ECHO RESOURCES LTD

ASX ANNOUNCEMENT

YANDAL GOLD PROJECT
BANKABLE FEASIBILITY STUDY

KEY POINTS

- **The Yandal Gold Project Bankable Feasibility Study ('BFS' or 'the Study') has confirmed the Project's robust forecast economics following a detailed and considered study process**
- **Consistent with earlier studies, the BFS considers a two-stage project based on open pit mining and processing from two deposits producing 746koz over an 8.5 year life**
- **A staged approach allows Echo to mine the higher grade, lowest strip ore in Stage 1 in order to maximise early economic return and deliver a high level of operational flexibility**
- **A revised Ore Reserve has been completed for the Orelia gold deposit following the recent re-estimation of the Mineral Resource estimate**

Table 1: Yandal Gold Project Combined Ore Reserves

JORC (2012)	Ore Reserves (Julius + Orelia)
Stage 1	6.5Mt @ 2.0g/t for 412koz
Stage 1+2 (LOM)	14.9Mt @ 1.7g/t for 815koz

- **Estimated all-in sustaining cost (AISC) for Stage 1 of A$1,035/oz (Stage 1+2 A$1,273/oz) with key financial metrics including:**

Table 2: Yandal Gold Project Key Economic Outcomes

		Stage 1	Stage 1+2	
Gold Price	*A$/oz*	1,600	1,600	1,700
Project Net Cashflow	*$M*	184	214	284
Pre-tax NPV (8%)	*$M*	141	147	197
Pre-tax IRR	*% p.a.*	168%	155%	206%
Post-tax NPV (8%)	*$M*	98	99	135
Post-tax IRR	*% p.a.*	132%	111%	147%

Note: refer to Table 3 for full details and explanatory notes

- **Total pre-production cost estimate of A$39.3 million (A$30.3m capital plus A$9.0m pre-production costs) with payback estimated after approximately 12 months of production**
- **The Echo Board has approved the BFS and, subject to obtaining suitable financing solutions and all required statutory approvals, has conditionally approved development of Stage 1**
- **Select pre-development site activities have commenced**
- **A formal Project financing process has commenced with a variety of potential funding solutions being evaluated**

ASX ANNOUNCEMENT
6 August 2018

ASX CODE
EAR

KEY ASSETS
- Julius
- Orelia
- Bronzewing Hub

DIRECTORS
Barry Bolitho
Non-Executive Chairman
Simon Coxhell
Managing Director &
Chief Executive Officer
Gary Lethridge
Finance Director
Anthony McIntosh
Non-Executive Director
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Echo Resources Limited (ASX: EAR) ('Echo' or 'the Company') is pleased to announce the completion of the **Yandal Gold Project Bankable Feasibility Study** ('BFS', 'the Study') and its approval by the Echo Board of Directors. The BFS contemplates a two-stage project (**Stage 1** ~ 3¾ years; **Stage 1+2** ~ 8½ years). The Echo Board has conditionally approved the development of Stage 1, subject to obtaining a suitable financing solution and all required statutory approvals.

The BFS incorporates the mining of ore from the Orelia and Julius gold deposits and processing undertaken at the refurbished Bronzewing process plant based upon an annual throughput of 1.8 million tonnes. The Study includes an updated JORC (2012) compliant Ore Reserve for the Orelia gold deposit following the recently announced revised Mineral Resource estimate for that deposit (refer to ASX Announcement dated 16 June 2018).

Echo's Managing Director & CEO, Simon Coxhell, said, *"It is with great pleasure that I present, on behalf of the Echo Board and management, the Yandal Gold Project Bankable Feasibility Study. It was only two years ago that Echo posted a maiden resource. Today we have over 800,000 ounces in Ore Reserves, along with a rapid route to monetise our mineral assets via the refurbishment of the Bronzewing processing plant.*

"We have completed what we consider to be a detailed, comprehensive and robust study with major cost centres supported by detailed tender or quotes. We have been systematic in our approach and we are confident that this will bode well for Echo's success in the future."

Figure 1: Bronzewing Processing Plant Infrastructure

The key BFS outcomes are presented in Table 3, while the Executive Summary of the BFS is attached as an addendum to this release (see Appendix 1).

Table 3: Yandal Gold Project Key Outcomes

	Units	Stage 1	Stage 1+2 (LOM)
Project Life	Years	3.75	8.50
Total Ore (contained)[1]		6.5Mt @ 2.0 g/t Au for 412koz	14.9Mt @ 1.7 g/t Au for 815koz
Gold Revenue			
Gold Price	A$/oz	1,600	1,600
Gold Sales	Oz	380,402	746,168
Gold Sales Revenue	**A$M**	**609**	**1,194**
Pre-Production Costs			
Development Capital	A$M	30	30
Pre-Production Mining & Other (no creditor days)[4]	A$M	9	9
Total Pre-Production Costs	**A$M**	**39**	**39**
Production Period Costs			
Mining & Haulage[4]	A$M	172	459
Processing[4]	A$M	131	315
General & Administrative[4]	A$M	41	91
Royalties	A$M	36	69
Sustaining Capital	A$M	4	7
Project Net Cashflow, pre-tax	**A$M**	**184**	**214**
Pre-tax NPV (8%)	**A$M**	**141**	**147**
Pre-tax IRR	**% p.a.**	**168%**	**155%**
Payback Period (pre-tax, from first production)	**Years**	**1.0**	**1.0**
Project Cashflows, Post-Tax, Ungeared			
Project Net Cashflow, pre-tax (as above)	A$M	184	214
Income Tax (ungeared, no corporate tax shield)	A$M	55	67
Project Net Cashflow, post-tax, ungeared	**A$M**	**129**	**147**
Post-tax NPV (8%)	**A$M**	**98**	**99**
Post-tax IRR	**% p.a.**	**132%**	**111%**
Payback Period (post-tax, from first production)	**Years**	**1.1**	**1.1**
Production Cost Metrics			
C1 Cost (Mining, Processing, Site G&A)[2]	A$/oz	936	1,175
All-In Sustaining Cost (AISC)[3]	**A$/oz**	**1,035**	**1,273**

1: The Ore Reserves underpinning the above production target have been prepared by a Competent Person or Persons in accordance with the requirements of the JORC (2012) Code. Refer to JORC tables, Qualifications and Competent Persons Statements. Based on assumed throughput of 1.8Mtpa.
2. C1 operating costs include all mining and processing costs, site administration costs, transport, refining charges.
3. AISC = C1 costs plus royalties and sustaining capital however excludes corporate head office costs
4. Refer to Table 1-17 for a detailed breakdown of costs, pre-production costs are net of commissioning revenue
5. All figures are presented in nominal Australian dollars, tax is applied at a flat corporate rate of 30%, unadjusted for inflation
6. Rounding errors may occur.

Overview

The Yandal Gold Project is located approximately 83km northeast of Leinster in the heart of the Yandal gold belt in Western Australia. The Yandal gold belt was first discovered in the 1980's and has been home to a number of multi-million ounce discoveries.

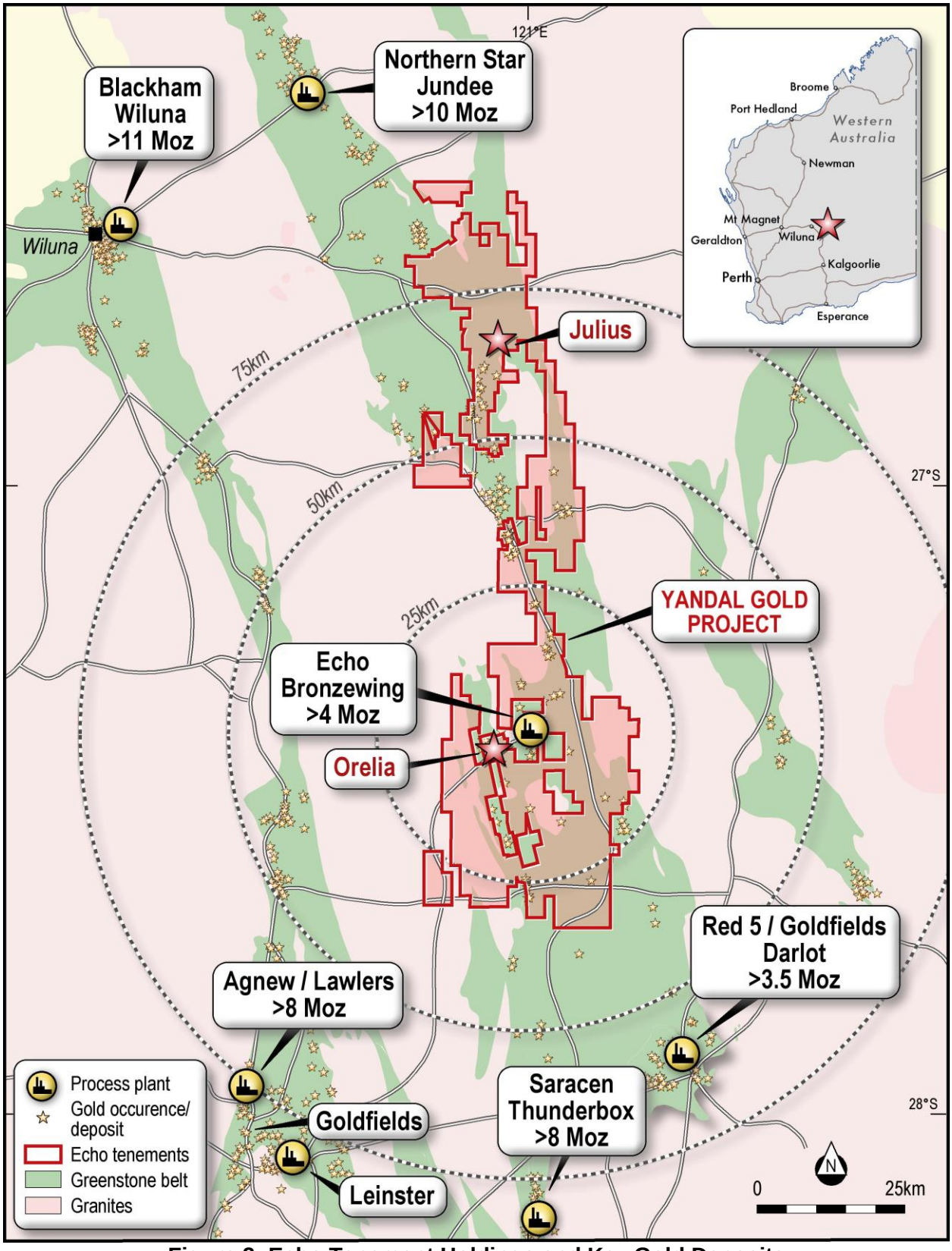


Figure 2: Echo Tenement Holdings and Key Gold Deposits

The Yandal Gold Project consists of over 1,600km^2 of prospective tenement holdings. This Study anticipates the refurbishment of the Bronzewing processing plant and existing infrastructure plus the staged mining of the Orelia and Julius gold deposits.

Mineral Resources

The Yandal Gold Project is currently host to Mineral Resource estimates totalling approximately 1.7Moz of gold. Of the total Mineral Resource estimates, 1.4Moz is contained within the Orelia and Julius gold deposits. Of those contained ounces within the Orelia and Julius gold deposits, 26% are now classified as Measured and 83% as Measured and Indicated.

Table 4: Yandal Gold Project – Julius & Orelia Mineral Resource Estimates

(Ownership, Cut-off)	Measured			Indicated			Inferred			Total		
	Tonnes (Mt)	Grade (g/t Au)	Ounces (Au)	Tonnes (Mt)	Grade (g/t Au)	Ounces (Au)	Tonnes (Mt)	Grade (g/t Au)	Ounces (Au)	Tonnes (Mt)	Grade (g/t Au)	Ounces (Au)
Julius (100%, 0.8)	1.8	2.1	124,227	1.6	1.3	67,789	1.8	2.5	142,991	5.2	2.0	335,007
Orelia (100%, 1.0)	2.8	2.6	237,000	11.2	2.0	732,000	1.9	1.7	101,000	15.9	2.1	1,070,000
Total Mineral Resources	**4.6**	**2.4**	**361,227**	**12.8**	**1.9**	**799,789**	**3.7**	**2.1**	**243,991**	**21.1**	**2.1**	**1,405,007**

Note: Refer to Appendix 2 for full details of Mineral Resource estimates and Ore Reserves, rounding errors may occur

Ore Reserves

As part of the BFS the Orelia and Julius Ore Reserves were updated. The table below is a summary of the staged updated open-pit Yandal Gold Project Ore Reserves.

Table 5: Yandal Gold Project – Julius & Orelia Ore Reserves

(Ownership, Cut-off)	Proved			Probable			Total		
	Tonnes (Mt)	Grade (g/t Au)	Ounces (Au)	Tonnes (Mt)	Grade (g/t Au)	Ounces (Au)	Tonnes (Mt)	Grade (g/t Au)	Ounces (Au)
Stage 1									
Orelia (100%, 0.6)	2.4	2.4	179,264	3.2	1.6	165,155	5.6	1.9	344,419
Julius (100%, 0.8)	0.8	2.4	61,053	0.1	1.8	6,978	0.9	2.3	68,031
Stage 1 Total	**3.2**	**2.4**	**240,317**	**3.3**	**1.6**	**172,132**	**6.5**	**2.0**	**412,450**
Stage 2									
Orelia (100%, 0.6)				7.8	1.5	365,612	7.8	1.5	365,612
Julius (100%, 0.8)	0.7	1.7	35,694	0.0	1.9	1,309	0.7	1.7	37,004
Stage 2 Total	**0.7**	**1.7**	**35,694**	**7.8**	**1.5**	**366,921**	**8.5**	**1.5**	**402,616**
Life of Mine									
Orelia (100%, 0.6)	2.4	2.4	179,264	11.0	1.5	530,767	13.3	1.7	710,031
Julius (100%, 0.8)	1.5	2.1	96,747	0.2	1.7	8,287	1.6	2.0	105,034
Total Ore Reserves	**3.8**	**2.2**	**276,012**	**11.1**	**1.5**	**539,054**	**14.9**	**1.7**	**815,065**

Note: Refer to Appendix 2 for full details of Mineral Resource estimates and Ore Reserves, rounding errors may occur

Staged Project

The Orelia orebody in particular lends itself to a staged approach. The pit staging aims to exploit the highest value, lowest strip ore in the earlier phases of mining. This has the effect of accelerating economic returns, minimising capital payback timeframes and delivering maximum operating and financial flexibility.

The mining schedule has been predicated on providing sufficient ore to the mill to ensure it is run at an annual throughput rate of 1.8 million tonnes per annum, while being constrained by mining fleet capacity, practical development and vertical advance rates. The Study assumes contract mining utilising standard equipment appropriate to the scale of operations planned.

Stage 1 of the Project (Years 1 to 4) requires a relatively low pre-production capital intensity and provides an accelerated route to production. It targets the highest gold grades and lowest mining strip ratios. Following a revision of the Orelia Ore Reserve, approximately 58% of the Stage 1 Ore Reserves as part of the BFS are JORC-classified as Proved.

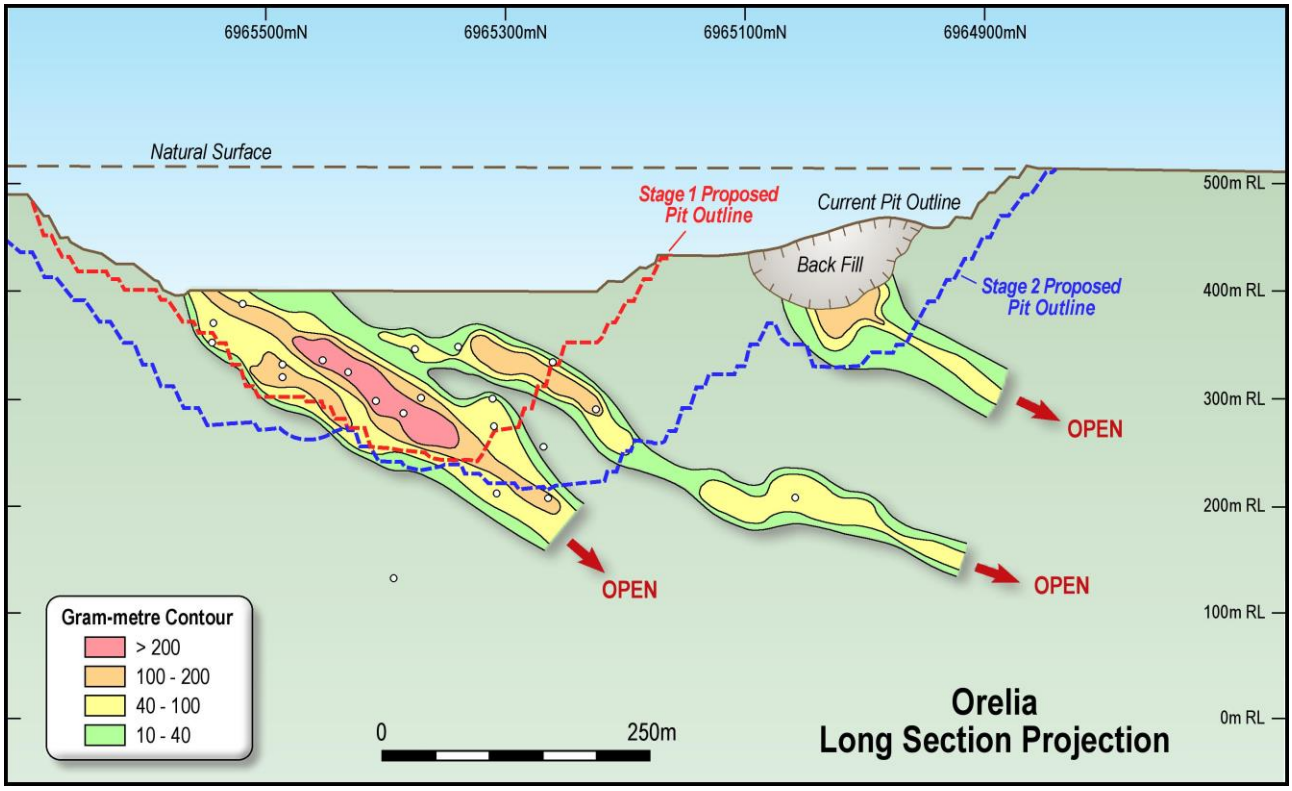


Figure 3: Orelia Long Section with Grade Contours & Pit Outline

Both the Orelia and Julius gold deposits are amenable to the mining of significant quantities of ore at or shortly after mining commencement. Orelia has significant quantities of ore located at the base of the existing pit and mining of that ore can commence relatively quickly without any significant waste stripping. Following an initial eight vertical-metre pre-strip, the Julius gold deposit contains flat lying, laterite mineralisation (with a 3:1 strip ratio and average grade in excess of 2.0 g/t Au), followed by high grade supergene mineralisation (approximately 440,000 tonnes @ 2.65 g/t Au).

At a A$1,600/oz gold price, Stage 1 of the Project is forecast to deliver pre-tax net cashflow of A$184 million and provides capital payback after approximately 12 months of production. At a A$1,700/oz gold price, forecast pre-tax net cashflow increases to A$220 million.

Stage 1+2 of the Project is forecast to generate A$214 million in pre-tax net cashflow at a A$1,600/oz gold price. At a A$1,700/oz gold price, forecast pre-tax net cashflow increases to A$284 million.

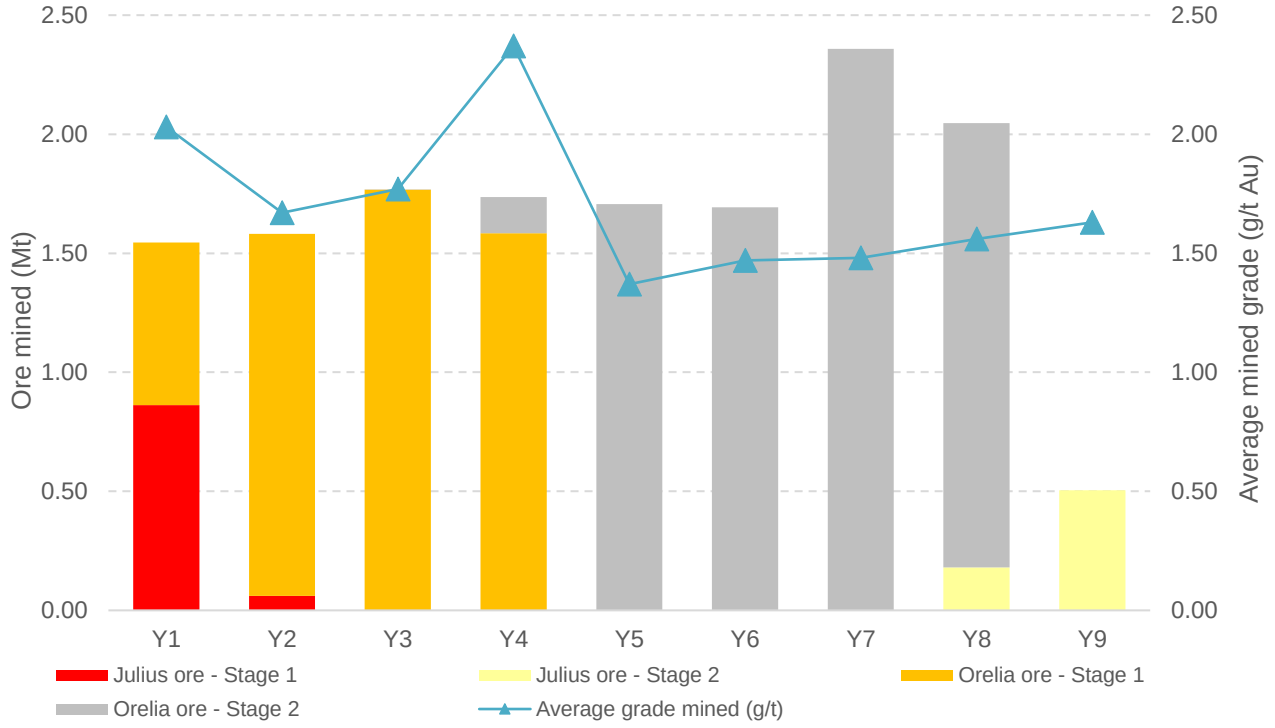


Figure 4: Yandal Gold Project – Mining Schedule (LOM)

Stage 2 of the Project plans for a significant cut back of the Orelia open pit in order to access ore at depth in later years. A financial investment decision with regard to advancing Stage 2 is likely to be required towards the end of Year 2 of the Project. Echo is actively advancing the identification and assessment of potential additional high grade, near-mine ore sources to extend Stage 1 mine life and / or to supplement Stage 2 of the Project.

Julius Gold Deposit

The Julius gold deposit is located approximately 73 kilometres north of the Bronzewing infrastructure, midway between the multi-million ounce Jundee and Bronzewing gold camps. The Julius gold deposit is a virgin deposit, located underneath a minimum of eight metres of transported cover and on the margin of a strongly sheared, shallow north-west dipping granite greenstone contact. The deposit is deeply weathered to in excess of 60 metres and comprises three discrete zones of mineralisation.

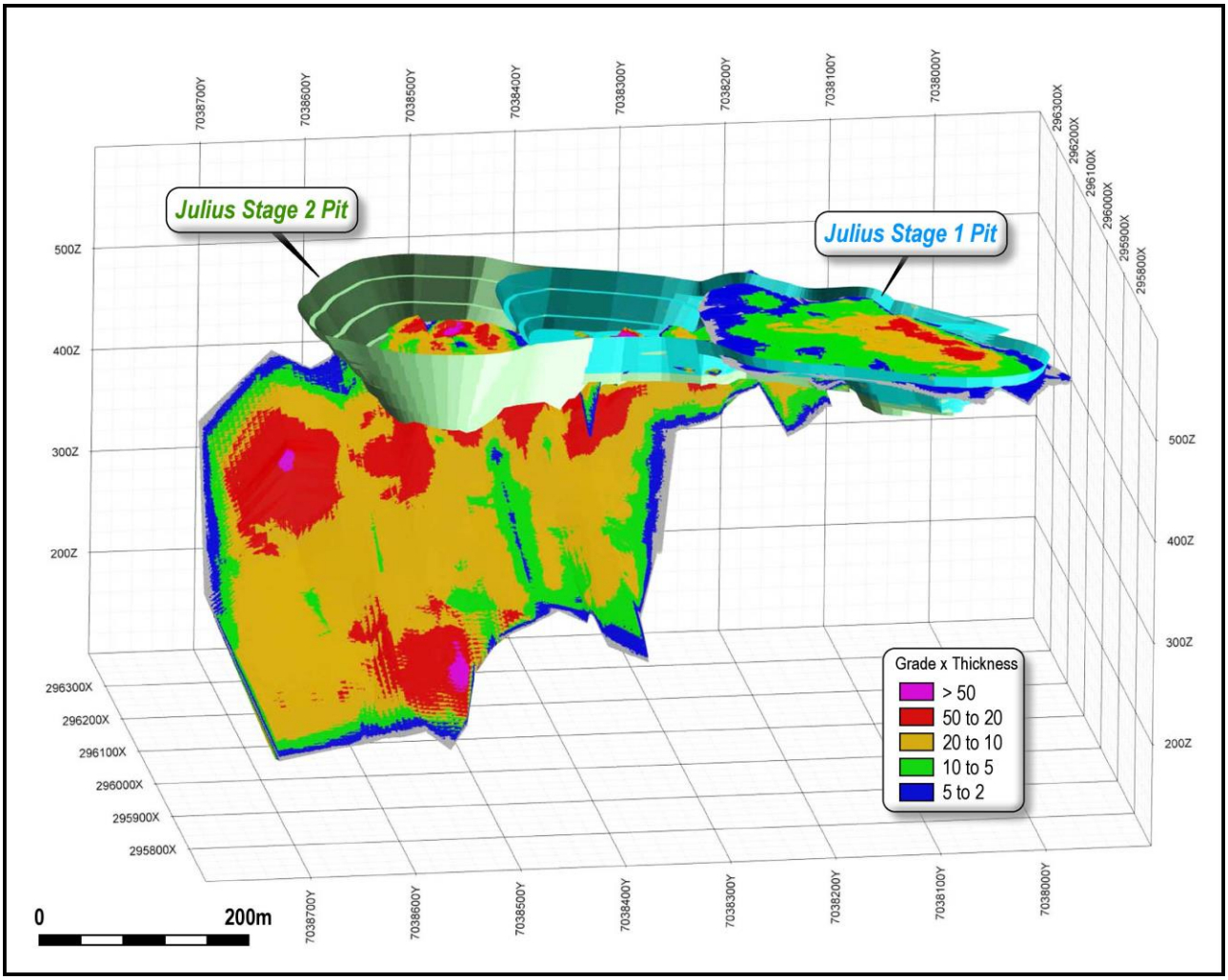


Figure 5: Julius Gold Deposit 3D Orthogonal Image with Pit Designs (looking east)

Once mined, the Julius gold deposit ore will be transported via road train to the refurbished Bronzewing plant for processing.

