

# Misima DFS confirms potential for long-life, low-cost gold mine with 1.73Moz Reserve, \$956m NPV

*Forecast gold production of ~2.4Moz over 20 years at AISC A\$1,217/oz with compelling project economics, long life, and outstanding growth potential*

## A significant, long-life Asia-Pacific gold operation:

- Total production of 2.4Moz of gold and 5.6Moz of silver, with gold production of 120-130kozpa
- LOM All In Sustaining Cost (AISC) of A\$1,217/oz
- 6.1Mtpa mining and processing operation on a brownfields site with extensive mining history.
- Conventional CIL plant fed by the main Umuna pit and Ewatinona starter pit.

## Compelling project economics:

- LOM revenue of A\$6.1 billion.
- LOM undiscounted free cash-flows of A\$2.7 billion (pre-tax)
- Pre-tax Net Present Value (NPV<sub>7%</sub>) of A\$956m
- Pre-tax IRR of 22.2%

## 28% increase in Ore Reserves:

- Ore Reserve increased 28% to 76Mt @ 0.79 g/t for 1.73Moz

## Project transitioning to approvals and funding

- Kingston now intends to consider a range of funding and strategic options to optimise the development pathway and maximise shareholder value
- Approvals submission anticipated upon conclusion of Environmental and Social Impact Assessment in Q3 2022.

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Kingston Resources Limited (ASX: **KSN**) (**Kingston** or **the Company**) is pleased to advise that it has taken an important step towards bringing the **Misima Gold Project** into production with the completion of a positive Definitive Feasibility Study (**DFS**).

The DFS confirms the potential for a large-scale, long-life, low-cost operation delivering gold production of 2.4Moz over 20 years at forecast life-of-mine (LOM) all-in sustaining costs (AISC) of A\$1,217/oz. Leading independent consultants have been engaged on all key aspects of the project and DFS technical outcomes were very consistent with the PFS confirming the technically robust, low risk nature of the Project.

Kingston plans to leverage off the strong production history at Misima and construct a new 6.1Mtpa CIL treatment facility and modern infrastructure on the footprint of the historic mine, establishing a new



standalone, long-life gold mining and processing operation underpinned by two major ore sources – a cut-back of the existing Umuna open pit and an expansion of the existing small pit at Ewatinona in the Quartz Mountain area. The extensive mining and processing history, advantageous metallurgy, and simplicity of the process flowsheet all give Kingston a high degree of confidence in the technical and commercial viability of the Project.

### Reserve Upgrade

Kingston is also pleased to report an increase in the Misima Gold Project JORC Probable Ore Reserve to 76Mt @ 0.79 g/t for 1.73Moz, an increase of 28% above the prior Reserve.

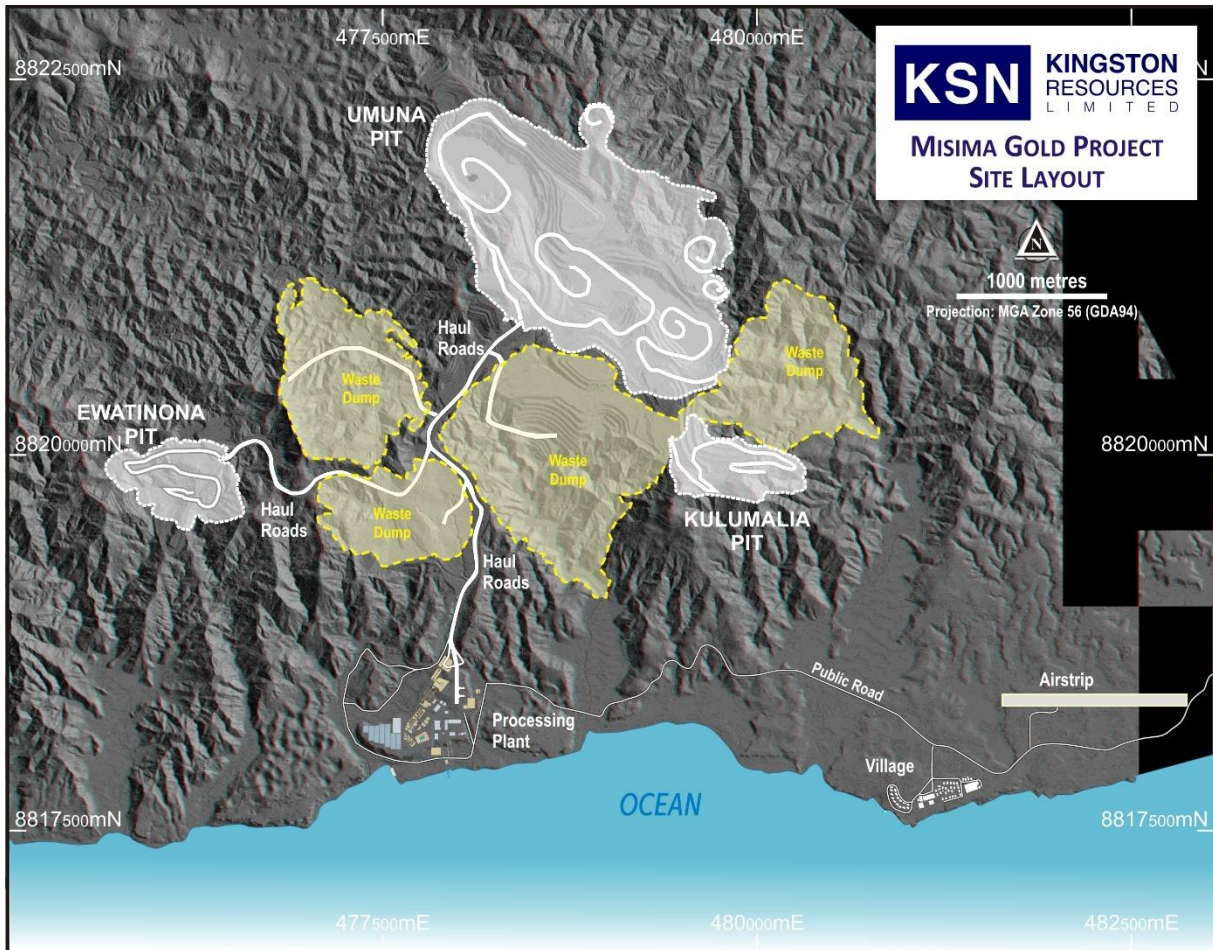


Figure 1: Misima Gold Project site layout

**Kingston Resources Managing Director, Andrew Corbett said:** *“I am extremely pleased to be reporting such fantastic results from our Definitive Feasibility Study. Delivering such a high quality study alongside a 28% increase in Reserve is a decisive moment for the Misima Gold Project, Kingston shareholders, and all stakeholders, in particular the Misima community who have strongly supported our progress.*

*“The Kingston study and geological teams have done an outstanding job to complete such a comprehensive work program in a challenging operational environment. The foundations for a return to gold production at Misima are now firmly established and we look forward to continuing to advance Misima towards first production.*

*“The DFS confirms a robust, large-scale, long-life, low cost operation delivering total production of 2.4Mozs at an extremely attractive average all-in sustaining cost of A\$1,217/oz. While there have been significant and*

broad-based impacts of cost inflation, the Project's economic parameters are compelling, with pre-tax free cash-flow of A\$2.7 billion, a pre-tax NPV of A\$956 million and an IRR of 22%.

"These are outstanding results that highlight Misima as one of the best undeveloped projects in the Asia-Pacific region. I would like to thank the Kingston study team and all of the consultants who have worked together to deliver a strong body of work. Special thanks also to KSN Chair Mick Wilkes for leading the DFS steering committee, Mick's depth of experience in developing large scale mines was invaluable in ensuring technically robust and high quality work was delivered throughout the study.

"We now look forward to the next stage of advancing Misima. Discussions have commenced in relation to considering the strategic options for developing the Project that will demonstrably enhance shareholder returns. In the short term, we anticipate concluding the Environmental and Social Impact Assessment, with our Mining Lease and environmental approval applications to be lodged shortly thereafter."



Figure 2: Misima Gold Project plant layout

The DFS referred to in this announcement is based upon a Production Target derived from the JORC Code 2012 Compliant Mineral Resource Estimate inclusive of the Probable Ore Reserve referred to in this announcement. The Company advises that the Probable Ore Reserve provides 64% of the total milled tonnage and 70% of the total contained gold metal, the Indicated Resource outside the Ore Reserve provides a further 5% of the total milled tonnage and 5% of the total contained gold metal. The remaining tonnage (31%) and contained ounces (25%) is comprised of Inferred Resources. There is a low level of geological confidence associated with Inferred Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production targets reported in this announcement will be realised.



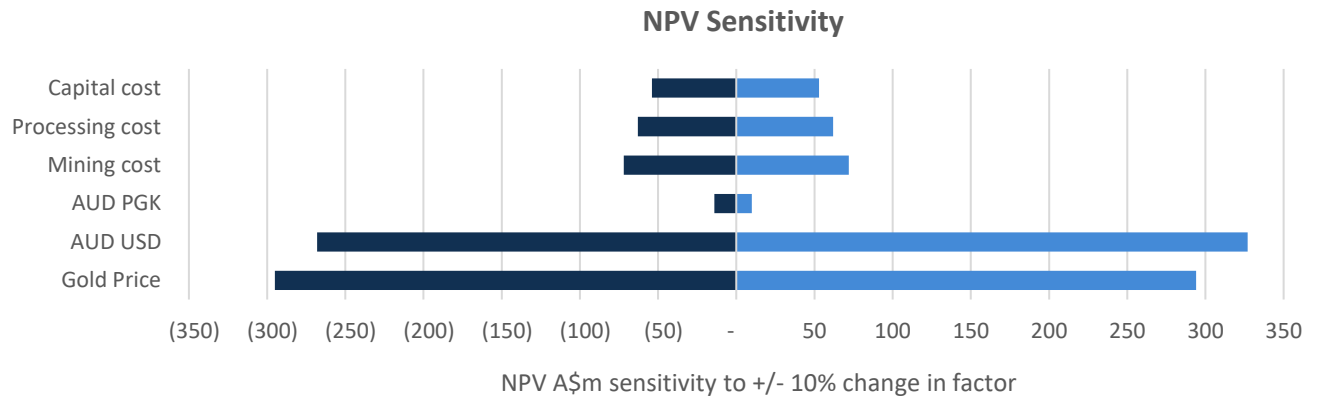
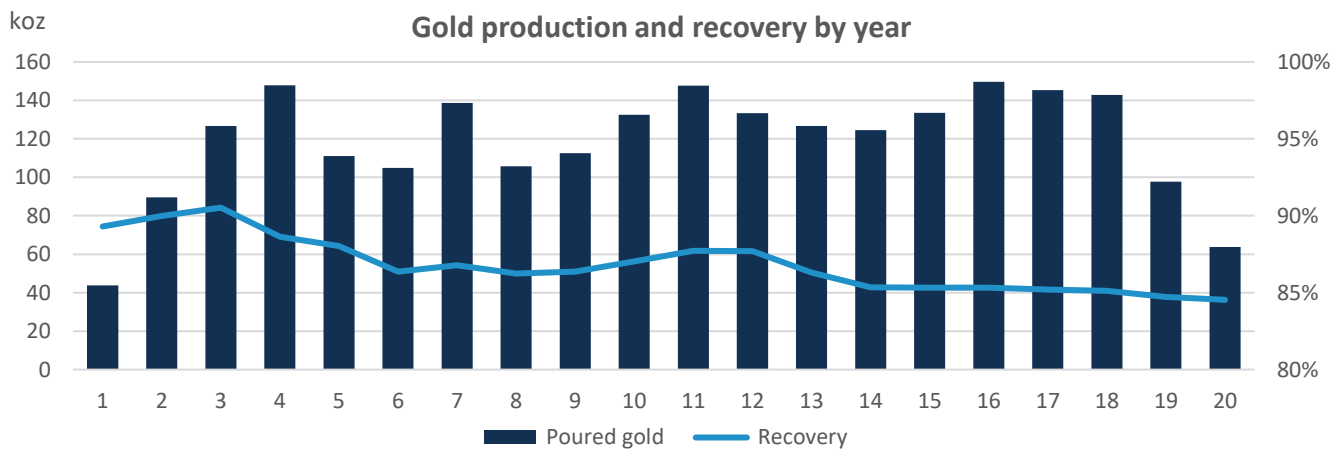
## MISIMA GOLD PROJECT – DEFINITIVE FEASIBILITY STUDY RESULTS

Mineral Resource	Mt	Au g/t	Au Moz
Indicated	98	0.79	2.5
Inferred	71	0.59	1.4
<b>Total Resource</b>	<b>169</b>	<b>0.71</b>	<b>3.8</b>
Ore Reserve			
Probable	75.6	0.79	1.73

### DFS Summary Statistics

LOM	Years	20
LOM gold production	oz	2,378,519
LOM Avg gold production (yr 2-18)	oz	128
Plant throughput	Mt	6.1
Capital expenditure	A\$m	476
LOM AISC	A\$/oz	1,217
LOM avg recovery	%	86.7%
LOM strip ratio	waste:ore	4.37
LOM strip ratio (excluding backfill removal)	waste:ore	3.13
Gold Price	USD/oz	US\$1800/oz
Exchange Rate	AUD	A\$0.70
LOM Revenue (Gold @ US\$1800/AUD0.70)	A\$m	6,116
LOM Free Cash Flow	A\$m	2,726
NPV (7% real) pre-tax	A\$m	956
NPV (7% real) post-tax	A\$m	624
IRR pre-tax	%	22.2%
IRR post-tax	%	18.2%
Payback	Years	5.75
Capital Costs		
Site development	A\$m	24
Processing Plant	A\$m	157
Other infrastructure	A\$m	128
Owners costs	A\$m	84
Contingency	A\$m	42
<b>Capital expenditure</b>	<b>A\$m</b>	<b>411</b>
Fleet	A\$m	18
Capitalised pre-strip	A\$m	48
<b>Total Pre-Production Expenditure</b>	<b>A\$m</b>	<b>476</b>
LOM Sustaining Capital Expenditure	A\$m	169

LOM Operating Cost Summary		
	A\$/tonne	A\$/oz
Mining	10.53	524
Processing	10.97	546
SG&A	1.90	95
Royalties	1.33	66
Sustaining Capex	1.42	71
Silver by-product credit	(1.71)	(85)
<b>AISC</b>	<b>24.44</b>	<b>1,217</b>



NPV Sensitivity		US\$/oz Gold Price									
		1,500	1,600	1,700	1,800	1,900	2,000	2,100	2,200	2,300	2,400
AUD:USD	0.55	1,154	1,355	1,557	1,759	1,960	2,162	2,364	2,566	2,767	2,969
	0.60	892	1,077	1,261	1,446	1,631	1,816	2,001	2,186	2,371	2,556
	0.65	670	841	1,011	1,182	1,353	1,523	1,694	1,865	2,036	2,206
	0.70	480	639	797	<b>956</b>	1,114	1,273	1,431	1,590	1,748	1,907
	0.75	315	463	611	759	907	1,055	1,203	1,351	1,499	1,647
	0.80	171	310	449	587	726	865	1,003	1,142	1,281	1,420
	0.85	44	175	305	436	566	697	827	958	1,088	1,219
	0.90	(69)	55	178	301	424	548	671	794	917	1,041
	0.95	(170)	(53)	64	181	297	414	531	648	764	881
	1.00	(261)	(150)	(39)	72	183	294	405	516	627	738

Figure 3: PFS Production Target Summary and Economics and Net Present Value sensitivities

## Study Team

The DFS was completed by Kingston Resources with work undertaken by the following Kingston Resources' employees and external consultants:

- Study management: Duane Maxwell of Maxwell Energy and Resources (MER), Chartered Mechanical Engineer, Bachelor of Mechanical Engineering, engaged to manage the DFS on behalf of Kingston Resources. The camp and the power station tenders were also prepared by MER for the purposes of this study.
- Mineral Resources: Stuart Hayward, Bachelor of Applied Science (Geology), of Kingston Resources with the assistance of Chris De-Vitry of Manna Hill Geoconsulting (MHGEO) and partial peer review by Mark Berry of Derisk Geomining Consultants.
- Ore Reserves, pit optimisation and mine planning: John Wyche, Bachelor of Mining Engineering, of Australian Mine Design and Development Pty Ltd (AMDAD).
- Geotechnical engineering: Dr Felicia Weir, Principal Engineering Geologist, of Pells Sullivan Meynink (PSM) completed pit geotechnical investigation and design and Tim Nash, Principal Engineer of PSM completed the waster rock dump designs.
- Metallurgy and process engineering: Guy Butcher, independent consulting metallurgist.
- Processing Plant: Lycopodium were the mineral processing engineers to develop the plant engineering and estimating for the Project.
- Infrastructure: Fraser Lever were the infrastructure engineers to develop the plant engineering and estimating for the Project.
- Water Management: Stellen Consulting undertook the water infrastructure modelling and engineering to derive the site-wide water management strategy.
- Environmental and social: Tetra Tech Coffey provided environmental input into the DFS and are acting as lead consultant on the Environmental & Social Impact Assessment (ESIA). Daniel Moriarty is the Principal Environmental and Social Consultant.
- Financial modelling: Vector Financial Modelling were appointed to develop the financial model for the project.
- Geology: In-house capability within Kingston Resources led by Stuart Hayward, Chief Geologist.
- Various field activities completed at the project site lead by Andrew Harwood and Geoff Callister of Kingston Resources.

## Social Licence

Kingston is committed to local business development and working with communities to ensure that the Project provides benefits beyond direct employment. Kingston also anticipates working with Misiman communities to establish businesses that ensure the local population can continue to benefit post mine-closure. As part of its Mining Lease application, Kingston will be submitting a number of plans, including a Business Development Plan, HR Localisation Plan, and an In-Migration Plan all primarily aimed at supporting the local Misiman community.

Kingston has also continued to actively engage with the local community. While the DFS and ESIA were underway, the Company held three rounds of workshops across Misima, including meetings specifically targeting womens groups, to ensure the community is fully informed with regards to the potential development and has an opportunity to put forward any questions and concerns. Feedback from these workshops has

been overwhelmingly supportive. Kingston is very thankful to the local community for the support that it is continuing to receive.

Kingston anticipates being able to replicate Placer's high employment of Misiman residents in the future project workforce, while also providing home-based opportunities for the existing Misimans that work FIFO throughout PNG.

### **Next Steps**

- The ESIA is anticipated to be concluded in the coming months, once it is finalised the Mining Lease and environmental applications will be submitted. There will be a number of continuing work programs while the application process is underway.
- Kingston has begun consideration of strategic alternatives to help accelerate the development of the Project, this includes an assessment of a range of financing and ownership options.
- Kingston has also begun to engage financial advisory groups to assist with advancing these funding and strategic options with appointment of a formal advisor anticipated in the near term.

This release has been authorised by the Kingston Resources Limited Board. For all enquiries, please contact Managing Director, Andrew Corbett, on +61 2 8021 7492.

### **About Kingston Resources**

Kingston Resources is a gold producer, focused on building a mid-tier gold and base metals company, with current production from the Mineral Hill gold and copper mine in NSW, and advancing its flagship development asset, the 3.8Moz Misima Gold Project in PNG.

Mineral Hill is a gold and copper mine located in the Cobar Basin of NSW. Alongside current production, exploration is focusing on near mine production opportunities from both open pit and underground targets located on the existing MLs. The aim will be to expand and update the existing Resource base to underpin mine feasibility work and approvals to ensure an immediate transition to open pit and/or underground feed at the completion of the tailings reprocessing.

Misima hosts a JORC Resource of 3.8Moz Au and an Ore Reserve of 1.73Moz. Misima was operated as a profitable open pit mine by Placer Pacific between 1989 and 2001, producing over 3.7Moz before it was closed when the gold price was below US\$300/oz. The Misima Project also offers outstanding potential for additional resource growth through exploration success targeting extensions and additions to the current Resource base. Kingston's interest in Misima is held through its PNG subsidiary Gallipoli Exploration (PNG) Limited.

The Misima Mineral Resource and Ore Reserve estimate outlined below was released in ASX announcements on 24 November 2020 and 15 September 2021 and 6 June 2022. Further information is included within the original announcements.

