



**CASSINI**  
RESOURCES LIMITED

ASX Release (CZI)  
12 February 2020

## Nebo-Babel Pre-Feasibility Study: a significant milestone for Cassini

### HIGHLIGHTS:

- High quality Pre-Feasibility Study places Nebo-Babel deposits in lowest quartile of forecast global nickel producers
- Robust economics on 26 year mine life, open pit, low carbon footprint operation
- Maiden Ore Reserve supports first 22 years of operation
- Project funding options to be progressed
- Opportunities to add additional value through further exploration and development activities across the 9,500km<sup>2</sup> West Musgrave Province

Cassini Resources Limited (“Cassini, the Company”, ASX:CZI) notes the announcement made today by Joint Venture Partner OZ Minerals Limited (ASX:OZL) regarding results of the Nebo-Babel Pre-Feasibility Study (“PFS”). The PFS, Ore Reserve Statement and Mineral Resource Statement are attached to this announcement at Annexure A.

Cassini Managing Director, Mr Richard Bevan said “We are delighted with the Pre-Feasibility Study outcomes for the Nebo-Babel deposits. This is a very significant milestone for the West Musgrave Project (“WMP, the Project”) and all its stakeholders. The PFS clearly demonstrates the strategic value of this project by confirming excellent economics on a long life, low operating cost nickel and copper mine at Nebo-Babel.

“The OZ Minerals Technical Team, aided by CZI’s own geologists, has delivered a very high quality PFS with spending in excess of \$50m to date. Substantial progress has been made on the metallurgical and resource definition work packages which has significantly de-risked the project. Over 170,000m of drilling has facilitated several phases of metallurgical pilot testing and the release of the Maiden Ore Reserve which supports the first 22 years of mining, a remarkable achievement at this stage of study.”

### Key Metrics for Cassini’s 30% relevant interest in the WMP

Key Financial and Production Metrics	Unit	Cassini Interest <sup>1</sup>
Average Ni Production Yr 1 - 5	ktpa	~ 8.1
Average Ni Production Yr 6 - Life of Mine	ktpa	~ 6.6
Average Cu Production Yr 1 - 5	ktpa	~ 9.9
Average Cu Production Yr 6 – Life of Mine	ktpa	~ 8.1
Pre-production capital	A\$m	~ 298
Average annual net cash flow (post tax)	A\$mpa	~ 57

1. Cassini’s interest in the WMP is calculated by taking 30% of the WMP Financial and Production Metrics as set out in the PFS Announcement in Annexure A.

The value of the WMP to Cassini may vary from a direct 30% of the WMP NPV, including due to the following modifying factors:

- i) Under the terms of the JV Agreement, CZI is not required to fund any costs associated with the Feasibility Study or any associated Option or Scoping Studies at the WMP until OZ Minerals deliver a bankable FS report on Nebo-Babel. CZI's 30% of the JV costs (in excess of the A\$36m earn-in amount), are funded by OZ Minerals as part of a deferred loan carry. The loan is to be repaid 5 years after the commencement of commercial production. As at 31 December 2019 the loan carry amount was A\$7.265M (see Quarterly Activity and Cash flow Statement released 24 January 2020). Cassini is currently unable to determine the date of completion of either a Feasibility Study or the commencement of commercial production, should they occur. OZ Minerals is the operator of the WMP JV.
- ii) As per the terms and conditions of Cassini's original agreement to acquire the WMP (see ASX announcement 14 April 2014), CZI is liable for a one-off A\$10m payment (escalated by CPI), 12 months after first production to BHP Billiton.

As a result, Cassini is unable to calculate a NVP for its interest in the WMP at this time. Cassini will keep the market informed as the WMP JV progresses.

#### **Production Target Cautionary Statement**

The Production Target and forecast financial information derived from the Production Target referred to in this ASX release is based on 84% Probable Ore Reserves, 5% Indicated Mineral Resources and 11% Inferred Mineral Resources. The modifying factors used in the estimation of the Ore Reserve were also applied to the Indicated Resources and Inferred 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 material assumptions used in the estimation of the Production Target and associated forecast financial information are set out in West Musgrave Project Nebo-Babel Mineral Resource and Ore Reserve Statements and Explanatory Notes as at 11<sup>th</sup> February 2020, Table 1.

Supporting information for the production target above can be found in Annexure A.

The Ore Reserve and Mineral Resource estimates underpinning the Production Target were prepared by a Competent Person in accordance with the JORC Code 2012.

Mr Bevan further commented "The PFS considers a modern mine development driven by innovation in mining, processing and power generation. This innovation has led to significant improvements in operating costs which now places the project in the lowest quartile of forecast global nickel producers. With a mine life of over 26 years, the project will be well placed to capitalise on the high points of the nickel commodity price cycle and be resilient during periods of lower prices as well.

"World demand for high-quality battery and electrification metals is expected to ramp-up over the coming years. We note the dearth of advanced, quality, scalable nickel sulphide projects worldwide, which can satisfy this emerging market.

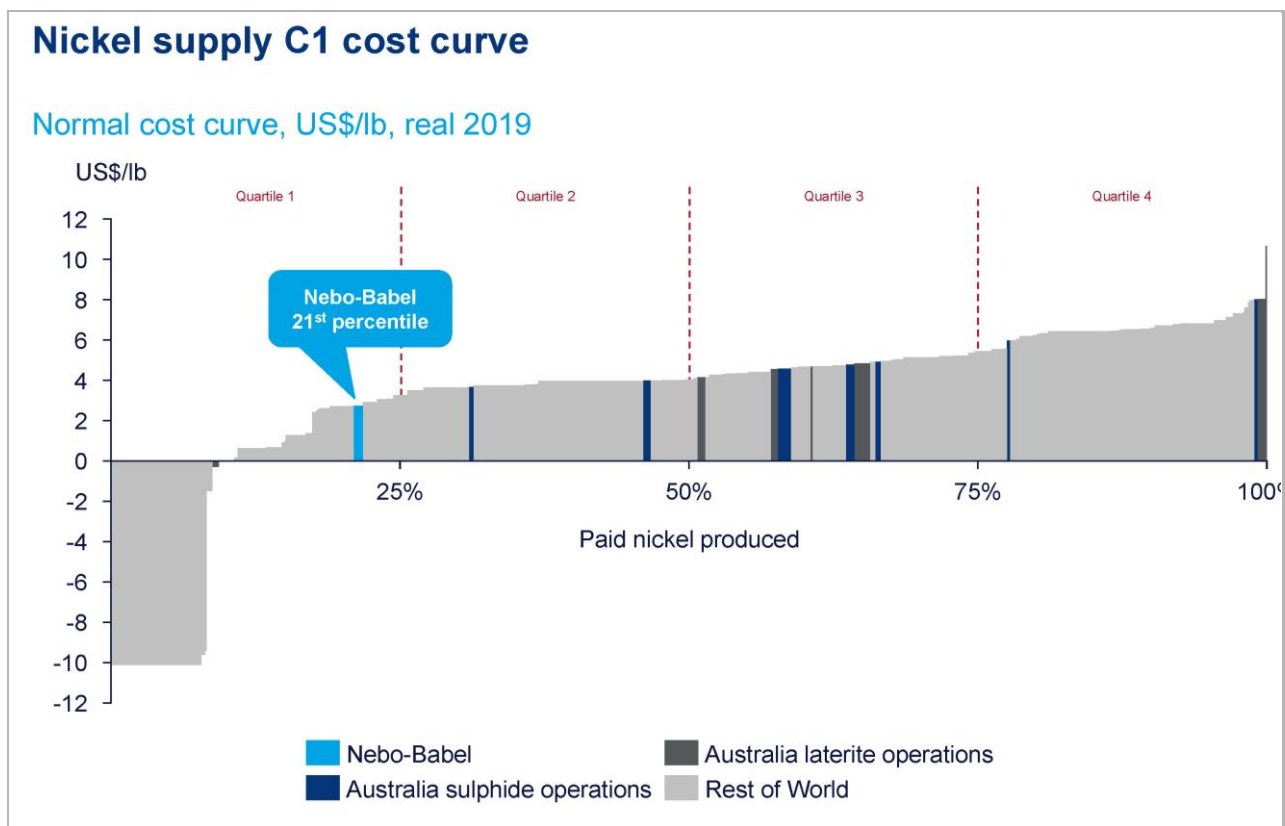
"Another exciting aspect is that the study is based only on the Nebo-Babel deposits and does not include deposits or exploration prospects within the broader Joint Venture project area. There are clearly defined opportunities to add additional value over time with continued exploration and development activities. We have recently expanded the project footprint to over 9,500km<sup>2</sup> in what is currently an under-explored province with enormous potential.

“I’d like to commend our Joint Venture partner OZ Minerals and their Project team for delivering an exceptional study. We have enjoyed an excellent working relationship with OZ Minerals and look forward to progressing together through the next study phase and on to production.

“Lastly, I’d like to thank our technical team for their valuable contribution to the PFS and of course, our loyal shareholders for their support during this journey. We look forward to their continued support as the Company takes the next steps to realise the full value of the West Musgrave Project.”.

### Becoming Australia’s flagship nickel sulphide producer

Cassini commissioned Wood Mackenzie to provide independent bench marking of the project against all forecast global nickel producers. Wood Mackenzie confirmed that the forecast C1 operating costs of the project would place it in the lowest quartile of global nickel production (Figure 1). This demonstrates that Nebo-Babel will be a high margin producer driven by low mining costs, substantial by-product credits and innovative, low power, processing solutions.



**Figure 1.** Global nickel supply C1 cost curve – 2026. Notes: Cost curve from Wood Mackenzie data, Nebo-Babel costs provided by Cassini Resources Limited. Year 2026 is the third year of production with annual metal output approximating the first ten years of production.

### Project Funding

Cassini is not required to contribute to the West Musgrave Project costs until a Bankable Feasibility Study is delivered by partner OZ Minerals. Once the final investment decision is made, Cassini is required to contribute its share of the pre-production capital in line with its equity position in the JV (i.e. 30% or ~A\$300m).

It is the view of the Company that the strong project economics, key strategic characteristics of the project (26 year mine life, lowest quartile for operating costs) and the presence of a strong JV partner will provide a number of funding options for the Company.

Cassini has been approached and is engaged in discussions with a number of potential funders, at a level commensurate with the current stage of the WMP. These include debt financing, traditional bank resource project financing, offtake funding and streaming mechanisms. These discussions are continuing.

Investors should note that there is no certainty that Cassini, either individually or jointly with its JV partner, will be able to raise the funding required, or that funding may only be available on terms that may be dilutive to, or otherwise affect, the value of each company's existing shares. It is also possible that the partners, either individually or jointly, could pursue other value realisation strategies

Authorised for release to the market by:

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### **About the Company**

Cassini Resources Limited (ASX: CZI) is a base and precious metals developer and explorer based in Perth. In April 2014, Cassini acquired its flagship West Musgrave Project (WMP), located in Western Australia. The Project is a new mining camp with three existing nickel and copper sulphide deposits and a number of other significant regional exploration targets already identified. The WMP is the largest undeveloped nickel - copper project in Australia.

In August 2016, Cassini entered into a three-stage \$36M Farm-in/Joint Venture Agreement with prominent Australian mining company OZ Minerals Ltd (ASX: OZL). The Joint Venture provides a clear pathway to a decision to mine and potential cash flow for Cassini.

Cassini is also progressing its Mt Squires Gold Project (CZI 100%), and the Yarawindah Brook Nickel - Copper - Cobalt Project (CZI 80%), both located in Western Australia.

### **Forward Looking Statements**

Some statements in this document may be forward-looking statements. Such statements include, but are not limited to, statements with regard to capacity, future production and grades, projections for sales growth, estimated revenues and reserves, targets for cost savings, the construction cost of new projects, projected capital expenditures, the timing of new projects, future cash flow and debt levels, the outlook for minerals and metals prices, the outlook for economic recovery and trends in the trading environment and may be (but are not necessarily) identified by the use of phrases such as “will”, “expect”, “anticipate”, “believe” and “envisage”.

By their nature, forward-looking statements involve risk and uncertainty because they relate to events and depend on circumstances that will occur in the future and may be outside OZ Minerals’ control. Actual results and developments may differ materially from those expressed or implied in such statements because of a number of factors, including levels of demand and market prices, the ability to produce and transport products profitably, the impact of foreign currency exchange rates on market prices and operating costs, operational problems, political uncertainty and economic conditions in relevant areas of the world, the actions of competitors, activities by governmental authorities such as changes in taxation or regulation.

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In the event any of this report and the data or information therein is disclosed publicly, Wood Mackenzie makes no representation or warranty regarding the data, analyses, judgments or opinions contained in this report including, but not limited to, warranties of merchantability or fitness for a particular purpose or use except as expressly set forth therein.

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**ANNEXURE A – OZ Minerals Announcements**

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12 February 2020

## West Musgrave Pre-Feasibility Study - a low carbon, long-life, low-cost mine

- Three-fold increase in life of operation to ~26 years with throughput at 10 Mtpa
- Maiden Ore Reserve of 220Mt (100% Probable) at 0.36% Cu and 0.33% Ni<sup>1</sup>
- Annual production of ~28,000tpa copper and ~22,000tpa nickel in concentrates<sup>2</sup>
- Bottom quartile cash cost operation with C1 cost of ~US\$(0.90)/lb Cu and ~US\$1.30/lb Ni (net of by-product credits)
- Net Present Value of ~A\$800 million and IRR of ~20% (post-tax)<sup>3</sup>
- Off-grid renewable power, large scale open pit mining and innovative processing plant underpin low operating costs
- Key critical path activities continue whilst project is assessed against OZ Minerals' capital allocation framework

OZ Minerals Limited (OZ Minerals, ASX:OZL) and Cassini Resources Limited (Cassini, ASX:CZI) today announced the results of the West Musgrave, Nebo-Babel Pre-Feasibility Study (PFS). The project is a joint venture between OZ Minerals (70%) and Cassini (30%) in Western Australia.

The PFS has demonstrated a long life ~26-year open pit copper and nickel sulphide mine. It is the first development opportunity within the broader West Musgrave province which includes a number of additional highly prospective opportunities including the nearby Succoth copper deposit. A Maiden Probable Ore Reserve of 220Mt at 0.36% Cu and 0.33% Ni was also declared, representing ~22 years of the ~26-year life of mine (LOM) demonstrated in the PFS (with the balance of the mine life underpinned by a combination of Indicated and Inferred Mineral Resource).

Critical path activities are continuing whilst the project is being assessed under the OZ Minerals' capital allocation framework. The PFS now gives the partners a solid platform for engaging with potential lenders and advisors on how best to fund and structure the project prior to moving to the next phase.

OZ Minerals CEO, Andrew Cole said "The Pre-Feasibility Study is now complete and has confirmed the project can be a low carbon, low cost, long life mine producing copper and nickel, both in-demand minerals for the renewable and electrification industries."

<sup>1</sup> See OZ Minerals announcement titled "West Musgrave Project Nebo-Babel Deposits Ore Reserve Statement and Explanatory Notes as at 11th Feb 2020", released on 12 February 2020 and available at: [www.ozminerals.com/operations/resources-reserves/](http://www.ozminerals.com/operations/resources-reserves/)

<sup>2</sup> These production targets must be read in conjunction with the production targets cautionary statement on page 4.

<sup>3</sup> Assumes a third party power purchase agreement and therefore no upfront capital associated with the power supply.

"During this study we have partnered with the traditional owners, government agencies and industry experts to design a project to meet our objectives in relation to low carbon intensity, innovation and adding value for our key stakeholders. We thank them all for their contribution and look forward to their ongoing support."

"Building a viable asset in a remote part of Australia is challenging, but through our collaborative approach we have developed innovative off-grid renewable power and processing solutions, increased stakeholder awareness and involvement in the project and we have built confidence in the Mineral Resource itself. Furthermore, we have been able to reduce and eliminate a number of potential project risks."

"During 2019 sufficient drilling has been completed to allow the declaration of a maiden Ore Reserve of 220Mt (100% Probable) at 0.36% Cu and 0.33% Ni which is underpinned by the Pre-Feasibility Study."

"The collaborative process has produced a robust and realisable project. The process has also increased Western Australian government agencies' understanding of the project and this, along with the awarding of "lead agency" status by the State Government, will assist in streamlining the forthcoming approvals process."

"We are pleased the study has identified a means for us to reduce the project's carbon footprint significantly and overcome the historical challenge of affordable power for West Musgrave. We believe, supported by the views of potential renewable energy suppliers, that 70-80% of the power needs for West Musgrave can be supplied by renewable sources, supplemented by battery storage and diesel or trucked gas fired generation. The PFS base case assumes the power solution will be outsourced to a third party, with power purchased back over the life of the asset. However, further work is required in a future Feasibility Study (FS) to maximise the project's power position. A gas pipeline remains a secondary option to be further investigated during the next phase."

"We have been able to achieve a further significant reduction in carbon emissions and power demand through the adoption of vertical roller mills as the grinding mill solution and a flotation flowsheet which achieves metal recovery at a much coarser grind size than was previously considered in the design. This lower power usage has resulted in a reduction in operating costs, while the use of dry grinding from the vertical roller mills has also resulted in an improvement in nickel recovery," he said.

"A remote operations centre will further reduce the site environmental footprint, with fewer people on site, fewer flights and a smaller accommodation village."

"Over the past two years, OZ Minerals and Cassini have worked together with the Ngaanyatjarra People to understand their aspirations and how the Project can align with those aspirations."

OZ Minerals Chief Commercial Officer Mark Irwin said "We have learned a lot from our time in successfully developing, building and commissioning Carrapateena which can be applied to West Musgrave. The Project focus will now be on progressing critical path activities including government approvals, engineering partner selection and field activity preparation."

Cassini Managing Director, Richard Bevan said "Completion of the PFS is a significant milestone for the West Musgrave Project and all its stakeholders. The high quality PFS demonstrates the strategic value of this project by confirming robust economics on a long life, low operating cost copper and nickel mine at the Nebo-Babel deposits. The province offers the potential to add value to the project over time with continued exploration and development activities."

"I'd like to commend our joint venture partner OZ Minerals, their project team, which includes key Cassini technical staff, for their thorough and detailed work and look forward to progressing through the next study phase to production."

OZ Minerals will continue to sole fund the Nebo-Babel studies until the FS and decision to mine are delivered as per the current agreement. In respect of any amount funded by OZ Minerals, Cassini will be loan-carried for its 30% contribution, with principal and capitalised interest to be repaid five years after the commencement of production at West Musgrave.

OZ Minerals wishes to thank the Project team members, contributing consultants and peer reviewers as well as those involved in the collaboration events including Western Australia Government, Ngaanyatjarra community, industry partners and others for their input into the Study.



The key project metrics compared to the Further Scoping Study are shown in table 1 below. Key improvements in the project metrics are explained in the study summary below and in the commentary above.

**Table 1: Key project metrics compared to Further Scoping Study**

Key Financial and Production Metrics <sup>#</sup>	Unit	Further Scoping Study Nov'17 <sup>*</sup>	Pre-Feasibility Study Feb'20 <sup>**</sup>
Processing capacity	Mtpa	10+	10
Life of Operation	Years	8	~26
Copper recovery / Nickel recovery	%	73% / 59%	~78% / ~69%
Average Ni Production	ktpa	20-25	~22
Average Cu Production	ktpa	25-30	~28
C1 cost payable Cu (net of by -product credits)	US\$/lb	0.20 – 0.40	~(0.90)
C1 cost payable Ni (net of by -product credits)	US\$/lb	2.00 – 2.30	~1.30
Pre-production capital (excl. study) <sup>^</sup>	A\$M	730-800	~995
Average net cash flow (post tax)	A\$Mpa	120-150	~190
Post Tax NPV	A\$	-	~800
Post Tax IRR	%	20-25	~20
Project payback			
From commencement of production	Years	3-4	
From decision to mine	Years		~6

<sup>#</sup> All project values in real terms as at 1 January 2020

<sup>^</sup> Assumes a third party power purchase agreement and therefore no upfront capital associated with the power supply; a Power Purchase Agreement has been included as an operating expense. Ownership options for power infrastructure will be investigated further. Current estimates to build the power solution is circa A\$275 million.

<sup>\*</sup> The Scoping Study was prepared at a  $\pm 35\%$  level of accuracy

<sup>\*\*</sup> The Pre-Feasibility Study was prepared at a  $\pm 25\%$  level of accuracy; these production targets must be read in conjunction with the production targets cautionary statement on page 4

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### **Forward Looking Statements**

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### **Production Targets Cautionary Statement**

The Production Target and forecast financial information derived from the Production Target referred to in this ASX release is based on 84% Probable Ore Reserves, 5% Indicated Mineral Resources and 11% Inferred Mineral Resources. The modifying factors used in the estimation of the Ore Reserve were also applied to the Indicated Resources and Inferred 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 material assumptions used in the estimation of the Production Target and associated forecast financial information are set out in West Musgrave Project Nebo-Babel Mineral Resource and Ore Reserve Statements and Explanatory Notes as at 11<sup>th</sup> February 2020 Table 1.

The Ore Reserve and Mineral Resource estimates underpinning the Production Target were prepared by a Competent Person in accordance with the JORC Code 2012.

### **West Musgrave Ore Reserve and Mineral Resource**

The information on the West Musgrave Mineral Resources and Ore Reserves estimates in this document are extracted from the document entitled "West Musgrave Project Nebo Babel Mineral Resource and Ore Reserve Statements and Explanatory Notes as at 11<sup>th</sup> February 2020" that was also released today. The West Musgrave Mineral Resource and Ore Reserve estimates in this document should be read in conjunction with that release.

## West Musgrave Pre-Feasibility Study Summary

### OZ Minerals Strategy

Creating value for stakeholders is at the centre of the OZ Minerals strategy. Creating Value along with all elements of the strategy - Lean and Innovative, Agile and Devolved, Partnering and Investing Responsibly - underpinned the approach taken for the PFS to explore new ways of operating a remote mine, in a part of Australia with low levels of infrastructure and access. The vision for West Musgrave is to set an example to the rest of the world for what a mining project can be in terms of community engagement, building partnerships, respect for the environment and the workforce of the future. The PFS has been prepared with a view to creating opportunities across the Musgraves for OZ Minerals' stakeholders today, and for future generations of the traditional owners of the land.