Orelia Gold Deposit

The Orelia gold deposit, located approximately ten kilometres from the Bronzewing process plant, has been previously mined during a number of campaigns up until 2013. The existing Orelia open pit has been mined to a vertical depth of approximately 100 metres below natural surface. Following the Stage 1 mining at Julius, the Orelia gold deposit is planned to provide the base load ore feed for the currently anticipated life of the Project.

Orelia mineralisation consists of a number of shallow trending high grade gold shoots with dimensions of approximately 50 metres in vertical extent and 25 metres in width, extending over 500 metres down plunge. Confidence exists in the geological interpretation with recent infill drilling allowing a detailed interpretation of the lithostructural controls on mineralisation. Geological logging and interpretation allows extrapolation of drill intersections between adjacent sections, and boundaries are determined by the spatial locations of the various mineralised structures.

Processing

The BFS anticipates refurbishment of the Bronzewing process plant at an estimated cost of A$19.4 million. The plant is a conventional CIL gold treatment plant with an installed gravity circuit and 2.0 million tonnes per annum (Mtpa) nameplate capacity.

Figure 6: Bronzewing Processing Plant & Infrastructure

The BFS assumes a throughput rate of 1.8 Mtpa. The Study has determined that ore processed from the Orelia and Julius gold deposits will have an average expected recovery of approximately 91.5% over the current life-of-mine schedule. This determination is based on testwork programs conducted by Echo as part of this Study and is supported by historical data from previous operators of the Bronzewing process plant.

Figure 7: Bronzewing Process Plant

Infrastructure & Services

Echo's Bronzewing site infrastructure is extensive and includes:

- an unsealed airstrip suitable for propeller aircraft (flight time from Perth is approximately 1.5 hours);
- electrical reticulation network and power station infrastructure, available for a suitable contract power supplier;
- fully permitted existing tailings storage facilities with capacity to store at least 17.5 million tonnes;
- raw water is available from an existing licensed borefield and disused open pits with pipework currently in place;
- site administration, warehouse and workshop buildings; and
- accommodation facilities for 240 people.

Figure 8: Bronzewing Accommodation Village

An upgraded communications system is planned to be put in place to maintain sufficient local and external communications for operations and emergency management in addition to providing efficient internet connectivity and speed for data transfer between site and Perth.

Road access to the Bronzewing process plant and the Julius mine site currently exists, however it is intended that an upgraded haul road, including 40 kilometres of new road construction, be undertaken in order to shorten the haulage route of ore from the Julius mine site.

Suitable site office and accommodation facilities are planned to be provided at the Julius mine site via the relocation of spare transportable buildings located at Bronzewing and the acquisition of a number of accommodation units.

Costs – Capital and Operating

Echo has endeavoured to obtain a relatively high level of precision with regard to capital and operating cost items. Where possible, such items have been advanced to either formal tender or reasonable quotation stage.

Pre-production expenditure estimates have increased when compared to Echo's November 2017 estimates as a direct result of detailed confirmation and revision of earlier estimates and work scopes, new information to hand, the inclusion of a capital contingency amount and additional mining pre-production costs.

Capital Costs

Pre-production capital costs for the Project have been estimated as part of the Study at A$39.3 million and are divided into two principal categories:

- Capital Expenditure (A$30.3 million) including contingency; and
- Pre-Production Mining and Other Expenditure (A$9.0 million).

Table 6 below summarises the respective estimated pre-production expenditures.

Table 6: Yandal Gold Project – Pre-Production Cost Estimate

Capital Work Area	Estimate (A$)
Julius Mine Infrastructure	489,700
Haul Road Establishment	1,978,390
Accommodation Village Maintenance	1,192,550
Infrastructure Setup	493,000
Administration	1,264,002
Orelia Dewatering	249,534
Bronzewing Plant Refurbishment	19,364,730
Consumables & First Fill	1,006,800
Owners Costs	1,649,771
Sub Total	**27,688,477**
Contingency	2,620,581
Total Project Capital Expenditure	**30,309,058**
Pre-Production Mining & Other	8,977,111
Total Capital & Pre-Production Costs	**39,286,169**

Note: Pre-production costs are net of commissioning revenue, rounding errors may occur

Bronzewing Plant Refurbishment (A$19.4 million) – Mintrex, an engineering consulting, project management and asset management organisation, were engaged by Echo to prepare a scope of works and capital cost estimate for the refurbishment of the Bronzewing plant to a BFS level. In order to confirm and refine this estimate a tender process involving a number of engineering contractors was undertaken. Subsequent to the tender process (lump sum contract basis) an independent assessment of the tenders was undertaken on Echo's behalf by Mintrex and a preferred tenderer nominated allowing for an updated cost estimate for the refurbishment of the plant. This estimate is summarised in Table 7 below.

Table 7: Yandal Gold Project – Bronzewing Plant Refurbishment

Bronzewing Plant Refurbishment	Estimate (A$)
Crushing Plant	1,886,245
Comminution	2,683,771
Gravity & Classification	1,208,760
Leach & Adsorption	1,236,438
Elution & Gold Room	252,981
Reagents & Services	158,957
Electrical & Instrumentation	2,059,661
Construction Overheads & PC Sums	3,832,922
Additional Capital Works & Materials	4,877,195
Site Management	510,000
Commissioning	657,800
Total Project Capital Expenditure	**19,364,730**

Note: Rounding errors may occur

The life-of-mine sustaining capital expenditure estimate for the Project (Stages 1+2) is A$7 million.

Pre-Production Mining and Other Expenditure

Pre-production expenditure for the start-up of the Project includes (amongst other costs) pre-production mining, processing and G&A costs.

Mining is planned to commence at the Julius gold deposit approximately two months prior to completion of the process plant refurbishment and at Orelia, one month prior. Costs such as mobilisation, set up, clearing, mining, haulage and management are incorporated into this expenditure. Key Echo site based personnel will be recruited at appropriate times and will provide project management supervision and support through the stages of project development ramping up to operational status. To date a Resident Manager, Mining Manager and OHEST Advisor have been appointed.

Operating Costs

Operating costs were estimated for the process plant, mining and general and administration costs based upon the current life of mine plan. These estimates are outlined in Table 8 below.

Table 8: Yandal Gold Project – Operating Cost Estimates

Operating Cost Area	LOM Total (A$)	Unit Rate (A$/t)
Julius Mining	35,384,455	
Julius Ore Haulage	16,405,723	
Orelia Mining	357,740,884	
Orelia Ore Haulage	31,071,375	
Echo Mining Management	27,709,925	
Total Mining & Haulage	**468,312,361**	**31.34**
Ore Processing	316,457,820	21.18
Site G&A	91,851,163	6.15
Total	**876,621,344**	**58.67**

Note: Total operating cost estimates are inclusive of pre-production operating costs and are presented gross without offsetting of minor commissioning revenue, rounding errors may occur

Mining cost estimates derived by Echo have been confirmed by a tender process involving four mining contractors and subsequent negotiation and refinement of contract scope.

Processing cost estimates were initially derived by Mintrex based on their review and confirmation of the process design criteria. Echo further reviewed and increased this estimate to allow for an eight days on and six days off workforce FIFO roster, undertook an electrical load estimate check, applied a higher diesel fuel unit cost and assessed and amended other associated cost items.

Echo completed its General and Administration (G&A) cost estimate on a site-wide basis using firm quotes and/or tenders for a large portion of the cost assumptions.

Permitting

An updated Mining Proposal and Mine Closure Plan for Julius was submitted in June 2018 to relocate the planned waste dump to the south of the open pit, and approval is anticipated shortly. In addition, all required tenure to develop the Yandal Gold Project lies on granted Mining Leases.

The final material outstanding statutory approvals required are approval of the Mining Proposal and Mine Closure Plan for Orelia, which has been re-submitted following the updated Mineral Resource estimate (refer to ASX Announcement dated 16 June 2018) and accompanying updated Ore Reserve and pit design, along with the EPA approval from the Department of Water and Environmental Regulation for the recommencement of operations.

Project Financing

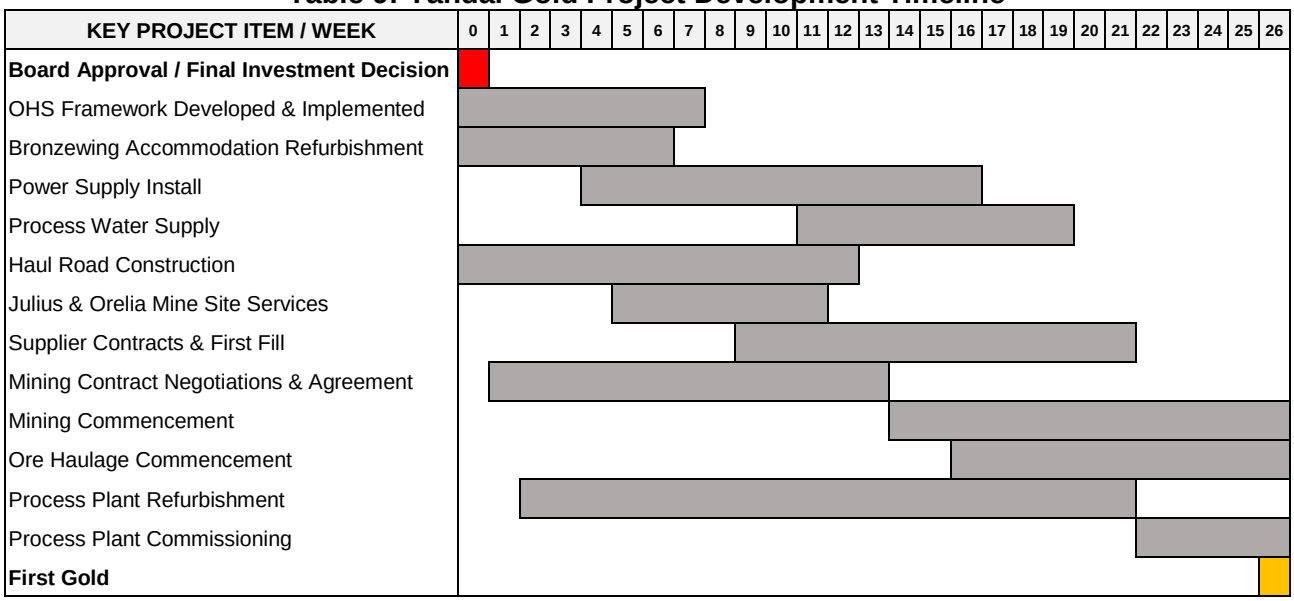
Echo is actively investigating various potential financing solutions for the development of the Project. These initiatives include the appointment of a debt advisor and the commencement of a financing process with a number of potential traditional lenders.

Project Schedule

The project development timeline to first gold is targeted to be less than six months from the time at which an unconditional Final Investment Decision (FID) on Stage 1 is made. Plant refurbishment is anticipated to take 20 weeks with mining commencing at the Julius and Orelia deposits two and one

months prior to first ore processing, respectively. Other site works and system development will be undertaken in parallel with these key critical path project development activities.

Table 9: Yandal Gold Project Development Timeline



Next Steps

The key near-term Project milestones based upon current information are as follows:

- Receipt of final EPA approval from the Department of Water and Environmental Regulation for the recommencement of operations – targeted September 2018;
- Refurbishment of the Bronzewing accommodation village and mine offices – already underway with targeted completion September 2018;
- Receipt of final approvals for the recommencement of mining at Orelia – targeted September / October 2018;
- Project financing secured – targeted October 2018;
- Key project agreements executed – targeted October 2018:
    - Mining Contract – tendered and negotiations continuing with two mining contractors with an intention of nominating a preferred contractor and refinement of final contract scope;
    - Plant Refurbishment Contract – tender process completed and a preferred contractor has been nominated with ongoing refinement of final contract scope;
- Construction of the Julius Haul Road – already underway with targeted completion December 2018;
- First gold production targeted within six months of the commencement of processing plant refurbishment; and
- Exploration and economic assessment of known potential oxide and high-grade ore sources outside of the current mine plan – ongoing.

Consulting Team

The Yandal Gold Project BFS has been compiled by Echo Resources Limited and supported by a number of independent and highly regarded consultants.

- CSA Global – Database Management and Compilation
- Mintrex – Process Plant Refurbishment Study and Metallurgical and Engineering Overview
- Nagrom – Julius Metallurgical Testwork
- ALS – Julius & Orelia Metallurgical Testwork
- Bureau Veritas Minerals – Orelia Ore Gold Testwork
- OMC – Comminution and Throughput Modelling
- Coffey – Bronzewing Tailings Storage Facility Audit and Management Review
- Groundwater Resource Management – Julius Hydrology & Hydrogeology
- Strategic Water Management – Orelia Hydrogeology Review
- Hydrogeologia – Updated Julius and Orelia Surface Water Review
- Botanica Consulting – Environmental Surveys, Permitting and MMP and MCP
- Botanica Consulting – Waste Rock Classification
- Peter O'Bryan & Associates – Orelia Geotechnical Assessment
- Tim Green and Associates – Julius Geotechnical Assessment
- Widenbar and Associates – Julius and Orelia Mineral Resource Estimation
- SCME – Mine Planning and Optimisation, Ore Reserve Statement
- PCF Capital – Financial Modelling

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Schedule A – Further Information

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Cautionary Statement: The Company notes that an Inferred Resource has a lower level of confidence than an Indicated Resource and that the JORC Code (2012 Edition) advises that to be an Inferred Resource it is reasonable to expect that the majority of the Inferred Resources would be upgraded to an Indicated Resources with continued exploration.

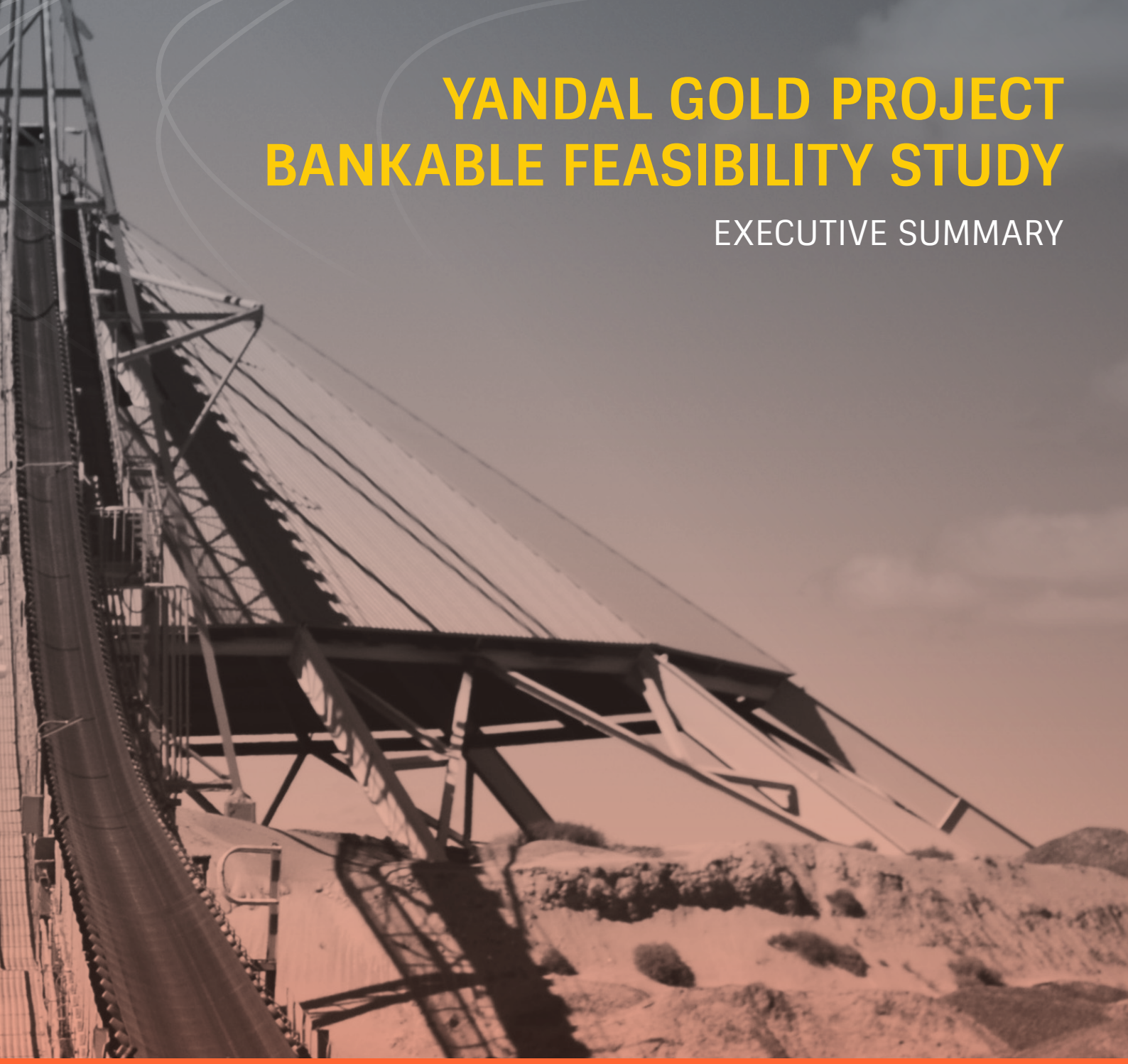
The Bankable Feasibility Study (BFS) referred to in this announcement is based on a combination of Proved and on a Probable Ore Reserves derived from Measured and Indicated Mineral Resources, plus some proportion of mining inventory, which comprises material that is currently classified as Inferred Mineral Resource. There is a lower level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of further Indicated Mineral Resources or Probable or Proved Ore Reserves or that the production target contingent on this material will be realised.

Unless otherwise stated, all cashflows are in Australian dollars, are undiscounted and are not subject to inflation/escalation factors, and all years are calendar years.

APPENDIX 1

Yandal Gold Project Bankable Feasibility Study

Executive Summary



YANDAL GOLD PROJECT
BANKABLE FEASIBILITY STUDY

EXECUTIVE SUMMARY

ECHO RESOURCES LTD

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1. EXECUTIVE SUMMARY

1.1 PROJECT SUMMARY

Echo Resources Limited ('Echo') proposes to develop the Yandal Gold Project centred on the Bronzewing infrastructure, located 83 kilometres north-east of Leinster and 800 km north-east of Perth in Western Australia. The Project consists of the Bronzewing Treatment Plant and two open pit mines, comprising Julius located approximately 73 kilometres north of the plant and Orelia 10 kilometres to the south.

Ore mined from the Julius and Orelia mines will be transported and processed at the existing Bronzewing plant following refurbishment of the plant. A staged development approach will be implemented for the project with Stage 1 initially targeting the higher grade and lower strip ratio ore.

Figure 1-1 Bronzewing Processing Plant

1.2 SUMMARY OF YANDAL GOLD PROJECT KEY PERFORMANCE INDICATORS (KPIS)

A summary of the key economic performance indicators are presented in Table 1-1 below. All financial numbers are referenced in Australian Dollars (A$) unless otherwise specifically stated. No inflation or escalation of revenue or costs have been incorporated and all figures are shown on an ungeared (all-equity) basis. Income tax is assumed at the Australian Taxation Office prescribed corporate income tax rate and is treated in this study as a flat rate (30%), with no offset for carried forward tax losses that may be available and realised by Echo. Totals in tables may not reflect summed components precisely due to rounding.

Table 1-1 Project Key Economic Performance Indicators

	Units	Stage 1	Stage 1+2 (LOM)
Project Life	Years	3.75	8.50
Total Ore (contained)[1]		6.5Mt @ 2.0 g/t Au for 412koz	14.9Mt @ 1.7 g/t Au for 815koz
Gold Revenue			
Gold Price	$/oz	1,600	1,600
Gold Sales	Oz	380,402	746,168
Gold Sales Revenue	**A$M**	**609**	**1,194**
Pre-Production Costs			
Development Capital	A$M	30	30
Pre-Production Mining & Other (no creditor days)[4]	A$M	9	9
Total Pre-Production Costs	**A$M**	**39**	**39**
Production Period Costs			
Mining & Haulage[4]	A$M	172	459
Processing[4]	A$M	131	315
General & Administrative[4]	A$M	41	91
Royalties	A$M	36	69
Sustaining Capital	A$M	4	7
Project Net Cashflow, pre-tax	**A$M**	**184**	**214**
Pre-tax NPV (8%)	**A$M**	**141**	**147**
Pre-tax IRR	**% p.a.**	**168%**	**155%**
Payback Period (pre-tax, from first production)	**Years**	**1.0**	**1.0**
Project Cashflows, Post-Tax, Ungeared			
Project Net Cashflow, pre-tax (as above)	A$M	184	214
Income Tax (ungeared, no corporate tax shield)	A$M	55	67
Project Net Cashflow, post-tax, ungeared	**A$M**	**129**	**147**
Post-tax NPV (8%)	**A$M**	**98**	**99**
Post-tax IRR	**% p.a.**	**132%**	**111%**
Payback Period (post-tax, from first production)	**Years**	**1.1**	**1.1**
Production Cost Metrics			
C1 Cost (Mining, Processing, Site G&A)[2]	A$/oz	936	1,175
All-In Sustaining Cost (AISC)[3]	**A$/oz**	**1,035**	**1,273**

1: The Ore Reserves underpinning the above production target have been prepared by a Competent Person or Persons in accordance with the requirements of the JORC (2012) Code. Refer to JORC tables, Qualifications and Competent Persons Statements. Based on assumed throughput of 1.8Mtpa.

2. C1 operating costs include all mining and processing costs, site administration costs, transport, refining charges.

3. AISC = C1 costs plus royalties and sustaining capital however excludes corporate head office costs

4. Refer to Table 1-17 for a detailed breakdown of costs, pre-production costs are net of commissioning revenue

5. All figures are presented in nominal Australian dollars, tax is applied at a flat corporate rate of 30%, unadjusted for inflation

6. Rounding errors may occur.

1.3 STUDY OVERVIEW

The Feasibility Study proposes contract mining operations at the Julius and Orelia deposits with the ore transported by road trains to the existing Bronzewing plant for processing. The Bronzewing plant utilizes a conventional comminution and carbon in leach (CIL) processing path and has a capacity of up to 2 million tonnes per annum (Mtpa). The current anticipated mine plan for Stage 1 plus Stage 2 treats 14.9 million tonnes (Mt) of ore at a grade of 1.7 g/t Au to produce 746,168 ounces of gold over an approximate 8½ year time period. The Stage 1 mine plan is targeted to treat a total of 6.5 Mt of ore at a grade of 2.0 g/t Au to produce 380,402 ounces of gold over a 3.75 year time period.

The Yandal Gold Project Bankable Feasibility Study has been compiled by Echo and supported by a number of key independent consultants;

- Mintrex – Process Plant Refurbishment Study and Metallurgical and Engineering Overview;
- CSA Global – Database Management and Compilation;
- Nagrom – Julius Metallurgical Test work;
- ALS – Julius & Orelia Metallurgical Test work;
- Bureau Veritas Minerals – Orelia Ore Gold Test work;
- OMC – Comminution and Throughput Modelling;
- Coffey – Bronzewing Tailings Storage Facility Audit and Management Review;
- Groundwater Resource Management – Julius Hydrology & Hydrogeology;
- Strategic Water Management – Orelia Hydrogeology Review;
- Hydrogeologia – Updated Julius and Orelia Surface Water Review;
- Botanica Consulting – Environmental Surveys, Permitting, MMP and MCP;
- Botanica Consulting – Waste Rock Classification;
- Peter O'Bryan & Associates – Orelia Geotechnical Assessment;
- Tim Green and Associates – Julius Geotechnical Assessment;
- Widenbar and Associates – Julius and Orelia Resource Estimation;
- SCME – Mine Planning and Optimisation, Ore Reserve Statement;
- PCF Capital – Financial Modelling.

The existing Bronzewing infrastructure facilities include an unsealed airstrip suitable for propeller aircraft, with Bronzewing located approximately 1.5 hours flying time from Perth and 4 hours drive north of Kalgoorlie, Western Australia. The infrastructure in place also includes administration, workshop and stores buildings, power station buildings, electricity distribution network, and a 240-man accommodation village.

The infrastructure is in good condition and has been managed under a care and maintenance regime since previous site operations ceased in 2013.

The major phases of the proposed project development involve the refurbishment and commissioning of the Bronzewing plant, development of the Julius site facilities, re-establishment of mining at Orelia, and the construction of a 40 kilometre private haul road for transport of the Julius ore to join an upgraded section of Barwidgee Road which connects with the Bronzewing facilities.