### **Misima JORC 2012 Mineral Resource & Ore Reserve summary table**

Resource Category	Cut-off (g/t Au)	Tonnes (Mt)	Gold Grade (g/t Au)	Silver Grade (g/t Ag)	Au (Moz)	Ag (Moz)
Indicated	0.3	97.7	0.79	4.3	2.5	13.4
Inferred	0.3	71.3	0.59	3.8	1.4	8.7
<b>Total</b>	<b>0.3</b>	<b>169</b>	<b>0.71</b>	<b>4.1</b>	<b>3.8</b>	<b>22.1</b>
Reserve	Cut-off (g/t Au)	Tonnes (Mt)	Gold Grade (g/t Au)	Silver Grade (g/t Ag)	Au (Moz)	Ag (Moz)
<b>Probable</b>	<b>0.3</b>	<b>75.6</b>	<b>0.79</b>	<b>4.2</b>	<b>1.73</b>	<b>4.1</b>

### **Mineral Hill JORC 2012 & JORC 2004 Mineral Resource & Ore Reserve summary table**

Resource Category	Tonnes (kt)	Gold Grade (g/t Au)	Silver Grade (g/t Ag)	Cu %	Pb %	Zn %	Au (koz)	Ag (koz)	Cu (kt)	Pb (kt)	Zn (kt)
Measured	698	2.63	40.3	0.85%	0.42%	0.28%	59	904	5.9	3.0	2.0
Indicated	4,542	0.92	21.4	0.66%	1.09%	0.55%	134	3126	30.1	49.7	25.1
Inferred	674	1.68	20.2	1.16%	1.30%	1.19%	36	438	7.8	8.8	8.0
<b>Total</b>	<b>5,913</b>	<b>1.20</b>	<b>23.5</b>	<b>0.74%</b>	<b>1.03%</b>	<b>0.60%</b>	<b>229</b>	<b>4461</b>	<b>43.5</b>	<b>61.1</b>	<b>35.3</b>
Reserve Category	Tonnes (kt)	Gold Grade (g/t Au)	Silver Grade (g/t Ag)	Cu %	Pb %	Zn %	Au (koz)	Ag (koz)	Cu (kt)	Pb (kt)	Zn (kt)
Proved	55	2.30	17.0				4	31			
Probable	2,017	1.38	4.9				67	315			
<b>Total</b>	<b>2,072</b>	<b>1.41</b>	<b>5.2</b>				<b>71</b>	<b>346</b>			

### **Competent Persons Statement and Disclaimer**

The information in this report that relates to Exploration Results and Mineral Resources is based on information compiled by Mr. Stuart Hayward BAppSc (Geology) MAIG, a Competent Person who is a member of the Australian Institute of Geoscientists. Mr. Hayward is an employee of the Company. Mr. Hayward has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr. Hayward confirms that the information in the market announcement provided is an accurate representation of the available data and studies for the material mining project and consents to the inclusion in this report of the matters based upon the information in the form and context in which it appears.

The Competent Person signing off on the overall Misima Ore Reserves Estimate is Mr John Wyche BE (Min Hon), of Australian Mine Design and Development Pty Ltd, who is a Fellow of the Australasian Institute of Mining and Metallurgy and who has sufficient relevant experience in operations and consulting for open pit metalliferous mines. Mr Wyche consents to the inclusion in this report of the matters based upon the information in the form and context in which it appears.

Kingston confirms that it is not aware of any new information or data that materially affects the information included in all ASX announcements referenced in this release, and that all material assumptions and technical parameters underpinning the estimates in these announcements continue to apply and have not materially changed.



## JORC Table 1 Section 4, Estimation and Reporting Ore Reserves

This Statement is an update to the November 2020 Ore Reserve Estimate. Sections 1, 2 and 3 of Table 1 of the JORC Code 2012 relating to the Mineral Resource are included in the Mineral Resource Estimate dated 15<sup>th</sup> September 2021.

### JORC Code, 2012 Edition – Table 1

#### 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	Commentary
<i>Mineral Resource estimate for conversion to Ore Reserves</i>	<p>The Ore Reserve is based on Mineral Resource Estimates for Ewatinona and Umuna prepared under the direction of Mr Stuart Hayward of Kingston Resources Limited (KSN). The Mineral Resource Estimates were reported in an ASX release by KSN dated 15<sup>th</sup> September 2021.</p> <p>The Mineral Resources for both Ewatinona and Umuna are inclusive of the Ore Reserves.</p>
<i>Site visits</i>	<p>The Competent Person for the Ore Reserve is Mr John Wyche of Australian Mine Design and Development Pty Ltd (AMDAD). Mr Wyche was unable to visit the site due to the COVID19 pandemic.</p> <p>In lieu of a site visit Mr Wyche has taken reasonable steps to confirm topographic, geological, process, cost, environmental, permitting and local community information provided by KSN and their consultants. As well as discussions with personnel who have visited the site Mr Wyche was able to review extensive operation and production records from the former Placer opencut mine and process plant and literature on the operation and environmental impacts of that operation.</p> <p>Mr Wyche has extensive experience in planning of open cut gold and base metal mines in similar settings in the Solomon Islands, Indonesia and the Philippines. Mr Wyche is satisfied that the information available is adequate to support a Probable Ore Reserve.</p>
<i>Study status</i>	<p>The Ore Reserve Estimate was prepared as part of the June 2022 Definitive Feasibility Study (DFS). The DFS covers:</p> <ul style="list-style-type: none"> <li>• Geology and Mineral Resource Estimate,</li> <li>• Mining and Ore Reserves Estimate,</li> <li>• Mineral processing,</li> <li>• Infrastructure,</li> <li>• Environmental impact assessment and management,</li> <li>• Social impact assessment and community relations,</li> </ul>

Criteria	Commentary									
	<ul style="list-style-type: none"> <li>• Project execution,</li> <li>• Capital and operating cost estimation, and</li> <li>• Financial modelling.</li> </ul> <p>The DFS is based on opencut mining to supply a 6.1 Mtpa CIL gold processing plant. The processing plant will be located at the site of the previous processing plant on the south coast of Misima Island. The use of other existing onsite facilities, which will be re-established, rebuilt, refurbished or upgraded, will be maximised where practicable, including accommodation facilities, wharf and access roads. Other Project facilities including run-of mine (ROM) and other stockpiles, waste rock dumps, tailings management facilities, power plant, water treatment plant, water supply infrastructure and fuel storage areas will be required to support the operation.</p>									
<p><i>Cut-off parameters</i></p>	<p>The cut-off grade is defined as the gold head grade, after applying mining loss and dilution adjustments, for which the value of gold after applying CIL process recoveries just equals the ore costs. Ore costs include:</p> <ul style="list-style-type: none"> <li>• Incremental cost of mining a tonne of material as ore instead of waste,</li> <li>• CIL processing costs per tonne, and</li> <li>• Site general and administration (G&amp;A) costs expressed as A\$/tonne.</li> </ul> <p>Ore costs do not include the cost of mining a tonne of material as waste rock as the purpose of the cut-off grade is to determine whether a tonne of material exposed on the pit bench should be classed as ore or waste. If the recovered value exceeds the sum of the ore costs it will make money and so is ore. If the value is less than the ore costs it is waste.</p> <p>The DFS study has variable gold and silver process recoveries for oxide and fresh ore based on Placer historical test work, 15 years of operational gold recoveries on Misima and current test work on samples from the areas to be mined in the new operation. Oxide and transitional (partial oxide) ore show the same process recoveries and are treated as a single ore type. All ore costs for both oxide and fresh ore types are assumed to be the same. Silver contributes less than 3% to the estimated revenue and is not included in the cut-off grade calculation.</p> <p>Cut-off grades calculated for the Ore Reserves Estimate are:</p> <table border="1" data-bbox="528 1198 1641 1358"> <thead> <tr> <th>Deposit</th> <th>Oxide / Transitional</th> <th>Fresh</th> </tr> </thead> <tbody> <tr> <td>Ewatinona Pit</td> <td>0.26 g/t Au</td> <td>0.27 g/t Au</td> </tr> <tr> <td>Umuna Pit</td> <td>0.27 g/t Au</td> <td>0.29 g/t Au</td> </tr> </tbody> </table> <p>These are ROM grades after allowance for mining recovery and dilution.</p> <p>These cut grades were calculated using inputs available at the time of running the pit optimisations, designs and production schedules. Some of the cost and revenue inputs were updated in the DFS financial model but none of</p>	Deposit	Oxide / Transitional	Fresh	Ewatinona Pit	0.26 g/t Au	0.27 g/t Au	Umuna Pit	0.27 g/t Au	0.29 g/t Au
Deposit	Oxide / Transitional	Fresh								
Ewatinona Pit	0.26 g/t Au	0.27 g/t Au								
Umuna Pit	0.27 g/t Au	0.29 g/t Au								

Criteria	Commentary
	<p>the changes raised the cut offs or reduced the Ore Reserves so the original inputs are retained for the Ore Reserve Estimate. The key inputs for the Ore Reserve Estimate include:</p> <ul style="list-style-type: none"> <li>• Gold Price US\$1600/oz</li> <li>• A\$/US\$ exchange rate 0.73</li> <li>• PNG Government royalty 2.5% of gross gold sales value</li> <li>• Gold transport, insurance and refining costs A\$20.00/oz</li> <li>• Additional ore mining cost A\$0.10/ROM tonne</li> <li>• Processing cost A\$10.97/ROM tonne</li> <li>• Site administration, community and environmental costs A\$1.90/ROM tonne</li> <li>• Mining recovery and dilution factors Modelled (see Mining factors or assumptions)</li> <li>• Process recoveries Variable (see Metallurgical factors or assumptions)</li> </ul>
<p><i>Mining factors or assumptions</i></p>	<p>All ore and waste from Ewatinona and Umuna will be mined by conventional open cut methods using large hydraulic excavators and rigid body dump trucks. Open cut mining is appropriate for the relatively low grades and distribution of gold mineralisation within the depth range of the proposed pits.</p> <p>Pit wall overall slopes and berm / batter configurations are based a geotechnical assessment by Pells Sullivan Meynink geotechnical engineers which considered:</p> <ul style="list-style-type: none"> <li>• Eight dedicated geotechnical core holes drilled during 2021,</li> <li>• A limited hydrogeological assessment program for the DFS,</li> <li>• Available geotechnical reports dating from 1985 to 2001,</li> <li>• Core photographs from recent drilling,</li> <li>• Current LIDAR topography surface,</li> <li>• Approximate “as mined” pit surveys from the Placer operation,</li> <li>• Interpreted mineralisation and weathering wireframes and surfaces, and</li> <li>• Publicly available scientific reports on the Misima geology and mineralisation.</li> </ul> <p>The assessment provided</p> <ul style="list-style-type: none"> <li>• Inter-ramp slopes for pit optimisation,</li> <li>• Maximum stack heights for the inter-ramp slopes,</li> <li>• Berm and batter configurations for the defined geotechnical domains,</li> </ul>

Criteria	Commentary
	<ul style="list-style-type: none"> <li>• Recommended geotechnical berms where the maximum stack height is exceeded, and</li> <li>• Recommendations on pit wall slope monitoring and management.</li> </ul> <p>The current Ewatinona and Umuna pit voids include waste rock from the former opencut mining operation. Ewatinona has 1.2 Mm<sup>3</sup> of backfilled waste rock and Umuna has 54 Mm<sup>3</sup>. This backfill will be mined as waste without blasting. The rest of the ore and waste to be mined is rock which will require blasting.</p> <p>The current Umuna pit void contains water at the north and south ends. Approximately 10.7 Glitres of water will have to be pumped from the void during the first two years of mining.</p> <p>Pit designs are guided by Whittle™ pit optimisations run by AMDAD using:</p> <ul style="list-style-type: none"> <li>• The current Mineral Resource models with mining adjustments modelled by AMDAD,</li> <li>• Slopes from the PSM mine geotechnical assessment,</li> <li>• Mining costs estimated by AMDAD based on fleet and explosives vendor quotes, PNG labour rates and PNG diesel costs applied to the 2022 DFS pit designs and schedules,</li> <li>• Preliminary process operating costs estimated by KSN's process consultants,</li> <li>• General and administration costs based on the 2022 DFS operating cost model.</li> <li>• Other cost, revenue and process recovery inputs supplied by KSN and their consultants.</li> </ul> <p>The Mineral Resource models are Ordinary Kriged estimates with gold and silver grades presented as a single grade per block. The blocks are sub-blocked against interpreted mineralisation wireframes to model shapes of the lodes. AMDAD modelled mining loss and dilution by re-blocking the Mineral Resource to a fixed 7.5x7.5x10 metre block size (NSxEWxElev) on the basis that this would represent a workable mining unit size for the planned production rate of up to 6.1 Mtpa of ore feed. Re-blocking to this size mixes smaller sub-blocked resource blocks with the surrounding blocks resulting in dilution along the margins of the potential ore zones. Checks of the re-blocked models confirmed the contained metal was unchanged but the grade distribution had been moved to lower grade ranges.</p> <p>The open pits planned for Ewatinona and Umuna are pushbacks of the Placer pits. Wherever possible a minimum pushback width of 30 metres was applied. This minimum width mainly affects upper benches on the north east wall of Umuna Pit. Mining rates were reduced in areas with narrow benches.</p> <p>The pit optimisations run to define the pits only considered Indicated Mineral resources. There are no Measured resources in the current Mineral Resource. Inferred was treated as waste. The life of mine production schedule includes low grade material from the Cooktown Stockpile left by the former mining operation. Production records, survey assessments and check drilling during 2021 indicate the stockpile contains an Inferred Resource of 3.8Mt @ 0.65g/t Au &amp; 7.0g/t Ag for 80koz Au and 85koz Ag. Checks were done to ensure the pits would be viable without the Cooktown Stockpile.</p> <p>The mine plan is a re-development of a project which operated successfully from 1989 to 2004. The CIL process</p>

Criteria	Commentary
	<p>plant design is based on the Placer plant with improvements for current technology. Much of the necessary support infrastructure such as the air strip and haul roads either remains in place or can be readily refurbished. The engineering plan includes DFS level design and cost estimation for all infrastructure whether it is refurbishment of existing facilities or construction of new items such as the power station.</p>
<p><i>Metallurgical factors or assumptions</i></p>	<p>CIL processing of the Misima gold ore was conducted at 5 Mtpa from 1989 to 2004. Planning for the new 6.1 Mtpa facility is based on the former operation with improvements for current technology.</p> <p>The DFS study has variable gold and silver process recoveries for oxide and fresh ore based on Placer historical test work, 15 years of operational gold recoveries on Misima and current test work on samples from the areas to be mined in the new operation. Oxide and transitional (partial oxide) ore show the same process recoveries and are treated as a single ore type. The following empirical relationships were derived:</p> <p><b>Ewatinona Gold</b></p> <ul style="list-style-type: none"> <li>• Oxide Recovery = <math>(Au_H - 0.067 * Au_H) / Au_H</math></li> <li>• Fresh Recovery = <math>(Au_H - (0.078 * Au_H + 0.006)) / Au_H</math></li> </ul> <p><b>Umuna Gold</b></p> <ul style="list-style-type: none"> <li>• Oxide Recovery = <math>(Au_H - (-0.025 * Au_H^2 + 0.124 * Au_H)) / Au_H</math></li> <li>• Fresh Recovery = <math>(Au_H - (0.133 * Au_H + 0.009)) / Au_H</math></li> </ul> <p><b>Ewatinona Silver</b></p> <ul style="list-style-type: none"> <li>• Oxide Recovery = <math>(62.3 * (Ag_H / Au_H)^{-0.26}) / 100</math></li> <li>• Fresh Recovery = <math>(62.3 * (Ag_H / Au_H)^{-0.26}) / 100</math></li> </ul> <p><b>Umuna Silver</b></p> <ul style="list-style-type: none"> <li>• Oxide Recovery = <math>(62.3 * (Ag_H / Au_H)^{-0.26}) / 100</math></li> <li>• Fresh Recovery = <math>(62.3 * (Ag_H / Au_H)^{-0.26}) / 100</math></li> </ul> <p>Where:  <math>Au_H</math> = Gold head grade in g/t  <math>Ag_H</math> = Silver head grade in g/t</p>
<p><i>Environmental</i></p>	<p>The preparation of the Environmental and Social Impact Assessment (ESIA) for the Misima Gold Project is well progressed, with all associated field investigations complete and the majority of technical specialist reports completed. The current delivery schedule predicts the ESIA to be submitted to Kingston Resources by the end of September 2022 followed by board approval and submission to CEPA by mid-October 2022.</p>



Criteria	Commentary														
	<p>The key environmental considerations to be addressed in the ESIA include, potential increased sedimentation and water quality changes in downstream watercourses; vegetation clearing, habitat loss and impacts on biodiversity, and potential impacts from on-land or marine tailings placement.</p>														
<i>Infrastructure</i>	<p>Much of the necessary support infrastructure such as the air strip and haul roads either remains in place or can be readily refurbished. The engineering plan includes DFS level design and cost estimation for all infrastructure whether it is refurbishment of existing facilities or construction of new items such as the power station.</p>														
<i>Costs</i>	<p>Owner mining costs were estimated on a first principles basis. The mining fleet, workforce and consumables, such as explosives and diesel were estimated against detailed production schedules using productivity estimates and haulage modelling. Sources of costs included:</p> <ul style="list-style-type: none"> <li>• Vendor quotes for detailed capital and life cycle maintenance costs for the fleet,</li> <li>• Wear parts, tyres and lubrication costs from an industry generic cost database,</li> <li>• Vendor quotes for “down the hole” explosives supply,</li> <li>• Vendor quotes for diesel supply,</li> <li>• Labour rates from a PNG recruitment firm,</li> </ul> <p>Operating and capital cost estimates for the process and infrastructure are based mainly on vendor quotes, first principles estimation and factoring of costs from other sources. A small portion of assumed and historical costs were also used.</p> <p>The capital and operating cost estimates meet the requirements of an AACE Class 2 estimate and have a targeted accuracy of between +/- 15%.</p> <p>The following table provides a summary of the capital cost estimates prepared for the Ore Reserve:</p> <table border="1" data-bbox="936 1077 1570 1402"> <thead> <tr> <th>Item</th> <th>A\$m</th> </tr> </thead> <tbody> <tr> <td>Processing Plant</td> <td>200.0</td> </tr> <tr> <td>Other Infrastructures</td> <td>63.6</td> </tr> <tr> <td>Mine Development and Pre-strip</td> <td>65.3</td> </tr> <tr> <td>Owner’s Cost</td> <td>104.6</td> </tr> <tr> <td>Contingencies</td> <td>42.1</td> </tr> <tr> <td><b>Total Capital Costs</b></td> <td><b>476</b></td> </tr> </tbody> </table> <p>All costs in Australian dollars.</p>	Item	A\$m	Processing Plant	200.0	Other Infrastructures	63.6	Mine Development and Pre-strip	65.3	Owner’s Cost	104.6	Contingencies	42.1	<b>Total Capital Costs</b>	<b>476</b>
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Criteria	Commentary
	PNG royalty at 2% of sales and 0.5% Production Levy.
<i>Revenue factors</i>	Cut off grades were assessed against a gold price of US\$1600 and an AUD/USD exchange rate of 0.73. In the final economic model KSN used a long term gold price of US\$1800/oz and an AUD/USD exchange rate of 0.70. US\$25/oz was used for silver.
<i>Market assessment</i>	Gold is a readily marketable commodity. Demand is not an issue but the gold price can be variable. Gold price forecasts are as discussed under “Revenue Factors”.
<i>Economic</i>	<p>KSN prepared a detailed pre- and post-tax financial model using the final DFS production schedule, metal prices and operating and capital cost estimates. The model is in Australian dollars but uses PNG tax rules. Using the DFS inputs of gold at US\$1800/oz, silver at US\$25/oz and a AUD/USD rate of 0.70 the project has a life of 15 years with a payback period of 6.3 years and a post-tax net present value (NPV) of A\$391 million when based on Ore Reserves only.</p> <p>Sensitivity analyses on key variables show the project is most sensitive to gold price. It is much less sensitive to increases in mining and processing costs.</p> <p>The financial analysis is based on reasonable assumptions on the Modifying Factors which have been assessed at a DFS level of confidence.</p>
<i>Social</i>	<p>The population of Misima is currently estimated at 20,000 people. A number of villages are located along or adjacent to the coast, with the main town, Bwagaoia, located in the southeast corner of the island. Other villages in proximity to the mine site include Eaus, Kaubwaga, Narian, Laguna and Bwagaoia.</p> <p>During Placer operations the mine employed and trained over 600 Misimans, with overall national employment of 90% achieved before mine closure. Today, there are still regular charter flights from Misima Island transporting ex-Placer operations workers who live on Misima Island to other major mines in PNG such as Ok Tedi, Porgera, Simberi and Lihir. The successful training and transfer of skills to these workers and their ongoing employment at other mines since Misima closed is one of the main beneficial socio-economic legacies of the previous mining operation.</p> <p>A social baseline study was completed in 2021 and 2022 that involved individual surveys of approximately 800 households, as well as focus group discussions, key informant interviews and village surveys. A Social Impact Assessment is currently underway to assess potential impacts to local communities on Misima Island as a result of the construction and operation of the Project. An investigation into the potential resettlement of villages located in proximity to the mine site is also currently underway to manage potential amenity impacts to communities due to the Project.</p> <p>The key social considerations to be addressed in the ESIA include, impacts on land, water and marine resources used by local people; changes in amenity (i.e., noise and air emissions); loss of land used for artisanal mining operations; and potential resettlement of some villages near Project facilities. The Misima Gold Project will aim to</p>