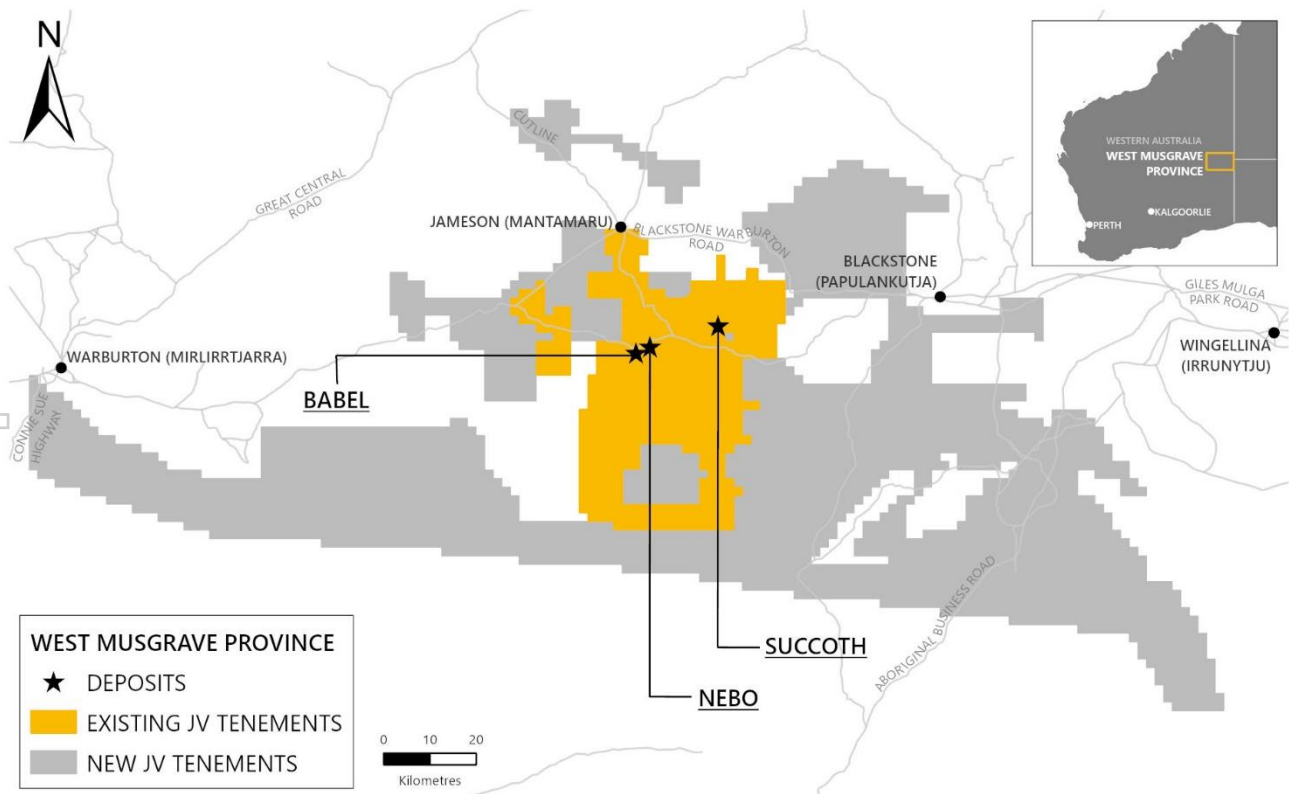
### Context

The Nebo-Babel deposits were discovered by Western Mining in 2000 and acquired by BHP in 2005. In 2014 Cassini Resources acquired the project and set about an extensive drilling and study program culminating in a 2015 Scoping Study. In 2016 OZ Minerals entered into a Joint Venture with Cassini and a Further Scoping Study was completed in late 2017. Since then OZ Minerals has increased its ownership of the project to 70% by reaching expenditure thresholds.

### Location

The West Musgrave Project is 500 km west of Uluru, near the intersection of the borders between Western Australia, South Australia and Northern Territory. The project is 30km south of the community of Jameson (Mantamaru).

Figure 1: Project Location



**Table 2: Project Overview**

<b>Mining</b>	Resource	280Mt Indicated and 63Mt Inferred at a combined grade of 0.33% Ni and 0.36% Cu
	Pits	Nebo and Babel to a maximum depth of ~500m
	Ore Reserve	220Mt (100% Probable) at 0.33% Ni and 0.36% Cu
	Mining Rate	~ 31Mtpa (pre-strip & stockpiling), ~34Mtpa (Yr1-5), ~43Mtpa (Yr6-LOM)
	Strip Ratio	~3.3 LOM average
	Life of Mine	~25 Years
	Mining Profile	~0.5-year pre-strip & stockpiling, ~25 years from first production
	Operations	Contractor Mining Yr1-5, Owner Operate Yr6-LOM
<b>Processing</b>	Flowsheet	Crushing, Vertical Roller Mill, Flotation producing separate nickel and copper concentrates
	Operation Life	~26 Years from first production
	Nickel Grade	~0.42% (Yr1-5) ~0.31% (Yr6-LOM)
	Copper Grade	~0.45% (Yr1-5) ~0.34% (Yr6-LOM)
	Recoveries	~69% Ni and ~78% Cu LOM
	Concentrate Grades	~10-11% Ni in Ni Con, ~25-26% Cu in Cu Con
	Nickel Production <sup>4</sup>	~27,000tpa (Yr1-5) ~22,000tpa (Yr6-LOM)
	Copper Production <sup>5</sup>	~33,000tpa (Yr1-5) ~27,000tpa (Yr6-LOM)
<b>Infrastructure</b>	Roads	Upgrade of existing ~30km road from site to Jameson
	Tailings Storage Facility	Two cells with water recycled back to process Upstream raises with downstream buttressing with mine waste rock
	Village and Airstrip	400-person operations village and airstrip located at site
	Water	7GLpa. Northern borefield ~15km from site
	Power	50MW Power Purchase Agreement, Hybrid Renewables (Wind, Solar, Battery + Diesel or Gas)
	Logistics	Containerised road transport to Leonora, Rail to Esperance for bulk shipping to customers
	Customers	Nickel and copper smelters in Australia, Asia and Europe Potential to expand customer base to include battery manufacturers subject to results of study into production of nickel-cobalt mixed hydroxide product

**Cost Estimate**

The estimate was compiled by OZ Minerals using inputs from a range of engineering consultants, in particular Australian Mining Consultants (AMC) for mining costs and GR Engineering Services (GRES) for process plant and elements of the infrastructure costs. As this is a PFS estimate it has an accuracy of circa +/- 25%. The cost estimate has a base date of October 2019. Engineering has been completed on packages to an advanced PFS

<sup>4</sup> These production targets must be read in conjunction with the production targets cautionary statement on page 4

<sup>5</sup> See footnote 4 above

level of definition including sufficient drawings to allow material take off for bulk materials. All major equipment and bulk materials have been quoted directly for this project, while minor equipment costing, and labour rates have been sourced from the GRES database of recently executed projects. Contingencies have been determined through risk assessment, with an allowance of ~12% including ~A\$65 million for inherent risks (uncertainties due to estimate immaturity) built into each package and a project contingency of A\$50 million determined for contingent risks that may eventuate during construction.

**Table 3: Capital Cost**

Capital Cost Estimate*	A\$M
Mining	~90
Process Plant	~285
Infrastructure	~265
Project Execution	~170
Owners Costs	~70
Contingency	~115
Total	~995

\* Excludes FS costs

**Table 4: LOM Average Operating Cost**

Operating Cost Estimate	A\$/t Ore
Mining	~12.70
Process Plant	~13.90
G&A	~0.80
Concentrate Logistics	~6.90
Total	~34.30

Post-production growth capital of \$72 million is assumed in Year 6 to purchase the mining contractor's mining fleet and transition to owner operate, realizing a lower mining cost. Life of mine sustaining capital of \$370 million has been determined, covering tailings storage facility lifts, process plant and mining fleet.

The capital cost excludes inflation and sunk costs up to 31 December 2019. Given the current assumption that power is purchased over the fence under a Power Purchase Agreement arrangement, the capital cost excludes any capital associated with power generation (current estimate is circa A\$275 million) but does include capital for power distribution on site.

The financial analysis includes an estimate of \$99 million for closure costs and a \$7 million per year corporate charge.

## Financial Analysis

**Table 5: Key Financial Metrics**

Metric		
Nickel Price	US\$/lb	7.60
Copper Price	US\$/lb	2.91
Exchange Rate	A\$ : \$US	0.67
Discount Rate		8.5%
Net Present Value	A\$M	~800*
Internal Rate of Return		~20%*

\* Assumes a third party power purchase agreement and therefore no upfront capital associated with the power supply.

**Table 6: Sensitivities**

Base Case NPV: ~\$800M*		
	-25%	+25%
Nickel Price	~\$200M	~\$1,400M
Copper Price	~\$500M	~\$1,100M
Exchange Rate	~\$1,900M	~\$100M
Capital Cost	~\$1,000M	~\$600M
Operating Cost	~\$1,300M	~\$300M

\* Assumes a third party power purchase agreement and therefore no upfront capital associated with the power supply.

### Mineral Resource

A detailed explanation of the Nebo-Babel geology can be found in the Mineral Resource and Ore Reserve Statements<sup>6</sup>.

Since the previous Mineral Resource update provided on 12 April 2019, an additional 46,000m of drilling has been incorporated into the Nebo-Babel Mineral Resource estimate.

The Mineral Resource has been reported above a 1.2 times multiplier (revenue factor) Net Smelter Return (NSR) cut-off at A\$23/t. The A\$23/t value represents the 2020 Ore Reserve mill limited break-even cut-off of A\$19.60/t ore plus an approximate mining cost of A\$3.40/t material moved. The 1.2 revenue factor NSR is generated by multiplying assumed metal prices by 1.2 to allow for reasonable prospects for eventual economic extraction. All NSR assumptions including metal prices, recovery, concentrate payability, mining and processing costs are based on the PFS study as at October 2019 and align with 2020 Ore Reserve optimisation inputs. Mineral Resources were further constrained within "reasonable prospects" pit shells generated using a cut-off NSR of A\$28/t and utilising a 1.2 times revenue factor. The A\$28/t value represents the 2020 Ore Reserve optimised NSR cut-off. Further details of the NSR calculation can be found in the Mineral Resource and Ore Reserve Statements<sup>7</sup>.

**Table 7: Nebo-Babel Mineral Resource as at 11<sup>th</sup> February 2020**

Category	Deposit	Tonnes	Ni	Cu	Au	Ag	Co	Pd	Pt	Ni Metal	Cu Metal
		(Mt)	(%)	(%)	ppm	ppm	ppm	ppm	ppm	(kt)	(kt)
Indicated	Babel	240	0.31	0.35	0.06	1	120	0.10	0.08	760	850
	Nebo	38	0.40	0.35	0.04	0.8	150	0.08	0.06	150	130
	<b>Sub-total</b>	<b>280</b>	<b>0.32</b>	<b>0.35</b>	<b>0.06</b>	<b>1</b>	<b>120</b>	<b>0.10</b>	<b>0.08</b>	<b>910</b>	<b>990</b>
Inferred	Babel	62	0.34	0.38	0.07	1	120	0.11	0.09	210	230
	Nebo	1	0.38	0.44	0.05	0.6	140	0.09	0.07	3.6	4.1
	<b>Sub-total</b>	<b>63</b>	<b>0.34</b>	<b>0.38</b>	<b>0.07</b>	<b>1</b>	<b>120</b>	<b>0.11</b>	<b>0.09</b>	<b>210</b>	<b>240</b>
Ind + Inf	Babel	300	0.32	0.36	0.06	1	120	0.10	0.09	960	1,100
	Nebo	39	0.40	0.35	0.04	0.8	150	0.08	0.06	150	140
<b>Total</b>		<b>340</b>	<b>0.33</b>	<b>0.36</b>	<b>0.06</b>	<b>1</b>	<b>120</b>	<b>0.10</b>	<b>0.08</b>	<b>1,100</b>	<b>1,200</b>

Table is subject to rounding errors. Data is reported to significant figures to reflect appropriate precision in the estimate and this may cause some apparent discrepancies in totals.

<sup>6</sup> See OZ Minerals announcements titled "West Musgrave Project Nebo-Babel Deposits Ore Reserve Statement and Explanatory Notes as at 11th Feb 2020" and "West Musgrave Project Nebo-Babel Deposits Mineral Resource Statement and Explanatory Notes as at 11th Feb 2020", released on 12 February 2020 and available at: [www.ozminerals.com/operations/resources-reserves/](http://www.ozminerals.com/operations/resources-reserves/)

<sup>7</sup> See footnote 6 above

A significant increase in Mineral Resource tonnes from the previous Mineral Resource is mainly due to the relative reduction in reporting cut-off grade. The previous Resource utilised a 0.25% Ni cut-off based on the Further Scoping Study<sup>8</sup>. The updated Resource utilises an NSR cut-off based on the concurrent PFS study. This NSR cut-off approximates to using a 0.18% Ni cut-off, however, using an NSR cut-off was determined to better reflect the variable metal recoveries of material types and the multi-metal revenue inputs.

There has also been a significant conversion of Inferred to Indicated Resource based on recent infill drilling with 82% of the reported Mineral Resource now Indicated.

## Mining

The deposits are near-surface and easily accessible by open pit mining with a pre-strip and initial ore stockpile for process plant commissioning of approximately 31Mt, some of which will be free dig. Processing rates between 6Mtpa and 23Mtpa have been thoroughly examined and an optimised rate of 10Mtpa selected. Stockpile strategies and in-pit dumping of waste have all been optimised to minimise operating cost and optimise mill feed grade.

Mining is modelled to be conventional drill, blast, load and haul and is assumed to be contractor operated during the first five years of operation, transitioning to owner operate in year six. The haulage fleet will comprise up to twenty-five 220t haul trucks and optionality is being maintained to allow for these trucks to be fully autonomous in the future.

Babel will be mined for the first two years to access higher grade, near-surface mineralisation, with Nebo then started in year 3. The Ore Reserve is shown in Table 8.

In addition to the Ore Reserves which are entirely based on Indicated Resources, the mine plan includes an additional 40Mt at 0.34% Ni and 0.36% Cu derived from Indicated and Inferred Resources which are predominantly towards the end of the current mine plan. Production targets and forecast financial information set out in the PFS are based on 84% Probable Ore Reserve, 5% Indicated Mineral Resource and 11% Inferred Mineral Resource. 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 realized. The quantity of Inferred material within the mine plan is minimal, will be mined at the back end of the mine life and is not considered material to the project.

**Table 8: Nebo-Babel Ore Reserve as at 11<sup>th</sup> February 2020<sup>9</sup>**

Deposit	Classification	Ore (Mt)	Ni (%)	Cu (%)	Au (ppm)	Ag (ppm)	Co (ppm)	Pd (ppm)	Pt (ppm)	Ni Metal (kt)	Cu Metal (kt)
Nebo	Probable	20	0.48	0.40	0.04	0.8	180	0.10	0.10	100	80
Babel	Probable	200	0.32	0.36	0.06	1	120	0.10	0.10	630	700
<b>Total</b>	Probable	<b>220</b>	<b>0.33</b>	<b>0.36</b>	<b>0.06</b>	<b>1</b>	<b>120</b>	<b>0.10</b>	<b>0.10</b>	<b>720</b>	<b>790</b>

Table is subject to rounding errors. Data is reported to significant figures to reflect appropriate precision in the estimate and this may cause some apparent discrepancies in totals.

## Metallurgy and Processing

Significant improvements in metallurgical performance have been achieved through the PFS via the optimisation of reagent regimes and applying a mineralogical based approach to deliver optimum mineral liberation, concentrate grade and metal recovery. The process flowsheet design has been significantly de-risked through testing of three master composites, 37 variability samples, locked cycle tests and pilot planting. This work

<sup>8</sup> See announcement titled "West Musgrave Project to progress to Pre-Feasibility Study" released on 14 November 2017 and available at [www.ozminerals.com/media/west-musgrave-project-to-progress-to-pre-feasibility-study/](http://www.ozminerals.com/media/west-musgrave-project-to-progress-to-pre-feasibility-study/)

<sup>9</sup> See OZ Minerals announcement titled "West Musgrave Project Nebo-Babel Deposits Ore Reserve Statement and Explanatory Notes as at 11th Feb 2020", released on 12 February 2020 and available at: [www.ozminerals.com/operations/resources-reserves/](http://www.ozminerals.com/operations/resources-reserves/)

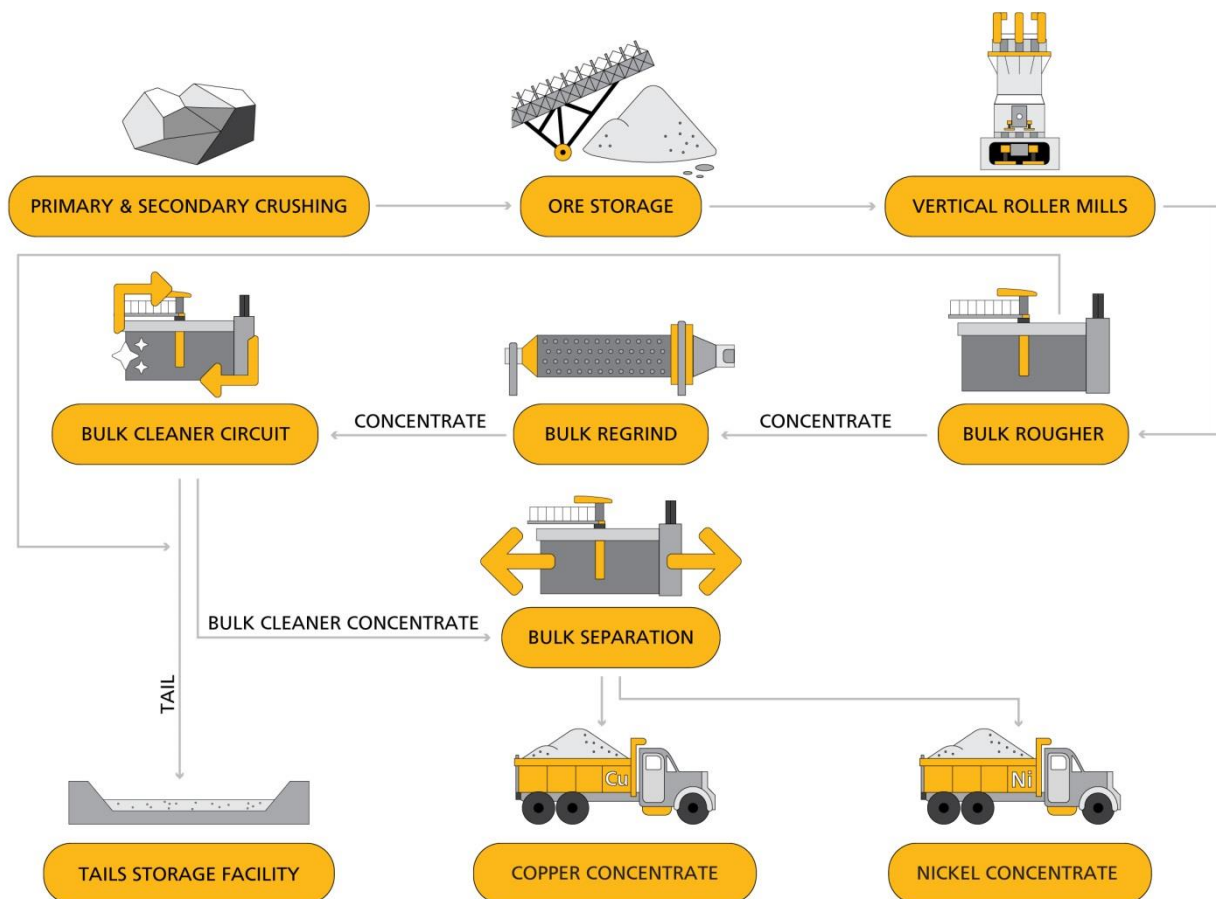
strongly supports the metallurgical assumptions used for financial modelling. Additional testing has covered comminution, regrinding, thickening, filtration, site water, ore ageing and tails property testing all in support of the process design criteria.

An innovative mineral processing plant will be built on site. The grinding circuit consists of two stages of crushing followed by two parallel vertical roller mills treating nominally 5Mtpa each. The second stage of crushing and vertical roller mills replace a traditional SAG Mill, Ball Mill and Pebble Crushing circuit. Vertical roller mills are widely used in the grinding of cement plant feeds and products, slag, coal and other industrial minerals, with thousands currently in operation worldwide. The mill has benefits in reducing power consumption by ~15%, no ball charge grinding media, higher flotation recovery and can be ramped up and down in response to the availability of low-cost renewable energy. The Vertical Roller Mill utilises compression style comminution principles taking 75mm rock to flotation feed size in the one machine. The application of the Vertical Roller Mill has reduced processing costs and provided a ~2% improvement in nickel recovery. The technology has been peer reviewed for West Musgrave by an independent expert and has been substantially de-risked through a series of pilot tests whereby 5 tonnes of West Musgrave ore has been tested.

A Bulk Separation flotation flowsheet producing separate copper and nickel concentrates will be used. The flowsheet has been developed to minimise primary grinding requirements with the primary separation size at 165 microns, saving significant grinding capital and operating expenditure in terms of grinding consumables and power draw. The flowsheet uses bulk rougher flotation, regrinding, 2 stages of bulk cleaning, then copper nickel separation at elevated pH. The nickel concentrate is a high-quality product with a low MgO content, is low in arsenic other impurities. The copper concentrate is also low in impurities and includes minor by-products of gold and silver.

With optimised mine scheduling, the first five years of operation will achieve higher production of circa 33ktpa of copper in concentrate and circa 27ktpa of nickel in concentrate. From year six onwards, production will average circa 27ktpa and circa 22ktpa for copper and nickel, respectively.

**Figure 2: Flowsheet**





## Mine Waste Management

Tailings will be stored in a two-cell Tailings Storage Facility (TSF) built as a hybrid system which includes upstream raises and downstream buttressing using mine waste. The facility will be unlined with underdrainage designed to capture seepage for return to the process during operations. Both static and kinetic geochemical test work has confirmed that the tailings are unlikely to generate problematic leachate. Solute fate modelling is underway to demonstrate that there will be no offsite or enduring impacts as a result of seepage. The Nebo pit will be utilised for tailings disposal from year 20 onwards. Utilising the Nebo pit will have an added benefit in minimising long-term ground water drawdown by avoiding the development of a pit lake.

The final design of the TSF will depend on demonstrating to the Regulator that all risks are adequately managed and as such the design is subject to change. TSF design, environmental baseline studies and impact assessments are progressing with a view to submitting a referral under Part 4 of the WA Environment Protection Act early in Q2 2020.

Mine waste rock will be stored adjacent to each pit with potentially acid forming material fully encapsulated. In-pit dumping of waste will be utilised for Babel in years 8 to 10 to minimise haulage distances and improve environmental outcomes.

## Water Supply

The groundwater drilling program completed in 2018 and subsequent ground water modelling completed in 2019 demonstrated a sustainable, high quality water supply from local palaeochannels of 7 GLpa, sufficient to supply the 10Mtpa processing plant. The Nebo pit intersects one such palaeochannel and as such requires dewatering prior to mining. The borefield will be located approximately ~15km north east of the operation and be supplemented by water recovered during pit dewatering.

Alternate water supply has also been considered with paleochannels immediately south of the proposed development area having confirmed water supply, and the Officer Basin 40km south of the proposed development area presenting a number of geophysical anomalies which represent strong conceptual target.

## Power Supply

A 50MW base case power supply (with a BOOM capital estimate of circa A\$275 million) is proposed utilising a hybrid solar-wind-battery-diesel solution, although a gas pipeline remains a secondary option. Baseline data collected since 2018 has demonstrated a high quality, consistent solar and wind resource is available, with higher wind velocities at night offsetting the lack of solar. The current base case assumes that power is purchased over the fence under a Power Purchase Agreement arrangement which is included in operating costs and therefore not in the capital estimate. However, the final ownership structure for the power assets will be further considered during the next phase of project development.

