the 30 t haul trucks at the level access.

Ore and waste will be hauled to the surface before being dumped at the stockpile and waste dump near the portal, respectively. Surface crews will be used to manage the stockpiles and transport the ore to the plant. Waste will be returned underground and utilized as URF within the stopes.

3.7.4 Life of Mine Planning

3.7.4.1 Planning Assumptions

Underground production over the life of the mine period (2026 – 2031) is on average 1,100 t/day from all deposits. This daily production rate complements the processing requirements for both metal content and sulfur grade. The designs presented offer a degree of flexibility, while the King Snake and Ban Chang East are operating simultaneously each mine is currently scheduled to operate at 550 tpd, however each mine could be run up to 1,100 tpd for short periods of time. This will allow for a smoothed ore delivery schedule and maximum schedule flexibility. It should be noted that the current schedule has each mine operating at 550 tpd and a refined project schedule will be completed during theDFS. Once the King Snake and the Ban Chang East have been extracted the Ban Chang West will be operated at 1,100 t/day.

3.7.4.2 Life of Mine Plans

The combined monthly Ban Change East (BCE), Ban Chang West (BCW) and King Snake (KS) mill feed profile is summarised below in Figure 3-13.

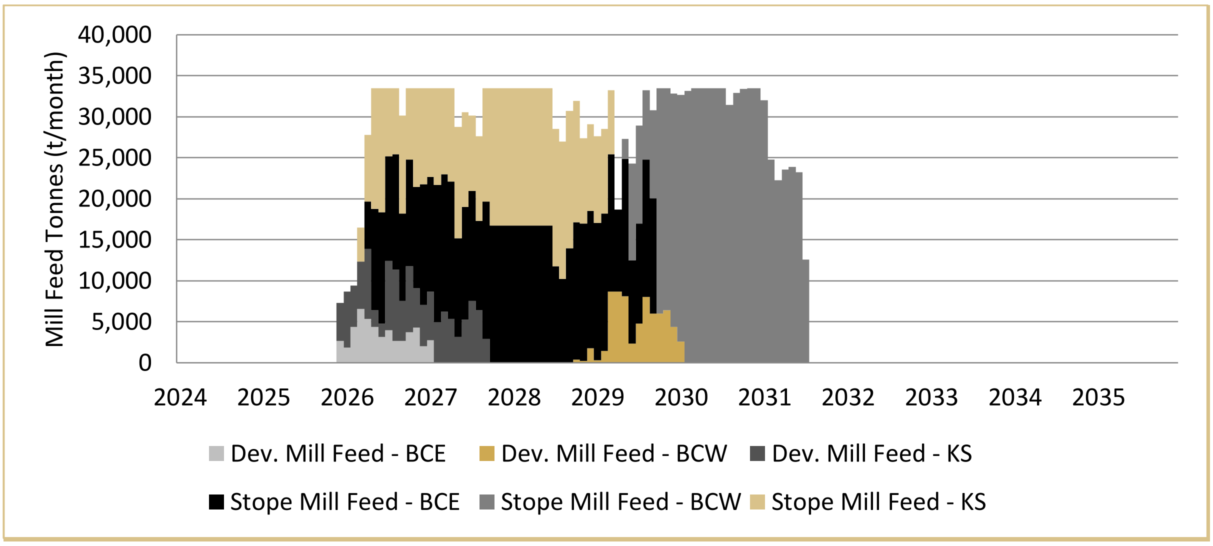

Figure 3-13, Underground Mill Feed Profile

3.7.4.3 Final Designs

The final underground mine designs are summarised below in Figure 3-14, Figure 3-15 and Figure 3-16.

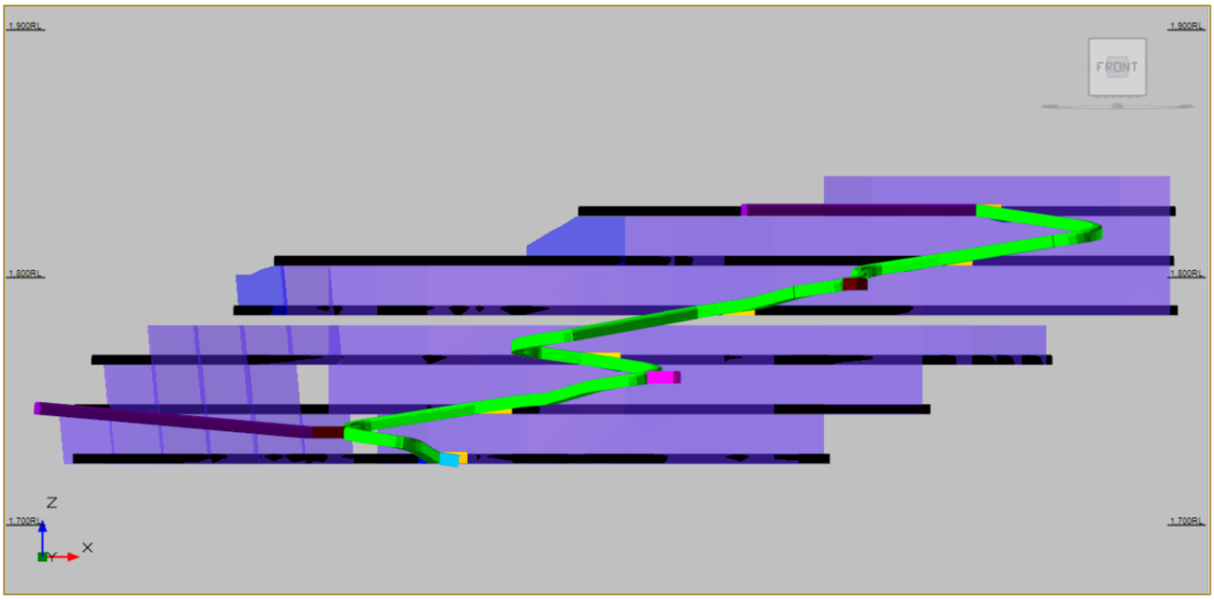

Figure 3-14, Ban Chang East

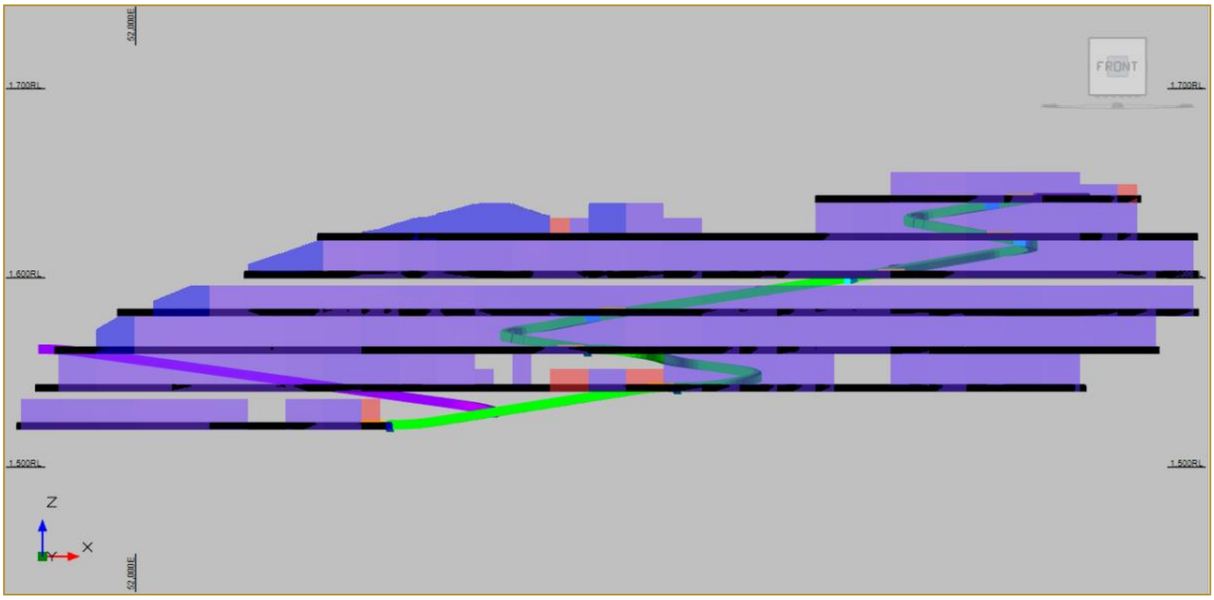

Figure 3-15, Ban Chang West

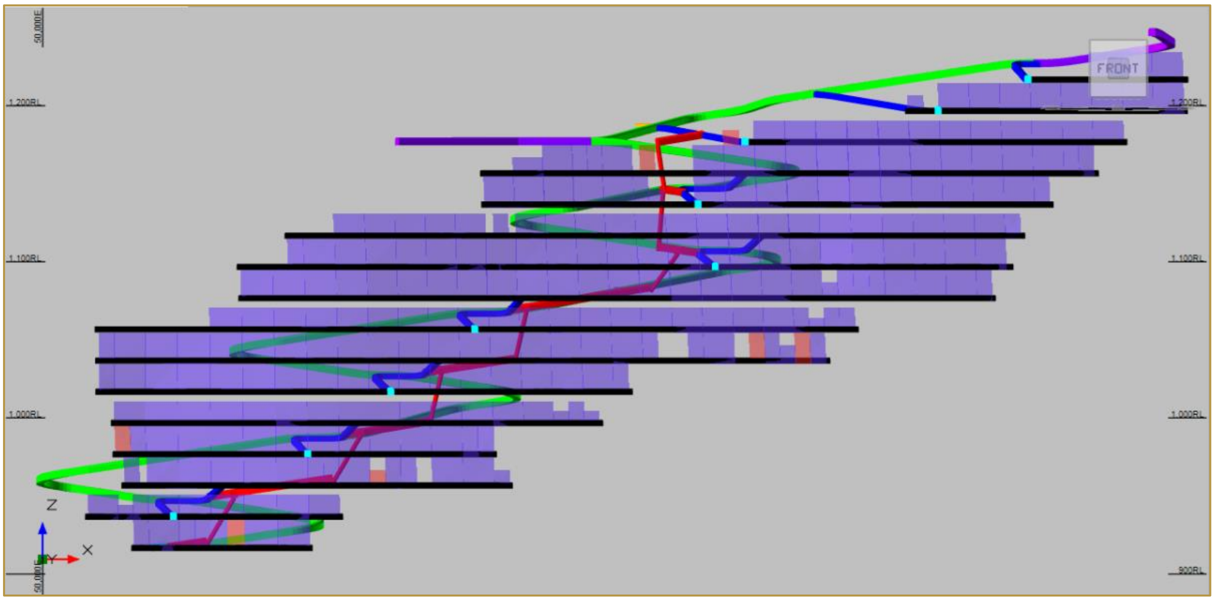

Figure 3-16, King Snake

3.7.5 Underground Mining Equipment

3.7.5.1 Equipment productivity assumptions

The equipment productivity assumptions were based on equipment datasheets provided by manufacturers and industry best practices. Each equipment productivity was utiliszed to determine the production and development rates for stoping and all development activities. The stope drill selected for these mines was a Boart Longyear Stopemate air drill (or similar). Productivities of 60 m drilled per shift drilling with 64 mm holes at a maximum of 20m is estimated. Drilling of the drop raise is included within the drilling portion of the stope cycle time.

Productivity for haulage trucks was based on average haul distance block of each portal, with a target productivity of 1,800 t/d for ore/waste and 1,000 t/d for backfill. The backfill will be loaded on surface utilising a local contractor. This will be the same contractor utilised to load the surface ore trucks. Equipment productivity was decreased over time as deeper mining blocks are put into production. Overall productivities are greater than individual cycle time productivities, which were more conservative to ensure sufficient allowance for delays between activities. Load and haul units are also easily transferable between stopes, even within a shift, justifying the higher overall productivities. Fleet size assumes all material is trucked to surface.

There has been no provision for major overhaul during this project life; it is assumed that all equipment will be fully utilised over the entire life of the mine.

Development equipment was based on the development productivity rates of 260m /month per crew utilising an Epiroc 2 Boom split feed jumbo drill.

3.7.5.2 Development equipment

The primary development equipment will consist of the split feed jumbo drills, LHDs, and telehandlers for loading and services. The 10 t LHDs will be allocated for all development of 4mw x 4mh and 4mw x 5mh while 6 t LHDs will be utilised in level development headings with dimensions of 3mw x 4mh. LHDs and haul trucks will be allocated from the production fleet. The service fleet includes service trucks and telehandlers. Equivalent equipment may be substituted according to site preference or cost.

3.7.5.3 Production Equipment

Production equipment will consist of air drills, 30 t underground haul trucks and 6 t LHDs. The 10 t LHDs will be utilised to load the haul trucks. LHDs and haul trucks are allocated to development, stope production, haulage, and backfill as required.

3.7.5.4 Service Equipment

Service equipment is included in the plan to support development, production, and construction activities. Pickup trucks are included for supervisors, maintenance teams and technical services teams. Man carriers are included for worker transportation.

3.7.6 Mine Infrastructure and Services

3.7.6.1 Ventilation

Preliminary ventilation design and modelling was completed as part of the Mining Study. Each mine will use the main portal as a fresh air intake. King Snake will run a downcast system and Ban Chang East and West will upcast.

At all three mines, fresh air will be cast at 2 to 4m/s in the primary ventilation circuit and auxiliary fans specified as 20 m3/s at 2,200 Pa will be used underground for ramp and production level development. The mine air will not exceed a maximum temperature of 27.5oC to provide for an adequate work environment both for the mine personnel and the equipment hydraulics.

The King Snake mine will utilise its main portal as a fresh air intake, down casting through the ramp and exhausting through a system of vent raises to the secondary portal.

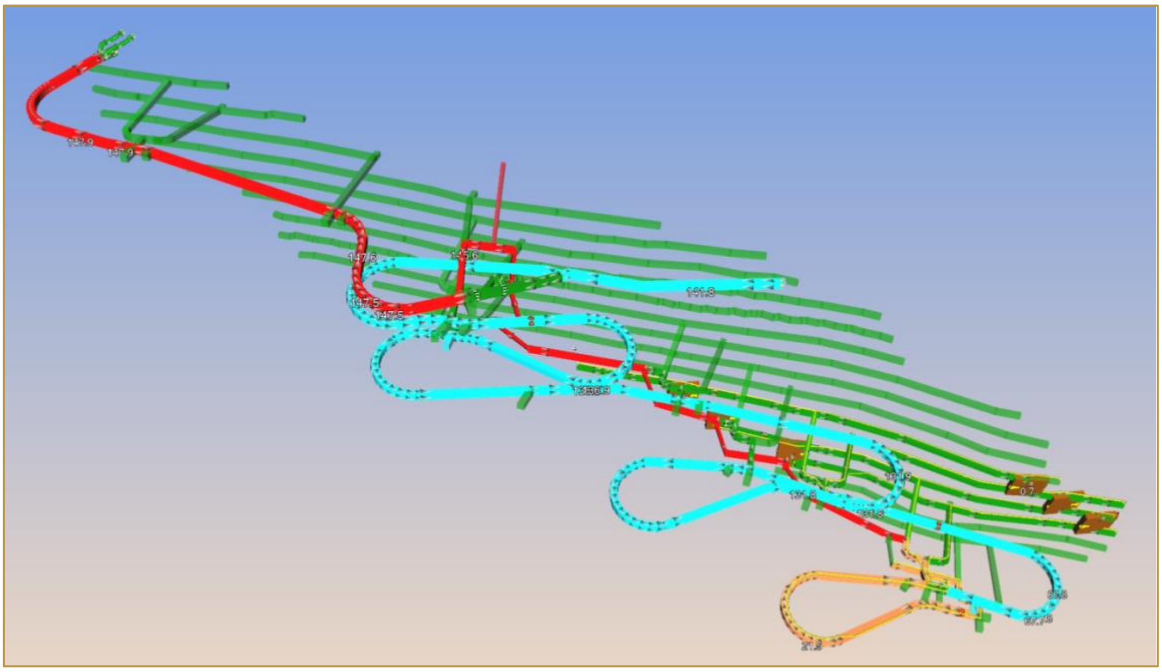

Figure 3-17, King Snake Ventilation Design

For this system, air is forced from the primary ventilation circuit (the ramp downcast) into the secondary ventilation circuit (the stoping areas) via auxiliary force fans and flexible ducting. Return air then distributes from the stoping areas back along the level to the level return air raise (RAR). The RAR is positioned close to the ramp and is connected to the top ramp section where the air is then exhausted to surface. The primary exhaust fans are located on surface at the top ramp portal to facilitate the overall return quantity requirements.

The RAR will use a drop raise method. Each RAR is a 4m x 4m square.

The Ban Chang East and West mines will utilise their main portals as fresh air intakes, upcast through the ramp to their second portal, where the exhaust fans are located.

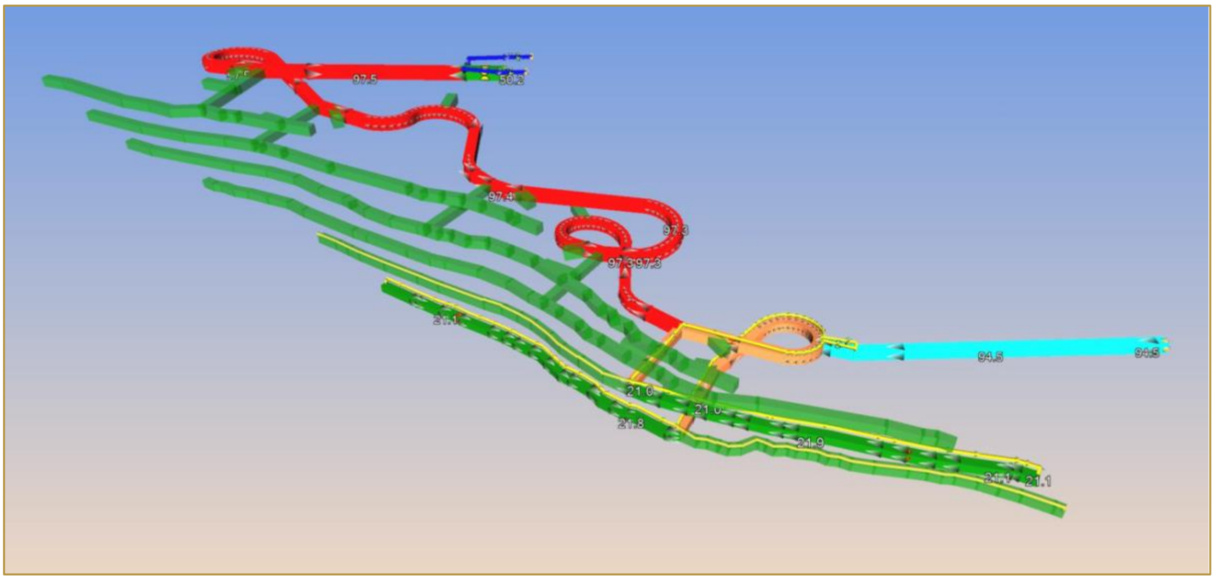

Figure 3-18, Ban Chang West Ventilation Design

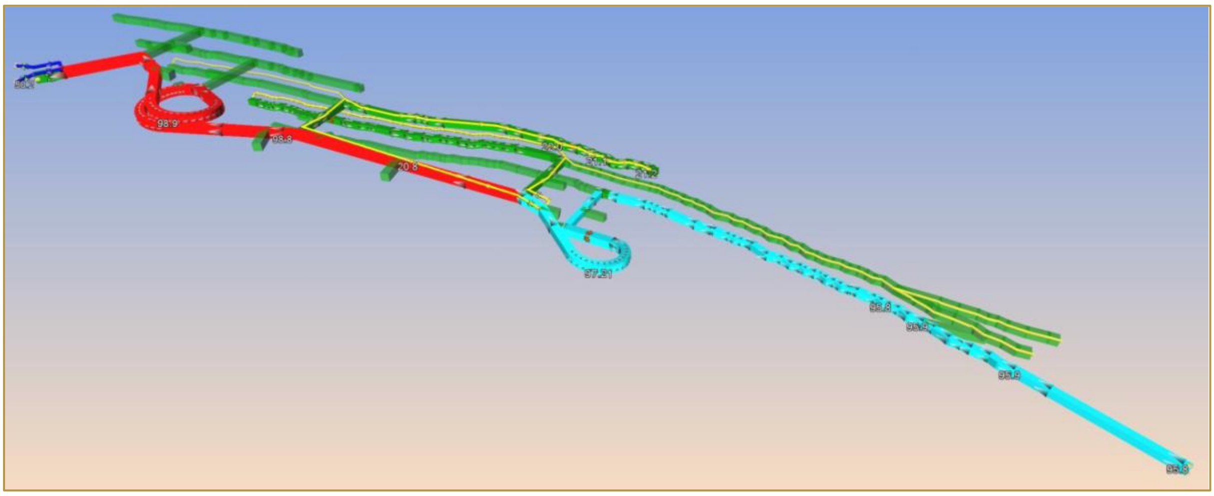

Figure 3-19, Ban Chang East Ventilation Design

For this system, air is forced from the primary ventilation circuit (the ramp downcast) into the secondary ventilation circuit (the stoping areas) via auxiliary force fans and flexible ducting. Air returns via the stoping haulage to the ramp and is then distributed up the ramp to the primary exhaust fans located at the top portal. The primary exhaust fans are located at the top ramp portal at the surface to facilitate the overall return quantity requirements.

3.7.6.2 Dewatering

Preliminary hydrogeological modelling was used for prediction of water inflows and dewatering requirements. Within the King Snake mine there will be a single sump located at each level in order to deal with drill water. The main dewatering system will consist of 2 x 80 kW travelling mono pumps which will be dealing with 130m of total dynamic pressure head.

For the Ban Chang East and Ban Chang West mines a submersible 37 kW pump will be used at the main sump to dewater the mines. However, these two mines are mainly self draining, other than the bottom level of each.

For all mines the main dewatering pipe will be 150 mm PN16 HDPE.

3.7.6.3 Other Infrastructure

Other infrastructure included in the project layouts and costings include:

- Surface water treatment
- Maintenance facilities
- Underground power supply and distribution
- Fuel storage and distribution
- Communications
- Compressed Air
- Refuge Stations
- Storage and Warehouses

4 METALLURGY AND FLOWSHEET

4.1 Ban Phuc DSS

4.1.1 General

Building on the historical testwork completed on the Ban Phuc DSS by Peter J Lewis & Associates & Dunstan Metallurgical Services (Report M0755B, March 2005), a PFS level metallurgical testwork program was completed for this study. Managed by BSX and primarily executed by ALS, the results of the program were summarised in the following reports:

- ALS Report No: A21122 "Metallurgical Flotation Testwork on Ta Khoa Disseminated Nickel Ores" for Ban Phuc Nickel Mines.
- JKTech Report "JKDW and SMC Test Report 20001/P115".
- Metso:Outotec Test Reports "329425 Ta Khoa Concentrate" and "3288248 Ta Khoa Tailings".
- ALS Reports No. A21559 & A21941 "Comminution & Metallurgical Flotation Testwork conducted on Ta Khoa Disseminated Ore"
- ALS Report No: A22690: In progress.
- Tomra 2021 028: First Inspection Report

An additional 92 variability bench scale flotation tests were completed by BPNM at the site metallurgical laboratory which were used as part of the AMC Geometallurgical benchmarking and gap analysis. The results of which can be found in the AMC report entitled "Geometallurgy Review for Ta Khoa Nickel Project, Ban Phuc Nickel Mines", 30 November, 2021.

4.1.2 Sample Selection

A large master composite was prepared from 25 diamond drill holes (DDH) with a mass of approximately 670kg which represented a total of 733 metres of down hole (mdh) nickel mineralisation within the Ban Phuc geological resources.

Table 4-1, Ban Phuc DSS Master Composite Head Analysis

Sample	Ni (%)	NSNi (%)	Cu (%)	Fe (%)	MgO (%)	S_{TOTAL} (%)
Master Composite	0.79	0.11	0.11	5.82	37.9	0.81

Accompanying the master composite were a further 3 samples for comminution testwork (SMC) from 2 DDH (BP 20-34 and BP 20-35). These samples were full HQ core with head assay results shown in Table 4-2.

Table 4-2, Ban Phuc DSS Comminution Sample Head Analysis

Composite ID	Ni (%)	NSNi (%)	Cu (%)	Fe (%)	MgO (%)	STOTAL (%)
Composite 1 – KCUB2	0.46	0.17	0.06	5.48	37.8	0.46
Composite 2 – KCUB2	0.35	0.12	0.01	5.01	39.1	0.18
Composite 3 – HTUB2	0.99	0.10	0.21	7.69	36.0	1.93

In October of 2021 26 variability samples were submitted to ALS Metallurgy for flotation testwork. From these samples an 82kg sample representing 498 metres of disseminated mineralisation was combined to form a composite for ongoing bench scale optimisation testwork. Results of the variability samples are not yet available however preliminary results for the composite sample will be presented. Head assays are presented in Table 4-3.

Table 4-3, Ban Phuc DSS Variability Composite Head Analysis

Sample	Ni (%)	NSNi (%)	Cu (%)	Fe (%)	MgO (%)	STOTAL (%)
Variability Composite	0.56	0.11	0.08	5.89	38.1	0.56

An additional four dedicated whole HQ core samples were also prepared and submitted for comminution variability testing. Assayed data shown in Table 4-4.

Table 4-4, Ban Phuc DSS Comminution Sample Head Analysis

Sample	Depth (m)	Ni (%)	STOTAL (%)
BP20 - 40A	299 - 341	0.35	0.45
BP20 - 44	116 - 184	0.30	0.10
BP20 - 48	135 - 150	0.55	0.47
BP20 - 55	135 - 168	0.26	0.13

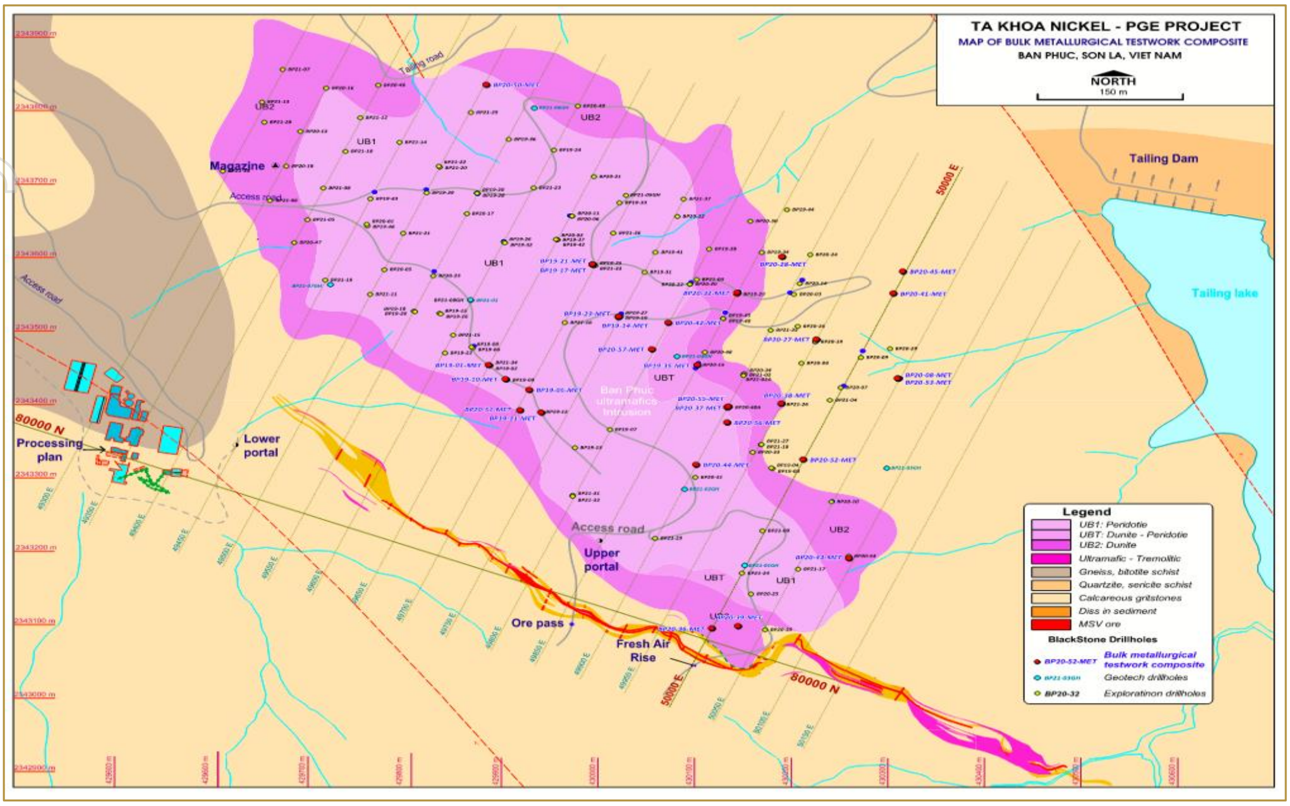

Figure 4-1, Plan Location for Master Composite DDH

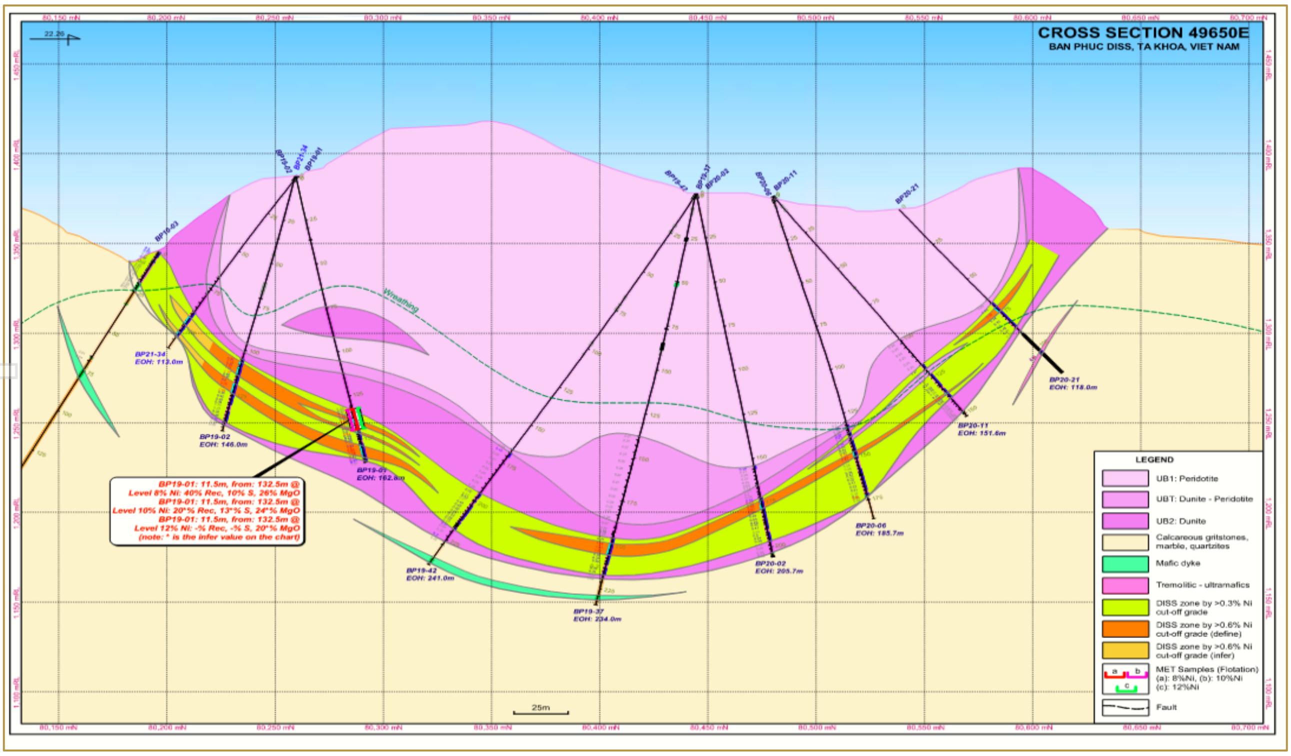

Figure 4-2, Example X-Section 49650E with DDH BP 21-34 Location

A further 3 composite samples were selected for further comminution testwork (SMC) from 2 DDH (BP 20-34 and BP 20-35). These samples were full HQ core.

4.1.3 Minerology

Pentlandite was determined to be the dominant Ni host, contributing 65.9 % of the Ni in the Master Composite. Violarite, discriminated from pentlandite by its higher S to (Fe+Ni) ratio, contributes 5.75 % of the Ni. The compositions of pentlandite and violarite overlap to some extent and the two minerals frequently occur in the same particles. They have therefore been grouped together as 'combined pentlandite and violarite' for reporting purposes.

Trace Ni-sulfide (0.08 % by mass), i.e. millerite/similar, was detected and it hosts 6.75 % of the Ni. A few grains of other discrete Ni-bearing minerals, including gersdorffite, maucherite and shandite (or similar minerals) were detected, but contribute only negligible amounts of Ni. These minerals tend to be closely associated with the 'combined pentlandite and violarite' and, for reporting purposes, they have all been grouped together as 'combined Ni-sulfides and Ni-arsenides'.

Also included in the 'combined Ni-sulfides and Ni-arsenides' group is the 'Ni-sulfide intergrowths' group. This group has been defined to account for analysis points that are a mixture of pentlandite/violarite (and other Ni minerals) and silicates, and which cannot be assigned to the main Ni minerals. The abundance of these mixed analysis points is a reflection of the complex relationship between the Ni minerals and the silicate minerals.

Table 4-5, Ban Phuc DSS Mineral Grouping

Mineral Group	Master Composite Ni (mass %)
Ni-Fe-Sulfide (Pentlandite)	65.9
Ni-Fe-Sulfide (Violarite)	5.75
Ni-Sulfide (Millerite/Similar)	6.75
Ni-As-Sulfide (Gersdorffite/Similar)	0.02
Ni-Arsenide (Maucherite/Similar)	0.03
Ni-Pb-Sulfide (Shandite/Similar)	0.16
Ni-Sulfide Intergrowths	20.9
Pyrrhotite	0.06
Other Minerals	0.40
Total	**100.0**

4.1.4 Testwork Results

4.1.4.1 Comminution

Key Comminution testwork results are summarised below in Table 4-6.

Table 4-6, Ban Phuc DSS Comminution Results

Parameter	Units	Max	Min	Average
Unconfined Compressive Strength				
Min	Mpa	17.4	0	9.1
Max	Mpa	46.5	31.6	40.2
Average	Mpa	28.9	11.6	20.4
Failure Mode	Shear			
Strength Description	Ranging from Very Weak to Medium Strong			
Crushing Work Index				
Min	kWh/t	5.3	1.7	3.6
Max	kWh/t	14.6	8.2	11.6
Average	kWh/t	8.8	4.9	6.6
Bond Rod Mill Indices				
Closing Screen	1180µm			
Bond RWi	kWh/t	25.3	20.3	23.1
Bond Ball Mill Indices				
Closing Screen	106µm			
Bond BWi	kWh/t	26.1	19.1	23.5
JKDW SAG Milling Tests				
Axb Value		102.3	44.8	61.9
t_a		1.33	0.48	0.79
SCSE	kWh/t	9.41	6.77	8.4

4.1.4.2 Flotation

Utilising the Ban Phuc historical flotation testwork work and site operational experience, ALS developed an optimised bulk flotation open circuit testwork flowsheet as presented in Figure 4-3. This flowsheet achieved the targeted nickel concentrate grade of 8% nickel for further downstream processing.