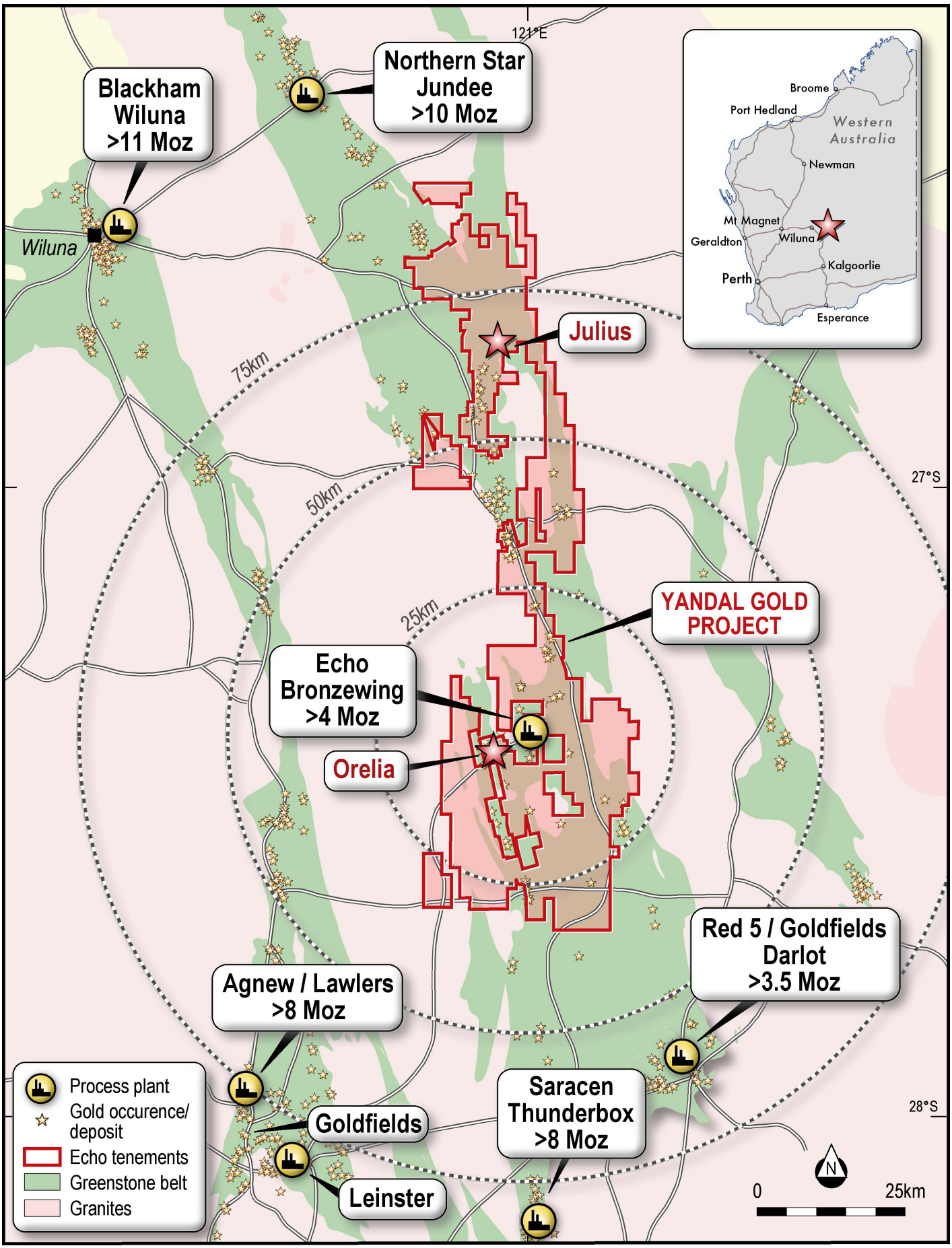


Figure 1-2 Project Location

1.4 TENURE AND APPROVALS

The Julius Gold Deposit is located on granted mining lease M53/1099 and the Orelia Gold Deposit is located on granted mining leases M36/146 and M36/200. The Bronzewing facilities are situated on M36/263.

Echo submitted Project Management Plans (PMP) for its Yandal Gold Project to the Department of Mines, Industry Regulation and Safety (DMIRS) in May 2018. The PMPs were approved in June 2018.

Echo submitted an Environmental Licence Amendment Application to the Department of Water and Environmental Regulation (DWER) in April 2018. This application will return the Bronzewing prescribed premise categories to an operational status. All water abstraction licences required are in place for operation.

1.4.1 Julius

A mining proposal, mine closure plan and clearing permit for Julius were approved by the DMIRS on 27 June 2017. Subsequent to this, an application to amend the Julius mining proposal to facilitate construction of a private haul road on the granted miscellaneous lease L53/206 was lodged. This amendment to the Julius Mining Proposal was approved in March 2018. A revised mining proposal to incorporate a change to the location of the waste dump and an updated pit design was lodged with the DMIRS in June 2018 and is currently being assessed.

A native title access agreement was negotiated and signed with Tarlka Matuwa Piarku (Aboriginal Corporation) RNTBC on behalf of the Wiluna Native Title Holders and a State Deed executed allowing access to the site. Ethnographic and Archaeological surveys were also conducted on the haul road route in December 2017 to ensure compliance by Echo under the Aboriginal Heritage Act 1972 (WA).

Discussions with the Wiluna Shire Council have taken place with regard to connection from Echo's private haul road on L53/206 to a 40 kilometre section of the Barwidgee Road into Bronzewing. A Road Access Agreement has been prepared and is currently being negotiated.

1.4.2 Orelia

Mining was previously conducted at Orelia under a View Resources Mining Proposal – Bronzewing Mt McClure Gold Project September 2006 for Cockburn and Cockburn North cutback M36/146. An amendment to this Mining Proposal was lodged by Navigator Resources in June 2011, with approval received in September 2011.

The Mining Proposal has been updated and was submitted to DMIRS in June 2018.

1.5 GEOLOGY AND RESOURCES

1.5.1 Julius

The Julius Gold Deposit is located midway between the multi-million ounce Jundee and Bronzewing gold camps. Julius is a virgin deposit discovered by Echo situated underneath a minimum of 8 metres of transported cover, and located on the margin of a strongly sheared shallow north-west dipping granite greenstone contact. The deposit is deeply weathered up to 60 - 70 metres and comprises three zones of mineralisation.

These zones are an upper pisolitic laterite mineralised zone, sitting on top of a well-developed supergene gold zone, grading down into primary mineralisation characterised by strong shearing, sericite alteration, silicification, minor quartz veining and minor enrichment in sulphides, principally pyrite.

Extensive reverse circulation (RC), aircore and diamond drilling has defined the current extents of the deposit. Drill spacing ranges from 40 metres x 40 metres on the peripheries of the deposit, to 10 metres x 10 metres in the centre of the deposit. As part of this Bankable Feasibility Study, Echo drilled a total of 141 aircore holes for 6,286 metres, 53 reverse circulation (RC) holes for 5,113 metres and 9 HQ triple tube holes for 481 metres at Julius.

Nine individual wireframes, at a nominal 0.8 g/t Au, have been interpreted and constructed, followed by data subset and analysis, variography, determination of top cuts and finally interpolation via Ordinary Kriging. Widenbar and Associates completed this work which has resulted in the following Mineral Resource estimate.

Table 1-2 Julius Mineral Resource Estimate (JORC 2012) 0.8 g/t Cut-off

Total Resource (Ordinary Kriging) 0.8 gm/t Cut-off					
JORC (2012) Category	Volume (m3)	Tonnes	In Situ Bulk Density	Au Uncut	Au Ounces
Measured	740,230	1,803,888	2.44	2.14	124,227
Indicated	647,996	1,619,393	2.50	1.30	67,789
Measured + Indicated	**1,388,226**	**3,423,281**	**2.47**	**1.74**	**192,017**
Inferred	693,932	1,804,223	2.60	2.47	142,991
Total	**2,082,157**	**5,227,504**	**2.51**	**1.99**	**335,008**

Note: Rounding Errors may occur

This model was re-blocked to form a mining model, taking into account mining dilution and ore loss, which has been used for pit optimisation studies that use the cut gold grades (which ranged from an upper cut of 10g/t Au to 40g/t Au depending on the statistical distribution of the gold grades within the individual mineralised zones).

Table 1-3 Julius Mineral Resource Estimate (JORC 2012) Mining Model Cut grade 0.8 g/t Cut-off

Total Resource (Ordinary Kriging) 0.8 gm/t Cut-off Mine Model					
JORC (2012) Category	Volume (m3)	Tonnes	In Situ Bulk Density	Au Uncut	Au Ounces
Measured	667,188	1,610,470	2.41	2.01	103,899
Indicated	577,063	1,441,264	2.50	1.22	56,424
Measured + Indicated	**1,244,250**	**3,051,733**	**2.45**	**1.63**	**160,323**
Inferred	626,594	1,629,144	2.60	1.55	81,031
Total	**1,870,844**	**4,680,877**	**2.50**	**1.60**	**241,354**

Note: Rounding Errors may occur

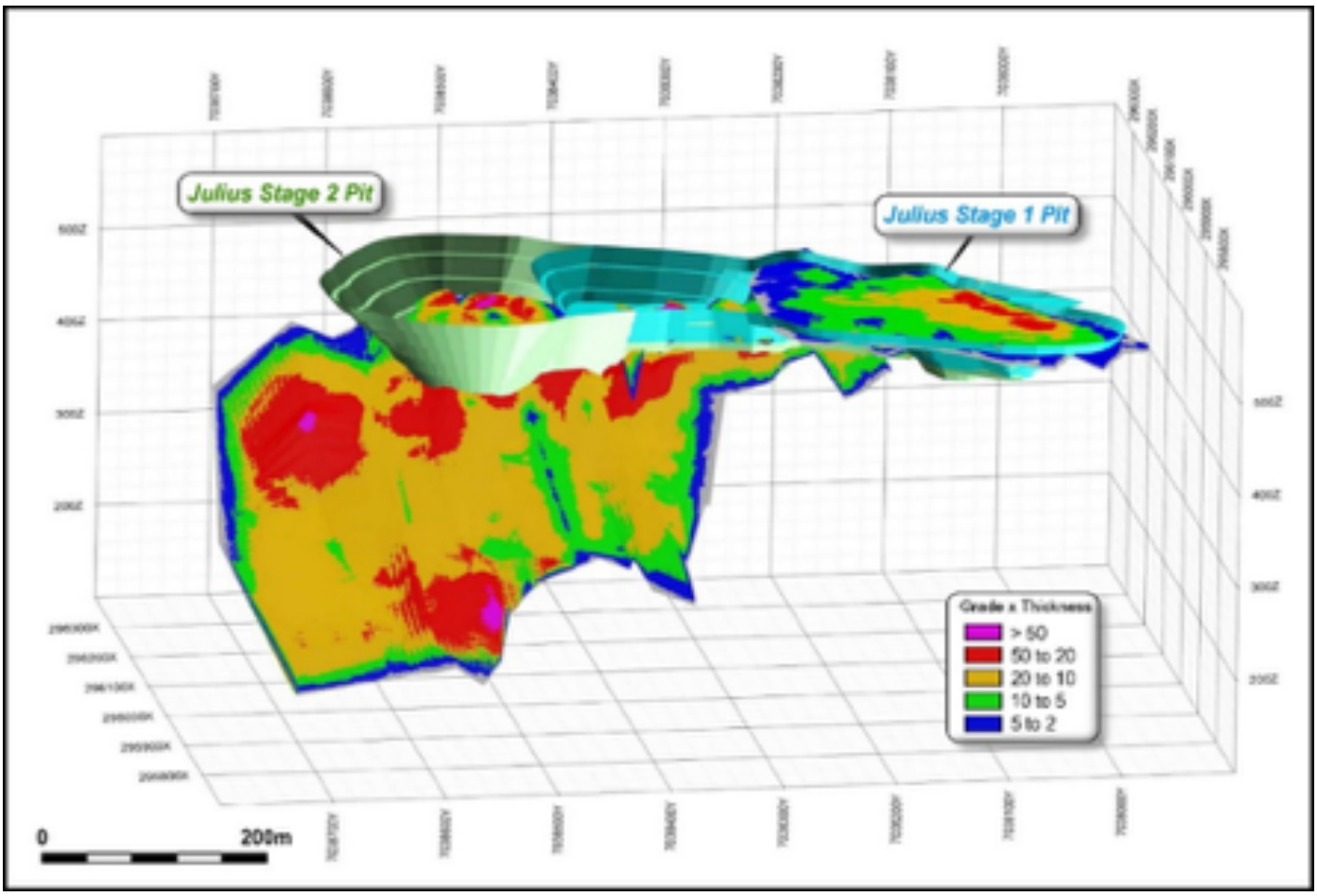


Figure 1-3 Julius Gold Deposit 3D Orthogonal Image (looking East)

1.5.2 Orelia

The Orelia Gold deposit (the Orelia, Calista and Cumberland shear zones) has been previously mined by several companies (Arimco, View and Navigator Resources) during three different campaigns since 1992. The existing Orelia open pit has been mined to a vertical depth of approximately 100 metres below natural surface. It was last mined and processed through the Bronzewing treatment plant in April 2013.

The main host rocks of mineralisation at Orelia are deformed and altered tholeiitic basalts, concordant dolerite units and felsic to intermediate sedimentary rocks. Cross-cutting felsic to intermediate porphyry dykes intrude the stratigraphy along pre-existing structures. Gold mineralisation typically occurs as southerly plunging ore-shoots at the intersection between steeply-dipping transgressive faults and favourable lithological units, along fold hinges and on lithological contacts.

The deposit was extensively drilled by previous owners including Arimco Mining Pty Ltd, Great Central Mines Ltd, Normandy Mining Ltd, Newmont Mining Corporation and View Resources Limited between 1992-2004 with a total of 1,458 drill holes for a total of 233,091 metres.

Of this drilling, 426 diamond holes for 120,926 metres were drilled in the deposit on a nominal 20 metres x 20 metres grid pattern resulting in a large percentage of the Mineral Resource estimate being classified as Indicated.

Since gaining ownership of the deposit Echo has undertaken the following infill drilling programs.

- 26 Reverse Circulation (RC) holes for 2,597 metres;
- 26 NQ (75 mm) diamond holes for 4,091 metres.

The latest Mineral Resource estimate incorporates all of the historical diamond drilling within the Mineral Resource estimate area, supplemented by Echo's recent detailed RC and diamond drilling conducted from the floor of the open pit. That drilling returned a large number of significant intersections validating and confirming the interpretation and grades from the historical drilling.

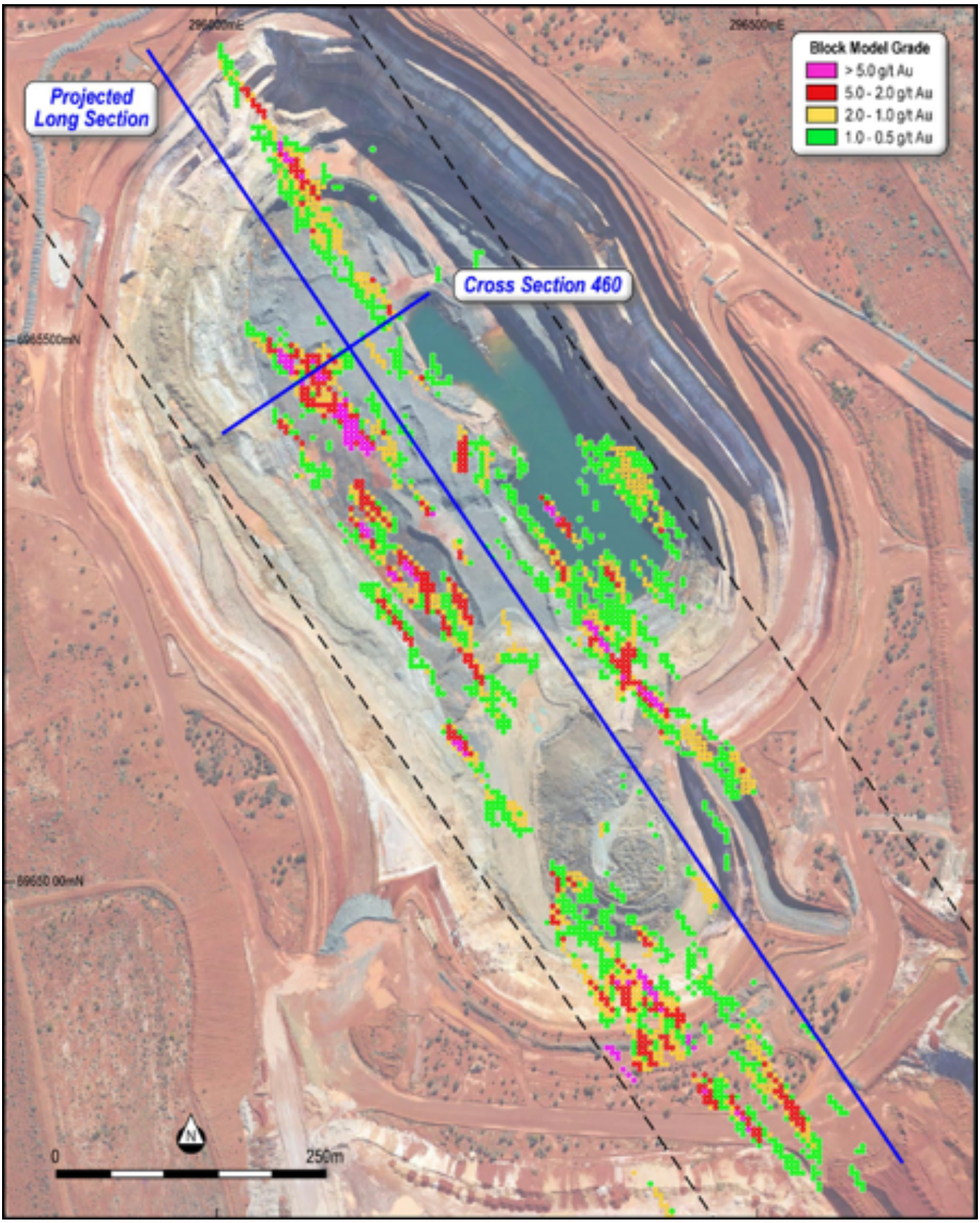


Figure 1-4 Orelia Plan (350 RL) View with Mineral Resource Estimate Block Model

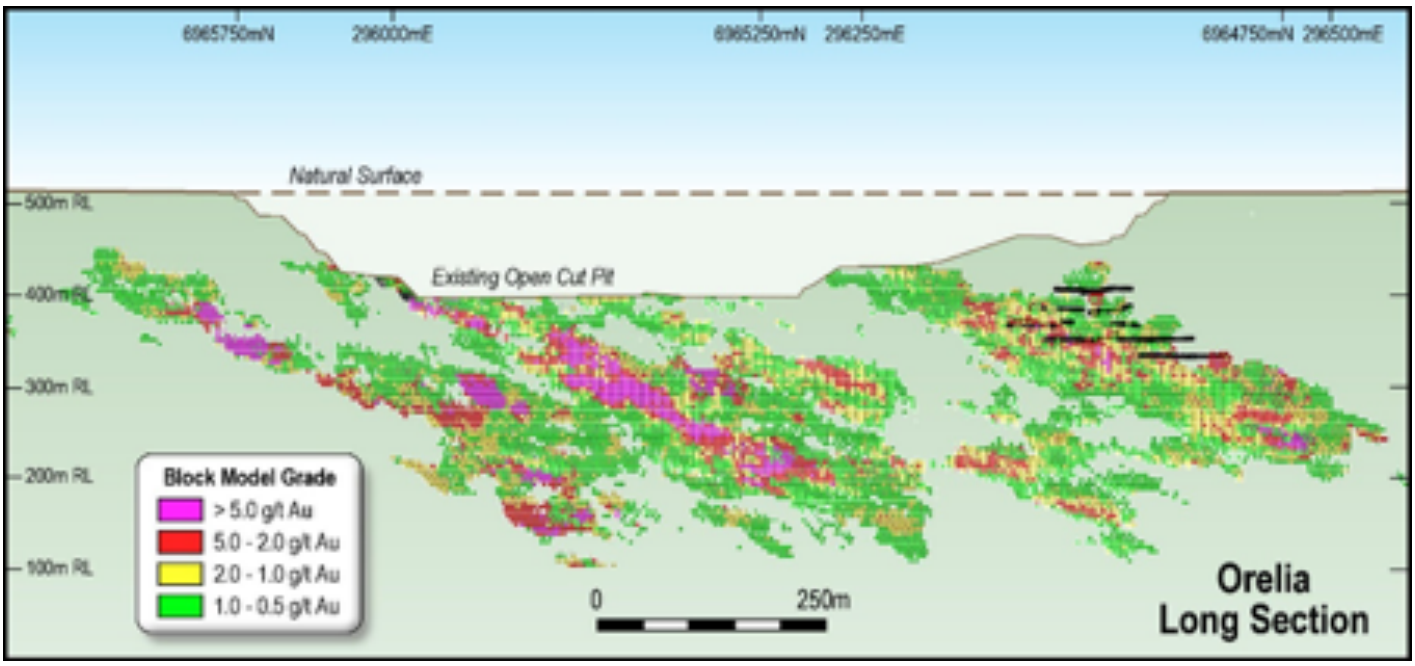


Figure 1-5 Orelia (Cumberland and Calista) Projected Long Section with Block Model

The deposit has a number of shallow trending high grade gold shoots with dimensions of approximately 50 metres in vertical extent and 25 metres in width, and down plunge extent in excess of 400 metres. Confidence in the geological interpretation is good with the latest infill drilling allowing a detailed interpretation of the distribution of the Orelia gold mineralisation.

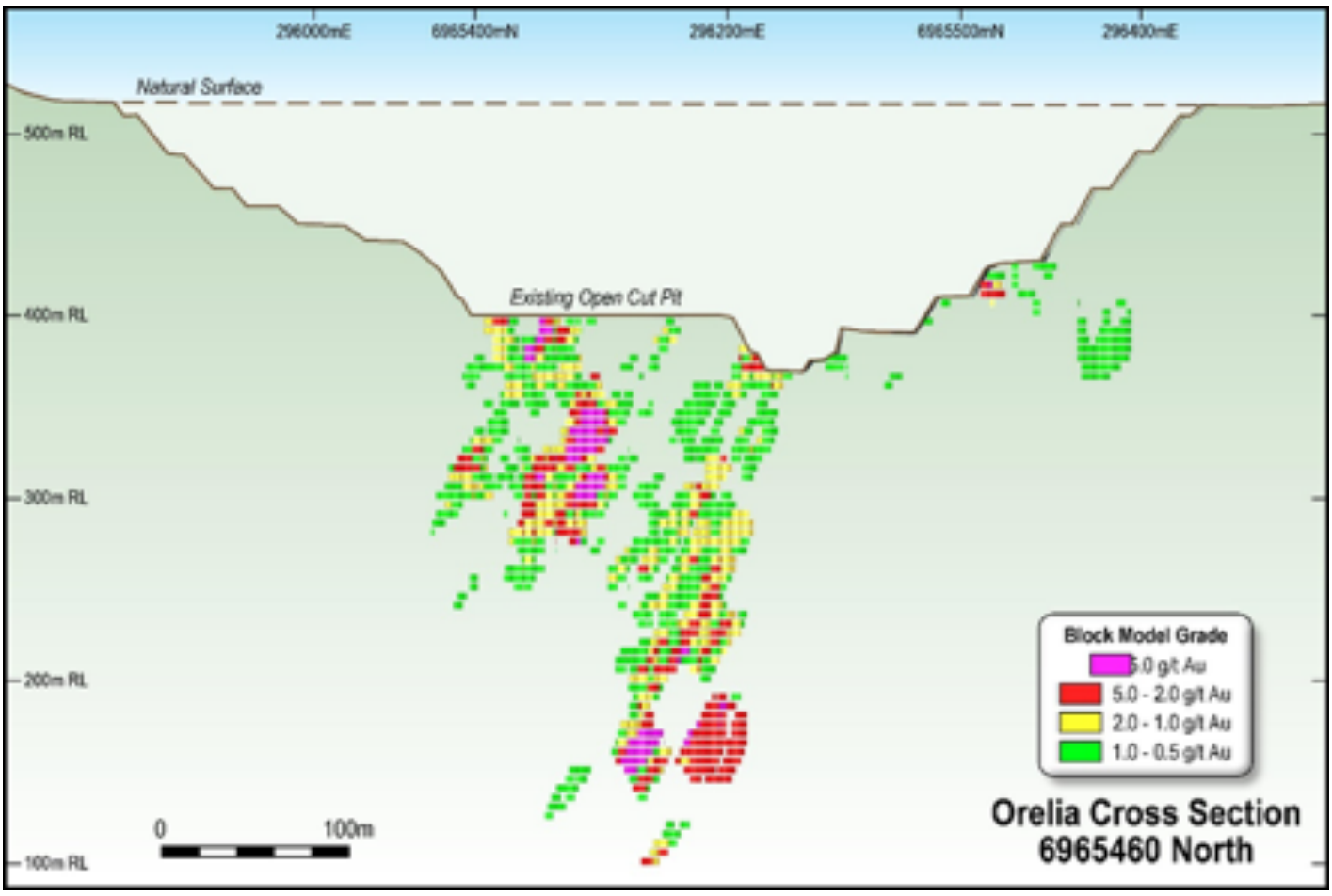


Figure 1-6 Orelia Cross Section with Mineral Resources Estimate Block Model (6965460N)

Geological logging and interpretation allows extrapolation of drill intersections between adjacent sections, and boundaries are determined by the spatial locations of the various mineralised structures. The model utilised to estimate the Mineral Resource estimate confines mineralisation to individual wireframes with oxide, transition and fresh material individually assessed with oxidation profiles established and assigned into the block model.

The Mineral Resource estimate was completed by Widenbar and Associates in June 2018 utilising all drilling results. The Orelia Mineral Resource estimate has been classified in the Measured, Indicated and Inferred categories, in accordance with the 2012 Australasian Code for Reporting of Mineral Resource estimates and Ore Reserves (JORC 2012).

The Mineral Resource estimate at Orelia is summarised below at a range of cut-offs.