Modelling has demonstrated that circa 70 – 80% renewables penetration can be achieved for the site, with the current mix modelled to be an optimised mix of wind, solar and diesel supported by a battery installation. There remains considerable upside in power cost through matching plant power demand with the availability of renewable supply (load scheduling), haulage electrification to maximise the proportion of renewable energy utilised and the continued improvement in the efficiency of renewable energy solutions.

Should the renewables option be implemented, this innovative power supply solution would make West Musgrave one of the largest fully off-grid, renewable powered mines in the world. The solution would result in the avoidance of in excess of 220,000tpa of carbon dioxide emission compared to a fully diesel-powered operation.

## Operating Philosophy

The project will operate as a fly-in-fly-out operation. An airstrip and 400-person operations accommodation village will be constructed at the site. Approximately 60 staff are to be employed in operations monitoring, control and planning functions located in an offsite Integrated Operations Centre.

## Logistics

The logistics route to market includes road transport along the Great Central Road to a central hub at Leonora, followed by rail transport to Esperance. Copper and nickel concentrates are expected to be sold to a mix of domestic and international customers. Super Quad road trains will be used to carry concentrate in half height containers, with empty concentrate trucks returning to site being utilised for backhaul of reagents, diesel and other consumables. The Great Central Road is a well formed, but unsealed road. Both the Federal and Western Australian State Governments have publicly committed to funding the sealing of this road during the timeframe of the West Musgrave Project; however, sealing is not essential for the project and would only have a minor, non-material impact on costs. The capital cost estimate includes an upgrade of the existing 30km access track from site to Jameson.

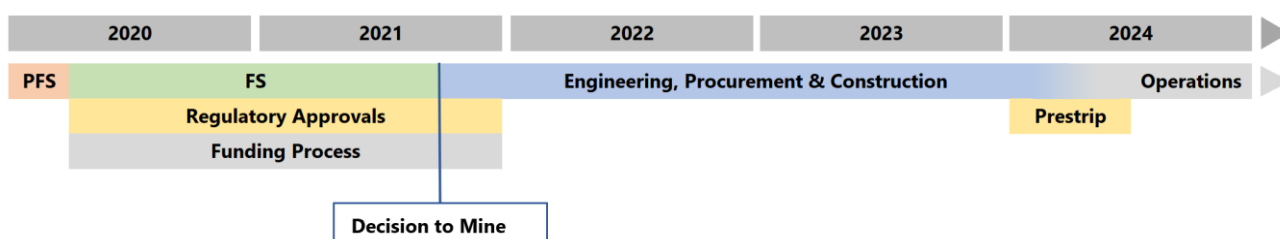
## Execution

The capital cost estimate has been developed assuming an Engineering, Procurement, Construction Management (EPCM) delivery model, however, OZ Minerals will further investigate execution models. The key elements of the execution strategy are:

- Engineering sufficient to inform tendering of each construction package.
- Project Management by an Integrated Project Management Team consisting of the current core OZ Minerals project delivery team augmented by engineering and Project Management Office capability from a Project Management contractor.
- Engineering, Procurement, Construction (EPC) delivery of the process plant package.
- Other vertical packages to be delivered by specialist design and construct contractors.
- Final delivery model for the power solution is still to be decided.

The current project timeline is shown below.

**Figure 3: Indicative Project Timeline (to be finalised)**



## Project funding

The availability of funding to support the capital requirement for the development of the Project is assumed in the PFS, with funding for the Project considered by the existing Joint Venture agreement. The Joint Venture partners have been working collaboratively on potential funding structures through the course of the PFS and indicative financing proposals have been received from a number of interested parties covering a variety of funding options including debt financing, traditional bank resource project financing, offtake funding and streaming mechanisms. The partners intend to continue to explore options to determine the optimal quantum and structure.

Completion of the PFS provides the partners with a sound basis on which to expand those discussions and engage further with a range of potential market and finance partners. Investors should note that there is no certainty that the partners, either individually or jointly, will be able to raise the funding required, or that funding may only be available on terms that may be dilutive to or otherwise affect the value of each company's existing shares. It is also possible that the partners, either individually or jointly, could pursue other value realisation strategies.

## Community

The Traditional Owners are the Yarnangu People with a total population of circa 2,000 people living in 10 communities within the Ngaanyatjarraku Shire. The people who have the strongest connection with the land within the Project area live in Jameson (Mantamaru) followed by Blackstone (Papulankutja) and Warburton (Mirlirtjarra). Jameson is located 30km north of the Project and has a population of circa 130 people. Warburton, which is the largest community within the Shire, is located 120km west of Jameson via the Blackstone-Warburton Road and has a population of circa 600 people. Blackstone is located 70km east of Jameson by road with a population of circa 150 people.

The focus during the PFS has been to secure land access and building relationships with the community. Four main heritage surveys occurred in 2018 to secure land access for the project. The surveys typically occurred in blocks of 10 days with an average of 30 people engaged each day. The heritage surveys provided an opportunity to build a strong relationship between project members and the community.

Project infrastructure has been designed to avoid culturally sensitive areas identified during surveys. Flexibility has been provided such that infrastructure locations can change without the need for further specific heritage surveys, ongoing consultation and co-design of the site layout will occur. Further heritage surveys will be required outside the immediate project area for other infrastructure corridors such as roads and water pipelines as the level of engineering designs progress.

A Genealogy study was commissioned in 2019 by the Ngaanyatjarra Council (Aboriginal Corporation) who represent the interests of traditional owners. The study documents the Ngaanyatjarra People who are connected to the land within the project area who are eligible to be part of the future mining agreement process. The study identified circa 700 people with a connection to the land. A Steering Committee comprising 34 senior community members (60% women and 40% men) from Jameson, Blackstone and Warburton has been formed to become the main mechanism for communication and consultation. Meetings have been held with the Steering Committee every 2-3 months to provide project updates, seek feedback and co-develop a Partnering Statement which documents how the two parties will work together to achieve shared value.

The Partnering Statement is a prelude to the mining agreement-making process which will commence in 2020.

A series of separate community meetings were also held to provide an opportunity for the broader community to be informed about the project and provide feedback. A delegation of community members visited the OZ Minerals' Prominent Hill Operation in South Australia as well as a solar farm and wind farm near Port Augusta to better understand the scale of the infrastructure planned as part of the design for the West Musgrave Project.

## Regulatory Approvals

Prior to May 2018 very little was known about the West Musgrave environment however, since this time an intensive environmental baseline program has been undertaken. The primary purpose of this program has been to identify constraints to inform responsible project layout / design and to acquire the necessary information to inform the project's regulatory approvals.

Since May 2018, some 40 studies have been completed, building a comprehensive understanding of the environment and the potential impacts associated with the project. Based on the extensive baseline dataset project environmental risks are considered manageable.

The first of three primary approvals submissions, assessment under Part 4 of the Western Australian Environment Protection Act (EP Act) is anticipated for early Q2 2020. Information obtained in the environmental baseline work program to date does not indicate any material threats to the obtainment of this approval.

Applications under the Western Australian Mining Act (i.e. Mining Proposal) and EP Act, Part 5 are planned for submission in H2 2020 once further detailed engineering and design have been completed. To date the planned approvals schedule indicates that all required regulatory approvals will be obtained in advance of the planned decision to mine.

## Government Engagement

A dedicated government engagement strategy has been developed and is ongoing. The key objectives of this strategy include building OZ Minerals and the West Musgrave Project profile in Western Australia, working with government stakeholders to realise shared value opportunities for the West Musgrave region and maintaining momentum for the project's regulatory pathway.

In November 2018 the West Musgrave Project was assigned lead agency status by the Western Australia Department of Mines, Industry Regulation and Safety (DMIRS). Selected projects in Western Australia that are considered significant and/or complex in nature can apply for and be assigned to a Lead Agency. The assigned Lead Agency then works with project proponents to manage government interactions and statutory approvals; helping improve efficiency and reduce time taken to deliver projects.

Key Lead Agency facilitated meetings to date include a 'West Musgrave Government Hub' which included senior government officials from 13 Western Australian Government departments relevant to the project. The Government Hub successfully built the profile of the West Musgrave Project and created an opportunity for the Joint Venture and Government to explore future shared value opportunities for the region.

## Risks

OZ Minerals considers risks as both opportunities and threats. The August 2019 PFS Update<sup>10</sup> outlined a number of risks remaining to be addressed. In large part the work undertaken since has addressed these risks, either adding them to the project base case or removing them. The risks described below are still outstanding and will be addressed further during the next phase of the project.

### Opportunities not included in the current base case

#### Increased Payability of Nickel in Concentrate

Indicative market terms have been received from potential customers in Australia and Asia. An independent peer review of these terms has indicated the potential for higher nickel payability given an ongoing tightening of the concentrate market. Discussion with potential customers will continue, with the possibility of negotiating improved terms relative to those assumed in the PFS valuation.

#### Mixed Nickel Hydroxide Product (MHP)

A concept study and market analysis has determined that there is potentially significant upside value in processing the nickel sulphide concentrate onsite to produce MHP containing nickel and cobalt. MHP is a precursor material in the production of nickel sulphate for use in batteries but can equally be fed to a variety of downstream processes to make nickel metal. The market for nickel sulphate is forecast to grow to circa one million tonnes per annum over the next five years in response to the growing demand for EV batteries. MHP is a relatively high-grade nickel product which will have reduced transport costs and increased nickel payability relative the sulphide concentrate. A number of process routes have been identified, with metallurgical test work and process development required in the next phase of the project.

## Succoth

The Succoth copper deposit is located only 13 km north east from Nebo.

Cassini has previously reported an Inferred Resource at Succoth of 156Mt at 0.6% Cu<sup>11</sup> with drilling including a highlight of 148m at 0.94% Cu from 30m including 42m at 1.38% Cu from 102m (drill hole CZC0118).

A new structural interpretation of the mineralisation has been developed demonstrating the potential for upside at Succoth. With Nebo-Babel justifying the establishment of supporting infrastructure, Succoth can potentially add upside in mine life or production rate. An integrated targeted geophysics and drilling program is being developed and will be considered in the next phase of the project.

<sup>10</sup> See OZ Minerals announcement titled "West Musgrave Pre-feasibility Study Progress Update", released on 28 August 2019 and available at: [https://www.ozminerals.com/uploads/media/190828\\_OZL\\_ASX\\_Release\\_-\\_West\\_Musgrave\\_PFS\\_Progress\\_Update.pdf](https://www.ozminerals.com/uploads/media/190828_OZL_ASX_Release_-_West_Musgrave_PFS_Progress_Update.pdf)

<sup>11</sup> See Cassini Resources Limited ASX release titled "Maiden Succoth Resource Estimate", dated 7 December 2015 and available at: [https://www.cassiniresources.com.au/images/files/151207\\_Succoth\\_Resource.pdf](https://www.cassiniresources.com.au/images/files/151207_Succoth_Resource.pdf)

## Power Cost

There remains considerable upside in power cost through matching plant power demand with the availability of renewable supply (load scheduling), the potential use of storage technology, haulage electrification to take advantage of renewable energy and the continued improvement in the efficiency of renewable energy solutions. An initiative already underway is to potentially source funding for the innovative renewable power solution through government agencies, including ARENA. In addition to the renewables solution a gas pipeline remains a potential secondary solution that will require further examination during the next phase of the project.

## Threats to the current Base Case

### Regulatory Approvals Delay

OZ Minerals has been working closely with the Environment Protection Authority, Department of Water and Environmental Regulation and Department of Mines, Industry Regulation and Safety to understand the approval requirements (including Western Australia Environment Protection Act Part 4, Part 5 and Western Australia Mining Act, Mining Proposal) and we believe that the approvals delay risk is manageable. We have developed a regulatory approvals schedule aligned with the indicative project timeline, and are confident in the positive results we have seen from our extensive environmental baseline study program. However it is recognised that an approval delay of up to 12 months still presents a risk.

### Nickel Concentrate Sales

It has been assumed that a portion of the nickel concentrate will be sold to domestic customers, realising lower freight costs. It is possible that the assumed customer mix will not eventuate, resulting in higher freight costs to international customers. This may be offset by more favourable terms. Discussion with potential customers will continue in the next phase of the project.

## Next Steps

The Project focus will now be on critical path activities including government approvals, engineering partner selection and field activity preparation.

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This announcement is authorised for market release by OZ Minerals' Managing Director and CEO, Andrew Cole.

**OZ Minerals Limited**

**WEST MUSGRAVE PROJECT**

**Nebo-Babel Deposits**

**Ore Reserve Statement and Explanatory  
Notes**

**As at 11th Feb 2020**

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**WEST MUSGRAVE ORE RESERVE STATEMENT – 11TH FEBRUARY 2020**

**1. Project Overview**

The West Musgrave maiden Ore Reserve Statement relates to the Babel and Nebo nickel-copper deposits located in Western Australia. The deposits are located approximately 1,300 kilometres northeast of Perth near the border with South Australia and the Northern Territory (Figure 1).

**Figure 1: Project Location**



BHP acquired the project as part of the takeover of WMC Resources in 2005. WMC Resources and BHP undertook separate drilling campaigns from 2001-02 and 2006-11, respectively. Cassini Resources purchased the project from BHP in April 2014 and completed a significant infill drilling campaign at Nebo-Babel followed by a Scoping Study in April 2015 which showed favourable results.

Cassini Resources Limited is a base and precious metals developer and explorer based in Perth. Cassini is progressing its Mt Squires Gold Project which is located to the west of the West Musgrave Project.

OZ Minerals signed an earn-in and joint venture agreement in October 2016 with Cassini Resources for the West Musgrave Project with OZ Minerals earning a 70% equity stake in the project in April 2019 by contributing \$36 million towards the Pre-Feasibility Study and regional exploration.

A Pre-Feasibility Study has been completed for the project which envisages mining the deposits via open pit methods. The Ore Reserve estimate was drawn from the West Musgrave Pre-Feasibility Study and this Reserve Statement should be read in conjunction with the ASX Release for West Musgrave Pre-Feasibility Study<sup>1</sup>.

The Ore Reserve estimate for West Musgrave as at 11<sup>th</sup> February 2020 is summarised in Table 1. All dollars are expressed as Australian Dollars unless noted.

**Table 1: West Musgrave Ore Reserve Estimate as at 11<sup>th</sup> February 2020<sup>2</sup>**

Deposit	Classification	Ore (Mt)	Ni (%)	Cu (%)	Au (ppm)	Ag (ppm)	Co (ppm)	Pd (ppm)	Pt (ppm)	Ni Metal (kt)	Cu Metal (kt)
Nebo	Probable	20	0.48	0.40	0.04	0.8	180	0.10	0.10	100	80
Babel	Probable	200	0.32	0.36	0.06	1	120	0.10	0.10	630	700
<b>Total<sup>2</sup></b>	Probable	<b>220</b>	<b>0.33</b>	<b>0.36</b>	<b>0.06</b>	<b>1</b>	<b>120</b>	<b>0.10</b>	<b>0.10</b>	<b>720</b>	<b>790</b>

**Notes:** NSR cut-off \$28/t ore<sup>3</sup>. The table is subject to rounding errors.

## 2. Ore Reserve Classification

The maiden West Musgrave Ore Reserve as at 11<sup>th</sup> February 2020 is derived from the nickel-copper Mineral Resources<sup>4</sup> of the Babel and Nebo deposits. The Resource models and their construction are described in the Mineral Resource Estimate. The Mineral Resources are inclusive of the Ore Reserves.

All Probable Ore Reserves have been derived from Indicated Mineral Resources in accordance with Joint Ore Reserve Committee (JORC) Code 2012 guidelines.

The Ore Reserve classification reflects the Competent Persons' view of the deposits.

## 3. Mining Methods

The West Musgrave project considers the Babel and Nebo deposits (Figures 2). Both deposits are near surface and most suitable to be mined by open pit mining methods utilising conventional mining equipment with each deposit developed in multiple stages.

The selected mining method, design and extraction sequence are tailored to suit orebody characteristics, minimise dilution and ore loss, defer waste movement, utilise planned process plant capacity and expedite cash generation in a safe manner.

<sup>1</sup> See OZ Minerals announcement titled "West Musgrave Pre-Feasibility Study presents a low carbon, long-life, low-cost mine As at 11<sup>th</sup> February 2020", released on 11 February 2020 and available at: [www.ozminerals.com/media/asx/](http://www.ozminerals.com/media/asx/)

<sup>2</sup> Data are reported to significant figures to reflect appropriate precision in the estimate and this may cause some apparent discrepancies in totals.

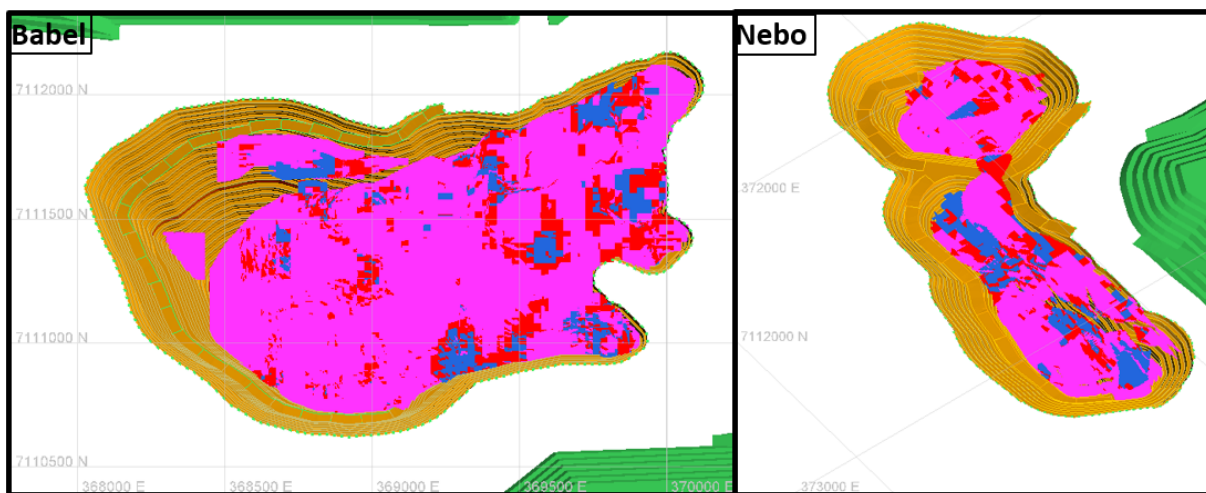
<sup>3</sup> Net smelter return (NSR) details can be found under Section 3 "Cut-off parameters" in the attached JORC Table 1 documentation

<sup>4</sup> See OZ Minerals announcement titled "West Musgrave Project Nebo-Babel Deposits Mineral Resource Statement and Explanatory Notes' As at 11<sup>th</sup> February 2020", released on 11 February 2020 and available at: [www.ozminerals.com/media/asx/](http://www.ozminerals.com/media/asx/)



Mine planning including pit optimisation, mine design, scheduling and cost modelling for the two deposits was completed in collaboration with AMC Consultants Pty Ltd (AMC). This together with other studies has allowed the design of the site layout including site haul roads, pit access roads, detailed pit stage development designs, waste dumps, topsoil stockpiles, mine workshops and run of mine (ROM) ore pads (Figure 3).

**Figure 2: Pit designs (isometric view) for both deposits showing Mineral Resource grades >0.15%Ni**



#### 4. Cut-Off Grade and Metal Price

A Mining 'Hill of Value' study was undertaken to identify the optimum processing rate and mining cut-off grade. The study considered processing rates between 8Mtpa to 26Mtpa and tested a range of increased cut-off criteria to determine the best project value. This has determined a 10Mtpa optimum processing rate and an elevated cut-off grade of +\$8/t ore above break-even cut-off as an optimum cut-off.

The Ore Reserve was estimated using the life-of-mine (LOM) economic parameters drawn from OZ Minerals Corporate Economic Assumptions released in Quarter 3 2019 and a Net Smelter Return (NSR) cut-off value of \$28/t ore. The revenue of the project is derived from all of the elements listed in Table 2.

The cut-off value equates to the processing cost (with the inclusion of General Admin, sustaining capital, corporate overhead and mine rehabilitation fund), ore rehandle, and an \$8/t ore increase. NSR is calculated on a block by block basis and also included royalties, concentrate payabilities, concentrate transport and penalties.

**Table 2: West Musgrave Ore Reserve Optimisation Economic Assumptions**

Parameter	Units	LOM
Nickel	US \$ / lb	7.16
Copper	US \$ / lb	2.94
Gold	US \$ / oz	1,246
Silver	US \$ / oz	17.19

Platinum	US \$ / oz	1,311
Palladium	US \$ / oz	633
Cobalt	US \$ / lb	21.90
Exchange Rate	AUD / USD	0.73

## 5. Ore Reserve Estimation Methodology

The Ore Reserve estimate is based on the Mineral Resource estimates classified as Indicated after consideration of all modifying factors such as legal, environmental, geological, geotechnical, mining, metallurgical, social, economic and financial aspects.

Inferred Mineral Resources were excluded from pit optimisation, mine schedules and economic valuations utilised to validate the economic viability of the Ore Reserves. The Ore Reserve is technically and economically viable without the inclusion of Inferred Resource.

Prior to pit optimisation, the Mineral Resource model was regularised to Selective Mining Unit (SMU) blocks of 10m E x 10m N x 5m RL to generate a diluted mining model. The SMU block reflects expected mining equipment size, the geometry of the geology and anticipated ore loss. Mining dilution and ore loss were applied through regularisation of the Resource model. The overall effect was 2.6% dilution and 4.3% ore loss applied to the mining model used for mine planning.

The Resource model was optimised using the Lerchs-Grossman (LG) algorithm with industry standard software. Nested pit shells were generated and tested with sensitivities on mining cost, processing cost, metal price, recoveries, and slope angles. This formed the basis of the selection of the optimal pit shell for the Babel and Nebo deposits. Interim pit shells provided guidance for pit stages to maximise value and achieve operational design requirements.

The resultant pit shells were used to develop detailed pit designs with due consideration of geotechnical slope parameters, minimum mining widths, bench heights, and ramp widths suitable for proposed mining equipment. These pit designs were used as the basis for production scheduling and economic evaluation.

The mining schedule is based on realistic mining productivity and equipment utilisation estimates, and considered the pit development requirements, the selected mining fleet productivity and the vertical rate of mining development. Staged pit designs along with a stockpiling strategy were applied to ensure a continuous supply of ore while deferring waste mining for as long as practically possible.

The mining schedule is based on supplying suitable material to the processing plant with a name plate capacity of 10Mtpa, planned to be achieved in the 2nd year after implementation as indicated in the Pre-Feasibility Study Report announced simultaneously with this release.

The Ore Reserve has been supported by sourcing mining Capital Expenditure (CAPEX) from original equipment manufacturers (OEM)s for the proposed mining fleet, and mining Operation Expenditure (OPEX) was estimated from a first principle cost model and mine schedule physicals. Equipment hours and requirements were estimated from haul cycles, production rates, availabilities and utilisation. Operational and maintenance labour was estimated from equipment hours.

The mine was assumed it will be contractor operated during the pre-strip plus the first five years and owner operated from year six onwards. The pre-strip was scheduled in the initial six-month pre-

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processing commissioning for waste stripping of the Babel pit and aiming for approximately 500kt Non-Pyrite-Violarite (Non-PV) ore stockpiled ready for reclamation on day one of commissioning.

The final pit design is the basis of the Ore Reserve estimate. The Mineral Resource within the final pit design was converted to Ore Reserve by applying a Net Smelter Return (NSR) cut-off value of \$28/t ore.