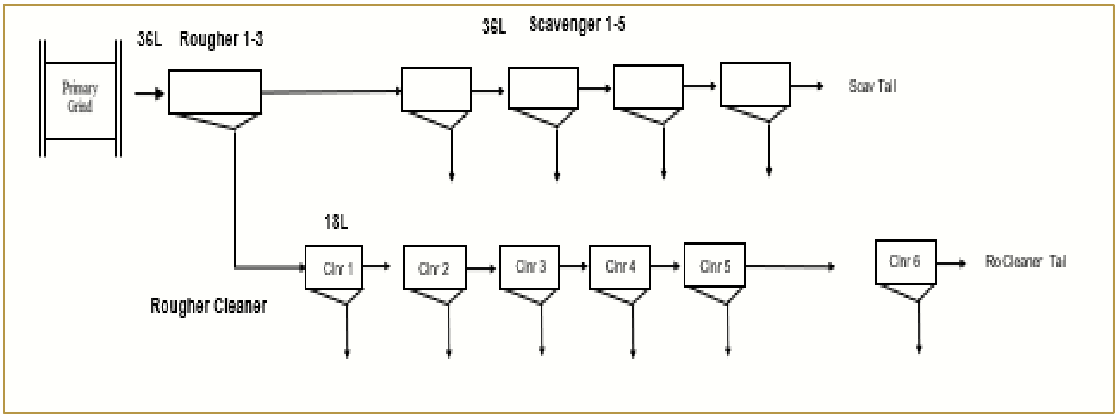

Figure 4-3, Flotation Testwork Flowsheet

Table 4-7, Ban Phuc DSS Bulk Flotation Results

Parameter	Units	Max	Min	Average
Rougher Cleaner				
Mass Pull	%	6.1	2.3	2.9
Ni Recovery	%	66.8	59.9	61
Ni Grade	%	20.7	8.55	18.0
S Grade	%	20.2	8.7	17.5
MgO Grade	%	27.0	13.2	16.27
Scavenger				
Mass Pull	%	5.0	3.4	3.8
Ni Recovery	%	9.5	7.9	8.8
Ni Grade	%	2.1	1.3	1.8
S Grade	%	2.2	1.4	2.0
MgO Grade	%	35.8	34.7	35.0
Combined				
Mass Pull	%	11.1	5.7	6.7
Ni Recovery	%	74.7	69.3	70.5
Ni Grade	%	9.4	5.3	8.4
S Grade	%	9.2	5.2	8.3
MgO Grade	%	30.9	26.3	27.3

At a primary grind liberation size P80 of 75 microns and combining all of the rougher cleaner and scavenger concentrate streams achieved an average nickel concentrate grade of 8.9 % Ni at 69.8% recovery (excluding RDA2982_A) as presented in Table 4-7.

The chemical analyses for the concentrate and tailings from the bulk flotation testwork are presented in Table 4-8. These samples were submitted for thickening and filtration testwork by Outotec.

Table 4-8, Chemical Analyses of Ban Phuc DSS Concentrate and Tailings from Master Composite

Analyte	Grade	Outotec Bulk Concentrate J.Q (RDA2982)	Outotec Bulk Tails N.Q (RDA2982)
Au	g/t	0.39, 0.41	0.02
Pt	ppm	1.57, 1.44	0.03
Pd	ppm	1.64, 1.65	0.06
Au*	ppb	367	23
Ir*	ppb	279	16
Os*	ppb	411	12
Pd*	ppb	1524	75
Pt*	ppb	1534	38
Rh*	ppb	175	5
Ru*	ppb	807	20
Ag	g/t	10	<2
Al	%	0.60	0.60
As	ppm	410	<10
Co	ppm	1700	40
Cr	ppm	800	1000
Cu	%	0.40	880
Fe	%	11.4	5.53
MgO	%	27.3	38.4
Ni	%	8.68	0.25
S_{TOTAL}	%	8.43	0.26
$S_{SULFIDE}$	%	8.26	0.16
SiO_2	%	29.0	37.0

4.2 MSV Feed Sources

4.2.1 Sample selection

4.2.1.1 King Snake

A composite was prepared from 13 diamond drill holes (DDH) with a mass of approximately 49.6kg which represented a total of 39.8 metres of down hole (mdh) nickel mineralisation within the King Snake geological resource. King Snake sample head assay data presented inTable 4-9.

Table 4-9, King Snake Composite Head Analysis

Sample	Ni (%)	NSNi (%)	Cu (%)	Fe (%)	MgO (%)	S_{TOTAL} (%)
King Snake Composite	0.94	0.04	0.59	14.8	3.92	8.84

4.2.1.2 Ban Chang

Two composites were prepared from Ban Chang. The Ban Chang East sample was taken from 8 diamond drill holes with a mass of approximately 37.4kg which represented a total of 32.7 metres of mineralisation. The second sample, which was taken from core in the western Ban Chang zone, represented 13 drill holes and weighed 186kg from 138.6m of sulfide mineralization. Head Analysis for the composites are shown in Table 4-10.

Table 4-10, Ban Chang Composite Head Analysis

Sample	Ni (%)	NSNi (%)	Cu (%)	Fe (%)	MgO (%)	S_{TOTAL} (%)
Ban Chang East	0.74	0.02	0.63	15.9	16.9	7.68
Ban Chang West	0.71	0.02	0.52	16.3	8.94	9.00

4.2.2 Comminution

Bond Ball Mill Work Indices for the three MSV composite samples are presented in Table 4-11. The King Snake figure of 13.2kWh/t is similar to historic Ban Phuc MSV grindability index.

Table 4-11, MSV Comminution Parameters

Parameter	Units	King Snake	Ban Chang East	Ban Chang West
Bond Ball Mill Indices				
Closing Screen	106µm			
Bond BWi	kWh/t	13.2	14.4	14.7

4.2.3 Flotation

Preliminary MSV flotation work was completed on samples from King Snake, Ban Chang East, and Ban Chang West. Further work is planned for optimising concentrate grade, but high recoveries are achievable.

Table 4-12, Preliminary MSV Flotation Results

Parameter	Units	King Snake	Ban Chang East	Ban Chang West
Rougher Cleaner				
Mass Pull	%	16	5.25	5.05
Ni Recovery	%	60.7	55.6	76.7
Ni Grade	%	9.62	7.79	4.66
Cu Recovery	%	92.2	93.3	95.2
Cu Grade	%	10.9	9.09	3.43
S Grade	%	28.1	31.9	22.9
Rougher & Scavenger Cleaner				
Mass Pull	%	8.05	8.10	27.7
Ni Recovery	%	71.9	68.7	92.8
Ni Grade	%	6.62	6.0	3.26
Cu Recovery	%	94.0	95.0	98.7
Cu Grade	%	7.10	5.77	2.06
S Grade	%	26.0	27.1	24.2

4.3 Geometallurgy Study

AMC Consultants Pty Ltd (AMC) carried out a gap analysis of the current geological and geometallurgical databases and identify high level geological domains within the Ban Phuc DSS deposit.

The drill hole and Vietnamese flotation sample database was analysed to assess the potential for derivation of predictive nickel recovery relationships. The results of the regression trial indicate that reasonable predictions of recovery and concentrate grade can be achieved with available assay data. It is possible that predictions could be improved by transforming some of the variables or using interaction terms, such as ratios (e.g., Ni:S) or products. A set of variability tests with a flowsheet more closely aligned to the proposed process plant flowsheet will also be required to develop better predictive models for a DFS.

AMC recommends further development of predictive models and the application of those models to the mineral resource block model, when variability testing has been completed using a flowsheet closely aligned to the proposed process plant flowsheet. This will produce a geometallurgical block model that will provide an improved basis for modelling the value of ore blocks and optimizing the mine plan and ore processing schedule.

4.4 Future Metallurgical Testwork

The geological resource will be classified into geo-metallurgical domains. These domains would be sub-sets of the main lithology, the varying mineralisation and nickel ore grades that contribute to the majority of the contained nickel and tonnes for the resource.

- Initially the selection and testing of ore types will be weighted to those expected in the first 3 to 5 years;
- Further developmental flotation testwork will focus on optimizing the flotation response from the above domaining as well as reducing the impact from the "Ni Sulfide Intergrowths" mineralisation. Including optical assessment and variability of grind recovery response for some ore types;
- Continued testwork will be conducted to optimise flowsheet, reagent type, reagent dosage and flotation residence times;
- Once the developmental work is complete, then variability samples from each domain should be selected for both comminution and flotation testwork (LCT – locked cycle testwork). The samples would be selected on the basis of spatial coverage across strike and depth of the geological resource. The development of geo-metallurgical models for comminution, nickel concentrate grade and recovery will be the objective from this variability testwork.

Given the complexity of the alteration and mineralization, and the variability of the flotation test results to date, AMC recommends that, initially, at least 100 variability samples should be selected for flotation testing. These samples should be selected from across all the multivariate groups that are identified by the flowsheet optimisation testwork as being of potential economic interest. The final number of samples required to achieve a high level of confidence in the predictions of ore processing response will depend on the variability of sample behaviours and the number of variables required for the predictive model.

AMC recommends that at least 30 SMC tests and Bond ball mill work index tests be conducted so that there are sufficient data points to produce preliminary predictive models for comminution circuit throughput. As with the flotation samples, the final number of samples required to achieve a high level of confidence in the predictions will depend on the outcomes from multivariate analysis of the initial set of samples.

Flotation testwork undertaken to date has been based on conventional cell flotation. The direct flotation reactor technology selected for this project is unproven at commercial scale in this type of duty. Testwork and/or piloting will be undertaken by the direct flotation reactor equipment supplier to a level sufficient to provide a process guarantee for the equipment.

The testwork program will also need to consider supply of samples to allow equipment vendors to do their own testing for supply for provision of performance warrantee's. Vendor testing samples will only be provided to selected vendors of major and critical equipment and is in addition to test required for design and tendering. Vendor samples can be planned to be made available from the ore samples used during normal testing and additional sample is not required (i.e. flotation testwork will provide more than enough sample for filtration, thickening supplier samples).

5 PROCESS DESIGN

5.1 Mill Feed profile

Mill feed material mined during the 10 month pre-strip period is stockpiled ready for mill feed which commences during month 11. The mill feed profile assumes that after commissioning, the production rate ramps up over a 24 month period following the mining ramp up. Full production (8mtpa rate) then sustained until the end of month 110. Falling mine production then impacts the mill feed from month 110 though to eventual closure in month 120. The mill feed profile is summarised below in Figure 5-1.

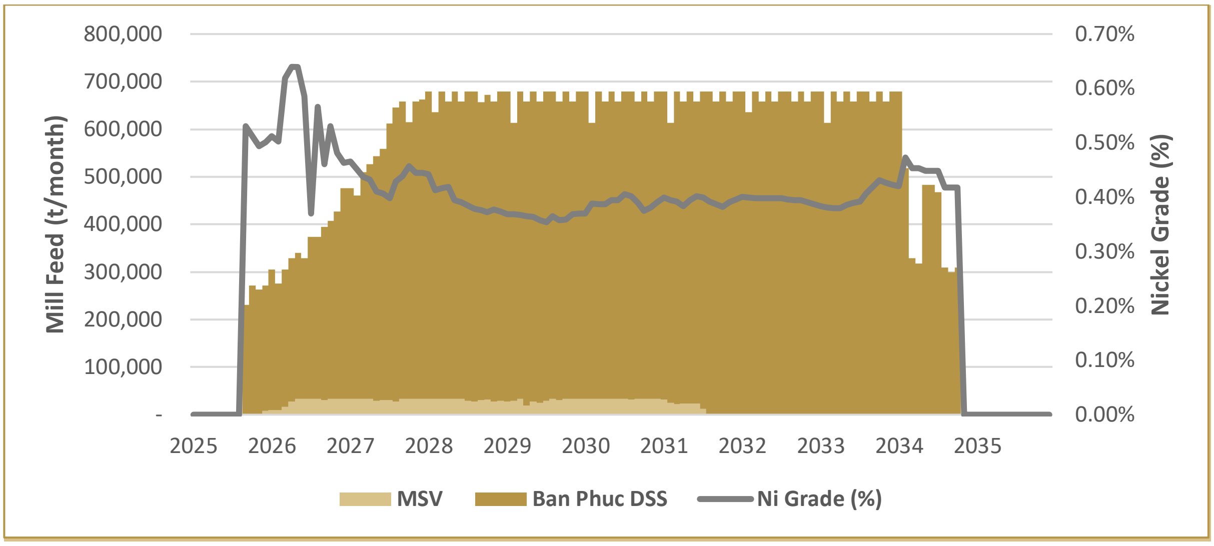

Figure 5-1, Mill Feed Profile

The nickel grade is relatively constant throughout the life of the mine, albeit slightly higher in the first three operational years. Sulfur grades are impacted by the availability of MSV blend sources. The final MSV blend is fed in month 86, and after this, the sulfur grade falls. Sulfur is an important element in the mill feed as it can assist in flotation recoveries, as well as contributing a critical source of heat and acid for the downstream POX process. BSX will continue to identify MSV feed targets for inclusion in the mill feed blend for the life of mine.

5.2 Process Description

The process plant is based on a conventional nickel flotation flowsheet, and incorporates the following process stages:

- Crushing
- Grinding (incl. flash flotation and pebble crushing)
- Flotation (rougher, scavenger and cleaner stages, incl. regrind)
- Concentrate thickening and filtration
- Tailings thickening and filtration
- Plant services and reagents

The overall process flow is summarised below in Figure 5-2.

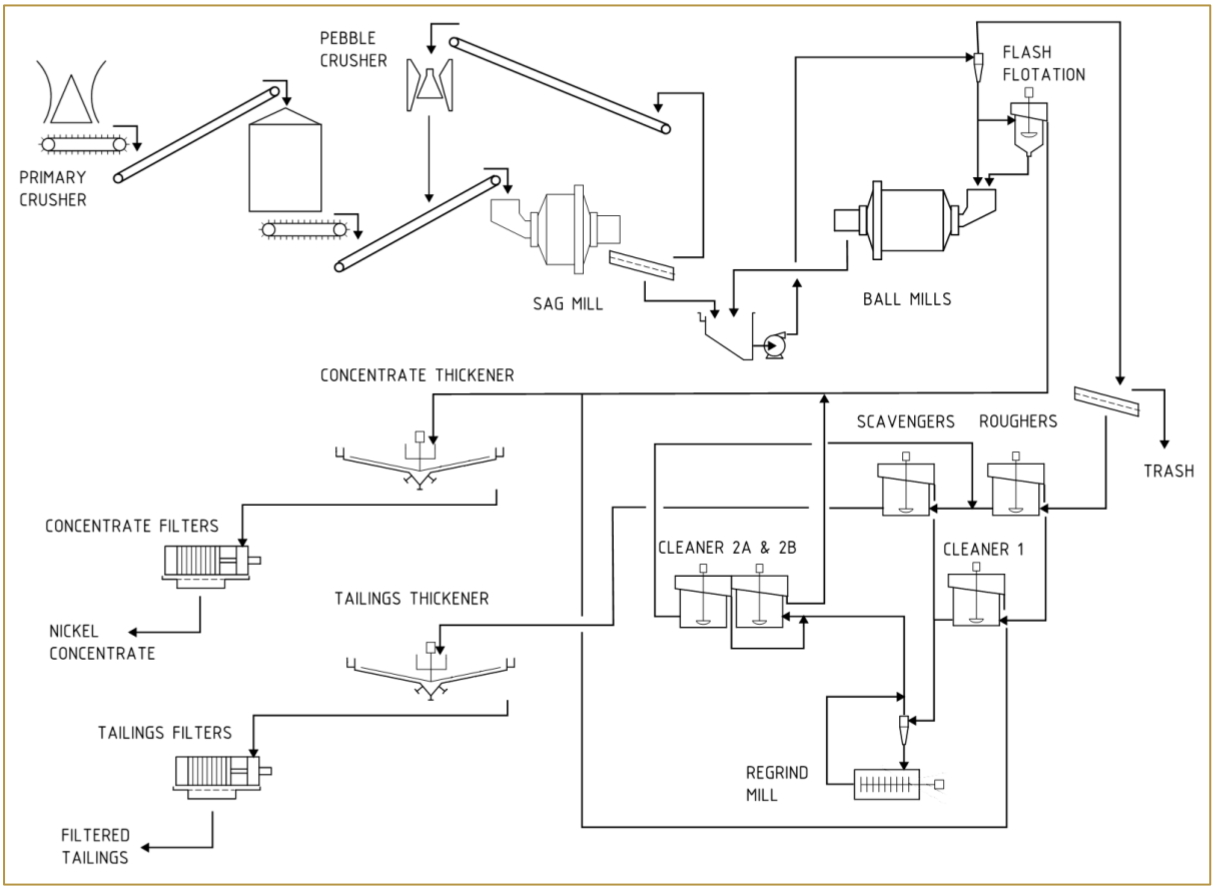

Figure 5-2, Process Flowsheet

5.2.1 Crushing

Crusher feed is either direct tip ROM ore to the ROM bin or recovered from stockpiles of the ROM pad by a FEL. ROM ore recovered from stockpiles may be blended to minimise variance in ore properties and to provide a homogenous feedstock to the plant circuit and reduce short term performance variability of the mill.

The crushing circuit is designed to operate for 75% of the year and as such significant surge between the crushing circuit and the milling circuit has been included in the design. This ensures that downtime of the crushing circuit does not affect the downstream plant operation.

During normal plant operation, the crushed ore is stored in a bin and reclaimed via apron feeders to feed the Grinding and Classification circuit. During periods of mill downtime, the Crushing circuit will continue to operate. When the bin reaches capacity, crushed ore overflows from the bin onto a conveyor that feeds an emergency stockpile adjacent to the Crushed Ore Bin. During periods of Crushing circuit downtime, a FEL reclaims crushed ore from the emergency stockpile and feeds the Grinding and Classification circuit via an emergency feed bin and feeder.

The crushing process includes the following steps:

- ROM ore is transported to the ROM pad by haul trucks where it is either directly dumped into the concrete ROM Bin or stockpiled and reclaimed by FELs from the stockpile and tipped into the ROM bin.

- A fixed rock breaker on the perimeter of the ROM Bin breaks up oversize material where required.
- The primary crusher has a closed side setting (CSS) of 90mm.
- Crushed ore discharges from the primary crusher into a concrete vault immediately below the crusher.
- An apron feeder meters product from the primary crusher discharge vault onto a sacrificial Crusher Discharge Conveyor. A fixed magnet suspended over the Crusher Discharge Conveyor accumulates tramp metal contained in the crushed ore and is periodically discharged into a tramp metal skip.
- The Crushed Ore Bin Feed Conveyor supplies the Crusher Ore Bin which is the process break between the crushing plant and the wet plant which have been designed to operate at different availabilities.

5.2.2 Grinding and Classification

The Grinding and Classification circuit is designed to operate for 91.3% of the year. The Grinding and Classification circuit comprises a SAG mill, two Ball Mills and a Cyclone Cluster.

Ore feed to the Grinding and Classification circuit is drawn from the Crushed Ore Bin by three apron feeders and metered onto the SAG Mill Feed conveyor. The SAG Mill operates in open circuit with the mill discharge being screened over the Pebble Dewatering Screen. The screen oversize reports to a pebble transfer conveyor that feeds a cone crusher with crusher product being returned to the SAG Mill Feed Conveyor. The screen undersize is pumped to the Ball Mill Discharge Hopper. The combined Pebble Dewatering Screen undersize and discharge from the two ball mills is pumped to the Cyclone Cluster. The nominal recirculating load in the Ball Mill circuit is 250%.

The Cyclone Cluster overflow reports to the Flotation Circuit Rougher Scavenger Feed Tank via a Trash Screen.

A 25% split from the Cyclone Cluster underflow is treated in the Flash Flotation Cell, agitated with low pressure air. The flash concentrate is pumped to the Concentrate Thickener and the tails reports back to the ball mill feed.

Feed to the Grinding and Classification circuit is p80 76mm and the target product size is 75micron. The Grinding and Classification circuit was modelled using the SMC and Bond power calculation methods. Two Ball Mills have been selected to keep the power requirement per mill within the range of a twin pinion drive arrangement.

5.2.3 Flotation

All flotation cells are Direct Flotation Reactor (DFR) type cells. A DFR is a flotation machine that works on the principle of preventing the formation of a froth and froth slurry interface. Independent bubbles are removed from the collection zone in a gas phase/slurry phase. The machine has a particle collection regime in the lower half of the vessel and the ratio of gas/slurry changes at the top of the vessel. The complete unit is a pressurised system.

The Flotation circuit is preceded by a conditioning tank (Rougher Scavenger Feed Tank). The Rougher Scavenger Feed Tank is elevated to provide positive pressure through the Rougher and Scavenger Cells. There are four Rougher Cells and three Scavenger Cells. Concentrate from the Rougher Cells is pumped to the primary cleaner cells feed tank (Cleaner 1 Feed Tank) which is elevated to provide positive pressure through the primary cleaner cells (Cleaner 1 Cells). Concentrate from the Scavenger Cells is pumped to the Regrind Circuit. Scavenger Tails launders by gravity to the Tailings Thickener.

Concentrate from the primary cleaner cells (Cleaner 1 Cells) is pumped to the Concentrate Thickener. Tails from the Cleaner 1 Cells along with concentrate from the Scavengers Cells is pumped to the Regrind Mill circuit. There are a total of six primary cleaner cells (Cleaner 1 Cells).

The Regrind Mill circuit F80 particle size is 75micron and product P80 is 20micron. Feed to the Regrind Mill circuit first passes through the Regrind Cyclone Cluster with underflow reporting to the open circuit IsaMill Regrind Mill. Regrind Mill circuit product is pumped to a stage of secondary cleaner cells comprising three Cleaner 2A Cells and two Cleaner 2B Cells. Concentrate from the secondary cleaner cells is pumped to the primary cleaner cells (Cleaner 1 Cells) and tail is pumped back to the Scavengers Cells.

The Flotation circuit was sized by Woodgrove Technologies based on the following design criteria:

- Throughput 1000 t/h
- Availability 92%
- Feed Nickel Grade 0.54%
- Nickel Recovery 65%
- Concentrate Nickel Grade 8%

5.2.4 Concentrate Handling & Storage

The final concentrate is thickened in the Concentrate Thickener. The Concentrate Thickener is a high-rate thickener and increases the solids content in the slurry from a nominal 16% w/w solids to approximately 60% w/w solids. The thickener overflow will be collected and recycled back into the Grinding and Flotation circuits. The underflow from the Concentrate Thickener gravity flows through a pipeline and choke station to the Filter Feed Tank located at a lower plant level. The Concentrate Filter Feed Tank provides a 9-hour buffer between the flotation plant and the concentrate filter to allow for downtime.

The thickened slurry is batch fed from the Concentrate Filter Feed Tank into one of the two Concentrate Filters. Each Concentrate Filter has a dedicated filter feed pump, compressor and membrane squeeze pump allowing each filter to operate independently in parallel. The concentrate filter cake produced is approximately 17% moisture by mass.

The concentrate filters are plate and frame style pressure filters which will operate as per the following steps:

- Filter feed – concentrate slurry is fed to the filter using the concentrate filter feed pumps.
- Core blow – compressed air is pushed down the filter feed core to prevent slurry spillage during the cake discharge step. The slug of slurry is returned to the Concentrate Filter Feed Tank.
- Membrane squeezing – high pressure water is pumped to the filter plate membranes to squeeze the contained slurry and further reduce the moisture content.
- Drying blow – compressed air is passed through the filter cake to further reduce the moisture content.

The filter cake produced discharges to concrete bunkers below the filters. From there FELs will either load the filter cake onto concentrate transport vehicles for transport to the Downstream Processing Facility or transfer the filter cake to the adjoining Concentrate Storage Shed. The Concentrate Storage Shed has capacity for 2.5 days production.

5.2.5 Reagents

The reagent mixing and storage area includes the following reagents:

- Dispersant - Sodium Silicate
- Collector - Sodium Ethyl Xanthate
- Frother
- Flocculant

Dispersant

Dispersant (sodium silicate) is delivered to the site in Iso Tankers. The dispersant is diluted prior to dosing to the Grinding Area, Rougher Scavenger Feed Tank, Scavenger Cells, Cleaner 1 Cells, Cleaner 2A Cells and/or Cleaner 2B Cells.

Collector

Collector is delivered to the site in powder form in 1 tonne bulk bags. Collector is mixed on site to generate a 10% w/v solution for dosing to the Grinding Area, Rougher Scavenger Feed Tank, Rougher Cells, Scavenger Cells, Cleaner 1 Cells, Cleaner 2A Cells and/or Cleaner 2B Cells.

Frother

Frother is delivered in IBCs as neat liquor. The IBCs are transferred to the frother storage tank for dosing to the Flash Flotation Cell, Rougher Cells, Scavenger Cells, Cleaner 1 Cells, Cleaner 2A Cells and/or Cleaner 2B Cells.

Flocculant

Powdered flocculant is to be delivered on pallets in 25 kg bags. The flocculant powder bag is broken, and the powder is dropped into a hopper and subsequently conveyed using the flocculant blower to a mixing tank, where it is mixed with raw water. The flocculant powder-water mixture is agitated and aged, then the mixture is transferred from the flocculant mixing tank to the flocculant storage tank. The stored flocculant mixture is dosed to the tailings and concentrate thickeners.

5.2.6 Tailings Disposal

Tailings from the Flotation circuit is thickened in the Tailings Thickener. The Tailings Thickener is a high-rate thickener and increases the solids content in the slurry from a nominal 16% w/w solids to approximately 55% w/w solids. The thickener overflow will be collected and recycled back into the Grinding and Flotation circuits. Thickened underflow from the Tailings Thickener is pumped approximately 1km to the Tailings Filtration and Storage Area. The Tailings Filtration and Storage Area is located in close proximity to the dry stacking area rather than at the process plant to minimise the distance that filtered tailings needs to be transported by truck.

The thickened tailings slurry is batch fed from one of the two Tailings Filter Feed Tanks into one of the three Tailings Filters. Each Tailings Filter has a dedicated filter feed pump, compressor and membrane squeeze pump allowing each filter to operate independently in parallel. The tailings filter cake produced is approximately 17% moisture by mass. The Tailings Filter Feed Tanks provide a 4-hour buffer between the flotation plant and the tailings filters to allow for downtime.

The tailings filters are plate and frame style pressure filters which will operate as per the following steps:

- Filter feed – concentrate slurry is fed to the filter using the concentrate filter feed pumps.
- Core blow – compressed air is pushed down the filter feed core to prevent slurry spillage during the cake discharge step. The slug of slurry is returned to the Concentrate Filter Feed Tank.

- Membrane squeezing – high pressure water is pumped to the filter plate membranes to squeeze the contained slurry and further reduce the moisture content.
- Drying blow – compressed air is passed through the filter cake to further reduce the moisture content.

The filter cake produced discharges to concrete bunkers below the filters. From there FELs will either load the filter cake onto haul trucks for transport to the mine waste dump or be transferred to the adjoining tailings storage sheds. The Tailings Storage Shed has capacity for 36 hours production.

5.2.7 Plant Services

Plant services include the following services:

- Plant Air
- Raw Water
- Process Water
- Potable Water
- Fire Water

Plant Air

Dry compressed air is supplied via the Plant Air Compressors which incorporate air dryers and filters to produce instrument quality Plant Air. Plant Air is distributed to the plant via a header system.

Raw Water

Raw water is sourced from mine open pit dewatering. Raw water pumps distribute Raw Water to the Crushing Area for dust suppression, Gland Seal Water System and Reagent Mixing Areas.

Process Water

Overflow from the Concentrate and Tailings Thickeners is combined in a needle tank along with make-up from the Process Water Storage Tank to supply the Grinding Area Process Water. This ensures solids entrained in the thickener overflow return to the process, rather than the process water pond, to avoid bogging the process water pond.

Filtrate recovered from tailings filtration supplies the Process Water Storage Tank. Process Water from this tank primarily supplies the Filtration Circuit.

Potable Water

A water treatment plant produces Potable Water from River Water. One set of pumps distributes Potable Water from a storage tank to buildings and fixtures within the Process Plant and a second set of pumps supply safety showers within the Process Plant.

Fire Water

The Raw Water tank includes a dedicated Fire Water reservice. A Fire Water Pump Skid with diesel and electric pumps distributes Fire Water around the Process Plant. A second Fire Water Pump Skid boosts the Fire Water supply pressure at the Tailings Filtration and Storage Area which is at higher elevation.

5.2.8 Concentrate Production

The life of mine concentrate production profile is summarised below in Figure 5-3.

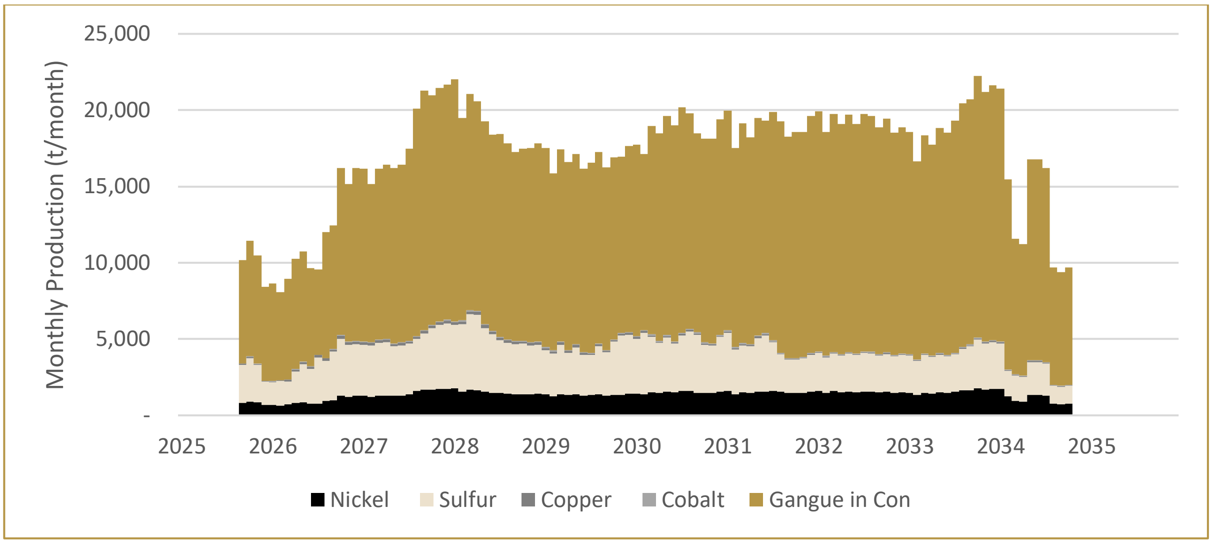

Figure 5-3, Monthly Concentrate Production

Table 5-1, Life of Mine Production

Element	Units	Life of Mine Total	Annual Average
Nickel	t	150,699	16,440
Copper	t	11,398	1,243
Cobalt	t	5,330	581

Notes:

1. The maiden 2022 Ban Phuc Ore Reserves accounts for 80% of Nickel in mill feed.

6 NON-PROCESS INFRASTRUCTURE

6.1 Site Overview

6.1.1 Terrain

The Ta Khoa project site terrain is rugged and steep as indicated in Figure 6-1 below. Flat ground in the region is rare and important for agriculture where available. As such the TKNP will require significant earthworks to enable establishment of the project infrastructure.

Figure 6-1, TKNP Terrain Oblique view looking south east

The plant layout has been designed to minimise earthworks and utilise the natural topography as far as practicable, in an effort to minimise earthworks. As demonstrated in Figure 6-2 below, the plant site has been designed with multiple levels using a balance of cut and fill. This has created three main operating levels for the operation:

- Level 1 – Administration and Filtration (RL 1,160m) which will include:
  - Gate House
  - Administration Building
  - Bus Stop and Changerooms
  - Mess and lunchroom
  - Car Park
  - Concentrate filtration and storage
- Level 2 – Main Processing Level (RL 1,220m) which will include:
  - Processing Office and Integrated Control Room
  - Processing Warehouse and Stores
  - Processing Workshop
  - Crushing
  - Milling
  - Flotation
  - Thickening
  - Reagents
  - Water Services

- Level 3 – ROM and Mine Services (RL 1,260m)
- ROM Storage
- Mining Office
- HV Workshop
- Grease bay and any refuelling
- Static BEHV charging stations

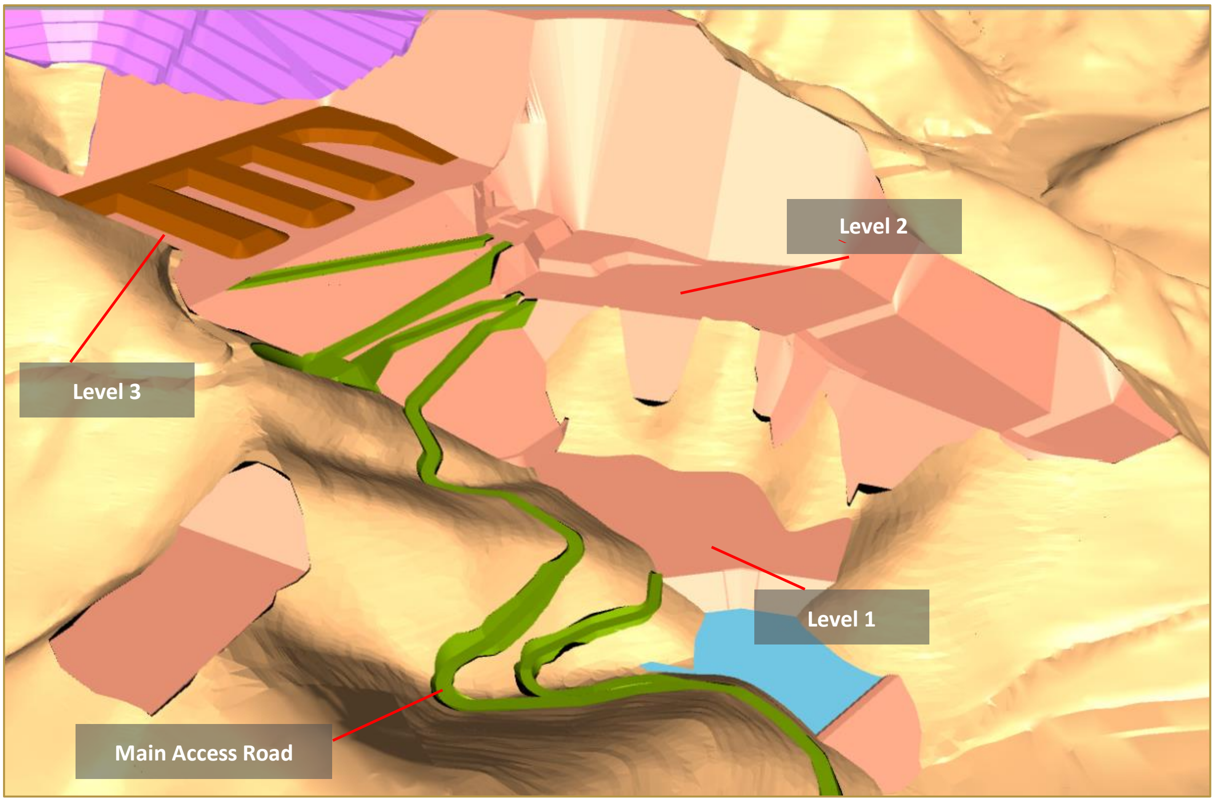

Figure 6-2, Plant Earthworks Layout Oblique view looking south east

6.1.2 Site Layout

The overall site layout has given consideration to key access requirements and the needs of surrounding communities. Wherever possible, contact with communities has been eliminated.

The main site access road will enter from the public road QL37 and terminate at the Level 1 Administration building and carpark. This road will be bituminised and be the primary means of access for trucks and employees. Site access will be controlled via a gate house near the main road intersection. A pedestrian path will be also installed to minimise interactions between staff and vehicles.

The main administration building will be located on Level 1 to improve accessibility and isolate it from the noisier and busy production operations. The concentrate filter building will also be on Level 1 to minimise the need for concentrate haulage trucks interaction with other production personnel.

Levels 2 and 3 will be accessed by an internal operating road. The road access will be limited to LV's and occasional HV's when mobilising too or from site. It will also be used for crane access for maintenance.