Table 1-4 Orelia Gold Project Mineral Resource Estimate 1 g/t Au Cut-off

			Cut		Uncut	
JORC (2012) Category	**Cut-off** (g/t Au)	**Tonnes** (Mt)	**Grade** (g/t Au)	**Ounces** (oz Au)	**Grade** (g/t Au)	**Ounces** (oz Au)
Measured	1.0	2.8	2.6	237,000	3.0	270,000
Indicated	1.0	11.2	2.0	732,000	2.2	791,000
Measured + Indicated	**1.0**	**14.0**	**2.2**	**969,000**	**2.4**	**1,062,000**
Inferred	1.0	1.9	1.7	101,000	1.7	104,000
Total Mineral Resource	**1.0**	**15.9**	**2.1**	**1,070,000**	**2.3**	**1,166,000**

Note: Rounding Errors may occur

Table 1-5 Orelia Gold Project Mineral Resource Estimate 0.8 g/t Au Cut-off

			Cut		Uncut	
JORC (2012) Category	**Cut-off** (g/t Au)	**Tonnes** (Mt)	**Grade** (g/t Au)	**Ounces** (oz Au)	**Grade** (g/t Au)	**Ounces** (oz Au)
Measured	0.8	3.4	2.3	253,000	2.7	287,000
Indicated	0.8	15.0	1.7	840,000	1.9	900,000
Measured + Indicated	**0.8**	**18.4**	**1.9**	**1,093,000**	**2.0**	**1,187,000**
Inferred	0.8	2.7	1.4	126,000	1.5	129,000
Total Mineral Resource	**0.8**	**21.1**	**1.8**	**1,219,000**	**1.9**	**1,316,000**

Note: Rounding Errors may occur

Table 1-6 Orelia Gold Project Mineral Resource Estimate 0.5 g/t Au Cut-off Mining

			Cut		Uncut	
JORC (2012) Category	**Cut-off** (g/t Au)	**Tonnes** (Mt)	**Grade** (g/t Au)	**Ounces** (oz Au)	**Grade** (g/t Au)	**Ounces** (oz Au)
Measured	0.5	4.7	1.9	279,000	2.1	313,000
Indicated	0.5	25.4	1.3	1,051,000	1.4	1,111,000
Measured + Indicated	**0.5**	**30.0**	**1.4**	**1,330,000**	**1.5**	**1,424,000**
Inferred	0.5	4.7	1.1	165,000	1.1	168,000
Total Mineral Resource	**0.5**	**34.7**	**1.3**	**1,495,000**	**1.4**	**1,593,000**

Note: Rounding Errors may occur

1.6 MINING

1.6.1 Introduction

All of the currently defined Mineral Resource estimates at the Yandal Gold Project are within an open pit mining environment and are a lode style of mineralisation requiring a degree of mining selectivity. The material to be excavated will be predominantly free dig from surface with blasting required deeper in the oxidation profile and into the fresh ore zones. Given these conditions, conventional open pit mining techniques using drill and blast with material movement by hydraulic excavator and trucks will be employed.

It is proposed that mining activities will be undertaken by an experienced contractor with Echo retaining responsibility for technical services comprising mine planning, production scheduling, grade control, surveying and supervision and management of contract mining operations.

Ore Reserves for the Julius and Orelia deposits were previously estimated in November 2017. The Reserves detailed in this report have been updated due to a re-estimation of the Orelia Mineral Resource in June 2018 and revised operating costs and pit designs.

The Ore Reserves are based on the updated Mineral Resource estimate models estimated and reported by Widenbar and Associates for the Julius Gold Deposit in November 2016 and the Orelia Gold Deposit in June 2018.

To enable the Julius Mineral Resource estimate model to be utilized for pit optimization it was first regularized to a selective mining unit (SMU) of 5 metres along strike (North-South), 2.5 metres across strike (East-West) and 2.5 metres vertical applicable to the proposed fleet size and mining methodology. The regularization of the block model results in diluted grades as weighted average gold grades are calculated for the blocks. Ore losses will occur where a block contains a proportion of mineralized material and the resultant weighted average block grade falls below the cut-off grade.

The Orelia Mineral Resource estimate model was estimated within a broad envelope at a 0.2 gm/t Au cut-off. As such, there are no hard boundaries or sub-blocking at the higher-grade cut-offs likely to be used for mining selectivity and the blocks can thus be considered to include dilution and ore loss, as all blocks inside the envelope are allowed to "see" both high and low-grade data points.

1.6.2 Mining Assumptions

1.6.2.1 Geotechnical

A geotechnical feasibility assessment of open pit mining at the Julius Prospect was carried out by Green Geotechnical Pty Ltd in November 2016. The assessment provides base case wall design parameters for open pit mining evaluation, included in Table 1-7.

Table 1-7 Julius Recommended Pit Slopes

Wall	Rock Type	Slope	Maximum Dip	Comments
North (→210)	Weathered Ultramafic	Overall	50°	Limited by potential for circular, planar and wedge failure
		Batter	55°	Limited by potential for wedge failure
South (→030)	Weathered Ultramafic	Overall	50°	Limited by potential for circular failure
		Batter	65°	
East (→300)	Weathered Granodiorite	Overall	50°	Limited by potential for wedge failure
		Batter	55°	Limited by IRSA and location of ramp (increased potential for wedge sliding due to dominant joint sets in granodiorite)
West (→120)	Weather Ultramafic	Overall	50°	Limited by potential for circular failure
		Batter	65°	

A number of geotechnical evaluations of the Orelia pit were carried out by Peter O'Bryan and Associates during previous operational phases. Peter O'Bryan and Associates have reviewed all available information and provided updated wall design parameters which are shown in Table 1-8.

Table 1-8 Orelia Recommended Pit Slopes

Level	Wall Design Parameters	
Bench Face Height	Surface to 440mRL	10m
	440mRL to Pit Floor	20m
Bench Face Angles	Surface to 400mRL	65°
	400mRL to Pit Floor	75°
Berm Widths	510mRL to 450mRL	5m
	At 440mRL	10m
	At 420mRL and every 20m below	7m
	Geotechnical berm every ~80m vertical that does not include a ramp pass	15m

1.6.2.2 Drill and Blast

Three different competencies of rock will be mined; oxidised, transitional or weakly oxidised, and fresh rock types.

Blasts will be engineered to ensure minimum displacement of the ore to minimise dilution and ore loss. Drilling will be carried out by top hammer rigs with blast hole diameters from 102 mm to 127 mm being utilised for drill and blast requirements.

Based on the previous production records from the Orelia Gold Deposit average powder factors were applied in the drill and blast evaluation for the various rock competencies. It was assumed that 49% of the laterite and oxide at Orelia would require blasting.

For the Julius Gold Deposit powder factors based on the geotechnical logging were used with appropriate allowance for the specific characteristics of the laterite, clay and fresh rock. It was assumed that 30% of the laterite and oxide at Julius would require blasting.

1.6.2.3 Load and Haul and Ancillary Equipment

Load and haul will be carried out by 1 x 120 tonne and 1 x 200 tonne class excavators matched with a 95 tonne class truck fleet. An ancillary fleet of bulldozers, graders, water truck and lighting plants to match the production schedule and fleet has also been selected.

1.6.2.4 Grade Control

In order to define the boundaries between high grade, low grade and waste material a combination of techniques will be utilised to optimise the delineation of grade boundaries. Detailed blast hole sampling at Orelia coupled to infill RC will be utilised to map out ore boundaries. It is proposed that rows of RC holes be drilled with 6 metre spacing across strike and 8 metres along strike. This data would be combined with the Mineral Resource estimate data to define ore block boundaries and grade. Holes would be drilled at 60° dip and samples assayed at 1 metre intervals. It is noted that a significant amount of both RC and diamond drilling has already been completed at Orelia, which in places reduces the hole spacing to 20 metre x 10 metre. Echo is also investigating the use of a hand held XRF unit coupled to correlation analysis between gold and a range of other indicator elements to be potentially used as another guide to ore boundaries.

Due to the soft nature of the majority of mineralisation at Julius, infill aircore drilling will be utilised to assist in the definition of ore and waste boundaries.

1.6.2.5 Pit Dewatering

A hydrogeological assessment of the Julius Gold Deposit was undertaken by Groundwater Resource Management. It is estimated that the pit water inflows will peak at 18 litres per second towards the end of the Stage 2 pit. Water within the pit will be managed by sumps and mobile diesel pumps with capacity to pump 10 litres per second initially increasing to 18 litres per second towards the end of the two stage mine life.

Three previous hydrogeological assessments have been made of the Orelia and nearby Lotus deposits. Aquaterra (2002) calculated that inflow into the open pit would be approximately 10 litres per second. Navigator Resources Ltd while operating at Orelia had no difficulties with dewatering of the pit and it is noted that Newmont in 2002 mined the nearby Lotus Gold Deposit via underground methods to approximately 500 metres below natural surface.

Pit dewatering at Orelia will also be managed by in-pit sumps and trailer mounted diesel pumps. Historical mining records and a recent desktop hydrogeological assessment by Strategic Water Management indicate a pumping capacity of 10 litres per second will be sufficient to keep the pit dewatered.

1.6.2.6 Pit Optmisation

Pit optimisation was carried out using industry standard methodology with Whittle 4X™ software on the Mineral Resource estimate models as described in previous sections.

1.6.2.7 Geotechnical Parameters

The pit slopes used in the optimisations were based on the geotechnical recommendations with an additional allowance for inclusion of pit wall ramps.

1.6.2.8 Optimisation Inputs

Mining costs were sourced by quotations from mining contractors experienced in the West Australian goldfields. Quoted costs for excavate, load and haul, rehabilitation, dayworks and management fees were applied to the mining benches for Orelia and Julius.

The quoted contract mining cost utilised for the Julius pit optimisation ranged from $5.46 per cubic metre (bcm) at the 510RL to $8.92 per bcm at the 360RL.

The quoted contract mining cost utilised for the Orelia pit optimisation ranged from $6.43 per bcm at the 450RL to $11.77 per bcm at the 195RL.

It should be noted that subsequent to the completion of the pit optimisations a Tender for Contract Mining services was undertaken. The tendered rates were approximately 10% lower than those used in the optimisation.

A base case gold price of A$1,600 / oz was used for the optimisation. Royalties of 4.5% and a refining charge of A$3.00 / oz were applied.

Other costs included in the pit optimisation are summarised in Table 1-9 below, which were the estimated input costs at the time of the pit optimisation. Subsequent to this, operating costs have been further refined for finalisation of the project BFS cashflow model in the light of further information.

Table 1-9 Costs for Pit Optimisation

Costs Assumptions for Pit Optimisation	A$ / Tonne of Ore
Grade Control	$1.00
De-Watering	$0.25
Crusher Feed	$0.70
Drill and Blast	$1.06 / bcm Oxide
	$2.17 / bcm Transitional
	$3.53 / bcm Fresh
Julius Haulage	$12.75
Orelia Haulage	$2.04
Processing Cost	$19.17
G & A Cost	$4.5 M per annum

The above parameters result in a break-even non-mining cut-off grade of approximately 0.8 g/t Au for Julius and 0.6 g/t Au for Orelia.

1.6.2.9 Optimisation Results

Whittle 4X™ software was used to determine the optimum shell upon which the pit design were based.

In order to produce a range of 'nested' pit shells the optimisations were run over a wide range of gold prices from A$800 / oz to a maximum of A$2,000 / oz. A gold price of A$1,600 / oz was used to analyse the cashflow produced by the pit shells.

The optimisation results were put in context of sensitivities, risks, contained ounces, mine life and total project size. The shell selection represents a strategic decision point for Echo. The choice was made to select the shell generating the maximum undiscounted cashflow for each deposit. Given that the pits are amenable to a staged mining approach, the decision to maximise undiscounted cashflow and mine life via the larger shells is relevant given its delivery (with staging) of maximum project flexibility and optionality.

1.6.3 Pit Designs and Schedule

Final designs were prepared for each deposit to enable practical and efficient access to each bench. The designs were based on the selected optimised shells and prepared using the design criteria from the geotechnical assessments and the following configurations:

- 25 metre wide dual lane ramps at a maximum gradient of 1 in 10 (10%) for ramps designed above the bottom 20 vertical metres of the pit base. For the Julius pit all ramps were designed with a gradient of 1 in 8 (12.5%); and
- 12 metre wide single lane ramps at a maximum gradient of 1 in 8 (12.5%) for approximately 20 vertical metres at the base of each pit.

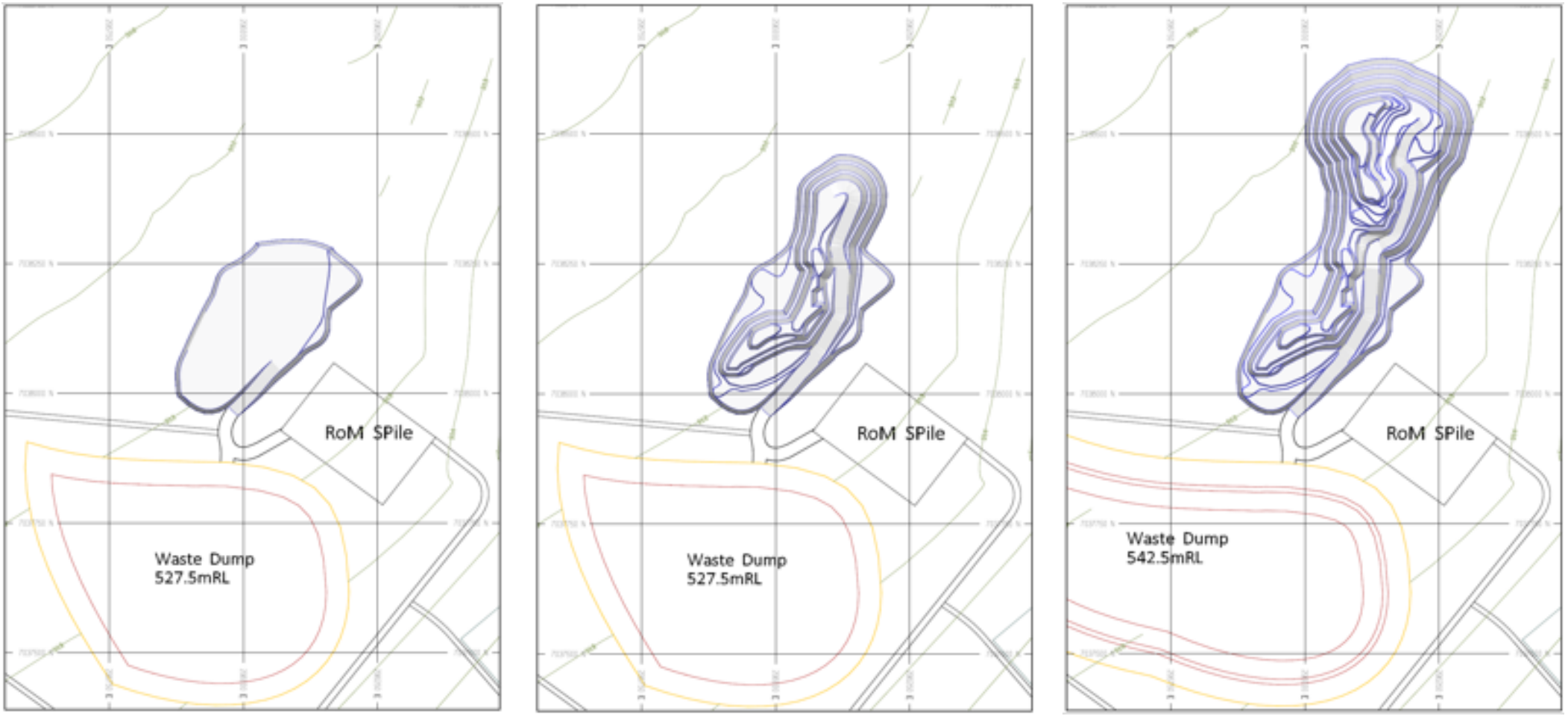
The pit staging aims to exploit the highest value, lowest strip ore in the earlier stages of mining. The mine schedule has been predicated on providing sufficient ore to the mill to ensure it is run at target throughout while being constrained by mining fleet capacity and practical development and vertical advance rates.

1.6.3.1 Julius Mine Design

The final pit for Julius is 720 metres long by approximately 200 metres wide. It has a depth of 100 metres at its deepest point.

The Julius pit will be mined in two stages, with Stage 1 having two components. The initial mining of the pit (Stage 1A) mines the southern portion of the pit to a depth of approximately 14 metres below surface targeting shallow laterite ore. The remainder of the stage (Stage 1B) mines the higher grade oxide supergene ore to a maximum depth of approximately 60 metres. The final stage (Stage 2) mines the higher strip northern lobe of the pit to a maximum depth of approximately 100 metres. This pit stage is deferred to late in the present mine plan.

The proposed staged development of the Julius pit designs is shown on the following page.



Julius Stage 1A

Julius Stage 1B

Julius Stage 2

Figure 1-7 Julius Pit Stages

1.6.3.2 Orelia Mine Design

The Orelia site layout with surface infrastructure is shown in Figure 1-8 below.

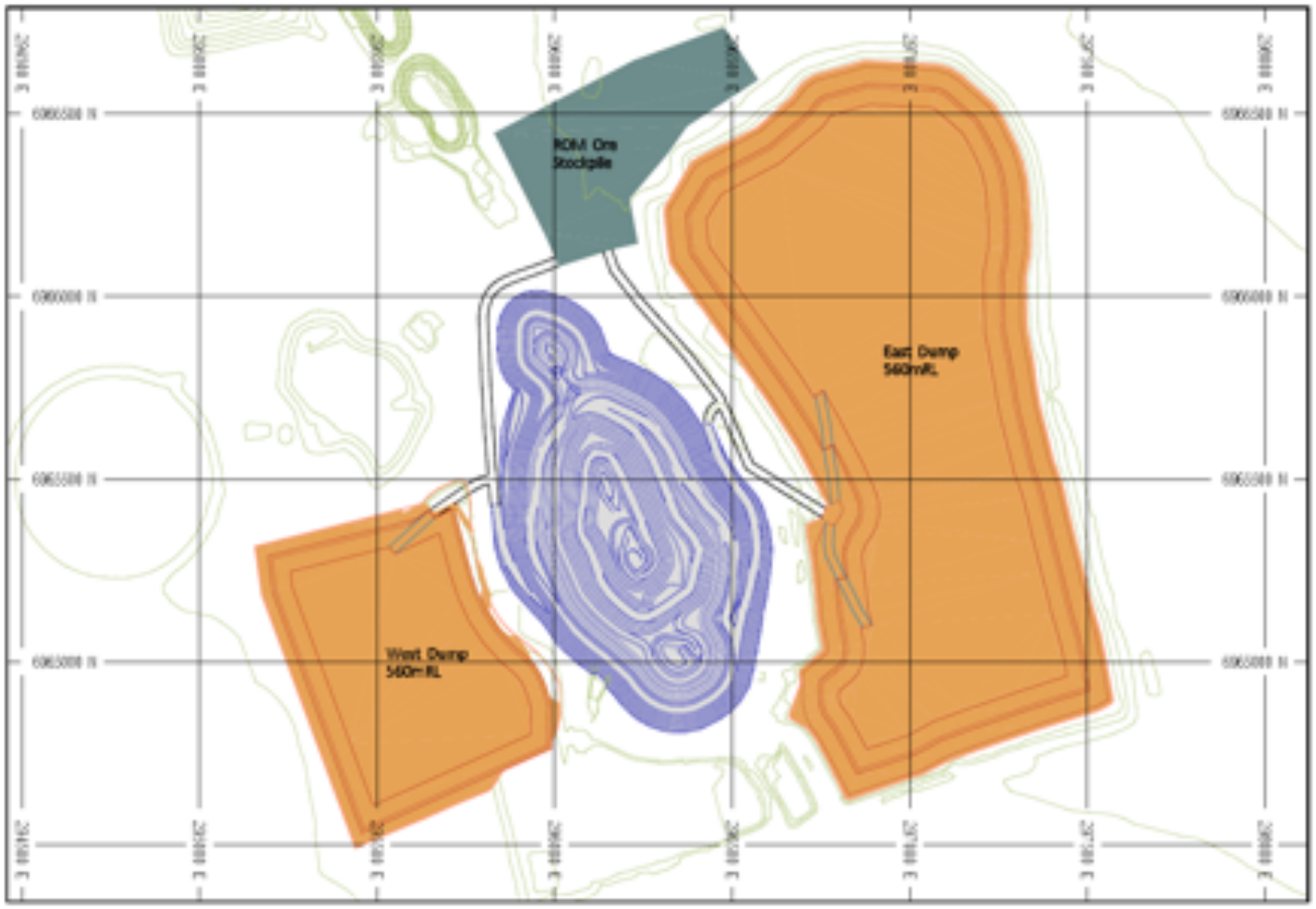
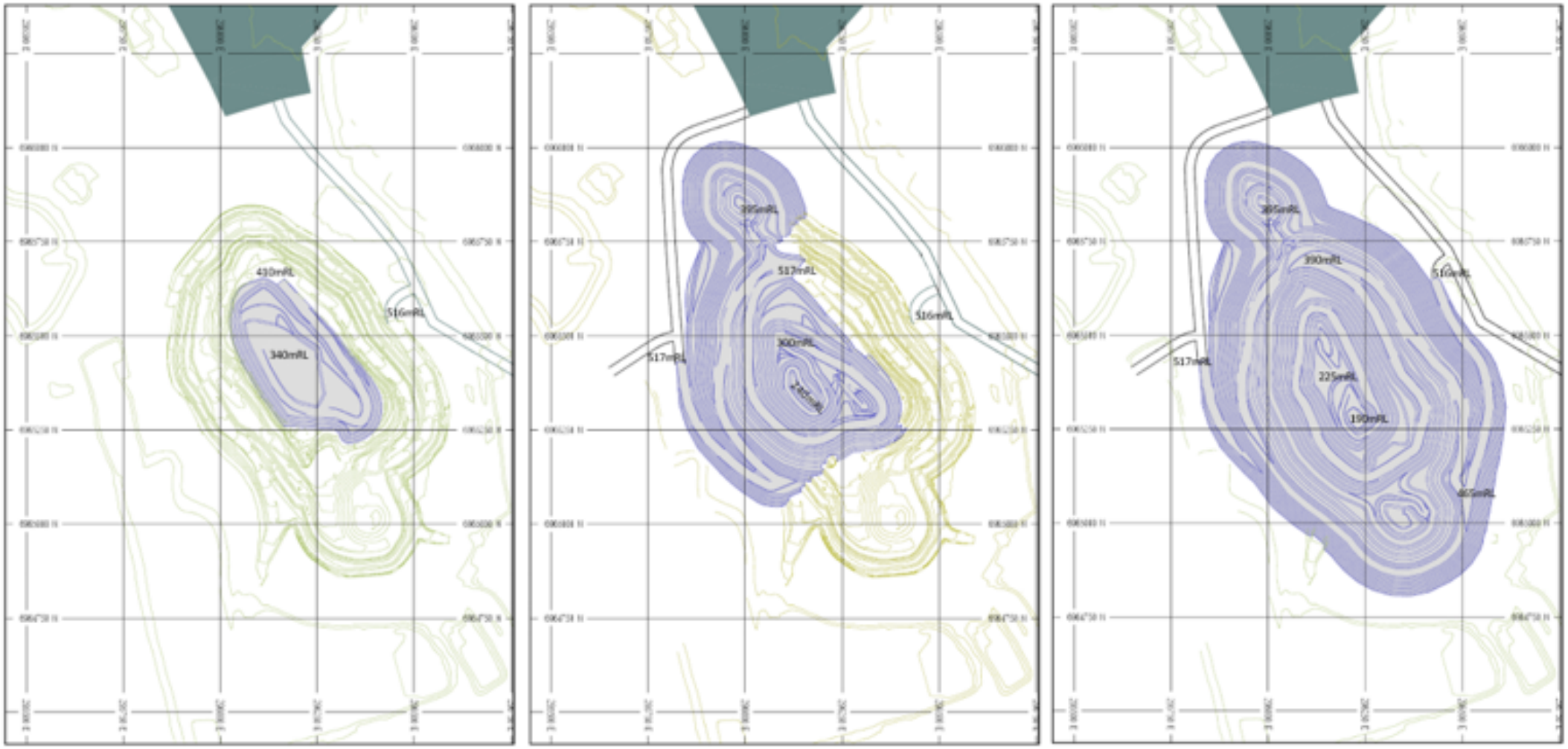


Figure 1-8 Orelia Site Layout

The Orelia deposit has an existing partially completed open pit. All the pit designs in this study are designed as extension/cutbacks to the existing pit. The final pit for Orelia is approximately 1.3 kilometres long by 750 metres wide with a depth of 300 metres. The final pit and stage designs for Orelia are shown in Figure 1-9.

Orelia will also be mined in two stages with Stage 1 having two components. The initial pit stage (Stage 1A) deepens the existing pit floor. This will provide approximately one year's mill feed and provides a low risk start to mining as no additional stripping is required. It will also generate highly valuable data to assist in determining the optimum grade control and mining techniques and reconciliation with the Mineral Resource estimation.

The second component (Stage 1B) targeting the high grade gold core of the Orelia deposit has been designed on the pit shell providing the greatest discounted cash flow and pushes back the existing pit's western and northern walls to deepen the pit. The final stage (Stage 2) pushes back the western, eastern and southern walls to mine the pit to its final currently planned depth.



Orelia Stage 1A

Orelia Stage 1B

Orelia Stage 2

Figure 1-9 Orelia Pit Stages

1.6.4 Mining Schedule

The Yandal Gold Project mining schedule broken up into the individual stages is summarised below:

Table 1-10 Yandal Project Staged Mining Plan

		Total Mined	Waste	Strip Ratio	Total Ore		
		Mt	Mt	Waste:Ore	Mt	g/t	koz
Orelia	Stage 1A	8.2	6.3	3.3	1.9	1.7	100
	Stage 1B	29.0	25.3	6.9	3.7	2.1	244
	Stage 1 Total	**37.2**	**31.6**	**5.7**	**5.6**	**1.9**	**344**
	Stage 2	57.1	49.3	6.3	7.8	1.5	366
	Total	**94.2**	**80.9**	**6.1**	**13.3**	**1.7**	**710**
Julius	Stage 1A	2.0	1.5	3.1	0.5	2.0	31
	Stage 1B	3.5	3.0	7.0	0.4	2.7	37
	Stage 1 Total	**5.5**	**4.6**	**5.0**	**0.9**	**2.3**	**68**
	Stage 2	7.6	6.9	10.1	0.7	1.7	37
	Total	**13.1**	**11.5**	**7.1**	**1.6**	**2.0**	**105**
Total	**Stage 1 Total**	**42.6**	**36.2**	**5.6**	**6.5**	**2.0**	**412**
	Stage 2 Total	**64.6**	**56.2**	**6.6**	**8.5**	**1.5**	**403**
	Grand Total	**107.3**	**92.3**	**6.2**	**14.9**	**1.7**	**815**

Note: Rounding Errors may occur

The primary aim of the production schedule is to provide the highest value ore to the mill as early as possible, in order to maximise early cashflow and the value to the Project. This has been achieved by prioritising the highest-grade pit stages and deferring the higher strip, lower value ore as much as possible.