**Figure 3: Mining Layout**



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## 6. Geotechnical Engineering

Geotechnical modelling was completed based on field logging and laboratory testing of selected diamond drill core samples from a total of ten (10) diamond cored boreholes within the pit shell, drilled for metallurgical (6 holes) and specific geotechnical purposes (4 holes).

The geotechnical slope design parameters used were based on work completed by Xstract Mining Consultants Pty Ltd. Further peer reviews on the Geotechnical report were conducted internally by an OZ Minerals Principal Geotechnical Engineer. In the review, the Principal Geotechnical Engineer considered that the development of slope design parameters was in line with industry standard. The open pit designs were based on the recommended geotechnical design parameters and assume dry slopes based on the assumption of adequate dewatering and/or depressurisation ahead of mining.

There are various slope configurations based on the geotechnical rock domains and location in the mine schedule.

## 7. Metallurgy and Processing Assumptions

The West Musgrave process facility has been designed to process 10Mtpa of nickel copper sulphide ore. The plant has been designed to operate 24 hours a day seven days per week at a nominal treatment rate of 1,250 dry tph. The design milling utilisation is 91.3% or 8,000 hours per year. The processing facility utilises recognised technology for sulphide ore processing circuits and follows a processing route of:

- Crushed ore stockpiling and reclaiming
- Grinding and classification
- Bulk rougher flotation.
- Rougher concentrate re-grind
- Two stages of cleaner flotation
- Separation circuits for copper and nickel concentrates
- Copper and nickel concentrate thickening, filtration and storage
- Tailings thickening and disposal.

Metallurgical assumptions are based on recent metallurgical test work as part of the ongoing studies and broken down by weathering including Pyrite-Violarite (PV), Transitional and Primary (non-PV).

PV ore is associated with the weathered portion of the deposits and is less amenable to the flotation process, hence lower nickel recoveries are expected in these domains.

The PV ore type contributes 4% of total tonnes, but its treatment in the mine plan has demonstrated a positive impact to project revenue. PV ore does however have a poisoning effect on fresh ore, reducing its nickel recovery. PV ore must be treated in separate batches. The current recovery assumption is that it will be batch treated approximately every ten weeks.

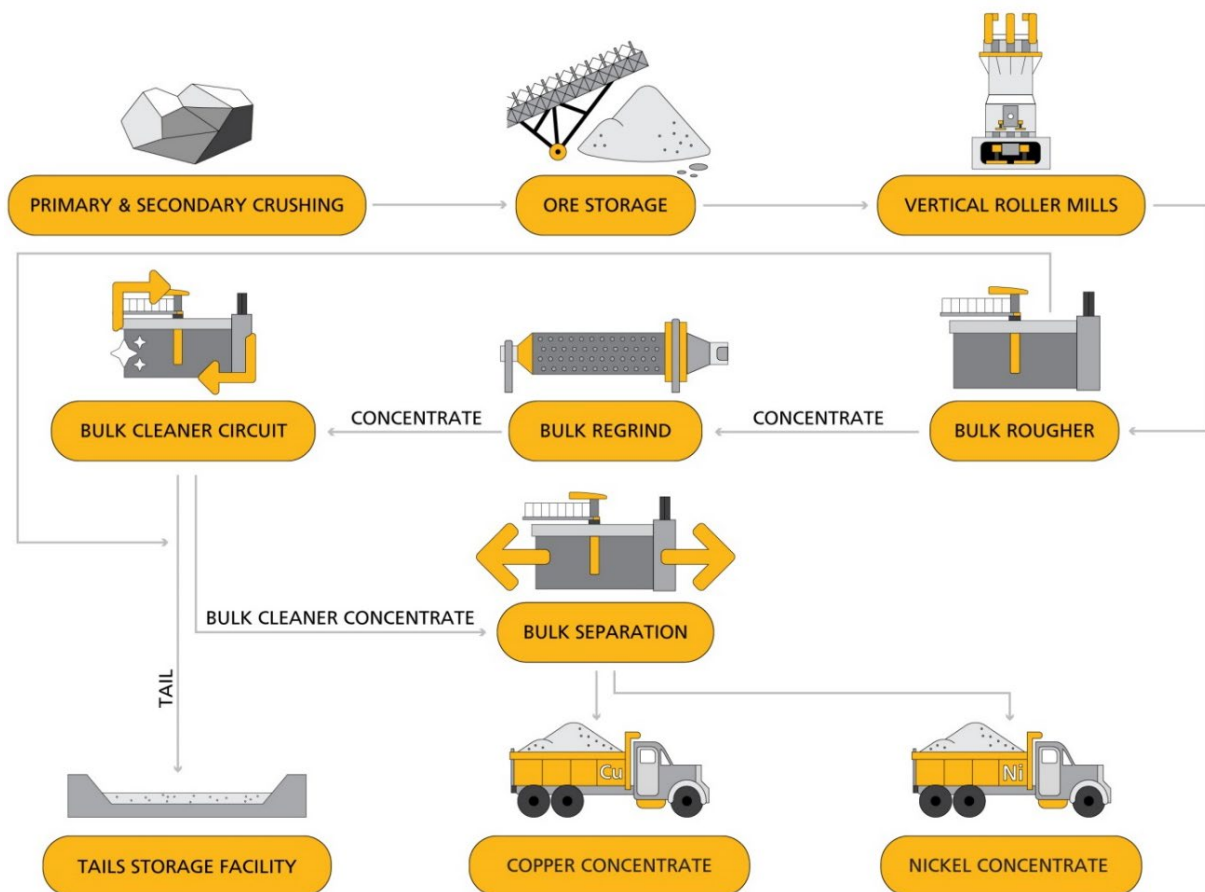
The metallurgical recoveries used for each ore type are shown in Table 3.

**Table 3: Metallurgical Recoveries**

Ore Type	Metal	Recovery %		
		Ni% > 0.25	0.20 ≤ Ni% < 0.25	0.15 ≤ Ni% < 0.19
Non-PV	Nickel	74.1	60.3	50.3
	Copper	79.4	73.9	65.9
PV	Nickel	32.5	26.6	20.1
	Copper	71.6	66.9	59.4

The simplified plant flowsheet is shown in Figure 4.

**Figure 4: Process Flowsheet**



## 8. Social, Environmental and Approval

A series of environmental baseline studies commenced in May 2018 with the aim of characterising the existing environment and identifying any associated project and approvals risks. The baseline

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environmental program has included an assessment of flora and vegetation, landforms, subterranean fauna, terrestrial environmental quality (including both mineralised and non-mineralised waste), terrestrial fauna, inland waters, air quality, heritage, archaeology, social surrounds and human health. The baseline program will continue until around March 2020 around which time the project will be referred to the Western Australia EPA under Section 38 of the Environment Protection Act. This referral program represents the first primary approval under the Western Australian Government.

The study program to date represents a thorough assessment of the proposed project area in-line with the requirements of the Western Australian EPA guidelines. To date no material environmental or approvals risks have been identified.

A program of materials characterisation has occurred to classify potentially problematic mineralised waste rock. The materials characterisation has included both static and kinetic testing of various waste rock lithologies. To date, results indicate that waste rock material with potential acid forming (PAF) represents only a small portion of the overall waste rock generation and will be encapsulated in accordance with Western Australian requirements within onsite waste rock dumps. All waste rock dumps will be designed in accordance with Western Australian requirements and approvals conditions.

A PFS level program to confirm water supply was carried out throughout 2019. The program included the drilling and pumping of 13 dedicated water bores. These bores were pump tested to test specific parameters about the availability of groundwater supply within this system. The study concluded that the local aquifer system has enough supply to support the anticipated water requirements of the project, and that water quality meets the project specifications. Further testing will occur throughout the feasibility study to validate the findings of the PFS water supply study.

Two project related Native Titles were determined for the area in 2005 and 2008. An Indigenous Land Use Agreement (ILUA) was established in 2005. The Joint Venture currently have a deed of agreement over the proposed project development area with the Traditional Owners for Exploration with provisions for this agreement to become a mining agreement subject to the negotiation of methods for mining and compensation.

The Joint Venture has developed and maintained a close relationship with the Traditional Owners and has ensured that the community have been involved in the ongoing development of the project.

A program of consultation for mining agreement-making is currently ongoing and negotiations will occur throughout 2020. The mining agreement-making process is expected to conclude before the completion of the feasibility study. The Traditional Owners are highly supportive of the project to commence. The Joint Venture has no reason to believe that agreement will not be achieved prior to the completion of the feasibility study.

A social impact and opportunity assessment (SIOA) has been co-designed with the Ngaanyatjarra Council Aboriginal Corporation and the University of Queensland (Centre for Social Responsibility in Mining Sustainable Minerals Institute). The SIOA will be undertaken in 2020 and will form a quantitative baseline dataset to help inform decision-making for social programming and investment opportunities. A program of work relating to tenement security, land access and regulatory approvals has been ongoing since May 2018 and expected to conclude before the completion of the feasibility study.

The Joint Venture currently has a tenement package over the proposed project development area. This tenement package includes exploration tenements, mining tenements and miscellaneous tenements. As the project progresses through feasibility and further definition is gained over the intended locations of infrastructure, exploration tenements will be transferred to either mining or miscellaneous tenements through the Western Australia Department of Mining, Industry Regulation and Safety (DMIRS).

To achieve state government approval to proceed with mining the project will require approval under Part 4 and Part 5 of the Western Australian Environment Protection Act, and under the Mining Act by way of an approved Mining Proposal. A program of work as detailed above to address the requirements of these approvals commenced in May 2018.

The environmental and regulatory study program to date represents a thorough assessment of the proposed project area in-line Western Australian regulatory requirements. To date no material environmental or approvals risks have been identified and full approval under Part 4 and Part 5 of the Western Australian Environment Protection Act, and an approved Mining Proposal under the Mining Act is expected before the end of the feasibility study and the decision to mine.

## 9. Infrastructure

West Musgrave is a greenfield site. Existing infrastructure is only sufficient for exploration work and exploration and studies personnel. While some of this existing infrastructure will remain operational during the life of the mine, additional infrastructure will be required to support mining activities.

The following infrastructure has been designed, scheduled and costed as part of the Pre-Feasibility Study:

- Site Access – Access to the site will be via public roads to the nearby community of Jameson (Mantamaru) and via a new road approximately 30km long from Jameson to site. The new road is feasible.
- Site Development and Major Civil Infrastructure – including clearing, levelling and bulk earthworks, access roads linking the various operational centres (Mine, Process Plant, Village etc.), drainage and surface runoff capture and containment, fencing and establishment of security zones.
- An aerodrome with sealed strip and associated facilities has been included and designed for up to and including Airbus A320 or equivalent aircraft.
- A nominal 50MW base case power supply is proposed utilising a hybrid diesel-solar-wind-battery solution, although a gas pipeline remains an option. Baseline data collected since 2018 has demonstrated high quality, consistent solar and wind resource is available, with higher wind velocities at night offsetting the lack of solar. The current base case assumes that power is purchased over the fence under a power purchase agreement arrangement, however the final ownership structure for the power assets will be further considered during the next phase of project development.

Modelling has demonstrated that circa 70 – 80% renewables penetration can be achieved for the site, with the current mix assumed to be an optimised mix of wind, solar and diesel supported by a battery installation. There remains considerable upside in power cost through matching plant power demand with the availability of renewable supply (load scheduling), haulage electrification to take advantage of curtailed energy and the continued improvement in the efficiency of renewable energy solutions.

- Water Supply – water for construction, mining, processing the ore and other site activities will be sourced from groundwater in the West Musgrave area. Drilling and testing have indicated the feasibility of the source. Additional drilling and testing will be required to confirm the adequacy of the groundwater supplies.
- Ore stockpiling and ROM pad reclaiming.
- Primary Crushing, secondary crushing, processing stockpiles with automated reclaim systems, grinding, classification and recycle crushing.
- Bulk Rougher flotation.
- Concentrate regrind circuits
- Two stages of cleaner flotation.
- Separation circuits for Nickel and Copper concentration.
- Nickel and Copper Concentrate thickening, filtration and storage.
- Onsite containerised concentrate will be transported via a combination of road and/or rail and/or ship depending on the customer. The concentrate logistics chain has been modelled and demonstrated to be feasible.
- Combined tailings thickening and disposal.
- A preliminary design for a paddock style Tailings Storage Facility (TSF) has been developed and shown to be feasible. An upstream raised embankment with provision for progressive downstream rock buttressing has been selected and designed based on the process tailings deposition rate of 9.94Mtpa. TSF embankment design slopes are 1V:1.5H upstream and 1V:3H downstream. It is anticipated that the starter embankment will be constructed from locally sourced material. The embankment will then be raised in stages during the life of the operation using consolidated tailings. Further geotechnical investigation and tailings characterisation test work will be required to confirm the TSF design.
- Reagent mixing, storage and distribution.
- Communications – includes all onsite communications systems and infrastructure and also the connection to the national communications network offsite inclusive of microwave link to nearby fibre, hard connected fibre and back up satellite connectivity.
- Control Systems – includes the hardware and systems required to integrate the mining, processing and other systems and the base for the operating area systems. Remote operation and monitoring facilities are included along with the traditional site operation control centre.
- Onsite Services – including reticulation of power and water around the operational centres, provision of lighting, sewage and wastewater services, fire, compressed air and dust suppression systems, waste disposal, bulk fuel receipt, storage and distribution.
- Buildings – including the provision of accommodation (750-800 during construction and then 400 permanent operational village), administration, workshops, logistics hubs, warehousing and any other non-process or mining structures.
- Fixed Plant, Mobile Equipment and Vehicles – including all other infrastructure systems and plant required for enabling site operations but not covered elsewhere in the Pre-Feasibility Study.

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**JORC CODE, 2012 EDITION, TABLE 1**

**Section 4 Estimation and Reporting of Ore Reserves**

Criteria	Commentary												
Mineral resource estimate for conversion to Ore Reserves	<p>The JORC Mineral Resource for West Musgrave was prepared by a Competent person, Mr Mark Burdett, an employee of OZ Minerals Limited, which formed the basis of this Ore Reserve estimate.</p> <p>The details of the development of the Mineral Resource Estimate for 2020 can be found above in the Explanatory Notes which accompany the Mineral Resource estimates.</p> <p>The Indicated Mineral Resources are reported inclusive of those Mineral Resources modified to produce the Ore Reserves.</p>												
Site visits	<p>The Competent Person conducted a Site visit in September 2019. The following activities were completed:</p> <ul style="list-style-type: none"> <li>• Gained general familiarisation with the site including likely mining conditions, proposed pit location, waste dump location, site drainage and site access.</li> <li>• Assessed proposed locations of mining related infrastructure relative to the designed open pit.</li> <li>• Observed resource drilling activities.</li> <li>• Inspected core and drill hole sites to get an understanding of the variations in weathering profiles across the deposit.</li> <li>• Viewed diamond drill core from selected holes.</li> </ul>												
Study status	<p>This Ore Reserve has been supported by the completion of a Pre-Feasibility level of study (PFS), as described in JORC (2012). The PFS was completed in February 2020 and determined a technical and economical viable outcome for the West Musgrave project, inclusive of the two deposits, Babel and Nebo.</p> <p>The PFS mine plan supporting the Ore Reserve is based upon a mine plan and mine designs that are deemed technically achievable, involving the application of conventional technology.</p> <p>The mine plan has been tested for economic viability using input costs, metallurgical recovery and expected long term metal price, after due allowances for payabilities and royalties. Financial modelling completed as part of the Prefeasibility Study and Ore Reserve shows that the project is economically viable under current assumptions.</p>												
Cut-off parameters	<p>The break-even cut-off used in the Ore Reserve estimate was a Net Smelter Return (NSR) based cut-off, taking into account site processing cost (with the inclusion of General Admin, sustaining capital, corporate overhead and mine rehabilitation fund) and ore rehandle cost. Mining recovery and dilution are accounted for in the modifying factors and calculation of NSR values in the Resource model consider metallurgical recoveries.</p> <p>NSR was calculated on a block by block basis and also included royalties, concentrate payabilities, concentrate transport and penalties. A range of increased cut-off criteria was tested to determine the best project value. This resulted in using an increased cut-off to \$8/t ore above break-even cut-off.</p> <p>Mill limited break-even cut-off; = processing cost + ore rehandle = \$19.6/t ore</p> <p>Increased cut-off applied; = \$19.6/t ore + \$8.0/t ore = \$27.6/t ore</p> <p><b>Table 4: Applied cut-off</b></p> <table border="1"> <thead> <tr> <th>Item</th> <th>\$ / ore tonne</th> </tr> </thead> <tbody> <tr> <td>Ore Processing</td> <td>18.0</td> </tr> <tr> <td>Ore Rehandle</td> <td>1.6</td> </tr> <tr> <td>Increased cut-off</td> <td>8.0</td> </tr> <tr> <td>Total</td> <td>27.6</td> </tr> <tr> <td><b>Ore Cut-off (rounded up)</b></td> <td><b>28.0</b></td> </tr> </tbody> </table>	Item	\$ / ore tonne	Ore Processing	18.0	Ore Rehandle	1.6	Increased cut-off	8.0	Total	27.6	<b>Ore Cut-off (rounded up)</b>	<b>28.0</b>
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<p>Mining factors or assumptions</p>	<p>The Mineral Resource model was regularised to Selective Mining Unit (SMU) blocks of 10m E x 10m N x 5m RL to generate a diluted Mining model for mine planning tasks of pit optimisation and evaluation. The SMU block reflects expected mining equipment size, the geometry of the geology, anticipated ore loss. Mining dilution and ore loss were applied through regularisation of the resource model. The overall effect was 2.6% dilution and 4.3% ore loss applied to the mining model used for mine planning.</p> <p>The West Musgrave project considers the Babel and Nebo deposits. Both deposits are near surface and most suitable to be mined by open pit mining methods utilising conventional mining equipment. Potential underground mining was assessed, however identified higher mining cost compared to open pit extraction. Final pit and interim stage designs were completed as part of the PFS. The final pit design is the basis of the Ore Reserve estimate.</p> <p>The resource model was optimised using the Lerchs-Grossman (LG) algorithm with industry standard software. Nested pit shells were generated and tested with sensitivities on mining cost, processing cost, metal price, recoveries, and slope angles forming the basis of the optimal pit shell for the Babel and Nebo deposits. Interim pit shells provided guidance for pit stages to maximise value and achieve operational design requirements.</p> <p>The resultant pit shells were used to develop detailed pit designs with due consideration of geotechnical slope parameters, minimum mining widths, bench heights, and ramp widths suitable for proposed mining equipment. These pit designs were used as the basis for production scheduling and economic evaluation.</p> <p>A minimum mining width of 80m was applied to the final and stage pit designs.</p> <p>The mining schedule is based on realistic mining productivity and equipment utilisation estimates, and considered the pit development requirements, the selected mining fleet productivity and the vertical rate of mining development. Staged pit designs along with the stockpiling strategy were applied to ensure a continuous supply of ore whilst deferring waste mining for as long as practically possible. The mining schedule is based on supplying suitable material to the processing plant with a nameplate capacity of 10Mtpa.</p> <p>The mine was assumed it will be contractor operated during the pre-strip plus the first five years and owner operated from year six onward. The pre-strip was scheduled in the initial six-month pre-processing commissioning for waste stripping of the Babel pit and aiming for approximately 500kt Non-Pyrite-Violarite (Non-PV) ore stockpiled ready for reclamation on day one of commissioning.</p> <p>In the estimation of the Ore Reserve, Inferred Mineral Resources were excluded from pit optimisation, mine schedules and economic valuations utilised to validate the economic viability of the Ore Reserves. The Ore Reserve is technically achievable and economically viable without the inclusion of the Inferred Resource.</p> <p>Waste material from mining activities will be disposed of as follows:</p> <ul style="list-style-type: none"> <li>• Topsoil will be disposed of at designated stockpiles for application in on-going rehabilitation activities;</li> <li>• Some waste rock may be utilised to construct the Run of Mine (ROM) pad;</li> <li>• Some waste rock may be utilised to construct on-going Tailings Storage Facility (TSF) lifts;</li> <li>• Excess waste rock will be disposed of in designated engineered surface and In-pit waste dumps</li> </ul> <p>Independent peer review for dilution mining model and mining unit cots pit optimisation have been undertaken and confirmed the appropriateness of the assumptions used in the current study. Discussion with potential customers will progress during the next study stage.</p> <p>Geotechnical modelling was completed based on field logging and laboratory testing of selected diamond drill core samples from a total of ten (10) diamond cored boreholes within the pit shell, drilled for metallurgical (6 holes) and specific geotechnical engineering purposes (4 holes).</p> <p>The geotechnical slope design parameters used were based on work completed by Xstract Mining Consultants Pty Ltd. Further peer reviews on the Geotechnical report were conducted internally by OZ Minerals Principal Geotechnical. In the review, the Principal Geotechnical Engineer considered that the</p>