Level 2 will house the main processing operations, including the integrated Mining and Milling Control Room. Key equipment such as the crusher and mills has been situated on hard rock with minor equipment and buildings on fill. All operations will be completed here with no need to move between levels.

Level 3 will contain the ROM Pad, all mining services and infrastructure and the tailings filtration plant. This area will predominantly be within the mining blast exclusion zone, so all staff will be evacuated to the Administration building during blasts.

The IWL will be south of Level 3 and will be progressively built throughout the operation.

6.1.3 Plant Layout

Figure 6-3 below provides an overview of the design of the key processing equipment. The plant has been arranged to use the natural ground to minimise conveyor length where possible, and to use gravity to minimise pumping demands. Water management will also be a key aspect of this layout. The plant site will be arranged to minimise inflow of non-contact water through the use of cut-off and diversion drains as well as implementing control measures to minimise run-off and collect contact water for treatment and use in the process.

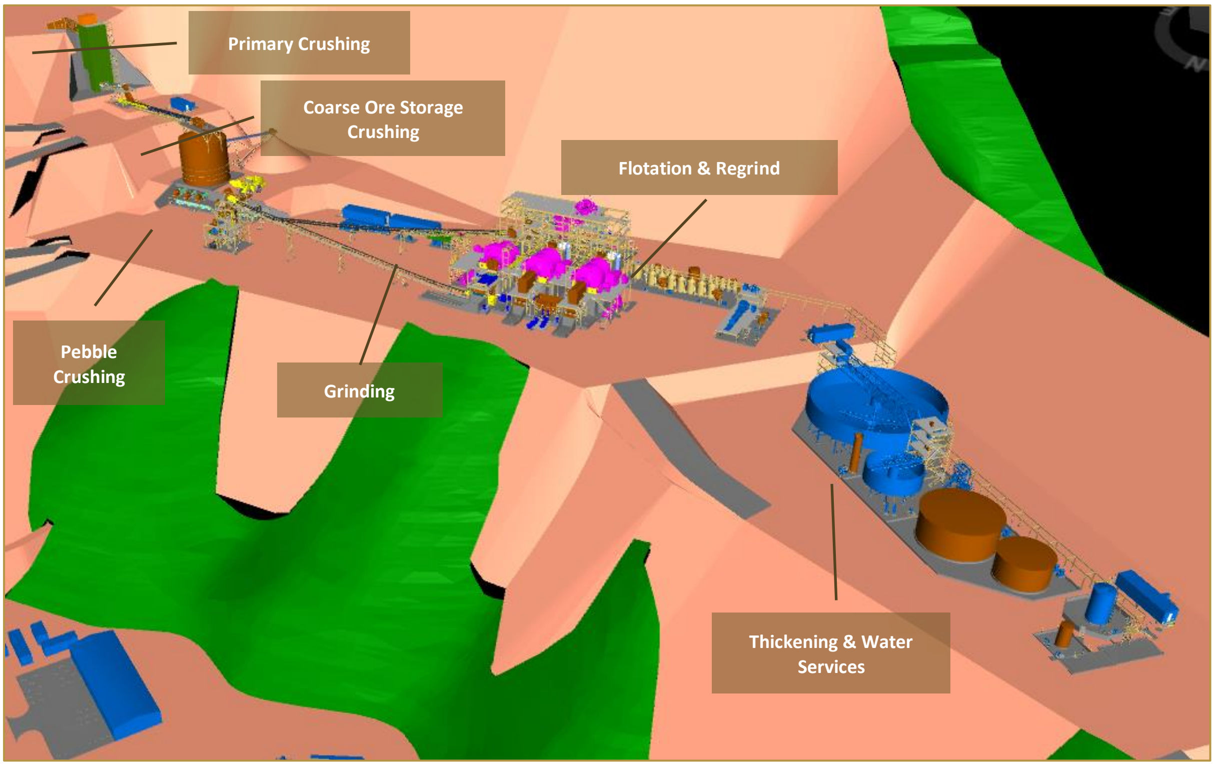

Figure 6-3, Plant Layout

BLACKSTONE MINERALS

6.2 Waste and Tailings Storage

6.2.1 Overview

BSX engaged Golder Associates Pty Ltd (Golder) to complete the TSF design for this Study. While the Scoping Study had completed some desktop level design work for a conventional valley fill tailings facility in Ban Pot Valley, West of the operation, Golder were given a blank slate and commenced their works with a location study. This location study quickly confirmed that the only two practicable options were Ban Pot Valley (as per the Scoping Study) and Suoi Dan Valley, the proposed location of the mine waste dumps.

Golder then commenced an options analysis to determine the preferred deposition strategy.

6.2.2 Option Analysis

Tailings storage options were assessed at a high level through a workshop facilitated by Golder. The purpose of this workshop was to discuss all potential options and if possible agree on a preferred option. The options considered are summarised below in Table 6-1.

Table 6-1, TSF Design Options

		Raising Method / Type of Facility	Disposal	Tailings Processing
Ban Pot Valley	1	Upstream	Not Practical – Not Assessed	Thickened Tailings
	2a	Downstream	Down Valley	
	2b	Downstream	Up Valley	
	2c	Downstream with waste rock storage	Up Valley or Down Valley	
	3	Dry Stacking	Conveyed and/or Trucking	Filtered Tailings
Waste Rock Dump	4	Dry co-placement	Conveyed and/or Trucking	Filtered Tailings
	5	Wet co-placement	Tailings contained in cells	Thickened Tailings
	6	Co-mingling / Co - disposal	Tailing encapsulation	Slurry or Thickened Tailings

At the conclusion of the workshop, there was a clear preference for Option 4, Dry Co-Placement of filtered tailings with waste in the mine waste rock area. Key factors in selection of this option included:

- Greatly reduced land disturbance, through combining within a single location with waste rock and completely avoiding disturbance in Ban Pot Valley.
- Lowest overall environmental impact considering the full project lifecycle
- Lower impact on local populations and need for resettlement
- Perceived ease in permitting and approvals process
- Lowest perceived geotechnical risk and impact of catastrophic failure event

Option 4 was thus selected as the preferred design scenario for the PFS and is referred to as the IWL.

6.2.3 Waste Rock Characterisation

Preliminary geotechnical and geochemical testing has been completed on Ban Phuc waste rock. Ban Phuc Nickel Mine geologists and drill crews have been trained in geotechnical core logging and as a result, the geotechnical parameters are well represented in the project resource and exploration drilling. A focused geotechnical drilling program was competed to target areas of concern identified in the drill logs. This geotechnical sampling program was managed by Geotech International, and supervised by PSM. Results from this work indicate waste rock types with various geotechnical strength, ranging from 20MPa in the strongly oxidised surface material to 94MPa in the deeper fresh zone. This preliminary analysis indicates that sufficient water rock will be available for IWL construction.

6.2.4 Tailings Characterisation

6.2.4.1 Geotechnical Testing

Tailings material has been characterised through a range of bench scale tests and classifies as low to medium sandy silt with clay. Metso-Outotec completed a series of static and dynamic thickening tests, as well as pressure filtration to assist in the design and selection of equipment for the tailings thickening and filtration plant. This testing indicated that a filter cake of 16.6% moisture (w/w) could be achieved, with the resulting cake presented in Figure 6-4 below.

Figure 6-4, Tailings Filter Cake (16.6% moisture, w/w)

Further geotechnical test-work was completed on the cake, to better understand the suitability of a dry stack tailings facility. The tests were positive, but due to climatic conditions and the potential for major re-wetting events, BSX and Golder decided to pursue a co-placement strategy where the filtered tailings would be placed with waste rock to increase the geotechnical competency, trafficability and operability.

6.2.4.2 Geochemical Testing

Geochemical characterisation of the tailings included static acid base accounting (ABA) and multielement assay. The ABA tests indicated that DSS the tailings had low Maximum Potential Acidity (MPA) of 6 kg H_2SO_4/t and high Acid Neutralisation Capacity (ANC) of 401 kg H_2SO_4/t, giving a strongly negative Net Acid Producing Potential (NAPP).

6.2.5 Integrated Waste Landform Design

6.2.5.1 General

The TKNP IWL will be built to store both mine waste produced from the Ban Phuc open pit mine, and filtered tailings from the TKNP Concentrator. Waste will be used to build an embankment behind which filtered, dry-stacked tailings will be stored. Waste rock will be co-placed with the filtered tailings to improve trafficability in periods of high rainfall, and to increase the overall geotechnical strength of the design.

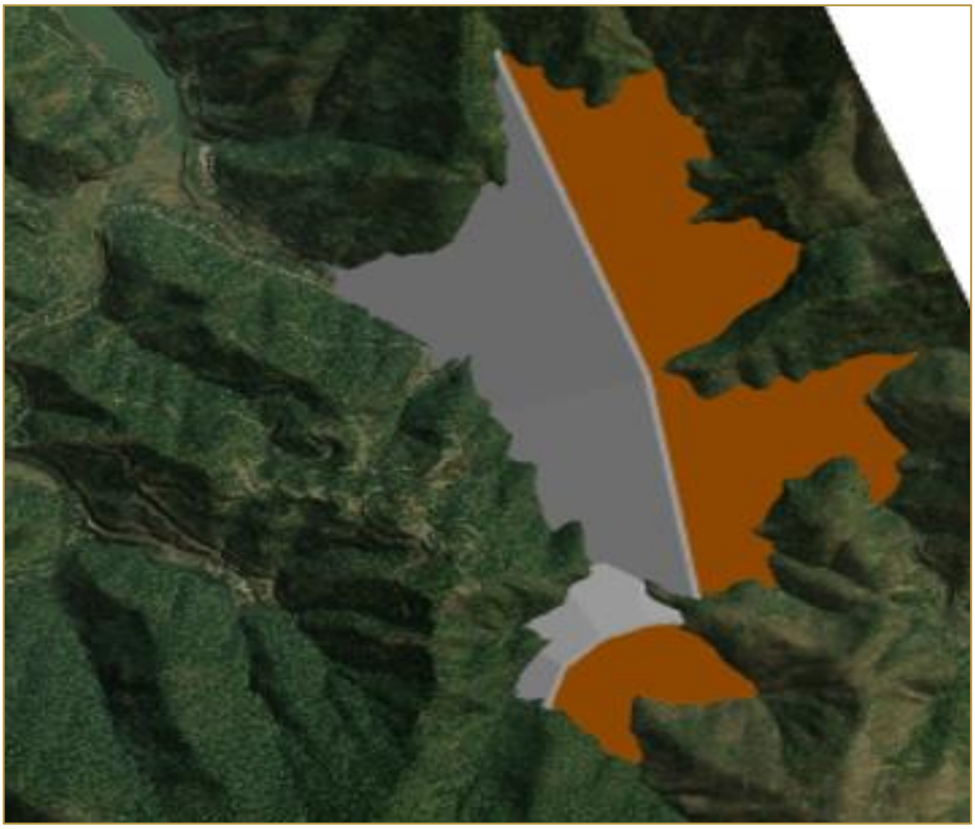

Figure 6-5, Final IWL shape prior to closure

6.2.5.2 Stage Development

The IWL will be constructed in stages:

- Prior to commencement of IWL construction, the existing BPNM TSF 1 will be drained and capped
- The first stage of development (Year 0 to Year 2) involves the placement of oxide waste rock to form containing embankments for future tailings and waste placement, a buttress to the existing TSF 1 embankment and a level pad above and around the existing TSF 1 dam.
- The second stage (Year 3 to Year 11) of development involves the placement of tailings and waste rock in the containment areas. Rock drains will be extended across the landform footprint.
- Stage 3 will be closure and rehabilitation of the IWL (Year 12 +)

6.2.5.3 Geometry and Zoning

The IWL has been designed with a 2.5:1 slope in order to comply with anticipated minimum requirement for a closed landform slope, and the outer wall is characterised by a 26m wide running crest. The downstream edge of the running crest is used for a tip head for waste dumping, while the upstream face will undergo active construction of an engineered transition / filter wall which will be progressively raised with the co-placed mixture of tailings and rock. An example section is presented in Figure 6-6 below.

The IWL will be broken up into several zones:

- Zone 1: General Waste Rock (forming the waste rock buttress)
- Zone 2: Transition Zone (20m wide select waste rock placed in thin or continuous lifts from year 5 onwards
- Zone 3: Co-placed tailings and Waste rock
- Zone 4: Encapsulated PAF waste cell

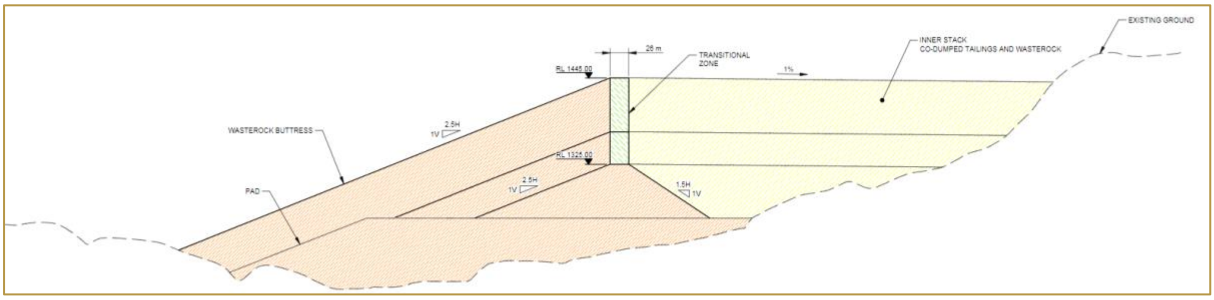

Figure 6-6, IWL design section, including transition/ filter zone

6.2.5.4 Stability

Two-dimensional (2D) limit equilibrium analyses were undertaken to assess stability of three key cross-sections of the IWL, modelled under static and post-seismic conditions using the Rocscience Slide2 package. Modelling results were assessed against acceptability criteria required by both the ANCOLD tailings dam guidelines and the CSIRO guidelines for high consequence category waste dumps. An example of the modelled section is summarised below in Figure 6-7.

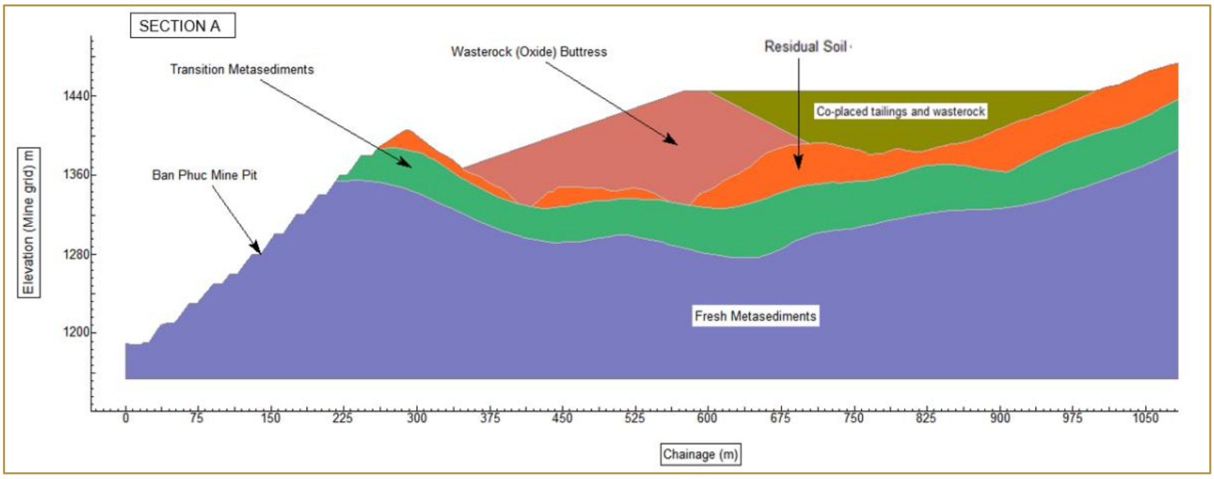

Figure 6-7, Typical Stability model for Section A

Outcomes from the stability modelling indicate that all modelled scenarios comply with the minimum acceptability criteria, but key areas for further investigation include the geotechnical characteristics of the closed BPNM TSF 1, the in-situ conditions of the surface /sub-surface soils. These risks will be mitigated in the DFS though a rigorous site geotechnical program. The modelling also indicated sensitivity to adopted phreatic conditions, and the degree of saturation in the lower parts of the dump. This will be addressed through the DFS, with detailed seepage modelling and underdrainage design.

6.3 Power Supply

Power supply to the TKNP will be provided by a 110kV line which would tie-in to the 110kV line between the 220kV Son La HV substation and Hang Dong hydropower dams (line no 179), belonging to the Xuan Thien Hydro Power Company. BSX will engage with government agencies, power companies to get the required approvals in next phase of the project. The current line capacity is 120MW. BSX will construct a new HV Substation for stepdown on site

6.4 Other Key Infrastructure

Other project infrastructure will include:

- Site Buildings
- Mining Office
- Integrated Mine and Mill Control Building
- General and Administration Office
- Processing Office
- Fire and Emergency Services combined with First aid and Doctors rooms

- Warehouse and Warehouse Yard
- Roads and Site Access
- Water Supply
- Site Water Management
- Refurbishment and expansion of existing accommodation
- Sewage Disposal and Solid Waste
- Site Communications
- Security

7 CAPITAL COSTS

7.1 Capital Cost Summary

The TKNP PFS capital cost estimate (Capex) has been completed to a AACE Class 4 (±25%) level of accuracy. A summary of the total Capital for the Base Case is presented in Table 7-1.

Table 7-1, Summary of Capital Costs

WBS	Area Description	Capital Cost (US$M)
01000	Mining	71
02000	Beneficiation Plant	145
04000	On Site Infrastructure	14
05000	Offsite Infrastructure	0
06000	Construction Indirects	15
07000	Project Delivery	27
08000	Owner's Costs	46
09000	Provisions (inc Contingency)	45
	Total Preproduction Capital	**363**

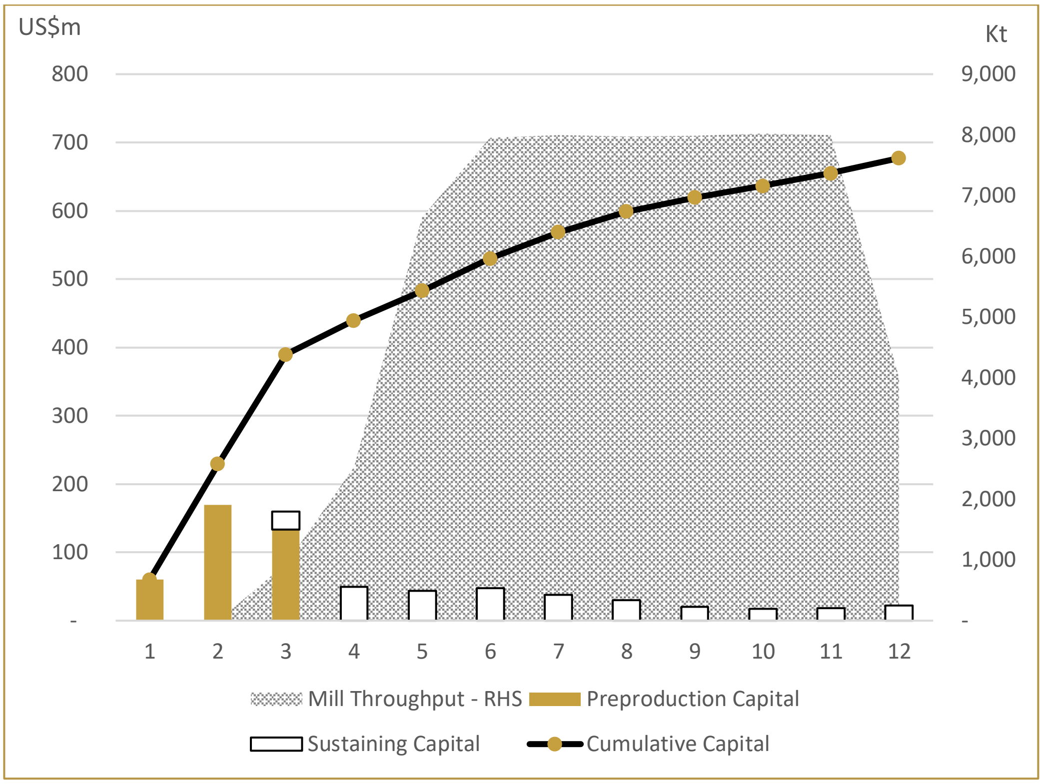

Figure 7-1, Life of Mine Capital Program

7.2 Basis of Capital Cost and Accuracy

7.2.1 Estimating Method

The capital cost estimate for the TKR and associated infrastructure has been developed to a Class 4 (±25%) level, in alignment with the AACE Cost Estimate Classification System, as applied in the Mining and Mineral Processing Industries (47R-11).

Pricing for supply and transportation of mechanical equipment was primarily (96%) based on vendor pricing and to a much lesser extent (4%) on CPC inhouse database.

Mechanical installation costs are based on an estimated number of hours per item. The estimated hours are derived from the relevant engineers construction experience. Installation rates were based on preliminary pricing received from Northern Vietnamese contractors.

Preliminary material take-offs (MTO's) were completed for the earthworks, civil and structural steel disciplines. These MTO's were based on the TKNP plant layout and preliminary 3D model.

Piping, Electrical, instrumentation and controls costs were factored in line with the AusIMM Class 4 estimate guidelines.

Additional direct and indirect costs are assessed on a mix of consultant experience and a factored basis from the total project estimate. All owners costs are based on a first principals build-up.

7.2.2 AACE Class 4 Estimate Maturity Matrix

Table 7-2 below summarises the requirements for a AACE Class 4 capital estimate, and the relevant detail achieved by BSX in the Study to support this estimate.

Table 7-2, AACE Class 4 Estimate Maturity Matrix

Deliverable	AACE Class 4	Achieved	Comment
General Project Data			
Project Scope Description	Preliminary	Preliminary	Project scope well understood, some details to be confirmed
Mine and Plant Production/Facility Capacity	Preliminary	Preliminary	Multiple throughputs considered, will be finalised before DFS
Plant Location	Approximate	Specific	Plant location specified, final layout to be confirmed in DFS
Soil & Hydrology	Preliminary	Preliminary	Modelling base don historical and desktop studies
Resource Determination	Indicated	Indicated	Indicated forms the majority of the project basis
Reserve Determination	Probable	Probable	
Geology	Preliminary	Defined	Given the knowledge generated from the historical works, geology is well understood
Geotechnical and Rock Mechanics	Preliminary	Preliminary	Preliminary test work based on drilling key areas of concern
Metallurgical Testwork	Preliminary	Preliminary	Preliminary flowsheet supported by PFS level test work
Integrated Project Plan	Preliminary	Preliminary	Xxx
Project Master Schedule	Preliminary	Preliminary	
Life of Mine Plan / Schedule	Preliminary	Preliminary	Multiple schedules developed, supported with haulage simulation
Initial Mine Access (Roads, tunnels, shafts, water management, waste management, etc.)	Preliminary	Preliminary	All planned site roads designed and incorporated into planning
Operations Layout (UG Design, Waste Dumps, Roads, water management, waste management etc.)	Preliminary	Preliminary	
Escalation Strategy	Preliminary	Preliminary	
Work Breakdown Structure	Preliminary	Preliminary	
Project Code of Accounts	Preliminary	Preliminary	
Contracting Strategy	Assumed	Assumed	
Mine (development & production equipment etc.)	Preliminary	Preliminary	
Non-Process Facilities (Infrastructure, ports, pipelines, power transmission etc.)	Preliminary	Preliminary	
Engineering Deliverables			
Block Flow Diagrams	P/C	C	
Plot Plans	S/P	P	Supported by preliminary 3D models
Process Flow Diagrams	P	P	
Utility Flow Diagrams	S/P	S	
Piping & Instrumentation Diagrams	S/P	S	
Heat & Mass Balances	S/P	P	
Process Equipment List	S/P	P	
Utility Equipment List	S/P	P	
Electrical SLD's	S/P	P	
Specifications & Datasheets	S	S	

General Equipment Arrangement Drawings	S	P	3D model
Spare Parts Listings			N/A
Mechanical Discipline Drawings			N/A
Electrical Discipline Drawings			N/A
Instrumentation/Control Drawings			N/A
Civil/Structural Architectural Discipline drawings		P	Preliminary earthworks drawings and modeling complete for detailed MTO

Notes: None (Blank): Development of Deliverables has not begun
Started (S): Work on deliverable has begun. Development is typically limited to sketches, rough outlines, or similar levels of early completion
Preliminary (P): Work on the deliverable is advanced. Interim cross-functional reviews have usually been conducted. Development may be near completion except for final reviews and approvals.
Complete (C): The deliverable has been reviewed and approved as appropriate

8 OPERATING COSTS

8.1 Operating Cost Summary

Operating costs (C1 Cash Costs) and capital invested to sustain operations over the TKNP life of mine (LOM) are summarised below.

Table 8-1, Project Life of Mine All – in Sustaining Costs

Life of Mine All-in-Sustaining Costs	US$m LOM	US$ / t Ni	US$ / t Mill Feed
Open Pit Mining	418	2,775	6.48
Underground Mining	97	641	1.50
Processing	635	4,213	9.84
Integrated Land Waste Reform	103	680	1.59
G&A	55	365	0.85
Royalties	194	1,288	3.01
Cash Costs	**1,501**	**9,962**	**23.27**
Capitalised Waste Movements	72	477	1.11
Sustaining Capital	236	1,569	3.66
Mine Rehab - Closure	9	62	0.14
All - in - Sustaining Costs	**1,819**	**12,069**	**28.19**

A further breakdown of costs for mining, processing, integrated waste land reform (IWL) and G&A are presented below.

Table 8-2, Life of Mine Open Pit Mining Costs

Open Pit Mining Costs	US$m LOM	US$/ BCM	US$/ Tonne	US$/Tonne OP Mill Feed
Cash Costs	418	4.61	1.72	6.69
Capitalised Waste Movements	50	0.56	0.21	0.81
Sustaining Capital	175	1.93	0.72	2.80
All-in-Sustaining Costs	644	7.10	2.65	10.30

Table 8-3, Life of Mine Underground Mining Costs

Underground Mining Cost	US$m LOM	US$/Tonne UG Mill Feed
Cash Costs	97	48.0
Capitalised Waste Movements	22	10.7
Sustaining Capital	22	10.7
All-in-Sustaining Costs	140	69.4

Table 8-4, Life of Mine Processing Costs

Processing Costs	US$m LOM	US$/Tonne Milled	US$/ Concentrate Tonne
Cash Costs	635	9.84	337.1
Sustaining Capital	25	0.39	13.3
All-in-Sustaining Costs	660	10.23	350.3

Table 8-5 Life of Mine IWL Operating Costs

Integrated Waste Land Reform	US$m LOM	US$/ Tonne Milled	US$/ Concentrate Tonne
Cash Cost	103	1.59	54
Sustaining Capital	14	0.21	7
All-in-Sustaining Costs	116	1.80	62

Table 8-6, Life of Mine G&A Costs

G&A	US$m LOM	US$/ Ore Tonne	US$/ Concentrate Tonne
G&A	70	1.08	37.0
Transfer Capitalised Prepdn G&A Costs	-15	-0.23	-7.8
Cash Costs	55	0.85	29.2

8.2 Basis of Operating Cost

8.2.1 Mining and IWL

Open pit mining, underground mining and IWL costs were developed on a first principles basis, with costs allocated to the various cost areas. Monthly LOM physicals were used to drive the periodical operating costs, and LOM productivities were as per the LOM plan.

Labour

Labour rates, including relevant on-costs were provided by BSX. These rates were based on recent benchmarking by Navigos, a Vietnamese recruitment agency, and BPNM experience. Labour schedule was based on the LOM Schedule and fleet requirements.

Equipment Purchases

Fleet sizing was discussed in Section 3. Vehicle unit costs were based on either the OG equipment database, or OEM pricing.

Consumables

Operating consumables quantities were based on the LOM physicals and the OG &Golder experience. Consumable supply prices were received from Vietnamese suppliers where possible, utilised the historical BPNM costs, or based on OG or Golder database pricing.

Dynamic Charging Infrastructure

All supply and installation costs for the BluVein Hammer dynamic charging infrastructure were provided by BluVein based on their preliminary design study for the TKNP.

Capitalised Operating Costs

All mining costs incurred prior to first production have been capitalised and are reflected in the capital costs above in Section 0.

Contractor Costing

Mining costs were developed from first principles, with underlying modelling assuming an owner-operator basis. To determine rates under a contractor mining scenario, a margin (reflecting current market conditions) was applied to the base owner-operator costs. All mining equipment and infrastructure charges (amortisation of purchase costs), after the commencement of first concentrate production, is classified as sustaining capital.

Other

Other costs including but not limited to power (for infrastructure), mine management and supervision, maintenance and grade control were estimated using conventional means.

8.2.2 Processing

Process operating costs were developed on a first principles basis by CPC. The operating cost estimate was developed as a matrix of cost type and expenditure area. The following key inputs form the basis of the operation cost estimate:

- Electrical power draw quantities derived from the mechanical equipment lists, based on utilisation and expected demand. The unit power cost was supplied by BSX with an expectation of grid supplied power (110kV) from utility group 'Vietnam Electricity'.
- Reagent consumption based on quantities from CPC database of similar projects, design criteria and mass balancing. Reagent unit costs supplied by BSX via local Vietnamese vendors.
- Comminution wear items based on CPC database of similar projects and vendor specifications.
- Maintenance consumables costs factored based on CPC database of similar projects.
- Labour costs were provided by BSX. Labour costs are based on historical costs from the Ban Phuc process plant located on the Ta Khoa project site and recent benchmarking activities.
- Administration costs include vehicles. Administration rates based on manning schedules and rates provided by BSX and

CPC database rates where not available in the BSX provided rates.

- Concentrate transport pricing has been sourced by local vendors via BSX with a single quotation for haulage of concentrate on a dollar per wet tonne basis.

Labour

Manning schedules were developed for Processing and General & Administration labour, with expatriate support limited to several key senior roles including:

- Metallurgy Manager and Maintenance Superintendent.
- Plant Foreman and Senior Metallurgists.
- 8 Area Trainers including Fixed Plant, Operations, Electrical and Instrumentation.

Shift work was based upon:

- Four panel shift with a round the clock operation and 8 hour shifts.
- 3 Team lead and leading hands per shift.
- Plant area operators per shift (control room, grinding, flotation, tailings and dewatering).
- A limited number of fitters may move from day services to shift as the project progresses.

Local Labour – Day Shift Support Staff:

- Day shift only, 8-10 hour shifts are likely with numbers below stated as totals.
- Labourers (reagents, general labour and trainees, field operators).
- 12 Mobile equipment operators per shift (forklift, crane, excavators).
- 15 Support staff per shift (plant metallurgists, translators, document control and clerks).

Local Labour – Maintenance Support Staff:

- Day shift only, 8-10 hour shifts are likely with numbers below stated as totals.
- 3 Maintenance planners.
- Discipline engineers (electrical, mechanical, civil and automation).
- Mechanical fitters including 3 trainees.
- Mobile mechanics including 3 trainees.
- 19 Electrical and instrumentation including 3 trainees.
- various employees (boilermakers, riggers, plumbers and handymen).

Site Administration

The site specific administrative labour cost estimate is based on:

Expatriate Labour:

- 1 General Manager.
- 3 Area Managers (Environmental, Procurement, Occupational Health and Safety).

Local Labour:

- 6 Occupational Health and Safety.
- 5 Environmental and Community Relations.
- 4 IT and General Administration.
- Warehousing.
- 29 support staff (camp support, gardeners, cleaners).

The employee on-costs are allocated to general and administration include the following:

- Expatriate flights and accommodation associated with commuting.
- Annual bonuses.
- Direct taxes.
- Leave and other statutory allowances

Power

Power consumption is based on the load list developed from the mechanical equipment lists accounting for load and motor efficiency factors, and equipment utilisation. Reference should be made to the load list/mechanical list.

Maintenance

With the exception of major service consumables (liners etc.) and allowances for reline contracting teams, maintenance costs have been factored from CAPEX according to CPC's database of similar projects.

Reagents and Consumables

Reagent and other supply costs were gathered from suppliers and CPC's database of similar projects, consumption has been calculated based on the PDC. Consumables such as crusher liners and, mill liners are included.

Concentrate Transport

Concentrate haulage is included in the TKR operating costs. This operating cost includes allowance for loading into containers.

Other Processing

Other processing cost included:

- metallurgical testwork
- shift assays
- contract relines and general maintenance
- technical consultants
- minor consumables
- vehicles

9 PROJECT ECONOMICS

9.1 General

The primary objective of the TKNP is to provide high levels of reliability and security of nickel supply for the TKR. As such, a valuation of the TKNP, integrated with the TKR (collectively the "Ta Khoa Project") has been prepared.

The integrated valuation for the Ta Khoa Project, which includes value ascribed to the TKR, relies on technical parameters announced to the ASX on 26 July 2021 – "Blackstone Delivers Exceptional Downstream PFS Results." Parameters that have been updated since this announcement, which primarily relate to concentrate feed profile and macroeconomic assumptions have been detailed in this report.

9.2 Basis of TNKP and TKR Integration

The key physicals for the Integrated Ta Khoa Project include:

- First concentrate production from the TKNP achieved in 2025 ramping up to nameplate design of 8.0Mtpa achieved in 2027

- TKNP steady state average annual nickel output (recovered in concentrate) of ~18ktpa (refer Figure 9-1)
- TKNP steady state average annual concentrate production of ~225ktpa
- Integrated Ta Khoa Project modelled assuming a life-of-operation for the TKR of 10.3 years
    - TKR steady state refining capacity of 400ktpa, with first production of NCM811 Precursor commencing in early 2025
    - ~50% of total concentrate supply from the TKNP, resulting in some stockpiling of TKNP concentrate and refinery – life extension

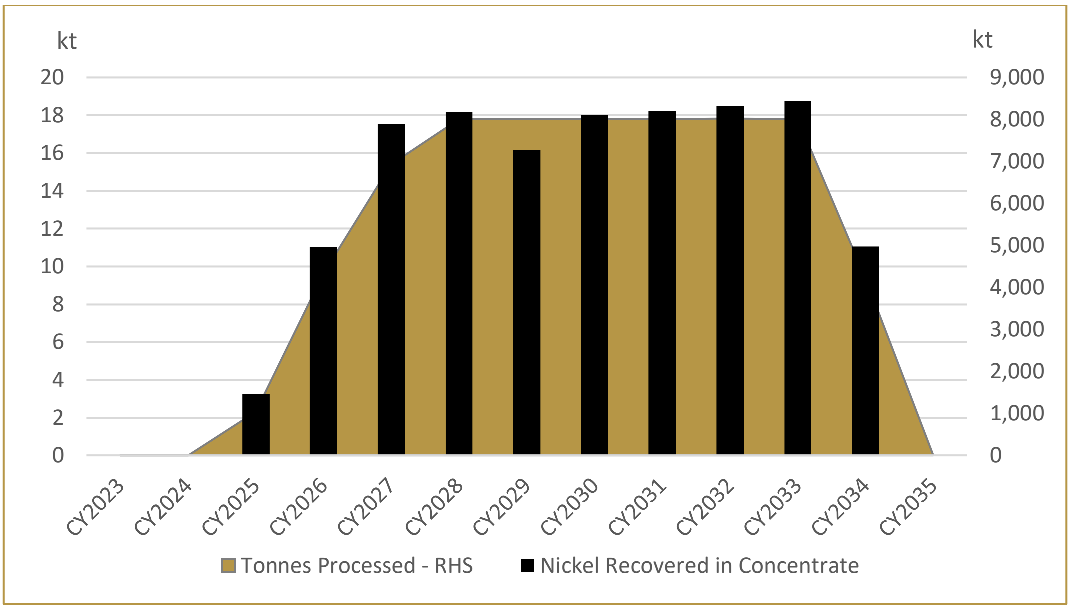

Figure 9-1, TKNP Processing Throughput and Nickel Recovered in Concentrate Profile

Compared to the TKR PFS previously completed for the TKR (July 2021), this study has resulted in a higher proportion of concentrate feed for the TKR being sourced from the TKNP (refer Figure 9-2).