The staged approach to the mine design provides operational and strategic flexibility that enables decision on optimum mine life prior to capital investment for the respective Stage 2 pit cutbacks. This capital expenditure is currently scheduled to commence late in the second year of production for Orelia and the eighth year for Julius. This provides Echo the opportunity to optimise mining parameters and utilise the then current economic metrics prior to making the longer-term investment decision, particularly for the Stage 2 Orelia cutback.

Additionally, the Stage 2 investment could potentially be enhanced in the intervening period by the introduction of other oxide ore sources within the region. Finally, the Stage 2 decision could also be deferred if this was the most appropriate course of action on the given economic metrics at that time. This staged flexibility coupled with the healthy cashflow forecast from Stage 1 mining significantly de-risks the project for Echo.

The schedule is developed to satisfy physical and practical constraints including: a sustainable production profile, achievable vertical advance rates and practical use of low grade stockpiling. The resultant mine production schedule is shown herewith in Table 1-11. The schedule aims to provide 1.8 million tonnes per annum of ore to the process plant with the ability in Year 1 to build the run of mine stockpile quickly via the initial mining of the low strip ratio Julius and Orelia Stage 1 open pits.

Table 1-11 Mine Production Schedule

Mining: Julius		Total	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6	Yr7	Yr8	Yr9
Stage 1A											
Waste	kt	**1,527**	1,527								
Ore	kt	**485**	485								
Grade	g/t	**1.97**	1.97								
Stage 1B											
Waste	kt	**3,047**	2,922	125							
Ore	kt	**438**	377	61							
Grade	g/t	**2.65**	2.86	1.41							
Total Stage 1											
Waste	**kt**	**4,574**	**4,449**	**125**							
Ore	**kt**	**923**	**862**	**61**							
Grade	**g/t**	**2.29**	**2.36**	**1.41**							
Stage 2											
Waste	kt	**6,886**								5,774	1,113
Ore	kt	**684**								180	504
Grade	g/t	**1.68**								1.84	1.63
Total Julius											
Waste	kt	**11,460**	4,449	125						5,774	1,113
Ore	kt	**1,607**	862	61						180	504
Grade	g/t	**2.03**	2.36	1.41						1.84	1.63

Mining: Orelia		Total	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6	Yr7	Yr8	Yr9
Stage 1A											
Waste	kt	**6,283**	2,849	3,434							
Ore	kt	**1,893**	683	1,210							
Grade	g/t	**1.65**	1.63	1.66							
Stage 1B											
Waste	kt	**25,313**	2,494	10,437	9,937	2,446					
Ore	kt	**3,662**	0	310	1,767	1,584					
Grade	g/t	**2.07**	0	1.76	1.77	2.47					
Total Stage 1											
Waste	**kt**	**31,596**	5,343	13,871	9,937	2,446					
Ore	**kt**	**5,555**	683	1,520	1,767	1,584					
Grade	**g/t**	**1.93**	1.63	1.68	1.77	2.47					
Stage 2											
Waste	kt	**49,276**			3,909	11,096	13,894	9,632	7,541	3,204	
Ore	kt	**7,780**			1	152	1,707	1,693	2,359	1,867	
Grade	g/t	**1.46**			1.43	1.28	1.37	1.47	1.48	1.54	
Total Orelia											
Waste	kt	**80,872**	5,343	13,870	13,846	13,542	13,894	9,632	7,541	3,204	
Ore	kt	**13,335**	683	1,520	1,769	1,736	1,707	1,693	2,359	1,867	
Grade	g/t	**1.66**	1.63	1.68	1.77	2.37	1.37	1.47	1.48	1.54	

Table 1-11 Mine Production Schedule (cont)

		Total	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6	Yr7	Yr8	Yr9
Mining: Total Stage 1											
Waste	kt	36,170	9,792	13,996	9,937	2,446					
Ore	kt	6,478	1,545	1,581	1,767	1,584					
Grade	g/t	1.98	2.04	1.67	1.77	2.47					
Mining: Total 1+2											
Waste	kt	92,332	9,791	13,995	13,846	13,542	13,894	9,632	7,541	8,978	1,113
Ore	kt	14,942	1,545	1,581	1,769	1,736	1,707	1,693	2,359	2,047	504
Grade	g/t	1.7	2.03	1.67	1.77	2.37	1.37	1.47	1.48	1.56	1.63

Note: Rounding Errors may occur

1.7 ORE RESERVE STATEMENT

The Yandal Ore Reserves relate to the gold Mineral Resource estimate of the Yandal Gold Project located in Western Australia and have been compiled by Mining Consultant - Stuart Cruickshanks in accordance with the "Australasian Code for Reporting of Exploration Results, Mineral Resource estimates and Ore Reserves" (JORC Code 2012 Edition).

The Ore Reserves are based on the updated Mineral Resource estimate models estimated and reported by Widenbar and Associates in November 2016 (Julius Gold Deposit) and June 2018 (Orelia Gold Deposit) respectively.

Table 1-12 Yandal Gold Project Ore Reserves

	Proved			Probable			Total		
	Tonnes (Mt)	Grade (g/t)	Contained (koz Au)	Tonnes (Mt)	Grade (g/t)	Contained (koz Au)	Tonnes (Mt)	Grade (g/t)	Contained (koz Au)
Julius	1.5	2.1	97	0.2	1.7	8	1.6	2.0	105
Orelia	2.4	2.4	179	11.0	1.5	531	13.3	1.7	710
Total	**3.8**	**2.2**	**276**	**11.1**	**1.5**	**539**	**14.9**	**1.7**	**815**

Note: Rounding Errors may occur

The cut-off grades used in the estimation of the Yandal Ore Reserves represent the non-mining, break-even gold grade, taking into account mining recovery and dilution, metallurgical recovery, site operating costs, royalties and revenues. The calculated cut-off grade for the Julius Gold Deposit is 0.8 g/t and for the Orelia Gold Deposit it is 0.6 g/t.

The grades and metal stated in the Ore Reserves include mining recovery and dilution estimates. The Ore Reserves are reported within the open pit designs prepared as part of this Study.

The Ore Reserve estimate is based on the Mineral Resource estimate classified as "Measured" and "Indicated" after consideration of all mining, metallurgical, social, environmental and financial aspects of the operation. The Proved Ore Reserve has been derived from the Measured Mineral Resource estimate, and the Probable Ore Reserve has been derived from the Indicated Mineral Resource estimate.

1.8 METALLURGY AND PROCESS PLANT

1.8.1 Julius Metallurgy

A number of rounds of metallurgical testwork has been completed on the Julius Gold Deposit. The testwork established that the ore is amenable to treatment through conventional carbon in pulp/carbon in leach (CIP/CIL) plant flowsheets with an installed gravity circuit, with expected recoveries of greater than 93%. Up to 70% gravity gold was extracted from oxide samples with rapid leach kinetics from leaching of the gravity tail.

The primary findings of the program were that the Bronzewing plant flowsheet and installed equipment is ideally suited to treating the Julius ore. A maximum leach tail grade of up to 0.15 g/t could be achieved from a grind size of 80% passing 125 microns. This equates to a gold recovery of >93% at the ore reserve grade. Sighter tests on a range of fresh ore samples gave indicative recoveries of >92%.

1.8.2 Orelia Metallurgy

Ore from the Orelia Gold Deposit pit has previously been treated through the Bronzewing plant with no significant operational issues encountered. Samples from resource drilling undertaken during 2017 were submitted to commercial laboratories for metallurgical testwork to confirm that gold recovery and ore physical properties were in line with historical processing performance.

Orelia ore was historically treated at rates of more than 1.8 Mtpa, with gold recovery >90% resulting from total tail grades below 0.15 g/t. Typical grind size was 80% passing 125 to 135 microns.

The defined metallurgical testwork program conducted by Bureau Veritas on 2017 drill samples assessed gravity and cyanide leach gold recovery. Australian Laboratory Services (ALS) tested half core samples to establish the physical comminution properties of the Orelia ore.

The 2017 results for Orelia ore samples taken from the deeper regions of the proposed pit were consistent with the historical data for gold recovery and ore physical properties.

1.8.3 Mill Feed Characterisation

The ore characterisation from testwork established that both Julius and Orelia ores are amenable to treatment through conventional CIP/CIL plant flowsheets with an installed gravity circuit. Recoveries of between 91% and 94% were returned with an average of 92% estimated from the testwork.

The Bronzewing plant flowsheet and the installed equipment is well suited to treating the Julius and Orelia ore. Based on the results reviewed, a throughput rate of 1.8 Mtpa was selected for the Ore Reserve processing capacity when treating Julius and Orelia ore. This rate is consistent with the Julius and Orelia mine production rates.

Established from the 2017 testwork results and review of historical operating and testwork data, the ore characterisation is summarised in Table 1-13 below.

Table 1-13 Yandal Project Metallurgical Summary

Aspect	Orelia	Julius	Orelia and Julius Ore blend to mill
Nature	Free Milling	Free Milling	Free Milling
Ore Grade g/t	2.10	2.40	2.15
Ore SG	2.90	2.50 Laterite 2.02 Oxide	2.60
Gravity Gold Recovery	30%	30%	30%
Crushing Work Index kWhr/t	7.7	-	-
Abrasion Index	0.1213	0.0014 Laterite 0.0012 Oxide	-
Bond Ball Mill Work Index kWhr/t	16.7	19.6 Laterite 12.8 Oxide	15.0
Gravity / Leach Recovery at P80 125 um	92%	92%	92%
CN Consumption kg/t	0.75 - 1.00	0.75 - 1.00	0.75 - 1.00
Lime Consumption - Site Water kg/t	0.7	2.5	2.5
Oxygen Injection	0.8m^3/tonne	0.8m^3/tonne	0.8m^3/tonne

1.8.4 Bronzewing Treatment Plant

The Julius Gold Project Bankable Feasibility Study published in January 2017 established the production pathway for ore mined from Echo's tenements being processed through a refurbished Bronzewing treatment plant.

The Bronzewing treatment plant has a two-stage crushing circuit, followed by SAG/Ball mill with installed pebble crusher. The comminution circuit includes gravity gold extraction, followed by CIL and carbon elution circuits.

Tailings will be disposed of in the licensed in-pit tailings storage facility, which has sufficient capacity to store at least a further 17.5 million tonnes of tailings. The Bronzewing Plant will require refurbishment to treat the Julius and Orelia ore.

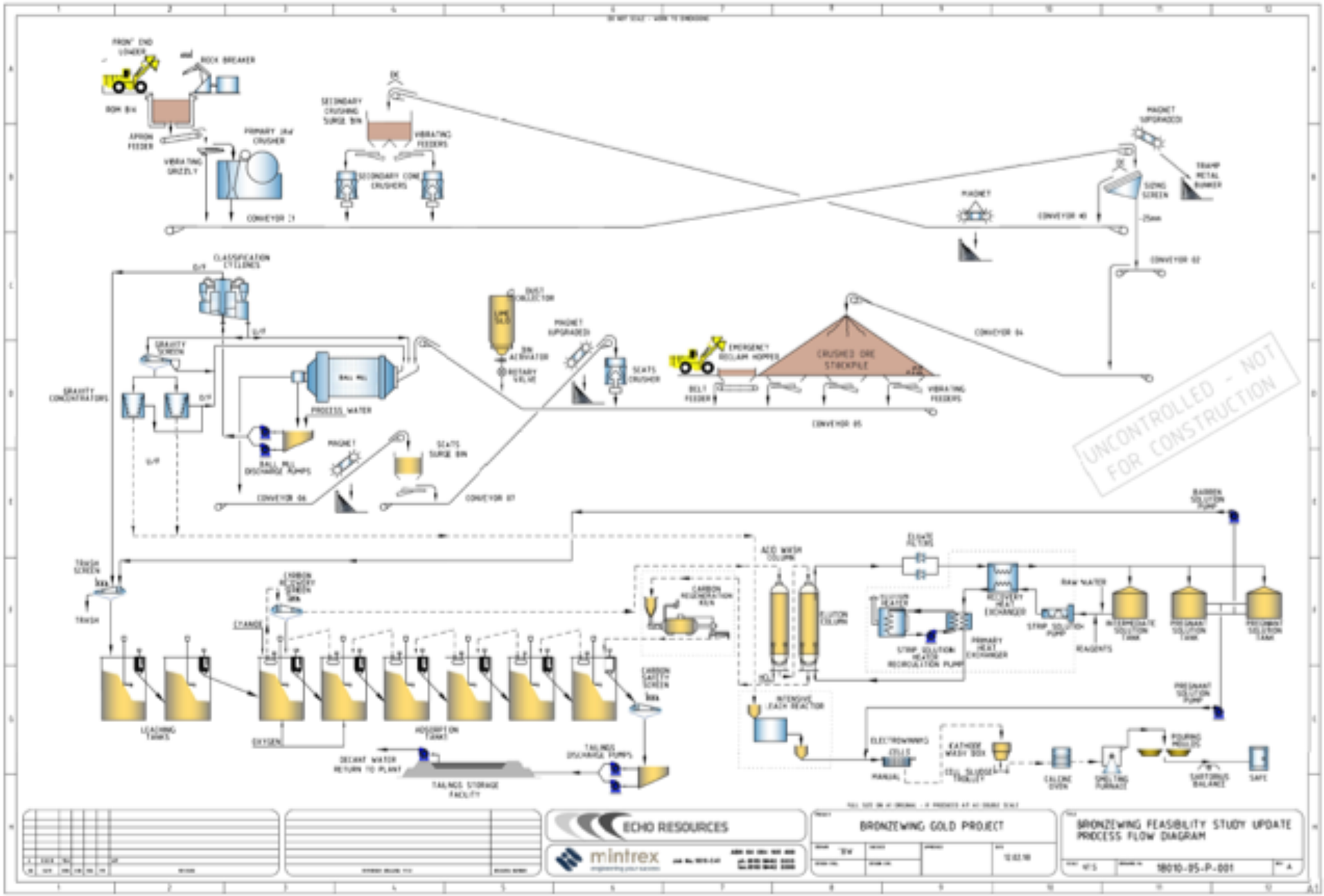


Figure 1-10 Bronzewing Processing Plant Flowsheet

1.8.4.1 Plant Refurbishment

Mintrex were engaged by Echo to prepare a scope of works and capital cost estimate for the refurbishment of the Bronzewing plant to a BFS level. Mintrex is an engineering consulting, project management and asset management organisation providing service to the international mineral extraction industries.

Echo provided a process definition package including the process design criteria for the Julius and Orelia orebodies to Mintrex for consideration in the refurbishment.

The Mintrex 2018 refurbishment estimate was prepared on the following basis:

- By limited quantitative assessment of the work content;
- Budget prices obtained from vendors for major items of equipment;
- Budget labour, equipment and unit rates obtained from contractors; and
- Budget transport costs obtained from contractors.

Most of the refurbishment scope involves restoring existing equipment to a reliable condition. Full replacements will be completed for the secondary and scats crushers (3 units total), crushing dust collector, emergency reclaim hopper/feeder, and the CV01 head end tramp magnet.

A Refurbishment Schedule of approximately 20 weeks is proposed from mobilisation of the appointed contractor. Subsequent to the Mintrex BFS refurbishment cost estimate, tender packs were issued in March 2018 to a number of engineering contractors to enable firm pricing to be utilised for the BFS capital cost estimate. These quotes have now been received and allow an updated cost estimate for the refurbishment of the plant which is summarised below.

Table 1-14 Process Plant Updated Refurbishment Cost Estimate

Bronzewing Plant Refurbishment	Estimate (A$)
Crushing Plant	1,886,245
Comminution	2,683,771
Gravity & Classification	1,208,760
Leach & Adsorption	1,236,438
Elution & Gold Room	252,981
Reagents & Services	158,957
Electrical & Instrumentation	2,059,661
Construction Overheads & PC Sums	3,832,922
Additional Capital Works & Materials	4,877,195
Site Management	510,000
Commissioning	657,800
Total Project Capital Expenditure	**19,364,730**

Note: Rounding Errors may occur

Figure 1-11 Bronzewing Processing Plant

1.9 INFRASTRUCTURE AND SERVICES

There is existing road access to the Bronzewing plant and the Julius mine site. The Bronzewing facilities include an unsealed airstrip suitable for propeller aircraft, which is approximately 1.5 hours flying time from Perth. The all-weather Leinster airstrip is located approximately 70 kilometres to the southwest by road from Bronzewing and daily flights using jet aircraft also provide access to the site.

Major infrastructure already in place to support the operation, in addition to the existing process plant, includes:

- All electricity reticulation network and power station infrastructure, available for a suitable contract power supplier;
- Minimum tailings storage capacity of 17.5 Mt in the depleted Discovery Pit, located approximately 1.7 km SW of the plant;
- Bronzewing site administration, warehouse and workshop buildings;
- Suitable site office and accommodation facilities will be required to be provided at the Julius mine site, by relocation of spare transportable buildings from Bronzewing and the purchase of a number of accommodation units;
- The Bronzewing site includes an accommodation village suitable for housing up to 240 people in its current configuration;
- Raw water can be sourced from a licensed borefield and disused open pits with pipework currently in place; and
- An upgraded communications system will maintain sufficient local and external communications for operation and emergency management and will provide efficient internet connectivity and speed for data transfer between site and Perth office.

1.10 ENVIRONMENT, COMMUNITY AND APPROVALS

As Bronzewing has a previous operating history and was last operating in 2013, the required licences and approvals were in existence with some remaining current. Reactivation of these approvals is required with inclusion of the Julius Project to form the Yandal Gold Project.

Julius as a new project has been subject to a full approval program managed by Echo. A third amendment to the Mining Proposal has been submitted to the DMIRS.

Based on work completed to date, there are no known environmental impediments to the Project proceeding.

The regulatory approvals listed in Table 1-15 are approved, submitted, or are in progress with all approvals currently anticipated to be in place by the end of September 2018.

Table 1-15 Yandal Gold Project Approval Status

Approval	Submission Date	Status
1. Julius Gold Project Land Access Native Title Agreement	Dec 2016	Executed and granted– M53/1099
2. State Deed for granting of M53/1099	Jan 2017	Granted
3. Mining Proposal – Julius	Apr 2017	Approved 27-6-2017
4. Mining Proposal – Julius Haul Rd Amendment	Mar 2018	Approved 18-4-2018
5. Mining Proposal – Julius Waste Dump and Updated Pit Design Amendment	June 2018	Approval anticipated September 2018
6. Clearing Permit – Julius Project / Haul Road	Jan 2018	Approved 11-3-2017, 7422/2 (ML53/1099, 53/203, 53/204, 53/206)
7. Julius Water Licence	Mar 2017	Granted - GWL183545, 0.33 MkL pa
8. Julius Haul Route – Ethnographic and Archaeological Surveys	Dec 2017	Surveys completed – Report Jan 2018. No significant ethnographic sites.
9. EPA 1986 Licence L8358/2009/2	April 2018	Held by Echo for Bronzewing project, currently on care and maintenance status, application to return to operating status lodged approval expected August / September 2018.
10. Licence to Take Water (DoW) – 3.75 MkL pa	Current	Held by Echo for Bronzewing GWL104591 3.75 MkL pa
11. Dangerous Goods Site Licence DGS015482	Current	Held by Echo for Bronzewing operation transferred to Echo 17-1-18
12. Orelia – Bronzewing Project Management Plan	April 2018	Approval 25 May 2018 (DMIRS) PM-197-301040
13. Julius Project Management Plan	April 2018	Approval 6 June 2018 (DMIRS) PM-219-301361
14. Orelia updated Mining Proposal	June 2018	Approval anticipated September 2018

The proposed areas of impact of the Yandal Gold Project have been previously disturbed by pastoral, exploration and mining activities. The land-systems and associated vegetation and habitat complexes at Bronzewing, Orelia and Julius are well represented in the region. Consequently, the potential impact on local flora and fauna is not considered to be significant in a regional context.

Development of the Yandal Gold Project will provide increased opportunities for local employment within the district. Environmental effects from mining activities, such as dust generation, erosion and waste generation will be managed to mitigate or minimise any impacts.

1.11 PROJECT IMPLEMENTATION

To commence operation of the Yandal Gold Project the following development activities will be undertaken:

- Project Management Plan approvals have been received from DMIRS in June 2018 for both Julius and Orelia;
- Development and implementation of a site wide occupational health and safety management system to govern the operations. The key driver behind the development and implementation of the system is the commitment to providing a safe and healthy workplace and sustainable environment for all stakeholders;
- Development of HR policies and an organisational structure to support the operation. Recruitment and on-boarding of key management personnel and the workforce to successfully commence and operate the project;
- Refurbishment of the Bronzewing processing facility – a scope has been prepared in the feasibility study and a preferred contractor has been selected to conduct the work;
- Reinstating all infrastructure required to service and supply the operations;
- Construction of new sections of haul road, and modification and maintenance to the Barwidgee Road to facilitate ore haulage from the Julius Mine to the treatment plant;
- Recommissioning of the Bronzewing Accommodation Village and engagement of a catering and camp management contractor;
- Provision of office, accommodation facilities and associated infrastructure to the Julius mine site;
- Re-establishment of power supply via a build - own - manage contract at the Bronzewing power station;
- Execution of key reagent and consumable supply contracts to support the ore processing needs and provision of first fills;
- Appointment of a suitably experienced open pit mining contractor to mine Julius and Orelia; and
- Commissioning of the mill to process the Julius and Orelia ore and production of gold doré.

Key personnel will be recruited at appropriate times and will provide project management supervision and support through the stages of project development ramping up to operational status. To date a Resident Manager, Mining Manager and OHEST Advisor have been appointed.

Due to the nature of the work required, the refurbishment of the Bronzewing treatment plant will, to a large extent, dictate the timing for start-up of operations. The refurbishment schedule contemplated has a duration of 20 weeks for completion.

Due to the straightforward mining method and low pre-strip, the Julius mining schedule can be timed to suit the mill start up without significant inconvenience. Currently it is assumed that mining commences at Julius approximately two months prior to completion of the process plant refurbishment and at Orelia, one month prior to the same.

Pre-production capital and operational expenditure for the start-up of the project has been allowed for in the economic model.

1.12 OPERATIONS

Sufficient skills exist in the Western Australian labour market to adequately cover the operational needs of the project. The mine will employ a contract mining services company, with management and technical support from Echo employees.

The processing operation will be managed and operated by a team of Echo employees. Support services will be provided for the operations and will be based at the Bronzewing site. The Perth corporate office will also support and service the site operation. The project will operate on a FIFO basis and efforts will be made to engage labour or contractors from nearby local communities wherever possible.

1.13 COSTS

As part of the Feasibility Study project capital costs and pre-development earthmoving and haulage costs, including site management and mobilisation costs, were estimated and are summarised in the tables below.

The pre-production costs may be divided into two principal categories (see Table 1-16 and Table 1-17) that are estimated as follows:

- Capital costs incurred prior to start-up of milling operations: A$30.3M
- Pre-production costs, incorporating mobilisation, set up, clearing, mining, haulage and management at both Julius and Orelia prior to scheduled mill production: A$9.0M

Table 1-16 Capital Cost Summary

Work Area	Estimate (A$)
Julius Mine Infrastructure	489,700
Haul Road Establishment	1,978,390
Accommodation Village Maintenance	1,192,550
Infrastructure Setup	493,000
Administration	1,264,002
Orelia Dewatering	249,534
Bronzewing Plant Refurbishment	19,364,730
Consumables & First Fill	1,006,800
Owners Costs	1,649,771
Sub Total	**27,688,477**
Contingency	2,620,581
Total Project Capital Expenditure	**30,309,058**
Pre-Production Mining & Other	8,977,111
Total Capital & Pre-Production Costs	**39,286,169**

Note: Total operating cost estimates are inclusive of pre-production operating costs and are presented gross without offsetting of minor commissioning revenue, rounding errors may occur

Operating costs were estimated for the operation of the process plant, mine operation and general and administration costs based upon the current life of mine plan on an average basis.

Table 1-17 Operating Cost Summary: Life of Mine

Operating Cost Area	Pre-Production (A$)	Production (A$)	LOM Total (A$)	Unit Rate (A$/t)
Julius Mining	4,547,359	30,837,096	35,384,455	
Julius Ore Haulage	663,650	15,742,073	16,405,723	
Orelia Mining	3,406,388	354,334,496	357,740,884	
Orelia Ore Haulage	170,090	30,901,285	31,071,375	
Echo Mining Management	432,933	27,276,992	27,709,925	
Total Mining & Haulage	**9,220,419**	**459,091,942**	**468,312,361**	**31.34**
Ore Processing	1,042,235	315,415,586	316,457,820	21.18
Site G&A	1,061,057	90,790,105	91,851,163	6.15
Total	**11,323,711**	**865,297,633**	**876,621,344**	**58.67**

Note: Total operating cost estimates are inclusive of pre-production operating costs and are presented gross without offsetting of minor commissioning revenue, rounding errors may occur

Initially Mintrex were requested by Echo to prepare a processing cost estimate for the refurbished Bronzewing treatment plant, based on their review and confirmation of the process design criteria provided. Echo further reviewed and modified the Mintrex processing cost estimate to allow for a workforce FIFO roster of 8 days on and 6 days off for its employees. An electrical load estimate was also undertaken to check the estimate and in conjunction with this load estimate Echo has applied a A$0.90 cents per litre diesel fuel price for power generation, which is higher than the A$0.65 cents per litre price used in the Mintrex estimate. These changes were included in the final processing cost estimate in Table 1-18 below.

Table 1-18 Process Plant Operating Cost Summary

Activity	LOM Total (A$)	Unit Rate (A$/t)
Salaries & On-costs	67,753,400	4.53
Maintenance Costs (Ex. Salaries)	29,297,333	1.96
RoM Feed Costs	18,598,061	1.24
Mobile Equipment	7,372,941	0.49
Power	108,310,718	7.25
Consumables	85,125,367	5.70
Total	**316,457,820**	**21.18**

Note: Rounding Errors may occur

Table 1-19 Mining Cost Summary - LOM Averaged Costs

Key metrics of the mining costs on a cost per tonne basis are summarised below based on the life of mine.