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	<ul style="list-style-type: none"> <li>▪ Rougher concentrate re-grind</li> <li>▪ Two stages of cleaner flotation</li> <li>▪ Separation circuits for copper and nickel concentrates</li> <li>▪ Copper and nickel concentrate thickening, filtration and storage</li> <li>▪ Tailings thickening and disposal.</li> </ul> <p>The grinding circuit consists of two stages of crushing followed by two parallel Vertical Roller Mills each treating nominally 5Mtpa each. The second stage of crushing and Vertical Roller Mills replace a traditional SAG Mill, Ball Mill and Pebble Crushing circuit. Vertical Roller Mills are widely used in the grinding of cement plant feeds and products, slag, coal and other industrial minerals, with thousands currently in operation worldwide, and are currently being introduced into the metals sector. The mill has benefits in reducing power consumption by 15%, no ball charge grinding media, higher flotation recovery and can be ramped up and down in response to the availability of low-cost renewable energy. The technology has been peer reviewed for West Musgrave by an independent expert and has been substantially de-risked through a series of pilot tests whereby 5 tonnes of West Musgrave ore has been tested.</p> <p>A Bulk Separation flotation flowsheet producing separate copper and nickel concentrates will be used. The flowsheet has been developed to minimise primary grinding requirements with the primary separation size at 165 microns, saving significant grinding capital and operating expenditure in terms of grinding consumables and power draw. The flowsheet uses bulk rougher flotation, regrinding, two stages of bulk cleaning, then copper nickel separation at elevated pH.</p> <p>The proposed metallurgical process is commonly used in international copper-nickel sulphide mining industry and is considered to be well-tested and proven technology. The flowsheet is employed in a number of operations in North America.</p> <p>The sulphide ore is further divided into Pyrite-Violarite (PV) and non-PV. Pyrite-Violarite ore is associated with the weathered portion of the deposits and is less amenable to flotation process, hence lower nickel recoveries are expected and are evident in these domains. The PV ore type contributes 4% of total tonnes, but its treatment in the mine plan has demonstrated a positive impact to project revenue. PV ore does however have a poisoning effect on fresh ore, reducing its nickel recovery. PV ore must be treated in separate batches. The current recovery assumption is that it will be batch treated approximately every ten weeks.</p> <p>The metallurgical recoveries used for each ore type are shown in Table 5.</p> <p><b>Table 6: Metallurgical Recoveries</b></p> <table border="1" data-bbox="464 1442 1385 1641"> <thead> <tr> <th rowspan="2">Ore Type</th> <th rowspan="2">Metal</th> <th colspan="3">Recovery%</th> </tr> <tr> <th>Ni%&gt;0.25</th> <th>0.20≤ Ni% &lt;0.25</th> <th>0.15≤ Ni% &lt;0.19</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Non-PV</td> <td>Nickel</td> <td>74.1</td> <td>60.3</td> <td>50.3</td> </tr> <tr> <td>Copper</td> <td>79.4</td> <td>73.9</td> <td>65.9</td> </tr> <tr> <td rowspan="2">PV</td> <td>Nickel</td> <td>32.5</td> <td>26.6</td> <td>20.1</td> </tr> <tr> <td>Copper</td> <td>71.3</td> <td>66.6</td> <td>59.1</td> </tr> </tbody> </table> <p>Metallurgical test work was conducted on 40 representative samples from diamond drill holes. The selected samples were representative of ore type domaining in Nebo Babel deposits and grade variability for various points of time over the life of mine from the previous study stage of mine plan. The test work has demonstrated that a typical metallurgical crushing, grinding and flotation process would produce acceptable grades and metal recoveries for separate copper and nickel flotation concentrate streams.</p> <p>Bench test work conducted to enable the development of the process design criteria for the specification of the process plant included;</p> <ul style="list-style-type: none"> <li>• 40 comminution tests.</li> <li>• 350 flotation tests, including locked cycle testing.</li> <li>• Regrinding, thickening and filtration tests.</li> </ul>	Ore Type	Metal	Recovery%			Ni%>0.25	0.20≤ Ni% <0.25	0.15≤ Ni% <0.19	Non-PV	Nickel	74.1	60.3	50.3	Copper	79.4	73.9	65.9	PV	Nickel	32.5	26.6	20.1	Copper	71.3	66.6	59.1
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	<ul style="list-style-type: none"> <li>Extensive mineralogy.</li> </ul> <p>The locked cycle testing for flotation confirmed the metal recoveries and concentrate grades of all elements used in the Pre-Feasibility Study. Resultant key metallurgical recoveries used were ~69% for nickel and ~78% for copper with concentrate grades of ~10% for nickel and ~25% for copper. The economic analysis of West Musgrave in Ore Reserve Optimisation used these metallurgical factors.</p> <p>Test work has demonstrated that potential penalty elements report to the flotation concentrate at levels that do not trigger any marketing penalty payments.</p> <p>Pilot plant bulk samples for additional comminution test work were collected from holes drilled specifically for metallurgical test work to be characteristic of the ore body in terms of grades and mineralogy.</p> <p>Pilot plant operation confirmed the process design criteria which were used for the specification of the processing plant.</p> <p>Once full production is established at West Musgrave, ore will be mined continuously across the entire footprint of the orebody. The mine will produce a blend of the various metallurgical domains. There is reasonable metallurgical variability between the domains however the mine schedule will provide reduced variability.</p>
Environmental	<p>The West Musgrave Project spans two Bioregions; the Central Ranges and the Great Victoria Desert. The northern half of the Project Area is in the Mann-Musgrave Block subregion of the Central Ranges Bioregion, which is dominated by ranges interspersed with sandplains (Graham and Cowan 2001). The southern part of the West Musgrave Project is within the Great Victoria Desert Central subregion of the Great Victoria Desert Bioregion. This subregion comprises extensive sandplains and dune fields, salt lakes, minor hills and breakaways (Barton and Cowan 2001).</p> <p>A series of environmental baseline studies commenced in May 2018 with the aim of characterising the existing environment and identifying any associated project and approvals risks. The baseline environmental program has included an assessment of flora and vegetation, landforms, subterranean fauna, terrestrial environmental quality (including both mineralised and non-mineralised waste), terrestrial fauna, inland waters, air quality, heritage, archaeology, social surrounds and human health. The baseline program will continue until around March 2020 around which time the project will be referred to the Western Australia EPA under Section 38 of the Environment Protection Act. This referral program represents the first primary approval under the Western Australian Government.</p> <p>The study program to date represent a thorough assessment of the proposed project area in-line with the requirements of the Western Australian EPA guidelines. To date no material environmental or approvals risks have been identified.</p> <p>A program of materials characterisation has occurred to classify potentially problematic mineralised waste rock. The materials characterisation has included both static and kinetic testing of various waste rock lithologies. To date, results indicate that waste rock material with potential acid forming (PAF) represents only a small portion of the overall waste rock generation and will be encapsulated in accordance with Western Australian requirements within onsite waste rock dumps. All waste rock dumps will be designed in accordance with Western Australian requirements and approvals conditions.</p> <p>A PFS level program to confirm water supply was carried out throughout 2019. The program included the drilling and pumping of 13 dedicated water bores. These bores were pump tested to test specific parameters about the availability of groundwater supply within this system. A model to confirm the confidence in water supply and associated impacts was developed. The model used a combination of data to develop a robust model. The model inputs included, field data; text book/benchmark values for similar systems, sensitivity ranging and modelling and an independent third party peer review.</p> <p>The study concluded that the model for local aquifer system has enough supply to support the anticipated water requirements of the project, and that water quality meets the project specifications. Further testing will occur throughout the feasibility study to validate the findings of the PFS water supply study.</p>

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Infrastructure	<p>West Musgrave is a greenfield site. Existing infrastructure is only sufficient for exploration work and exploration and studies personnel. While some of this existing infrastructure will remain operational during the life of the mine, additional infrastructure will be required to support mining activities.</p> <p>The following infrastructure has been designed, scheduled and costed as part of the Pre-Feasibility Study:</p> <ul style="list-style-type: none"> <li>• Site Access – Access to the site will be via public roads to the nearby community of Jameson (Mantamaru) and via a new road approximately 30km long from Jameson to site. The new road has been shown to be feasible.</li> <li>• Site Development and Major Civil Infrastructure – including clearing, levelling and bulk earthworks, access roads linking the various operational centres (Mine, Process Plant, Village etc.), drainage and surface runoff capture and containment, fencing and establishment of security zones.</li> <li>• An aerodrome with sealed strip and associated facilities has been included and designed for up to and including Airbus A320 or equivalent aircraft.</li> <li>• A nominal 50MW base case power supply is proposed utilising a hybrid diesel-solar-wind-battery solution, although a gas pipeline remains an option. Baseline data collected since 2018 has demonstrated high quality, consistent solar and wind resource is available, with higher wind velocities at night offsetting the lack of solar. The current base case assumes that power is purchased over the fence under a power purchase agreement arrangement, however the final ownership structure for the power assets will be further considered during the next phase of project development. Modelling has demonstrated that circa 70 – 80% renewables penetration can be achieved for the site, with the current mix assumed to be an optimised mix of wind, solar and diesel supported by a battery installation. There remains considerable upside in power cost through matching plant power demand with the availability of renewable supply (load scheduling), haulage electrification to take advantage of curtailed energy and the continued improvement in the efficiency of renewable energy solutions.</li> <li>• Water Supply – water for construction, mining, processing the ore and other site activities will be sourced from groundwater in the West Musgrave area. Drilling and testing have indicated the feasibility of the source. Additional drilling and testing will be required to confirm the adequacy of the groundwater supplies.</li> <li>• Ore stockpiling and ROM pad reclaiming.</li> <li>• Primary Crushing, secondary crushing, processing stockpiles with automated reclaim systems, Grinding, classification and recycle crushing.</li> <li>• Bulk Rougher flotation.</li> <li>• Concentrate regrind circuits</li> <li>• Two stages of cleaner flotation.</li> <li>• Separation circuits for Nickel and Copper Concentrate</li> <li>• Nickel and Copper Concentrate thickening, filtration and storage.</li> <li>• Onsite containerised concentrate will be transported via a combination of road and/or rail and/or ship depending on the customer. The concentrate logistics chain has been modelled and demonstrated to be feasible.</li> <li>• Combined tailings thickening and disposal.</li> <li>• A preliminary design for a paddock style Tailings Storage Facility (TSF) has been developed and shown to be feasible. An upstream raised embankment with provision for progressive downstream rock buttressing has been selected and designed based on the process tailings deposition rate of 9.94Mtpa. TSF embankment design slopes are 1V:1.5H upstream and 1V:3H downstream. It is anticipated that the starter embankment will be constructed from locally sourced material. The embankment will then be raised in stages during the life of the operation using consolidated tailings. Further geotechnical investigation and tailings characterisation test work will be required to confirm the TSF design.</li> <li>• Reagent mixing, storage and distribution.</li> <li>• Communications – includes all onsite communications systems and infrastructure and also the connection to the national communications network offsite inclusive of microwave link to nearby fibre, hard connected fibre and back up satellite connectivity</li> </ul>

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	<ul style="list-style-type: none"> <li>• Control Systems – includes the hardware and systems required to integrate the mining, processing and other systems and the base for the operating area systems. Remote operation and monitoring facilities are included along with a traditional site operation control centre.</li> <li>• Onsite Services – including reticulation of power and water around the operational centres, provision of lighting, sewage and wastewater services, fire, compressed air and dust suppression systems, waste disposal, bulk fuel receipt, storage and distribution.</li> <li>• Buildings – including the provision of accommodation (750-800 during construction and 400 permanent village), administration, workshops, logistics hubs, warehousing and any other non-process or mining structures.</li> <li>• Fixed Plant, Mobile Equipment and Vehicles – including all other infrastructure systems and plant required for enabling site operations but not covered elsewhere in the Pre-Feasibility Study.</li> </ul>
Costs	<p><b>MINING COST</b> The Ore Reserve has been supported by sourcing mining CAPEX costs from original equipment manufacturers (OEM)s for the proposed mining fleet, and mining OPEX was estimated from a first principle cost model and mine schedule physicals. Equipment hours and requirements were estimated from haul cycles, production rates, availabilities and utilisation. Operational and maintenance labour was estimated from equipment hours. The mine was assumed to be contractor operated during the pre-strip plus the first five years and followed by owner operated from year six onward.</p> <p><b>PROCESSING AND INFRASTRUCTURE CAPITAL COST</b> The processing plant and infrastructure capital estimate including surface mining infrastructure were estimated as follows:</p> <ul style="list-style-type: none"> <li>• The construction capital cost estimate is compiled to a consistent and uniform structure for the various purposes to which the outputs are used. These structures include: <ul style="list-style-type: none"> <li>○ Cost components (e.g. materials, plant, labour, consumables and services),</li> <li>○ All site labour hours to be quantified,</li> <li>○ Work Breakdown Structure (facility codes),</li> <li>○ Code of accounts (commodity codes),</li> <li>○ Foreign currency,</li> <li>○ Categorise basis of pricing,</li> <li>○ Categorise basis of quantification,</li> <li>○ Time-phasing for the financial model.</li> </ul> <p>The estimated accuracy is considered -25% / +25%, All pricing in the capital estimate has been aligned with or obtained in the 4th quarter of 2019 (4Q19)</p> </li> <li>• Earthworks <ul style="list-style-type: none"> <li>○ The project earthworks quantities have been developed from first principals using on ground and obtained information from the site.</li> <li>○ Earthworks quantities are directly related to the final location of the plant and infrastructure.</li> </ul> </li> <li>• Concrete and structural <ul style="list-style-type: none"> <li>○ The quantities for the process plant have been developed according to the mechanical equipment to be installed.</li> <li>○ Quantities for plant services, infrastructure and other minor areas have been developed from layout drawings based on the requirements adopting standard practice for those areas.</li> </ul> </li> <li>• Mechanical, Plate and Tanks <ul style="list-style-type: none"> <li>○ The process design criteria developed determined the mechanical, plate and tank quantities and requirements.</li> <li>○ Engineering take-offs were completed for plate and tanks, the total developed quantities were benchmarked against known quantities on past projects and studies.</li> </ul> </li> <li>• Piping <ul style="list-style-type: none"> <li>○ Quantities for the plant piping were not developed for the estimate with the total costs factored as a percentage of the process plant costs based on past project costs.</li> <li>○ Overland piping requirements were estimated from first principals following engineering design.</li> </ul> </li> <li>• Electrical, Instrumentation and Control</li> </ul>

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	<ul style="list-style-type: none"> <li>○ The electrical requirements were estimated from first principals based on single line diagrams, layouts and the equipment to be installed.</li> <li>○ Overland powerline requirements were determined following engineering design.</li> <li>• Buildings and Infrastructure               <ul style="list-style-type: none"> <li>○ The building and infrastructure requirements have been developed to OZ Minerals specifications.</li> <li>○ Market enquiries were sent out for camps, transportable buildings and shed structures. Returned budget pricing was evaluated and the most suitable pricing selected for the project estimate.</li> <li>○ Infrastructure costs for fuel farms, fuel tanks, waste and potable water plants have been quoted.</li> <li>○ Wash-down facilities and weighbridge costs were obtained recently on other projects with the same requirements.</li> </ul> </li> <li>• Transport               <ul style="list-style-type: none"> <li>○ Transport requirements are determined by the source and quantity of the delivered goods.</li> <li>○ The freight costs are determined by line item based on the dimensions and the source of the item.</li> <li>○ International freight is included in the estimate.</li> <li>○ Freight rates were obtained for the project for various dimension loads primarily from Perth metro to the project site.</li> </ul> </li> <li>• Installation               <ul style="list-style-type: none"> <li>○ Estimates for installation labour costs were based on estimated man-hours associated with installation in each area of the plant and the application of industry standard labour rates for the type of work involved.</li> <li>○ The construction working roster is 3 on 1 off.</li> </ul> </li> <li>• Mechanical               <ul style="list-style-type: none"> <li>○ Budget quotes were obtained from the market for the following:                   <ul style="list-style-type: none"> <li>▪ Crushers (gyro and cone);</li> <li>▪ Grinding Mills;</li> <li>▪ Flotation Cells;</li> <li>▪ Regrind Mills;</li> <li>▪ Filters;</li> <li>▪ Compressors and Blowers;</li> <li>▪ Major pumps;</li> <li>▪ Thickener;</li> <li>▪ Water Treatment Plant;</li> <li>▪ Fuel Farm.</li> </ul> </li> <li>○ Budget quotes account for approximately 84% of the mechanical supply costs.</li> <li>○ Database pricing accounts for 12% of the mechanical costs and the remaining 4% of costs are estimated or allowance.</li> </ul> </li> <li>• Electrical, Instrumentation and Control               <ul style="list-style-type: none"> <li>○ Budget quotes were obtained from the market for the following:                   <ul style="list-style-type: none"> <li>▪ Transformers;</li> <li>▪ 11kV switchgear;</li> <li>▪ 33kV switchgear;</li> <li>▪ Low voltage VSD;</li> <li>▪ Med. Voltage VSD;</li> </ul> </li> <li>○ Budget quotes account for approximately 62% of the electrical material costs.</li> <li>○ Database pricing accounts for the balance of electrical material costs.</li> </ul> </li> </ul> <p>Capital cost has incorporated appropriate contingencies for inherent risks (uncertainty due to estimate immaturity) and for contingent risks that may eventuate during construction.</p> <p><b>PROCESSING AND INFRASTRUCTURE OPERATING COST</b></p> <ul style="list-style-type: none"> <li>▪ Labour costs were based on developed staffing and operational configurations and used OZ Minerals base rates from existing labour agreements.</li> <li>▪ Power, fuel, reagent and consumables costs were based on budget quotations.</li> </ul>



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	<ul style="list-style-type: none"> <li>▪ Process plant and surface infrastructure maintenance materials costs were calculated from benchmark data.</li> <li>▪ Pre-production operating costs were capitalised.</li> <li>▪ Sustaining capital costs are included in operating costs.</li> <li>▪ Processing plant operating costs were developed from first principles by GR Engineering and OZ Minerals.</li> </ul> <p>OTHERS</p> <ul style="list-style-type: none"> <li>▪ Royalties were applied in the LG pit optimisation and cashflow evaluation. These included:               <ul style="list-style-type: none"> <li>○ Nickel royalty 2.5%</li> <li>○ Copper sold as concentrate royalty 5%</li> <li>○ Copper sold as Ni by-product royalty 2.5%</li> <li>○ Cobalt sold in Ni concentrate royalty 2.5%</li> <li>○ Gold royalty 2.5%</li> <li>○ Silver royalty 2.5%</li> <li>○ Platinoids royalty 2.5%</li> <li>○ Project Nets Smelter Return royalty 2.0%</li> <li>○ Native Title royalty</li> </ul> <p>The assumption for Native Title royalty was taken into consideration in the evaluation. The assumption was based on the benchmarking against similar projects and currently is still under negotiation.</p> </li> <li>▪ The closure cost estimate was developed following the Western Australia Mining Rehabilitation Fund Regulation 2013 and was estimated on the basis of the area disturbance indicated in the mine planning. The estimation is subject to further refinement in the next stage of study.</li> </ul>																														
Revenue factors	<p>The Ore Reserve estimates are based on the life-of-mine (LOM) economic parameters. These parameters are shown in Table 7 and are drawn from OZ Minerals Corporate Economic Assumptions released in Quarter 3, October 2019 and are the consensus values of major brokers.</p> <p><b>Table 7: West Musgrave Ore Reserve Optimisation Economic Assumptions</b></p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Units</th> <th>LOM</th> </tr> </thead> <tbody> <tr> <td>Nickel</td> <td>US \$ / lb</td> <td>7.16</td> </tr> <tr> <td>Copper</td> <td>US \$ / lb</td> <td>2.94</td> </tr> <tr> <td>Gold</td> <td>US \$ / oz</td> <td>1,246</td> </tr> <tr> <td>Silver</td> <td>US \$ / oz</td> <td>17.19</td> </tr> <tr> <td>Platinum</td> <td>US \$ / oz</td> <td>1,311</td> </tr> <tr> <td>Palladium</td> <td>US \$ / oz</td> <td>633</td> </tr> <tr> <td>Cobalt</td> <td>US \$ / lb</td> <td>21.90</td> </tr> <tr> <td>Exchange Rate</td> <td>AUD / USD</td> <td>0.73</td> </tr> <tr> <td>Discount Rate</td> <td>%</td> <td>8.5</td> </tr> </tbody> </table>	Parameter	Units	LOM	Nickel	US \$ / lb	7.16	Copper	US \$ / lb	2.94	Gold	US \$ / oz	1,246	Silver	US \$ / oz	17.19	Platinum	US \$ / oz	1,311	Palladium	US \$ / oz	633	Cobalt	US \$ / lb	21.90	Exchange Rate	AUD / USD	0.73	Discount Rate	%	8.5
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Market assessment	<p>Copper concentrates are modelled to be sold on the open concentrate market to a range of overseas smelters.</p> <p>Nickel concentrates are modelled to be sold on the open concentrate market to either overseas or domestic smelters. Nickel payability in concentrate from PV ore is relatively lower than payability from non-PV ore. Based on the current mine planning, the Nickel concentrate from PV ore accounts for approximately less than five percent of total nickel concentrate.</p> <p>The cost of sales includes costs from mine to the customer, smelter treatment and refining charges. The smelter treatment and refining charges are typically negotiated on an annual basis directly with customers at industry benchmark terms.</p> <p>The Ore Reserve estimate optimisation uses assumptions shown in Table 8 to estimate revenue.</p>																														