Criteria	Commentary
	<p>reinstate the previous successful Placer training and education programs to promote individuals' ongoing employment opportunities at other mines following the closure of Misima Mine in 20 years.</p> <p>The Kingston Resources Community Affairs team maintains open dialogue with the local communities on Misima Island and provides regular Project updates. Additionally, the Community Affairs team has held engagement sessions with women's groups across Misima Island to specifically seek input and feedback from women community representatives. Agreements on long term benefits to the local communities during and post-operations will be further developed through the ESIA and through direct engagement with those communities.</p> <p>Mitigation measures to manage these environmental and social impacts have been developed for the Project and will be presented in the ESIA.</p>
<p><i>Other</i></p>	<p>The proposed Project is situated within the granted exploration licence, EL1747, which covers the eastern portion of Misima Island and is held by Gallipoli Exploration a subsidiary of Kingston Resources Limited, a publicly-listed exploration and development company on the Australian Stock Exchange (ASX: KSN). KSN owns 100% of the Misima Gold Mine through its subsidiaries WCB Pacific Ltd and Gallipoli Exploration (PNG) Ltd.</p> <p>The Property consists of a single Exploration Licence, (EL) 1747, comprising 53 sub blocks, covering a total area of 180 km<sup>2</sup>. This EL is valid up until the 20th March 2023, a two-year renewal will be applied for prior to this date, as completed on previous occasions. All conditions pertaining to compliance of the title have been met. The Property is located on the eastern portion of the island and includes the historic mining areas of Umuna and Ewatinona. There are no known impediments.</p> <p>There are two streams of approval required for a mineral development in Papua New Guinea (PNG). The first is the granting of the ML, which is controlled by the Mining Act 1992 and administrated by the Mineral Resources Authority (MRA). The second is the grant of the Environmental Permit which is controlled by the Environment Act 2000 and administered by the PNG Conservation and Environment Protection Authority (CEPA). The Environment Permit must be granted before a Mining Licence (ML) can be issued under the PNG Mining Act 1992.</p> <p>Kingston commenced the project approval process in October 2020 with the submission of the EIR to CEPA. The process is underway for the completion of the studies and agreements required to submit the ML application.</p> <p>Kingston Resources conducted two risk workshops throughout the Project, an initial risk assessment that reviewed the risks from the PFS phase and added any additional risks and a second risk workshop that reviewed and closed any risks that were addressed throughout the DFS phase.</p> <p>The following are the key level 4 risks identified during the Project:</p> <ul style="list-style-type: none"> <li>• Community resistance to waste rock dumps, consumption of garden lands and village proximity to the dumps.</li> </ul>

Criteria	Commentary
	<ul style="list-style-type: none"> <li>• Deep-sea tailings creating an unacceptable risk to the marine environment.</li> <li>• Geotechnical risk associated with infrastructure and processing plant being built over the top of existing foundations.</li> <li>• Slope failure in the pit and on the waste rock dumps.</li> <li>• Pricing escalations as a result of COVID-19 and uncertain global geopolitical risks.</li> </ul> <p>An internal risk assessment review by KSN concluded that on the information currently available none of these risks have a significant likelihood of preventing development and operation of the project or realisation of its value as set out in the DFS.</p>
<i>Classification</i>	<p>The modifying factors for conversion of the Mineral Resource to the Ore Reserve are defined at a DFS level of confidence. The current Mineral Resource has no Measured Resources so only Indicated Resources are available for conversion to Ore Reserves. Probable Ore Reserves are derived from Indicated Mineral Resources.</p> <p>The Ore Reserve does not include any Inferred Mineral Resources.</p> <p>In the opinion of the Competent Person for the Ore Reserves, Mr John Wyche, classification of the Probable Ore Reserve is an accurate reflection of the level of confidence for a mine plan based on many years of operating history and the current DFS level of project definition.</p>
<i>Audits or reviews</i>	<p>No external audits of the Ore Reserve estimate have been undertaken.</p>
<i>Discussion of relative accuracy/ confidence</i>	<p>The Competent Person, John Wyche, believes the Ore Reserves provide a good global estimate of the tonnes and contained gold in the Umuna and Ewatinona Pits. Records from 12 years of mining by Placer provide very good confidence in the location of the mineralised zones exposed during mining. Most of the gold is in down dip extension of the zones mined in the final benches of the Placer pits. However, the steep topography, dense vegetation, flooded pit voids and location of target zones in the walls and floor of the old pits make it difficult to drill new exploration holes to define the gold and silver distribution in the targets to a high degree of confidence. This is reflected in the Mineral resource Estimate comprising Indicated and Inferred Resources but no Measured Resources.</p> <p>On the current level of resource definition it is likely that actual mined grades may show significant variance from the scheduled Ore Reserves on a month to month basis but should show better agreement over longer periods of one year or more. The Ore Reserve is expected to be a good global estimate but less reliable locally.</p>





**KSN**

**KINGSTON  
RESOURCES  
LIMITED**

Misima Gold Project  
Feasibility Study  
Executive Summary



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## 1 Introduction

Kingston Resources Limited (ASX: KSN) (Kingston Resources) is pleased to report the results from its Definitive Feasibility Study (DFS) for the Misima Gold Project. The DFS confirms a robust, large-scale, long-life, low-cost operation delivering annual average production of 118,925 ounces at an average all-in sustaining cost of below A\$1250/oz.

## 2 Background

This Definitive Feasibility Study (DFS)<sup>1</sup> has been prepared by Kingston Resources Limited on behalf of Gallipoli Exploration (PNG) Limited (Gallipoli Exploration), a wholly owned subsidiary of Kingston Resources, for the proposed Misima Gold Project (the Project). This study follows the PFS completed in November 2020 which established that the resource had significant potential and that further and more detailed investigations should be carried out to advance the Project and move into execution.

The Project is located on Misima Island, approximately 600 km east of Port Moresby in Milne Bay Province, Papua New Guinea (PNG). It is situated within the granted exploration licence, EL1747, which covers the eastern portion of Misima Island.

Alluvial gold was first discovered on Misima Island in 1888, mining commenced that year and continued for the next 100 years under various forms. Major operations were then commenced by Placer (PNG) Pty Ltd in 1989 and continued until 2004, producing approximately 4 million ounces (Moz) of gold over a 15-year mine life. Kingston Resources is proposing to recommence mining at the Misima Gold Project in the previously mined open pits and potentially develop new deposits identified through recent exploration activities as part of the Project.

Kingston Resources owns 100% of the Project.

## 3 Basis of the Definitive Feasibility Study

In May 2018, Kingston Resources commenced a diamond drilling program to grow and increase confidence in its Misima Gold Project JORC 2012 Mineral Resource Estimate (MRE). To date, Kingston Resources has completed 135 diamond drill holes on the Project and has updated the JORC MRE in May 2020, November 2020 and September 2021

The updated global Misima Mineral Resource Estimate has delivered a 39% increase in Indicated gold ounces and 16% increase in total gold ounces. The total Misima Resource now stands at 169Mt @ 0.71g/t Au and 4.1g/t Ag for 3.8Moz Au and 22.1Moz Ag, including an Indicated Resource of 97.7Mt at 0.79g/t Au and 4.3g/t Ag for 2.5Moz Au and 13.4Moz Ag.

The following table is a summary of the mineral Resources at Misima.

---

<sup>1</sup> This DFS has been prepared with an accuracy of +/-10% and the findings, estimates and forecast should be considered in this context. The DFS has been completed in compliance with Clause 39 of the JORC Code (2012 Edition). Project approval and development is subject to market conditions, project financing, Board approval and regulatory conditions.

Table 3-1 Misima Mineral Resource

Misima Mineral Resource						
Year	MT	Au g/t	Ag g/t	Moz Au	Moz Ag	USD/Oz Au
2017	82.3	1.1	5.3	2.8	13.9	\$ 1,200
2020	105	0.93	6.4	3.21	21.8	\$ 1,700
2021/2022	169	0.71	4.1	3.8	22.1	\$ 1,800
Misima Indicated Resource						
Year	MT	Au g/t	Ag g/t	Moz Au	Moz Ag	USD/Oz Au
2017	37.2	1.1	4.9	1.3	5.8	\$ 1,200
2020	49.9	0.95	5.7	1.52	8.9	\$ 1,700
2021/2022	97.7	0.79	4.3	2.5	13.4	\$ 1,800

## 4 Study Team

The preparation of the DFS was completed by Kingston Resources with work undertaken by the following Kingston Resources' employees and external consultants:

- Study management: Duane Maxwell of Maxwell Energy and Resources (MER), Chartered Mechanical Engineer, Bachelor of Mechanical Engineering, engaged to manage the DFS on behalf of Kingston Resources. The camp and the power station tenders were also prepared by MER for the purposes of this study.
- Mineral Resources: Stuart Hayward, Bachelor of Applied Science (Geology), of Kingston Resources with the assistance of Chris De-Vitry of Manna Hill Geoconsulting (MHGEO) and partial peer review by Mark Berry of Derisk Geomining Consultants.
- Ore Reserves, pit optimisation and mine planning: John Wyche, Bachelor of Mining Engineering, of Australian Mine Design and Development Pty Ltd (AMDAD).
- Geotechnical engineering: Dr Felicia Weir, Principal Engineering Geologist, of Pells Sullivan Meynink (PSM) complete pit geotechnical investigation and design and Tim Nash, Principal Engineer of PSM completed the waster rock dump designs.
- Metallurgy and process engineering: Guy Butcher, independent consulting metallurgist.
- Processing Plant: Lycopodium were appointed as the mineral processing engineers to develop the plant engineering and estimating for the Project.
- Infrastructure: Fraser Lever appointed as the infrastructure engineers to develop the plant engineering and estimating for the Project.

- Water Management: Stellen Consulting appointed as the water infrastructure modelling and engineering consultants to derive the site-wide water management strategy.
- Environmental and social: Tetra Tech Coffey appointed for environmental input into the DFS and lead consultant on the Environmental & Social Impact Assessment (ESIA). Daniel Moriarty is the Principal Environmental and Social Consultant.
- Financial modelling: Vector Financial Modelling were appointed to develop the financial model for the project.
- Geology: in-house capability within Kingston Resources led by Stuart Hayward, Chief Geologist.
- Various field activities completed at the project site lead by Andrew Harwood and Geoff Callister.

The aim of the DFS is to ensure technical, engineering, risk, operational readiness and financial aspects of the Project are sufficiently advanced for to obtain mining approvals and an investment decision to build the Misima Gold Project. The DFS is supported by an engineering cost study, which targets a +/-10% accuracy cost estimate.

## **5 Location**

The Misima Gold Project is located near the town of Bwagaoia, on the eastern portion of Misima Island, Milne Bay Province, PNG (see Figure 5-1). The island forms part of the Louisiade Archipelago and lies 200 km east of the PNG mainland and 600 km east of Port Moresby.



Figure 5-1: Misima Island location



Access to the island for personnel is by air and boat. Commercial flights operate between Bwagaioia and Port Moresby via Alotau three times weekly for the 90-minute journey. A limited number of regularly scheduled commercial air and boat services are available between Bwagaioia and Alotau.

Misima Island forms part of the Louisiade Archipelago which is a continuation of the Papuan Fold Belt of the Papuan Peninsula offshore eastwards through the Papuan Plateau. The oldest rocks on Misima are Cretaceous to Paleogene metamorphic rocks which can be subdivided into the western Awaibi Association and the younger overthrust eastern Sisa Association that is host to the gold and copper mineralisation. The two associations are separated by an original thrust fault with later extensional activation.

The Project comprises two main deposits, Umuna and Ewatinona, and multiple reconnaissance exploration targets along and adjacent to the 10 km strike length of the Umuna Fault Corridor that hosts the historical Umuna deposit, and Quartz Mountain area that hosts the Ewatinona deposit.

Climatically, Misima is categorised as “lowland humid”, typical of wet coastal and lowland areas. The island is located within the tropical cyclone belt and has experienced more than 10 cyclones in the past 100 years. Daily mean temperatures on the coast are around 30 °C to 32 °C, with minima around 23 °C and maxima around 37.5 °C. During previous operations, rainfall was consistently

recorded on a daily basis at the mine site, the data indicates that the mean annual rainfall ranges from 2655 mm on the coast (plant site) to 3141 mm at higher elevations inland (Umuna pit).

## 6 Tenure

The Project is located within EL1747 which was first granted on 21 March 2011 under the PNG Mining Act 1992 to Gallipoli Exploration (PNG) Limited. EL1747 encompasses the eastern half of Misima Island.

EL1747 comprises 53 sub blocks which form a total area of 178.03 km<sup>2</sup>. Exploration licences in PNG are subject to a two-year renewal program and require annual and biannual reporting. Kingston Resources owns a 100% interest in Gallipoli Exploration (PNG) Limited. Kingston Resources interest in Gallipoli Exploration is held by its 100% owned subsidiary, WCB Pacific Ltd. WCB Pacific Ltd owns 100% of Gallipoli Exploration (PNG) Limited

Before mining can commence the Project will require an approved Environment Permit (EP) and Mining Lease (ML).

## 7 Geotechnical

The geotechnical investigation work for the design of the mine focused on three key elements:

- investigation and assessment to inform the mine design
- investigation of the proposed waste rock dump locations to inform the design of the waste rock dump locations;
- Investigation of the ground conditions around the plant and infrastructure to inform engineering design.

The findings from the geotechnical drilling and pit wall slope analyses were undertaken during 2021 and are summarised in Table 7-1.

Table 7-1 Slope Design Recommendations (after PSM)

Area	Bench Height (m)	Berm Width (m)	Bench Face Angle (°)	Inter Ramp Angle (°) <sup>2</sup>	Maximum Inter Ramp Height (m)
Waste slopes	10	8	35	24	-
Oxidised Zone <sup>1</sup>	20	12	65	43	100
Fresh	20	10	65	46	

1 Both the total and partial oxidation zones, as defined by the GM\_OXIDATION\_2021 wireframe solids.

2 Measured toe to toe.

Overall slopes for pit optimisation were flattened to allow for ramps and geotechnical berms where the inter-ramp height exceeds 100 metres. Allowances are based on recent trial pit designs. The adjustments include flattening the inter-ramp slopes by 3° in the oxidised and partially oxidised zones and by 6° in the Fresh Zone to allow for ramps and insertion of a 20-metre-wide geotechnical berm wherever a pit wall exceeds 100 metres height without a ramp crossing.

Table 7-2 Overall Wall Slopes for Pit Optimisation

Area	Overall Slope Angle (°)
Waste slopes	24
Oxidised Zone <sup>1</sup>	40
Fresh	40

The site investigation around the plant and infrastructure area included the following:

- 14 test pits near critical infrastructure
- 14 dynamic cone penetrometer tests
- Drilling program consisting of 6 cored NQ boreholes to 15m depth and a collection of bulk push tube and triaxial/UCS samples
- Field testing including standard penetration testing at 0.5 and 1.5m intervals.

The results concluded that geological conditions are characterized by variable mine waste at the surface extending to approximately 5 to 10 meters in depth. Test pits and boreholes frequently encountered buried concrete indicating previous hardstands and footings. The fill materials range from gravel-sand-clay mixtures to highly plastic clays. Limestone was encountered in all boreholes with the exception of one.

## 8 Mining

The Project is seeking to re-establish operations using opencut mining based on the currently defined resources at Umuna and Ewatinona and a new 6.1 Mtpa CIL gold processing plant described in greater detail below.

Most of the target ore zones are below the base of the existing pit voids in Umuna and Ewatinona with over 90% of the mill feed coming from Umuna. Pushbacks of the existing pits will be required to access the majority of the target zones.

Key elements of the proposed mine plan include:

- Owner mining using large hydraulic excavators and rigid body trucks.
- A smaller fleet of hydraulic excavators and articulated dump trucks for pioneering work and low grade stockpile reclaim.
- Drilling and blasting of all material other than backfill, although production records from the Placer mine show very low powder factors.
- Haulage of ore down to the plant site on the south side of the island.
- Haulage of waste rock to out of pit waste dumps to be formed adjacent to the pits.
- A mining sequence designed to access shallow mill feed while the Umuna pushback and backfill are being mined.

Two mine plans were prepared:

- DFS Mine Plan including Inferred resources, and

- Ore Reserves Mine Plan excluding Inferred resources except for 3.8 Mt in the Cooktown Stockpile.

Inferred resources at Misima are mostly continuations of the ore blocks in the final floors mined by Placer. However, the post-Placer mine topography and back filling and flooding of the pits makes current drilling to the spacing required for Indicated or Measured resources impractical in these areas. The DFS includes Inferred resources because the Company considers this to be the most likely scenario to base mine, process and tailings design on. A separate Ore Reserves mine plan was prepared to provide additional confidence and to meet the requirements of the JORC Code 2012 with regard to reporting of lower confidence Inferred resources. Key production outcomes for the mine plans are:

Table 8-1 Ore Reserve and DFS Mine Plans

Mine Plan		Ore Reserves	Definitive Feasibility Study
Operating Life	years	15	20
Mill Feed			
Indicated	Mt	76	81
Inferred	Mt	4	37
<b>Total</b>	<b>Mt</b>	<b>79</b>	<b>118</b>
Average Head Grade			
Gold	g/t	0.78	0.72
Silver	g/t	4.31	3.92
Waste Rock			
Backfill	Mt	102	108
Rock	Mt	328	374
<b>Total</b>	<b>Mt</b>	<b>430</b>	<b>482</b>
<b>Total Material Mined</b>	<b>Mt</b>	<b>510</b>	<b>600</b>
Waste:Ore Ratio		5.4	4.1
Metal Produced			
Gold	koz	1,731	2,379
Silver	koz	4,136	5,685

## 9 Waste Rock Dumps

In total the mine will produce 481 million tonnes of waste rock at a split of approximately 88% NAF (non-acid forming) material and 12% PAF (potential acid forming). Drainage off the dumps will be managed through a series of bench diversion drains, sediment basins located at the toe of each dump, and using French or flow through drains that use large component waste rock that enables run off to flow through the base of each waste rock dump.

Waste rock dump sites were selected based on:

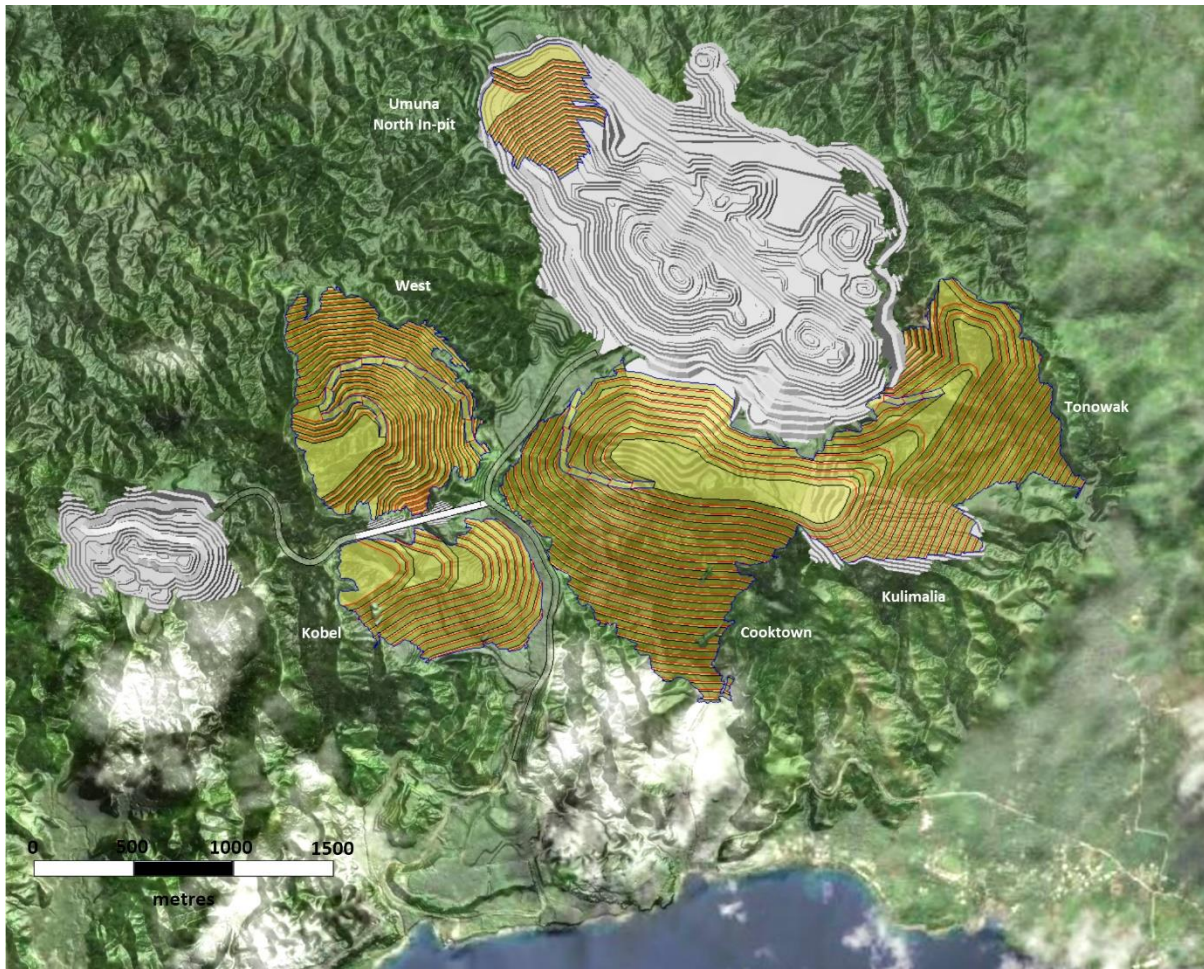
1. Avoidance or minimisation of impact to intact forest or key biodiversity areas.
2. Minimisation of impact to the Misiman population.
3. Proximity to pits to minimise out of pit haulage.
4. Suitability of topography to promote stability by buttressing and provision of gentle base slopes.
5. Adequate waste rock storage volumes for the planned pits.