The total concentrate feed and life of the refinery TKR has increased to ~4.0Mt of concentrate feed over 10.3 years (previously 3.9Mt of concentrate over 10 years). Additional feed from the TKNP feed has displaced a portion of feed previously assumed to be supplied by 3PF.

Indicative quantities and concentrate specifications have been received from 3PF concentrate suppliers / partners have been included in the integrated Ta Khoa Project valuation. Based on current confidential discussions, BSX is confident it can secure sufficient supply to meet the feed concentrate requirements.

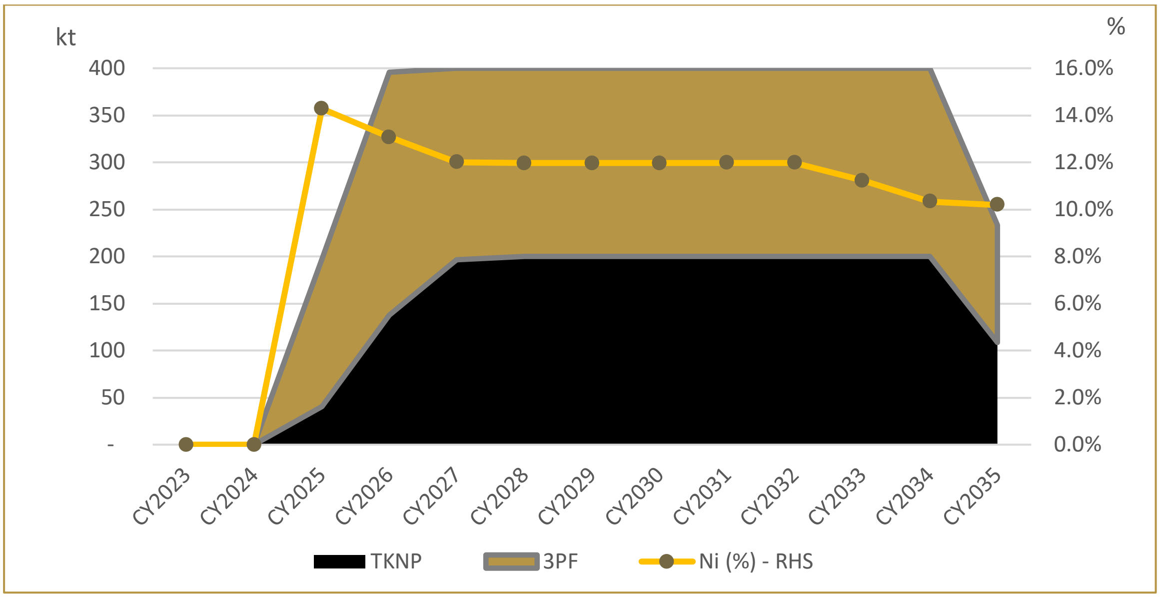

Figure 9-2, TKR Concentrate Feed Profile

9.3 Macroeconomic Assumptions

9.3.1 Commodity Prices

Blackstone considered a range of forecast information, from multiple credible sources, to determine appropriate commodity prices to use in the evaluation of the Ta Khoa Project. A summary of the key commodity price assumptions assumed in the Ta Khoa Project valuation is summarised in Table 9-1.

Table 9-1, Metal Price Assumptions (weighted average over total operations)

Metal Price Assumption	Unit	BASE
NCM811 Precursor	US$/t	17,670
Nickel Metal	US$/t	20,000
Cobalt Metal	US$/t	65,768
Cobalt Sulfate (21%)	US$/t	13,659
Manganese Sulfate (32%)	US$/t	1,427
Copper Cathode	US$/t	10,000

Note

- The Base Case price assumption for nickel metal and copper cathode have been referenced from Bloomberg Consensus data
- The Base Case price assumptions for cobalt metal and cobalt sulfate have been referenced from Benchmark Mineral Intelligence (BMI)
- The Base Case Manganese Sulfate price assumption is based on spot prices referenced from SMM
- A 20% premium has been applied to determine NCM811 Precursor Price, a full explanation of BSX applied methodology is contained in the ASX announcement dated 26 July 2021

9.3.1.1 Nickel

In selecting the nickel price for this study, the Company considered data from Benchmark Minerals Intelligence (BMI), Bloomberg Consensus data and the nickel price trend over the past 18 months.

Blackstone selected the long-term Bloomberg consensus data forecast of US$20,000/t Nickel as the base case. Blackstone's selected base case nickel metal price is compared against historical nickel metal prices and BMI's forecast in Figure 9-3.

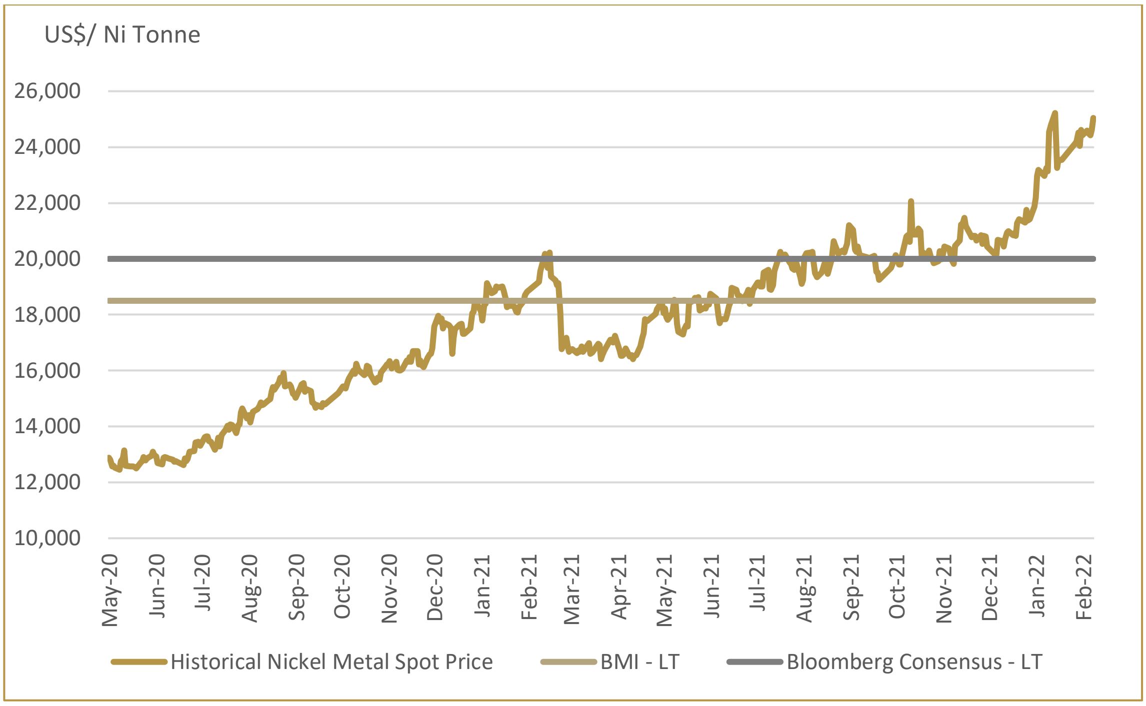

Figure 9-3, Historical Nickel Metal Prices vs Forecast Data

9.3.1.2 Cobalt

The Cobalt price forecast used in this study was based on data provided by BMI. The applied Cobalt price over the life of the Ta Khoa Project is shown in Figure 9-4.

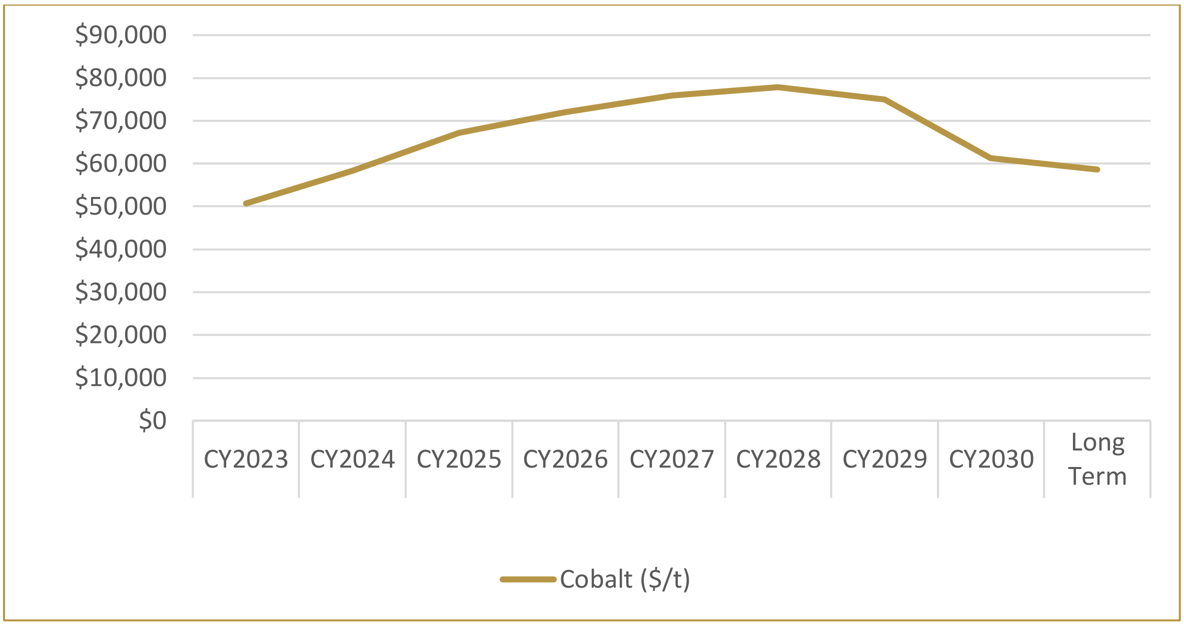

Figure 9-4, Cobalt Metal Price Forecast (BMI)

9.3.2 Concentrate Payability

Payable Nickel in concentrate is determined by a range of factors and is generally positively correlated with concentrate nickel grade and the nickel price. The prevailing market conditions with respect to the supply and demand for concentrate by smelters and refineries is also important in the payability determination.

Other metals in a nickel concentrate, including copper, cobalt, gold and PGE metals may be payable, subject to the respective elements meeting certain grade threshold. Both the threshold and payability of these metals are subject to negotiation and are considered commercially sensitive.

9.3.3 Penalties

Certain deleterious elements, including Magnesium oxide, Arsenic and Lead, could result in lower operational efficiency of the TKR and result in elevated levels of potential hazardous material accumulating in the refinery waste stream.

The TKR is a hydrometallurgical refinery and has a higher tolerance of deleterious elements when compared to conventional pyrometallurgical smelters / refineries. While additional metallurgical testwork and environmental studies is required to determine rejection thresholds, BSX believes the current concentrate specifications received to date, particularly on a blended basis, are well below rejection threshold for the proposed refinery.

BLACKSTONE MINERALS

9.4 Basis of Valuation

A financial model assessing real post-tax unleveraged free cash flows of the integrated Ta Khoa Project has been prepared for evaluation of project economics. A monthly model resolution has been deemed appropriate by BSX to fully evaluate the timing of upfront capital expenditure, to reflect an appropriate ramp up of mining activity, concentrate and NCM811 Precursor production, and suitably capture variations in concentrate feed composition.

A breakdown of the TKNP open pit and underground mining inventory is provided in Figure 9-5 and Figure 9-6. The total mining inventory includes 64.5Mt at a grade of 0.41% Ni for 264 kt Nickel.

- 76% of mill feed over the LOM is in the probable Reserve category (refer Section 3.2.1 of this report for further details)

The financial model assumes a start date and valuation date of 1 March 2023 and does not include pre-commitment costs that will be expended by BSX prior to a Final Investment Decision (FID).

Other Assumptions

BSX considers a real project level post-tax discount rate of 8% applied to value the integrated Ta Khoa Project to be reasonable. A review of recent broker reports and several recent similar studies published on the ASX have also adopted a real project level post-tax discount rate of 8%.

Tax has been modelled for the TKNP and TKR individually, given that both of these assets have different applicable tax regimes. The TKNP is subject to a 20% corporate tax rate and the TKR has significant corporate tax incentives available (refer ASX announcement 26 July 2021).

Similarly, capital expenditure has been depreciated for the TKNP and TKR individually. Depreciation for mining equipment has been expensed based on useful life. All other capital has been depreciated on a units of production (UoP) basis. For example, the TKNP 8Mtpa beneficiation plant has been depreciated based on the nickel recovered in concentrate profile over the LOM. For the TKR, processing plant infrastructure has been depreciated based on the NCM811 Precursor profile over the life of the refinery.

9.5 Physicals and Valuation Summary

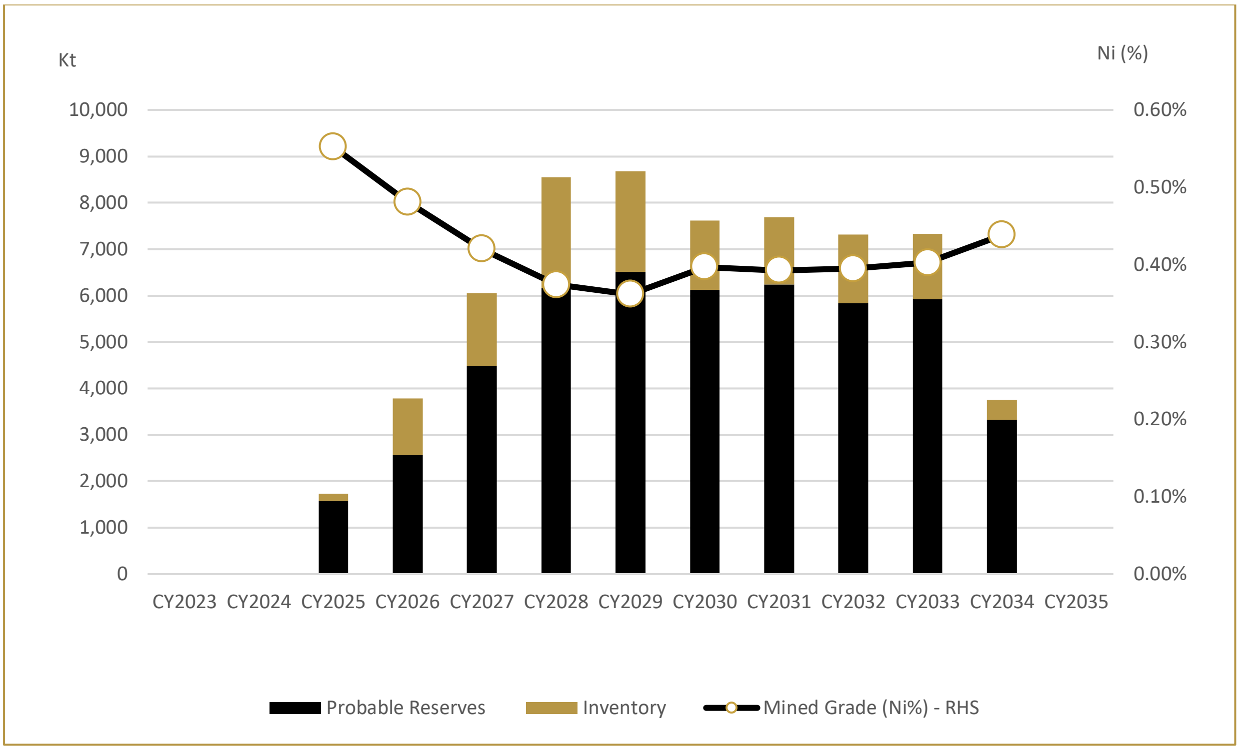

Figure 9-5, Ban Phuc Open Pit Mining Schedule (Ore Tonnes)

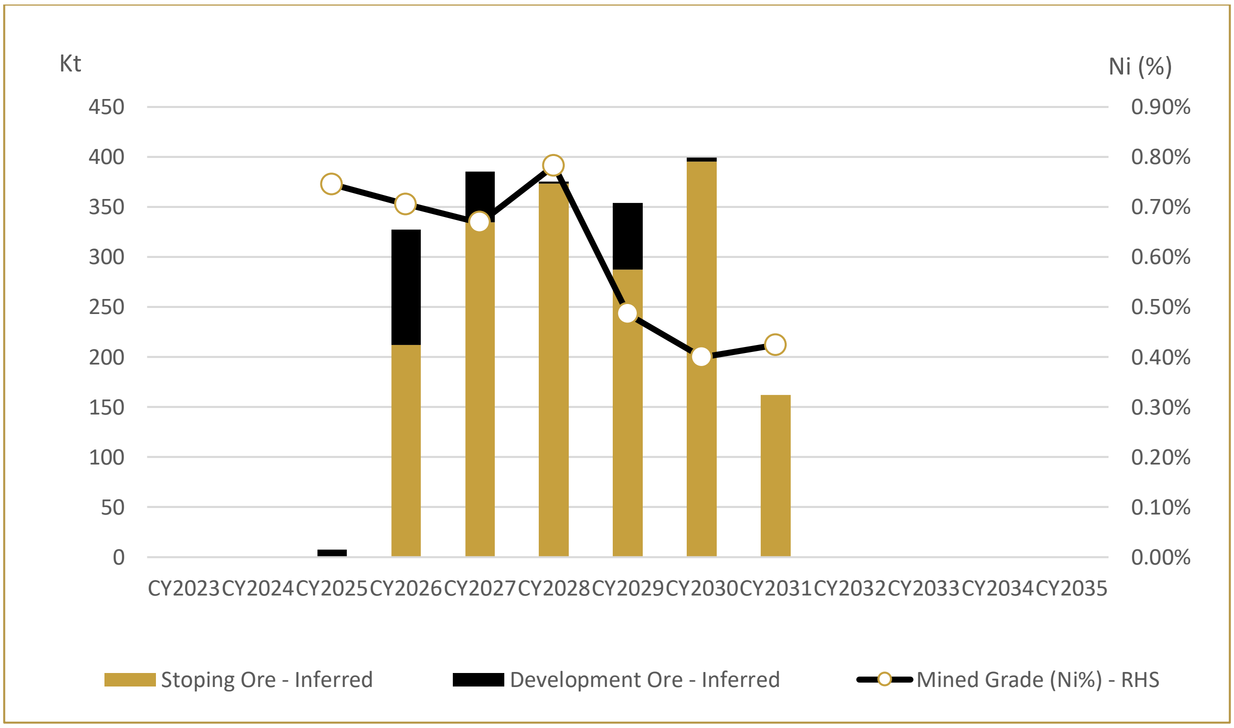

Figure 9-6, Underground Mining Schedule (Ore Tonnes)

BLACKSTONE MINERALS

Table 9-2, TKNP Physicals

TKNP – Life-of-Mine Physicals	Unit	Base Case
Open Pit Mining Inventory:		
Ore Tonnes Mined	kt	62,516
Strip Ratio (including pre-strip)	W:O	2.9
Nickel Grade	% Ni	0.40%
Contained Nickel	**kt**	**252**
Underground Mining Inventory		
Ore Tonnes mined	kt	2,011
Nickel Grade	% Ni	0.59%
Contained Nickel	**kt**	**12**
Nickel in Concentrate Production:		
Processing Plant - Design Throughput	Mtpa	8
Tonnes Processed	kt	64,527
Average Nickel Grade Processed	% Ni	0.41%
Metallurgical Recovery - Nickel	%	57%
Nickel Recovered in Concentrate	**kt**	**151**
Avg Annual Nickel Recovered in Concentrate	**kt**	**16.4**
Concentrate Tonnes	kt	1,884
Nickel in Concentrate Grade	% Ni	8.00%

Table 9-3, TKR Physicals

TKR – Life-of-Operations Physicals	Unit	Base Case
Processing Plant Capacity	ktpa	400
Life of Refinery	yrs	10.33
Concentrate Feed	kt	4,026
Ni in Concentrate Grade	%	11.9%
Co in Concentrate Grade	%	0.34%
Cu in Concentrate Grade	%	0.81%
Metallurgical Recovery - Ni into NCM Precursor Product	%	96.8%
Metallurgical Recovery - Co into NCM Precursor Product	%	96.7%
Metallurgical Recovery - Cu into Copper Cathode	%	93.1%
NCM811 Precursor Production Breakdown:		
Nickel recovered in NCM Precursor Product	kt	462
Cobalt recovered in NCM Precursor Product	kt	13
Cobalt make-up Quantities	kt	45
Manganese	kt	54
Hydroxide	kt	335
Total NCM811 Precursor Production	**kt**	**909**
Average Annual NCM811 Precursor Production	**ktpa**	**88.7**
Average Annual Refined Nickel Output	**ktpa**	**44.7**

Table 9-4, Ta Khoa Project Economic Outcomes

Ta Khoa Project Economic Outcomes	Unit	BASE
Revenue - Sale of NCM811 Precursor	US$m	16,063
NCM811 Precursor Price (avg realised)	US$/t NCM811	17,670
C1 Cash Costs	US$/t NCM811	11,616
All-in Sustaining Cost	US$/t NCM811	12,253
All-in Cost	US$/t NCM811	13,192
Avg Annual Operating Cash Flow	US$mpa	533
Operating Cash Flow	US$m	5,503
TKNP Net Cash Flow (Pre-tax)	US$m	584
TKR Net Cash Flow (Pre-tax)	US$m	3,487
Net Cash Flow (Pre-tax)	**US$m**	**4,070**
Net Cash Flow (Post-tax)	**US$m**	**3,845**
Post-tax NPV (8% real)	**US$m**	**1,986**
IRR (Post-tax)	**%**	**47%**
Capital Payback Period - from first production	**years**	**1.8**

9.6 Cashflow Profile

Figure 9-7 illustrates the total capital expenditure profile (pre-production + sustaining) over the life-of the Ta Khoa Project. Figure 9-8 demonstrates a maximum cash drawdown for the Ta Khoa Project of ~US$771m, with capital invested upfront being paid back in 1.8 years of the TKR commencing production of NCM Precursor.

A summary of annual project cash flows for the Ta Khoa Project are summarised in Table 9-5.

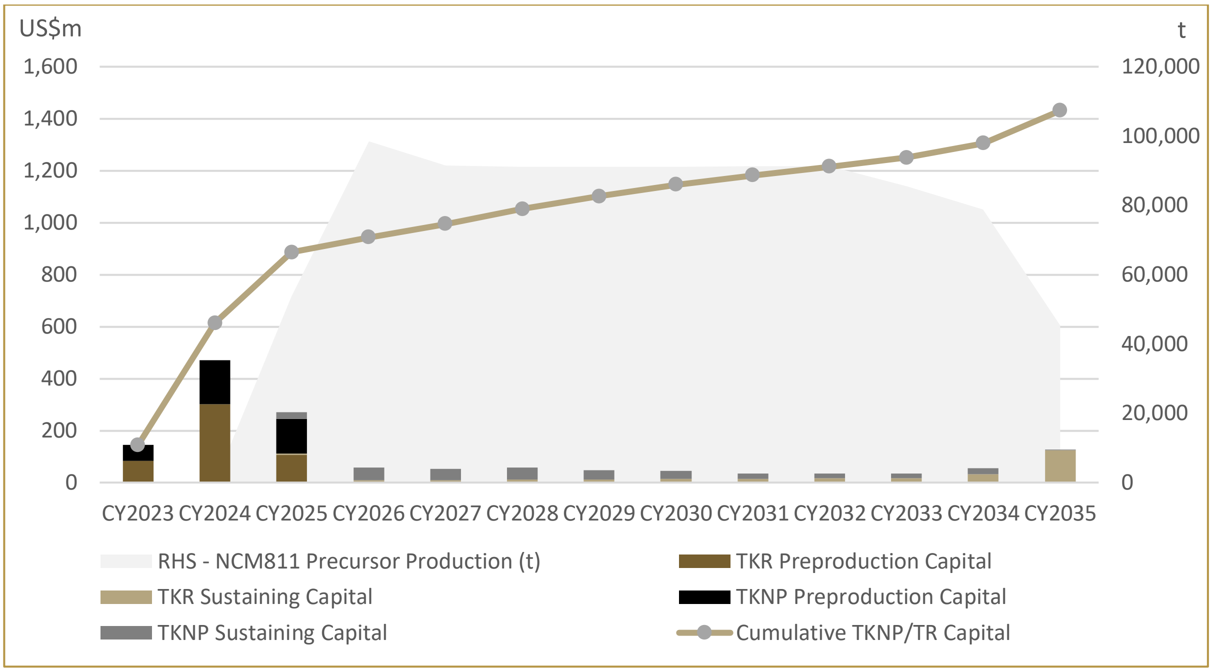

Figure 9-7, Integrated Ta Khoa Project Capital Expenditure Profile

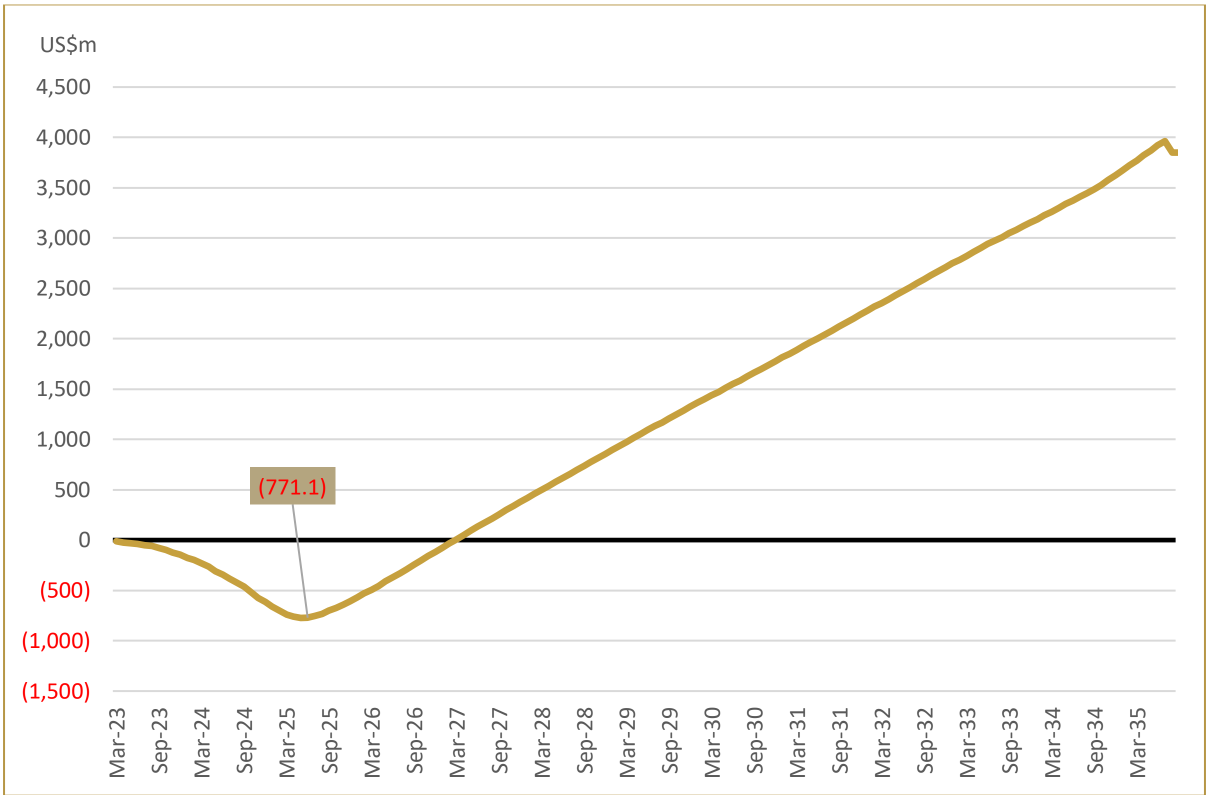

Figure 9-8, Cumulative Ta Khoa Project Post-tax Cash Flows

Table 9-5, Ta Khoa Project Cashflows (US$M)

TA KHOA PROJECT CASH FLOWS (US$M)	TOTAL	CY23	CY24	CY25	CY26	CY27	CY28	CY29	CY30	CY31	CY32	CY33	CY34	CY35
NCM811 Revenue	16,063	-	-	953	1,784	1,684	1,692	1,672	1,577	1,559	1,560	1,461	1,346	774
Less TKNP Operating Costs:														
Open Pit Mining	418	-	-	10	37	49	65	69	52	39	35	37	27	-
Underground Mining	97	-	-	2	22	19	16	17	13	7	-	-	-	-
Processing	635	-	-	13	50	69	76	76	76	76	76	76	47	-
G&A	55	-	-	2	6	6	6	6	6	6	6	6	5	-
IWL	103	-	-	2	7	10	12	13	13	13	13	13	7	-
Royalties (Net of Transfers to Prepdn Capital)	194	-	-	4	19	22	25	25	23	22	21	21	11	-
Less: TKR Operating Costs:														
Purchase of 3PF Nickel and Cobalt in Concentrate	5,212	-	-	396	650	515	507	508	507	507	507	463	408	244
Cobalt sulphate heptahydrate [Battery Grade]	2,917	-	-	182	356	341	345	331	271	260	263	238	210	119
Manganese sulphate monohydrate [Battery Grade]	241	-	-	14	26	24	24	24	24	24	24	23	21	12
Reagents	321	-	-	20	31	31	31	31	31	31	31	31	31	18
Power	240	-	-	15	23	23	23	23	23	23	23	23	23	15
Maintenance	179	-	-	11	17	17	17	17	17	17	17	17	17	11
Labour	30	-	-	2	3	3	3	3	3	3	3	3	3	2
Logistics	114	-	-	7	13	11	11	11	11	11	11	11	11	6
G&A	28	-	-	2	3	3	3	3	3	3	3	3	3	2
Residue Storage	19	-	-	1	2	2	2	2	2	2	2	2	2	1
By Product Credits - Copper	-243	-	-	-10	-30	-27	-27	-24	-20	-18	-15	-21	-30	-20
Operating Cash Flows	5,503	-	-	281	549	565	552	537	521	531	538	515	550	364
Less:														
Pre-production Capital (Integrated Ta Khoa Project)	854	144	470	239	-	-	-	-	-	-	-	-	-	-
Sustaining Capital (Integrated Ta Khoa Project)	579	-	-	31	58	52	58	49	45	35	34	35	54	126
Tax (Integrated Ta Khoa Project)	225	-	-	1	4	18	13	18	28	33	35	33	26	15
Post-tax Project Level Cash Flows	**3,845**	**(144)**	**(470)**	**9**	**487**	**495**	**481**	**470**	**448**	**463**	**469**	**446**	**470**	**223**

9.7 Option Analysis – Diesel or Electric Fleet

As part of this study, Blackstone considered the economic trade-off between utilising an electric vs diesel haulage fleet for mining at the TKNP.

It was determined that there was a marginal improvement to the profitability of the TKNP when utilising an electric haulage fleet with increased capital cost being offset by a reduction in operating costs.

The higher capital costs relate not only to haulage fleet, but additional blue vein rail infrastructure and charging systems. The operating cost saving is primarily driven by low-cost renewable hydropower available in northern Vietnam, and to a lesser extent, reduced maintenance costs over the life -of mine.

The incremental changes to the capital and operating cost profile when utilising an electric versus diesel haulage fleet are summarised in Table 9-6.

Table 9-6, Electric vs Diesel Haulage Fleet Comparison

	Delta over life-of – mine (US$m)
Haulage Fleet Equipment Charges	~ +US$40m
Upfront Blue Vein Rail Infrastructure and Charging Stations	~ +US$13m
Substitute Diesel with Renewable Hydropower	~ (US$48m)
Maintenance Cost Benefit	~ (US$12m)

9.8 Sensitivities

BSX has performed a sensitivity analysis on key value drivers for the Ta Khoa Project. The valuation outcomes for each sensitivity input is assessed assuming all other parameters remain unchanged.

Figure 9-9 illustrates the range of valuation outcomes (post-tax) NPV for the integrated Ta Khoa project, based on sensitivity ranges applied to key inputs into the economic model.

Table 9-7 describes the sensitivity of the Ta Khoa Project to changes in the NCM811 Precursor premium applied, as well as the cost of purchasing nickel in concentrate (driven by nickel concentrate payability). The value of the integrated Ta Khoa project is most impacted by changes to the NCM811 Precursor premium applied, nickel metal price, nickel in concentrate payability and metal recovered from the TKNP

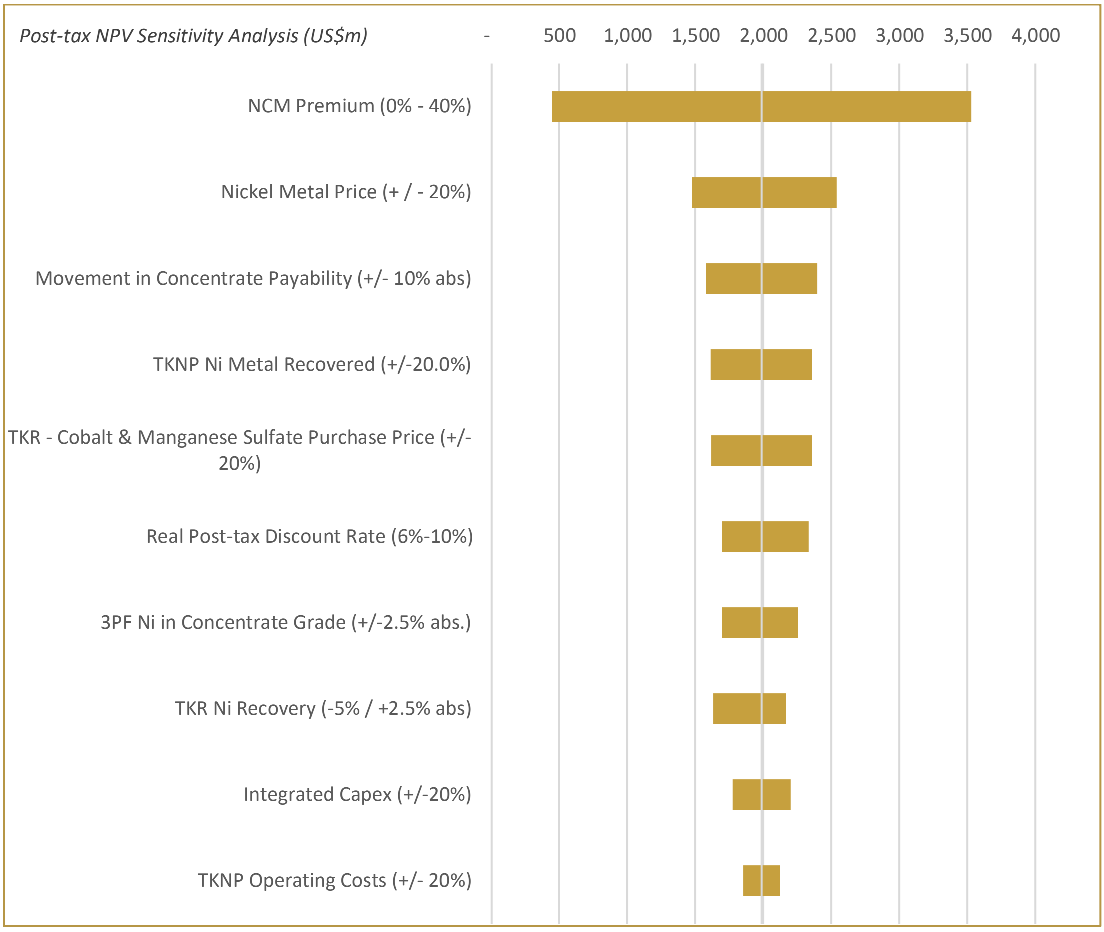

Figure 9-9, Base Case Tornado Sensitivity Analysis

Table 9-7, Base Case Two-Way Sensitivity Table, NCM811 vs Ni Concentrate Payability

Post-tax NPV (US$m) Sensitivity Analysis		NCM Precursor Price (US$/ t NCM 811)				
	Premium	*0%*	*10%*	*20%*	*30%*	*40%*
		14,725	16,197	17,670	19,142	20,615
Movement in Nickel Concentrate Payability %	-10.0%	853	1,625	2,397	3,169	3,941
	-5.0%	648	1,420	2,191	2,963	3,735
	0.0%	441	1,214	1,986	2,758	3,530
	5.0%	233	1,009	1,780	2,552	3,324
	10.0%	25	803	1,574	2,346	3,118

The value of the integrated Ta Khoa project is most impacted by changes to the NCM811 Precursor premium applied, TKNP nickel concentrate grade, nickel metal price and nickel in concentrate payability.