	Operating Cost Area	LOM Total (A$)	Unit Rate (A$/t, specific deposit)
Julius	Julius Direct Mining Cost (ELH, D&B, Dayworks)	26,066,261	16.22
	Julius Contractor Management	6,118,941	3.81
	Julius Grade Control	1,606,829	1.00
	Julius Mine Dewatering	230,000	0.14
	Mine Development	1,362,424	0.85
	Total Julius	**35,384,455**	**22.02**
Orelia	Orelia Direct Mining Cost (ELH, D&B, Dayworks)	302,724,460	22.70
	Orelia Contractor	39,256,790	2.94
	Orelia Grade Control	13,335,355	1.00
	Orelia Mine Dewatering	880,000	0.07
	Mine Development	1,544,279	0.12
	Total Orelia	**357,740,884**	**26.83**

Note: Rounding Errors may occur

Echo completed its General and Administration (G&A) cost estimate on a site-wide basis using firm quotes and/or tenders for a large portion of the cost assumptions below.

Table 1-20 G&A Operating Cost Summary

Item	Est. (A$/yr)	A$/t
Travel (Flights)	3,095,040	1.80
Accommodation	2,968,680	1.72
G&A Salaries	3,010,800	1.75
Communications	130,800	0.08
Light Vehicles	200,400	0.12
HSEC Costs	180,000	0.11
Management Systems	132,000	0.08
Consumables	96,000	0.06
Power Allocations	48,000	0.03
Diesel	15,768	0.01
Insurance	700,000	0.41
Total	**10,577,488**	**6.15**

Note: Rounding Errors may occur

1.14 FINANCIAL ANALYSIS

Based on the capital and operating cost estimates a financial model was developed for the purpose of evaluating the economics of the Yandal Gold Project. The full model has the capability to assess the capital structure for the development of the project, including the project's debt capacity. The model is designed to meet the expectations of any providers of potential debt funding for their due diligence programs and other internal requirements.

Summary results from the financial model outputs are presented below.

The financial model utilises the prevailing mine and process schedule outlined earlier (14.9 mt @ 1.7 g/t processed) and a gold price of A$1,600 per ounce.

Project economics for the project are presented in the table below. These base case economic results for the Yandal Gold Project are highly favourable, however work to further optimise the economics is ongoing.

The project will initially be considered as a staged mining approach with Stage 1 targeting the highest grades and lowest strip ratio in Years 1 to 4. A table summarising the production, cost and economics for the two stage project is outlined in Table 1-22.

Table 1-21 Project Key Economic Performance Indicators

	Units	Stage 1	Stage 1+2 (LOM)
Project Life	Years	3.75	8.50
Total Ore (contained)[1]		6.5Mt @ 2.0 g/t Au for 412koz	14.9Mt @ 1.7 g/t Au for 815koz
Gold Revenue			
Gold Price	A$/oz	1,600	1,600
Gold Sales	Oz	380,402	746,168
Gold Sales Revenue	**A$M**	**609**	**1,194**
Pre-Production Costs			
Development Capital	A$M	30	30
Pre-Production Mining & Other (no creditor days)[4]	A$M	9	9
Total Pre-Production Costs	**A$M**	**39**	**39**
Production Period Costs			
Mining & Haulage[4]	A$M	172	459
Processing[4]	A$M	131	315
General & Administrative[4]	A$M	41	91
Royalties	A$M	36	69
Sustaining Capital	A$M	4	7
Project Net Cashflow, pre-tax	**A$M**	**184**	**214**
Pre-tax NPV (8%)	**A$M**	**141**	**147**
Pre-tax IRR	**% p.a.**	**168%**	**155%**
Payback Period (pre-tax, from first production)	**Years**	**1.0**	**1.0**
Project Cashflows, Post-Tax, Ungeared			
Project Net Cashflow, pre-tax (as above)	A$M	184	214
Income Tax (ungeared, no corporate tax shield)	A$M	55	67
Project Net Cashflow, post-tax, ungeared	**A$M**	**129**	**147**
Post-tax NPV (8%)	**A$M**	**98**	**99**
Post-tax IRR	**% p.a.**	**132%**	**111%**
Payback Period (post-tax, from first production)	**Years**	**1.1**	**1.1**
Production Cost Metrics			
C1 Cost (Mining, Processing, Site G&A)[2]	A$/oz	936	1,175
All-In Sustaining Cost (AISC)[3]	**A$/oz**	**1,035**	**1,273**

1. The Ore Reserves underpinning the above production target have been prepared by a Competent Person or Persons in accordance with the requirements of the JORC (2012) Code. Refer to JORC tables, Qualifications and Competent Persons Statements. Based on assumed throughput of 1.8Mtpa.
2. C1 operating costs include all mining and processing costs, site administration costs, transport, refining charges.
3. AISC = C1 costs plus royalties and sustaining capital however excludes corporate head office costs
4. Refer to Table 1-17 for a detailed breakdown of costs, pre-production costs are net of commissioning revenue
5. All figures are presented in nominal Australian dollars, tax is applied at a flat corporate rate of 30%, unadjusted for inflation
6. Rounding errors may occur

Table 1-22 Yearly Production and Cashflow Summary (A$M)

Year	Units	LOM	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6	Yr7	Yr8	Yr9
Mining											
Julius Ore Mined	Mt	1.6	0.9	0.1	-	-	-	-	-	0.2	0.5
Julius Grade Mined	Au g/t	2.03	2.36	1.41	-	-	-	-	-	1.84	1.63
Orelia Ore Mined	Mt	13.3	0.7	1.5	1.8	1.7	1.7	1.7	2.4	1.9	-
Orelia Grade Mined	Au g/t	1.66	1.63	1.68	1.77	2.37	1.37	1.47	1.48	1.54	-
Processing											
Contained Gold Julius	Koz	105	31	38	-	-	-	-	-	-	37
Contained Gold Orelia	Koz	710	30	71	95	135	81	84	87	81	45
Recovery	%	91.5%	92.2%	92.2%	92.2%	92.2%	91.3%	90.8%	90.8%	90.8%	90.8%
Production											
Gold Production Julius	koz	96	28	35	-	-	-	-	-	-	34
Gold Production Orelia	koz	650	28	66	88	124	74	77	79	74	41
Total Gold Production	**koz**	**746**	**56**	**100**	**88**	**124**	**74**	**77**	**79**	**74**	**75**
Production Costs											
C1 Cost	$/oz	1,175	1,341	1,063	1,249	864	1,520	1,342	1,293	1,315	855
AISC	$/oz	1,273	1,469	1,162	1,341	955	1,614	1,436	1,386	1,409	964
Cashflows											
Assumed Gold Price	$/oz	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
Revenue	$M	1,194	89	161	141	199	119	123	127	118	119
Royalties	$M	(69)	(6)	(10)	(8)	(11)	(7)	(7)	(7)	(6)	(8)
Net Revenue	**$M**	**1,125**	**83**	**151**	**133**	**188**	**112**	**116**	**120**	**111**	**112**
Operating Costs	$M	(877)	(75)	(107)	(110)	(107)	(113)	(103)	(103)	(97)	(64)
Capital Expenditure (incl. Sus)	$M	(35)	(31.5)	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)	(0.5)
Net Operating Cashflow	**$M**	**214**	**(23)**	**44**	**22**	**80**	**(1)**	**12**	**17**	**14**	**49**
Cumulative Operating Cashflow	**$M**		**(23)**	**20**	**43**	**123**	**122**	**134**	**151**	**164**	**214**

Note: Figures are presented on an annualised basis from the commencement of project development, rounding errors may occur

Economic modelling for the Yandal Gold Project provided the following key outcomes:

- Maximum cash draw down for the project is estimated at A$39M, which includes all capital expenditure, pre-production and earthmoving mobilisation costs, mining and haulage costs for the project prior to scheduled production through the process plant;
- Cashflow starts in Month 6 (the first month of production after the mill refurbishment is completed in Month 5) with a small amount of revenue assumed during commissioning;
- Pre-production capital expenditure (A$30.3M) plus other pre-production costs (A$9.0M) is paid back in 12 months from first production;
- Production of 746 koz of gold over 8 ½ years post commissioning of the mill;
- Total processing of 14.9 Mt at 1.7 g/t with an assumed gold recovery of 91.5% (resulting in 650 koz produced from Orelia and 97 koz produced from Julius);
- LOM C1 cash cost of A$1,175 per ounce produced, with a project all in sustaining cost (AISC) of A$1,273 per ounce produced;
- Project royalties total A$68.9M, comprising payments to the Western Australian State Government and third party interests;
- Net cashflow (pre-tax) for the project is A$214M;
- Pre-tax project NPV applying an 8% discount rate (NPV8%) is A$146M with a pre-tax Internal Rate of Return (IRR) of 155%;
- The total cost of production for the ore treated is A$58.7 per tonne of ore processed, comprising:
    - Average Mining Cost (Julius & Orelia) - A$26.3 per tonne;
    - Average Haulage Cost (Julius & Orelia) - A$3.2 per tonne;
    - Echo Mining Management - A$1.8 per tonne;
    - Processing Cost - A$21.2 per tonne;
    - Site G&A Cost - A$6.2 per tonne;
- Additional cost items include:
    - Royalty Cost - A$4.7 per tonne;
    - Sustaining Capital - A$0.5 per tonne.

The project is most sensitive to changes in the gold price, recovery and grade. The NPV8% and IRR sensitivity to changes in gold price are shown in Table 1-23 and Figures 1-10 and 1-11. At the base case gold price of A$1,600/oz, the project pre-tax NPV8% is A$99M and the IRR is 111%. If the gold price increases to A$1,700/oz, the project post-tax NPV8% rises to A$135M and the IRR rises to 147%. At a gold price of A$1,500/oz the post-tax payback period increases to 1.3 years.

Table 1-23 Staged Production and Economic Summary

Gold Price Sensitivity	A$/oz	1,500	1,600	1,700
Project Net Cashflow, Pre-Tax				
Project Net Cashflow, Pre-Tax	A$M	143	214	284
Pre-tax NPV8%	A$M	97	147	197
Pre-tax IRR	% p.a.	107%	155%	206%
Payback (pre-tax)	Years	1.1	1.0	0.8
Project Net Cashflow, Ungeared, Post-Tax				
Project Net Cashflow, Post-Tax	A$M	98	147	196
Post-tax NPV8%	A$M	64	99	135
Post-tax IRR	% p.a.	77%	111%	147%
Payback (post-tax)	Years	1.3	1.1	1.0

Note: Rounding Errors may occur

The project sensitivities to +/-20% changes in key operating parameters are also shown below. These include changes to revenue, recovery, grade, operating costs and capital costs with their sensitivity to the post-tax NPV8% presented in Figures 1-12 and 1-13 for Stage 1 and Stages 1+2 respectively.

The sensitivity results reflect a change in one parameter at a time, assuming the other parameters are unchanged.

The project is considerably more sensitive to changes in operating costs (mining, processing, site G&A) than capital costs, a result of the low base case capital costs for the project and LOM aggregate operating costs which are more than 10 times the total capital costs.

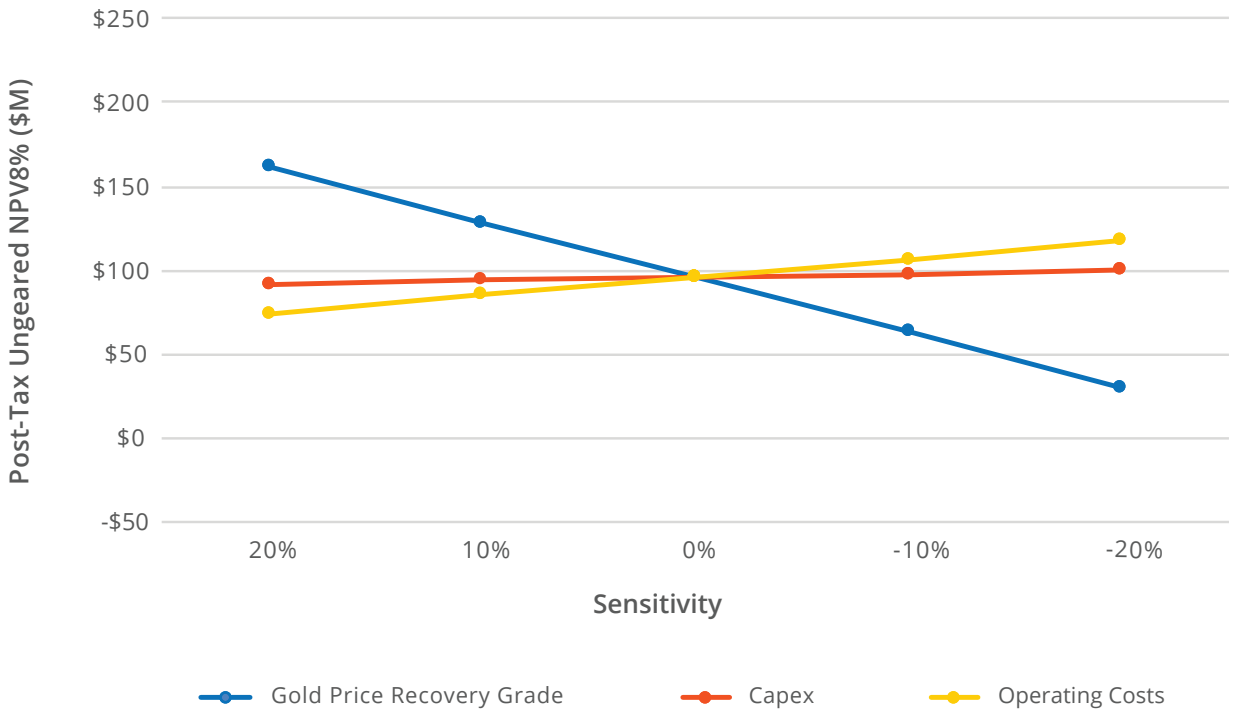


Figure 1-12 Stage 1 NPV8% Sensitivity Chart

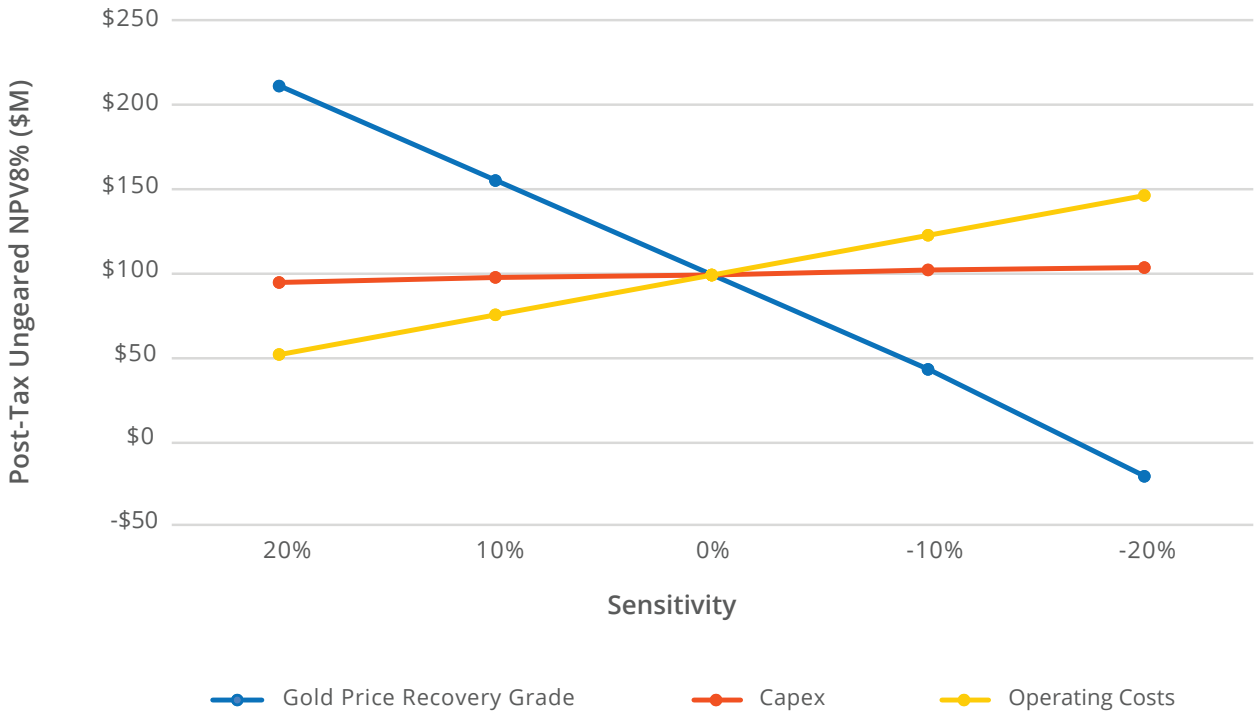


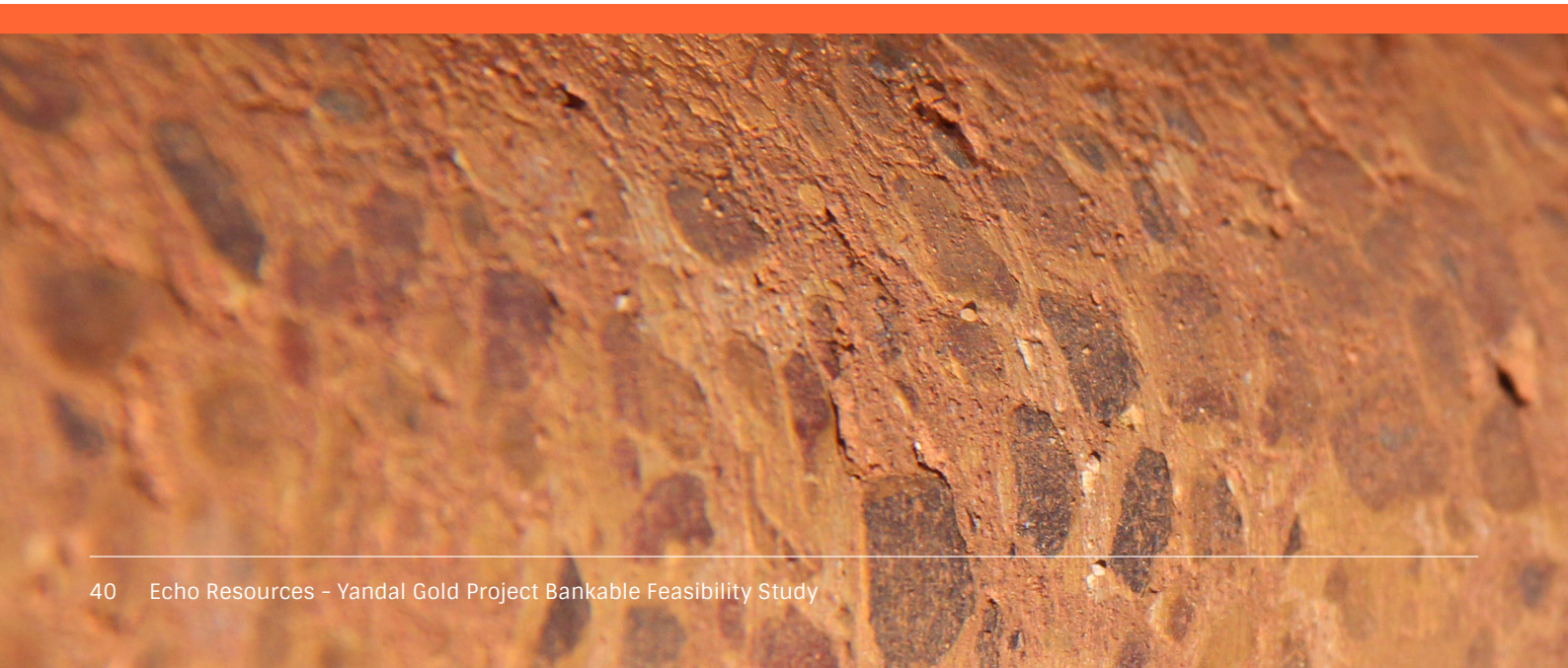
Figure 1-13 Stages 1+2 (LOM) NPV8% Sensitivity Chart

1.15 RISK AND OPPORTUNITY

1.15.1 Opportunity

The project outlined in this Feasibility Study is projected to deliver a positive return on investment with a relatively low risk profile. Further potential upside opportunities are outlined below:

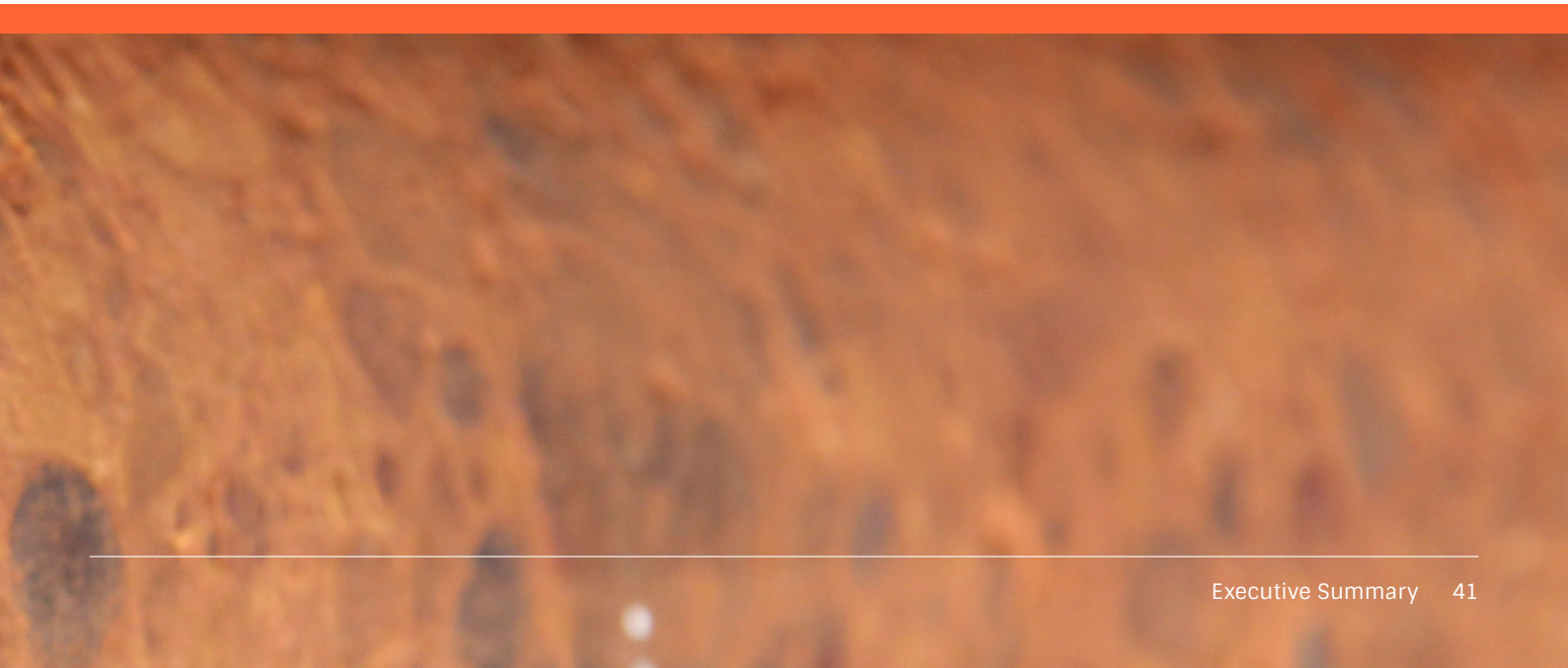
- Potential exists to extend the life of the earlier, higher-grade feed profile by converting additional resources, which do not sit within the current life of mine plan, to economic reserves;
- Potential to improve the project economics by saving in operating cost and schedule timing. Project operating experience may enable optimisation of production costs and techniques;
- An operational process plant in the region provides significant strategic value for Echo. It provides a processing route for other resources in the district with possible leverage for Echo in the development and treatment of those resources;
- Review of the Julius resource model versus the Julius mining model, giving consideration to cut and uncut grades, suggests that with careful grade control and mining practices there is potentially an additional 10,000 oz of gold within the current Julius Stage 1, which in the best case may be realized;
- Various low-grade stockpiles exist on project tenements that may provide further economic mill feed and may be utilized as plant commissioning ore;
- Exploration drilling has outlined several potential gold oxide resources at Lowlands, Shady Well, Wimbledon, Golden Snag and Mt Joel with reasonable expectation that further drilling and technical studies may result in additional economic material leading to a potentially increased mine life and profitability;
- The project funds an operating process plant in its early stages creating opportunity for reassessment of the various historic mines on the tenements under current gold price and operating cost regimes;
- With the process plant operating, exploration success for Echo can potentially be more directly and efficiently monetised in the future. The cash generated by the project can partially be utilised to fund this exploration;
- The project transitions Echo from Explorer to Producer which should in turn be potentially recognised by a corresponding increase in company valuation.



1.15.2 Risk

Material risks contemplated along with mitigating circumstances are considered as follows:

- **Gold price risk -** the project NPV has sensitivity to fluctuations in gold price, however the project has a healthy margin at the base gold price. Hedging is also likely to be utilised to lessen this risk;
- **Geological risk -** the geology of both deposits is considered to be understood, the resource models have been internally and externally reviewed, with conservative cut-off grades used. Approximately 50% of the Julius Stage 1 reserve is contained within the overlying flat laterite orebody and represents the lowest risk type of orebody in regard to mining and treatment. Mining and treatment of the laterite early in the project life generates healthy cashflow to rapidly payback the capital invested;
- **Metallurgical risk -** standard metallurgical testwork on both ores revealed straight-forward gold recovery, plus the Bronzewing plant flowsheet matches the practical optimum design for processing ores of this nature. Orelia ore has been treated previously at Bronzewing so its processing performance and gold recoveries are well understood with the most recent testwork results comparative to historical results;
- **Operating Cost risk -** sensitivity analysis shows the project can accommodate fairly significant percentage increases in operating cost. The feasibility estimates were conservatively developed from reputable contractor estimation and firm quotes and cross referenced with similar projects so are unlikely to vary significantly under the planned operational scenario. Mining costs were supported by a full tender process conducted by Echo;
- **Capital Cost risk -** the major capital expenditure item is the refurbishment of the Bronzewing plant. The scope developed for the estimate considered refurbishment to a standard that would provide a treatment plant mechanical availability of 95% and an operating standard that would generate sufficient cashflow to fund any operating maintenance or refurbishment required. As such the capital spend can be managed to prevent overspend whilst still allowing plant commissioning and production. Some major insurance spares exist while others are planned to be sourced, which will considerably reduce the risk of extended downtime once the plant is in operation. The refurbishment capital cost estimation is also supported by the results of a tender process for the scope of work;
- **Funding risk -** whilst the envisaged project development requires a low capital intensity relative to a greenfields mining project, and a combination of debt and equity is planned, Echo has not as yet secured the required capital. The positive financial metrics of the BFS and feedback from potential funding partners provides encouragement as to the likelihood of meeting optimum project and corporate capital requirements.