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	<p><b>Table 8: Transports, Payabilities and Smelter Charges Assumptions</b></p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Units</th> <th>LOM</th> <th>Non-PV</th> <th>PV</th> </tr> </thead> <tbody> <tr> <td colspan="5"><u>Nickel Concentrate:</u></td> </tr> <tr> <td>- Transport to International market</td> <td>AU \$ / wmt</td> <td>221</td> <td></td> <td></td> </tr> <tr> <td>- Transport to Domestic market</td> <td>AU \$ / wmt</td> <td>98</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td><b>Non-PV</b></td> <td><b>PV</b></td> </tr> <tr> <td>- Nickel Payability</td> <td>%</td> <td></td> <td>71</td> <td>67</td> </tr> <tr> <td>- Copper Payability</td> <td>%</td> <td></td> <td>12.5</td> <td>0</td> </tr> <tr> <td>- Cobalt Payability</td> <td>%</td> <td></td> <td>12.5</td> <td>0</td> </tr> <tr> <td>- Palladium Payability</td> <td>%</td> <td></td> <td>12.5</td> <td>40</td> </tr> <tr> <td>- Platinum Payability</td> <td>%</td> <td></td> <td>12.5</td> <td>0</td> </tr> <tr> <td colspan="5"><u>Copper Concentrate:</u></td> </tr> <tr> <td>- Transport for International market</td> <td>AU \$ / wmt</td> <td>221</td> <td></td> <td></td> </tr> <tr> <td>- Copper Payability</td> <td>%</td> <td>96.5</td> <td></td> <td></td> </tr> <tr> <td>- Copper Concentrate Smelting</td> <td>US \$ / dmt</td> <td>85</td> <td></td> <td></td> </tr> <tr> <td>- Copper Refining</td> <td>US \$ / lb</td> <td>0.085</td> <td></td> <td></td> </tr> <tr> <td>- Gold Refining</td> <td>US \$ / oz</td> <td>5</td> <td></td> <td></td> </tr> <tr> <td>- Silver Refining</td> <td>US \$ / oz</td> <td>0.5</td> <td></td> <td></td> </tr> </tbody> </table> <p>An independent peer review of the market terms has been undertaken and confirmed the appropriateness of the assumptions used in the current study. Discussion with potential customers will progress during the next study stage.</p>	Parameter	Units	LOM	Non-PV	PV	<u>Nickel Concentrate:</u>					- Transport to International market	AU \$ / wmt	221			- Transport to Domestic market	AU \$ / wmt	98						<b>Non-PV</b>	<b>PV</b>	- Nickel Payability	%		71	67	- Copper Payability	%		12.5	0	- Cobalt Payability	%		12.5	0	- Palladium Payability	%		12.5	40	- Platinum Payability	%		12.5	0	<u>Copper Concentrate:</u>					- Transport for International market	AU \$ / wmt	221			- Copper Payability	%	96.5			- Copper Concentrate Smelting	US \$ / dmt	85			- Copper Refining	US \$ / lb	0.085			- Gold Refining	US \$ / oz	5			- Silver Refining	US \$ / oz	0.5		
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Economic	<p>Gross revenue was estimated based on production schedule yearly quantities, grades and metallurgical recoveries, at a constant long-term metal price. The mine production schedule input to the model was drawn from the Pre-Feasibility Study. Capital and operating costs input to the model were at a prefeasibility level of accuracy.</p> <p>West Musgrave is an economically robust project, generating a positive NPV and IRR as reported in the Pre-Feasibility Study.</p> <p>Sensitivity analyses were carried out on commodity prices, exchange rate, capital cost and operating cost. The results suggested that the project was most sensitive to nickel prices and exchange rate on the upside and downside cases. For all sensitivity scenarios modelled project NPV remained positive.</p> <p>The Ore Reserve estimate is based on OZL Q3 2019 of Life of Mine (LOM) economic assumptions generating a positive economic outcome. PFS financial modelling has since been updated using OZL Q4 2019 LOM economic assumptions (i.e. as of November 2019) with an increase Nickel price of 15% and Copper of 8% in Australian dollar term relative to Q3 assumptions. The Q4 assumptions is shown in Table 9.</p> <p><b>Table 9: LOM Economic Assumptions for Pre-Feasibility Study Economic Analysis</b></p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Units</th> <th>Q4 LOM</th> </tr> </thead> <tbody> <tr> <td>Nickel</td> <td>US \$ / lb</td> <td>7.60</td> </tr> <tr> <td>Copper</td> <td>US \$ / lb</td> <td>2.91</td> </tr> <tr> <td>Gold</td> <td>US \$ / oz</td> <td>1,246</td> </tr> <tr> <td>Silver</td> <td>US \$ / oz</td> <td>17.19</td> </tr> <tr> <td>Platinum</td> <td>US \$ / oz</td> <td>1,311</td> </tr> <tr> <td>Palladium</td> <td>US \$ / oz</td> <td>633</td> </tr> <tr> <td>Cobalt</td> <td>US \$ / lb</td> <td>21.90</td> </tr> <tr> <td>Exchange Rate</td> <td>AUD / USD</td> <td>0.67</td> </tr> </tbody> </table>	Parameter	Units	Q4 LOM	Nickel	US \$ / lb	7.60	Copper	US \$ / lb	2.91	Gold	US \$ / oz	1,246	Silver	US \$ / oz	17.19	Platinum	US \$ / oz	1,311	Palladium	US \$ / oz	633	Cobalt	US \$ / lb	21.90	Exchange Rate	AUD / USD	0.67																																																										
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Criteria	Commentary			
	<table border="1" data-bbox="459 398 949 432"> <tr> <td>Discount Rate</td> <td>%</td> <td>8.5</td> </tr> </table> <p>Minor elements such as Gold, Silver, Platinum, Palladium and Cobalt are payable with a combined revenue less than five percent of total project revenue.</p>	Discount Rate	%	8.5
Discount Rate	%	8.5		
Social	<p>The proposed project area is fully encompassed within two types of indigenous title, these include Native Title under Commonwealth law and Aboriginal Reserve under Western Australian law. To enable the project to proceed, an agreement must be negotiated with the title holders, the Yarnangu People who are represented by the Ngaanyatjarra Council Aboriginal Corporation.</p> <p>Two project related Native Titles were determined for the area in 2005 and in 2008. An Indigenous Land Use Agreement (ILUA) was established in 2005. The Joint Venture currently have a deed of agreement over the proposed project development area with the Traditional Owners for the purpose of Exploration with provisions for this agreement to become a mining agreement subject to the negotiation of methods for mining and compensation.</p> <p>The Joint Venture has developed and maintained a close relationship with the Traditional Owners and has ensured that the community have been involved in the ongoing development of the project. A program of consultation for mining agreement-making is currently ongoing and negotiations will occur throughout 2020. The mining agreement-making process is expected to conclude prior to the completion of the feasibility study. The Traditional Owners are highly supportive of the project to commence. The Joint Venture has no reason to believe that agreement will not be achieved before the completion of the feasibility study.</p> <p>A social impact and opportunity assessment (SIOA) has been co-designed with the Ngaanyatjarra Council Aboriginal Corporation and the University of Queensland (Centre for Social Responsibility in Mining Sustainable Minerals Institute). The SIOA will be undertaken in 2020 and will form a quantitative baseline dataset to help inform decision-making for social programming and investment opportunities.</p>			
Other	<p>A program of work relating to tenement security, land access and regulatory approvals has been ongoing since May 2018 and expected to conclude before the completion of the feasibility study.</p> <p>The Joint Venture currently has a tenement package over the proposed project development area. This tenement package includes exploration tenements, mining tenements and miscellaneous tenements. As the project progresses through feasibility and further definition is gained over the intended locations of infrastructure, exploration tenements will be transferred to either mining or miscellaneous tenements through the Western Australia Department of Mining, Industry Regulation and Safety (DMIRS).</p> <p>To achieve state government approval to proceed with mining the project will require approval under Part 4 and Part 5 of the Western Australian Environment Protection Act, and under the Mining Act by way of an approved Mining Proposal. A program of work as detailed above to address the requirements of these approvals commenced in May 2018.</p> <p>The environmental and regulatory study program to date represent a thorough assessment of the proposed project area in-line Western Australian regulatory requirements. To date no material environmental or approvals risks have been identified and full approval under Part 4 and Part 5 of the Western Australian Environment Protection Act, and an approved Mining Proposal under the Mining Act is expected before the end of the feasibility study and the decision to mine.</p> <p>The project financial outcomes are mostly sensitive to the exchange rate. However, an increase to 20% exchange rate is still maintained project NPV in positive territory.</p> <p>Change in metal prices, exchange rate and to a lesser extent operating cost and pit design parameters in the pit optimisation, can either increase or decrease the pit size and associated ore reserve. Further refinement is expected during the next phase of the study.</p>			

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Criteria	Commentary
	<p>OZ Minerals feels that approvals risks are manageable and is targeting a regulatory approvals schedule that aligns with the project study phase, it is recognised that an approval delay of up to 12 months still presents a risk. Delay to Regulatory approval is not deemed material.</p> <p>Benchmarking several regulatory approvals programs in Western Australia (including; Western Australia Environment Protection Act Part 4, Part 5 and Western Australia Mining Act, Mining Proposal) the range to which projects have been shown to achieve all project approvals is between 18 months, and 40 months for highly complex projects (from the time of initial referral to receipt of all project approvals).</p>
Classification	<p>The main basis of classification of Ore Reserves is the underlying Mineral Resource classification. All Probable Ore Reserves have been derived from Indicated Mineral Resources in accordance with JORC Code (2012) guidelines.</p> <p>The Ore Reserve classification reflects the Competent Persons' view of the deposits.</p> <p>No Inferred Mineral Resource is included in the Ore Reserves.</p>
Audits or reviews	<p>Mining One has reviewed the Pre-Feasibility Study work and find no fatal flaws. The Probable Ore Reserve classification conforms to the requirements of the Australasian Code for Reporting of Identified Mineral Resources and Ore Reserves, published by the Joint Ore Reserves Committee (JORC) of the Australasian Institute of Mining and Metallurgy (2012). OZ has used internal and independent third-party peer review extensively throughout the study, which is to be commended as a risk mitigation process.</p>
Discussion of relative accuracy/ confidence	<p>The Ore Reserve estimate is based on 100 percent Probable Reserves.</p> <p>In the opinion of the Competent Person, the Ore Reserve estimate is supported by appropriate design, scheduling, and costing work reported to a Pre-Feasibility Study level of detail. Cost assumptions and modifying factors applied in the process of estimating Ore Reserves are reasonable. These are subject to further refinement in additional studies and may influence the accuracy of the Ore Reserve.</p> <p>Metal price and exchange rate assumptions were set out by OZ Minerals and are subject to market forces and therefore present an area of uncertainty.</p> <p>In the opinion of the Competent Person, there are reasonable prospects to anticipate that all relevant legal, environmental and social approvals to operate will be granted within the project timeframe.</p>

## Competent Person's Statement

The information in this report that relates to Ore Reserves is based on and fairly represents information and supporting documentation compiled by Yohanes Sitorus BEng (Min), a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy (AusIMM Membership No. 317702).

Yohanes Sitorus is a full-time employee of OZ Minerals Limited. Yohanes Sitorus is a shareholder in OZ Minerals Limited and is entitled to participate in the OZ Minerals Performance Rights plan.

Yohanes Sitorus has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activities being undertaken 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' (JORC 2012). Yohanes Sitorus consents to the inclusion in the report of the matters based on his information in the form and context in which they appear.

The Ore Reserve estimates have been compiled in accordance with the guidelines defined in the JORC Code.

**Yohanes Sitorus**  
**Lead Mining Engineer**  
**West Musgrave**  
**OZ Minerals Limited**

## Contributors

- Overall
  - Yohanes Sitorus - OZ Minerals Limited
- Mineral Resource Model
  - Mark Burdett - OZ Minerals Limited
- Mine Planning
  - AMC Consultants Pty Ltd
  - Yohanes Sitorus - OZ Minerals Limited
- Non-mining Modifying Factors
  - James Hodgkinson for Social and Community- OZ Minerals Limited
  - Mark Weidenbach for Metallurgical Factors - OZ Minerals Limited
  - Stephen Blackman for Infrastructure and Processing - OZ Minerals Limited
  - Travis Beinke for Marketing and Economic Assumptions - OZ Minerals Limited
  - Justin Rowntree for Environment and Approvals - OZ Minerals Limited
  - Anthony Wright for Tailings Storage Facility and Logistic - OZ Minerals Limited

Yohanes Sitorus is responsible for the Ore Reserve estimates in this Report but has relied on, checked and reviewed supporting information and documentation provided by AMC Consultants Pty Ltd.

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**OZ Minerals Limited**

**WEST MUSGRAVE PROJECT**

**Nebo-Babel Deposits**

**Mineral Resource Statement and  
Explanatory Notes**

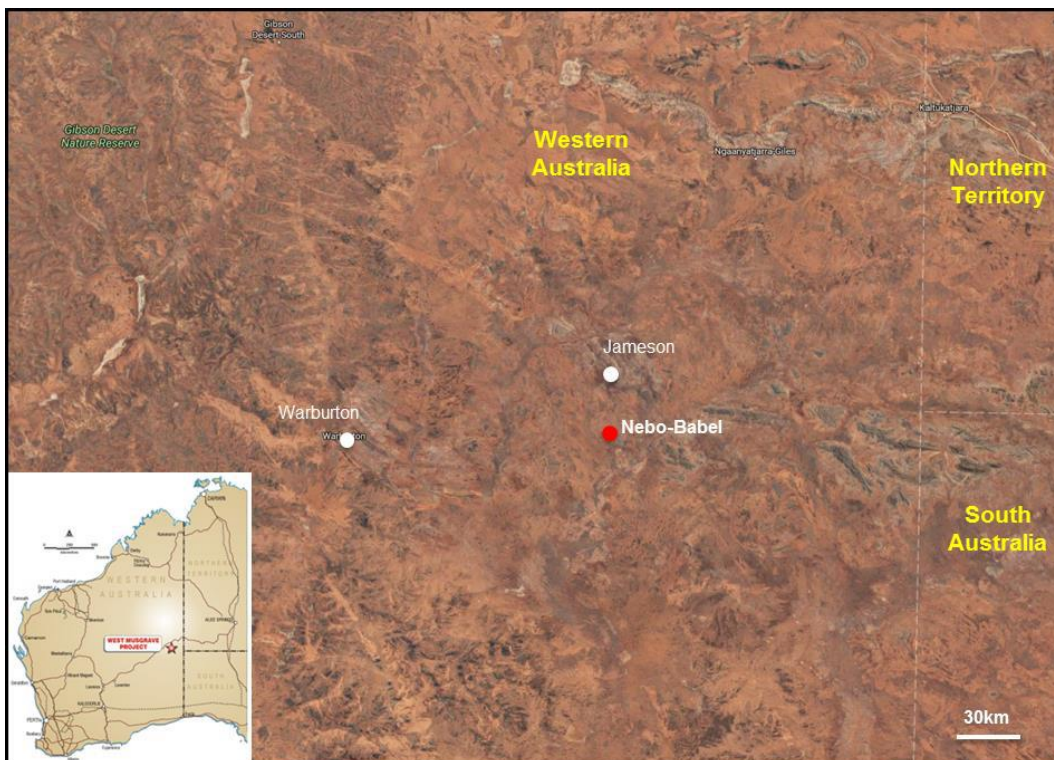
**As at 11th Feb 2020**

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## WEST MUSGRAVE MINERAL RESOURCE STATEMENT – 11TH FEBRUARY 2020

The West Musgrave 2020 Mineral Resource Statement relates to an updated Mineral Resources estimate for the Nebo and Babel nickel-copper deposits, located within the West Musgrave Project area in Western Australia that was discovered by WMC Resources in 2000. The deposits are located approximately 1,300 kilometres northeast of Perth near the border with South Australia and the Northern Territory (Figure 1). The Nebo Deposit (Nebo) lies approximately 1.5 km northeast of the Babel Deposit (Babel) (Figure 2). Independent models were created for each deposit.



**Figure 1: West Musgrave Project Location**

### Mineral Resource

The estimated Mineral Resources for the Nebo-Babel deposits is shown in **Error! Reference source not found.** The Mineral Resource estimates have been reported in accordance with the 2012 edition of the JORC Code. The Mineral Resource has been reported above a 1.2 times multiplier (revenue factor) Net



Smelter Return (NSR) cut-off of A\$23/t. The A\$23/t value represents the 2020 Ore Reserve<sup>1</sup> mill limited break-even cut-off of \$19.60/t plus approximate mining cost \$3.40. The 1.2 revenue factor NSR is generated by multiplying assumed metal prices by 1.2 to allow for reasonable prospects for eventual economic extraction. All NSR assumptions including metal prices, recovery, concentrate payability, mining and processing costs are based on the PFS<sup>2</sup> study as at October 2019 and align with 2020 Ore Reserve optimisation inputs. Mineral Resources were further constrained within “reasonable prospects” pit shells generated using a cut-off NSR of A\$28/t and utilising a 1.2 times revenue factor. The A\$28/t value represents the 2020 Ore Reserve optimised NSR cut-off. Further details of the NSR calculation can be found in JORC Table 1 below.

**Table 1: Nebo-Babel Mineral Resource Estimate<sup>3</sup> as at 11th Feb 2020**

Category	Deposit	Tonnes	Ni	Cu	Au	Ag	Co	Pd	Pt	Ni metal	Cu metal
		(Mt)	(%)	(%)	ppm	ppm	ppm	ppm	ppm	(kt)	(kt)
Indicated	Babel	240	0.31	0.35	0.06	1	120	0.10	0.08	760	850
	Nebo	38	0.40	0.35	0.04	0.8	150	0.08	0.06	150	130
	<b>Sub-total</b>	<b>280</b>	<b>0.32</b>	<b>0.35</b>	<b>0.06</b>	<b>1</b>	<b>120</b>	<b>0.10</b>	<b>0.08</b>	<b>910</b>	<b>990</b>
Inferred	Babel	62	0.34	0.38	0.07	1	120	0.11	0.09	210	230
	Nebo	1	0.38	0.44	0.05	0.6	140	0.09	0.07	3.6	4.1
	<b>Sub-total</b>	<b>63</b>	<b>0.34</b>	<b>0.38</b>	<b>0.07</b>	<b>1</b>	<b>120</b>	<b>0.11</b>	<b>0.09</b>	<b>210</b>	<b>240</b>
Ind + Inf	Babel	300	0.32	0.36	0.06	1	120	0.10	0.09	960	1,100
	Nebo	39	0.40	0.35	0.04	0.8	150	0.08	0.06	150	140
<b>Total</b>		<b>340</b>	<b>0.33</b>	<b>0.36</b>	<b>0.06</b>	<b>1</b>	<b>120</b>	<b>0.10</b>	<b>0.08</b>	<b>1,100</b>	<b>1,200</b>

\* Mineral Resources reported at a 1.2 revenue factor A\$23 NSR cut-off and within a 1.2 revenue factor A\$28 NSR pit shell.

## Changes in the 2020 Mineral Resource Estimate

Since the previous Mineral Resource update provided on 12 April 2019<sup>4</sup>, an additional 46,000m of drilling has been incorporated into the Nebo-Babel Mineral Resources estimate and this drilling was undertaken from December 2018 to September 2019.

<sup>1</sup> See OZ Minerals announcement titled “West Musgrave Project Nebo-Babel Deposits Ore Reserve Statement and Explanatory Notes as at 11th Feb 2020”, released on 12 February 2020 and available at:

[www.ozminerals.com/operations/resources-reserves/](http://www.ozminerals.com/operations/resources-reserves/)

<sup>2</sup> See OZ Minerals announcement titled “West Musgrave Pre-Feasibility Study - a low carbon, long-life, low-cost mine” released on 12 February 2020 and available at: [www.ozminerals.com/media/asx/](http://www.ozminerals.com/media/asx/)

<sup>3</sup> Table is subject to rounding errors and are reported to significant figures to reflect appropriate precision in the estimate and this may cause apparent discrepancies in totals

<sup>4</sup> Refer to “West Musgrave Project Nebo Babel Mineral Resource Statement and Explanatory Notes as at 12 April 2019 [https://www.ozminerals.com/uploads/media/190412\\_ASX\\_Release\\_-\\_OZL\\_Nebo-Babel\\_Mineral\\_Resource\\_Statement.pdf](https://www.ozminerals.com/uploads/media/190412_ASX_Release_-_OZL_Nebo-Babel_Mineral_Resource_Statement.pdf)

A significant increase in Mineral Resource tonnes from the previous reported Mineral Resource estimate is mainly due to the relative drop in reporting cut-off grade. The previous Resource utilised a 0.25% Ni cut-off based on the Further Scoping Study<sup>5</sup>. The updated Resource utilises an NSR cut-off based on the concurrent PFS study. This NSR cut-off approximates to using a 0.18% Ni cut-off however it was determined to use an NSR cut-off to better reflect the variable metal recoveries of material types and the multi-metal revenue inputs.

There has also been a significant conversion of Inferred to Indicated Resource based on recent infill drilling with 82% of the Mineral Resource now Indicated. Extensional drilling has resulted in minor Resource extension, particularly at the eastern end of Babel.

### **Drilling Techniques**

At Nebo, diamond drilling accounts for 36% of the drilling and comprises PQ, HQ and NQ2 sized core. At Babel, diamond drilling accounts for 32% of the drilling and comprises PQ, HQ and NQ2 sized core. RC drilling makes up the remaining drilling and comprises 140 mm diameter face sampling hammer drilling.

### **Sampling and Sub-Sampling Techniques**

RC drilling was used to obtain 2 m samples for both Nebo and Babel from which 3kg was pulverised to produce a sub sample for analysis. Diamond core was a combination of PQ, HQ and NQ2 size, sampled on visible variation in rock type and range from 0.05m to 2.0m. The core was cut on site with half the core being routinely analysed.

The sample preparation of samples for Nebo and Babel follows industry best practice involving oven drying, followed by pulverisation of the entire sample using Essa LM5 grinding mills to a grind size of 90% passing 75 microns. Diamond core required Boyd crushing after drying.

### **Sample Analysis Method**

Samples were sent to the Bureau Veritas Perth laboratory. For 2018 drilling the analytical suite consisted of a combination of fused bead X-ray fluorescence (for whole rock elements including Co, Cu, Pb, Zn, Ni, As, Si, Al, Fe, Ca, Mg, S) and fire assay with a silver secondary collector and ICP-MS finish for Pt, Pd and Au. Loss on ignition (LOI) was measured gravimetrically at 1000°C. Prior to 2018 a four-acid digest

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<sup>5</sup> See announcement titled "West Musgrave project to progress to Pre-Feasibility Study" released on 14 November 2017 and available at [www.ozminerals.com/media/west-musgrave-project-to-progress-to-pre-feasibility-study/](http://www.ozminerals.com/media/west-musgrave-project-to-progress-to-pre-feasibility-study/)

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(hydrochloric, nitric, hydrofluoric and perchloric acid) followed by an ICP-AES and ICP-MS finish was undertaken for Co, Cu, Zn, Ni, Ag and As.

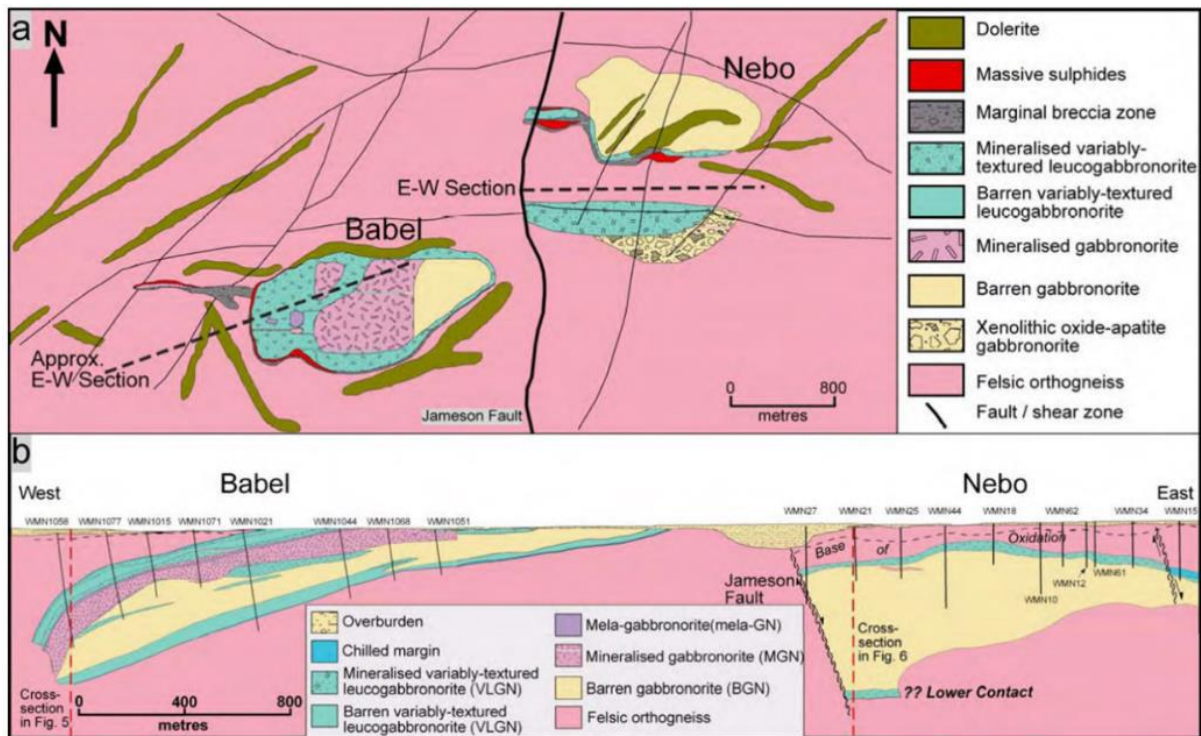
## Geology and Geological Interpretation

The Nebo-Babel deposits are hosted by a sub-horizontal, tube-shaped mafic intrusion which is classified as a gabbronorite. The mafic intrusion has a known extent of 5 kilometres, trends in an easterly direction, has a gentle 15 degree dip to the south and, in the case of Babel, a less than 10 degree plunge toward the southwest (Figure 2). Babel and Nebo are separated by the steeply-dipping, north-south trending Jameson Fault. Babel occurs to the west of the fault and Nebo occurs to the east.

Babel consists of three main lithostratigraphic units, which are variably textured leucogabbronorite (VLGN) that forms the outer shell around mineralised gabbronorite (MGN), and barren gabbronorite (BGN) in the core of the intrusion. At Nebo, the main lithostratigraphic units are VLGN that forms an outer shell of the intrusion around barren gabbronorite, and oxide-apatite gabbronorite, which occurs in the core of the intrusion at the eastern end.

The Nebo-Babel deposits contain two main styles of mineralisation: Disseminated gabbronorite-hosted sulphides, which represent the bulk of the mineralisation, and Massive and breccia sulphides, which are a comparatively minor component of the overall sulphide inventory.