6. Ability to manage drainage during operations and post closure.
7. Ability to safely store any acid forming waste rock encountered during mining.

Geotechnical assessment of the waste rock dumps became available late in the study period. Waste rock designs use a conservatively flat final outer face design. An opportunity exists to steepen this against the final geotechnical advice.

Figure 9-1 Waste Rock Dumps



Six sites were selected (Figure 9-1):

1. Kobel – west of the main haul road. Placed over Placer mining and low-grade stockpile areas and historic Kobel-Maika shallow open cuts. Holds waste rock from Ewatinona pit. Accessed from the Ewatinona and Main haul roads.
2. Tonowak – south-east of Umuna South pit. Keyed into Tonowak Valley. Holds waste rock from Umuna South and North pits. Accessed from the East haul road and Umuna South southern pit exit. Buries current artisanal miner workings. In direct line of site with Bwagaia township.
3. Cooktown – placed over and to south of the historic Placer waste rock dump in Cooktown Valley. Holds waste from all pit stages. Accessed from Main haul road. Largest of all the waste rock dumps.



4. Kulumalia – backfills Kulumalia pit when mining is complete in that stage. Holds waste from Umuna Final pit. Accessed from Main haul road across Cooktown waste rock dump. Merges with Tonowak and Cooktown dumps. In direct line of site with Bwagaoia township.
5. Umuna North In-pit – backfills Umuna North pit at completion of that stage. Holds waste from Umuna Final pit. Accessed from ramps and benches left in Umuna North and Final pit stages. Opportunity to store PAF waste from Umuna Final pit.
6. West – placed off ridge line north of Ewatinona haul road and keyed into low ridges at toe of dump. Accessed of the Main haul road. The West dump affects less disturbed land areas than the other dumps and will only be used to the extent that required storage is not available in the other dumps.

## 10 Pit Designs

The DFS pit designs shown in Figure 10-1 and Figure 10-2 are based on the pit optimisation process that was carried out during this study phase.

The Ewatinona pit design is a single stage pit. The ramp exit is on the north-east corner to join the existing haul road from the former Placer operation. Approximately 7% of the waste tonnes in Ewatinona pit are backfill dumped in the northern side of the old pit.

The Umuna pit design includes the design of starter pits along strike to defer mining costs. In the case of Umuna, the volume of backfill in the existing pit void added to the volume of wall pushback to reach the ore remaining under the old pit is large. It would be impractical and uneconomical to mine at high enough rates to avoid a lengthy delay in ore supply if the pit were to be mined in a single stage. The starter pits at the south and north ends of the main pit (Umuna South and Umuna North), together with Ewatinona and the Cooktown Stockpile, are designed to provide ore feed in the early years until the Umuna Final pit can be mined deep enough to provide the full ore feed on its own.

The south and north starter pits are positioned to access shallower zones of higher-grade ore. Both Umuna South and Umuna North pits mine to the final walls and depths indicated during the final optimisation process, and mining of Umuna Final pit does not require pushbacks of the starter pit walls. In addition to providing early ore feed, completion of the two starter pits early in the mine life allows the completed voids to be used for in-pit waste rock storage in Umuna North and as a sump for pit water management in Umuna South while Umuna Final is being mined.

Upper areas of the north-eastern wall of Umuna Pit require a relatively narrow pushback of the existing Placer pit void. Ore and waste from this pushback and from Umuna North cannot cross the pit void until the benches are mined to below RL210. Umuna North pit is extended along the north-eastern wall above RL210 and a haul road is mined along the eastern crest line of the final pit to allow ore and waste to be hauled to the south end of the pit to join the Umuna South ore haul road and to access the Tonowak waste rock dump. A second ramp is mined in the main part of Umuna North to allow ore and waste to be hauled to the main pit exit on the south-west side of the pit once Umuna north benches reach RL180. This reduces the haul distance for most of the ore in Umuna North by over 3 km.

Ramps in Umuna South have a more direct linkage to the main pit exit and join directly to the Tonowak waste rock dump to the south.

Apart from the top benches along the north-western crest line, most of the Umuna Final pit benches connect directly along a single ramp to the main pit exit on the south-west side. The haul road from this exit runs to the ROM pad at the plant site and provides access to the Cooktown and Kobel waste rock dumps.

The Cooktown Stockpile was not included in the pit optimisation. Its design is based on records from the Placer operation and confirmatory holes drilled in 2021 through the stockpile capping to check the position of the stockpile top and base. The base is estimated to be at RL190.

The Kulumalia area south-east of Umuna South was included in the Umuna pit optimisation but it formed a separate shell and was designed as a stand-alone pit stage. Average gold grades in Kulumalia are lower than the other pit areas so it is not mined until Umuna South and North are completed. The Kulumalia pit ramp is designed to join a haul road across the top berms of the south-west side of Umuna South and through the Cooktown Stockpile to join the main haul road. When Kulumalia Pit is mined out it will be back filled with waste rock from Umuna Final. This will join the Tonowak and Cooktown waste rock dumps.

Figure 10-1 DFS Starter Pits

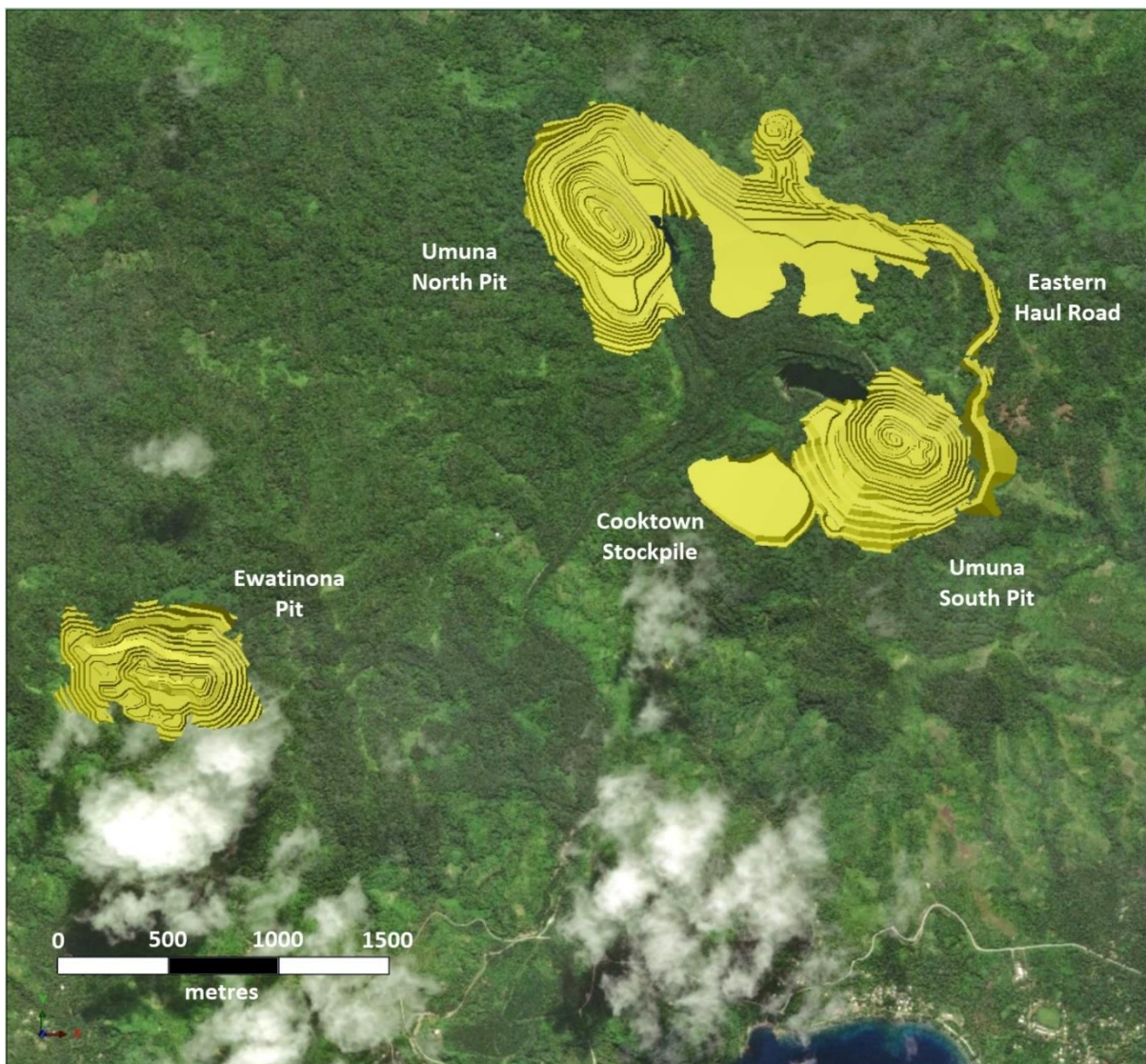
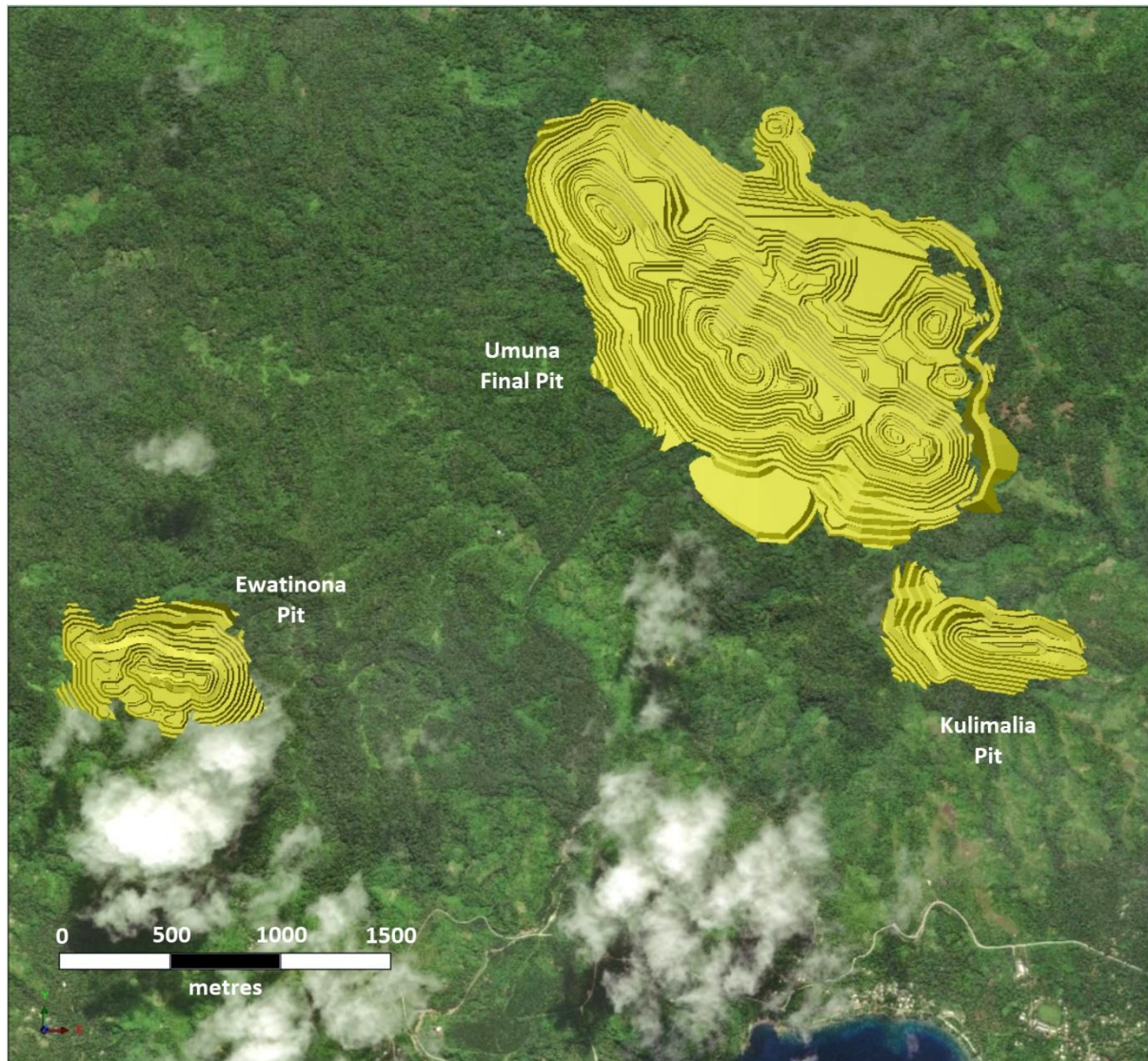




Figure 10-2 DFS Final Pits



## 11 Mining Operations

Mining will be by large hydraulic excavators loading large rigid body haul trucks. All non-backfill material will be drilled and blasted.

The primary mining fleet (excavators, trucks and blast hole drills) is defined by matching productivity estimates and haul models against the production schedule. The mining support fleet (bulldozers, graders, water carts and other ancillary equipment) is defined by the activities and operating hours estimated to keep the primary fleet operating efficiently, promote safe operation of the mine and meet environmental goals for the Project.

The mining fleet is based around two sizes of hydraulic excavator:

1. 120-tonne, 7m<sup>3</sup> hydraulic excavators in backhoe configuration. The machine used for cost estimation is a Hitachi 1200-7. These excavators carry out pioneering work on new haul

roads and narrow benches at the top of each pit stage. They also provide additional capacity to assist the larger machines as required.

2. 370-tonne, 22m<sup>3</sup> hydraulic excavators in backhoe configuration. The machine used for cost estimation is a Hitachi 3600-7. These excavators mine the majority of the ore and waste once the smaller excavators have opened the benches up wide enough for safe and efficient operation by the larger machines.

The excavators are assisted by a 15m<sup>3</sup> front end loader in the first year. This machine works on the Cooktown stockpile reclaim once the excavators have removed the barren capping. After Year 1 it works on low-grade stockpile reclaim, crusher feed and back up loading in the pits as required.

The truck fleet consists of:

1. 45-tonne payload articulated dump trucks matched with the 120-tonne excavators.
2. 181-tonne payload rigid body trucks matched with the 370-tonne excavators.

Haul modelling to assess truck fleet hours was based on a Hitachi EH3500 AC-3 electric drive truck. Haul cycle times for this truck were also applied to the articulated dump trucks on the basis that their speed would be limited by the larger trucks on the same haul ramps.

A mining support fleet was built up around the excavator, truck and drill fleets for each schedule case. The main machines in the fleet are as follows:

1. Pit Bulldozers – tracked bulldozers in the Caterpillar D9T class. One bulldozer was matched to each excavator and operating hours were set at 75% of the excavator hours.
2. Waste Dump Bulldozers – tracked bulldozers in the Caterpillar D10T class. These machines clear vegetation, cut haul road paths and spread and compact the waste dumps. Fleet numbers and hours match the pit bulldozers. During Year 0 the waste dump bulldozers work on clearing the initial mining and waste rock dump areas as well as their normal waste rock dump duties.
3. Graders – Caterpillar 18 class machines. One grader was allowed for each 7 trucks in the fleet. Hours were based on assumed 60% utilisation of available time.
4. Wheeled bulldozer – a single wheeled bulldozer was assigned to the fleet from the start of Year 1. It works for 50% of the available time. The wheeled bulldozer provides flexibility for road, face and dump maintenance across the site.
5. Water Trucks – Haulmax 3900 trucks with 60 kL tanks fitted by the vendor. One water truck was allowed for each 7 trucks in the fleet. Hours were based on assumed 60% utilisation of available time. Haulmax trucks are nominated for the DFS because they can negotiate the grades and traffic conditions expected and the tractors can be used in a range of applications providing commonality for the fleet. This will assist with fleet availability in the remote location.
6. Service truck – Haulmax 3900 truck configured as mobile diesel and service tender by the vendor. The haul trucks will be fuelled and serviced at the coast but the field equipment (excavators, bulldozers, graders, pit pumps and lighting plants) will be tended by the service trucks. One service truck is allocated for every 10 field items and each truck is assumed to operate for 16 hours per day.
7. Low loader – Haulmax 3900 truck with 150-tonne lowboy. This unit provides flexibility to re-position the bulldozers, drills, pit pumps and 120 tonne excavators as required.
8. Lighting Plants – trailer mounted, diesel powered lighting towers with 4 x 1000W lamps. One lighting plant was allowed for each excavator, blast hole drill and waste dump bulldozer. Each lighting plant was assigned 11 hours per day.

Drill and Blast production records from 1989 to 2000 show consistently low blasting powder factors in the range 0.09 to 0.12 kg/t rock blasted. The records also show ANFO as the main explosive.

Using the production records as a guide, blast patterns were designed to give powder factors of 0.11 kg/t for oxide rock and 0.15 kg/t for transition and fresh rock. Emulsion explosives are assumed to handle expected wet holes due to rainfall and increasing ground water as the pits become deeper. Explosives will be delivered to each blast hole in mobile manufacturing unit (MMU) trucks operated by the explosives' supplier.

Track mounted rotary drills such as the Caterpillar MD6250 unit are assumed for drilling 150 to 200 mm blast holes on a 10 metre bench in weak to moderate strength ground.

## **12 Site Overview**

The plant is generally reusing the Placer operational footprint for the location of the processing plant and infrastructure . This location optimizes the earthworks by reusing the existing pads limiting the amount of civil works required to construct the site.

The following is a site plan of the key infrastructure to be constructed.