9.9 Project Financing

Blackstone intends to fund the TKNP via a combination of equity and debt and has engaged Korea Development Bank (KDB) and BurnVoir Corporate Finance (BV) (refer ASX announcement 26 August 2021) as debt advisors. Initial discussions held with potential financial institutions performed by KDB and BV have shown positive interest for considering debt funding of the Ta Khoa Project. Financial analysis shows that, based on the PFS assumptions and production profile, the Ta Khoa Project can sufficiently support typical debt funding requirements for the upfront capital spend.

10 PERMITTING AND ENVIRONMENT

10.1 Project Permitting

10.1.1 Existing Permits

BSX currently holds:

- Approval for EIA of the MSV mine and the processing Plant;
- Approval for ERRP of the MSV mine and the processing Plant;
- Certification for completion of environmental protection works for MSV mine and a processing plant with capacity of 360,000 tonnes per year;
- Water discharge permit for project
- Hazardous waste register book

10.1.2 Permitting Plan

The TKNP area is located within Son La Province, where BPNM has operated previously and has historically obtained all required licences for permitting for a MSV mine and a processing plant with capacity of 360,000 tons per year.

Mining of other deposits in the current exploration license and investing in a new concentrator will need further permits and licenses. The list of outstanding permits / licenses are described in Table 10-1 below, with the most critical being the Mining License(s) itself. BSX will coordinate with local consultants working with Vietnamese government at district, province and central level to obtain necessary licenses and permits for the project to operate.

BSX's approach to the project is in keeping with its existing method of operating within the area: one of environmental compliance, community investment, and partnership with the local communities and government authorities.

BLACKSTONE MINERALS

Table 10-1, TKNP Permit Requirements

Permit / Licence	Issued / Approved by	Description	Requirements	Duration of approval
Amend the provincial development plan and National Minerals Development Master Plan	Prime Minister	The 8Mtpa upgrade concentrator needs to be reported to the province and MOIT to include in the master plan.	A project proposal is required to submit for review.	6 months
Land use registration	Province's People council	The project needs to use extra land areas, BSX need to submit land use plan to get approval from Son La people council.	Submit land use plan (include maps and explanation) to Bac Yen district.	1 month
Revision of Investment Certificate (IC)	Son La people committee	The current BPNM IC is limited to 360,000 tons per year, this will be revised to align with the new throughput.	A proposal is required to submit and review.	2 months
Reserves approval	National reserves council	Exploration results (reserves and resources calculation) need to be appraised and approved by National Reserves Council and approved results need to be registered with National Storage Centre.	Exploration report is required to submit and review.	4 months
Vietnamese Feasibility Study Approval	MOIT	Separate from the BSX DFS process, this a standard requirement in Vietnam for Project approval, and will be completed independently of the ongoing DFS.	Provide all technical aspects of BSX's pre-feasibility studies and assessment of its alinement with the national and local plans.	3 months
EIA/ ERRP Approval	MONRE	The EIA Approval is supported by an EIA process that is developed in accordance with Vietnamese laws.	The EIA includes the assessment of impacts of the upgraded project on the surrounding environmental, social and economic conditions.	3 months
Mining License approval	MONRE	This step includes the submission of all approval for EIA, FS and reserve.	Mining licence grand fees will be calculated by GDGM based on approved reserves, a payment for 30% of total MLGF is required.	2 months
Land Use Certificate	Son La People's Committee	BSX will submit application for land rental through BPNM. Based on Mining approval the area and rental time will be determined. Bac Yen district will setup a resettlement and compensation council, BPNM will nominate a person to attend.	BSX will advance compensation fee and those expenses will be offset for annual land rental fee.	4 months
Mine design/ technical design	MOIT	This step includes the submission of all design documents related to the mine and the upgraded concentrators.	All design documentation.	2 months
Firefighting System Approval	Son La Provincial Police	Required for compliance with firefighting laws.	Submission of firefighting system design.	1 month
Construction permit	Son La DOC	Construction permit is required for major site construction activities, but preliminary works can commence ahead of this including earthworks, road development and infrastructure.	Approval for firefighting system and technical design are requested.	1 month

10.2 Physical Environment

A weather monitoring station was established at Bac Yen (Latitude: 21°15', Longitude104°25') in 2010 as part of the previous EIA and mine operation. This station has monitored weather conditions daily from 2010 till today with the monthly results for the full ten years 2010 to 2020 summarised below in Figure 10-1 through Figure 10-4. Temperature and humidity is based on the monthly average, where rainfall and evaporation is based on the monthly total.

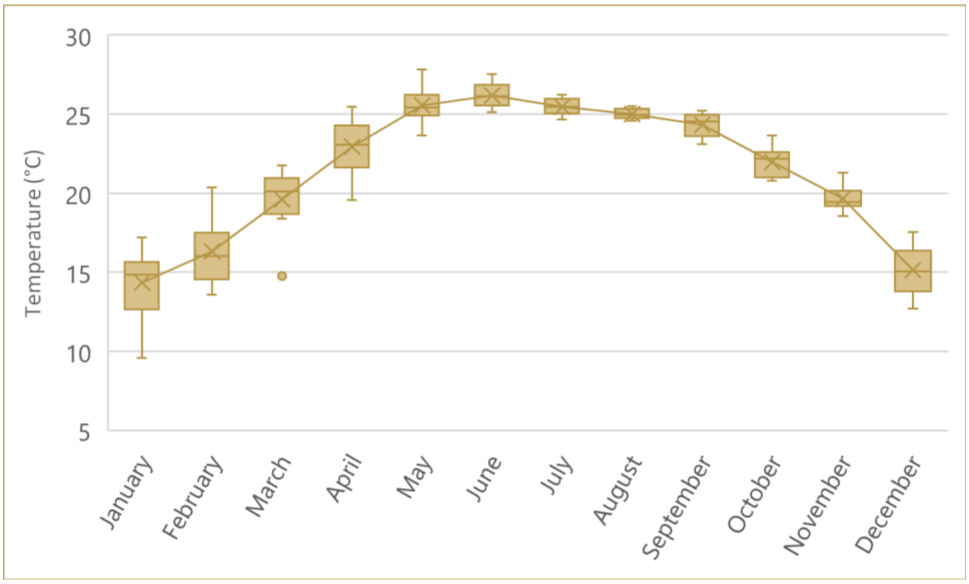

Figure 10-1, Bac Yen Monthly Average Temperature Recordings 2010-2020

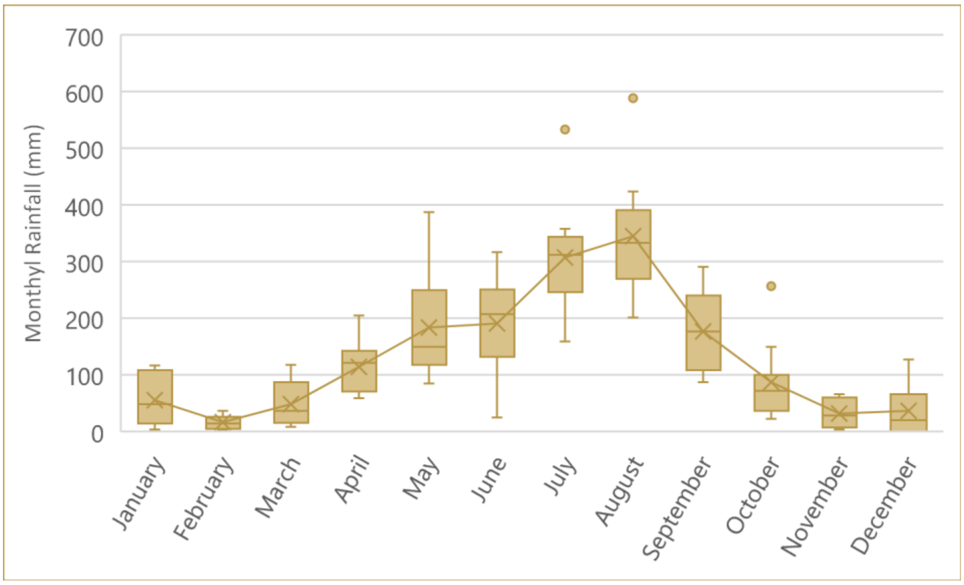

Figure 10-2, Bac Yen Monthly Total Rainfall Recordings 2010-2020

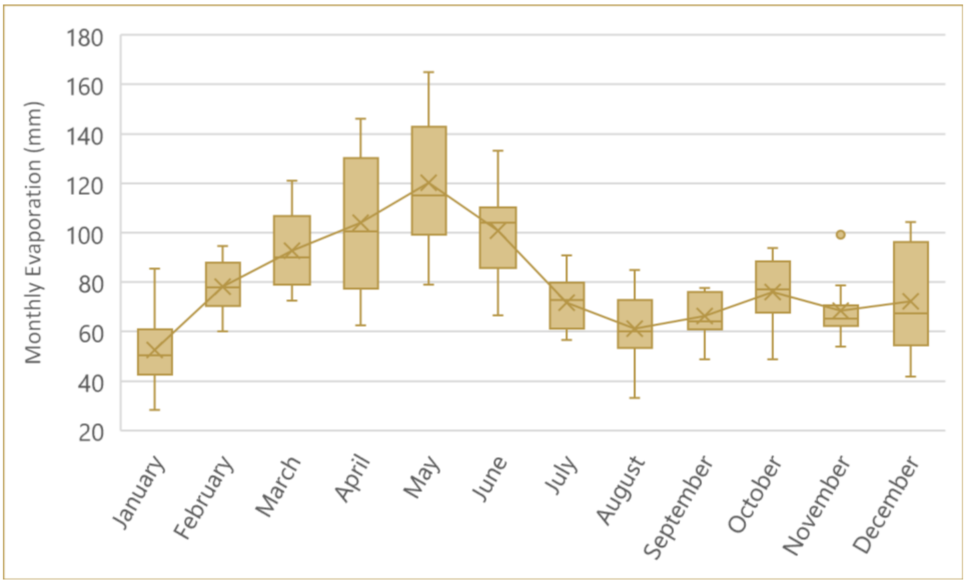

Figure 10-3, Bac Yen Monthly Total Evaporation Recordings 2010-2020

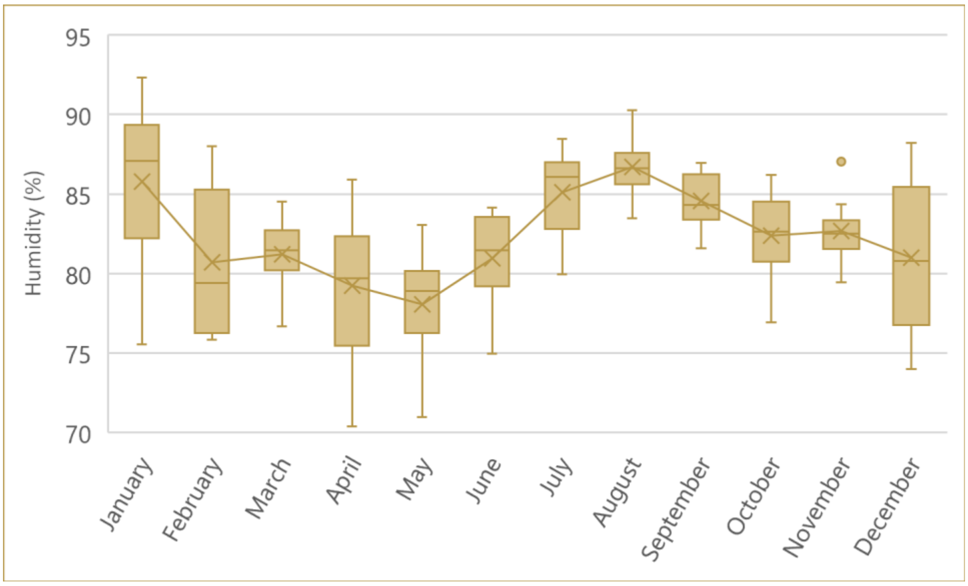

Figure 10-4, Bac Yen Monthly Average Humidity Recordings 2010-2020

10.3 Biological Environment

10.3.1 Previous Environmental Baseline Studies

The following studies were previously completed by BPNM and it's consultants when seeking approval for the existing MSV operation:

- Social environmental impact assessment implemented by AARC in 2006;
- Health and environmental management strategy, implemented by ERM in 2008

- Social- economic study phase 1 implemented by Mekong Economic in 2008;
- EIA study implemented by GEMINCO in 2014
- ERRP iimplemented by GEMINCO in 2014.

10.3.2 Existing EIA Report (2014)

Flora, fauna and biodiversity study was completed in 2014 as part of the Environmental Impact Assessment of the MSV project. BSX will engage local consultants to implement further surveys in the first quarter of 2022 for the expanded TKNP. Results of the 2014 report are summarised below.

10.3.3 Flora

The survey undertaken on the flora and fauna resulted in the identification of 464 species belonging to 325 genera, 113 families of five vascular phyla.

As a representation of the entire Vietnamese flora variety, the flora in the Project Area comprises 4% of total species, 14.3% of total families, and 83.3% of total phyla. The flora in the Project area contains 16 geographic elements out of 20 geographic elements of Vietnam flora. The element richest in species is the Indochina element with 119 species, making up 25.6% of total species of the flora, the next rich in species is tropical Asia element with 95 species (20.4%). India element ranks third with 59 species (12.7%); the fourth rank is Southern China element with 55 species (11.8%).

10.3.3.1 Natural flora

In the TKNP area and its vicinity there are 4 identified forest populations, namely Secondary Forest Regrowth, Scattered Timber and Shrub Intergrowth, Bamboo Forest with dominant Denrocalamus sericeus and Savannah. Description of each population is as follows:

Secondary Regrowth Forest Ecosystem

The regrowing secondary forest takes up 60-65% and have been formed and developed after destruction of virgin forest by human activities. This ecosystem is characterised by the broad-leaved evergreen secondary vegetation constituting four storeys and defined by the presence of the Lagerstroemia calyculata that remains untouched in Ban Trang. Species identified in this population are Ebenaceae, Leguminaceae and Meliaceae.

Intergrowing Scattered Timber and Shrub Ecosystem

The Shrub ecosystem is characterized by a light-like vanguard tree community, developing strongly, and being adaptable to frequent fire conditions. The most prevalent forms of trees are Macaranga denticulata, Mallotus apelta, M. paniculatus, Trema orientalis, Grewra paniculata and others. Besides the vanguard tree community, the Shrub ecosystem also includes some herbaceous plants and climbers.

Bamboo Forest with Dominant, Denrocalamus sericeus Ecosystem

The canopy of a Bamboo forest is thick, especially Dendrocalamus sericeus forest. Therefore, under the forest canopy, few other tree species can survive. Besides Bambusa bambos and Neohouzeua dulloa being frequently found, Dendrocalamus sericeus is the dominate species in the Project Area. In the North western highland area in general, and in Son La in particular, Dendrocalamus sericeus ranks first in terms of area and volume.

Savannah Ecosystem

The two major species of herbs in the Project Area are Imperta cyndrica, and Apluda mutica. The average height of this species is from 1-1.5 m, whilst it forms in dense clumps. In Imperta savannah, there are also some other timber species that were identified, such as Aporosa dioica, Wendlandia gabra, Liquidambar formasana, Memecylon edule, and Cratoxylon cochinchinesis.

10.3.3.2 Endemic and Rare Species

The flora in the Project Area has five endemic and rare species to be protected and are listed in Vietnam Red Book issued by IUCN such as Ot lan; Tai chuot, Cuong vang, Bo beo trang, Lat hoa, La khoi rung. (See Table 10-2)

Table 10-2, List of Endemic and Rare Species in the Project Area

Vietnamese name	Scientific Name	Vietnam Red IUCN	Commentation
Ot lan	Ervatamia hoaensis Ly	Non classification	Bac bo endemic
Tai chuot	Dischidia acuminata Cost	Non classification	Vietnam endemic
Cuong vang, bo beo trang	Ganphandra mollis Merr	Non classification	Vietnam endemic
Lat hoa	Chukrasia tabularis A.Jus	Vietnam Red Book	Insufficiently known
La khoi rung	Ardisia silvestris Pit	Vietnam Red Book	Vulnerable

10.3.3.3 Useful Species

The Project Area includes 328 species (comprising 70.6% of total species) that are used for different purposes such as Medicine, Timber, Human food, and Ornament. Medicinal Plant group accounts for the largest number of species, 178 species (accounting for 38.3% of total species), the next is Timber group with 93 species (20%), the third is Human Foods group with 8 species (18.7%), and Ornamental Plant group with 45 species (9.6%). The other groups include Essential oil group (13 species); Fibre group (8 species); and Resin group (6 species). The poorest in species is handicraft material group with only 5 species.

Phytoplankton

Analysis of the collected specimens has identified 51 phytoplankton species belonging to 3 alga phyla which are Bacillariophyta with 26 species (representing 50.9% of total number of species), Chlorophyta (18 species, 35.3%), and Cyanophyta (7 species, 13.8%).

In the Bacillariophyta group, Melsira gennus contributes six species, Synedra four species, and Gomphonema three species. Other genera each contribute one to two species. In Chlorophyta group, both Pediastrum and Spyrogyna contribute four species each, other genera contribute one to two species each. In Cyanophyta, Oscillatoria genus contributes the highest number of species among three.

Through analysis showed phytoplankton density average 444,254 cells per litre of water, has branches in Bacillariophyta accounted for 99% of the density of marine plankton. The composition of aquatic plant species live in the project area are shown in Table 10-3.

Table 10-3, Aquatic plant species in the project area

TT	Species	Number	The average density
First	Aquatic plant plankton algae belong to third generation	51 species	444 254 cells / liter
-	Bacillariophyta cos	26 species	
-	Chlorophyta	18 species	
-	Cyanophyta	5. species	

10.3.4 Fauna

10.3.4.1 Land animals

Rare animals listed in the 2000 Vietnam Red Book include Macaca mulatta, Gekko gecko, Ptyas korros, Bungarus fasciatus, Naja naja, Cuora trifasciata and Pelodiscus sinensis (see Table 10-4).

Table 10-4, List of Rare Animal Species in the Project Area

Vietnamese name	Scientific Name	Commentation
Khi vang	Macaca mulatta	Threatened (IUCN)
Tac ke	Gekko gecko	Threatened (Red Book*)
Ran rao thuong	Ptyas korros	Threatened (Red Book)
Ran cap nong	Bungarus fasciatus	Threatened (Red Book)
Ran ho mang	Naja naja	Threatened (Red Book)
Rua hop ba vach	Cuora trifasciata	Vulnerable (Red Book)
Ba ba tron	Pelodiscus sinensis	Vulnerable (Red Book and IUCN**)

10.3.4.2 Mammals

According to the 2014 EIA Study, there are 13 mammal species belonging to 10 genera and 7 families present in the Project Area. Rare endangered animals include Macaca mulatta. Besides mammals, there are birds, reptiles and amphibians.

- Birds: there are 32 bird species belonging to 23 genera and 18 families;
- Reptiles: in the Project Area, there are 10 reptile species belonging to 9 genera and 6 families. Of the 10 species, 6 are listed in the Vietnam Red Book, namely Gekko gecko, Ptyas korros, Bungarus fasciatus, Naja naja, Cuora trifasciata and Pelodiscus sinensis.
- Amphibian: There are total 9 amphibian species belonging to 5 genera and 5 families, of which none was identified in the Vietnam Red Book or IUCN Red Book.

10.3.4.3 Aquatic Communities

Project is located in lake-bed of Da River in the Hong River System. During the 2014 survey, there was the appearance of some species of fish, benthos and plankton in the project area.

Fish Species

Through specimen collection and survey, 36 fish species have been identified. Fish species belong to 12 families, the largest is Cyprinidea with 18 species. Gobiidae family includes three species, other families include only one to three species. Of the 36 fish species, 6 are listed in the Vietnam Red Book of Endangered Animals (see Table 10-5).

Table 10-5, Fish Species Listed in Vietnam Red Book

No.	Name	Status
1.	Bagarius bagarius	Vulnerable
2.	Ophiocephalus striatus	Threatened
3.	Hemibagrus elongatus	Vulnerable
4.	Cranoglanis sinensis	Vulnerable
5.	Clupanodon thrissa	Vulnerable
6.	Spinibarbus caldwelli	Vulnerable

Zooplankton

The research has identified 28 plankton species and phyla including 13 species belonging to Cladocera, 10 species belonging to Copepoda and five other groups including Ostracoda, Chironomidae, Tricoptera, Plecoptera, and Alevin.

The average density of zooplankton in the Project Area is 2,618 animals/m3. The dominated species include Diaphanosoma leuchtenbergianum, and D. sarri belonging to Cladocera. Microcyclo varicans, and Eucyclo serrulatus belong to Copepoda; larva and insect species belonging to Chironomidae and Tricoptera are species of wide distribution.

Zoobenthos

The study has identified 16 benthos species with the density of 16.3spec/ m2. These species belong to Mollusca and include class Gastropoda contributing four species, Class Bivalvia three species, class Crustacea five species, and other groups four specie.

10.3.5 Protected Areas

10.3.5.1 Forestry Areas

Protection forests is a type of forest mainly used to protect water sources, protect soil, prevent erosion, combat desertification, limit natural disasters, regulate climate, contribute to environmental protection. Protected forests are managed by Ministry of Agriculture and Rural Development (MARD) but are allocated to organizations individuals to protect and develop in compliance with the laws on forestry protection. Access for development and industrial purposes would require approval by the Prime Minister. Protected forestry areas are abundant in the greater Muong Khoa area, but as indicated by the pink shapes in Figure 10-5 below, there is no protected forestry land within the TKNP footprint.

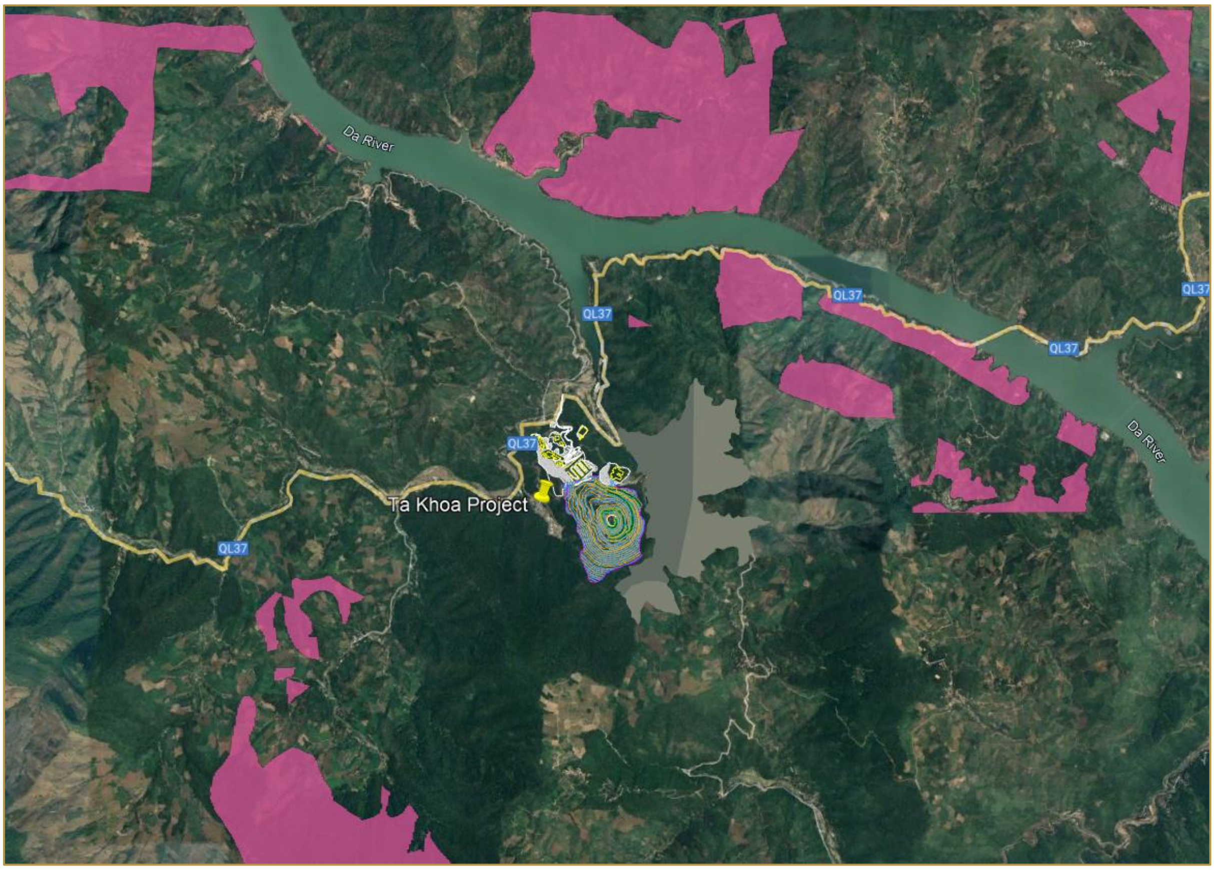

Figure 10-5, Protected forestry Area

10.4 Social and Community Impacts

10.4.1 Description of the Socio-Economic Environment

The Project is located near Ban Phuc Village, in the Muong Khoa Commune of Bac Yen District in Son La Province, approximately 160 km from Hanoi, in the north-west of Vietnam. The nearest towns are Hat Lot, approximately 30 km to the north-west and Bac Yen, approximately 25 km to the east. The nearest major population centre is the provincial capital Son La, approximately 55 km to the north-west.

Road access to Ban Phuc Village is by way of Son Tay, Thanh Son, Phu Yen, Bac Yen and the Ta Khoa Bridge over the Da River with a travelling time of six hours from Hanoi on a fair to good, paved road.

10.4.2 Population and Affected Communities

Muong Khoa Commune has a total land area of 5,964 ha, of which 1,442 ha is farmed and 3,071 ha is forest area.

The terrain in the Project Area is rugged, ranging from steeply sloping hills to narrow river valleys with limited flat areas. There are sections of clear running streams/creeks, that contain waterfalls and stony passes. The mountainous areas are covered predominantly with forestry, rainforest areas, and some agricultural areas in the higher mountains interspersed with native vegetation. Some of the lower slopes have been cleared for shifting agriculture. The river valleys are typically cleared for rice cultivation along the creeks and rivers, with fishponds in streams along the alluvial slopes.

The Commune has 8 villages (2 upland and 6 lowland), a current population of 5,139 in 1,157 households.

Upland Villages: Ban Pa No and Ban Khoc B

Lowland Villages: Ban Chen, Ban Pot, Ban Phuc, Ban Khoa, Ban Trang, Ban Suoi Tang

Thai ethnic group accounts for 80.2%; Kinh 3.4%; Muong 5.7%; Mong 10.2%; Kho Mu 0.5%. The average income is 34,100,000 VND/person.

Ban Phuc village is one of the lowland villages and is the closest to the Project Area. The other lowland villages in the vicinity are Ban Khoa/Ban Pho, Ban Chang and Ban Pot.

Table 10-6, Local Village Populations

	#Households	#People	#Male	#Female	#Working Age
Ban Khoa	283	1122	553	569	478
Ban Phuc	237	955	465	490	232
Ban Trang	92	439	213	226	122
Ban Pot	82	368	183	185	111

10.4.3 Local Economy

The economy of Muong Khoa is based on agriculture, with the Ban Phuc Nickel Mine the only substantial industrial development in the Commune.

Agricultural land use is predominantly along the valleys, hillsides and riversides with hill rice, maize and cassava being the main crops grown on steep slopes. Rice cultivation is concentrated in lowland areas adjacent to watercourses.

Trade and commercial services and activities in Muong Khoa take place at small scale as family-oriented business enterprises. Statistics collected by the Muong Khoa People's Committee show the 119 households registering small businesses, mainly in agribusiness and essential groceries.

Bac Yen District is classified as a Zone III District - determined as "Extremely Disadvantaged". Zone III is any region classified as having not have met Government defined criteria for development and are typified by a poor household rate of 15% or over. In addition, the criteria can include a large number (over 60%) of ethnic minorities amongst these poor households, with low literacy rates amongst ethnic minorities, a lack of training opportunities for over 80% of employed community members, and the road to the district centre to the commune is 20 kilometres or longer, with more than 50% lacking asphalt or concrete surfaces.

10.4.4 Education

Son La Province has 597 general education institutions with 12,828 classes (230 preschools, 97 primary schools, 146 primary-secondary schools, 81 junior high schools, 13 boarding schools for ethnic minorities, 30 high schools).

There are also 01 continuing education center, 01 university, 03 colleges, 01 intermediate school, 13 foreign language and informatics centers.

Key education statistics:

- Literacy rate of population aged 15 years and over: 78.9%
- Rate of 14-year-old children completing the primary program: 97.27%
- Rate of students graduating from junior high school who are admitted to grade 10: 70.61%
- Bac Yen District has 44 schools and the 01 continuing education centre.

10.4.5 Health

The highest-level medical facility is the 550-bed Provincial General Hospital in Son La. Bac Yen District has a District General Hospital and 16 Commune health stations, including one in Muong Khoa. The Company clinic at Ban Phuc provides limited out-patient services to local people.

Common illnesses include respiratory tract infections, digestive disorders, arthritis, diabetes, disorders caused by iodine deficiency, chronic obstructive pulmonary disease and bronchitis and hypertension. Infectious diseases recording in Son La Province include viral encephalitis, diarrhea, and chickenpox.

10.4.6 Community Engagement

The Project understands that stakeholder engagement and consultation is a vital component of the project development process and the importance of genuine consultation in the early stages of the studies. We engage with our stakeholders through multiple means ensuring concerns can be shared and addressed. Key stakeholder groups include Communities near our exploration and operations, Blackstone employees in Vietnam, Commune, Provincial and Central Government representatives, institutional and retail investors and local and global NGOs and advocacy organisations.

To date, our consultation has been conducted through:

- Community feedback through representatives on-site at Ta Khoa and through Ta Khoa's General Director
- Regular meetings with Government officials at all levels
- Materiality assessment interviews and feedback for BSX 2020 Sustainability Report
- Government permitting processes and subsequent feedback
- Media engagement and social media platforms
- Blackstone' Mailing List feedback
- Ongoing engagement with institutional and retail investors.

Given the range of stakeholders with an interest in the project, BSX considers a broad range of internal and external stakeholder concerns and feedback which is summarised below.

Table 10-7, Community Concerns

Stakeholders	Key Interests or Concern Raised	Our contribution to shared value: Social	Our contribution to shared value: Economic
Community *Communities near our exploration and operations*	Employment opportunities for local communities Local Supplier opportunities and development Training & Capacity Building Community Investment initiatives Infrastructure development and repairs Shared partnerships Social Licence Water stewardship and management Climate Change Pollution Migration and retention of local residents	Providing working conditions that respect human rights Career progression opportunities Training and development opportunities Creating a stimulating and enjoyable working environment	Community investment in infrastructure Salaries generated by employment Revenue for local goods and service providers

Table 10-8, Employee, Government and Shareholder Concerns

Stakeholders	Key Interests or Concern Raised	Our contribution to shared value: Social	Our contribution to shared value: Economic
Employees *Vietnam (site and office); Corporate; Canada*	Employment opportunities and pathways Transparency, Anti-Bribery and Corruption Community investment initiatives Employee benefits, engagement and retention Diversity and inclusion Water Stewardship and management	Providing working conditions that respect human rights Career progression opportunities Training and development opportunities Creting a stimulating and enjoyable working environment	Salaries and Employment
Government *Commune, provincial and central Government representatives in Vietnam; Australian Government*	Employment opportunities for local communities Local Supply Chain opportunities Training and Capacity Building Community Investment Initiatives Water Stewardship and management Pollution and environmental hygiene Migration and retention of local residents	Alignment of projects and business strategy to development objectives Compliance to Government E&S requirements Building the capacity of local communities within their jurisdiction and local businesses	Revenue and tax Community Investment Employment Utilising suppliers
Shareholders *Institutional and retail investors*	Climate Change Carbon Emissions reporting and plans Community Engagement and Social License Employment opportunities for local communities Local Supply Chain opportunities Financial Sustainability	Opportunities to invest in projects with a strong commitment and focus on ESG	Dividends and Company growth

As part of the materiality assessment for the 2020 Sustainability Report, key internal and external stakeholders were approached for interviews around material ESG concerns. The interview groups were diverse and included local leaders from in and around the Ban Phuc Nickel Mine site as well as residents who had expressed concerns around aspects of the mine, in addition to shareholders, Blackstone employees and Board. Four high materiality issues emerged where the significance to Blackstone and the significance to stakeholders are shared:

- Governance, transparency and ethics
- Creating a positive legacy for the community and environment
- Investment in community capacity
- Net zero emissions and contribution to a circular economy

These insights provide clear direction for the Company take into account in the design and implementation of the Project.

The ESIA, to be undertaken in parallel with the DFS, will increase the intensity of community-level consultation to meet both Vietnam government requirements and the Project's commitment to adopt best international industry practice. The specific objectives of consultation during the ESIA are to:

- Ensure that all stakeholder groups are properly informed about the Project and that there are formal and informal communication channels for these stakeholders to provide input into the ESIA and the DFS
- Ensure all stakeholder groups have a sound understanding of the Project to prevent any misunderstandings that may cause the stakeholder groups to feel excluded from the ESIA process
- Ensure all issues or concerns of the stakeholder groups are addressed during the ESIA process rather than after the report is submitted; and
- Continue to develop positive relationships with all stakeholder groups to facilitate ongoing consultation as part of the final ESIA presentation and uphold community engagement throughout the construction, operation and decommissioning stages of the Project.

As part of the information dissemination process for the ESIA, the leaders of each stakeholder group; (eg; village leaders/representatives) will continue to be consulted to assist in the design of the stakeholder engagement program, facilitate the dissemination of accurate information and aid in the provision of mechanisms to allow for open communication between the Project and all stakeholders.

The engagement and consultation program includes the following formal and informal consultation mechanisms:

- Government workshops and presentations
- Face-to-face discussions with leaders of each stakeholder group for information dissemination and issue identification and feedback
- Public consultation meetings; and
- The involvement of local community members in baseline studies.

10.4.7 Planned Social Impact Studies

Socio-economic studies will be undertaken in accordance with the Law on Environmental Protection 1993 and EIA Regulation for Investment Projects (Circular 02/2022-BTNMT) and accompanying EIA guidelines and consistent with international practice. Information will be gathered using a combination of secondary data from government and other publicly available sources, qualitative data sourced from community consultation and primary data sourced from a household-level survey questionnaire, as summarised in the table below. The information gathered will provide the baseline against which the Project will measure the effectiveness of its impact mitigation plans and the success of its socio-economic development plans.