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APPENDIX 2

JORC Code (2012) Tables & Additional Information

Mineral Resources & Ore Reserve Estimates

Echo Mineral Resource Estimates[7]

(Ownership, Cut-off)	Measured			Indicated			Inferred			Total		
	Tonnes (Mt)	Grade (g/t Au)	Ounces (Au)	Tonnes (Mt)	Grade (g/t Au)	Ounces (Au)	Tonnes (Mt)	Grade (g/t Au)	Ounces (Au)	Tonnes (Mt)	Grade (g/t Au)	Ounces (Au)
Julius[4] (100%, 0.8)	1.8	2.1	124,227	1.6	1.3	67,789	1.8	2.5	142,991	5.2	2.0	335,007
Regional[5] (100%, 0.5)							2.8	1.5	134,925	2.8	1.5	134,925
Corboys[3] (100%, 1.0)				1.7	1.8	96,992	0.5	1.8	28,739	2.2	1.8	125,731
Orelia[4] (100%, 1.0)	2.8	2.6	237,000	11.2	2.0	732,000	1.9	1.7	101,000	15.9	2.1	1,070,000
Woorana North[2] (100%, 0.5)				0.3	1.4	13,811				0.3	1.4	13,811
Woorana South[2] (100%, 0.5)				0.1	1.0	3,129				0.1	1.0	3,129
Fat Lady[1,2] (70%, 0.5)				0.7	0.9	19,669				0.7	0.9	19,669
Mt Joel 4800N[1,2] (70%, 0.5)				0.2	1.7	10,643				0.2	1.7	10,643
Total Mineral Resources	**4.6**	**2.4**	**361,227**	**15.8**	**1.9**	**944,033**	**7.0**	**1.8**	**407,655**	**27.4**	**1.9**	**1,712,915**

Echo Ore Reserves

(Ownership, Cut-off)	Proved			Probable			Total		
	Tonnes (Mt)	Grade (g/t Au)	Ounces (Au)	Tonnes (Mt)	Grade (g/t Au)	Ounces (Au)	Tonnes (Mt)	Grade (g/t Au)	Ounces (Au)
Orelia[6] (100%, 0.6)	2.4	2.4	179,264	11.0	1.5	531,000	13.3	1.7	710,031
Julius[6] (100%, 0.8)	1.5	2.1	96,747	0.2	1.7	8,000	1.6	2.0	105,034
Total Ore Reserves	**3.8**	**2.2**	**276,012**	**11.1**	**1.5**	**539,000**	**14.9**	**1.7**	**815,065**

Notes:

1. Resources are adjusted for Echo's 70% ownership interest

2. Resources estimated by Coxrocks (refer to Competent Persons Statements) in accordance with JORC Code 2012. For full Mineral Resource estimate details refer to the Metaliko Resources Limited announcement to ASX on 1 September 2016. Echo is not aware of any new information or data that materially affects the information included the previous announcement, and all material assumptions and technical parameters underpinning mineral resource estimates in the previous announcement continue to apply and have not materially changed.

3. Resources estimated by HGS (refer to Competent Persons Statements) in accordance with JORC Code 2012, for full details of the Mineral Resource estimate refer to the Metaliko Resources Limited announcement to ASX on 23 August 2016. Echo is not aware of any new information or data that materially affects the information included the previous announcement, and all material assumptions and technical parameters underpinning mineral resource estimates in the previous announcement continue to apply and have not materially changed.

4. Resources estimated by Mr Lynn Widenbar (refer to Competent Persons Statements) in accordance with JORC Code 2012, for full details of the Mineral Resource estimate refer to the Echo Resources Limited announcement to ASX on 7 September 2017 & 14 June 2018. Echo Resources Limited is not aware of any new information or data that materially affects the information included the previous announcement, and all material assumptions and technical parameters underpinning mineral resource estimates in the previous announcement continue to apply and have not materially changed.

5. Resource estimates include Bills Find, Shady Well, Orpheus, Empire & Tipperary Well and were estimated by Golders (refer to Competent Persons Statements) in accordance with JORC Code 2004, for full details of the Mineral Resource estimates refer to the Echo Resources Limited prospectus released to ASX on 10 April 2006.

6. Reserve estimated by Mr Stuart Cruickshanks (refer to Competent Persons Statements) in accordance with JORC Code 2012, for full details of the Ore Reserve estimate refer to the Echo Resources Limited announcement to ASX on 6 August 2018. Echo Resources Limited is not aware of any new information or data that materially affects the information included the previous announcement, and all material assumptions and technical parameters underpinning Ore Reserve estimate in the previous announcement continue to apply and have not materially changed.

7. Mineral Resources are inclusive of Ore Reserves, rounding errors may occur.

JORC Code, 2012 Edition

Julius Gold Deposit

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.*	• 2006-2015 Drilling at Julius has comprised a total of 225 RC holes for 27.703 metres, 32 aircore holes for 1529 meters and 6 diamond holes for 1262 metres. • More Recent exploration at the Julius Gold Deposit comprised aircore drilling of 67 holes for 2,879 metres, 53 RC holes for 5113 metres and 9 HQ triple tube diamond holes for 481 metres. Approximately 2-4kg of sample was collected from each metre for analysis by riffle splitting of the aircore sample interval collected via the rig cyclone. Onboard cone splitter for the RC and half diamond core for the HQ drilling. • Samples were 2 kilogram samples from the drill spoils collected. Drill hole collar locations were recorded by handheld GPS survey with accuracy +/-2 metres. • Analysis was conducted by submitting the 2kg sample whole for preparation by crushing, drying and pulverising at Nagrom Laboratories for gold analysis via Fire Assay/ICP. • A number of 4 metre composites were also collected in areas outside of the interpreted mineralised intervals.
Drilling techniques	• *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).*	• Aircore drilling (4 inch), predominantly blade bit with hammer at the bottom of a number of holes, as required below the base of oxidation (>50 metres vertical depth). • RC drilling (5 ¼ inch face sampling hammer) from surface • HQ Triple Tube from surface (78 mm)
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Drill sample returns as recorded were considered excellent . • There is insufficient data available at the present stage to evaluate potential sampling bias.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.* • *The total length and percentage of the relevant intersections logged.*	• Drill chip logging is a qualitative activity with pertinent relevant features recorded: lithology, mineralogy, mineralisation, structural, weathering, alteration, colour and other features of the samples. • Rock chip boxes of all sample intervals were collected. All samples were logged. • HQ core was logged in detail, photographed wet and dry, RQDs, structural measurements on all completed. Core was orientated where possible. • All drilling was logged.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• HQ diamond core was sent to ALS where it was sawn in half along orientation lines or cut lines marked by the geologist in the field. • Sample preparation for all recent samples follows industry best practice and was undertaken by Nagrom Laboratories in Perth where they were crushed, dried and pulverised to produce a sub sample for analysis. • Sample preparation involving oven drying, fine crushing to 95% passing 4mm, followed by rotary splitting and pulverisation to 85% passing 75 microns. • QC for sub sampling follows Nagrom procedures. • Field duplicates were taken at a rate of 1:30. • Blanks were inserted at a rate of 1:30 • Standards were inserted at a rate of 1:30. • Sample sizes are considered appropriate to the grain size of the material being sampled.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the*	• The methods are considered appropriate to the style of mineralisation. Extractions are considered near total. • No geophysical tools were used to determine any element concentrations at this stage.

Criteria	JORC Code explanation	Commentary
	analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. • *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.*	• Laboratory QA/QC involves the use of internal lab standards using certified reference material, blanks, splits and duplicates as part of the in house procedures. Repeat and duplicate analysis for samples shows that the precision of analytical methods is within acceptable limits.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• The Company's Geologist has visually reviewed the samples collected. • 4 HQ diamond twin holes drilled • Data and related information is stored in a validated Mapinfo or Micromine database. Data has been visually checked for import errors. • No adjustments to assay data have been made.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• All drillholes have been located by DGPS with precision of sample locations considered +/-1m. • Location grid of plans and cross sections and coordinates in this release 2016 samples use MGA94, Z51 datum. • Topographic data was assigned based on a DTM of the Julius opening surface..
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• The holes are nominally spaced on a 10-20 metre (E-W spacing) with hole spacing along each section ranging from 10-20 metres spacing along each section line. • Data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for Mineral Resource estimation procedures. • Sample compositing has occurred on a small number of samples (4 metre composite samples) outside of the interpreted main mineralized zone. .
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• The orientation of sampling is considered adequate and there is not enough data to determine bias if any. • Mineralised outcrop strikes north-north-east. Drilling was orthogonal to this apparent strike and comprised vertical drill holes. The flat lying laterite also trends in this orientation and the vertical drilling completed is considered entirely appropriate for this style of mineralization.
Sample security	• *The measures taken to ensure sample security.*	• Chain of custody is managed by the Company and samples are transported to the laboratory via Company staff with samples safely consigned to Nagrom for preparation and analysis. Whilst in storage, they are kept in a locked yard. Tracking sheets are used track the progress of batches of samples.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No review or audit of sampling techniques or data compilation has been undertaken at this stage.

Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• The Julius Gold Deposit is located within M53/1099 located in the northern Yandal Greenstone Belt and is 100% owned by Echo Resources Ltd. The tenement is located in the Wiluna Native Title Claim Group (WC99/24). Newmont Yandal Operations has the right to buy back a 60% interest in any gold discovery containing aggregate Inferred Mineral Resources of at least 2 million ounces of gold. A third party net smelter royalty of 1.5% applies in respect of all minerals produced from the tenement. • The tenement is in good standing • No impediments to operating on the permit are known to exist.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• The Julius deposit area was initially located by Newmont based on shallow results. Echo Resources subsequently completed RC drilling which defined the extent of the resource as understood today.

Criteria	JORC Code explanation	Commentary
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Julius Gold Deposit consists of a flat lying gold rich laterite zone which is located between 10-15 metres vertical depth and overlain by indurated barren transported sands and silts. . This is underlain by clay rich supergene gold mineralisation and at depth primary gold mineralization associated with silica, quartz veining and sulphide development. The mineralisation is largely focused on a shallow west-northwest dipping granite/greenstone contact (principally ultramafic lithologies).
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* ○ *easting and northing of the drill hole collar* ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* ○ *dip and azimuth of the hole* ○ *down hole length and interception depth* ○ *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	• 2006-2015 Drilling at Julius has comprised a total of 225 RC holes for 27.703 metres, 32 aircore holes for 1529 meters and 6 diamond holes for 1262 metres. • More recently (2016) a total of 67 aircore drillholes for 2879 metres, 53 RC holes for 5113 metres and 9 HQ triple tube holes for 481 metres were drilled on a global nominal 10-20 metre centres, focused on the mineralized contact zone and laterite gold mineralized zone in the vicinity of the granite-greenstone contact. Full drillhole details for the results received to date have been previously provided in various ASX announcements along with appropriate maps and plans.
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• No averaging or aggregation techniques have been applied. • No top cuts have been applied to exploration results. • No metal equivalent values are used in this report.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	• The orientation or geometry of the mineralised zones strikes in a north-northeastly direction and dips in a shallow manner to the west-northwest. The laterite is flat lying and overlies this contact zone, with the drilling largely interpreted to be orthogonal to strike.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Appropriate maps are included in main body of report with gold results and full details are in the tables reported.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• All results for the target economic mineral being gold have been reported.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• Previous work by Echo has highlighted a gold resource of 4Mt @ 1.69 g/t Au at Julius. Metallurgical work suggests excellent gold recoveries are likely through a conventional CIP/CIL gold plant. There are at least two of these in the district within trucking distance of Julius.

Criteria	JORC Code explanation	Commentary
Further work	• *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Future RC, diamond and aircore drilling is being considered to further evaluate the Julius Gold Deposit. • Refer to maps in main body of report for potential target areas.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• Data was provided as a validated Micromine Database and was digitally imported into Micromine software. Validation routines were run to confirm validity of all data. • Analytical results have all been electronically merged to avoid any transcription errors.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• No site visit has been undertaken by the Competent Person, as little relevant information is available on site and the Competent Person is familiar with the type of gold deposit under consideration. Diamond core and aircore and RC chip boxes have been reviewed. Drilling techniques and methods have been reviewed.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• The confidence in the geological interpretation is very good, with the latest infill drilling allowing a detailed interpretation. • Geological logging and interpretation allows extrapolation of drill intersections between adjacent sections. • Alternative interpretations would result in similar tonnage and grade estimation techniques. • Geological boundaries are determined by the spatial locations of the various mineralised structures. • Flat lying laterite gold mineralisation confined to individual wireframes, supergene and fresh material individually assessed. Oxidation profiles established and assigned into the model.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• The lateral dimensions of the resources at Julius are shown in the diagrams in the body of this release. The mineralisation dips shallowly (maximum 30-45°) but variably to the west as shown in diagrams in the body of this release, and ranges from 6m to 30m thick. A shallow plunge to the northwest is suggested based on drilling to date. The resource extends over approximately 850 metres of strike and extends to a vertical depth of 250 metres. .
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* • *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological*	• Grade estimation using an Ordinary Kriging methodology has been applied to all Resources. A series of wireframes has been used to subset and constrain the data points used in the interpolation and only individual grades from individual wireframes were used. • Variography was carried out on four major zones to define the variogram models for Ordinary Kriging interpolation. • All estimation was carried out in Micromine 2016 (64-bit SP3) software. • The block models were constructed using a 5m (E) by 10m (N) by 2.5m (Z) block size, constrained by a series of individual wireframes, with sub-cells to 1m x 1m x 0.5m to accurately represent wireframe shapes. • Block size is generally half the sample spacing or greater in areas of infill drilling, and typically one quarter in wider spaced drilling areas. • No deleterious elements have been identified • No assumptions regarding recovery of byproducts have been made • An unfolding (or flattening) methodology has been used in the interpolation; this obviates the need for varying search ellipses with dip, with all searches being horizontal, and oriented along the strike direction of each mineralised zone. • Search ellipsoids use multiple passes to ensure blocks are filled in areas with sparser drilling. Sizes of searches are based on Kriging Neighbourhood Analysis and are covered in detail in the body of the accompanying report. • Sample data was composited to 1m down-hole composites, while honouring breaks in mineralised zone interpretation. • The geological interpretation follows a shallow dipping contact zone between a granite to the east and an ultramafic/mafic to the west. Strong shearing accompanies the contact and gold mineralisation. • Geological interpretation was carried out of the mineralised zones; consistent,

Criteria	JORC Code explanation	Commentary
	interpretation was used to control the resource estimates. • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	generally shallow-dipping mineralised structures with 1-12m true thickness were interpreted. • Top cut analysis was carried out on each mineralised zone, using a combination of inflection points on log probability plots, outliers on log histograms and the effect of top cuts on cut mean and coefficient of variation. • Validation was carried out in a number of ways, including ○ Visual inspection section, plan and 3D ○ Swathe plot validation ○ Model vs composite statistics ○ ID2 vs OK model checks
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• Tonnages are estimated on a dry basis.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• A nominal downhole cut-off of 0.5 g/t Au has been used to define the mineralised zones. The basis of the 0.5 g/t Au cutoff is an economic analysis coupled to mining dilution considerations. The cut-off corresponds reasonably well with the mineralised shear zone contact zone between the mafic and granite contact.
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	• The resources defined to date would potentially be amenable to simple open pit mining. • The shallow dip of the mineralisation, coupled to the extensive near surface laterite mineralisation lends itself to open pit mining with a relatively low stripping ratio.
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	• Preliminary metallurgical testwork has suggested excellent gold recoveries, via conventional CIP/CIL gold treatment. • Test work to date has shown that the gold mineralisation is amenable to conventional recoveries via gravity and leaching with approximately 33.2% of the total gold content recovered via gravity separation and mercury amalgamation. • A very high total gold recovery of 98.6% was achieved. • The gold extraction was very fast with 95.4% of the gold recovered by gravity separation followed by only 2 hours of cyanide leaching.
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• Environmental studies have been completed and a Mining Proposal is well advanced. The general Yandal area is well known for gold mining and no environmental impediments are expected.
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and*	• Bulk density/specific gravity have been assigned based on testwork (Archimedes Method) of material of various geological and mineralisation types. The following densities are applied to the resource model.

Criteria	JORC Code explanation	Commentary
	alteration zones within the deposit. • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• <table><tr><th>Material</th><th>Density</th></tr><tr><td>Fresh Mineralised</td><td>2.6</td></tr><tr><td>Transition Mineralised</td><td>2.4</td></tr><tr><td>Oxide Mineralised</td><td>1.8</td></tr><tr><td>Silcrete Domain</td><td>2.2</td></tr><tr><td>Laterite Mineralised</td><td>2.4</td></tr><tr><td>Waste > 500m RL</td><td>2.1</td></tr></table> • ALS completed the Bulk Density determinations based on weight in water/weight in air, after wax coating of the diamond core samples. • Base of oxidation, top of fresh and a silcrete digital terrain models were constructed and assigned into the bock model, for both waste and ore.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).* • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• The Mineral Resources have been classified as Measured, Indicated and Inferred based on the drill spacing and geological continuity at the various deposits. • The Resource model uses a classification scheme based upon drill hole spacing plus block estimation parameters, including kriging variance, number of composites in search ellipsoid informing the block cell and average distance of data to block centroid. • The results of the Mineral Resource Estimation reflect the views of the Competent Person.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• Echo Resources personnel have reviewed the block model relative to the drilling data and considers the estimate to be an accurate reflection of the gold mineralisation at Julius.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• The relative accuracy of the Mineral Resource is reflected in the reporting of the Mineral Resource as being in line with the guidelines of the 2012 JORC. • The statement relates to global estimates of tonnes and grade, with reference made to resources above a certain cut-off that are intended to assist mining studies. • No production data is available for comparisons.

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	• *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* • *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	• The Ore Reserve estimate has been based on the follow Mineral Resource estimate as announced to ASX on 23 November 2016, incorporating a diluted reblocked mining model with ore loss and dilution (5.2Mt @ 2.0g/t Au), see Section 3 JORC Table above. • The Mineral Resources for both the deposits have been reported inclusive of the Ore Reserves estimated and stated here.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• Stuart Cruickshanks has visited site in March 2017. During this visit the various deposit areas were inspected with particular interest in access evaluation and practical consideration for mining of open pit in the local terrain. Diamond core of the mineralised zones were also inspected to inform assumptions on selectivity of mining.
Study status	• *The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.* • *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert*	• Work to a Feasibility Study level based on refurbishing the Bronzewing CIL processing plant has been undertaken in order to enable the Mineral Resources to be converted to Ore Reserves stated here. • The study was carried out internally and externally using consultants when

Criteria	JORC Code explanation	Commentary
	Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	appropriate.
Cut-off parameters	• *The basis of the cut-off grade(s) or quality parameters applied.*	• The cut-off grades used in the estimation of these Ore Reserves is the non-mining, break-even gold grade taking into account mining recovery and dilution, metallurgical recovery, site operating costs, royalties and revenues. • Cut-off is calculated as part of the mine optimisation evaluation and equates to 0.80g/t Au for the Julius Deposit
Mining factors or assumptions	• *The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).* • *The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.* • *The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.* • *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).* • *The mining dilution factors used.* • *The mining recovery factors used.* • *Any minimum mining widths used.* • *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.* • *The infrastructure requirements of the selected mining methods.*	• Appropriate factors determined during the course of the Feasibility study were applied to the Mineral Resources by Lerchs Grossman optimization methodology. Detailed pit designs were then carried out on the selected optimized pit shells and Ore Reserves reported from these designs. • Conventional open pit mining techniques using drill and blast with material movement by hydraulic excavator and trucks will be employed. The project scale and selectivity would suit 120 t – 200 t class excavators in a backhoe configuration matched to 95 t class mine haul trucks and applicable ancillary equipment. To suit this sized equipment a bench height of 5m has been adopted. The benches will be excavated on 2 x 2.5 m high flitches, for blasted material this will be 2 x 3 m high flitches when swell is accounted for. Geotechnical assessments of open pit mining of the Julius pit have been carried out by independent consultant, Tim Green. The assessment provided base case wall design parameters for open pit mining evaluation. • Grade control sample collection by reverse circulation drilling has been allowed for in the Feasibility Study. • To estimate the mining loss and dilution for the Mineral Resources ore reserves block models were prepared by averaging the grades of the ore and non-ore proportions across model block volumes for all elements reported in the resource model. This has effectively diluted the ore with the adjacent non-ore blocks and so simulating mining dilution based on the parent block sizes 2.5m x 5m x 2.5m for the Julius deposit. • All gold grades reported in this estimate refer to these diluted grades. Mining ore losses result from blocks with small ore proportions which are effectively diluted to the extent that the average grade is below the economic cut off of the reported Ore Reserves. • No Inferred Mineral Resources have been used in the studies. All Inferred Mineral Resources are treated as waste in the mining studies. • Infrastructure to support the mining operations has been allowed for. This includes: - Mine haul roads and access roads - ROM Stock piles area adjacent to the pit exits - Haulage roads from the pits to the process plant - Waste rock dumps - Mine services area including workshop, warehouse, offices, and fuel storage and dispensing. - Diesel power generation - Mine accommodation village - Surface water management and pit dewatering infrastructure
Metallurgical factors or assumptions	• *The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.* • *Whether the metallurgical process is well-tested technology or novel in nature.* • *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.* • *Any assumptions or allowances made for deleterious elements.* • *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.* • *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*	• The feasibility study has been based on conventional CIL process which is well proven technology. The project is based on refurbishing the Bronzewing plant which has proven operating history. • Well tested existing metallurgical technology and in addition to historical metallurgical and process plant operating history, Feasibility level metallurgical test work programme has been undertaken. • Metallurgical samples representing know mineralogical domains, grade ranges and oxidation profiles have been included are deemed to be representative of the Julius deposit. • No deleterious elements have been detected. • For the Julius deposit, no bulk sampling has been undertaken - all samples have been source from diamond drill core as is appropriate for this style of mineralization.

Criteria	JORC Code explanation	Commentary
Environmental	• *The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	• A Mining Proposal, Mine Closure Plan and Clearing permit has been approved by the DMIRS. • Waste rock is typically non-acid forming. • No tailings will be stored on site. • Environmental and Social Impact Assessment has been completed for the project.
Infrastructure	• *The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	• The Feasibility study has estimated the cost to upgrade/install the necessary infrastructure to support the project. This Includes: - Upgrading access roads - Water collection via surface water runoff collection from large catchment, pit dewatering and groundwater bores, and a storage dam - Power supply by diesel generators - Processing plant and Tailings storage facility. - Accommodation village, offices and other necessary buildings • A majority of the infrastructure exists and is in good working order at the Bronzewing site.
Costs	• *The derivation of, or assumptions made, regarding projected capital costs in the study.* • *The methodology used to estimate operating costs.* • *Allowances made for the content of deleterious elements.* • *The source of exchange rates used in the study.* • *Derivation of transportation charges.* • *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.* • *The allowances made for royalties payable, both Government and private.*	• Capital costs for the process plant and associated infrastructure have been estimated to the required level of accuracy for a Feasibility Study by Mintrex Pty Ltd. Capital costs for mining related infrastructure have been source from quotations and tendered rates sourced from contract mining companies active in the West Australian goldfields. • Process and general and administration operating costs were developed by Mintrex Pty Ltd. Costs were estimated from first principles based on reagent consumptions and consumable usage rates determined from test work. Power cost estimate is based diesel generators. Labour rates were benchmarked against existing operations. • Mining operating costs were sourced from quotations and tendered rates received from mining contracting companies active in Western Australia. • Transportation and refining charges have been accounted for. Government Royalties are payable as per the Mining Code of Western Australia. A royalty of 2.5% is payable on revenue, with a further 3.6% privately held NSR royalty is payable on ore processed through the Bronzewing Mill.
Revenue factors	• *The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.* • *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.*	• No factors were applied in the application of the metal prices stated in the above section. • The head grades as reported in these estimates were not factored. Mining dilution and recoveries were taken into account as modelled/discussed elsewhere in this statement and as such no further factors were considered appropriate and were therefore not applied • A gold price of AU$1600/oz based on analyst consensus has been used for the Ore Reserve estimate.
Market assessment	• *The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.* • *A customer and competitor analysis along with the identification of likely market windows for the product.* • *Price and volume forecasts and the basis for these forecasts.* • *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.*	• The product of this mine is a precious metal and the stated methodology of applying the metal price is considered to be adequate and appropriate. No major market factors are anticipated or known at the time of reporting, to provide a reason for adjusting this assumption.
Economic	• *The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.* • *NPV ranges and sensitivity to variations in the significant assumptions and inputs.*	• Inputs to the economic analysis were: - Mine production schedule, including gold production schedule, produced as part of the Feasibility study. - Mine operating costs, process operating costs and general and administrative costs as stated above. - Gold price as stated above. - Applicable royalties and taxes and duties per the mining code of Western Australia - Discount rate of 8% The Project's sensitivity to various inputs were also investigated. The Project is most sensitive to gold price. However the project value remained positive up to a 20% reduction in gold price.
Social	• *The status of agreements with key stakeholders and matters leading to social licence to operate.*	• Stakeholders have been consulted • Land Access Native Title Agreement and State Deed has been signed.
Other	• *To the extent relevant, the impact of the following on the project and/or on the estimation and classification*	• To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:

Criteria	JORC Code explanation	Commentary
	of the Ore Reserves: • *Any identified material naturally occurring risks.* • *The status of material legal agreements and marketing arrangements.* • *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.*	• No material naturally occurring risks have been identified to the Project. • Gold produced from the Julius gold deposit will be sold on the spot market, to the extent that any possible future hedging obligations have been repaid. • A royalty of 2.5% is payable to the Western Australian state government and a 3.6% is payable to third parties. • The Julius deposit is located on a granted mining lease and a project management plan and mining proposal have been submitted to the DMP and have been approved. • Discussions are ongoing with regards the most favorable ore haulage route.
Classification	• *The basis for the classification of the Ore Reserves into varying confidence categories.* • *Whether the result appropriately reflects the Competent Person's view of the deposit.* • *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	• Ore Reserves which have been reported as Proved have been derived directly from the Mineral resource classified at the Measured level of confidence. • Ore Reserves which have been reported as Probable have been derived directly from the Mineral resource classified at the Indicated level of confidence. • No Mineral Resources classified at the Inferred level of confidence are included in these estimated Ore Reserves. • The Competent Person is satisfied that the stated Ore Reserve classification reflects the outcome of the technical and economic studies
Audits or reviews	• *The results of any audits or reviews of Ore Reserve estimates.*	• Internal audits and reviews of Ore Reserve estimates have been undertaken to date and there have been no issues identified.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.* • *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• In the estimating of these Ore Reserves, the confidence levels as expressed in the Mineral Resource estimates have been accepted in the respective resource classification categories. • The Ore Reserves estimates relate to global estimates in the conversion of Mineral Resources to Ore Reserves, due largely to the spacing of the drill data on which the estimates are based, relative to the intended local selectivity of the mining operations. • Accuracy and confidence of modifying factors are generally consistent with the current level of this study. The modifying factors applied in the estimation of the Ore Reserves are considered to be of a sufficiently high level of confidence not to have a material impact on the viability of the estimated Ore Reserves.