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**Figure 2: Geology of the Nebo-Babel deposit. (a) Plan and (b) Long-section**

Interpretation and wireframes have been constructed for lithology (including dykes), weathering and estimation grade domains. Mineralisation is intimately associated with the brecciated contact of the gabbronorite intrusive into the surrounding orthogneiss host rock and, although there is a strong, almost exclusive relationship between lithology and mineralisation, it was determined to construct estimation grade domains to optimise the estimation. At Nebo, “high-grade” domains were constructed to model Massive Sulphide zones where continuity could be interpreted between sections and drill holes. Weathering surfaces were constructed for Oxide (OX), Pyrite-Violarite (PV), Transitional (TR) and Primary (PV) zones.

### Estimation Methodology

Domain definition used a combination of assay data and geology logging, taking into consideration the lithological controls on the mineralisation, the mineralogy of nickel and copper, and the nickel and copper grades. A strong relationship exists between nickel and copper, so constructed grade shells satisfied the requirements for both elements. Nickel/Copper mineralisation domains were also used for the estimation of Co, Au, Ag, Pt, Pd, Pb, Zn, As, Ca, Mg, S, Fe and Al. Hard boundaries were used across all domains.

For both deposits, a 25 m E by 25 m N by 5 m RL parent cell size was used with sub-celling to 2.5 m E by 2.5 m N by 2.5 m RL to honour wireframe boundaries. Sub-cells were assigned parent cell grades.

Variograms were modelled for all elements in each of the main mineralised domains for both Nebo and Babel. The variogram model for the main grade domain was applied to the other minor grade domains/lenses. Ordinary Kriging (OK) was used for grade estimation. Vulcan Anisotropic Modelling was utilised to inform search ellipse and variogram axis orientations at Babel and at Nebo three “structural domains” were interpreted to inform search ellipse and variogram axis orientations. Samples were composited to 2m. The impact of very high-grade composites was managed using top-cuts.

### Reasonable Prospects

The Mineral Resource has been reported above a 1.2 times multiplier (revenue factor) Net Smelter Return (NSR) cut-off of A\$23/t. The A\$23/t value represents the 2020 Ore Reserve mill limited break-even cut-off of \$19.60/t plus approximate mining cost \$3.40. Mineral Resources were further constrained within “reasonable prospects” pit shells generated using a cut-off NSR of A\$28/t and utilising a 1.2 times revenue factor. The A\$28/t value represents the 2020 Ore Reserve optimised NSR cut-off.

All NSR assumptions are based on the PFS study as at October 2019 and align with 2020 Ore Reserve optimisation inputs. Oz Minerals’ assumed long-term metal prices were multiplied by 1.2 to allow for potentially higher future revenue values. Table 2 below shows the assumed prices (prior to being multiplied by 1.2). The assumed exchange rate is 0.73 (AUD/USD) and price assumptions are drawn from OZ Minerals’ life-of-mine (LOM) Corporate Economic Assumptions updated in Quarter 3 2019 and were the consensus values of major brokers. Metallurgical assumptions were based on metallurgical test work as part of the ongoing studies, current as at October 2019.

**Table 2: Revenue Assumptions**

Parameter	Units	LOM
Nickel	US \$ / lb	7.16
Copper	US \$ / lb	2.94
Gold	US \$ / oz	1,246
Silver	US \$ / oz	17.19
Platinum	US \$ / oz	1,311
Palladium	US \$ / oz	633
Cobalt	US \$ / lb	21.90
Exchange Rate	AUD / USD	0.73

\* The above metal prices are the assumptions used prior to being multiplied by 1.2

NSR is calculated on a block by block basis and includes metal prices, operating costs, metal recoveries, royalties, concentrate payability, concentrate transport and penalties. Further details of the NSR calculation can be found in JORC Table 1 below.

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The NSR cut-off utilised to report the Mineral Resource approximates to using a 0.18% Ni cut-off and is considered more suitable for reporting purposes. The stated Mineral Resources do not include oxide material based on the current understanding of oxide recovery and economic potential.

### **Mining and Geotechnical**

These deposits will be amenable to large open cut mining methods as demonstrated in the concurrent PFS study. Geotechnical drilling and studies have been undertaken for the PFS.

### **Processing**

Metallurgical test work on representative samples selected via a geometallurgical study has shown that a crushing, grinding and flotation circuit would produce acceptable concentrate grades and metal recoveries as outlined in the PFS.

### **Community and Environment**

The focus during the PFS has been to secure land access and building relationships with the community. Four main heritage surveys occurred in 2018 to secure land access for the project. The surveys typically occurred in blocks of ten days with an average of 30 people in attendance each day. The heritage surveys provided an opportunity to build a strong relationship between the project members and the community.

Since May 2018, some 40 studies have been completed, building a comprehensive understanding of the environment and the potential impacts associated with the project. Based on the extensive baseline dataset project environmental risks are considered manageable.

The first of three primary approvals submissions; assessment under Part 4 of the Western Australian Environment Protection Act (EP Act) is anticipated for early Q2 2020. Information obtained in the environmental baseline work program to date does not indicate any material threats to the obtainment of this approval.

### **Mineral Resource Classification Criteria**

The basis for Mineral Resource classification is underpinned by the robustness of the geological model, quality of data and the continuity of geology and grade relative to the arrangement of data.

Both deposits display reasonable to good geological/lithological continuity between drill sections and mineralisation is strongly correlated to lithology. The quality of the estimation of grades was assessed

using the relative kriging variance, pass in which the estimate was made, the slope of regression, distance to the nearest informing composite and number of holes used in the Ni and Cu estimates.

The confidences in the interpretations and estimate were then integrated, resulting in annealing of the classification in places. Appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in the continuity of geology including weathering profiles and metal values and quality, quantity and distribution of the data). Figure 3 below displays the classified models with drill holes.

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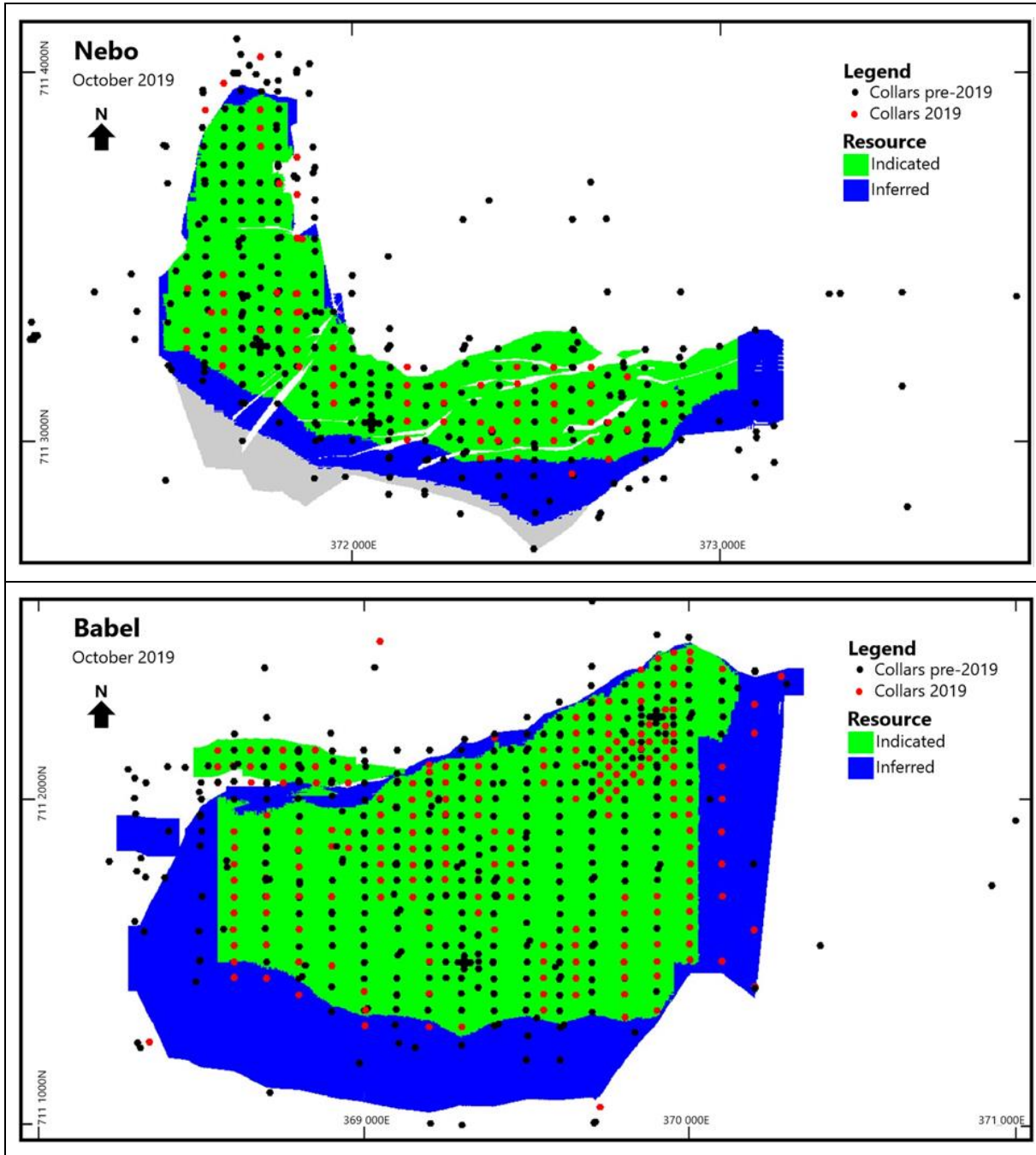


Figure 3: Classification of Mineral Resources displaying drill holes



## Dimensions

The deposits geometry is generally flat lying to dipping towards the south. Limits of the Mineral Resource are listed in Table . Dimensions are based on Mineral Resources contained within reportable pit shells. Drilling has confirmed that mineralisation can extend beyond the dimensions stated below.

**Table 3: Dimensions of the Mineral Resource**

Deposit	Dimension	Minimum	Maximum	Extent (m)
Babel	Easting	368250	370270	2020
	Northing	7111110	7112460	1350
	RL	-60	470	530
Nebo	Easting	371460	372960	1500
	Northing	7112920	7113970	1050
	RL	240	470	230

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**JORC 2012 EDITION, TABLE 1**

**SECTION 1 Sampling Techniques and Data**

Criteria	Comments																																																																																
<b>Sampling techniques</b>	<p>The Nebo and Babel deposits were sampled using diamond drill holes (DD) and Reverse Circulation (RC) drill holes. Drilling on the deposits commenced in the year 2000 undertaken by WMC and then BHP through until 2012. Cassini Resources Limited (Cassini) commenced drilling in 2014. In 2016 OZ Minerals entered into a joint venture with Cassini and a Further Scoping Study was completed in late 2017. Since then OZ Minerals has increased its ownership of the project to 70% by reaching expenditure thresholds.</p> <p>The previous estimate included holes drilled up until 2018. This estimate includes additional holes drill in 2019. The table below summarises drilling activities.</p> <table border="1"> <thead> <tr> <th>Phase</th> <th>Deposit</th> <th>Type</th> <th># Holes</th> <th># Meters</th> </tr> </thead> <tbody> <tr> <td rowspan="4"><b>2019</b></td> <td rowspan="2">Nebo</td> <td>RC</td> <td>66</td> <td>11,344</td> </tr> <tr> <td>DD</td> <td>5</td> <td>890</td> </tr> <tr> <td rowspan="2">Babel</td> <td>RC</td> <td>156</td> <td>32,969</td> </tr> <tr> <td>DD</td> <td>12</td> <td>1,291</td> </tr> <tr> <td rowspan="4"><b>2018</b></td> <td rowspan="2">Nebo</td> <td>RC</td> <td>88</td> <td>14,071</td> </tr> <tr> <td>DD</td> <td>21</td> <td>3,841</td> </tr> <tr> <td rowspan="2">Babel</td> <td>RC</td> <td>175</td> <td>29,621</td> </tr> <tr> <td>DD</td> <td>52</td> <td>5,219</td> </tr> <tr> <td rowspan="4"><b>2014-2017</b></td> <td rowspan="2">Nebo</td> <td>RC</td> <td>91</td> <td>13,956</td> </tr> <tr> <td>DD</td> <td>4</td> <td>467</td> </tr> <tr> <td rowspan="2">Babel</td> <td>RC</td> <td>68</td> <td>11,209</td> </tr> <tr> <td>DD</td> <td>6</td> <td>775</td> </tr> <tr> <td rowspan="4"><b>Pre-2014</b></td> <td rowspan="2">Nebo</td> <td>RC</td> <td>16</td> <td>969</td> </tr> <tr> <td>DD</td> <td>56</td> <td>17,942</td> </tr> <tr> <td rowspan="2">Babel</td> <td>RC</td> <td>6</td> <td>487</td> </tr> <tr> <td>DD</td> <td>80</td> <td>33,640</td> </tr> <tr> <td rowspan="4"><b>Total</b></td> <td rowspan="2">Nebo</td> <td>RC</td> <td>243</td> <td>38,570</td> </tr> <tr> <td>DD</td> <td>78</td> <td>22,047</td> </tr> <tr> <td rowspan="2">Babel</td> <td>RC</td> <td>415</td> <td>76,529</td> </tr> <tr> <td>DD</td> <td>137</td> <td>35,742</td> </tr> </tbody> </table> <p>Holes were drilled on north-south sections with dips of generally 60 degrees towards north at Nebo and 70 degrees towards north at Babel to optimally intersect the mineralised zones. Several east west holes have been drilled.</p>	Phase	Deposit	Type	# Holes	# Meters	<b>2019</b>	Nebo	RC	66	11,344	DD	5	890	Babel	RC	156	32,969	DD	12	1,291	<b>2018</b>	Nebo	RC	88	14,071	DD	21	3,841	Babel	RC	175	29,621	DD	52	5,219	<b>2014-2017</b>	Nebo	RC	91	13,956	DD	4	467	Babel	RC	68	11,209	DD	6	775	<b>Pre-2014</b>	Nebo	RC	16	969	DD	56	17,942	Babel	RC	6	487	DD	80	33,640	<b>Total</b>	Nebo	RC	243	38,570	DD	78	22,047	Babel	RC	415	76,529	DD	137	35,742
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	<p>The diamond core is commonly HQ and PQ size, sampled on visible variation in rock type and ranges from 0.05m to 2.0m with half core being routinely analysed. RC drilling was used to obtain 1m and 2m samples for Nebo and 2m samples for Babel. Samples were crushed (DD only), dried and pulverised to produce a sub sample for a combination of Fusion XRF, Four Acid Digest ICP and Fire Assay methods.</p>
<b>Drilling techniques</b>	<p>At Nebo, diamond drilling accounts for 36% of the drilling and comprises PQ, HQ and NQ2 sized core. At Babel, diamond drilling accounts for 32% of the drilling and comprises PQ, HQ and NQ2 sized core. All PQ is undertaken using triple tube and HQ is triple tube down to fresh rock.</p> <p>RC drilling comprises 140 mm diameter face sampling hammer drilling. Hole depths range from 42 to 300 m.</p> <p>For Cassini drilling, the diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Historical drill core was orientated in a similar method.</p>
<b>Drill sample recovery</b>	<p>For Cassini drilling, DD core recoveries were visually logged for every hole and recorded in the database showing &gt;95% recovery. Actual recoveries for RC drilling were calculated (assuming a hole volume and sample bulk density) for the first two drill holes for each rig and every tenth hole after that. Overall recoveries are &gt;95% and there have been no significant sample recovery problems.</p> <p>Of the 87 historical (pre-2014) diamond drill holes that are used in Mineral Resource estimate, Cassini has confirmed that 37 DD holes had recovery details recorded. Overall recoveries from the historical core also averaged &gt;95%. Recovery records for the remaining holes are unknown.</p> <p>There is no significant relationship between sample recovery and grade. The very high core recovery means that any effect of such losses would be negligible if such a relationship even existed.</p>
<b>Logging</b>	<p>Drill core and chip samples have been geologically logged and the level of understanding of lithology is very high. Lithology checks are undertaken by comparing original logging to geochemical analysis and changes are made in the database if required.</p> <p>Logging of diamond core and RC samples at Nebo and Babel recorded lithology, mineralogy, mineralisation, structural and geotechnical data (DDH only), weathering, colour and other relevant features of the samples. Logging is both qualitative (e.g. colour) and semi-quantitative (e.g. mineral percentages). The core was photographed in both dry and wet form. RC chips and DD core was logged for the entire length of all holes.</p>
<b>Sub-sampling techniques and sample preparation</b>	<p>RC drilling was used to obtain 1m and 2m samples for Nebo (2m from 2019) and 2m samples for Babel through an on-rig cyclone and splitter. Approximately 3kg samples were collected in a calico bag that was sent off to be pulverised to produce a sub sample for analysis. Minor holes at Nebo reported wet samples. When this occurred the on-rig cyclone and splitter were routinely cleaned.</p> <p>Diamond core was PQ, HQ and NQ2 size, sampled on visible variation in rock type and range from 0.05m to 2.0m. The core was cut on site with half core being routinely analysed.</p>

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Criteria	Comments
	<p>The sample preparation of samples for Nebo and Babel follows industry best practice in sample preparation involving oven drying, followed by pulverisation of the entire sample (total prep) using Essa LM5 grinding mills to a grind size of 90% passing 75 microns. Diamond core required Boyd crushing after drying.</p>
<p><b>Quality of assay data and laboratory tests</b></p>	<p><u>For drilling since 2014</u></p> <p>For drilling from 2014 to 2017 the analytical suite consisted of a combination of fused bead X-ray fluorescence (for whole rock elements Si, Al, Fe, Ti, Ca, Na, K, Mg, P, S, Zr, Mn, Cr, and V), four acid digest (hydrochloric, nitric, hydrofluoric and perchloric acid) followed by an ICP-AES and ICP-MS finish (for Co, Cu, Zn, Ni, Ag, As, Nb and Y). The digest approximates a "total" digest in most samples. Fire assay was used with a silver secondary collector and ICP-MS finish for Pt, Pd and Au. Loss on ignition (LOI) was measured gravimetrically at 1000°C.</p> <p>For 2018 and 2019 drilling, the analysis was similar as above however X-ray fluorescence was used instead of ICP for Co, Cu, Zn, Ni, As, Nb and Y. Both methods used have been compared displaying immaterial bias.</p> <p>Cassini field QAQC procedures involve the use of certified reference material (CRM) as assay standards, along with blanks and duplicates. The insertion rate of all QAQC checks averaged 1:20 with an increased rate in mineralised zones.</p> <p>Certified reference materials, having a good range of metal values, were inserted blindly and at a rate of every 20th sample. Results highlight that sample assay values are accurate.</p> <p>Blanks were submitted at a rate of every 20th sample confirming immaterial contamination between samples processed at the lab.</p> <p>Cassini field RC duplicates were taken on 1m and 2m (at Nebo) and 2m (at Babel) composites directly from the cone splitter at a rate of approximately 1 in every 50 as is quarter core DD samples as field duplicates. Pulp duplicates were submitted at the same rate. Repeat or duplicate analysis for samples reveals that the precision of samples is within acceptable limits.</p> <p>Sample measurement for fineness was carried out by the laboratory as part of their internal procedures to ensure the grind size of 90% passing 75 microns was being attained. Laboratory QAQC involves the use of internal lab standards using certified reference material, blanks, splits and duplicates as part of the in-house procedures.</p> <p>In 2015, 211 pulps were submitted to ALS Global as Umpire assay checks. In general the results showed no bias and an excellent correlation with only minor outliers.</p> <p><u>For drilling pre-2014</u></p> <p>Assay analysis closely matched methods outlined above for 2014-2017 drilling. Comparisons of the different phases of analysis have been undertaken using quantile plots and only minor biases have been detected. Historical QA procedures and QC results for the WMC and BHP drilling have been documented in various internal reports. In general, the reports document 'industry standard' QA procedures and acceptable QC results during the reported periods.</p> <p>It is considered the entire dataset to be acceptable for Resource Estimation.</p>

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Criteria	Comments
<b>Verification of sampling and assaying</b>	<p>Documented verification of significant intervals by independent personnel has not been done however both the Exploration Manager and the Technical Director of Cassini have viewed the RC chip samples and core from historical drilling.</p> <p>In 2016 Cassini twinned 2 RC holes at Nebo and 3 DD holes at Babel with PQ diamond drilling. In 2018 all DD metallurgical holes twinned existing RC holes. Analysis of the results suggested no particular bias in either types of samples.</p> <p>Cassini collected data for the West Musgrave Project using a set of standard Field Marshal Templates on laptop computers using lookup codes. The information was sent to Geobase Australia for validation and compilation into a SQL database server.</p> <p>Previous operators collected data electronically and stored it on an acQuire database.</p> <p>Where assay results are below the detection limit, a value of half the detection limit has been used. No other adjustments were made to assay data used in this estimate.</p>
<b>Location of data points</b>	<p>The grid system for the West Musgrave Project is MGA_GDA94, Zone 52. Topographic control was supplied by a Lidar survey commissioned in 2018. The following describes collar and downhole survey methods:</p> <p><u>For drilling since 2014</u></p> <p>Hole collar locations were surveyed by MHR Surveyors of Cottesloe using RTK GPS with the expected relative accuracy compared to the Control Point established by MHR. Expected accuracy is <math>\pm 5\text{cm}</math> for easting, northing and elevation coordinates.</p> <p>Downhole surveys were completed every 5m using Reflex north seeking gyroscopes after hole completion. Stated accuracy is <math>\pm 0.25^\circ</math> in azimuth and <math>\pm 0.05^\circ</math> in inclination.</p> <p><u>For drilling pre-2014</u></p> <p>Previous operators surveyed drill holes by handheld and/or differential GPS. Differential GPS positions have reported accuracy of <math>\pm 5\text{cm}</math> for easting, northing and elevation coordinates. Exact accuracy of handheld GPS is unknown.</p> <p>Very early drill holes were surveyed downhole by a single shot downhole camera. Many of the drill holes have a considerable deviation from the initial azimuth which is believed to be the effects of magnetic minerals within certain geological units. WMC commissioned a re-survey of these holes using a Gyro in 2002.</p>
<b>Data spacing and distribution</b>	<p>Sample spacing is reasonably consistent at both deposits. The vast majority of Nebo is drilled on 50m sections (north-south) with 50m spacing on the section. Two close spaced "crosses" have been drilled consisting of 9 holes drilled approximately 10m apart for each cross. At Babel, the majority is drilled on 50m sections (north-south) with 50m spacing on section however the most western part of the deposit consists of 100m sections with 50m spacing on section. As with Nebo, two close spaced "crosses" have been drilled to model short spaced variability.</p> <p>Both deposits display relatively low to medium geological complexity, and mineralisation is strongly controlled by lithology therefore it is considered that the current data spacing and distribution is sufficient to establish geological and grade continuity appropriate for the Mineral Resource estimation.</p>