Table 10-9, Planned Social Impact Studies

Secondary Data	Comments / Questions to be answered
• Demographic profile • Size, location, history and distribution of the population • Household composition and demographic characteristics • Socioeconomic status • Sociocultural characteristics	• Describes the characteristics of each community/settlement located within the project area including name and location of community, size, spatial distribution, land ownership patterns, ethnic composition, education levels, socioeconomic status, age and sex distribution, social and political organization, local and traditional decision-making structures, culture, religion, language, identification of key local representatives. • Includes maps of the project area that clearly delineate the location of each of the communities. • Considers both household and community levels.
Data sourced from Community Consultation	
• Quality of life of the population • Salient characteristics of social differentiation within communities	• Household and community levels. • Vulnerable groups, minority ethnic groups, religious groups and the role of women.
• Key social institutions and customary systems for decision-making	• Including customary systems for resource allocation.
• Characteristics of social organization and internal community relations	• Social mapping, kinship/lineage systems, village layout
• Local institutions and decision-making	• Including local government, non-governmental or civil society organizations and conflict resolution mechanisms.
• Natural resource management and land use • Mapping and use of common resources	• Describe the pattern of land use within the project area, clearly identifying agricultural land, forest, • hunting and fishing areas, grazing land, residential and uninhabited areas, including limitations and relative importance of these resources. • Provide details of the land registration system in the area. Who are the owners, occupiers and/or users of this land? Is land ownership communal or based on individual title? What percentage of the population occupies or uses land to which they do not have formal, legal title? • What formal or informal mechanisms exist for the distribution of land within the project area? • Special attention should be paid to land areas where title or ownership is unclear or disputed between parties. • To what degree are households dependent on access to communal land or activities related to natural resources such as hunting, fishing, grazing, gathering of forest products, etc.? • Provide maps that indicate government-owned lands, private land, communal land and land of unknown ownership.
• Relevant cultural properties and archaeological sites	• Describe any sites having archaeological (prehistoric), paleontological, historical, religious, and unique natural values. Cultural property encompasses both remains left by previous human inhabitants (for example, shrines, and battlegrounds) and unique natural environmental features (such as canyons and waterfalls).
• Livelihood systems and survival strategies • Household organization • Information on social mobility and the social division of labour • Perceptions of past, present, and future • limitations or opportunities for development • Perceptions of opportunities for sustainable development with respect to the project • Perceived project impacts and ways to mitigate them	• Describe the production systems of communities in the project area. • How do people (both men and women) make a living? What are their various sources of income and employment during the year? What types of crops are grown, and animals raised? What types of access to markets exist for these products? • What is the contribution of women, children and migrants to household income and survival? • What are the average wage levels in the area for these activities and the average income levels of these households?

Secondary Data	Comments / Questions to be answered
Primary Data sourced from household survey questionnaire	
• Demographic characteristics	• Age and sex distribution.
• Livelihoods and occupations	• Including migrant family members and remittances, by age and gender.
• Levels of education and skills	• By age and gender.
• Sources and amounts of household income	• By household member and by household type, including contributions by women, men, children and migrants.
• Land use potential • Data on household expenditures	• Quality and productivity of land and soils and other resources in both good and drought years, cropping and grazing potential and carrying capacity
• Household structures, land, and other assets	• Including crops, livestock, agricultural equipment, small enterprise equipment, etc.
• Soil, vegetation and land capability surveys • Access to health, education, and other services • Health indicators	• Consider cropping and grazing potential and livestock carrying capacity. • Consider quality of land and soils both in good years and during droughts. • Assess the existing social services and infrastructure available to communities within the project area including access to: health care, education, water supply and sanitation, waste treatment and disposal, housing, electricity, markets, transport and roads, communication, and local banking and credit facilities.
• General trends	• What are the major changes going on in the population without the project?

10.5 Closure Planning

10.5.1 General

After exhaustion of the mill feed supply, the TKNP will be closed and returned to a final state ready for return to the community. Detailed closure plans will be developed through the project DFS phase, in consultation with local communities and MONRE.

The closure objectives for the TKNP were developed based on the Project rehabilitation philosophy, which is:

To operate as a non-intrusive land user and to create a stable post mine closure consisting of rehabilitated landforms that are consistent with the surrounding physical and social environment that does not require ongoing maintenance. (Environmental and Social Impact Assessment Section 5-1, 2014)

The main objective is to produce landforms that are safe, stable and nonpolluting that can be integrated into the surrounding environments and land management practices. Taking in to account important considerations:

- The land within the Project Area is to be used by local communities for subsistence farming; and
- The need to rehabilitate the land to a post mine land use that will allow for sustainable use of the land by the local community/and or the return of the land to its original land use within a reasonable time frame.
- This philosophy has lead to the following rehabilitation objectives for the Project Site:
- Rehabilitation will be undertaken progressively (where possible) until the mine is closed so as to minimise the potential for land and water degradation and reduce visual impact;
- Vegetation rehabilitation will be undertaken using local endemic species of the local area (where possible) that are suitable to both the physiographic and the hydrographic features of landforms;
- Endemic species of value to the local community will be used on rehabilitated areas (where possible);
- The design of post closure landforms and the selection of revegetated species will be in accordance with the accepted principals of long term sustainability;
- Site specific trials and research will be conducted to ensure that rehabilitation plans are both appropriate and feasible for all mine landforms;
- An appropriate bond for rehabilitation works being posted with the Vietnamese Government under Article 38 of the Mineral Law to ensure the quality of works post closure.

10.5.2 Open Pit Mining

It is proposed that the pit will be allowed to flood naturally with surface and/or groundwater to create a pit lake.

During mining operation, the precipitation and infiltrating groundwater will be pumped out from the mine pits and underground workings. After the dewatering pumps are switched off, the open pits and underground workings will gradually fill with water and the mined voids will be flooded with surface water or groundwater in areas where water balance is positive. Eventually, as the water table will reach decant points, it overflows and discharges into receiving water courses. Afterwards, the water table stabilizes and stays within a narrow range, responding mainly to seasonal fluctuations. The flooding can last from several months to over 100 years, depending on the open space, the availability of infiltration water and whether or not the flooding is carried out in a controlled way.

A combination of fencing, rock bunds and signage will be placed around the perimeter of the open pit as protective measures ensuring public safety with total exclusion of non authorized access.

During the operations and closure phase of the Project, geotechnical monitoring of the pit walls will be conducted monthly to verify pit wall stability. During this time, patrols would be conducted to discourage entry into areas which have been determined unsuitable for safe entrance. In addition, the geochemical model developed for the open pit would be updated as new hydrologic and rock chemistry data area collected from the Proposed Mining Area.

The geotechnical investigation considered a 10 m operating bench at the soil area and double benching in the Weathered and Fresh Ultramafic / Metasediments rock with a berm every 8 m. However, in the western area a bench height with

40 m, where the IRA is controlled by bedding dipping shallowly into the pit. The wall slope design parameters used are based on the geotechnical recommendations for inter-ramp slope angles.

10.5.3 Underground Mining

At the completion of the mine the underground workings must be closed out to prevent access from people and animals as well as to promote landscape restoration of the area.

Mine access portals will be backfilled to provide a permanent seal in accordance with regulations on mining safety. Vent raises will be capped with a properly designed reinforced concrete plug to prevent access, and appropriate signage will be placed to warn of existence of these closed openings. The areas surrounding the decline portals and vent raises will be re-graded to promote positive drainage from these areas.

Figure 10-6, Current Rehabilitation Work at former drill pad sites, Ban Phuc

10.5.4 Integrated Waste Landform

Closure of the IWL will predominantly be concerned with the management of water on and around the landform while controlling run-off water quality. The IWL has been designed to meet final landform slopes, so no additional shaping or working will be required. Figure 10-7 below presents the proposed IWL design. This closure design incorporates approximately 95Ha of flat land, in a region where such land is a highly valued for agriculture. BSX will work with the Bak Yen community to assess the potential for post-closure use of the facility.

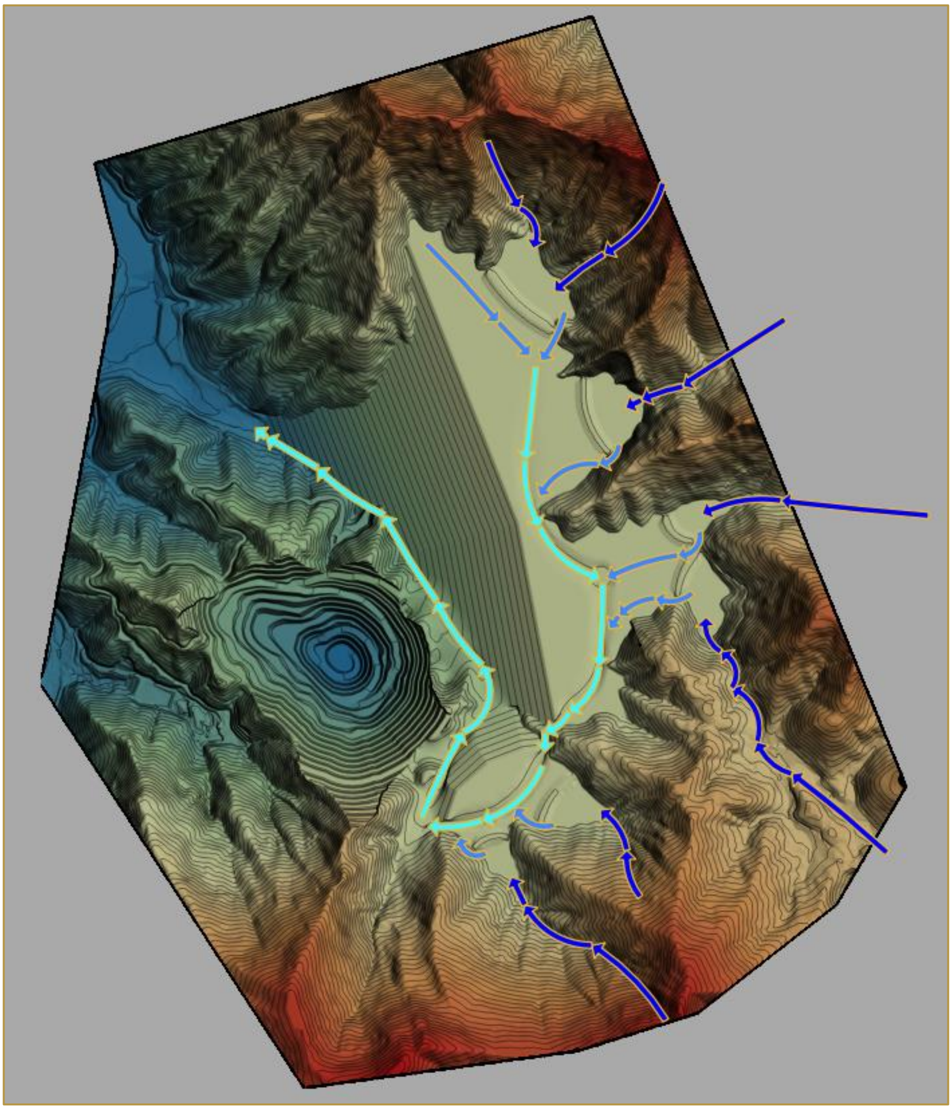

Figure 10-7, IWL Closure Design, showing drainage routes.

Water inflow velocity onto the IWL from upstream catchments will be attenuated through the use of permanent energy dissipation bunds placed near inflow points. The bunds will be constructed with waste rock material and abut natural terrain. Materials removed from the operational water retention dams are expecte to be suitable for the inner core zones of the structures, but fresh durable waste will be used to form the outer shells.

Drainage lines will be constructed in natural terrain on the extremities of the coffer dams to allow for overflow.

10.5.5 Processing and Administration Facilities

The objective of the preliminary mining and process plant infrastructure closure is to remove the Process Plant and Infrastructure and reclaim the area for rehabilitation.

Materials or equipment to be sold second-hand within or outside of Vietnam must be dismantled carefully, and serviced prior to being transported or stored. The service will include oil removal, and preparation with specific lubricates to prohibit corrosion.

Most steelwork and large electrical cabling will be salvaged and sold as scrap. The Process Plant has been estimated to contain 3,000 t of steelwork in the form of tankage, liners, structural steel and chutes.

Some materials will be required for the construction of mine closure support services, such as monitoring equipment, bridges and roads.

Any material or equipment that is not economically salvageable, and is not required for mine closure will be made available to the Muong Khoa Commune. Inert materials that are not salvageable and have no use by any parties will be disposed in the pit or decline.

Preparations for the demolition of the Process Plant and Infrastructure will be undertaken as early as is practicable to ensure that there is optimum opportunity to sell the plant and equipment.

Prior to plant shutdown, the removal of non-essential items such as fencing, building cladding and redundant equipment will commence. Full-scale demolition will commence when ore treatment and the plant clean-up have concluded. Once dismantled, material will be sold or appropriately disposed. Removal of all equipment, steelwork and, finally, concrete structures will occur prior to final reclamation of land for rehabilitation.

The demolition process will consist of:

- Electrical and instrumentation installation removal (above and below ground);
- Major asset removal;
- Equipment, pipework, steelwork and concrete removal;
- Building removal within the process plant;
- Transportation of staffing, material and additional equipment for the demolition to and from site;
- Management, planning, supervision and safety supervision;
- Decontamination of hazardous material and equipment;
- Removal of the power mains and associated ancillaries.

The demolition workforce will initially draw on TKNP employees as this provides a workforce familiar with the safe work practices and procedures used on-site. Additionally, there will be substantial work involved outside the scope of plant dismantling such as equipment preparation for storage/re-sale.

Specialised staffing will be provided externally as additional staff are required.

The equipment that will be utilised during operations has been reviewed on the basis that it will be utilised for demolition. Main equipment requirements are cranes, material handling equipment, excavators, haul trucks and dozers. The demolition contractor will source some equipment, such as the hydraulic steel cutter and possibly a larger crane.

Equipment and materials will be broken down into packaged elements that will be shipped as either break bulk, containerised or palletised loads.

The equipment that will be equipment available on-site during operations has been reviewed on the basis that it will be utilised for demolition. Main equipment requirements are cranes, material handling equipment, excavators, haul trucks and dozers. The demolition contractor will source some equipment, such as the hydraulic steel cutter and possibly a larger crane

BSX's Health, Safety and Environment (HSE) management systems will ensure that the demolition of the process plant will be performed with minimal personal injury and environmental impact. The use of these HSE systems will be of highest priority throughout the demolition process.

Any contaminated soil, whether hydrocarbon or other hazardous material in the process plant will be removed and disposed of in the Pit or to an approved location. A test work programme will determine the level of contaminants in various locations in the process plant. This will include hydrocarbons (from workshops and oil handling facilities) and any other contaminants on concrete, steelwork and equipment in the plant. Pending all test results, appropriate disposal methods will be included in the demolition works. All excavated fill materials from the process plant will be classified as: uncontaminated, low level contamination without further treatment, and contaminated requiring treatment for disposal. Environmental experts will determine the best location for the disposal of non-salvageable material and excavated fill, and evaluate all possible environmental impacts.

All concrete and masonry from buildings, slabs, floors, foundations, footings, ablution blocks, paths, drains and other locations will be broken up and placed within the IWL prior to encapsulation and rehabilitation to the final landform.

Large foundations and footings associated with the mill will be buried with a contoured earth fill cover. These items typically have no reuse or salvage value unless there is the opportunity to crush the concrete for local road fill. Upon completion of the demolition activities the site will be re-contoured and revegetated in accordance with the site procedure including provision for drainage structures.

11 PROJECT IMPLEMENTATION

11.1 Implementation Strategy

BSX will consider various contracting strategies through the TKNP DFS including

- Lump Sum, Turn Key, EPC
- EPCM
- Self Execution
- Hybrid Contracting Options

BSX intends to implement a hybrid project contracting strategy, with an engineering contractor engaged contracted to provide engineering and procurement (EP) services on a lump-sum basis, and the project execution managed by a BSX team, with key project support functions through the engineering contractor. This structure offers the benefits of maintaining lessons learned within BSX Management team, while leveraging the skills and experience of the engineering contractor to the maximum effect.

11.2 Project Schedule

Development of the TKNP is strongly linked to the project approvals process and technical development path.

Prior to completion of the PFS, BSX has commenced site works for the DFS and permitting process. Resource drilling has continued for Ban Chang, King Snake and Ban Khoa, with other exploration targets expected to be converted and included were suitable. Drilling has also commenced to collect metallurgical samples for the DFS Metallurgy and Geometallurgy testwork, as well as geotechnical and hydrogeological drilling. A geotechnical drilling contractor has mobilised to site and a program is currently planned for the mines, new plant site and waste storage facility. BSX has also commenced environmental and community baselining studies.

In December 2021, BSX commenced its permitting application process with submission of key exploration and technical documents to the Vietnamese regulatory bodies for approval. The permitting process will proceed in parallel with the DFS, and based on current progress, should not fall on the project critical path.

In 2022, BSX will commence the technical scopes of work for the DFS study. The DFS will progress in lockstep with the approvals processes, with key DFS outcomes feeding into the relevant permits where required.

BSX will commence project early works in early 2023, including refurbishment and expansion of the camp and improvement of site access roads. During this time, BSX will also develop the tender for the mining contractor (should BSX select this strategy in the DFS).

Upon successful completion of the DFS, BSX will look to secure long lead equipment purchases such as the grinding mills, gyratory crusher and other key long lead equipment. Early commitment to these will help to fast track the development of the TKNP.

Following completion of the DFS in H1 2023, BSX will tender the EPCM (or other contracting strategy finalised in the DFS) and commit to a final investment decision (FID). After FID, the mining contractor will mobilise to site, and early mining works will commence.

Engineering and procurement activities will be the focus of the EPCM contractor immediately after award. Project pre-strip will commence with development of topsoil stockpiles and preparation of the combined tailings and waste dump landform.

Early plant site works will commence in Q3 2023, and will be focussed on an 11 month earthworks program as this will drive the development schedule. Subsequent construction phases will follow this over an approximate two year period. Commissioning will start in mid 2025.

Task Name	Duration	Start	Finish
Ta Khoa Nickel Project	200 wks	Mon 8/11/21	Sat 6/09/25
DFS Preparation	72 wks	Mon 8/11/21	Fri 24/03/23
Drilling / Site Works	34 wks	Mon 8/11/21	Sat 2/07/22
Definitive Feasibility Study	72 wks	Mon 8/11/21	Fri 24/03/23
Blackstone Works	103 wks	Mon 8/11/21	Fri 27/10/23
Permitting and Approvals	103 wks	Mon 8/11/21	Fri 27/10/23
Early Works	18 wks	Mon 12/12/22	Fri 14/04/23
Pre-Execution	6 wks	Mon 27/03/23	Fri 5/05/23
Blackstone Operations	128 wks	Mon 19/12/22	Fri 30/05/25
Ban Phuc Mining Pre Development	128 wks	Mon 19/12/22	Fri 30/05/25
Ta Khoa Nickel Concetrator	136.4 wks	Wed 25/01/23	Sat 6/09/25
Milestones	897 days	Fri 24/03/23	Sat 6/09/25
EPCM Tendering and AwardEPCM	118 days	Wed 25/01/23	Tue 23/05/23
Tender EPCM Contract	6 wks	Wed 25/01/23	Fri 24/03/23
Review and Award EPCM Contract	4 wks	Mon 27/03/23	Tue 23/05/23
Process Plant EPCM Award	0 days	Tue 23/05/23	Tue 23/05/23
EPCM Phase	897 days	Fri 24/03/23	Sat 6/09/25
Procurement	560 days	Fri 24/03/23	Fri 4/10/24
Detailed Design	220 days	Tue 23/05/23	Fri 29/12/23
Fabrication	252 days	Fri 15/09/23	Fri 24/05/24
Site Works	817 days	Tue 23/05/23	Sun 17/08/25
Mobilise to Site	42 days	Tue 23/05/23	Tue 4/07/23
Commence Site works	0 days	Fri 29/09/23	Fri 29/09/23
Area 2020 - Bulk Earthworks	328 days	Fri 29/09/23	Thu 22/08/24
Construction	688 days	Fri 29/09/23	Sun 17/08/25
Commissioning	84 days	Sat 14/06/25	Sat 6/09/25
Pre-Commissioning	84 days	Sat 14/06/25	Sat 6/09/25
First Production	0 days	Sat 6/09/25	Sat 6/09/25

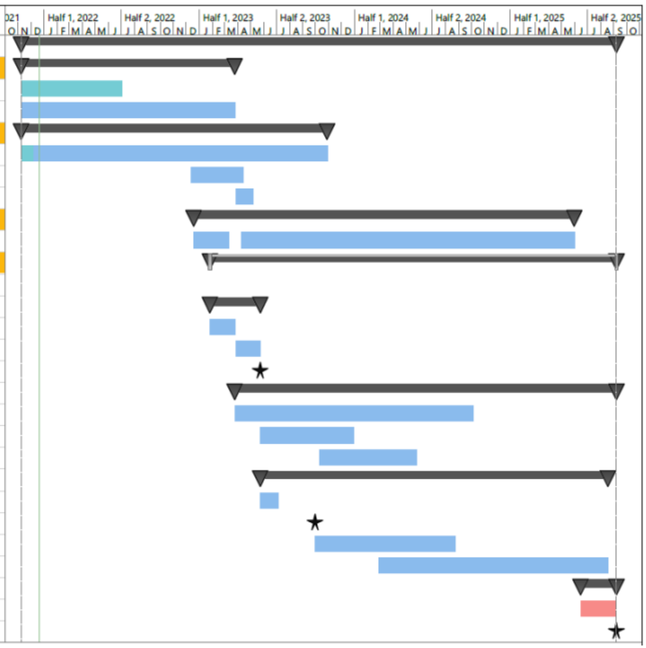

Figure 11-1, Project Schedule

BLACKSTONE MINERALS

12 FUTURE WORKS

The future works discussed below will form the basis of the TKNP DFS scope of works. The key BSX objectives for following 18 months are summarised below in
Table 12-1.

Table 12-1, DFS Objectives

Project Work Area	Objective
Project General	• Enterprise optimisation with TKR • Complete AACE Class 3 (±15%) estimate for the TKNP • Site wide geotechnical program and analysis • TSF 1 Closure Plan
Geology and Resource	• Drill existing targets to JORC reporting levels for inclusion in mine design and planning • Bring Ban Khoa, Ban Chang and King Snake to +90% indicated level
Mining and Reserves	• Develop optimum mine design for Ban Khoa • Work with potential contractors to develop a contractor cost model for diesel free fleet • Continue to develop diesel free mining design, including hydrogen and ammonia based fleet • Report Ban Phuc, King Snake and Ban Change Reserves • Complete DFS level design • Commence formal mining contractor tender process
Metallurgy and Geometallurgy	• Complete rigorous test work program to support DFS metallurgy and geometallurgy scopes • Key variability program looking to improve recoveries in low grade (0.2%-0.3%) material • Pilot trials of key vendor equipment, including DFR's and other key technology
Process Plant Engineering	• Complete process plant engineering to AACE Class 3
Tailings and Waste Storage	• Complete carbon geo-sequestration testwork and pilot program to determine the capacity for Ta Khoa waste to adsorb and store carbon • Pilot co-placement of tailings with waste rock to determine geotechnical characteristics • Develop Class 3. DFS level design for the integrated waste and tailings landform • Dam Break analysis • Deformation Modelling • Seepage Modelling • Stability Assessment Phase 2
Water Management	• Probabilistic site water balance • Development of site water management plan including action plans for different rainfall scenarios
Infrastructure	• AACE Class 3 Design and costing of key project infrastructure including: • Public road diversions and • HV Substation
Environment	• Completion of site baseline studies • Complete detailed environmental impact assessment and submit to MONRE for approval • Submission of project EIA
Permitting	• Approval of Vietnamese PFS (Government requirement) • Vietnamese approval of mining reserves for Ban Phuc, King Snake and Ban Chang • Approval of Vietnamese FS (Government requirement) • Approval and Issue of Mining Licence • Receive Land use licences • Development of equipment import register
Project Execution	• Confirmation of preferred contracting strategy • Development of detailed project schedule • Completion of route survey and logistics plan • EPCM Contractor tender process and award • Commence early engineering activities

13 COMPLIANCE REPORTING – (JORC DISCLOSURE)

JORC Disclosure

Reporting Exploration Results and Exploration Targets

The information in this report that relates to Exploration Results and Exploration Targets is based on information compiled by Mr Chris Ramsay, Manager of Resource Geology for the Company and a Member of The Australasian Institute of Mining and Metallurgy. Mr Chris Ramsay has sufficient experience which is relevant to the style of mineralisation and type of deposits under consideration and to the activity 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 Chris Ramsay consents to the inclusion in the report of the matters based on his information in the form and context in which it appears. The inclusion JORC Table 1 - Sections 1, 2 below, for the recent resource report, is sufficient for the information required for Exploration Results.

Mineral Resources – Background

Blackstone Minerals provided an update of the company's Minerals Resources on December 23rd, 2021. Among the four prospects included in the recent Mineral Resource update, was an update of the Ban Phuc Mineral Resource. The Ban Phuc Mineral Resource is the basis of the 'Ore Reserve' presented in this report. (Ban Chang and King Snake Prospects were assessed in this Pre-Feasibility Study and their limited contribution is noted and the prospects are not included in the 'Ore Reserve').

On the basis that this report is the first publication of Ore Reserves - JORC Table 1, Sections 1-3 for the Mineral Resources are presented below.

Ore Reserves – Background

This report is the first publication of a new Ban Phuc Open Pit 'Ore Reserve'. The Ore Reserve includes only Minerals Resources classified as 'Indicated' in the December 2021 update (all Indicated Resources are within the Ban Phuc deposit), and excludes Mineral Resources classified as 'Inferred' (Inferred resources include all of Ban Khoa, Ban Chang and King Snake – as Dec '21). Ban Chang and King Snake inferred resources were considered in the PFS while Ban Khoa was not.

Reporting of Ore Reserves

The information in this announcement that relates to Ore Reserves is based on and fairly represents information compiled by Mr. Richard Jundis, Director of Mining for Optimize Group and a Member of the Professional Engineers of Ontario. Professional Engineers of Ontario is a 'Recognised Professional Organisation'. Mr. Richard Jundis is an employee of Optimize Group and has sufficient experience in the style of mineralisation and type of deposit under consideration and qualifies 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 Jundis consents to the inclusion of all technical statements based on his information in the form and context in which it appears. Mr. Jundis holds no securities in Blackstone Minerals Limited.

Ore Reserves are a sub-set of Minerals Resources

Blackstone Minerals owns 90% of the tenure owner – Ban Phuc Nickel Mines of Vietnam.

14 JORC CODE TABLE 1 SECTIONS 1, 2 & 3

Sections 1 and 2 are presented below inclusive of information relevant to all prospects referred to in this Mineral Resource Estimate (this means that Sections 1 and 2 are not repeated for each prospect as all prospects have previously and are currently explored and managed under the same teams and systems). Section 3 (the estimation and reporting of Mineral Resources) is partitioned into components parts on a prospect basis as follows:

- Section 3a – Ban Phuc
- Section 3b - Ban Khoa
- Section 3c – Ban Chang and King Snake

Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.*	The field samples taken for the Mineral Resource Estimates were collected using diamond drill core sampling only. Drilling systems use equipment with several measurement redundancies (drill rod and winch length for example) to ensure drilling lengths are accurate and meet standards suitable for the sample techniques engaged. Drill core was cut and sampled in continuous half or quarter samples and submitted to SGS Hanoi for preparation with samples pulps then forwarded to ALS Geochemistry, Perth for assay generally by 4-acid digest for target base metals and fire assay for precious metals. Drilling and sampling was supervised by suitably qualified BPNM geologists.
	Measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Care is taken to ensure the core samples taken are representative of the target intervals and of the core presented. Further manual measurements by geologists validate the measurements presented by the drilling crews. The results of these systems are appropriate for the task.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Disseminated sulphide (DSS) mineralisation it determined visually. Determining sampling in the lower grade zones in the DSS is assisted by Niton XRF. Massive and semi-massive sulphide vein mineralisation (MSV) is clearly visible. Determining mineralisation in the material drilled and sampled has a low level of difficulty and the systems engaged meet industry standards for the task.
Drilling techniques	*Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	Drilling campaigns were conducted by the Vietnamese Geological Survey (VGS) 1959-1963, then Asia Mineral Resources (AMR) in conjunction with VGS 1996-2004, AMR 2004-2015. From 2019 Ban Phuc Nickel Mines Ltd (BPNM) has conducted exploration, managed initially by Blackstone through an option agreement and subsequently as a subsidiary of Blackstone. The 1959-1963 VGS data has been removed from the data set used in these resource estimates due to quality concerns. At Ban Phuc the data was replaced/redrilled during early 2021 and at Ban Khoa and Ban Chang the data is being replaced/redrilled from December 2021-Mrach 2022). There is no drilling from 1959-1963 at King Snake. AMR drilling (1996 to 2015) was conducted under contract for AMR by a branch of the Vietnamese geological survey and was drilled using NQ and HQ diameter drilling. Drill core was not orientated Drilling sizes include PQ, HQ and NQ. Drilling completed during 2019-2021 was oriented using Reflex Instruments (Core orientation tool ACT III RD). All Blackstone drilling was of PQ, HQ and NQ diameters conducted by BPNM using GX-1TD and GK-300 diamond coring rigs and independent drilling contractor Intergeo using Longyear 38 and LF70 diamond coring rigs. Blackstone drill holes are routinely surveyed using a devi-flex down-hole survey tool. Physical sample statistics by prospect are as follows: Ban Phuc: 0.04 m to 11.55 m with a mean of 1.41 m. Sample weights for assay ranged from approx. 0.176 kg to 8.4 kg with a mean of c. 2.6 kg. Ban Khoa: 0.3 m to 3.7 m with a mean of 1.97 m. Sample weights for assays ranged from approx. 0.4 kg to 6.5 kg with a mean of c. 2.5 kg.

		Ban Chang and King Snake: 0.05 m to 2.45 m with a mean of 0.92 m. Sample weights for assay ranged from approx. 0.1 kg to 5 kg with a mean of c. 1.2 kg.
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	Quantitative recovery is not available for the AMR drilling although observation of AMR core in storage suggests recoveries in the fresh zone were high. BXS Drilling (From 2019): Recoveries were calculated by Ban Phuc Nickel Mines personnel by measuring recovered core length vs downhole interval length. Drill core recovery through the mineralised zones ranges from 0% to 100%, with the length-weighted mean being >99%. There is no discernible correlation between grades and core recovery.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	General rock characteristics and drilling techniques have minimised problems with core recovery.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	No relationship exists between core recovery and grade. No sample bias exists and no rock characteristics are observed that suggest loss of material during drilling or handling.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.*	The detail of geological logging is considered sufficient for mineral exploration and the subsequent processes of geological interpretation and mineral resource estimation.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	AMR drill core was marked up, qualitatively lithologically logged, photographed and commonly geotechnically logged by a suitably qualified geologist. All Blackstone diamond drill core was qualitatively lithologically logged by a suitably qualified BPNM geologist and photographed. Key mineral abundances such as nickel and sulfide mineral abundances are visually estimated and supported by Niton XRF testing. Selected zones were orientated with spear and structurally logged.
	The total length and percentage of the relevant intersections logged.	All core is logged qualitatively by suitably qualified geologists
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	AMR and Blackstone: The drill core was cut lengthwise by diamond core saw and continuous half or quarter core sample bagged for assay in intervals according to lithological criteria determined by an AMR or Ban Phuc Nickel Mines geologist. At Ban Phuc, there are 16 previously drilled holes that were sampled using 1.0 m samples at various intervals ranging from 9 to 18 m intervals, in the low grade part of the DSS mineralisation.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	No none-core drilling was conducted.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The drilling and sampling techniques are appropriate for exploration and mineral resource estimation purposes.

	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	No sub-sampling stages are carried out.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.	Field duplicates are taken by sampling the remaining part of previously split half core at a prescribed ratio of 1 per 25 samples taken for analysis. Continuous remnant core has been retained in the trays for future reference or sampling as necessary.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are appropriate for the material type tested and the analytical tests used.
Quality of assay data and laboratory tests	*The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*	Laboratory procedures and techniques along with quality control (company and laboratory) are appropriate for the analysis required and the data is of adequate accuracy and precision. Blackstone monitors data quality control data, and any discrepancies are followed up when issues are identified.
	For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	Tools of this type are used for qualitative purposes only and the data is not used for subsequent quantitative purposes.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Pre-Blackstone Assay Data: From 1996-2004 the following ISO accredited laboratories have been employed to assay stream sediment, soil, rock chip, channel and drill core samples: (a) 1996-1997: BSE/Analabs Ltd. (A joint venture between Australian, Hong Kong and the Vietnamese government), (b) 1997-2001: Chemex Labs (North Vancouver, BC), (c) 1997: Acme Analytical Laboratories Ltd. (Vancouver, BC), (d) 2000-2002 Lakefield Research Limited (Ontario, Canada), (e) 1993-1994, 2003 Genalysis (Perth, Western Australia) (Leighton, 2003). The samples collected between 2004 and 2013 were analysed by the Australian commercial laboratory Intertek-Genalysis located in Perth, Western Australia, and have been analysed using a mixed acid digest (four acid digest) with an ICP finish. All samples submitted to Genalysis have been analysed for the following suite of elements, which include (lower detection limit in ppm): Ag (5), Al (100), As (20), Ba (5), Ca (100), Cd (5), Co (5), Cr (10), Cu (5), Fe (100), K (100), Li (20), Mg (100), Mn (2), Mo (10), Na(100), Ni (5), P (100), Pb (20), S (100), Sc (5), Sr (5), Ti (50), V (10), Y(20), Zn (5) and Zr (5). In addition, selected samples were analysed for Au, Pt and Pd using a 50 gram charge fire assay with an ICP finish. The detection limit of this analysis is 1 ppb. Blackstone Assay Data: Ni, Cu and Co were determined at ALS by industry standard nitric + perchloric + hydrofluoric + hydrochloric acid digest with ICP-AES finish. Pt, Pd and Au were determined at ALS by industry standard 50 g fire assay and ICP-AES finish. Approx. one commercially certified assay standard per 25 core samples was inserted by Blackstone Minerals in each sample submission. Certified Reference Materials (CRMs or standards), Field Duplicates and Blanks were all inserted at a prescribed rate of the 1 sample per 25 regular samples taken. The resulting submission rate was between 1 of each inserted for every 22 and 26 sample submitted. PERFORMANCE: Standards: The standards results generally indicated high performance in identifying the certified levels of the target base metal elements. The performance of the precious metal standards indicated moderate to high performance. Collectively the outcomes of the standards performance is suitable for the task. Field Duplicates: Duplicate base metal test results show high correlation while precious metal duplicates show moderate to high

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		correlation. The outcomes of the duplicate procedures are adequate. Blanks: The results of the blanks submitted routinely returned very low and insignificant levels for the target elements. Less than 1% of the time the blank tests indicated minor carry over of target elements. The performance of the blanks procedure is adequate.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	No significant intercepts are reported here. The assay results are compatible with the observed mineralogy, historic mining and exploration results (please refer to previous Blackstone Minerals' announcements to the ASX and additionally available from http://blackstoneminerals.com.au).
	The use of twinned holes.	Twinned holes have not been drilled.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is stored and documented in industry standard methods. Blackstone remnant assay pulps are currently held in storage by the assay laboratory. Blackstone receives coarse crush samples from the Hanoi laboratory back to site.
	Discuss any adjustment to assay data.	Detailed cross-checking of AMR certificates with digital versions shows accurate collation of data and that no adjustments have been made. Assay data is as reported by ALS to Blackstone and has not been adjusted in any way.
Location of data points	*Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Drill hole collar locations are determined by Leica 1203+ total station survey to centimetre accuracy throughout AMR and Blackstone programs. AMR conducted in-house down-hole surveying and engaged Surtron from Perth to conduct check surveying. Some variation was noted and check surveying data was used preferentially over the first pass (i.e. old data was replaced not adjusted). Blackstone data: The holes were surveyed down hole using a Deviflex non-magnetic survey tool. Historic underground mining at the Ban Phuc prospect is not within the mineralisation included in this mineral estimate.
	Specification of the grid system used.	Co-ordinates were recorded in Ban Phuc Mine Grid and UTM Zone 48N WGS84 grid and coordinate system.
	Quality and adequacy of topographic control.	Topographic control uses a digital terrain model derived from an AIRBUS radar satellite dataset (2014) which is sourced at ~12.5m resolution and re-interpolated at 12.5 m mesh size using Leapfrog software. Ground surveys at Ban Chang and Ban Phuc are integrated into the topographic data.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	Data spacing over the four prospects is variable. Infill drilling, planned and ongoing at Ban Chang, King Snake and Ban Khoa is required to confirm continuity at a higher confidence level (which is ongoing at the date of this report). Drill spacing is adequate to establish continuity and the classification stated in this report.