Orelia Gold Deposit

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*	• 2017-2018 Drilling at Orelia by Echo is summarised below

Hole Type	Number	Metres
RC	26	2,597
DDH	6	1,209
DDH	5	887
DDH	14	1,994
Total	51	6,687

	• *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.*	• Historical drilling at Orelia completed principally between 1988-2004 and targeted in the current Resource area (and further to the north at Lotus) comprised a total of 426 diamond holes for 120,926 metres • For the recent Echo RC drilling approximately 20kg of sample was collected from each metre, with approximately 2kg samples, collected via the onboard cone splitter, sampled for analysis. • For the recent Echo NQ diamond drilling samples consisted of halved NQ diamond core with approximately 0.5-2kg of sample collected. Sampling was conducted to geology to ensure samples did not overlap important geological breaks. Sampling was conducted with a minimum sample length of 0.3m and a maximum sample length of 1.2m. • All Drill hole collar locations were recorded by RTK GPS with an accuracy of +/- 0.25 metres • Analysis was conducted by submitting the 0.5kg to 2kg sample whole for preparation by crushing, drying and pulverising at Intertek-Genalysis Laboratories. A 50g pulp was analysed at Intertek-Genalysis laboratories, Kalgoorlie, for gold analysis via Fire Assay/ICP-OES. Multi element geochemistry was also conducted. • For the historical diamond drilling a variety of different diamond core sizes (NQ, HQ, PQ) have been used. Various past authors have summarised the techniques and sampling used and it is considered the drilling and sampling methods are consistent with industry standard practices of the time, with the recent drilling by Echo validating and confirming a significant portion of the previous work conducted.
Drilling techniques	• *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).*	• RC drilling (5 ¼ inch face sampling hammer) from pit surface • NQ Triple Tube from pit surface (78 mm) • For the historical drilling, NQ, HQ and PQ, both from various levels of the open pit and from outside the open pit at natural surface.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Drill sample returns as recorded were considered excellent. • There is insufficient data available at the present stage to evaluate potential sampling bias.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.* • *The total length and percentage of the relevant intersections logged.*	• Drill chip logging is a qualitative activity with pertinent relevant features recorded: lithology, mineralogy, mineralisation, structural, weathering, alteration, colour and other features of the samples. • Rock chip boxes of all sample intervals were collected. All samples were logged. • Diamond ore was logged in detail, photographed wet and dry, RQDs, structural measurements on all completed. Core was orientated where possible. • All drilling was logged.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• NQ diamond core was sawn in half along orientation lines or cut lines marked by the geologist in the field. • Sample preparation for all recent samples follows industry best practice and was undertaken by Intertek in Perth where they were crushed, dried and pulverised to produce a sub sample for analysis. • Sample preparation involving oven drying, fine crushing to 95% passing 4mm, followed by rotary splitting and pulverisation to 85% passing 75 microns. • QC for sub sampling follows Echo's and Intertek procedures. • Field duplicates were taken at a rate of 1:40. • Blanks were inserted at a rate of 1:40 • Standards were inserted at a rate of 1:40. • Sample sizes are considered appropriate to the grain size of the material being sampled.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory*	• The methods are considered appropriate to the style of mineralisation. Extractions are considered near total. • No geophysical tools were used to determine any element concentrations at this stage. • Laboratory QA/QC involves the use of internal lab standards using certified reference material, blanks, splits and duplicates as part of the in house procedures. Repeat and duplicate analysis for samples shows that the precision of analytical methods is within acceptable limits.

	checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• The Company's Geologist has visually reviewed the samples collected. • The historical data had been established and verified by Maxwells Geoservices in 2005, and regenerated by CSA Global as part of their QA/QC work on behalf of Echo's established management systems. • Data and related information is stored in a validated Access, Mapinfo or Micromine database. Data has been visually checked for import errors. • No adjustments to assay data have been made.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• All drillholes have been located by DGPS with precision of sample locations considered +/-0.25m. • Location grid of plans and cross sections and coordinates in this release use GDA94 Z51 datum. • Topographic data was assigned based on a DTM of the Orelia opening surface, dated April 2013.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• The holes are nominally spaced on a 10-20 metre (E-W spacing) with hole spacing along each section ranging from 10-20 metres spacing along each section line. • Data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for Mineral Resource estimation procedures. • Sample compositing has occurred on a small number of samples (4 metre composite samples) outside of the interpreted main mineralised zone.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• The orientation of sampling is considered adequate and there is not enough data to determine bias if any. • Mineralised outcrop strikes north west and dips steeply to moderately to the west, south west. High grade shoots with a dominant 30 degree plunge to the south west have been identified. Drilling was orthogonal to this apparent strike and comprised principally angled drill holes.
Sample security	• *The measures taken to ensure sample security.*	• Chain of custody is managed by the Company and samples are transported to the laboratory via Company staff with samples safely consigned to Intertek for preparation and analysis. Whilst in storage, they are kept in a locked yard. Tracking sheets are used track the progress of batches of samples.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• Numerous reviews and audits of the historical sampling techniques and data validation has been undertaken by many groups over the years, including Snowdens, RSG, Coffeys and Widenbar and Associates, with no major concerns identified.

Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• The Orelia gold deposit is situated within M36/146 and is 100% owned by MKO Mines Pty Ltd, a subsidiary of Echo Resources Ltd. • The tenement is in good standing • No impediments to operating on the permit are known to exist.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Gold production began at Orelia-Cockburn in 1991 by Arimco Mining Pty Ltd, who had previously operated under the name of Australian Resources Limited, who were subsequently purchased by Great Central Mines. Normandy Mining acquired Great Central Mines in 1998 who acquired the Orelia-Cockburn mine at the same time, although it had closed only a short time previously. • The Orelia-Cockburn operations were continued under the ownership of Normandy Mining until 2002 when Newmont Mining acquired the whole package. View Resources acquired the operation in 2004 and began developing an open pit and underground mine that took in a number of ore bodies including Orelia-Cockburn, but the low price of gold and the shortage of capital forced the closure of the project in early 2008. • Navigator (Bronzewing) Pty Ltd, completed the purchase from the administrators in September 2009 and they re-commissioned the processing plant in April 2010, with production continuing until 2013.

Criteria	JORC Code explanation	Commentary
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The main host rocks of mineralisation at Orelia-Cockburn are deformed and altered tholeiitic basalts, and intermediate to felsic volcaniclastic rocks. Gold mineralisation typically occurs as; 1) southerly plunging ore-shoots, either at the intersection between steeply-dipping transgressive faults and favourable lithological units, 2) along fold hinges, and 3) on lithological contacts. At Orelia-Cockburn, gold values are not necessarily associated with total sulphide content. In sedimentary lithologies, much of the sulphide is considered primary and is unrelated to the gold. The gold is associated with the hydrothermal phase of sulphide formation, that consists of pyrite-pyrrhotite±chalcopyrite. Gold related alteration consists of biotite-sericite-carbonate altered deformation zones.
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* ○ *easting and northing of the drill hole collar* ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* ○ *dip and azimuth of the hole* ○ *down hole length and interception depth* ○ *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	• 2017-2018 Drilling at Orelia has comprised a total of 71 holes for 13,834 metres. • Historical drilling at Orelia completed principally between 1992-2002 and targeted in the current resource area (and further to the north at Lotus) comprised a total of 426 diamond holes for 120,926 metres • A complete copy of all drillhole collars in not required, as the level of detail is provided in the plans and sections provided.
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• No averaging or aggregation techniques have been applied. • No top cuts have been applied to exploration results. • No metal equivalent values are used in this report.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	• The orientation or geometry of the mineralised zones strikes in a north westerly direction and dips moderately to steeply to the west-southwest with a strong 30° plunge to the south.
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Appropriate maps are included in main body of report with Echo's gold results and full details are in the tables reported.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• All results for the target economic mineral being gold have been reported.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• Previous work by many others has included RC and diamond drilling, mining, mapping, and Resource estimation. In 2006 a Resource of 11.7 MT @ 1.8 g/t was estimated by RSG. • Mining via open pit methods by various operators has typically returned grades of between 1.3 to 5.1 g/t over an intermittent 8 years of mining at Orelia and Lotus.

Criteria	JORC Code explanation	Commentary
Further work	• *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Future RC and diamond and aircore drilling is being considered to further evaluate the Orelia Gold Deposit. • Refer to maps in main body of report for potential target areas.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• Data was provided as a validated Micromine Database and was digitally imported into Micromine software. Validation routines were run to confirm validity of all data. • Analytical results have all been electronically merged to avoid any transcription errors.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• No site visit has been undertaken by the Competent Person, as little relevant information is available on site and the Competent Person is familiar with the type of gold deposit under consideration and has previously estimated Resources at the same deposit in 2009.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	• The confidence in the geological interpretation is good, with the latest infill drilling allowing a detailed interpretation. • Geological logging and interpretation allows extrapolation of drill intersections between adjacent sections. • Alternative interpretations would result in similar tonnage and grade estimation techniques. • Geological boundaries are determined by the spatial locations of the various mineralised structures. • Mineralisation confined to individual wireframes, supergene and fresh material individually assessed. Oxidation profiles established and assigned into the model.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	• The extent and orientation of the Resources at Orelia are illustrated in the diagrams in the body of this release. The mineralisation plunges at approximately 20º towards 150 º. The Resource extends over a strike length of approximately 1,500m, has a lateral extent of 400m and extends to a vertical depth of 400 metres. .
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* • *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	• Grade estimation using an Ordinary Kriging methodology has been applied to all Resources. • An Indicator Model at 0.2 g/t Au cutoff was used to define a broad mineralisation envelope. • Variography was carried out to define the variogram models for Ordinary Kriging interpolation. • All estimation was carried out in Micromine 2018 (64-bit SP3) software. • Due to the close-spaced drilling, the block models were constructed using a 5m (E) by 5m (N) by 5m (Z) block size with sub-cells to 1m x 1m x 0.5m to accurately represent surface and stope shapes. • Block size is generally half the sample spacing or greater in areas of infill drilling, and typically one quarter or less in wider spaced drilling areas. • No deleterious elements have been identified • No assumptions regarding recovery of byproducts have been made • Search ellipsoids use multiple passes to ensure blocks are filled in areas with sparser drilling. The first pass used an ellipse of 15m x 50m x 25m, with the long axis oriented down-plunge. A second pass used a search of 25m x 65m x 35m. • Sample data was composited to 1m down-hole composites, while honouring breaks in mineralised zone interpretation. • The geological interpretation which was used to guide search ellipse orientations and indicator models was based on knowledge gained from historical open cut and underground mining. • Top cut analysis was carried out, using a combination of inflection points on log probability plots, outliers on log histograms and the effect of top cuts on cut mean and

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>coefficient of variation. A top cut of 40 gm/t Au has been applied.
• Validation was carried out in a number of ways, including
○ Visual inspection section, plan and 3D
○ Swathe plot validation
○ Model vs composite statistics
○ ID2 vs OK model checks</td></tr>
<tr><td>Moisture</td><td>• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.</td><td>• Tonnages are estimated on a dry basis.</td></tr>
<tr><td>Cut-off parameters</td><td>• The basis of the adopted cut-off grade(s) or quality parameters applied.</td><td>• Nominal downhole cut-off of 0.2 g/t Au has been used to define the a broad mineralised envelope.
• The Resource is reported at arrange of cutoffs from 0.5 g/t Au to 1 g/t Au.
• Final cutoffs will be determined following pit optimisation and economic studies.</td></tr>
<tr><td>Mining factors or assumptions</td><td>• Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.</td><td>• The Resources defined to date would be amenable to simple open pit mining.
.</td></tr>
<tr><td>Metallurgical factors or assumptions</td><td>• The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.</td><td>• Metallurgical testwork has confirmed good gold recoveries, via conventional CIP/CIL gold treatment.
• Test work to date has shown that the gold mineralisation is amenable to conventional recoveries via gravity and leaching with approximately 30% of the total gold content recovered via gravity separation and mercury amalgamation.
• A total gold recovery of 91->94% was achieved, which is consistent with previous recoveries from the Orelia deposit through the Bronzewing mill, during previous treatment regimes.
• The gold extraction was good with +92% of the gold recovered by gravity separation followed by 18-24 hours of cyanide leaching.</td></tr>
<tr><td>Environmental factors or assumptions</td><td>• Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.</td><td>• The Orelia open pit was last mined in April 2013. All relevant permits have been complied with and an updated Mining Proposal will be lodged following final pit design and scheduling. The open pit is on a granted mining lease last operated 3.5 years ago. No impediment to mining and ore processing is envisaged and an updated design is due in the coming months.</td></tr>
<tr><td>Bulk density</td><td>• Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.
• The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.
• Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</td><td>• Bulk density/specific gravity have been assigned based on testwork (Archimedes Method) of material of various geological and mineralisation types. The following densities are applied to the Resource model.
<table><tr><th>Material</th><th>Density</th></tr><tr><td>In-pit Fill</td><td>2.00</td></tr><tr><td>Oxide</td><td>1.80</td></tr><tr><td>Transitional</td><td>2.20</td></tr><tr><td>Fresh Waste</td><td>2.70</td></tr><tr><td>Fresh Mineralised</td><td>2.80</td></tr></table>• Systematic ISBD have been completed in the past at Orelia via the Archimedes method (108 determinations) based on a range of ore types and rock types. ISBDs of ore have ranged 2.64 to 3.51 with a mean of 2.86 t/bcm. It is believed the average ISBD (2.80) used for the Orelia ore may be slightly conservative.
• Base of oxidation and top of fresh digital terrain models were constructed and assigned into the bock model.</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).* • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• The Mineral Resources have been classified as Measured, Indicated and Inferred based on drill spacing and geological continuity. • The Resource model uses a classification scheme based upon drill hole spacing plus block estimation parameters, including kriging variance, number of composites in search ellipsoid informing the block cell and average distance of data to block centroid. • The results of the Mineral Resource Estimation reflect the views of the Competent Person.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• Echo Resources personnel have reviewed the block model relative to the drilling data and considers the estimate to be an accurate reflection of the gold mineralisation at Orelia.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• The relative accuracy of the Mineral Resource is reflected in the reporting of the Mineral Resource as being in line with the guidelines of the 2012 JORC Code. • The statement relates to global estimates of tonnes and grade, with reference made to Resources above a certain cut-off that are intended to assist mining studies. • A block model was produced of the previously mined mineralisation and reconciled well with previous production data from the total Orelia open pit, the results from this are presented below.

ORELIA MINED RESOURCE with ORE LOSS and DILUTION			
CUTOFF	TONNES	AuCut	Aucut Oz
1.00	7,521,047	1.76	424,981
0.90	8,521,059	1.64	449,364
0.80	9,652,078	1.53	474,062
0.70	11,028,066	1.41	500,537
0.60	12,771,253	1.29	529,618
0.50	14,871,966	1.17	559,211

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	• *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* • *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	• The ore Reserve estimate has been based on the Mineral Resource estimate as announced to ASX by Echo on 14 June 2018 (15.9Mt @ 2.1g/t Au), see Section 3 JORC Table above. • The Mineral Resource for Orelia has been reported inclusive of the Ore Reserve estimation stated here.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• Stuart Cruickshanks visited site in March 2017. During this visit the various deposit areas were inspected with particular interest in access evaluation and practical consideration for mining of open pit in the local terrain. Diamond core of the mineralised zones were also inspected to inform assumptions on selectivity of mining.
Study status	• *The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.* • *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.*	• Work to a Feasibility Study level based on refurbishing the Bronzewing CIL processing plant has been undertaken in order to enable the Mineral Resources to be converted to Ore Reserves stated here. • The study was carried out internally and externally using consultants when appropriate.
Cut-off parameters	• *The basis of the cut-off grade(s) or quality parameters applied.*	• The cut-off grades used in the estimation of this Ore Reserve is the non-mining, break-even gold grade taking into account mining recovery and dilution, metallurgical recovery, site operating costs, royalties and revenues. • The calculated cut-off grade for the Orelia deposit is 0.60g/t Au.
Mining factors or assumptions	• *The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).*	• Appropriate factors determined during the course of the Feasibility study were applied to the Mineral Resources by Lerchs Grossman optimization methodology. Detailed pit designs were then carried out on the selected optimized pit shells and Ore Reserves reported from these designs. • Conventional open pit mining techniques using drill and blast with material movement by hydraulic excavator and trucks will be employed. The

Criteria	JORC Code explanation	Commentary
	• *The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.* • *The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.* • *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).* • *The mining dilution factors used.* • *The mining recovery factors used.* • *Any minimum mining widths used.* • *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.* • *The infrastructure requirements of the selected mining methods.*	project scale and selectivity would suit 120 t – 200 t class excavators in a backhoe configuration matched to 95 t class mine haul trucks and applicable ancillary equipment. To suit this sized equipment a bench height of 5m has been adopted. The benches will be excavated on 2 x 2.5 m high flitches, for blasted material this will be 2 x 3 m high flitches when swell is accounted for. Geotechnical assessments of open pit mining of the Orelia pit have been carried out by Peter O'Bryan and Associates. The assessment provided base case wall design parameters for open pit mining evaluation. • Grade control sample collection by reverse circulation drilling has been allowed for in the Feasibility Study. • To estimate the mining loss and dilution for the Mineral Resources ore reserves block models were prepared by averaging the grades of the ore and non-ore proportions across model block volumes for all elements reported in the resource model. This has effectively diluted the ore with the adjacent non-ore blocks and so simulating mining dilution based on the parent block sizes 5m x 5m x 5m (X x Y x Z) for the Orelia deposit. • All gold grades reported in this estimate refer to these diluted grades. Mining ore losses result from blocks with small ore proportions which are effectively diluted to the extent that the average grade is below the economic cut off of the reported Ore Reserves. • No Inferred Mineral Resources have been used in the studies. All Inferred Mineral Resources are treated as waste in the mining studies. • Infrastructure to support the mining operations has been allowed for. This includes: - Mine haul roads and access roads - ROM Stock piles area adjacent to the pit exits - Haulage roads from the pits to the process plant - Waste rock dumps - Mine services area including workshop, warehouse, offices, and fuel storage and dispensing. - Diesel power generation - Mine accommodation village - Surface water management and pit dewatering infrastructure
Metallurgical factors or assumptions	• *The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.* • *Whether the metallurgical process is well-tested technology or novel in nature.* • *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.* • *Any assumptions or allowances made for deleterious elements.* • *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.* • *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*	• The feasibility study has been based on conventional CIL process which is well proven technology. The project is based on refurbishing the Bronzewing plant which has proven operating history including processing ore from the Orelia deposit. • In addition to historical metallurgical and process plant operating history, a Feasibility level metallurgical test work programme has been undertaken. • Metallurgical samples representing known mineralogical domains, grade ranges and oxidation profiles have been included are deemed to be representative of the projects deposits. • No deleterious elements have been detected. • For the Orelia deposit, historical performance from processing has been used in addition to samples sourced from diamond core.
Environmental	• *The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	• Environmental and Social Impact Assessment has been completed for a project. • The Orelia open pit is located on a granted mining lease and was previously mined in 2013 however the mine is currently on 'care and maintenance', and an updated project management plan and mining proposal is currently being prepared and no impediments to the restarting of mining are known to exist.
Infrastructure	• *The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	• The Feasibility study has estimated the cost to upgrade/install the necessary infrastructure to support the project. This Includes: - Upgrading access roads - Water collection via surface water runoff collection from large catchment, pit dewatering and groundwater bores, and a storage dam - Power supply by diesel generators - Processing plant and Tailings storage facility.

Criteria	JORC Code explanation	Commentary
		- Accommodation village, offices and other necessary buildings • A majority of the infrastructure exists and is in good working order at the Bronzewing site.
Costs	• *The derivation of, or assumptions made, regarding projected capital costs in the study.* • *The methodology used to estimate operating costs.* • *Allowances made for the content of deleterious elements.* • *The source of exchange rates used in the study.* • *Derivation of transportation charges.* • *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.* • *The allowances made for royalties payable, both Government and private.*	• Capital costs for the process plant and associated infrastructure have been estimated to the required level of accuracy for a Feasibility Study by Mintrex Pty Ltd. Capital costs for mining related infrastructure have been source from quotations and tendered rates sourced from contract mining companies active in the West Australian goldfields. • Process and general and administration operating costs were developed by Mintrex Pty Ltd. Costs were estimated from first principles based on reagent consumptions and consumable usage rates determined from test work. Power cost estimate is based diesel generators. Labour rates were benchmarked against existing operations. • Mining operating costs were sourced from quotations and tendered rates received from mining contracting companies active in Western Australia. • Transportation and refining charges have been accounted for. • Government Royalties are payable as per the Mining Code of Western Australia. A royalty of 2.5% is payable on revenue, with a further 3% privately held NSR royalty is payable on ore processed through the Bronzewing Mill.
Revenue factors	• *The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.* • *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.*	• No factors were applied in the application of the metal prices stated in the above section. • The head grades as reported in these estimates were not factored. Mining dilution and recoveries were taken into account as modelled/discussed elsewhere in this statement and as such no further factors were considered appropriate and were therefore not applied • A gold price of AU$1600/oz based on analyst consensus has been used for the Ore Reserve estimate.
Market assessment	• *The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.* • *A customer and competitor analysis along with the identification of likely market windows for the product.* • *Price and volume forecasts and the basis for these forecasts.* • *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.*	• The product of this mine is a precious metal and the stated methodology of applying the metal price is considered to be adequate and appropriate. No major market factors are anticipated or known at the time of reporting, to provide a reason for adjusting this assumption.
Economic	• *The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.* • *NPV ranges and sensitivity to variations in the significant assumptions and inputs.*	• Inputs to the economic analysis were: - Mine production schedule, including gold production schedule, produced as part of the Feasibility study. - Mine operating costs, process operating costs and general and administrative costs as stated above. - Gold price as stated above. - Applicable royalties and taxes and duties per the mining code of Western Australia - Discount rate of 8% • The Project's sensitivity to various inputs were also investigated. The Project is most sensitive to gold price. However the project value remained positive up to over a 15% reduction in gold price.
Social	• *The status of agreements with key stakeholders and matters leading to social licence to operate.*	• Consultation and engagement has occurred with the local community, appropriate land councils and shire councils in the area, and along with the DMIRS.
Other	• *To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:* • *Any identified material naturally occurring risks.* • *The status of material legal agreements and marketing arrangements.* • *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in*	• To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves: • No material naturally occurring risks have been identified to the Project. • Gold produced from the Orelia gold deposit will be sold on the spot market, to the extent that any possible future hedging obligations have been repaid. • A royalty of 2.5% is payable to the Western Australian state government and a 3% is payable to third parties. • The Orelia open pit is located on a granted mining lease and was previously mined in 2013 however the mine is currently on 'care and maintenance', and an updated project management plan and mining proposal is currently being prepared.

Criteria	JORC Code explanation	Commentary
	the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	
Classification	• *The basis for the classification of the Ore Reserves into varying confidence categories.* • *Whether the result appropriately reflects the Competent Person's view of the deposit.* • *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	• Ore Reserves which have been reported as Proved have been derived directly from the Mineral resource classified at the Measured level of confidence. Ore Reserves reported as Probable have been derived from the Mineral resource classified at the Measured and Indicated level of confidence. • No Mineral Resources classified at the Inferred level of confidence are included in these estimated Ore Reserves. • The Competent Person is satisfied that the stated Ore Reserve classification reflects the outcome of the technical and economic studies • 10% of the Orelia Probable Ore Reserves have been derived from Measured Mineral Resources.
Audits or reviews	• *The results of any audits or reviews of Ore Reserve estimates.*	• No audits or reviews of Ore Reserve estimates have been undertaken to date.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.* • *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	• In the estimating of these Ore Reserves, the confidence levels as expressed in the Mineral Resource estimates have been accepted in the respective resource classification categories. • The Ore Reserves estimates relate to global estimates in the conversion of Mineral Resources to Ore Reserves, due largely to the spacing of the drill data on which the estimates are based, relative to the intended local selectivity of the mining operations. • Accuracy and confidence of modifying factors are generally consistent with the current level of this study. The modifying factors applied in the estimation of the Ore Reserves are considered to be of a sufficiently high level of confidence not to have a material impact on the viability of the estimated Ore Reserves. Further geotechnical work is required to improve the confidence of the proportion of the Mineral Resource classified as Measured contained within the Stage 2 pit design to be classified as Proved Ore Reserves. Sensitivity analysis has shown that this proportion of the Ore Reserve remains economically viable over a wide range of pit slopes.