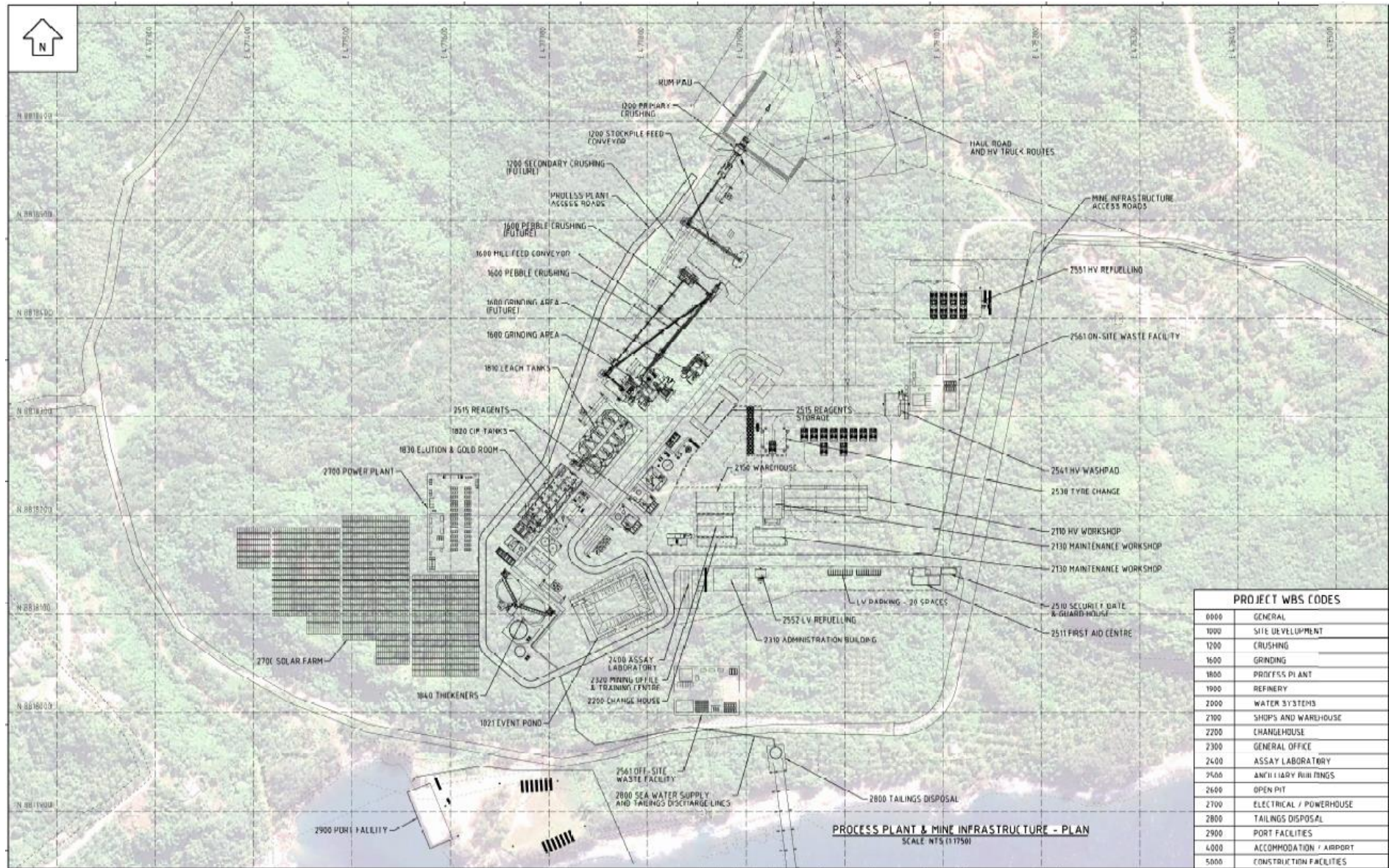


Figure 12-1 Site Plan





Figure 12-2 Plant and Infrastructure Site Plan



PROJECT WBS CODES	
0000	GENERAL
1000	SITE DEVELOPMENT
1200	CRUSHING
1600	GRINDING
1800	PROCESS PLANT
1900	REFINERY
2000	WATER SYSTEMS
2100	SHOPS AND WAREHOUSE
2200	CHANGEHOUSE
2300	GENERAL OFFICE
2400	ASSAY LABORATORY
2500	ANTI-LIBRARY BUILDINGS
2600	OPEN PIT
2700	ELECTRICAL / POWERHOUSE
2800	TAILINGS DISPOSAL
2900	PORT FACILITIES
4000	ACCOMMODATION / AIRPORT
5000	CONSTRUCTION FACILITIES

### 13 Metallurgy

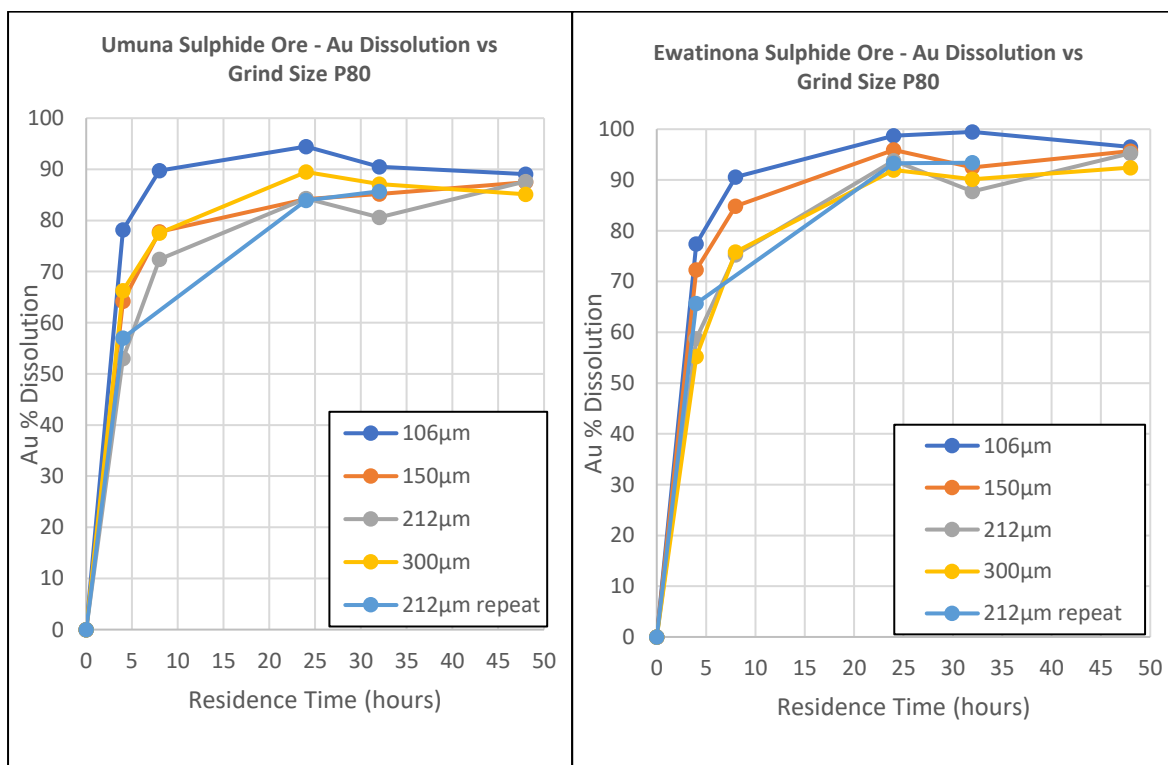
A metallurgical testwork programme was undertaken with the aim of:

- reconfirming the hydrometallurgical response to the Misima ores using conventional processing techniques, as established during fifteen years of operation and,
- improving the definition of sulphide ore competency given its appreciably higher proportion of current reserves.

Phase one of the testwork program was devised to confirm the basis of the PFS process design criteria, in particular the optimum grind size P80 of 250 microns, and the cyanide leach kinetics.

The following graphs derived from Phase 1 of the program indicated gold leach rates of Umuna and Ewatinona sulphide ores show the relative insensitivity of gold recovery to grind size and confirmed the use of historical grind size P80's for process design.

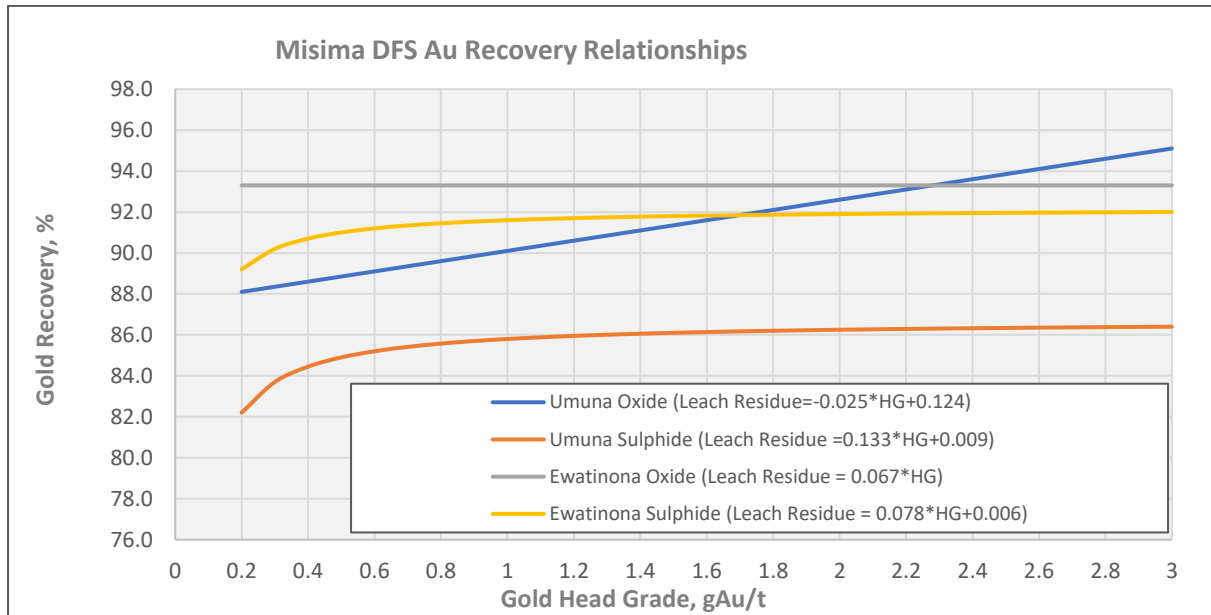
Figure 13-1 Leach Rates of grind size



Phase two of the test work program was undertaken using grade composites for oxide and sulphide ores from the Umuna and Ewatinona deposits. Sample classification according to lithology was constrained by the multiple primary lithologies typically encountered within the 5 – 6 metre core intervals sampled.

The gold recovery algorithms for Umuna and Ewatinona ores developed from the head grade – leach residue relationships are shown in Figure 13-2 Recovery Algorithm.

Figure 13-2 Recovery Algorithm



## 14 Process Plant

The processing plant has been designed at +5.5mpta however, based on the operational performance data during the operational days of Placer, supported with updated DFS modelling and blending oxide and sulphide ore the plant will achieve 6.1mpta. The Project has therefore adopted this nameplate capacity for the purposes of this Feasibility Study.

The scope of work for the processing plant for the study encompasses the following:

- primary crushing and stockpiling
- grinding with pebble recycle and provision for a future pebble crushing circuit
- trash screening
- leaching and carbon in pulp (CIP) adsorption
- cyanide recovery thickening and tailings disposal to the deep-sea tailings facility
- carbon elution and gold recovery to doré
- reagent mixing and dosing systems.

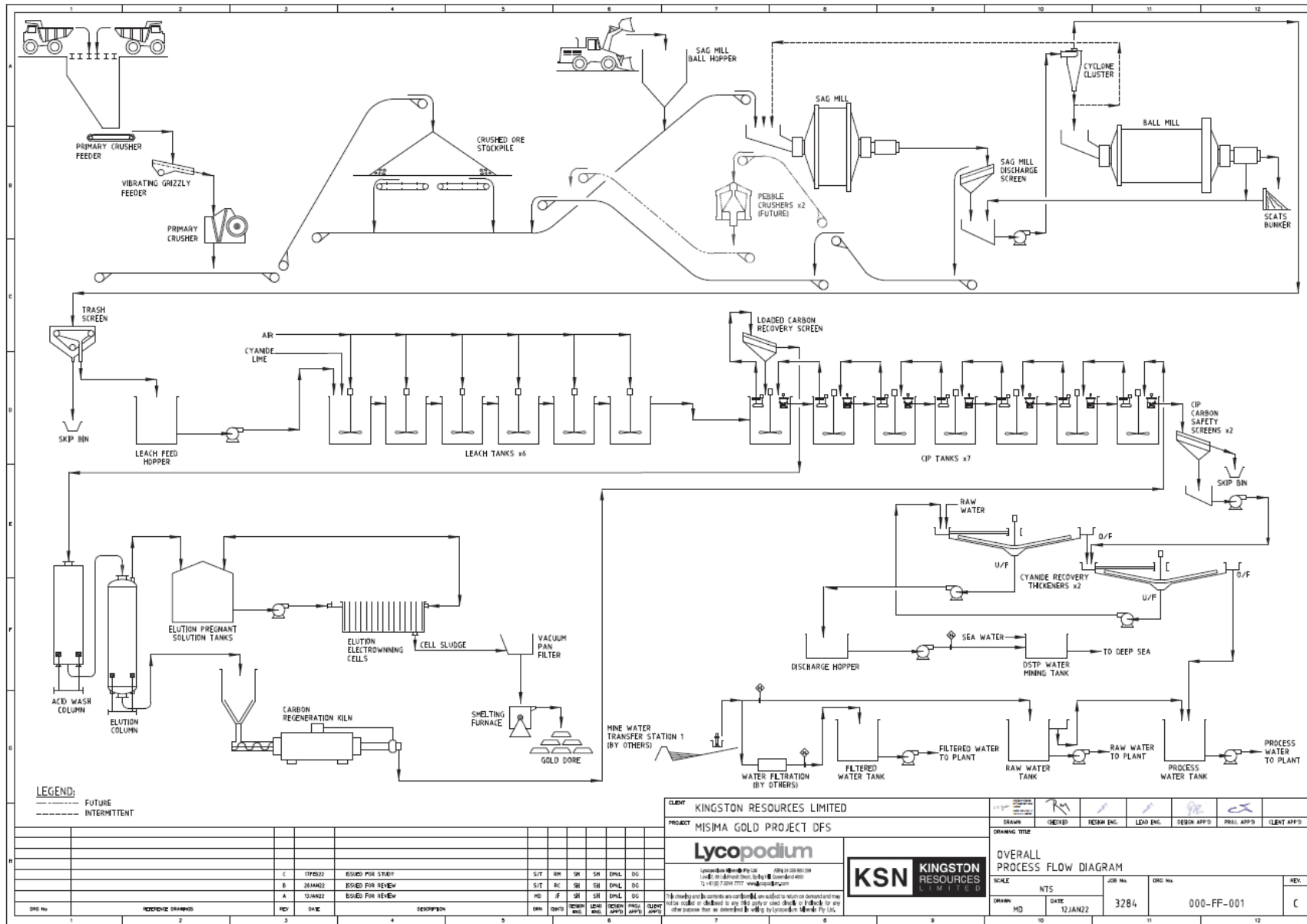
Plant services facilities and infrastructure, including:

- process plant power distribution systems
- process and raw water plant distribution systems
- other plant water systems
- air services
- process plant control room
- reagent storage sheds.

The process flow sheet of the preferred design is shown in Figure 14-1



Figure 14-1 Process Plant PFD



## 15 Process Design Basis

The plant design is based on a robust metallurgical flowsheet designed for optimal precious metal recovery. The flowsheet chosen is based on unit operations that are well proven in the industry. The metallurgical testwork conducted to date, has confirmed that the gold contained in the Misima deposit mineralisation is amenable to recovery via conventional cyanidation techniques and carbon adsorption.

Figure 15-1 Process Plant



The key criteria for equipment selection are suitability for duty, reliability, power efficiency and ease of maintenance. The plant layout provides ease of access to all equipment for operating and maintenance requirements while maintaining a layout that will facilitate construction progress in multiple areas concurrently.

The key project design criteria for the plant are:

- Nominal throughput of 5.5 – 6.1 Mtpa with a grind size of 80% passing ( $P_{80}$ ) 250  $\mu\text{m}$ .
- Overall process plant availability of 90% supported by the selection of standby equipment in critical areas and reputable offshore vendor supplied equipment.
- Sufficient automated plant control to minimise the need for continuous operator interface but allow manual override and control if and when required.

The treatment plant design incorporates the following unit process operations:

- Single stage primary crushing with a jaw crusher to produce a crushed product size of 80% passing ( $P_{80}$ ) 81mm for a 70% oxide and 30% sulphide ore blend, and 107mm for 100% sulphide ore.
- A crushed ore stockpile with a nominal live capacity of nominally 1,400 dry tonnes, providing buffer storage of crushed ore with continuous reclaim via feeders for the SAB comminution circuit.
- The grinding circuit is a SAB type, which consists of an open circuit semi-autogenous grinding (SAG) mill, pebble recycle for SAG mill discharge oversize to SAG mill feed and a closed circuit ball mill with hydro-cyclones for a cyclone overflow product of 80% passing ( $P_{80}$ ) 250 microns.
- Leach and adsorption circuit incorporating six leach tanks and six CIP tanks in series to provide a total of 32 hours leach residence time.

- The CIP circuit consists of six CIP tanks, each fitted with intertank screens for recovery of gold onto carbon. Selection of CIP will minimise carbon inventory, gold in circuit and operating costs. The CIP and elution circuit design is based on daily carbon harvesting.
- 15 t split AARL elution circuit, electrowinning and gold smelting to recover gold from the loaded carbon to produce doré.
- Cyanide recovery thickening to recover and recycle cyanide-bearing process water from the CIP tailings stream.

The major reagents utilised within the process plant will include:

- Lime (CaO) for pH control.
- Sodium Cyanide (NaCN) for gold dissolution and desorption.
- Caustic Soda (NaOH) for carbon acid washing neutralisation and desorption.
- Hydrochloric Acid (HCl) for carbon acid washing.
- Sodium Metabisulphite (SMBS) for cyanide destruction.
- Flocculant for thickening.

The process plant will utilise process water, raw water, filtered water, treated water, gland water and potable water.

Air services will include a compressed air system with integral dryers so that air can be used for both plant air and instrument air duties. Low pressure blower air will be used for the cyanide destruction process and air addition for the leaching process.

## 16 Power Generation

The proposed power station is designed to adopt as much renewable generation as practical, however, since renewable energy has intermittency, a foundation Internal Combustion Engine (ICE) power plant is required to meet the power demand requirements under all conditions.

Renewable energy, in this instance Solar PV, is incorporated and prioritised into the power solution, decreasing dependency on fossil fuels and delivering lower cost of electricity while working in harmony with the ICE plant, maintaining stability and reliability.

The plant will consist of:

- 22 x 1 MW mobile, modular and scalable generators
- 19 x 1 MW generators operating for N+1 to meet maximum demand at design requirements for environmental conditions
- 3 x additional redundancy generators supporting O&M activities, breakdowns, etc. while maintaining maximum demand and design criteria considering the remote location and assuming liquidated damages for outages
- high-density, modular and scalable solar farm solution, with low environmental impact suitable for high wind region compliance
- 4.9 MWac (6MWp) solar array.

The power plant is proposed to be operated on a Build Own Operate Maintain basis for an initial period of 15 years after which time Kingston Resources may elect to acquire the plant from the operator or renew for an additional 5-year term. The basis of the feasibility study is that the power pricing will be secured for the LOM (Life of Mine) and KSN would seek to employ local operational and maintenance personnel to run and maintain the plant.

## 17 Power Reticulation

Power will be distributed throughout the site from the power generation plant through the main plant 11 kV switchboard using 11 kV reticulation.

Two overhead lines (OHL) will distribute power from the plant to the following locations:

- 11 kV OHL to Ewatinona and Umuna pits
- 11 kV OHL to the Bwagaoia village including a spur to the accommodation village. This line is partially existing and will be repaired, upgraded and completed where required.

## 18 Site Communications

External site communications will rely on high bandwidth satellite connection and internal comms will utilise a fibre backbone with Wi-Fi access points. VOIP and digital radio will be deployed for mobile plant and personnel operating on site.

## 19 Civil Works

The civil works comprised design of bulk earthworks, pavement design for haul and light vehicle roads, slope design and hard stand design.

The total cut fill for the project is summaries in the following table.

Figure 19-1 Civil Works Cut/Fill Volumes

Item	ROM Pad	Plant	Infrastructure Pad	Roads	Ponds	Drains
Cut to spoil	233,250	157,601	33,483	8,811	6,381	12,474
Bulk Fill	95,045	-	234,661	11,403	-	-
Select Fill	-	-203,768	52,171	5,857	133,440	4,096
<b>Total</b>	<b>328,295</b>	<b>361,369</b>	<b>320,315</b>	<b>26,070</b>	<b>139,821</b>	<b>16,570</b>

## 20 Buildings and facilities

**Heavy Vehicle Workshop:** the workshop has nominally six work bays in a line to enable ease of access and maintenance workflow. The overall size of this Heavy Vehicle work area is 84 m x18 m. The workshop has been designed to allow for a CAT 789D to be within the workshop with the tray up.



**Light Vehicle Workshop:** the LV Workshop work area consists of three bays for servicing site vehicles and a fourth bay to service the 30-seater buses.

**Maintenance Workshop:** the maintenance workshop includes a welding bay (210 m<sup>2</sup>), a mechanical bay (210 m<sup>2</sup>) and an electrical and instrumentation area (43 m<sup>2</sup>) in addition to Electrical Stores, Electrical Assembly area, hoist, fitter, and mechanical and welding storage area.

**Warehouse:** an enclosed warehouse will be installed adjacent to the maintenance workshop area for storage of spare parts, critical spares and reagents that require undercover storage. The building will be steel framed, 30 m long by 25 m wide.

**Change House:** the centralised change house will be designed to accommodate the mining and processing crews at shift change. The complex will consist of a 36 m long by 8.6 m wide panelised modular building with a floor area of about 300 m<sup>2</sup>.

**Administration:** an administration office building will be designed with an administration area and a principal contractor's area. The complex will consist of a 33 m long by 18 m wide building with a floor area of about 600 m<sup>2</sup>.

**Mining Office and Training Area:** the complex will consist of a 33 m long by 18 m wide building with a floor area of about 600 m<sup>2</sup>.

**Assay, Grade Control and Exploration Laboratory:** a laboratory will be established to provide assaying and metallurgical testing services to the operation. The physical infrastructure including the building and laboratory will be owned and operated by a third party.

**Gatehouse and Security:** a gatehouse will be located at the plant site entrance, on the south-east of the plant. It will be the main access point to the mine via a public road from Bwagaoia.. The building will be containerised, 12 m long by 2.4 m wide and fully fitted with a turn gate including swipe card access and a boom gate.

**First Aid Centre:** a First Aid Centre is located adjacent the security gatehouse at the entrance to the site. The First Aid Centre/emergency vehicles bay complex will have total floor area of approximately 120 m<sup>2</sup> and will including ambulance bay, fire truck bay and medical treatment and examination rooms and ablutions.

**Tyre Change Facility:** a tyre change facility is provided to complete all major tyre changes of the mining fleet with an on-site tyre press.