	Whether the data-spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	Drilling at Ban Phuc is nominally on 50m sections and intercepts are on 30-60m spacing along mineralised structures. Data spacing at Ban Phuc is sufficient to define the geological and grade continuity of the deposit. Drilling at Ban Khoa is nominally on 50m sections and intercepts are on 50-100m spacing along mineralised structures. At Ban Khoa, the data distribution is sufficient to provide overarching geological continuity but does not fully define the grade continuity of the folded mineralisation geometry. Drilling at King Snake is step out in nature and is on 50m and 150m spaced sections and 50-100m in the dip direction. Drilling at Ban Chang is on 30-50m sections and 30-80m in the dip direction. At Ban Chang and King Snake, the data distribution has sufficiently defined the geological continuity but does not fully define the grade continuity in the plane of the mineralisation. All drilling was conducted on the Ban Phuc Mine Grid.
	Whether sample compositing has been applied.	No compositing of exploration data has taken place.
Orientation of data in relation to geological structure	*Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*	At Ban Phuc and Ban Khoa, the folded nature of the mineralisation has resulted in individual drillholes locally intersecting the mineralisation at acute angles. However, at both deposits the majority of the drilling intersects the mineralisation such that the sampling is considered unbiased. At Ban Chang and King Snake, the drilling is nominally perpendicular to the mineralisation and is such that the sampling is considered unbiased.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	On very minor occasions drilling angle is high for the structures being intersected. Overall, no bias has been introduced by the situation.
Sample security	*The measures taken to ensure sample security.*	The chain of custody for the drill core samples from collection to dispatch to the assay laboratory was managed by Ban Phuc Nickel Mines personnel. Sample numbers were unique and did not include any locational information useful to non-Ban Phuc Nickel Mines and non-Blackstone Minerals personnel. The level of security is considered appropriate.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	Procedural internal reviews are conducted periodically to ensure the systems are adequate and are being applied appropriately. This process results in minor modifications and adjustments and validates the systems engaged.

Section 2 Reporting of Exploration Results

Criteria	Explanation	Commentary
Mineral tenement and land tenure status	*Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.*	All drilling was located within the Ta Khoa Concession and is covered by the Foreign Investment Licence, 522 G/P, which Ban Phuc Nickel Mines Joint Venture Enterprise (BPNMJVE) was granted on January 29th, 1993. An Exploration Licence issued by the Ministry of Natural Resources and Environment covering 34.8 km2 within the Ta Khoa Concession is currently in force. Blackstone Minerals Limited owns 90% of Ban Phuc Nickel Mines.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenure is secure as at the date this document was published.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	The first significant work on the Ta Khoa nickel deposit and various adjacent prospects was by the Vietnamese Geological Survey in the 1959-1963 period. The next significant phase of exploration and mining activity was by Asian Mineral Resources from 1996 to 2018 (in conjunction with the VGS from 1996-2004), including mining of the Ban Phuc massive sulfide vein during the 2013 to 2016 period. The project, plant and infrastructure has been on care and maintenance since 2016.
Geology	*Deposit type, geological setting and style of mineralisation.*	The late Permian Ta Khoa nickel-copper-sulfide deposits and prospects are examples of well-known and economically exploited magmatic nickel – copper sulfide deposits. The identified nickel and copper sulfide mineralisation within the project include disseminated, net texture and massive sulfide types. The disseminated and net textured mineralisation occurs within dunite adcumulate intrusions, while the massive sulfide veins typically occur in the adjacent metasedimentary wall-rocks and usually associated with narrow ultramafic dykes. A recent summary of the geology of the Ban Phuc intrusion can be found in Wang et al 2018, A synthesis of magmatic Ni-Cu-(PGE) sulfide deposits in the ~260 Ma Emeishan large igneous province, SW China and northern Vietnam, Journal of Asian Earth Sciences 154.
Drill hole Information	*A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* • *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* • *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* • *dip and azimuth of the hole* • *down hole length and interception depth* • *hole length.*	There are no previously un-announced or material drilling or exploration results included in this document.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	This document reports the results of the independent Mineral Resource Estimate conducted for Blackstone and is not a report of exploration results. The detail of the exploration results is not material in the context of this document. Blackstone has provided balanced reporting of drilling information in previous announcements. The exclusion is justified.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	Exploration results and reporting techniques are presented in previously listed ASX announcements.

	Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Exploration results and reporting techniques are presented in previously listed ASX announcements.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	Metal equivalent values are not applied to exploration data. Metal equivalent values, as a function of value and recoverability of each metal when compared to nickel, are reported alongside the estimated metals and are reported in the Mineral Resource Estimate. For specific information on this refer the specific section of this report detailing the handling of metal equivalents.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	Exploration results and reporting techniques are presented in previously listed ASX announcements.
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	Diagrams representing the mineral resource models are provided in this document. Exploration results and reporting techniques are presented in previously listed ASX announcements.
Balanced reporting	*Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced, to avoid misleading reporting of Exploration Results.*	Exploration results are not reported here. Exploration results and reporting techniques are presented in previously listed ASX announcements.
Other substantive exploration data	*Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	Geochemical and geophysical programs have been used over time to assist with drilling programs. Geotechnical and extensive metallurgical programs have been conducted by Blackstone to support the mineral resource and mining studies.
Further work	*The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).*	Blackstone Minerals proposes to conduct further drilling and associated activities to better define and extend the currently identified mineralised zones at all prospects. Drilling at Ban Phuc will focus on metallurgical and geotechnical investigations for a proposed DFS. Historical drilling into the low-grade domain of Ban Phuc previously unsampled, will be sampled. Drilling at Ban Chang, Ban Khoa and King Snake will focus on infilling the known mineral resources as well as metallurgical and geotechnical investigations for a proposed DFS. Exploration work at other advanced exploration projects is ongoing and may result in further potentially economic discoveries.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Diagrams representing future exploration programs are not material for this report.

Section 3a Estimation and Reporting of Mineral Resources – Specific to the BAN PHUC Resource Estimate

Criteria	JORC Code explanation	Commentary
Database integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Drillhole collar, downhole surveying and downhole data was collected digitally using industry standard methods. The data is stored in an MS Access database and validated spatially using several different mine planning packages. All drillhole data was transferred from BSX to Optiro using csv format files, which were imported into Datamine Studio RM using dedicated processes. Once imported the data was again checked spatially, and minor corrections relating to collar survey elevations were instigated before proceeding. All interpretation wireframes were transferred from BSX to Optiro and Studio RM using DXF formatted files and dedicated import functions.
	Data validation procedures used.	Data underwent routine validation steps on entry and the interpretation integrity was validated by visually comparison between the drillholes and wireframes.
Site visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	No physical site visit has been undertaken by the Competent Person. A virtual site visit was conducted between the 15 and the 19 of September 2021, which reviewed independent data sources, core and site photographs, site documentation and standard work procedures, and publicly available information. No discrepancies were identified.
	If no site visits have been undertaken indicate why this is the case.	A physical site visit was not undertaken due to COVID 19 international travel restrictions
Geological interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	There is good confidence in the geological interpretation, which is commensurate with the available data. There are areas of local geological complexity still to be refined, but these are not expected to material change the interpretation.
	Nature of the data used and of any assumptions made.	The drillhole assay data is all diamond core but excludes the historical Vietnamese Geological Survey drilling because of uncertainty regarding the sample preparation and analytical protocols that were used.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	As a function of the exploration history and accumulated geological knowledge, alternative interpretations are unlikely on a global scale. Localised faulting and areas of increased geological complexity are suspected but the impact is not expected to extend beyond one to two drill sections and is not expected to materially change the global Mineral Resource.
	The use of geology in guiding and controlling Mineral Resource estimation.	The Mineral Resource is geographically constrained by the interpreted extent of the host ultramafic complex. Within the complex, the ultramafic lithologies were partitioned into three units based on geochemical patterns and trends revealed by drillhole sampling. This resulted in two sulfide dominant domains (nickel >= 2,200ppm and sulphur >= 0.07%), separated by a lower-sulfide dominant domain (either nickel < 2,200 or sulphur < 0.07%). These units broadly correlate with previous mineralisation geometry, and all support the plunging syncline presentation of the deposit.
	The factors affecting continuity both of grade and geology.	Both grade and geological continuity relate to the original layering in the ultramafic complex, which subsequently was structurally modified into the present geometry.
Dimensions	*The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource*	The deposit daylights at surface where the ultramafic complex forms a roughly oval shape elongated on a northwest-southeast axis which is approximately 1,000 m long and 400 m wide. The axial plane of the folded complex dips to the northeast and the hinge line of the main fold axis plunges to the southeast. The deepest part of the fold hinge is located approximately 450 m below surface although this measure is impacted by the local mountainous terrain. The down plunge extent of the complex is truncated either by faulting or folding resulting in an elongate trough-like shape.

Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.*	In general, the main elements of interests exhibit low variability as revealed by low coefficients of variation. This led to the adoption of ordinary kriging as the grade estimation method. Relatively rare outlier grades exist for some elements, and these were capped using top-cuts as required. The sensitivity to top-cut grade threshold selection was low. The interpretation process provided domains that allowed the ultramafic complex to be divided into regions based on lithology, oxidation and mineralisation. The characteristics of each elements grade trends across the boundaries of these domains was assessed, which led to decisions regarding which domain conditions were used to control the grade estimation process. All grade modelling was undertaken in Datamine Studio RM (v1.9.36.0). The estimation process allowed a three-pass search strategy and dynamic anisotropic control of search directions was applied due to the folding evident in the deposit. Primary search ranges in the mineralisation plane varied between 50 m by 50 m to 150 m by 150 m depending on the domain and were based on the grade patterns observed during the continuity analysis. Secondary and tertiary searches extended these ranges by factors of two and five, with the tertiary search designed to ensure all model blocks were informed by a grade estimate. Only the DSS2 domain suffered from any significant grade extrapolation due to many holes that intersect this domain being unsampled as they were expected to host little sulfide mineralisation. The classification applied to this domain was downgraded where extrapolation was judged to be a significant factor.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The updated Mineral Resource represents a substantial increase in the tonnage and contained metal largely due to a reduction in the sulfide reporting cut-off grade. This increase is the result an updated processing model that supports using a 2,500 ppm nickel reporting cut-off (reduced from the previous 3,000 ppm nickel) for fresh material. There has also been an increase in the quality and amount of drilling into the deposit which has improved the resource classification. Compared to the previously declared June 2020 Ban Phuc Mineral Resource estimate, the December 2021 estimate represents a 112% increase in global tonnes, a 23% reduction in nickel grade for a total increase of 61% in the contained metal. By classification: • The Indicated Mineral Resource reported a 76% increase in tonnage, 21% reduction in grade for a total increase of 36% in the contained nickel metal. • The Inferred Mineral Resource reported a 51% increase in tonnage, 6% reduction in grade for a total increase of 61% in the contained nickel metal. No production from the disseminated sulfide deposit has occurred, however past underground mining has extracted an adjacent massive sulfide vein.
	The assumptions made regarding recovery of by-products.	The Mineral Resource is focussed on nickel as the most significant revenue generator. However, additional revenue is expected from copper, cobalt and precious metals (Au, Pt, Pd), either as concentrate or as refined metal.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	Several elements were estimated that may assist in geo-metallurgical domain. Density was also estimated using ordinary kriging using the significant number of measurements collected from the diamond core
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Block size is 20 m X by 10 m Y by 10 m Z. Blocks are rotated 30 degrees around the Z axis. Drillhole cross section (N-S) spacing is 50 m with infill to 25 m. Closer spaced sections focus on the deeper eastern portion of the deposit. The along section spacing is variable due to fanning of drillholes and can vary from less than 5 m to around 100 m. Common in section spacing is 30 to 50 m. The 50 m section lines have much greater drilling coverage than the infill 25 m lines.
	Any assumptions behind modelling of selective mining units.	Mining selectivity is assumed to match the 20 m by 10 m by 10 m block size and domain boundary resolution is set at 5 m by 2.5 m by 2.5 m.

	Any assumptions about correlation between variables.	Several variables are correlated. For instance, within the main mineralisation domain (DSS1), copper, cobalt, gold and silver all show good positive correlations with nickel. These correlations have been managed during the estimation process by using the same search neighbourhood for the estimation of each of these element
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation revealed the folded presentation of the main mineralisation host domain (DSS1). This led to the adoption of dynamic anisotropy control for the grade estimation process for all elements. Grade boundary analysis showed that the potential revenue elements generally exhibited abrupt changes at the footwall and hanging wall of the DSS1 mineralisation domain, which led to the DSS1 limits being used as a hard grade boundary for the estimation of these elements. Within the limits of the ultramafic complex, most other elements and density show at most gradational change across lithology, oxidation and mineralisation domain boundaries, so estimation of these variables used relaxed domain controls. Sulphur was an exception to this rule and both mineralisation and oxidation domains were used to control sulphur grade estimation, mainly as a consequence of having limited sulphur data available in some circumstances.
	Discussion of basis for using or not using grade cutting or capping.	Almost all elements that were estimated exhibited low variability grade distributions and only occasional outlier values. Most elements did not require grade capping; however, caps were applied in several cases to control the influence of the rare outlier grades. General, the caps applied only resulted in minor modification of the expected grade. Top-cuts were applied to nickel, cobalt, copper and sulphur to restrict the impact of a very limited number of higher grade samples.
	The process of validation, the checking process used, the comparison of model data to drillhole data, and use of reconciliation data if available.	The block model grade estimates were validated by visually assessing the interaction between drillhole and estimated block grades, by whole-of-domain statistical comparison and by the appraisal of swath plots for the main elements (nickel, copper, sulphur) and density. Some issues were noted in the DSS2 mineralisation domain (comparatively low/moderate nickel grade and low sulphur grade) due to up-plunge grade extrapolation but otherwise all comparison were consistent with expectations.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	Tonnages are estimated with natural moisture. Moisture content within the transition and fresh rock domains is judged to be immaterial.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied*	The Mineral Resource has been reported at 2,500 ppm nickel for fresh material and at 3,000 ppm nickel for oxidised and transitional materials, based on available processing test-work which identified very limited non-sulfide nickel content and was supported by preliminary processing models.

<table>
<tr>
<td>Mining factors or assumptions</td>
<td>Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.</td>
<td>
The dissemination nickel sulfide mineralisation is considered to provide a potentially viable target for bulk open pit mining methods. The current model provides an estimate of the deposit response to localised mining at a 20 m by 10 m by 10 m scale although additional dilution and ore loss will require assessment.
Blackstone has engaged Optimize Group of Toronto, CA (OG) to conduct a mining feasibility study (PFS) as part of the overall upstream feasibility study. OG have been engaged throughout 2021 and have carried out many levels of mining studies including all the current open pit and underground analysis. Blackstone has provided price and recovery information for both upstream and downstream business. Refinery information provided has been sourced from the downstream refinery PFS completed earlier in 2021. Mining parameters and costs have been prepared jointly with OG, BSX and the company's Geotechnical consultant (PSM - Perth). Processing and recovery parameters have been sourced from extensive site-based float testing and supported by parallel testing programs by ALS, Simulus and CPC in Perth.
Blackstone uses a pit constraint summarised as a 'Revenue Factor' (RF) of 1.25 times the base case revenue assumptions below. The '1.25 RF shell' is a physical constraint guide for reporting mineral resources and as a function of the trough like geometry of the mineralisation, the optimised shell included practically all the mineralisation. Thus, it is practical to include all the minor mineralisation buffering the 1.25 RF pit shell in the reported resource.
The RPEEE assessment considers an extensive range of cost factors which account for preliminary mining, processing and refining. Such factors combined with the following metal price assumptions.
The key metal price assumptions include:
<table>
<tr><th>Metal Price Assumption</th><th>Unit</th><th>BASE</th></tr>
<tr><td>Ni Metal Price</td><td>USD/t</td><td>17,045</td></tr>
<tr><td>Au Metal Price</td><td>USD/oz</td><td>1,620</td></tr>
<tr><td>Cu Metal Price</td><td>USD/lb</td><td>3.58</td></tr>
<tr><td>Co Metal Price</td><td>USD/lb</td><td>18.60</td></tr>
<tr><td>Pd Metal Price</td><td>USD/oz</td><td>2,513</td></tr>
<tr><td>Pt Metal Price</td><td>USD/oz</td><td>1,250</td></tr>
<tr><td>Ni- Co-Mn Metal Price</td><td>USD/t</td><td>16,800</td></tr>
<tr><td>Ru Metal Price</td><td>USD/oz</td><td>400</td></tr>
<tr><td>Rh Metal Price</td><td>USD/oz</td><td>26,500</td></tr>
<tr><td>Os Metal Price</td><td>USD/oz</td><td>54,493</td></tr>
<tr><td>Ir Metal Price</td><td>USD/oz</td><td>6,250</td></tr>
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Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	A variety of preliminary metallurgical test work has been completed at a PFS level, but is metallurgical test work is still on-going. The test work to date implies that economic nickel recovery is achievable at head grades that range from 0.25 to 0.3% nickel. Mineral deportment work has identified that the nickel is overwhelmingly hosted in nickel sulfide minerals (predominantly pentlandite, heazlewoodite, minor millerite and occasional awaruite) with minimal nickel in the silicate minerals.
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made*	Previously, the Ban Phuc massive sulphide mineralisation adjacent to the Ban Phuc disseminated mineralisation operated under Vietnam's national environmental laws and guidelines. Base line environmental studies have been carried out since 2014. A large-scale open pit mine will require additional environmental review and permitting but no immediate impediments have been identified. AMD classification test work has not identified a material AMD risk to date with the disseminated nickel mineralisation .
Bulk density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	Bulk density was measured for most diamond core sample intervals using the Archimedes method. Density measurements were taken on each interval that is sampled for assay testing prior to the sample being cut. Due to the low-grade character of the disseminated nickel mineralisation, there is minimal correlation between the measured density and the nickel grade.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit,	Bulk density was measured with natural moisture. Core from the transitional and fresh zones is tight with no vugs/voids and likely includes minimal moisture. Core from the oxide zone can contain voids and vugs and may contain some moisture.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	The boundary analysis conducted on the density data distributed between the lithology, oxidation and mineralisation all showed gradual density change between domains leading to density estimation only being constrained by the limits of the ultramafic lithology interpretation. Tests were conducted to determine whether any relationship existed between nickel grade and density. None were revealed within the disseminated nickel mineralisation.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories*	The Competent Persons consider the quality of the drillhole and assay data is suitable to support the Indicated and Inferred Mineral Resource classification. The deposit has been classified as an Indicated and Inferred Mineral Resource primarily based on the current drillhole spacing. The following general spatial rules were applied, which relate to the demonstrated nickel grade continuity: Indicated – any mineralisation within 30 m of assayed drillholes – in practice, any mineralisation straddle by drilling on 50 m spaced section lines. Inferred – any mineralisation that did satisfy the Indicated classification requirements.

		As a function of the mineralisation geometry and available project economics, the preliminary optimised pit shells captured approximately 96% of mineralisation, which given the preliminary nature of these optimisations resulted in all of the mineralisation meeting the RPEEE criteria.
	Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	It is the Competent Persons view that the applied Mineral Resource classification appropriately reflects the impact of all factors that relate confidence in the Mineral Resource estimate.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The Indicated and Inferred resource classification is an accurate representation of the Competent Persons view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	Other than Optiro internal peer review, there have been no audits or reviews of the Mineral Resource estimate.
	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate	No separate tests have been conducted to test relative accuracy of the MRE. There is good confidence in the supporting drillhole data and the global geological understanding of the deposit. The relationship between the estimation block size and local drill grid spacing is such that the Competent Persons anticipate that estimated block grade is likely to be achieved in the regions tested by closer spaced drilling as depicted by an Indicated classification. This observation is expected to hold if future mining relies on bulk open pit mining methods.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used	The resource model is considered to provide a global estimate, commensurate with the available data.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available	The Ban Phuc disseminated deposit is currently undergoing pre-feasibility study assessment and has not been subjected to any production or mining.

BLACKSTONE MINERALS

Section 3b Estimation and Reporting of Mineral Resources – Specific to the BAN KHOA Resource Estimate

Criteria	JORC Code explanation	Commentary
Database integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Drillhole collar, downhole surveying and downhole data was collected digitally using industry standard methods. The data is stored in an MS Access database and validated spatially using several different mine planning packages. All drillhole data was transferred from BSX to Optiro using csv format files, which were imported into Datamine Studio RM using dedicated processes. Once imported the data was again checked spatially, and minor corrections relating to collar survey elevations were instigated before proceeding. All interpretation wireframes were transferred from BSX to Optiro and Studio RM using DXF formatted files and dedicated import functions.
	Data validation procedures used.	Data underwent routine validation steps on entry and the interpretation integrity was validated by visually comparison between the drillholes and wireframes.
Site visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	No physical site visit has been undertaken by the Competent Person. A virtual site visit was conducted between the 15 and the 19 of September 2021, which reviewed independent data sources, core and site photographs, site documentation and standard work procedures and publicly available information. No discrepancies were identified.
	If no site visits have been undertaken indicate why this is the case.	A physical site visit was not undertaken due to COVID 19 international travel restrictions
Geological interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	There is reasonable confidence in the geological interpretation, which is commensurate with the available data. Further drilling may change the geological interpretation, which is conveyed by the Inferred classification assigned to this generation of resource estimation.
	Nature of the data used and of any assumptions made.	The drillhole assay data is all diamond core but excludes the historical Vietnamese Geological Survey (drilling because of uncertainty regarding the sample preparation and analytical protocols that were used.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	As a function of the exploration history and accumulated geological knowledge, alternative interpretations are unlikely on a global scale but local scale change should be anticipated as further sample data is accumulated.
	The use of geology in guiding and controlling Mineral Resource estimation.	The Mineral Resource is geographically constrained by the interpreted extent of the host ultramafic complex. Within the complex, the ultramafic lithologies were partitioned into two units based on geochemical patterns and trends revealed by drillhole sampling. All grade estimation is constrained within the geographical extents of these two zones.
	The factors affecting continuity both of grade and geology.	Both grade and geological continuity relate to the original layering in the ultramafic complex, which subsequently was structurally modified into the present geometry. Currently grade continuity is poorly defined due to the limited drilling data and has been implied.
Dimensions	*The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource*	The deposit daylights at surface where the ultramafic complex forms a roughly circular shape which is approximately 200 m by 250 m. The deepest part of the mineralisation is located approximately 300 m below surface although this measure is impacted by the local mountainous terrain.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.*	In general, the main elements of interests exhibit low variability as revealed by low coefficients of variation. This led to the adoption of ordinary kriging as the grade estimation method. Relatively rare outlier grades exist for some elements, and these were capped using top-cuts as required. The sensitivity to top-cut grade threshold selection was low. The interpretation process provided domains that allowed the ultramafic complex to be divided into regions based on oxidation and mineralisation. The characteristics of each elements grade trends across the boundaries of these domains was assessed, which led to decisions regarding which domain conditions were used to control the grade estimation

		process. All grade modelling was undertaken in Datamine Studio RM (v1.9.36.0). The estimation process allowed a three-pass search strategy and dynamic anisotropic control of search directions was applied due to the folding evident in the deposit. Primary search ranges in the mineralisation plane were 75 m by 75 m based on the grade patterns observed during the continuity analysis. Secondary and tertiary searches extended these ranges by factors of two and five, with the tertiary search designed to ensure all model blocks were informed by a grade estimate.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	This 2021 Mineral Resource is the maiden resource estimate for Ban Khoa. No check estimates have been undertaken and no mining has occurred at the deposit.
	The assumptions made regarding recovery of by-products.	The Mineral Resource is focussed on nickel as the most significant revenue generator. However, additional revenue is expected from copper, cobalt and precious metals (Au, Pt, Pd), either as concentrate or as refined metal.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	Several elements were estimated that may assist in geo-metallurgical domain. Density was also estimated using ordinary kriging using the significant number of measurements collected from the diamond core
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Block size is 20 mE by 20 mN by 10 mRL. Drillhole cross section (N-S) spacing is 50 m. Within section lines, and relative to the deeper mineralisation domain, drillhole spacing varies between 30 m and 110 m with an average of approximately 75 m. Due to the fanning of drillholes on section, drillhole spacing in the upper domain is closer but the domain is much smaller.
	Any assumptions behind modelling of selective mining units.	Mining selectivity is assumed to match the 20 m by 20 m by 10 m block size and domain boundary resolution is set at 5 m by 5 m by 2.5 m.
	Any assumptions about correlation between variables.	Several variables are correlated. These correlations have been managed during the estimation process by using the same search neighbourhood for the estimation of each of these element
	Description of how the geological interpretation was used to control the resource estimates.	The geological interpretation revealed the folded presentation of the mineralisation . This led to the adoption of dynamic anisotropy control for the grade estimation process for all elements. Grade boundary analysis showed that the potential revenue elements generally exhibited abrupt changes at the footwall and hanging wall of the mineralisation domains, which led to these limits being used as a hard grade boundary for the estimation of these elements. Within the limits of the mineralisation domains, most other elements and density show at most gradational change across oxidation domain boundaries, so estimation of these variables was only constrained by the interpreted mineralisation limits. Sulphur and density were exceptions to this rule and both mineralisation and oxidation domains were used to control the estimation, process in these cases.
	Discussion of basis for using or not using grade cutting or capping.	Almost all elements that were estimated exhibited low variability grade distributions and only occasional outlier values. Most elements did not require grade capping; however, caps were applied in several cases to control the influence of the rare outlier grades. General, the caps applied only resulted in minor modification of the expected grade.
	The process of validation, the checking process used, the comparison of model data to drillhole data, and use of reconciliation data if available.	The block model grade estimates were validated by visually assessing the interaction between drillhole and estimated block grades, by whole-of-domain statistical comparison and by the appraisal of swath plots for the main elements (nickel, copper, sulphur) and density. All comparison were consistent with expectations.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	Tonnages are estimated with natural moisture. Moisture content within the transition and fresh rock domains is judged to be immaterial.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied*	The Mineral Resource has been reported at 2,500 ppm nickel for fresh material and at 3,000 ppm nickel for oxidised and transitional materials, based on available processing test-work which identified very limited non-sulfide nickel content and was supported by preliminary processing models.

Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	The dissemination nickel sulfide mineralisation is considered to provide a potentially viable target for bulk open pit mining methods. The current model provides an estimate of the deposit response to localised mining at a 20 m by 10 m by 10 m scale although additional dilution and ore loss will require assessment. Blackstone has engaged Optimize Group of Toronto, CA (OG) to conduct a mining feasibility study (PFS) as part of the overall upstream feasibility study. OG have been engaged throughout 2021 and have carried out many levels of mining studies including all the current open pit and underground analysis. Blackstone has provided price and recovery information for both upstream and downstream business. Refinery information provided has been sourced from the downstream refinery PFS completed earlier in 2021. Mining parameters and costs have been prepared jointly with OG, BSX and the company's Geotechnical consultant (PSM - Perth). Processing and recovery parameters have been sourced from extensive site-based float testing and supported by parallel testing programs by ALS, Simulus and CPC in Perth. Blackstone uses a pit constraint summarised as a 'Revenue Factor' (RF) of 1.25 times the base case revenue assumptions below. The '1.25 RF shell' is a physical constraint guide for reporting mineral resources and as a function of the trough like geometry of the mineralisation, the optimised shell included practically all the mineralisation. Thus, it is practical to include all the minor mineralisation buffering the 1.25 RF pit shell in the reported resource. The RPEEE assessment considers an extensive range cost factors which account for preliminary mining, processing and refining. Such factors combined with the following metal price assumptions.

Metal Price Assumption	Unit	BASE
Ni Metal Price	USD/t	17,045
Au Metal Price	USD/oz	1,620
Cu Metal Price	USD/lb	3.58
Co Metal Price	USD/lb	18.60
Pd Metal Price	USD/oz	2,513
Pt Metal Price	USD/oz	1,250
Ni- Co-Mn Metal Price	USD/t	16,800
Ru Metal Price	USD/oz	400
Rh Metal Price	USD/oz	26,500
Os Metal Price	USD/oz	54,493
Ir Metal Price	USD/oz	6,250

Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	Preliminary metallurgical test work has been completed for Ban Khoa, but is still on-going. The test work to date implies that economic nickel recovery is achievable at head grades that range from 0.25 to 0.3% nickel. Mineral deportment work has identified that the nickel is overwhelmingly hosted in nickel sulfide minerals (predominantly pentlandite, heazlewoodite, minor millerite and occasional awaruite) with minimal nickel in the silicate minerals.

Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made*	Previously, the Ban Phuc massive sulphide mineralisation adjacent to the Ban Phuc disseminated mineralisation operated under Vietnam's national environmental laws and guidelines. A large-scale open pit mine will require additional environmental review and permitting but no immediate impediments have been identified. AMD classification test work has not identified a material AMD risk to date with the disseminated nickel mineralisation .
Bulk density	*Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*	Bulk density was measured for most diamond core sample intervals using the Archimedes method. Density measurements were taken on each interval that is sampled for assay testing prior to the sample being cut. Due to the low-grade character of the disseminated nickel mineralisation, there is minimal correlation between the measured density and the nickel grade.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit,	Bulk density was measured with natural moisture. Core from the transitional and fresh zones is tight with no vugs/voids and likely includes minimal moisture. Core from the oxide zone can contain voids and vugs and may contain some moisture.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Bulk density estimation is currently constrained to the mineralisation domain limits. Within these domains, the oxidation domains were used to control the estimation process. As more data is collected it is possible that density will demonstrate gradational change across the oxidation boundaries, as noted at the Ban Phuc disseminated sulphide deposit. If so, this will require a modified estimation process to allow for gradational change.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories*	The Competent Persons consider the quality of the drillhole and assay data is suitable to support the Inferred Mineral Resource classification. The deposit has been classified as an Inferred Mineral Resource primarily based on the current drillhole spacing. As a function of the mineralisation geometry and available project economics, the preliminary optimised pit shells captured approximately 97% of mineralisation, which given the preliminary nature of these optimisations resulted in all of the mineralisation meeting the RPEEE criteria.
	Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	It is the Competent Persons view that the applied Mineral Resource classification appropriately reflects the impact of all factors that relate confidence in the Mineral Resource estimate.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The Inferred resource classification is an accurate representation of the Competent Persons view of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	Other than Optiro internal peer review, there have been no audits or reviews of the Mineral Resource estimate.
	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate	No separate tests have been conducted to test relative accuracy of the MRE. There is good confidence in the supporting drillhole data and the global geological understanding of the deposit. The relationship between the estimation block size and local drill grid spacing is such that the Competent Persons anticipate that estimated block grade is likely to be achieved in the regions tested by closer spaced drilling as depicted by an Indicated classification. This observation is expected to hold if future mining relies on bulk open pit mining methods.

	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used	The resource model is considered to provide a global estimate, commensurate with the available data.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available	

Section 3c Estimation and Reporting of Mineral Resources – Specific to the BAN CHANG AND KING SNAKE Resource Estimates

Criteria	JORC Code explanation	Commentary
Database integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Drillhole collar, downhole surveying and downhole data was collected digitally using industry standard methods. The data is stored in an MS Access database and validated spatially using Leapfrog, Datamine mine planning packages All drillhole data was transferred from BSX to Optiro using csv format files, which were imported into Datamine Studio RM, using dedicated processes. All interpretation wireframes were completed in Leapfrog Geo, and transferred to Studio RM using DXF formatted files and dedicated import functions.
	Data validation procedures used.	Drillhole collar locations were compared to topography and allowing for drill pad preparation, correlated well. The drillhole data file import and desurvey procedure in Studio RM checks for missing, overlapping and duplicate sample intervals, of which none were identified. Summary statistics were generated to help identify any incorrect values in numeric fields, and none were found. All drillhole traces were examined for problematic surveys that show unrealistic deviation. The interpretation integrity was validated by visual comparison between the drillholes and domain wireframes and no issues were identified.
Site visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	No physical site visit has been undertaken by the Competent Person. However, a virtual 'site visit' was undertaken between the 15th and 19th of September 2021 as part of the Ban Phuc virtual site visit. The virtual 'site visit' assessed company independent and publicly sourced data and information about the project, ensuring there was a cohesive and consistent support for the company sourced project information. The independent data was compared to site and core photography, site documentation, and standard work procedures, all of which was consistent with the independently sourced data. The Ban Khoa, Ban Chang and King Snake specific data was reviewed 14th and 15th of November 2021, and consisted of checking available satellite images, core photography, and entered data.
	If no site visits have been undertaken indicate why this is the case.	A physical site visit was not undertaken due to COVID 19 international travel restrictions.
Geological interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	There is confidence in the deposit scale geological architecture at both deposits. However, at a local scale for both Bang Chang and King Snake, there is scope for geological complexity which is currently not well defined.
	Nature of the data used and of any assumptions made.	The drillhole sample data is all diamond drill core, but excludes historical assay data collected by the Vietnamese Geological Survey, because of uncertainty of the sample preparation and analytical protocols used at the time.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	At a deposit or global scale, alternative interpretations are considered unlikely. However, there is scope for local scale variability, but the current drill spacing, and available information is insufficient to reliably assess alternate interpretations. This has been reflected in the applied resource classification
	The use of geology in guiding and controlling Mineral Resource estimation.	The Mineral Resource is geographically constrained by the interpreted lithologies and mineralisation, being the host disseminated ultramafic at Ban Change, and the massive sulphide at Ban Chang and King Snake. The massive sulphide mineralised geometry was used to calculate the true thickness for the triple accumulation estimation technique used to estimate the massive sulphide domains at Bang Chan and King Snake.
	The factors affecting continuity both of grade and geology.	The lithology and the available drillhole spacing are the major factors affecting geological and grade continuity at both Ban Chang and King Snake.
Dimensions	*The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource*	The Ban Chang deposit includes two undulating tabular mineralised lodes, striking east-west, which are 580m apart along strike. The Ban Chan west lens is off-set 200 m south of the east lode. The west lens consists only of massive sulphide and is approximately 630 m along strike and 140 m vertically, with an average 1.6m true width, and dips 65-80 towards 180°.