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Criteria	Comments
	RC samples were composited directly from the splitter to 2m lengths for Nebo and 2m lengths for Babel. DD samples range from 0.05m to 2m.
<b>Orientation of data in relation to geological structure</b>	<p>Holes were drilled on north-south sections and dips of generally 60 degrees towards the north at Nebo and 70 degrees towards the north at Babel to intersect the mineralised zones optimally.</p> <p>To date, the deposit orientation has been favourable for drilling close to or perpendicular to mineralisation and therefore sample widths (compared to actual) are not considered to have added a sampling bias.</p>
<b>Sample security</b>	<p>For drilling completed by Cassini, the sample chain of custody is managed by Cassini. Samples for the West Musgrave Project are stored on site and delivered to Perth by a recognised freight service and then to the assay laboratory by a Perth-based courier service.</p> <p>While in storage the samples are kept in a locked yard. Tracking sheets track the progress of batches of samples.</p> <p>No information is available for historical drilling sample security.</p>
<b>Audits or reviews</b>	<p>A review of the sampling techniques and data was carried out by CSA Global during September 2014. CSA Global considered the sampling techniques and data to be of sufficient quality to carry out Resource Estimation. The sampling and assay protocols have remained relatively consistent since this audit.</p> <p>A review and audit of the sampling and assay techniques including a site and lab visit (BV – Perth) was conducted by the Competent Person in August 2018. The competent person considers the sampling techniques and data to be of sufficient quality to carry out Resource Estimation.</p> <p>The Cassini Exploration Manager often visits the lab and regularly visits site reviewing all drilling and sampling practices.</p>

## SECTION 2 Reporting of Exploration Results

Criteria	Comments
<b>Mineral tenement and land tenure status</b>	<p>Nebo is located wholly within Mining Lease M69/0074. Babel is located Mining Leases M69/0072 and M69/0073. Cassini entered into an agreement to acquire 100% of the leases comprising the West Musgrave Project (M69/0072, M69/0073, M69/0074, M69/0075, E69/1505, E69/1530, E69/2201, E69/2313, E69/3412, E69/3169, E69/3163, E69/3164, E69/3165, E69/3168 and P69/64), over which the previous operator retains a 2% NSR. The tenement sits within Crown Reserve 17614.</p> <p>In 2016 OZ Minerals entered into a joint venture with Cassini and a Further Scoping Study was completed in late 2017. Since then OZ Minerals has increased its ownership of the project to 70% by reaching expenditure thresholds.</p> <p>All tenements are in good standing and have existing Aboriginal Heritage Access Agreements in place. No Mining Agreement has been negotiated.</p>
<b>Exploration done by other parties</b>	<p>Previous exploration has been conducted by BHP and WMC and Cassini. The work completed by BHP and WMC is considered by Cassini to be of a good to a high standard.</p>
<b>Geology</b>	<p>The deposits are located within the West Musgrave Province of Western Australia, which is part of an extensive Mesoproterozoic orogenic belt. The Nebo and Babel deposits are hosted in a mafic intrusion of the Giles Complex (1068Ma) that has intruded into amphibolite facies orthogneiss country rock.</p> <p>Mineralisation is hosted within tubular chonolithic gabbro-norite bodies are expressed primarily as broad zones of disseminated sulphides and co-magmatic accumulations of, matrix to massive and breccia sulphides.</p>
<b>Drill hole Information</b>	<p>No Exploration Results have been reported in this release, therefore there is no drill hole information to report. This criterion is not relevant to this report on Mineral Resources.</p>
<b>Data aggregation methods</b>	<p>No Exploration Results have been reported in this release, therefore there are no drill hole intercepts to report. This criterion is not relevant to this report on Mineral Resources.</p>
<b>Relationship between mineralisation widths and intercept lengths</b>	<p>No Exploration Results have been reported in this release, therefore there are no drill hole intercepts to report. This criterion is not relevant to this report on Mineral Resources.</p>
<b>Diagrams</b>	<p>No Exploration Results have been reported in this release, therefore no exploration diagrams have been produced. This criterion is not relevant to this report on Mineral Resources.</p>
<b>Balanced reporting</b>	<p>No Exploration Results have been reported in this release. This criterion is not relevant to this report on Mineral Resources.</p>
<b>Other substantive exploration data</b>	<p>No Exploration Results have been reported in this release. This criterion is not relevant to this report on Mineral Resources.</p>
<b>Further work</b>	<p>The JV is currently undertaking ongoing studies.</p>

**SECTION 3 Estimation and Reporting of Mineral Resources**

Criteria	Comments
<b>Database integrity</b>	<p>The drillhole database is maintained externally by Geobase Australia Pty Ltd. All data is sent directly to Geobase for compilation into a SQL database server. Exports in a csv format are supplied for drillhole database construction in Vulcan software. Previous operators collected data electronically and stored it on an acquire database.</p> <p>Assay data is loaded from text files supplied by the laboratory directly into the database without manual transcription. Core logging for Cassini/OZ Minerals holes was loaded directly into the database using Toughbook's.</p> <p>All data is regularly reviewed by Geobase, Cassini and OZ Minerals.</p>
<b>Site visits</b>	<p>The Competent Person visited the West Musgrave site during August 2018. The Competent Person found the protocols and practices relating to all stages of resource definition to be acceptable. The Competent Person did not find any issues that would materially affect the Mineral Resource estimate. The Exploration Manager for Cassini visits the site regularly.</p>
<b>Geological interpretation</b>	<p>The geological interpretation was undertaken by Cassini geologists and reviewed by the Competent Person. The geological interpretation was based on drill core data, including geochemical data, and core logs and photos. Chemical assays were used extensively to confirm individual lithological units particularly on RC holes. Detailed paper sections were produced and then digitised in Vulcan software where sectional strings were constructed before wireframing.</p> <p>The geological model for both Nebo and Babel deposits is interpreted to consist of a tube like intrusion comprised of several subtly different gabbro-norites which have intruded along the same pathway. Subsequent units have generally intruded within the last, creating an inflated, concentrically ringed chonolith emplaced into the surrounding orthogneiss rock. Dolerite dykes are minor to absent at Babel but are common at Nebo and post-date mineralisation and are barren of mineralisation.</p> <p>Interpretation and wireframes have been constructed for lithology (including dykes), weathering and estimation grade shells. Mineralisation is intimately associated with the brecciated contact of a mafic (gabbro-norite) intrusive into the surrounding orthogneiss host rock and although there is a strong, almost exclusive relationship between lithology and mineralisation it was determined to construct estimation grade shells to optimise the estimation. Ni and Cu display a moderate to strong 1:1 correlation and therefore grade domains were produced that honour both Ni and Cu mineralisation. Interrogation of histograms and log-probability plots suggested a nominal 0.1% Ni cut-off to construct grade shells with geology strongly supporting the statistical cut-off. Grade domains were generally extended 50m past the last grade intersection where geological continuity could be inferred.</p> <p>At Nebo, "high-grade" domains were constructed to model Massive Sulphide zones using a nominal 1% Ni cut-off and guided by logging of Massive Sulphide. These zones were wireframed where continuity could be interpreted between sections and drill holes. Massive sulphide zones are rare at Babel and wireframing was not required.</p> <p>Four weathering zones were interpreted including OX (Oxide), PV (pyrite-violarite), TR (Transitional) and PR (Primary). The oxide horizon was determined from drill hole logging and sulphur content. PV, TR and PR zones are difficult to distinguish from logging and/or geochemical assay analysis. Subsequently, thin section analysis (petrography) is undertaken on selected holes and intervals to determine the weathering state. This data is then used to create weathering surfaces.</p>

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Criteria	Comments
	<p>Confidence in the geological interpretation is high on a sectional scale with generally good continuity between sections. Nebo displays a higher level of complexity related to dolerite dykes that are likely to have been emplaced within existing structures however Nebo would not be considered to be structurally "complex". Mineralisation is strongly controlled by lithology and therefore also displays good continuity on a sectional scale. Significant infill drilling in 2019 has not materially changed the previous interpretation suggesting good continuity. Massive Sulphide zones occurring at Nebo can be patchy in places and difficult to interpret however significant zones of Massive Sulphide do display continuity between sections.</p> <p>Alternative plausible interpretations on a global scale are unlikely due to the current well defined interpretation however, alternative interpretations locally may be material on a local scale.</p>
<b>Dimensions</b>	<p>The Nebo Mineral Resource is contained within an area defined by a strike length of 1,500m and across-strike width of 1,050m. Mineral Resources have been reported within a defined potentially economic pit shell that has a maximum depth of 230 m below surface.</p> <p>The Babel Mineral Resource is contained within an area defined by a strike length of 2,020m and across-strike width of 1,350m. Mineral Resources have been reported within a defined potentially economic pit shell that has a maximum depth of 530m below the surface.</p>
<b>Estimation and modelling techniques</b>	<p>The Mineral Resource area was separated into two separate deposits; Nebo and Babel.</p> <p>Domain definition used a combination of assay data and geology, taking into consideration the lithological controls on the mineralisation, the mineralogy of nickel and copper and the nickel and copper grades. A strong relationship exists between nickel and copper so constructed grade domains satisfied the requirements for both elements. Nickel/Copper mineralisation domains were also used for the estimation of Co, Au, Ag, Pt, Pd, Pb, Zn, As, Ca, Mg, S, Fe and Al as they were suitable and confirmed by Exploratory Data Analysis. A medium to strong association generally exists between Ni, Cu and other metals. Hard boundaries were used across all domains as contacts between mineralised and non or minor mineralisation was commonly sharp due to lithological controls.</p> <p>Although grade can be influenced by lithology (within the grade shell), the differences are subtle and no sub-domaining by lithology was required except for Massive Sulphide zones at Nebo where wireframes were constructed.</p> <p>Four oxidation or weathering zones were interpreted including OX, PV, TR and PR. Analysis of grade statistics across these boundaries showed only minor difference so no sub-domaining by weathering was required except for S in Nebo and Babel and Ca and Mg in Babel.</p> <p>Statistical and geostatistical analysis was completed using Supervisor software. All geological modelling and estimation were completed using Vulcan software.</p> <p>For both deposits, a 25 m E by 25 m N by 5 m RL parent cell size was used with sub-celling to 2.5 m E by 2.5 m N by 2.5 m RL to honour wireframe boundaries. Sub-cells were assigned parent cell grades. The block size is considered to be appropriate given the dominant drill hole spacing and style of mineralisation. No assumptions were made regarding selective mining units. Particularly at Babel, blocks having grades below the reportable cut-off surrounded by blocks having grades above cut-off constitute a reasonable proportion of the Mineral Resource.</p> <p>Sample spacing is reasonably consistent at both deposits. The majority of Nebo is drilled on 50m sections with 50m spacing on section. Two close spaced "crosses" have been drilled</p>

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	<p>consisting of 9 holes drilled approximately 10m apart for each cross. At Babel, the vast majority is drilled on 50m sections with 50m spacing on section however the most western part of the deposit is made up of 100m spaced sections with 50m spacing on the section. As with Nebo, two close spaced crosses have been drilled.</p> <p>Variograms were completed for all elements in each of the main mineralised domains for both Nebo and Babel. The variogram model was applied to the other minor grade domains. The close spaced crosses assisted in modelling short range structures.</p> <p>A multiple-pass (generally three passes) search ellipse strategy was adopted whereby search ellipses were progressively increased if search criteria could not be met. The search parameters were based on the semi-variogram ranges and the drilling density.</p> <p>Ordinary Kriging (OK) was used for grade estimation. Vulcan Anisotropic Modelling was utilised to inform search ellipse and variogram axis orientations for Babel. Anisotropic Modelling involves assigning a bearing, plunge and dip to each block that represents the orientation or trend of lithology/mineralisation. At Nebo three "structural domains" were interpreted to inform search ellipse and variogram axis orientations. Independent estimations were completed for Ni, Cu, Co, Au, Ag, Pt, Pd, Pb, Zn, As, Ca, Mg, S, Fe and Al.</p> <p>Samples were composited to 2m. The impact of very high-grade composites was managed using top-cuts if required. Outliers most commonly represent Massive Sulphide intersections. Where continuous these zones were wireframed as domains however when intersected in single holes top-cuts were applied if above the selected grade threshold. Due to the relatively low grade nature of the deposits, outliers and the method of restriction can influence the estimate on a local scale.</p> <p>The block models used for the current estimate were compared with the 2019 estimate. Both Nebo Babel compared very closely at a range of cut-offs. For Nebo, the current estimate has a minor drop in grade for Ni and Cu while Babel displayed an increase in grade due to infill drilling confirming higher grade continuity.</p> <p>Estimates were carefully validated by visual validation in 3D; checks include that all blocks are filled, that block grades match sample grades logically, that artefacts are not excessive given the choice of search parameters and visual assessment of the relative degree of smoothing. In addition, several check estimates were run using different top-cuts and search neighbourhood parameters with results showing reasonable however not material differences, with respect to Mineral Resource classification of the reported case.</p> <p>Statistical validation included the comparison of input versus output grades globally; semi-local checks using swath plots to check for reproduction of grade trends; comparison of global grade tonnage curves of estimates against grade tonnage curves derived from the previous estimate.</p> <p>There has been no historical mine production from the Nebo and Babel deposits. Ni, Cu, Co Au, Ag, Pt and Pd are assumed to be recoverable however Ni and Cu form the vast majority of assumed revenue. All other variable estimates are either penalty elements or gangue.</p>
<b>Moisture</b>	Tonnages are estimated on a dry basis. Core samples are dried before SG measurements are undertaken.
<b>Cut-off parameters</b>	The Mineral Resource has been reported above a 1.2 times multiplier (revenue factor) Net Smelter Return (NSR) cut-off of A\$23/t. The A\$23/t value represents the 2020 Ore Reserve mill limited break-even cut-off of \$19.60/t plus an approximate mining cost \$3.40. The 1.2 revenue factor NSR is generated by multiplying assumed metal prices by 1.2 to allow for reasonable prospects for eventual economic extraction. NSR is created on a block by block basis and all NSR assumptions including recovery, concentrate payability, mining and

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	<p>processing costs are based on the PFS study as at October 2019 and align with 2020 Ore Reserve optimisation inputs. Mineral Resources were further constrained within “reasonable prospects” pit shells generated using a cut-off NSR of A\$28/t and utilising a 1.2 times revenue factor. The A\$28/t value represents the 2020 Ore Reserve optimised NSR cut-off.</p> <p>NSR is calculated on a block by block basis and includes metal prices, operating costs, metal recoveries, royalties, concentrate payability, concentrate transport and penalties.</p> <p>Oz Minerals’ assumed long-term metal prices were multiplied by 1.2 to allow for potentially higher future revenue values. Table 2 below shows the assumed prices (prior to being multiplied by 1.2). The assumed exchange rate is 0.73 (AUD/USD) and price assumptions are drawn from OZ Minerals’ life-of-mine (LOM) Corporate Economic Assumptions updated in Quarter 3 2019 and are the consensus values of major brokers.</p> <p><b>Table 2: Revenue Assumptions*</b></p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Units</th> <th>LOM</th> </tr> </thead> <tbody> <tr> <td>Nickel</td> <td>US \$ / lb</td> <td>7.16</td> </tr> <tr> <td>Copper</td> <td>US \$ / lb</td> <td>2.94</td> </tr> <tr> <td>Gold</td> <td>US \$ / oz</td> <td>1,246</td> </tr> <tr> <td>Silver</td> <td>US \$ / oz</td> <td>17.19</td> </tr> <tr> <td>Platinum</td> <td>US \$ / oz</td> <td>1,311</td> </tr> <tr> <td>Palladium</td> <td>US \$ / oz</td> <td>633</td> </tr> <tr> <td>Cobalt</td> <td>US \$ / lb</td> <td>21.90</td> </tr> <tr> <td>Exchange Rate</td> <td>AUD / USD</td> <td>0.73</td> </tr> </tbody> </table> <p><i>* The above metal prices are the assumptions used prior to being multiplied by 1.2</i></p> <p>Metallurgical assumptions were based on recent metallurgical test work as part of the ongoing studies current as at October 2019 and are outlined in Table 3 below.</p> <p><b>Table 3: Metallurgical Recoveries</b></p> <table border="1"> <thead> <tr> <th rowspan="2">Ore Type</th> <th rowspan="2">Metal</th> <th colspan="3">Recovery%</th> </tr> <tr> <th>Ni% &gt; 0.25</th> <th>0.20 ≤ Ni% &lt; 0.25</th> <th>0.15 ≤ Ni% &lt; 0.2</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Non-PV</td> <td>Nickel</td> <td>74.1</td> <td>60.3</td> <td>50.3</td> </tr> <tr> <td>Copper</td> <td>79.4</td> <td>73.9</td> <td>65.9</td> </tr> <tr> <td rowspan="2">PV</td> <td>Nickel</td> <td>32.5</td> <td>26.6</td> <td>20.1</td> </tr> <tr> <td>Copper</td> <td>71.3</td> <td>66.6</td> <td>59.1</td> </tr> </tbody> </table> <p>Royalties were applied and included:</p> <ul style="list-style-type: none"> <li>○ Nickel royalty 2.5%</li> <li>○ Copper sold as concentrate royalty 5%</li> <li>○ Copper sold as Ni by-product royalty 2.5%</li> <li>○ Cobalt sold in Ni concentrate royalty 2.5%</li> <li>○ Gold royalty 2.5%</li> <li>○ Silver royalty 2.5%</li> <li>○ Platinoids royalty 2.5%</li> <li>○ Native Title royalty</li> <li>○ Project Net Smelter Return royalty 2.0%</li> </ul> <p>A reasonable assumption was made for Native Title royalty whilst it is still under negotiation. Table 4 below outlines assumed concentrate payability, transport costs and smelter charges.</p>	Parameter	Units	LOM	Nickel	US \$ / lb	7.16	Copper	US \$ / lb	2.94	Gold	US \$ / oz	1,246	Silver	US \$ / oz	17.19	Platinum	US \$ / oz	1,311	Palladium	US \$ / oz	633	Cobalt	US \$ / lb	21.90	Exchange Rate	AUD / USD	0.73	Ore Type	Metal	Recovery%			Ni% > 0.25	0.20 ≤ Ni% < 0.25	0.15 ≤ Ni% < 0.2	Non-PV	Nickel	74.1	60.3	50.3	Copper	79.4	73.9	65.9	PV	Nickel	32.5	26.6	20.1	Copper	71.3	66.6	59.1
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<b>Mining factors or assumptions</b>	These deposits will be amenable to open cut mining methods as demonstrated from the previous FSS. This Mineral Resource does not account for mining recovery.																																																																				
<b>Metallurgical factors or assumptions</b>	Metallurgical test work on representative samples selected via a metallurgical study has shown that a crushing, grinding and flotation circuit would produce acceptable concentrate grades and metal recoveries as outlined in the PFS.																																																																				
<b>Environmental factors or assumptions</b>	Nebo is located wholly within Mining Lease M69/0074. Babel is located within Mining Leases M69/0072 and M69/0073. Environmental baseline monitoring and land access negotiations are ongoing. There is has been no material change to the risk profile for regulatory approval, project water supply, materials handling and land access from those risks identified in the FSS.																																																																				
<b>Bulk density</b>	<p>Within the resource area, the database contained a total of 14,721 density measurements (4,087 at Nebo and 10,634 at Babel). Density measurements were calculated using the water immersion method from dried drill core, with lengths measured matching the assay sample length, from both deposits and the various rock types and weathering zones.</p> <p>A strong, positive correlation between density and Fe<sub>2</sub>O<sub>3</sub> was identified at Nebo for all mineralised domains below the transitional weathering surface and all mineralised domains below the pyrite-violarite weathering surface at Babel. A linear regression was calculated and then used to calculate density values on a block by block basis.</p> <p>For all other domains, density values were assigned based on their averages. In general, the values within each "density domain" showed minor spread as to be expected from the</p>																																																																				

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Criteria	Comments
	homogenous host rock lithology and mineralisation style and sample numbers are sufficient to represent each determined density domain.
<b>Classification</b>	<p>The basis for Mineral Resource classification into both Indicated and Inferred categories is underpinned by the robustness of the conceptual geological model, quality of data and the continuity of geology and grade relative to the arrangement of data.</p> <p>Both deposits display reasonable to good geological/lithological continuity between drill sections and mineralisation is strongly correlated to lithology. The quality of the estimation of grades was assessed using the relative kriging variance, pass in which the estimate was made, the slope of regression, distance to the nearest informing composite and number of holes used in the Ni and Cu estimates.</p> <p>The confidences in the interpretations and estimate were then integrated, resulting in annealing of the classification in places. Appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in the continuity of geology and weathering profiles and metal values, quality, quantity and distribution of the data).</p> <p>The result appropriately reflects the Competent Person's view of the deposit.</p>
<b>Audits or reviews</b>	<p>This Mineral Resource estimate as at 11<sup>th</sup> Feb 2020 has been reviewed and audited by Douglas Corley of Mining One. The review found that there were no fundamental flaws in the Mineral Resource estimate and was found to be fit for purpose however some improvements could be made regarding local scale grade distribution particular at Nebo within the Massive Sulphide zones. Further drilling would improve the estimate in these areas and would facilitate an Indicator Estimate to probabilistically define the Massive Sulphide zones.</p> <p>It was stated that the classification conforms to the requirements of the Australasian Code for Reporting of Identified Mineral Resources and Ore Reserves.</p>
<b>Discussion of relative accuracy / confidence</b>	<p>The Mineral Resource statement relates to global estimates of in-situ tonnes and grade. Factors affecting global accuracy and confidence of the estimated Mineral Resource at the selected cut-off include the following:</p> <ul style="list-style-type: none"> <li>• Both deposits, particularly Babel contain significant blocks with grades estimated close to the reportable cut-off grade. Domaining was undertaken to reduce conditional biases of estimated grades caused by the use of Ordinary Kriging however smoothing of estimated grades will have some impact on block grades and potentially reported Mineral Resources. The classification of the Mineral Resource has taken this into consideration.</li> <li>• Thin section analysis is undertaken to determine the position of weathering profiles including PV. This analysis does not occur on all drill holes and can be sparse in places therefore resulting in a low confidence determination of weathering state (PV vs TR vs PR) in places. The classification of the Mineral Resource has considered this.</li> <li>• Nebo commonly contains Massive Sulphide mineralisation distributed within lower grade disseminated mineralisation. The extent of this mineralisation between existing drill holes is variable and further drilling will be undertaken to define this distribution. There is an observed complexity with respect to the distribution of the massive sulphides and it is suggested a more probabilistic approach, such as Indicator Kriging, is adopted to define massive sulphide domains once this drilling is undertaken. This will potentially improve the Nebo estimation on a local scale</li> </ul>

Criteria	Comments
	<p>particularly with respect to the predictability of tonnes and grades at higher cut-offs, above the reportable Mineral Resource cut-off.</p> <p>There has been no production from the Nebo-Babel deposits for comparison with the estimated Mineral Resource.</p>

### Competent Person Statement

The information in this report that relates to Mineral Resources is based on information compiled by Mark Burdett, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy (224519). Mark Burdett is a full-time employee of Oz Minerals. Mark Burdett has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken 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' (JORC 2012). Mark Burdett consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Mark Burdett BSc (Geology), has over 18 years of relevant and continuous experience as a geologist including significant experience in Base Metal deposits. Mark Burdett has visited the site in August 2018 and holds shares in Oz Minerals Ltd.

**Mark Burdett**  
**Oz Minerals Ltd**

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## Contributors

- Overall
  - Mark Burdett, Oz Minerals Ltd
- Data Quality
  - Mark Burdett, Oz Minerals Ltd
  - Phillipa Ormond, Oz Minerals Ltd
  - Colwin Lloyd, Geobase Australia Pty Ltd
  - Zoran Seat, Cassini Resources Ltd
- Geological Interpretation
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  - Mark Burdett, Oz Minerals Ltd
- Estimation
  - Mark Burdett, Oz Minerals Ltd
  - Phillipa Ormond, Oz Minerals Ltd
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