**Heavy Vehicle Washpad:** the washpad is designed to cater for all heavy vehicles and haulage fleet including mining dump trucks (CAT 785D) and ROM pad loaders (CAT 988). The Heavy Vehicle wash pad is a 13.2 x 22 m, 350 mm thick, steel reinforced concrete slab. The facility is equipped with four water monitors (with shields) located at each corner of the pad for high volume washing.

**Light Vehicle Washpad:** the light vehicle washpad is located near the light vehicle workshop to enable light vehicles to be easily cleaned before servicing. The LV washpad is a 7.5 x 18.5 m concrete slab that includes an automated under-vehicle wash system. The length of the washpad provides sufficient area for a vehicle to be parked and manually washed with a hose.

**Heavy Vehicle Refuelling:** The heavy vehicle Refuelling facility is located in close proximity to the mine haul roads to supply fuel to the Heavy Vehicle fleet (such as the mine haul trucks). The Heavy Vehicle Refuelling facility contains a Heavy Vehicle refuelling station, 28 x 110kL (3 ML) of self-bunded fuel storage and dispensing and lubricant storage and dispensing (top ups).

**LV Refuelling:** the Light Vehicle refuelling facility is located in the car park between the administration and laboratory buildings and consists of a self-bunded 10 kL fuel storage pump and bowser. The Light Vehicle refuelling tank is fed from the Heavy Vehicle refuelling area.

**Onsite Waste Facility:** the Waste Facility is located in close proximity to the entrance of the MIA, where the waste from the site is taken to be sorted and stored before being incinerated or disposed of in the mining waste pit.

**Offsite Waste Facility:** the purpose of the offsite waste facility is to store waste materials which will be taken offsite and includes waste oil storage from the HV workshop, Power Generation plant and HV refuelling area and recyclable materials such as reagent containers, scrap metal and batteries.

**Fuel distribution and Storage:** fuel storage will be via double skinned tanks. To ensure fuel security and simplify fuel transfer, underground fuel lines will be installed from:

- the Barge to the Port Fuel Break Tanks. The Fuel Break Tank will consist of the 61 kL transfer tank
- the Port Fuel Break Tank to the Power Station Fuel Storage facility. The power station fuel storage will consist of 28 x 110 kL (3 ML) of fuel storage
- the Port Fuel Break Tank to the Heavy Vehicle refuelling area. The Heavy Vehicle fuel storage will consist of 28 x 110 kL (3 ML) of fuel storage.
- from the Heavy Vehicle Refuelling area to the LV Refuelling area. The Light Vehicle fuel storage will consist of a 10 kL fuel tank.

**Exploration Core Yard:** the project will continue to utilising the existing core yard and storage facility on site and make upgrades to facilities as required.

## 21 Transport Infrastructure

**HV Roads:** on-site HV roads have been designed for a CAT 789, a design speed of 60 km/h, 21 m wide double lane travel suitable for 7 m wide dump trucks and 30 m turning radius. All roads are fully HV/LV segregated.

**Bwagaoia Air strip:** the existing commercial airport's 1,200 m long landing strip with run-offs/turning areas at either end will be used. A portion of the operations personnel will be expatriates or PNG nationals working on a fly-in, fly out (FIFO) basis, either direct from Australia or from Port Moresby, Lae or Alotau.

**Port:** The port associated with these operations is still in place and will be reinstated, however, the wharf will need rehabilitation works prior to it being operational. The wharf is suitable for an 8 m draft and a 60 metre-long vessel.

**Public Road from Bwagaoia:** the existing road from Bwagaoia to the plant via the coastline or inland will be repaired. It will consist of minor patching repairs to make it fit for bussing from the accommodation village.

**Mobile Equipment:** a number of mobile plant will be provided for the processing plant and ROM area, including light vehicles, trucks, buses, mobile cranes and other ancillary equipment and vehicles.

## 22 Water Management

Raw water, for use in the mine infrastructure area and the process plant as fire water, wash down, dust suppression, etc. will be sourced from two raw water bores located adjacent to the process plant or from the pit dewatering pumps. There are three stages of sourcing this water depending on the mine sequence. In the initial years, water will be sourced from the existing Umuna pit which needs dewatering during the early years of operations. Once the Umuna pit is dewatered the Ewatinona pit will have concluded mining and will be used as the main source of raw water for the operations through to the end of life of mine.

Process water will, as far as possible, seek to recycle overflow water from the tailings thickeners and other process contact water emanating from the plant. Where a shortfall exists water will be topped up from the raw water tank.

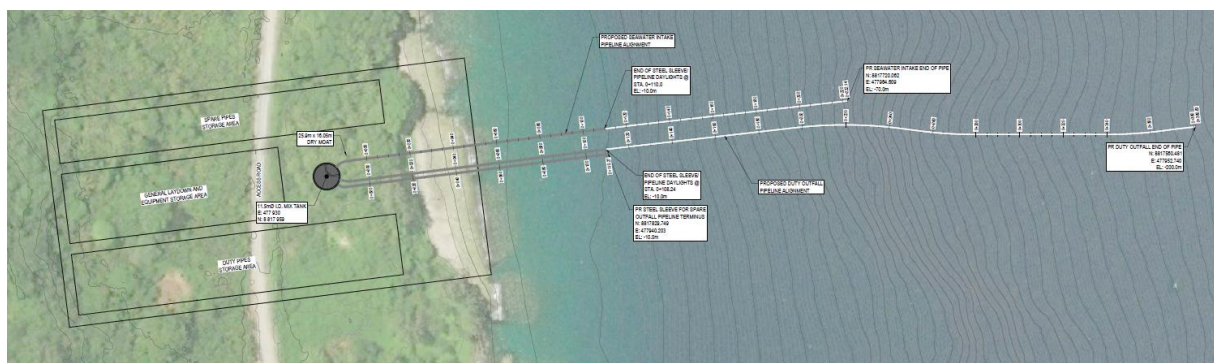
Potable water will be reticulated throughout the plant, infrastructure and to the camp via a buried HDPE water pipeline and will be treated via a central water treatment plant fed from the raw water supply.

Water supply to community members whose supply is impacted by the mine development, will be made available via the supply network feeding the accommodation camp. Spur pipelines will be constructed to replace those impacted by the mine activities.

## 23 Tailings Deposition

Tailings will be disposed of via a deep-sea tailings deposition which consists of a mixing tank that blends detoxified tails with sea water at a ratio of 5:1 and is located on the shore directly south of the plant site. Discharge from the mixing tank deposits the dilute tailings into the ocean at 300 m depth below the euphotic mixing zone. Figure 23-1 outlines the mixing tank and deep-sea tailings pipeline design.

Figure 23-1 Mixing Tank and Deep-Sea tailings Pipeline design



## 24 Camp

An accommodation camp will be provided that includes 300 beds for the initial construction phase, dropping to 200 beds during operations. The facilities will include several two-room modules that

allow for varying levels of quality depending on the roster and seniority of the occupant. The camp will include leisure facilities including squash courts, sports field and an option for a swimming pool and tennis court. Kitchen and messing facilities will provide meals for the worker force as and when required.

## 25 Project Implementation

The implementation plan for the Project has been developed utilising an Engineering, Procurement team (EP) and an Integrated Owners Team (IOT) for construction approach with a Front End Engineering Design (FEED) phase. Engineering consultants will provide design and procurement services of the defined scope according to the Project Schedule.

The implementation strategy is structured into five broad stages:

- Front End Engineering
- Detailed design
- Procurement
- Construction
- Commissioning and handover.

The Project execution strategy will have the following features:

- Engineering and detailed design from a design office working in conjunction with the Kingston Resources team.
- Major equipment and materials will be procured by the Project and free-issued to the installation contractors.
- Construction and contract management by IOT site-based staff supported by a small team in the project office.
- Pre-operational testing by IOT site-based staff and vendors.
- Commissioning and performance testing by IOT supported by Kingston Resources' site-based staff and vendors. The IOT lead design engineers will move across to the commissioning engineer role to provide a fresh team on-site and allow the construction team to finalise punch list items.
- Generally, a small number of major construction contracts will be formed to match available contractor experience. These will be a series of horizontal (area-wide) contracts and vertical (facility-based) contracts. Construction activities will be separated into early works and main works.

A project implementation schedule has been developed based on an EPCM implementation strategy. It shows an overall duration from approval to first gold production of 112 weeks.

## 26 Human Resources

The construction phase workforce will be sourced through PNG national contracting entities as a priority with foreign nationals in key roles as employed by the contractors and Kingston Resources.

For construction, foreign nationals and mainland PNG nationals will be operating on a FIFO basis on a 6-weeks-on and 2-weeks-off basis during the construction phase. Construction labour hours' forecasting has been completed on a single 10-hour shift per day basis for 6 days per week. Locals will work on a 10-hour shift 5 days per week.

The mine is assumed to operate on 2 x 12 hour shifts per day, 7 days per week. A four panel roster is assumed for mining operators and maintenance crews for the life of mine.

Processing labour roster and manpower requirement is based on a three panel roster for shift personnel and 12 hours per shift.

In general, all labour will be sourced locally as far as is reasonably practical. Failing adequate local expertise, PNG nationals and, in extenuating circumstances, international ex-patriate workers will be sourced. Kingston Resources is intending to target an employment ratio of 90:10 PNG nationals to expatriates or better for the life of operations. Kingston Resources believe this is achievable given the size of the resources sector in PNG and what was achieved by prior mining operations on Misima.

Table 26-1 summarises the entire anticipated workforce for the site.

*Table 26-1 Summary of anticipated Site Workforce*

<b>Area</b>	<b>Number of Employees</b>
<b>General &amp; Administration</b>	<b>215</b>
Administration	2
Camp Administration Services	41
Commercial Administration Services	42
Community & Environmental	8
Exploration	64
Health Safety & Security	43
HR & Training	15
<b>Mining</b>	<b>497</b>
Mine Management and Technical Services	323
Mining Maintenance	174
<b>Processing</b>	<b>119</b>
Analytical Laboratory	16
Metallurgy	7
Plant Maintenance	46
Plant Operations	48
Process Plant Management	2
<b>Grand Total</b>	<b>831</b>

## 27 Operating Costs

Table 27-1 is a summary of the key operating costs for the Project:

Table 27-1 Operating Cost Summary

Item	A\$/tonne	A\$/oz
Mining	10.53	524
Processing	10.97	546
SG&A	1.90	95
Royalties	1.33	66
Sustaining Capex	1.42	71
Silver by-product credit	(1.71)	(85)
<b>AISC</b>	<b>24.44</b>	<b>1,217</b>

## 28 Capital Costs

Table 28-1 provides a summary of the Pre-production capital costs for the Project. The capital cost estimate was completed to a  $\pm 10\%$  accuracy. In addition to processing plant and mine infrastructure, it includes capital for dewatering the Umuna pits, down payments on the mining fleet and costs to complete pre-stripping activities at Ewatinona.

Table 28-1 Summary of Pre-production Capital Costs

Facility	Facility Description	Total Hours	Total	% of TIC
	<b>Direct Costs</b>		<b>AUD\$</b>	
	<b>Direct Costs</b>			
1000	Site Development	120,520	23,255,845	4.89%
1100	Processing - General	113,283	24,251,479	5.10%
1200	Crushing	126,579	24,887,064	5.23%
1600	Grinding	93,543	35,942,945	7.56%
1800	Process plant	155,019	45,260,834	9.52%
1900	Refinery	12,798	3,550,015	0.75%
2000	Water systems	49,513	21,727,713	4.57%
2100	Workshops & warehouse	74,100	13,518,043	2.84%
2200	Change house	5,172	784,143	0.16%
2300	General office	26,436	4,040,218	0.85%
2400	Assay Laboratory	16,985	2,639,722	0.56%
2500	Ancillary buildings	97,708	26,108,856	5.49%
2600	Open Pit	-	65,278,963	13.73%
2700	Electrical/Powerhouse	41,669	10,811,864	2.27%
2800	Tailings disposal	14,048	18,260,819	3.84%
2900	Port facilities	31,988	8,562,310	1.80%
	<b>Subtotal Direct Costs</b>	<b>979,361</b>	<b>328,880,833</b>	<b>69.16%</b>
	<b>Indirect Costs</b>			
5000	Construction Facilities	-	18,490,497	3.89%
5200	Project Management	-	39,930,555	8.40%



Facility	Facility Description	Total Hours	Total	% of TIC
5300	Compensation/Relocation	-	17,000,000	3.57%
6000	Spares, Freight & Custom Duty	-	22,279,793	4.68%
	<b>Subtotal Indirect Costs</b>	-	<b>97,700,845</b>	<b>20.54%</b>
6500	P50 Contingency	-	42,101,239	8.85%
6600	Owners Costs	-	6,877,694	1.45%
	<b>Total Project Cost (P50)</b>	<b>979,361</b>	<b>475,560,611</b>	<b>100%</b>

## 29 Financial Evaluation

A financial model used for evaluation of the Project was developed specifically for the Definitive-Feasibility study by Vector Financial Modelling.

The financial analysis of the Misima Gold Project was carried out using a discounted cash flow (DCF) approach. Monthly estimated cash flow projections were developed over the Project's life based on capital expenditures, production costs, revenues, royalty costs, studies costs and taxes.

The resulting net annual cash flows are discounted back to the date of valuation and aggregated to determine the Net Present Value (NPV) of the project at an assumed discount rate of 7%. The internal rate of return (IRR) is expressed as the discount rate that yields an NPV of zero. The payback period is the time calculated from the production commencement date until LOM cashflow reaches a positive value.

This economic analysis includes sensitivities to variations in operating costs, capital costs and metal prices. For discounting, cash flows are assumed to occur at the mid-point of each period. An accumulated tax loss of AUD 25 m has been included in the project evaluation.

Table 29-1 provides the key economic assumptions used in the financial model.

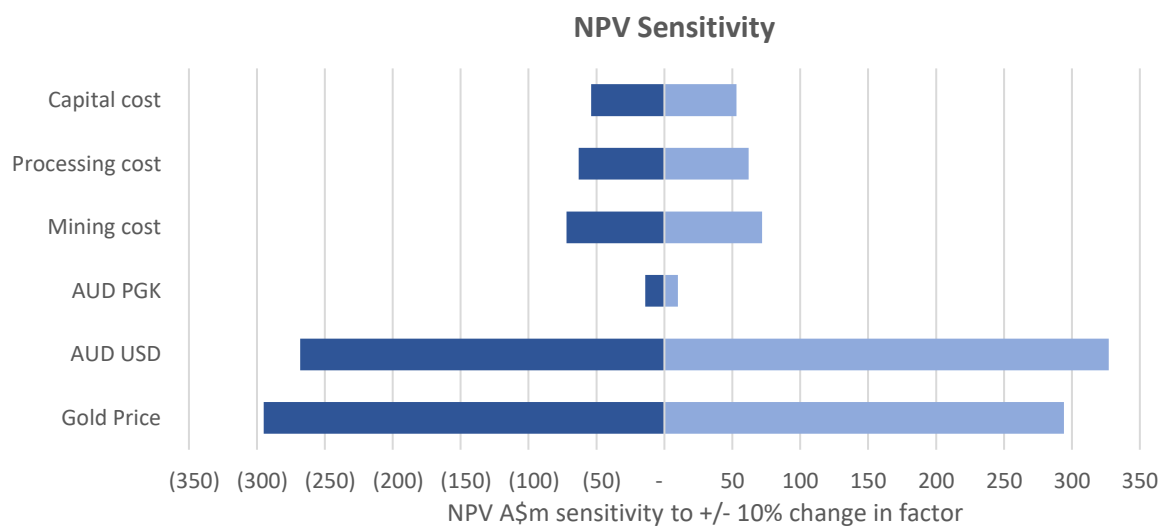
Table 29-1: Key Economic Assumptions of the Financial Model

Assumptions	Units	Value
<b>Commodity Prices</b>		
Gold	US\$/oz	1,800
Silver	US\$/oz	25
<b>Exchange rates</b>		
AUD USD	1 AUD = USD	0.70
PGK AUD	1 PGK = AUD	0.40
<b>Other</b>		
Corporate tax rate	% p.a.	30.00
Infrastructure tax credit	% p.a.	0.75
Discount rate (real)	% p.a.	7.00

Table 29-2: NPV Sensitivity to Gold Price and FX assumptions

NPV Sensitivity		US\$/oz Gold Price									
		1,500	1,600	1,700	1,800	1,900	2,000	2,100	2,200	2,300	2,400
AUD:USD	0.55	1,154	1,355	1,557	1,759	1,960	2,162	2,364	2,566	2,767	2,969
	0.60	892	1,077	1,261	1,446	1,631	1,816	2,001	2,186	2,371	2,556
	0.65	670	841	1,011	1,182	1,353	1,523	1,694	1,865	2,036	2,206
	0.70	480	639	797	956	1,114	1,273	1,431	1,590	1,748	1,907
	0.75	315	463	611	759	907	1,055	1,203	1,351	1,499	1,647
	0.80	171	310	449	587	726	865	1,003	1,142	1,281	1,420
	0.85	44	175	305	436	566	697	827	958	1,088	1,219
	0.90	(69)	55	178	301	424	548	671	794	917	1,041
	0.95	(170)	(53)	64	181	297	414	531	648	764	881
	1.00	(261)	(150)	(39)	72	183	294	405	516	627	738

Figure 29-1 NPV Tornado Plot



### 30 Project Funding

As is typical at the DFS stage, Project funding for the Misima Gold Project is yet to be sourced. Kingston anticipates that project funding would be achieved through a combination of debt and equity finance. Other potential sources of financing include royalty and streaming agreements.

In addition, the Company is in a position to consider strategic alternatives for the development pathway of Misima if they are determined to be of benefit to shareholders. This could include typical mining industry transactions such as potential earn-in agreements or a project level sell-down of an equity interest to development partners.

The Project's low technical risk, being a brownfields re-development of an operation with a long and successful mining history, as well as its strong economic fundamentals provide a solid basis for the

Company to advance discussions with debt and equity financiers, potential forward sale and royalty counterparties, as well as potential strategic counterparties.

The Board has extensive experience in financing and developing projects in Australia and overseas including projects in Australia, Laos, the Philippines, and the United States. Based on this experience it believes traditional debt financing can be secured for part of the total pre-production capital cost of the project. Total pre-tax free cash generation of A\$2,681m over the LOM is considered sufficient to support debt financing within typical ranges.

Company management has also demonstrated a strong track record of securing funding to pursue the ongoing development of the Company’s assets.

Overall, based on the reasons outlined above, the Board believes that there is a reasonable basis to assume funding can be secured for the project when required. However, investors should note that there is no certainty that the Company will be able to raise the amount of funding required to develop the project.

### 31 Risks and Opportunities

Kingston Resources conducted two risk workshops throughout the Project, an initial risk assessment that reviewed the risks from the PFS phase and added any additional risks and a second risk workshop that reviewed and closed any risks that were addressed throughout the project phase.

The following are the key level 4 risks identified during the Project:

- Community resistance to waste rock dumps, consumption of garden lands and village proximity to the dumps.
- Deep-sea tailings creating an unacceptable risk to the marine environment.
- Geotechnical risk associated with infrastructure and processing plant being built over the top of existing foundations.
- Slope failure in the pit and on the waste rock dumps.
- Pricing escalations as a result of COVID-19 and uncertain global geopolitical risks.

Table 31-1 contains a summary of the risk distribution of the Project risks.

*Table 31-1 Summary of Project Risk Distribution*

	Level 1	Level 2	Level 3	Level 4
Project Management	0	5	4	1
Engineering	9	10	5	0
Mining	4	4	1	1
Environmental	5	11	9	5
Metallurgy	0	1	2	1
Financial	0	1	1	0
Geology	1	0	0	1

## 32 Forward Work Plan

Following the completion of this DFS the project's focus is turning to the submission of the Environmental and Social Impact Assessment for approval. In order to achieve an optimum outcome for the project and number of technical refinements will be required, including the following:

- Optimisation of the waste rock dump design to adopt the slope angles recommended by PSM into the final design and reduce or relocate the Cooktown waste dump if this becomes a viable alternative.
- A review of the site noise data to ensure that emission sources have been adequately minimized and where necessary mitigated.
- Finalisation of the mine power closure study to outline how continuation of power will be provided for the local Misiman authorities after the mine has been closed.

In addition to supporting the ESIA application the project will be advancing the next phase of engineering design work to move the project forward towards execution. This will include a FEED phase that consists of the following:

- Preparation of Engineering and procurement to a FEED level
- Engagement with local installation contractors, in particular, Structural, Mechanical and Piping installation, Electrical, Instrumentation and Controls and a Bulk Earthworks Contractor.
- The project will seek to secure the Camp Design and Construct contractor and finalise the contract for the Power Station Build Own Operate contract;
- KSN are anticipating that long lead equipment orders could be placed in the FEED phase so that vendor data is available for the final engineering design work.