		The east lens consists of a disseminated ultramafic lithology which encloses the massive sulphide mineralisation. The along-strike length of the eastern lens is approximately 450m along strike and 110m vertically with an average true width of 3.1m, and dips 70-75 towards 180°. The top of the mineralisation sub-crops at the eastern side of the mineralisation, plunging at 5-10° to the west, with the top of the mineralisation less than 30m below the topography. The King Snake deposit comprises a single undulating ENE-WSW striking massive sulphide lode. The lens extends approximately 760m along strike and 180m vertically. True width varies from 0.25 m to 3.5 m, with an average dip of 80° towards 170°. The top of the mineralisation plunges at 15-25° to the west, ranging from 5 to 120m below the topography.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.*	All grade modelling was undertaken in Datamine Studio RM (v1.10.100.0). For both Ban Change and King Snake deposits, A total of 24 elements were estimated – nickel, copper, cobalt, chromium, cadmium, iron, magnesium, sulphur, calcium, potassium, manganese, molybdenum, phosphorous, lead, titanium, zinc, silver, aluminium, arsenic, gold, bismuth, sodium, platinum and palladium, as well as density. Approximately 15% of the mineralised samples do not have gold or PGE assays. The main elements of economic interest (nickel, cobalt, copper and PGE's) exhibit low variability and low coefficient of variation or are potentially deleterious variables and hence, no top-cuts were applied. The main elements exhibited varying degrees of correlation between the grades of interest and density, which required the composite samples to be weighted by length and density. Samples without density determinations had a density assigned using a sulphur-density (Ban Chang) or a nickel-density (King Snake) regression for the purposes of creating composite samples. For the massive sulphide at both Ban Chang and King Snake, as a function of the highly variable widths of mineralisation, a triple accumulation method was used for the estimation of grades (grade x true thickness x density). For the estimation of density, an accumulation approach was used (true thickness x density), combined with the as well as estimation of the true thickness. For the disseminated ultramafic domain at Ban Chang, because of the wider and more consistent widths of mineralisation, length-density weighted 1.0 m downhole composite were created. At both deposits, normal scores transform continuity modelling was prepared for the accumulated nickel, accumulated arsenic, accumulated gold, accumulated density and true thickness were used in estimation. The accumulated nickel and gold variogram models were applied to other elements based on geochemical associations and correlation. Data spacing and kriging neighbourhood analysis were considered in the selection of the block size (20 m x 10 m x 10m at Ban Chang and 20 m x 5 m x 10 m at King Snake). And discretisation set to 4 E x 1 N x 4 RL discretisation. Boundary analysis supported the use of hard domain boundaries for estimation. The limited number of samples from the oxide and transitional oxidation domains meant that the oxidation boundaries were not used to control the estimation. No top-cuts were applied but either Ban Chang or King Snake. However, at King Snake validation of initial estimates identified a degree of excessive extrapolation. High-grade search restraints were used to reduce the spatial influence of a limited number of outlier accumulated grades for arsenic (5,000 ppm m), cadmium(10 ppm m), silver (27 ppm m), bismuth (70 ppm m), palladium (10 ppm m)and platinum (17 ppm m) to 25 m. These values were derived by iterative application of the restriction distances. For both Ban Chang and King Snake, the lack of sufficient data and very minor volumes associated with the oxide and transitional oxidations domains, sulphur and density were not estimated, but assigned from available average values . All other grade and density values were estimated using ordinary kriging. Locally, the mineralisation develops flexures, so dynamic anisotropy was used to define the local search neighbourhood. At Ban Chang, the number of informing samples was 8 and 16 samples for the ultramafic domain and 2 to 6 samples for the massive sulphide domain for all search passes. The primary search for both disseminated and massive sulphide lodes is 60 m by 30 m by 50 m. Secondary and tertiary searches extended these ranges by factors of two and four, with the tertiary search designed to ensure all model blocks were informed by a grade estimate. The first and second passes informed 84%

		and 16% respectively, of the total mineralised volume. The maximum distance of extrapolation was 90 m. At King Snake, the primary search for both disseminated and massive sulphide lodes is 150 m by 75 m by 50 m. Secondary and tertiary searches extended these ranges by factors of two and five, to ensure all model blocks were informed by an estimate. Over 99% of blocks were estimated within the primary search. The maximum distance of extrapolation was 69 m. Discretisation was set to 4 E x 1 N x 4 RL.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The Ban Chang and King Snake estimates are both maiden Mineral Resource estimates and there has been no prior production at either deposit, nor have any check estimates been undertaken.
	The assumptions made regarding recovery of by-products.	The currently available metallurgical test work indicates nickel, copper, cobalt, palladium, platinum and gold can be recovered by the current, planned processing route.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	Estimation of all elements including the deleterious elements used an identical estimation technique as the main economic variables Several elements were estimated that may assist in geo-metallurgical domaining including iron, magnesium and arsenic. Sulphur was estimated to assist geo-metallurgical domaining as well as to inform acid mine drainage characterisation. For Ban Chang and King Snake the lack of density and sulphur data in oxide and transition oxidation domains required the assignment of assumed domain averages from the available data for these two zones.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	This block dimensions were supported by the available drill spacing and kriging neighbourhood analysis, and reflects the geometric anisotropy determined from variogram analysis. The Ban Chang drilling has an along strike section spacing ranging from 25 m to 100 m, and on-section (N-S) spacing ranges from 25 m to 50 m. Mineralised intersections have a nominal spacing of 50 mE by 35 mRL spacing. The block size is 20 mE by 10 mN by 10 mRL. The primary search is 60 m by 30 m by 50 m, in the plane of the mineralisation. The King Snake drilling has an along strike section spacing ranging from 25 m to 100 m, and on-section (N-S) spacing ranges from 25 m to 75 m. Mineralised intersections have a nominal spacing of 50 mE by 50 mRL spacing. The block size is 20 mE by 5 mN by 10 mRL. The primary search is 150 m by 75 m by 50 m, in the plane of the mineralisation.
	Any assumptions behind modelling of selective mining units.	Mining selectivity is assumed to suitably reflect the respective block sizes for each deposit.
	Any assumptions about correlation between variables.	For the all domains, there is a demonstrable nickel- density correlation, and density has been used to length-density weight the composite samples. For the main elements at Ban Chang and King Snake, cross-correlations between elements helped inform which variogram model was applied to elements that did not have a unique variogram model developed. The accumulated nickel variogram model was applied to accumulated cobalt, copper, sulphur, iron, magnesium, aluminium, calcium, cadmium, chromium, potassium, manganese, sodium, phosphorous, lead, titanium, zinc, silver, molybdenum and bismuth estimation. The accumulated gold variogram model was applied to accumulated palladium and platinum estimation. This approach was adopted to deliver reasonable models for more poorly informed elements.

	Description of how the geological interpretation was used to control the resource estimates.	At both deposits, the mineralisation develops local flexures, hence dynamic anisotropy was used to define the local search orientation. Contact analysis supported the treatment of the mineralised domains as hard boundaries. Within the ultramafic complex, there is limited data in the oxide and transitional domain. Therefore, the oxidation boundaries have been not been used for estimation. However, sulphur and density values in the oxide and transitional material were assigned assumed average values.
	Discussion of basis for using or not using grade cutting or capping.	At Ban Chang all elements with the exception of arsenic exhibited grade distributions with low variability and therefore no top-cut has been applied. Arsenic is an exception, and had a moderately higher CV. However, as a deleterious element arsenic was not top-cut. At King Snake, all elements have low coefficients of variation except for arsenic (CV = 2). To minimise the impact of extrapolation of outlier values for arsenic, cadmium, silver, bismuth, palladium and platinum, high-grade restraints was applied to the accumulated grades for these elements. High grade restraints enable blocks within a specified distance to be informed by full composite values, whereas blocks beyond that distance are informed by a capped value if a composite exceeds a specified grade threshold. Restraining parameters (distances and capping threshold) were developed iteratively until validation checks for each element were deemed acceptable.
	The process of validation, the checking process used, the comparison of model data to drillhole data, and use of reconciliation data if available.	For both deposits, the block model grade estimates were validated by visually assessing the interaction between drillhole and estimated block grades, whole-of-domain statistical comparison and the appraisal of swath plots for the main elements (nickel, copper, sulphur) and density. All of the validation exhibited good correlation between composites and estimate for the main elements. For iridium, osmium, rhodium and ruthenium at both deposits, the correlation was more variable as a result of extrapolation, but is considered globally acceptable and reflected in the Mineral Resource classification. No production has taken place at either Ban Chang or King Snake.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	Tonnages are estimated with natural moisture. Moisture content within the transition and fresh rock domains is judged to be immaterial.
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied*	For Ban Chang and King Snake, the Mineral Resource has been reported at a 7,000 ppm nickel cut-off, based on the geometry and grade continuity, and available preliminary processing test-work. This test work has identified the presence of very limited non-sulphide nickel within the various host units.

<table>
<tr><td>Mining factors or assumptions</td><td>Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.</td><td>Ban Chang and King Snake deposits are considered amenable to both underground and open pit mining methods. However, the massive sulphide deposits have been assessed as being most likely exploited using underground mining methods, similar to that used at the previously mined Ban Phuc massive sulphide operation.
<table><tr><th>Metal Price</th><th>Unit</th><th>BASE</th></tr><tr><td>Ni Metal Price</td><td>USD/t</td><td>17,045</td></tr><tr><td>Au Metal Price</td><td>USD/oz</td><td>1,620</td></tr><tr><td>Cu Metal Price</td><td>USD/lb</td><td>3.58</td></tr><tr><td>Co Metal Price</td><td>USD/lb</td><td>18.60</td></tr><tr><td>Pd Metal Price</td><td>USD/oz</td><td>2,513</td></tr><tr><td>Pt Metal Price</td><td>USD/oz</td><td>1,250</td></tr><tr><td>Ni- Co-Mn Metal Price</td><td>USD/t</td><td>16,800</td></tr><tr><td>Ru Metal Price</td><td>USD/oz</td><td>400</td></tr><tr><td>Rh Metal Price</td><td>USD/oz</td><td>26,500</td></tr><tr><td>Os Metal Price</td><td>USD/oz</td><td>54,493</td></tr><tr><td>Ir Metal Price</td><td>USD/oz</td><td>6,250</td></tr></table></td></tr>
<tr><td>Metallurgical factors or assumptions</td><td>The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.</td><td>Previously, the historical Ban Phuc massive sulphide deposit has been processed using conventional sulphide floatation methods, and the Ban Chang and King Snake deposits will also be amenable to this processing option. Additionally, limited, preliminary metallurgical test-work has demonstrated that the Ban Chang and King Snake mineralisation is amenable to the planned processing route.</td></tr>
<tr><td>Environmental factors or assumptions</td><td>Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made</td><td>The Ban Phuc massive sulphide operation, adjacent to the Ban Phuc disseminated prospect and proximal to the Ban Change and King Snake prospects was previously operated under Vietnam’s national environmental laws and guidelines. Mining of the Ban Chang and/or King Snake deposits will require additional environmental review and permitting, but no immediate impediments have been identified.
AMD classification test work has not identified a material AMD risk to date with the disseminated nickel mineralisation .</td></tr>
<tr><td>Bulk density</td><td>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.</td><td>Bulk density was measured for most diamond core sample intervals using the Archimedes method. Density measurements were taken on each interval that is sampled for assay testing prior to the sample being cut. Due to the low-grade character of the disseminated nickel mineralisation, there is minimal correlation between the measured density and the nickel grade.</td></tr>
</table>

	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit,	Bulk density was measured with natural moisture. Core from the transitional and fresh zones is tight with no vugs/voids and likely includes minimal moisture. Core from the oxide zone can contain voids and vugs and may contain some moisture. At Ban Chang and King Snake mineralisation, default density values were assigned to the oxide (assigned density was 2.5 t/m3) and transitional zone (assigned density was 2.8 t/m3). Density in the fresh zone was estimated from available density determinations exclusively.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	For Ban Chang and King Snake massive sulphide veins, there were good nickel (King Snake) and sulphur (Ban Chang) density correlations in the fresh zone. Regression equations with these elements were used to inform the creation of the triple accumulation variables if samples did not have a density determination. For the Ban Chang disseminated ultramafic vein, the correlation was poorer but still evident, and correlation was used when required. The oxide and transitional samples within the mineralised domains used an average zone density value for the creation of the composite samples. Due to the limited number of available samples, the Mineral Resource estimate bulk density for the mineralised oxide and transitional zones at Bang Chang and King Snake were assigned default averages.
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories*	The deposit is classified as an Inferred Mineral Resource. The extent of this classified resource is yet to be constrained to a RPEEE limit formed by a pit shell which was generated using: For Ban Chang and King Snake, the Mineral Resource RPEE has been assessed on the basis that both deposits will be mined from underground, using mining methods similar to the previous underground mining at the Ban Phuc massive sulphide deposit. The topography is such that it provides opportunity to minimise capital development. The Competent Persons consider the quality of the drillhole data, the available continuity model and current geological understanding restricts the Mineral Resource classification at Ban Chang and King Snake, to an Inferred Mineral Resource.
	Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	It is the Competent Persons view that the applied Mineral Resource classification appropriately reflects the impact of all relevant factors.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The Inferred Mineral Resource classification is an accurate representation of the Competent Persons view of the deposits.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	Other than Optiro internal peer review, there have been no audits or reviews of the Mineral Resource estimate.
	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate	No separate tests have been conducted to test relative accuracy of the MRE. There is good confidence in the supporting drillhole data and reasonable confidence the global geological understanding of the deposit commensurate with the available data.

	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used	As an Inferred Mineral Resource, the 2021 Ban Chang and King Snake estimate are considered global estimates only.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available	The deposit is currently undergoing pre-feasibility study assessment and has not been subjected to any production.

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15 JORC CODE TABLE 1 SECTION 4

Estimation and Reporting of Ore Reserves

Criteria	Explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	• *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* • *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	• Mineral resources that have been converted to Ore Reserve are from Resources in this Ore Reserve. (There are no Measured resources). • No inferred or potential material were included in the Ore Reserve. • Indicated Resources are converted to Probable Ore Reserves after assessing and applying the appropriate mining factors. • Indicated material that has Ni grades < 3000 pm were not converted to Ore Reserve. • The Ore Reserve is a subset of the Mineral Resource for Ban Phuc.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• The competent person is Mr Richard Jundis, Director of Mining for Optimize Group. • No site visit was undertaken by the Competent Person due to travel restrictions during the Covid-19 pandemic. There are no existing mine workings in the Ban Phuc Open Pit area to examine. • However, a pre-recorded video by Mr Steve Ennor of the site was viewed, focusing on the existing processing plant.
Study status	• *The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.* • *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.*	• To convert Mineral Resources to Ore Reserves, the appropriate mine planning methods and techniques to develop the Ore Reserves at a Pre-Feasibility Study (PFS) level. • Any material classified as an Inferred Mineral Resource was not included in any of the Pre-Feasibility study Ore Reserve calculations. • Deswik mine planning software and excel models were the primary tools used to develop the PFS. • The current mine design, mining method, scheduling parameters, modifying factors, estimated costs and knowledge gained from other open pit operations in Vietnam are used in the Ore Reserve estimate.
Cut-off parameters	• *The basis of the cut-off grade(s) or quality parameters applied.*	• For each block, the revenues and costs were calculated. Revenues are based on assumed metal prices and metallurgical recoveries. Costs include mining, processing, refining, general administration, fees, royalties, transportation, and other fees. • The cut-off is based on blocks whether it generates a net profit and is flagged as ore or waste. • As a result, the Nickel cut-off grades for transition and fresh rock material were determined to be 0.36% and 0.30% respectively.
Mining factors or assumptions	• *The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).*	• The ultimate pit was designed using Deswik software. The mine planning – sequencing – and pit design works were developed using the same software. • The optimization cost parameters were estimated from benchmarking data and first principle calculations and are outlined in the operation cost item below.

		• The proposed mining method for the Ban Phuc Project is open pit mining. A pre-stripping period is required, and site access preparations are minimal. • The ore will feed a conventional beneficiation plant and the waste will be stored in appropriate waste dump locations. • Measured, Indicated and Inferred Mineral Resource material blocks were assigned revenue and cost values to drive the pit optimization shell. • Only Indicated Material Resources with Ni Grades > 3000 ppm are included in the Reserve estimate. Inferred Mineral Resources were considered for pit optimization purposes. • The original geological sub-blocked block model was regularized to a Selected Mining Unit (SMU) block sizes of 10m x 10m x 10m. The SMU block size was selected based on the ore body size and orientation and selectivity of mining with the equipment selected. • In the process of regularization of the blocks, dilution and ore losses are introduced. No other mine dilution and recover factors have been applied. • Ore Reserve tables are stated in dry metric tonnes (dmt). • The mine parameters were set to accommodate the selected 90t trucks and are set out below. Free digging is expected in oxide, transition and fresh rock ore and waste and as such the mining will be performed on nominal 10 metres benches, with final bench heights of 20 metres.
	• *The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.*	• The nature of the mineralised body makes open the mining methods, on the scale and design basis chosen, appropriate for the task. The broadly extensive mineralised zones enhance the methods assessed. Alternative methods may be assessed in the future.
	• *The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc), grade control and pre-production drilling.*	• PSM Consult Pty Limited provided the PFS Pit Slope Design Parameters in August 2021. A summary of the recommended inter-ramp angles, bench heights and berm widths:

Geotechnical Zones	Inter-ramp Angle (1) (°)	Batter Face Angle (°)	Maximum Bench Height (m)	Minimum Berm Width (m)
1	37	50	10	5
2	42	55	20	8
3	46	60	20	8
4	27	55	10	13
5	49	65	20	8
6	17	40	10	21

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		 **Figure 4-1: Design Pit Slopes by Zone (plan view)**
	• *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).*	• Pit optimizations were run using the Deswik Pseudo flow module using revenue, costs and geotechnical inputs. • The geotechnical pit slope angles from PSM consultants were coded into the block model and were used in the pit optimization processes. • The Geotechnical Zone 6 is a shear zone that is approximately 20m wide and encapsulates the main ore zones in a U-shaped pattern. Zone 6 is relatively flat at the bottom and sub-vertical to surface. • Initial pit optimization runs pushed the pit walls 60-80 meters from the Zone 6 and included excessive waste tonnes. It was recommended by PSM that the final pit walls may be designed closer to Zone 6 to reduce the waste tonnes and the pit slopes increased to 42-46 degrees. • The parameters were adjusted according to the above recommendations and the final pit optimizations included a reduced amount of waste tonnes. • Along the bottom of the orebody, PSM also recommended to design the final pit below the Zone 6 to avoid undercutting the shear zone along the contact.
	• *The mining dilution factors used.*	• By using a Selected Mining Unit (SMU) considered is a 10m x 10m x 10m, the ore is diluted, and ore losses are incurred. No further mining dilution is applied.
	• *The mining recovery factors used.*	• By using a Selected Mining Unit (SMU) considered (10m x 10m x 10m), the ore is diluted, and ore losses are incurred in this process. No further mining recovery factors is applied.
	• *Any minimum mining widths used.*	• A minimum mining width of 45m between pit pushbacks was used in the design process.
	• *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.*	• The pit optimizations incorporated Measured, Indicated and Inferred Resources to generate pit shells at different Revenue Factors (RF's). The RF=0.9 pit shell was selected and the pit shell was used to guide the final pit design.

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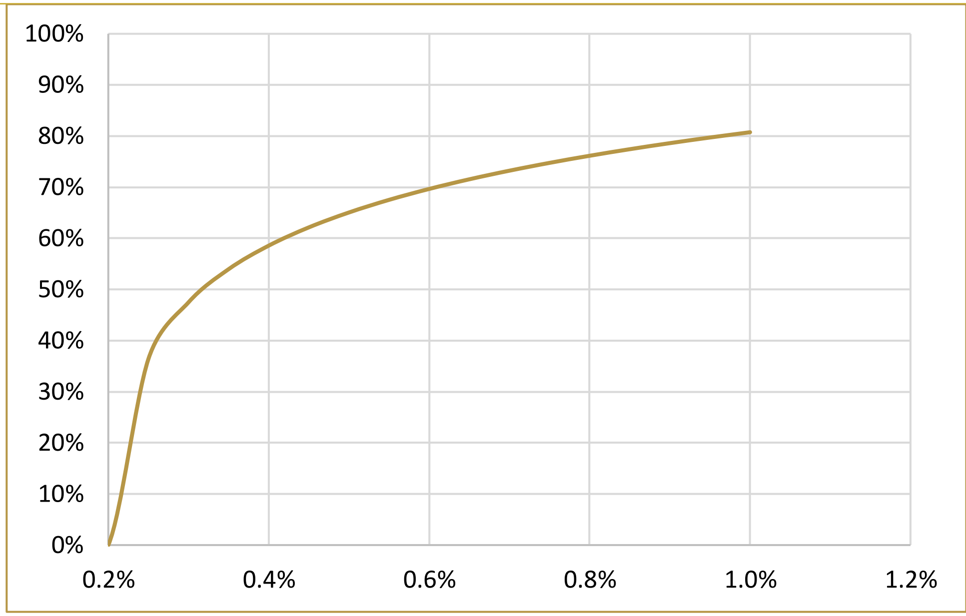
		• A life-of-mine (LoM) plan was generated using the final pit designs, with Indicated and Inferred Mineral resources. However, the final Ore Reserves are calculated using only Indicated Resources within the final pit design.
	• *The infrastructure requirements of the selected mining methods.*	• The open pit mine infrastructure is designed to support the LoM plan and selected mining equipment. • The infrastructure facilities include maintenance buildings, warehouse, fuel pad, administration offices, lunch/washroom buildings, parking areas and other key service buildings.
Metallurgical factors or assumptions	• *The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.*	• The Ban Phuc is a disseminated nickel sulphide deposit. The metallurgical process includes crushing, grinding, floatation, thickening and filtering. • Metallurgical recoveries are based on recovery curves from test work and assigned to blocks according to Nickel grade ranges. • The metallurgical processes selected are appropriate for this style of mineralization • Both Transition and Fresh ore are sent to the processing plant. For transition ores, only 50% of the material is considered recoverable (before any metallurgical recoveries are applied). • Any Oxide material mined was not considered recoverable at the mill and is sent to the waste dump.
	• *Whether the metallurgical process is well-tested technology or novel in nature.*	• The metallurgical process selected is well-tested and implemented technology.

	• *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.*	• The PFS metallurgical test-work program built upon historical test-work completed on the Ban Phuc DSS by Peter J Lewis & Associates & Dunstan Metallurgical Services (Report M0755B, March 2005),
		• The PFS program was managed by BSX, and executed by ALS Laboratories Balcatta WA,
		• A large master composite was prepared from 25 diamond drill holes (DDH) with a mass of approximately 670kg which represented a total of 733 metres of down hole (mdh) nickel mineralisation within the Ban Phuc geological resource
		• The test-work program included:
		  ○ Crushing characterization tests (CWi, Abrasion index)
		  ○ Comminution characterization including SMC Tests, JKDW, BRWi and BBWi
		  ○ Flotation flowsheet work
		  ○ Tailings and Concentrate thickening and filtration test-work
		• Bulk sample selection was representative of the life of mine feed, with additional variability samples selected to reflect the overall variability.
		• Metallurgical domaining was primarily focused on grade ranges to understand the grade recovery relationship of the ore body.

Element	Recovery
Ni Recovery (8% Concentrate)	57%[1]
Co Recovery	74%
Cu Recovery	42%
Au Recovery	38%
Pt Recovery	48%
Pd Recovery	48%

		 Nickel Grade Recovery Curve assigned on a resource model block Ni grade basis.
	• *Any assumptions or allowances made for deleterious elements.*	• The Ban Phuc DSS, Ban Chang and King Snake deposits will produce a concentrate to feed to the BSX TKR hydrometallurgical plant. • Conventional nickel concentrate deleterious element considerations are not applicable • Elements like Sulfur, MgO and Arsenic can be handled by this hydrometallurgical flowsheet but have an impact on operating costs. The impact of these costs has been incorporated into the NSR calculations for the Pit Optimisation and MSO processes.
	• *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.*	• In Dec 2021, Blackstone Minerals announced the approval to mine ~1,000m of underground development under the Ban Phuc disseminated orebody to obtain bulk ore samples. • At the time of issue, 400 meters of development had been completed with 362tonnes of ore delivered to the mill. • The Ban Phuc Nickel Concentrator will be recommissioned to produce two batches of Nickel concentrates for use in the Ta Khoa Refinery piloting programs. Refurbishment has been completed and ore from the bulk sample drive is passing through crushing circuit.
	• *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*	• Extensive mineralogical testing has confirmed the metal minerals expected are abundant. Subsequent laboratory float testing and recovery mineral metal extraction (laboratory scale) has been proven. Pilot Plant construction has begun in Perth.
Environmental	• *The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable,*	• Preliminary Geochemical analysis completed in 2020 indicates that all Ban Phuc DSS waste and tailings material will be net acid consuming. • Ban Chang and King snake tailings will be acid generating, but given they make up such a small proportion of the plant feed, and acid generated will be consumed by the Ban Phuc tailings.

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	the status of approvals for process residue storage and waste dumps should be reported.	• A further geochemical analysis program has been commenced by Golder Associates, and will contribute to the DFS study. • Collection of run-off water from waste dumps are to be collected in storage ponds for monitoring and treatment if needed. • The PFS design incorporates an Integrated Waste Landform (IWL) which combines the disposal locations of filtered plant tailings and mine waste. • Approval process of this facility will commence in Q2, 2022
Infrastructure	• The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	• The project design provides for development of the required land for infrastructure. • Project land use request has been lodged with the Son La Peoples Committee and BSX expects to received approval in late 2022. • The location of the Ban Phuc Open pit infrastructure facilities are located adjacent the ROM pad and the Filtration Plant, at the 1260m elevation (local mine coordinates). • The infrastructure facilities are within short distance to power, water, transportation, labour and accommodations.
Costs	• The derivation of, or assumptions made, regarding projected capital costs in the study.	• All capital costs have been developed to an AACE Class 4 (±25%) accuracy level. • Open Pit Mine Capital costs are estimated for the pre-stripping mining, working capital and the purchase of fixed and mobile equipment. • Processing and project infrastructure costs were estimated by CPC Engineering, based on budget equipment pricing and preliminary design MTO's. • IWL costs were estimated by Golder Associates. Costs were developed from the design MTO's and the LOM production profile provided by BSX.
	• The methodology used to estimate operating costs.	• The open pit mining costs were based on first principle calculations and bench marking costs from other Vietnamese mine operations. • Processing and G&A costs were based on first principles build-up of activities and allowances • IWL costs were estimated by Golder Associates. Costs were developed from the design MTO's and the LOM production profile provided by BSX.
	• Allowances made for the content of deleterious elements.	• Deleterious elements and minerals will be managed and contained in the company's downstream refinery process
	• *The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products.*	• The Base Case price assumption for nickel metal has been referenced from Bloomberg Consensus data • Third Party nickel concentrate market payability is based on independent specialist advice • The Base Case price assumptions for cobalt metal and cobalt sulfate have been referenced from Benchmark Mineral Intelligence (BMI) • The Base Case Manganese Sulfate price assumption is based on spot prices referenced from SMM

Metal Price Assumption	Unit	BASE
Nickel Metal	US$/t	20,000
Cobalt Sulfate (21%)	US$/t	13,659
Manganese Sulfate (32%)	US$/t	1,427

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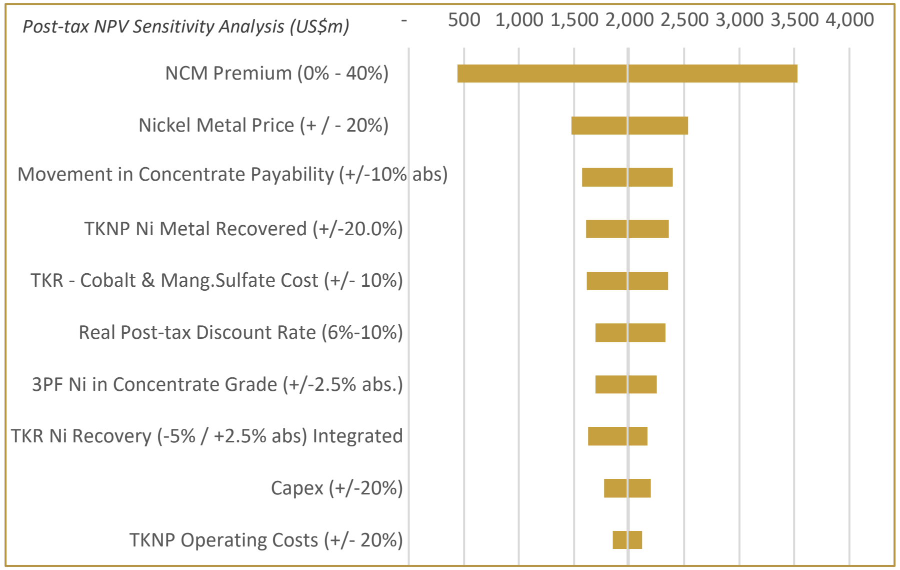
	• *The source of exchange rates used in the study.*	• BSX assumptions used which are based on analyst advice.
	• *Derivation of transportation charges.*	• First principles build-up based on single trailer, 25T road haulage in Vietnam.
	• *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.*	• Payabilities have been estimated based on the current market conditions for nickel concentrate and estimated cost based on operating a hydrometallurgical refinery. Similarly, penalties assumptions have factored in market conditions, the ability of a hydrometallurgical refinery to process and recover metals and operating costs of the hydrometallurgical refinery.
	• *The allowances made for royalties payable, both Government and private.*	• Government Royalties have been included as per current Vietnamese Law • No Private Royalties are applicable
Revenue factors	• *The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.*	• Revenue assumptions are based on underlying metal price forecasts that are derived from independent forecasts, which based on demand and supply projections • Revenues were estimated in USD and therefore exchange rate exposure was not applicable. • Payabilities have been estimated based on current market condition for nickel concentrate and estimated cost based on operating a hydrometallurgical refinery. Similarly, penalties assumptions have factored in market conditions, the ability of a hydrometallurgical refinery to process and recover metals and operating costs of the hydrometallurgical refinery. • Transport cost were estimated on a $/tkm basis using advice from Vietnamese transportation and logistics consultants.
	• *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.*	• All principal metal price assumptions have been made based on consensus pricing. • The Base Case price assumption for nickel metal and copper cathode have been referenced from Bloomberg Consensus data • The Base Case price assumptions for cobalt metal and cobalt sulfate have been referenced from Benchmark Mineral Intelligence (BMI) • The Base Case Manganese Sulfate price assumption is based on spot prices referenced from SMM • A 20% premium has been applied to determine NCM811 Precursor Price, a full explanation of BSX applied methodology is contained in the ASX announcement dated 26 July 2021

Metal Price Assumption	Unit	BASE
NCM811 Precursor	US$/t	17,670
Nickel Metal	US$/t	20,000
Cobalt Metal	US$/t	65,768
Cobalt Sulfate (21%)	US$/t	13,659
Manganese Sulfate (32%)	US$/t	1,427
Copper Cathode	US$/t	10,000

Market assessment	• *The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.*	• Market analysis of NCM precursor was provided by independent consultants. Demand and supply are closely tracked on a monthly basis and pricing of the product is available live on the Shanghai Metal Market. Strong future demand is projected given the anticipated strong growth in the EV market whist supply in key commodities including nickel appears constrained.
	• *A customer and competitor analysis along with the identification of likely market windows for the product.*	• A comprehensive analysis has been undertaken to cover the NCM precursor / cathode market which mapped out current precursor / cathode producers. BSX is in direct dialogue with cathode producers for the potential offtake of the products.
	• *Price and volume forecasts and the basis for these forecasts.*	• NCM pricing forecast are based on underlying metal assumptions as described earlier. Live price is tracked daily on the Shanghai Metal Market. Volume forecasts are based on projected demand from EV batteries provided by independent consultants.
	• *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.*	• There are no industrial minerals present and therefore none assessed in the studies prepared.
Economic	• *The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.*	• For the purposes of preparing an economic analysis and determining a NPV, a financial model assessing real post-tax unleveraged free cash flows at the project / asset level has been prepared. A monthly financial model has been deemed appropriate by BSX to evaluate the timing of upfront capital expenditure, to reflect an appropriate the ramp up/ commissioning of the Refinery as well as suitably capture variability in concentrate feed composition over the life-of the operations. • The financial model assumes a start date and valuation date of 1 March 2023 and does not include pre-commitment costs that will be expended by BSX prior to a Final Investment Decision (FID). • Given historically low global interest rates that persist at the time of compiling this report, BSX considers real project level post-tax discount rate of 8% applied to value the Refinery to be reasonable. A review of recent broker reports and several recent similar studies published on the ASX have also adopted a real project level post-tax discount rate of 8%. • Revenues, capital costs and the majority of operating were estimated in USD and therefore exchange rate exposure was limited in the economic evaluation. The key operating cost with exposure to exchange rates were royalties, which were converted to USD estimate based on conversion factor of 1USD = 23160 VND • The financial model assesses real post-tax unleveraged free cash flows at a project / asset level. The economic modelling performed by BSX does not assume any real escalation to revenue or cost inputs into the model. • Tax has been modelled for the TKNP and TKR individually, given that both of these assets have different applicable tax regimes. • The TKNP is subject to a 20% corporate tax rate. The TKR has significant corporate tax incentives available as summarised in the table below.

Years of Operation	%	Corporate Tax Rate
0-4	%	0%
5-13	%	5%
14-15	%	10%
>15	%	20%

	• *NPV ranges and sensitivity to variations in the significant assumptions and inputs.*	• The Project (inclusive of the Ore Reserves, as well as the Indicated and Inferred Resource material) has been valued on an integrated (upstream and downstream) operating basis. The table below outlines the key sensitivities and their impact on the combined project NPV.  • A separate reserves only case was modelled by Optimize group and BSX to confirm project economics with reserves only feed source, using base case economic parameters (as detailed above).
Social	• *The status of agreements with key stakeholders and matters leading to social licence to operate.*	• BPNM is 10% owned by Coxama, a private industrial conglomerate with primary operations in Son La. A shareholder agreement exists between the BPNM shareholders.
Other	• *To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:*	
	• *Any identified material naturally occurring risks.*	• An initial investigation into seismic hazards has been carried out (in relation to plant construction design parameters). Such design criteria will be implemented into subsequent engineering and pit designs, while the hazard assessment will be updated as part of the final DFS
	• *The status of material legal agreements and marketing arrangements.*	• No marketing agreements are in place. The PFS considers that the product from the upstream business feeds into the company's downstream business.
	• *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all*	• Current exploration licences exist for the area covered by this Study. • The company has exclusive rights to search for mineral deposits on the exploration leases • BSX sees no reason that the required permits and licences wouldn't be issued for the successful execution of this project

	necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	• Project development timelines have been developed in conjunction with BSX Vietnamese permitting and licencing advisors. The proposed timeline includes fair allowances for receival of relevant permits, approvals and licences.
Classification	• *The basis for the classification of the Ore Reserves into varying confidence categories.*	• The Probable Ore Reserves include resource blocks within the final pit design which indicate positive value in the pit optimisation, are >0.3% Nickel and are classified as INDICATED in the resource estimate.
	• *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• The Ore Reserves were classified following the guidance of JORC Code 2012 and shown in the following table. (see table below) • The estimate appropriately reflects the view of the competent person.
	• *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	• There are no measured resources, and inferred resources are excluded from Ore Reserves.
Audits or reviews	• *The results of any audits or reviews of Ore Reserve estimates.*	• Audits or reviews have been conducted internally by Optimize Group as part of the company's standard internal peer review processes. No external or independent reviews have been conducted
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.*	• The accuracy and confidence levels of the study are suitable for the reporting of Ore Reserves after the Pre-Feasibility Study as required by the JORC Code. There is no project production data for benchmarking of the Ore Reserve estimate. • To reflect the size of equipment selected and relative selectivity of mining, the block model was regularized to an SMU of 10m x 10m x 10m block sizes. The regularization blocks introduce dilution and ore losses in the estimation process. The block model was also coded with the geotechnical pit slope angles, and the revenues and costs were calculated for each block. The pit optimizations were run using the modified block model and the final pit shell selected was conservative. • The selected pit shell as a guide in the design process, but additional waste was added to the final design to ensure that geotechnical constraints were met and to include the main ramp accesses and safety berms.
	• *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used*	• The Ore Reserves statement relates to global estimates. Factors that may affect global grade and tonnage estimates may include geological interpretation, density assumptions, and process performance. • A grade control plan is included in the PFS as part of the project readiness to control these factors.
	• *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.*	• Other work required from a mining perspective that will be completed as a part of the Feasibility Study includes, but is not limited to: filtered tailings classification and study for in-pit back fill of this material; more detailed mine and waste sequencing to further optimize mining costs and minimize surface disturbance area; and, use of battery electric haul trucks with dynamic charging to reduced diesel fuel consumption.

Classification	Tonnes	Ni	Cu	Co	S	Mg	As
	(kt)	(pct)	(ppm)	(ppm)	(pct)	(pct)	(ppm)
Probable - Ban Phuc OP	48,747	0.43	379	110	0.34	22.05	23.92

Looking forward. Mining green.

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