In terms of on site works prior to project execution the project will be undertaking the following work programs:

- Construction materials quarry site selection and assessment (diamond (DDH) + reverse circulation (RC))
- Further Geotechnical assessment of infrastructure sites (DDH)
- Assessment of potential zones of surface mineralisation within waste dump and project footprints (RC/DDH)
- Mineral Resource extensions at Ewatinona and Umuna (DDH/RC)
- Pre-production grade control at Ewatinona and Umuna (RC)
- Water bore servicing (large diameter RC)
- Pit wall dewatering (RC/Diamond)
- Wind turbine feasibility assessment and the installation of wind monitoring equipment, SODAR or other.

All of the above is expected to be completed in the intervening period between completion of the DFS and obtaining the Mine Lease.

# Misima Gold Project

## Ore Reserves Statement

**1 June 2022**

Prepared by

Kingston Resources  
and  
Australian Mine Design and Development Pty Ltd

For

Kingston Resources Limited

Authors:  
Ore Reserve                      John Wyche (AMDAD)

Effective Date:                      1 June 2022  
Submitted Date:                      1 June 2022





## Executive Summary

An Ore Reserve estimate has been completed for the Misima gold deposits in accordance with the JORC Code 2012 and is current as at 1<sup>st</sup> June 2022.

Misima Ore Reserves are estimated at 75.6Mt @ 0.79g/t Au & 4.5g/t Ag for 1.9Moz contained gold and 10.9 Moz contained silver (Table 1).

### Umuna

- Gold Probable Ore Reserves of 1.8Moz
  - 71.7Mt @ 0.79g/t Au & 4.6g/t Ag for 1.8Moz Au and 10.6Moz Ag

### Cooktown Stockpile

- Cooktown Stockpile is classified as Inferred and not included in the Ore Reserve Estimate

### Ewatinona

- Gold Probable Ore Reserve of 0.1Moz (101koz)
  - 3.9Mt @ 0.81g/t Au & 2.4g/t Ag for 0.10Moz Au and 0.30Moz Ag



## **1 SCOPE**

The Misima Gold Project Ore Reserve is calculated based on open cut mining of the Umuna and Ewatinona Pits as of 1 June 2022. The two adjacent open cut pits are being brought back into production to supply ore feed to a new Carbon in Leach (CIL) processing facility at Misima Island.

## **2 CONTRIBUTING PERSONS**

The June 2022 Ore Reserves Statement is prepared by Mr John Wyche (AMDAD) and is supported by contributions from the persons listed in Table 2.

## **3 ACCORD WITH JORC CODE**

This Mineral Resource and Ore Reserves Statement has been prepared in accordance with the guidelines of the Australasian Code for the Reporting of Resources and Reserves 2012 Edition (the JORC Code 2012).

The Competent Person signing off on the overall Ore Reserves Estimate is Mr John Wyche BE (Min Hon), of Australian Mine Design and Development Pty Ltd, who is a Fellow of the Australasian Institute of Mining and Metallurgy and who has 35 years of relevant experience in operations and consulting for open pit metalliferous mines.

## **4 ORE RESERVE SUMMARY**

The Ore Reserves Estimate is Summarised in Table 1



Deposit	Tonnes Mt	Gold Au g/t	Silver Ag g/t	Gold Au koz	Silver Ag koz
<b>Ewatinona Pit</b>					
Oxide - Proved	0.0	0.00	0.0	0	0
Oxide - Probable	0.2	0.55	3.1	3	16
Oxide - Subtotal	0.2	0.55	3.1	3	16
Transition - Proved	0.0	0.00	0.0	0	0
Transition - Probable	0.2	0.67	3.0	4	18
Transition - Subtotal	0.2	0.67	3.0	4	18
Fresh - Proved	0.0	0.00	0.0	0	0
Fresh - Probable	3.5	0.83	2.4	94	269
Fresh - Subtotal	3.5	0.83	2.4	94	269
<b>Ewatinona Proved</b>	<b>0.0</b>	<b>0.00</b>	<b>0.0</b>	<b>0</b>	<b>0</b>
<b>Ewatinona Probable</b>	<b>3.9</b>	<b>0.81</b>	<b>2.4</b>	<b>101</b>	<b>303</b>
<b>Ewatinona Total</b>	<b>3.9</b>	<b>0.81</b>	<b>2.4</b>	<b>101</b>	<b>303</b>
Waste	29.7				
Waste : Ore	7.7				
Total Material	33.6				
<b>Umuna Pit</b>					
Oxide - Proved	0.0	0.00	0.0	0	0
Oxide - Probable	9.4	0.62	8.5	187	2,588
Oxide - Subtotal	9.4	0.62	8.5	187	2,588
Transition - Proved	0.0	0.00	0.0	0	0
Transition - Probable	7.5	0.64	8.3	153	2,005
Transition - Subtotal	7.5	0.64	8.3	153	2,005
Fresh - Proved	0.0	0.00	0.0	0	0
Fresh - Probable	54.8	0.84	3.4	1,476	6,018
Fresh - Subtotal	54.8	0.84	3.4	1,476	6,018
<b>Umuna Proved</b>	<b>0.0</b>	<b>0.00</b>	<b>0.0</b>	<b>0</b>	<b>0</b>
<b>Umuna Probable</b>	<b>71.7</b>	<b>0.79</b>	<b>4.6</b>	<b>1,816</b>	<b>10,612</b>
<b>Umuna Total</b>	<b>71.7</b>	<b>0.79</b>	<b>4.6</b>	<b>1,816</b>	<b>10,612</b>
Waste	404.5				
Waste : Ore	5.6				
Total Material	476.2				
<b>Total</b>					
Oxide - Proved	0.0	0.00	0.0	0	0
Oxide - Probable	9.6	0.62	8.4	190	2,604
Oxide - Total	9.6	0.62	8.4	190	2,604
Transition - Proved	0.0	0.00	0.0	0	0
Transition - Probable	7.7	0.64	8.2	157	2,024
Transition - Subtotal	7.7	0.64	8.2	157	2,024
Fresh - Proved	0.0	0.00	0.0	0	0
Fresh - Probable	58.3	0.84	3.4	1,570	6,287
Fresh - Total	58.3	0.84	3.4	1,570	6,287
<b>Proved</b>	<b>0.0</b>	<b>0.00</b>	<b>0.0</b>	<b>0</b>	<b>0</b>
<b>Probable</b>	<b>75.6</b>	<b>0.79</b>	<b>4.5</b>	<b>1,917</b>	<b>10,915</b>
<b>Misima Total</b>	<b>75.6</b>	<b>0.79</b>	<b>4.5</b>	<b>1,917</b>	<b>10,915</b>
Waste	434.2				
Waste : Ore	5.7				
Total Material	509.8				

**Table 1 Misima Ore Reserve Estimate (unrecovered)**

Notes:

1. The tonnes and grades shown in the totals rows are stated to a number of significant figures reflecting the confidence of the estimate. The table may nevertheless show apparent inconsistencies between the sum of components and the corresponding rounded totals.
2. Au koz refers to contained gold or silver in the mined ore before process recoveries are applied.
3. The Ore Reserves do not include the Cooktown low grade stockpile left from the previous open cut mine.
4. Reported at USD1,600/oz gold price



Expert Person/Company	Area of Expertise	References / Information Supplied
<b>Stuart Hayward</b> Kingston Resources Limited	Geology and Mineral Resource Estimation	Mineral Resource Estimate
<b>Murray Guy Butcher</b> G Butcher Consulting Pty Ltd	Metallurgy	Process plant design, test work and relevant capital and operating costs.
<b>Daniel Moriarty</b> Coffey	Environment, Approvals and Community Relations	Environmental studies and permitting/approvals
<b>Duane Maxwell, Maxwell Engineering</b> Thomas Keraghel, Mincore Pty Ltd	Design, Engineering, Construction and Estimation	Process plant and infrastructure capital and operating costs
<b>Felicia Weir, Principle</b> Pells Sullivan Meynink	Geotechnical Engineering	Geotechnical review and input
<b>Chris Drew, Kingston Resources</b> Vector Financial Modelling	Chief Financial Officer, Kingston Resources Limited	Financial modelling
<b>Andrew Corbett</b> Kingston Resources Limited	Managing Director Kingston Resources Limited	Strategy and operational philosophy, gold and silver prices
<b>John Wyche</b> AMDAD Pty Ltd	Mining Engineering, Ore Reserves	Pit optimisation, design, scheduling. Competent Person for Ore Reserves.

Table 2 Contributing Experts

The contributing experts listed above are responsible for elements of the Mineral Resource and Reserves or Modifying Factors.



## 5 PROJECT DESCRIPTION

### 5.1 Location

The Misima Gold Project is located on Misima Island, Milne Bay Province, Papua New Guinea approximately 625km east of the capital of PNG, Port Moresby (Figure 1). The project sits within granted EL1747 (The Property) that encompasses the eastern half of Misima Island (Figure 2).

### 5.2 Geology

Misima Island forms part of the Louisiade Archipelago which is a continuation of the Papuan Fold Belt of the Papuan Peninsula offshore eastwards through the Papuan Plateau (Figure 1). The Misima Gold Project comprises two main deposits, Umuna and Ewatinona, and multiple reconnaissance exploration targets along and adjacent to the 10km strike length of the Umuna Fault Corridor that hosts the historical Umuna deposit, and Quartz Mountain area that hosts the Ewatinona deposit (Figure 3).

Mineralisation deposit style on Misima Island is best described as low sulphidation carbonate base-metal epithermal. Mineralisation is strongly controlled by pre-existing structures that have been reactivated and mineralised over time.

The Umuna deposit is a complex fault array with a large SE-NW striking fault zone hosting the majority of the precious metal mineralisation, with numerous ancillary splays developed in the footwall east of the main structure. Internal structures within the fault complex and the intersection of structures and splays with the dominant Umuna Fault, are loci for zones of well-developed mineralisation.

The Ewatinona deposit is dominated by brecciated porphyry units which are cut by steeply dipping faults trending northwest, west northwest and southwest. Mineralised structures can range from crackle brecciated porphyry with base metal sulphide and quartz-carbonate-base metal sulphide infill, to more well-defined fault breccia with stockwork veining and crackle brecciation haloes.

### 5.3 Mineral Resource Estimation

Mineral Resource estimation has been completed for each deposit separately. Specific details of the modelling parameters and modelling approach for Umuna and Ewatinona, as well as details of data support and assumptions for contained tonnes and grades of Cooktown Stockpile are contained in the Mineral Resource Estimate dated 15<sup>th</sup> September 2021.

Umuna and Ewatinona are inground mineral resources that contain material classified as Indicated and Inferred that is included in the September 2021 Mineral Resource Estimate.

Cooktown Stockpile is a mineralised waste stockpile constructed by Placer that was not drawn down and processed at the end of the previous project life cycle (**Error! Reference source not found.**). It is included as an Inferred Resource in the September 2021 Mineral Resource Estimate.

The Ore Reserve Estimate only considers Indicated resources from the September 2021 Mineral Resource Estimate. There are currently no Measured resources.





## 5.4 Historical Mining

Gold was discovered at Misima in the late 1880s and was mined by small scale underground methods until the Second World War.

Placer Dome Inc acquired leases over parts of the eastern end of the island in 1977 and commenced exploration. Misima Mines Pty Ltd, a subsidiary of Placer Dome, commenced mining by open cut methods in 1989. Mining continued until 2001 followed by processing of low grade stockpiles through to closure of the operation in 2004. Cooktown Stockpile was not processed at the end of operations. Umuna was the main pit with contributions from satellite pits including Ewatinona and Quartz Mountain. The project produced 3.7Moz of gold from 1989 to 2004.

The Mining Licence was relinquished after closure of the operation and was then granted to Gallipoli Exploration, a wholly owned subsidiary of Pan Pacific Copper (PPC). WCB Resources entered a farm-in agreement with PPC in late 2011. In 2013 WCB Resources released an updated Mineral Resource Estimate based entirely on historical exploration and production data.

Kingston Resources (KSN) acquired WCB in late 2017. In 2018 KSN re-commenced exploration drilling leading to an updated Resource in May 2020 of 106 Mt at 0.93 g/t Au for 3.2 Moz. In June 2020 KSN executed a binding agreement to purchase PPC's remaining stake in the Misima Project. When completed this will move KSN to 100% ownership of the Mining Licence and associated exploration permits.

## 5.5 Proposed Mine Plan

KSN is seeking to re-establish operations using open cut mining and a CIL gold processing plant. The 2022 Definitive Feasibility Study (DFS) is based on the currently defined resources at Umuna and Ewatinona and a new 6.1 Mtpa CIL gold processing plant based on the former Placer operation but with improvements for current technology where applicable.

Most of the target ore zones are below the bases of the existing pit voids in Umuna and Ewatinona with up to 90% of the mill feed coming from Umuna. Pushbacks of the existing pits will be required to access the majority of the target zones. There is approximately 37 Mm<sup>3</sup> of waste rock backfill in the Umuna pit void and 0.97 Mm<sup>3</sup> in the Ewatinona pit void.

Key elements of the proposed mine plan include:

- Owner mining using large hydraulic excavators and rigid body trucks,
- Drilling and blasting of all material other than backfill, although production records from the Placer mine show very low powder factors,
- Haulage of ore down to the plant site on the south side of the island,
- Haulage of waste rock to out of pit waste dumps to be formed adjacent to the pits, and
- A mining sequence designed to access shallow mill feed while the Umuna pushback and backfill are being mined.

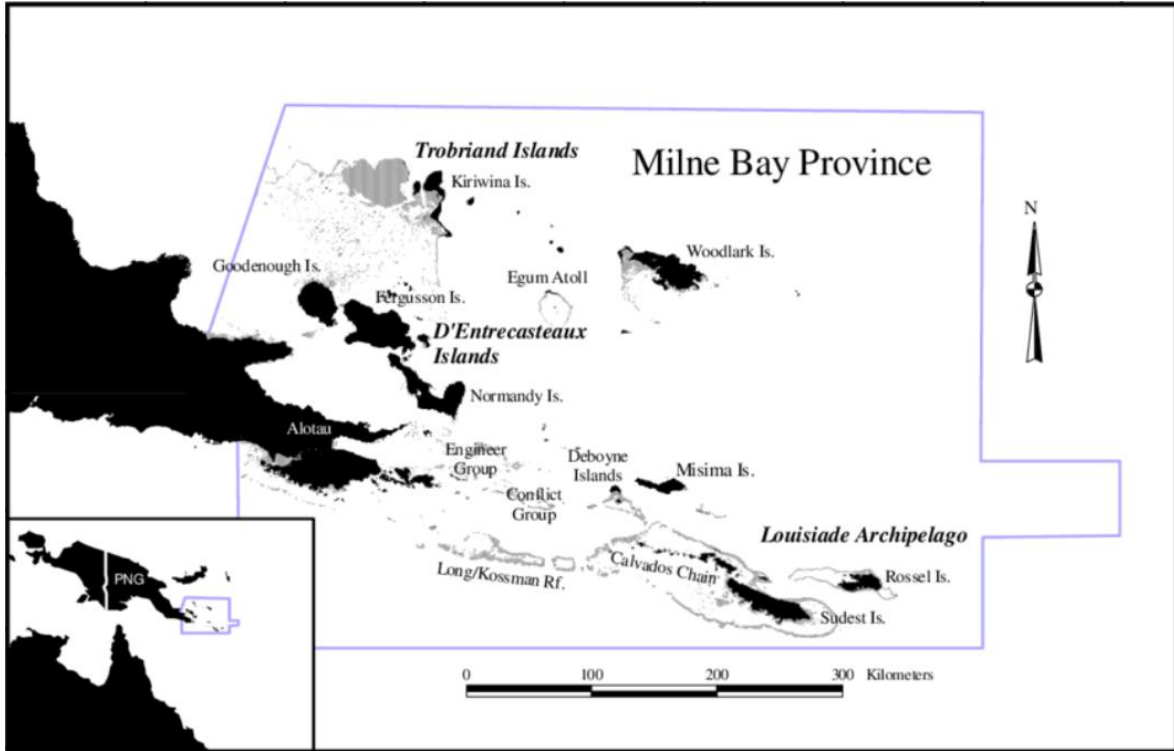


Figure 1 Misima Island Location Map

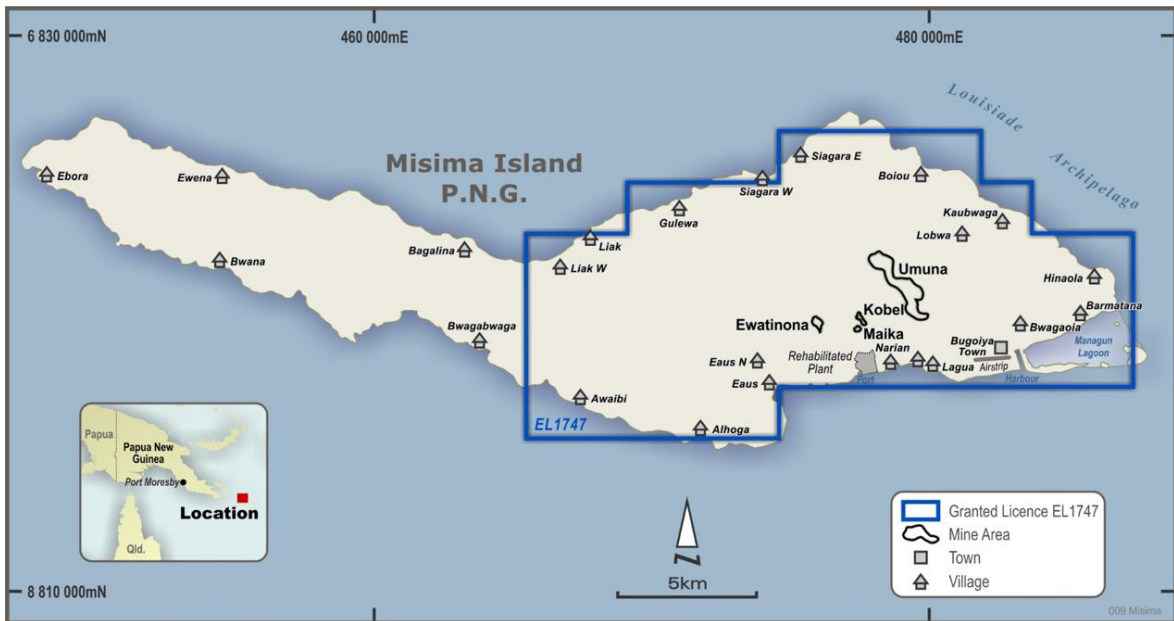


Figure 2 Granted Licence EL1747

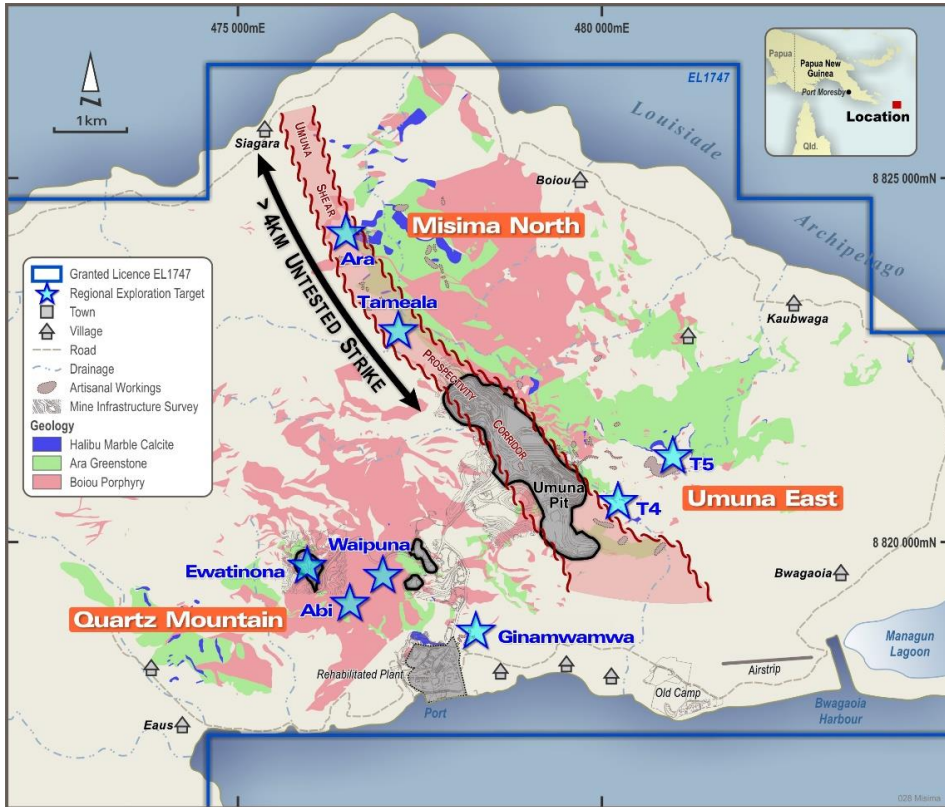


Figure 3 Misima Gold Project - Prospect and Deposit location plan

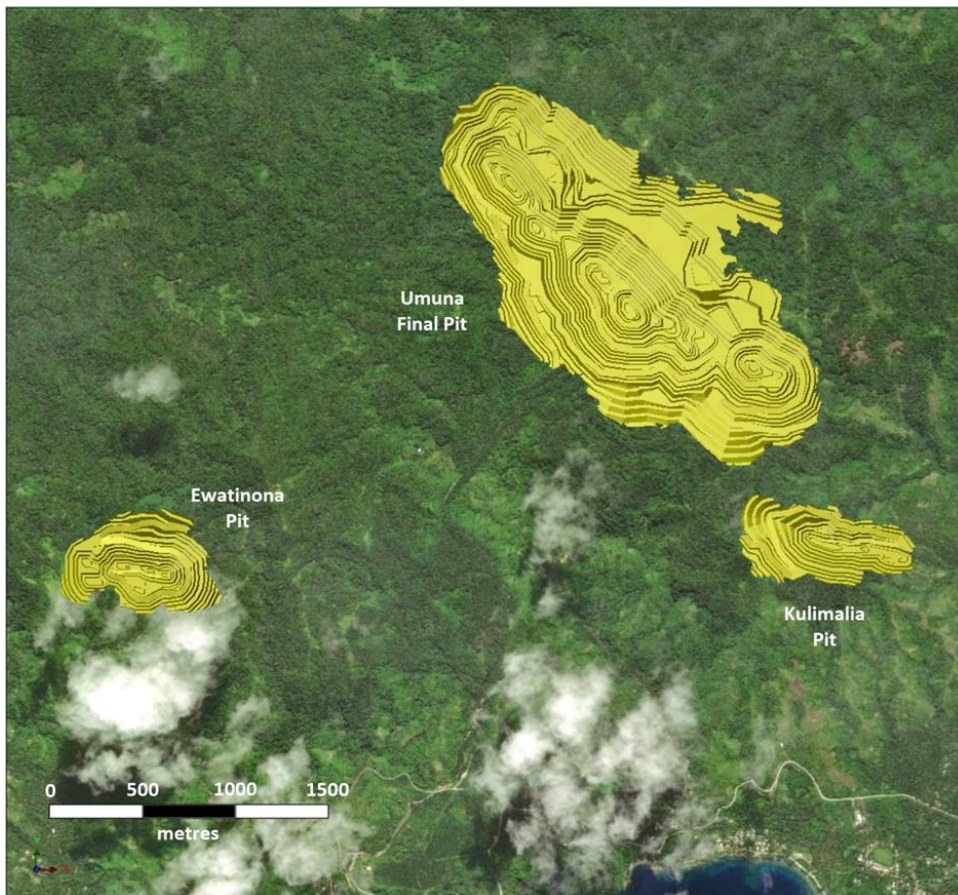


Figure 4 Final Pits – Reserve



## 5.6 Ore Reserve Assessment

Table 3 JORC Table 1 Section 4, Estimation and Reporting Ore Reserves

This Statement is an update to the November 2020 Ore Reserve Estimate. Sections 1, 2 and 3 of Table 1 of the JORC Code 2012 relating to the Mineral Resource are included in the Mineral Resource Estimate dated 15<sup>th</sup> September 2021.

### JORC Code, 2012 Edition – Table 1

#### 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	Commentary
<i>Mineral Resource estimate for conversion to Ore Reserves</i>	<p>The Ore Reserve is based on Mineral Resource Estimates for Ewatinona and Umuna prepared under the direction of Mr Stuart Hayward of Kingston Resources Limited (KSN). The Mineral Resource Estimates were reported in an ASX release by KSN dated 15<sup>th</sup> September 2021.</p> <p>The Mineral Resources for both Ewatinona and Umuna are inclusive of the Ore Reserves.</p>
<i>Site visits</i>	<p>The Competent Person for the Ore Reserve is Mr John Wyche of Australian Mine Design and Development Pty Ltd (AMDAD). Mr Wyche was unable to visit the site due to the COVID19 pandemic.</p> <p>In lieu of a site visit Mr Wyche has taken reasonable steps to confirm topographic, geological, process, cost, environmental, permitting and local community information provided by KSN and their consultants. As well as discussions with personnel who have visited the site Mr Wyche was able to review extensive operation and production records from the former Placer opencut mine and process plant and literature on the operation and environmental impacts of that operation.</p> <p>Mr Wyche has extensive experience in planning of open cut gold and base metal mines in similar settings in the Solomon Islands, Indonesia and the Philippines. Mr Wyche is satisfied that the information available is adequate to support a Probable Ore Reserve.</p>





Criteria	Commentary
<p><i>Study status</i></p>	<p>The Ore Reserve Estimate was prepared as part of the June 2022 Definitive Feasibility Study (DFS). The DFS covers:</p> <ul style="list-style-type: none"> <li>• Geology and Mineral Resource Estimate,</li> <li>• Mining and Ore Reserves Estimate,</li> <li>• Mineral processing,</li> <li>• Infrastructure,</li> <li>• Environmental impact assessment and management,</li> <li>• Social impact assessment and community relations,</li> <li>• Project execution,</li> <li>• Capital and operating cost estimation, and</li> <li>• Financial modelling.</li> </ul> <p>The DFS is based on opencut mining to supply a 6.1 Mtpa CIL gold processing plant. The processing plant will be located at the site of the previous processing plant on the south coast of Misima Island. The use of other existing onsite facilities, which will be re-established, rebuilt, refurbished or upgraded, will be maximised where practicable, including accommodation facilities, wharf and access roads. Other Project facilities including run-of mine (ROM) and other stockpiles, waste rock dumps, tailings management facilities, power plant, water treatment plant, water supply infrastructure and fuel storage areas will be required to support the operation.</p>
<p><i>Cut-off parameters</i></p>	<p>The cut-off grade is defined as the gold head grade, after applying mining loss and dilution adjustments, for which the value of gold after applying CIL process recoveries just equals the ore costs. Ore costs include:</p> <ul style="list-style-type: none"> <li>• Incremental cost of mining a tonne of material as ore instead of waste,</li> <li>• CIL processing costs per tonne, and</li> <li>• Site general and administration (G&amp;A) costs expressed as A\$/tonne.</li> </ul> <p>Ore costs do not include the cost of mining a tonne of material as waste rock as the purpose of the cut-off grade is to determine whether a tonne of material exposed on the pit bench should be classed as ore or waste. If the recovered value exceeds the sum of the ore costs it will make money and so is ore. If the value is less than the ore costs it is waste.</p> <p>The DFS study has variable gold and silver process recoveries for oxide and fresh ore based on Placer historical test work, 15 years of operational gold recoveries on Misima and current test work on samples from the areas to be mined in the new operation. Oxide and transitional (partial oxide) ore show the same process recoveries and are treated as</p>





Criteria	Commentary									
	<p>a single ore type. All ore costs for both oxide and fresh ore types are assumed to be the same. Silver contributes less than 3% to the estimated revenue and is not included in the cut-off grade calculation.</p> <p>Cut-off grades calculated for the Ore Reserves Estimate are:</p> <table border="1"> <thead> <tr> <th>Deposit</th> <th>Oxide / Transitional</th> <th>Fresh</th> </tr> </thead> <tbody> <tr> <td>Ewatinona Pit</td> <td>0.26 g/t Au</td> <td>0.27 g/t Au</td> </tr> <tr> <td>Umuna Pit</td> <td>0.27 g/t Au</td> <td>0.29 g/t Au</td> </tr> </tbody> </table> <p>These are ROM grades after allowance for mining recovery and dilution.</p> <p>These cut grades were calculated using inputs available at the time of running the pit optimisations, designs and production schedules. Some of the cost and revenue inputs were updated in the DFS financial model but none of the changes raised the cut offs or reduced the Ore Reserves so the original inputs are retained for the Ore Reserve Estimate. The key inputs for the Ore Reserve Estimate include:</p> <ul style="list-style-type: none"> <li>• Gold Price US\$1600/oz</li> <li>• A\$/US\$ exchange rate 0.73</li> <li>• PNG Government royalty 2.5% of gross gold sales value</li> <li>• Gold transport, insurance and refining costs A\$20.00/oz</li> <li>• Additional ore mining cost A\$0.10/ROM tonne</li> <li>• Processing cost A\$10.97/ROM tonne</li> <li>• Site administration, community and environmental costs A\$1.90/ROM tonne</li> <li>• Mining recovery and dilution factors Modelled (see Mining factors or assumptions)</li> <li>• Process recoveries Variable (see Metallurgical factors or assumptions)</li> </ul>	Deposit	Oxide / Transitional	Fresh	Ewatinona Pit	0.26 g/t Au	0.27 g/t Au	Umuna Pit	0.27 g/t Au	0.29 g/t Au
Deposit	Oxide / Transitional	Fresh								
Ewatinona Pit	0.26 g/t Au	0.27 g/t Au								
Umuna Pit	0.27 g/t Au	0.29 g/t Au								
<i>Mining factors or assumptions</i>	All ore and waste from Ewatinona and Umuna will be mined by conventional open cut methods using large hydraulic excavators and rigid body dump trucks. Open cut mining is appropriate for the relatively low grades and distribution of gold mineralisation within the depth range of the proposed pits.									



Criteria	Commentary
	<p>Pit wall overall slopes and berm / batter configurations are based a geotechnical assessment by Pells Sullivan Meynink geotechnical engineers which considered:</p> <ul style="list-style-type: none"><li>• Eight dedicated geotechnical core holes drilled during 2021,</li><li>• A limited hydrogeological assessment program for the DFS,</li><li>• Available geotechnical reports dating from 1985 to 2001,</li><li>• Core photographs from recent drilling,</li><li>• Current LIDAR topography surface,</li><li>• Approximate “as mined” pit surveys from the Placer operation,</li><li>• Interpreted mineralisation and weathering wireframes and surfaces, and</li><li>• Publicly available scientific reports on the Misima geology and mineralisation.</li></ul> <p>The assessment provided</p> <ul style="list-style-type: none"><li>• Inter-ramp slopes for pit optimisation,</li><li>• Maximum stack heights for the inter-ramp slopes,</li><li>• Berm and batter configurations for the defined geotechnical domains,</li><li>• Recommended geotechnical berms where the maximum stack height is exceeded, and</li><li>• Recommendations on pit wall slope monitoring and management.</li></ul> <p>The current Ewatinona and Umuna pit voids include waste rock from the former opencut mining operation. Ewatinona has 1.2 Mm<sup>3</sup> of backfilled waste rock and Umuna has 54 Mm<sup>3</sup>. This backfill will be mined as waste without blasting. The rest of the ore and waste to be mined is rock which will require blasting.</p> <p>The current Umuna pit void contains water at the north and south ends. Approximately 10.7 Glitres of water will have to be pumped from the void during the first two years of mining.</p> <p>Pit designs are guided by Whittle™ pit optimisations run by AMDAD using:</p> <ul style="list-style-type: none"><li>• The current Mineral Resource models with mining adjustments modelled by AMDAD,</li><li>• Slopes from the PSM mine geotechnical assessment,</li><li>• Mining costs estimated by AMDAD based on fleet and explosives vendor quotes, PNG labour rates and PNG diesel costs applied to the 2022 DFS pit designs and schedules,</li><li>• Preliminary process operating costs estimated by KSN's process consultants,</li></ul>



Criteria	Commentary
	<ul style="list-style-type: none"> <li>• General and administration costs based on the 2022 DFS operating cost model.</li> <li>• Other cost, revenue and process recovery inputs supplied by KSN and their consultants.</li> </ul> <p>The Mineral Resource models are Ordinary Kriged estimates with gold and silver grades presented as a single grade per block. The blocks are sub-blocked against interpreted mineralisation wireframes to model shapes of the lodes. AMDAD modelled mining loss and dilution by re-blocking the Mineral Resource to a fixed 7.5x7.5x10 metre block size (NSxEWxElev) on the basis that this would represent a workable mining unit size for the planned production rate of up to 6.1 Mtpa of ore feed. Re-blocking to this size mixes smaller sub-blocked resource blocks with the surrounding blocks resulting in dilution along the margins of the potential ore zones. Checks of the re-blocked models confirmed the contained metal was unchanged but the grade distribution had been moved to lower grade ranges.</p> <p>The open pits planned for Ewatinona and Umuna are pushbacks of the Placer pits. Wherever possible a minimum pushback width of 30 metres was applied. This minimum width mainly affects upper benches on the north east wall of Umuna Pit. Mining rates were reduced in areas with narrow benches.</p> <p>The pit optimisations run to define the pits only considered Indicated Mineral resources. There are no Measured resources in the current Mineral Resource. Inferred was treated as waste. The life of mine production schedule includes low grade material from the Cooktown Stockpile left by the former mining operation. Production records, survey assessments and check drilling during 2021 indicate the stockpile contains an Inferred Resource of 3.8Mt @ 0.65g/t Au &amp; 7.0g/t Ag for 80koz Au and 85koz Ag. Checks were done to ensure the pits would be viable without the Cooktown Stockpile.</p> <p>The mine plan is a re-development of a project which operated successfully from 1989 to 2004. The CIL process plant design is based on the Placer plant with improvements for current technology. Much of the necessary support infrastructure such as the air strip and haul roads either remains in place or can be readily refurbished. The engineering plan includes DFS level design and cost estimation for all infrastructure whether it is refurbishment of existing facilities or construction of new items such as the power station.</p>
<p><i>Metallurgical factors or assumptions</i></p>	<p>CIL processing of the Misima gold ore was conducted at 5 Mtpa from 1989 to 2004. Planning for the new 6.1 Mtpa facility is based on the former operation with improvements for current technology.</p> <p>The DFS study has variable gold and silver process recoveries for oxide and fresh ore based on Placer historical test work, 15 years of operational gold recoveries on Misima and current test work on samples from the areas to be mined in the new operation. Oxide and transitional (partial oxide) ore show the same process recoveries and are treated as a single ore type. The following empirical relationships were derived:</p>



Criteria	Commentary
	<p>Ewatinona Gold</p> <ul style="list-style-type: none"> <li>• Oxide Recovery = <math>(Au_H - 0.067 * Au_H) / Au_H</math></li> <li>• Fresh Recovery = <math>(Au_H - (0.078 * Au_H + 0.006)) / Au_H</math></li> </ul> <p>Umuna Gold</p> <ul style="list-style-type: none"> <li>• Oxide Recovery = <math>(Au_H - (-0.025 * Au_H^2 + 0.124 * Au_H)) / Au_H</math></li> <li>• Fresh Recovery = <math>(Au_H - (0.133 * Au_H + 0.009)) / Au_H</math></li> </ul> <p>Ewatinona Silver</p> <ul style="list-style-type: none"> <li>• Oxide Recovery = <math>(62.3 * (Ag_H / Au_H)^{-0.26}) / 100</math></li> <li>• Fresh Recovery = <math>(62.3 * (Ag_H / Au_H)^{-0.26}) / 100</math></li> </ul> <p>Umuna Silver</p> <ul style="list-style-type: none"> <li>• Oxide Recovery = <math>(62.3 * (Ag_H / Au_H)^{-0.26}) / 100</math></li> <li>• Fresh Recovery = <math>(62.3 * (Ag_H / Au_H)^{-0.26}) / 100</math></li> </ul> <p>Where:  <math>Au_H</math> = Gold head grade in g/t  <math>Ag_H</math> = Silver head grade in g/t</p>
<i>Environmental</i>	<p>The preparation of the Environmental and Social Impact Assessment (ESIA) for the Misima Gold Project is well progressed, with all associated field investigations complete and the majority of technical specialist reports completed. The current delivery schedule predicts the ESIA to be submitted to Kingston Resources by the end of September 2022 followed by board approval and submission to CEPA by mid-October 2022.</p> <p>The key environmental considerations to be addressed in the ESIA include, potential increased sedimentation and water quality changes in downstream watercourses; vegetation clearing, habitat loss and impacts on biodiversity, and potential impacts from on-land or marine tailings placement.</p>
<i>Infrastructure</i>	<p>Much of the necessary support infrastructure such as the air strip and haul roads either remains in place or can be readily refurbished. The engineering plan includes DFS level design and cost estimation for all infrastructure whether it is refurbishment of existing facilities or construction of new items such as the power station.</p>



Criteria	Commentary														
<i>Costs</i>	<p>Owner mining costs were estimated on a first principles basis. The mining fleet, workforce and consumables, such as explosives and diesel were estimated against detailed production schedules using productivity estimates and haulage modelling. Sources of costs included:</p> <ul style="list-style-type: none"> <li>• Vendor quotes for detailed capital and life cycle maintenance costs for the fleet,</li> <li>• Wear parts, tyres and lubrication costs from an industry generic cost database,</li> <li>• Vendor quotes for “down the hole” explosives supply,</li> <li>• Vendor quotes for diesel supply,</li> <li>• Labour rates from a PNG recruitment firm,</li> </ul> <p>Operating and capital cost estimates for the process and infrastructure are based mainly on vendor quotes, first principles estimation and factoring of costs from other sources. A small portion of assumed and historical costs were also used.</p> <p>The capital and operating cost estimates meet the requirements of an AACE Class 2 estimate and have a targeted accuracy of between +/- 15%.</p> <p>The following table provides a summary of the capital cost estimates prepared for the Ore Reserve:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Item</th> <th>A\$m</th> </tr> </thead> <tbody> <tr> <td>Processing Plant</td> <td>200.0</td> </tr> <tr> <td>Other Infrastructures</td> <td>63.6</td> </tr> <tr> <td>Mine Development and Pre-strip</td> <td>65.3</td> </tr> <tr> <td>Owner’s Cost</td> <td>104.6</td> </tr> <tr> <td>Contingencies</td> <td>42.1</td> </tr> <tr> <td><b>Total Capital Costs</b></td> <td><b>476</b></td> </tr> </tbody> </table> <p>All costs in Australian dollars.</p> <p>PNG royalty at 2% of sales and 0.5% Production Levy.</p>	Item	A\$m	Processing Plant	200.0	Other Infrastructures	63.6	Mine Development and Pre-strip	65.3	Owner’s Cost	104.6	Contingencies	42.1	<b>Total Capital Costs</b>	<b>476</b>
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Criteria	Commentary
<i>Revenue factors</i>	Cut off grades were assessed against a gold price of US\$1600 and an AUD/USD exchange rate of 0.73. In the final economic model KSN used a long term gold price of US\$1800/oz and an AUD/USD exchange rate of 0.70. US\$25/oz was used for silver.
<i>Market assessment</i>	Gold is a readily marketable commodity. Demand is not an issue but the gold price can be variable. Gold price forecasts are as discussed under “Revenue Factors”.
<i>Economic</i>	<p>KSN prepared a detailed pre- and post-tax financial model using the final DFS production schedule, metal prices and operating and capital cost estimates. The model is in Australian dollars but uses PNG tax rules. Using the DFS inputs of gold at US\$1800/oz, silver at US\$25/oz and a AUD/USD rate of 0.70 the project has a life of 15 years with a payback period of 6.3 years and a post-tax net present value (NPV) of A\$391 million when based on Ore Reserves only.</p> <p>Sensitivity analyses on key variables show the project is most sensitive to gold price. It is much less sensitive to increases in mining and processing costs.</p> <p>The financial analysis is based on reasonable assumptions on the Modifying Factors which have been assessed at a DFS level of confidence.</p>
<i>Social</i>	<p>The population of Misima is currently estimated at 20,000 people. A number of villages are located along or adjacent to the coast, with the main town, Bwagaoia, located in the southeast corner of the island. Other villages in proximity to the mine site include Eaus, Kaubwaga, Narian, Laguna and Bwagaoia.</p> <p>During Placer operations the mine employed and trained over 600 Misimans, with overall national employment of 90% achieved before mine closure. Today, there are still regular charter flights from Misima Island transporting ex-Placer operations workers who live on Misima Island to other major mines in PNG such as Ok Tedi, Porgera, Simberi and Lihir. The successful training and transfer of skills to these workers and their ongoing employment at other mines since Misima closed is one of the main beneficial socio-economic legacies of the previous mining operation.</p> <p>A social baseline study was completed in 2021 and 2022 that involved individual surveys of approximately 800 households, as well as focus group discussions, key informant interviews and village surveys. A Social Impact Assessment is currently underway to assess potential impacts to local communities on Misima Island as a result of the construction and operation of the Project. An investigation into the potential resettlement of villages located in proximity to the mine site is also currently underway to manage potential amenity impacts to communities due to the Project.</p>



Criteria	Commentary
	<p>The key social considerations to be addressed in the ESIA include, impacts on land, water and marine resources used by local people; changes in amenity (i.e., noise and air emissions); loss of land used for artisanal mining operations; and potential resettlement of some villages near Project facilities. The Misima Gold Project will aim to reinstate the previous successful Placer training and education programs to promote individuals' ongoing employment opportunities at other mines following the closure of Misima Mine in 20 years.</p> <p>The Kingston Resources Community Affairs team maintains open dialogue with the local communities on Misima Island and provides regular Project updates. Additionally, the Community Affairs team has held engagement sessions with women's groups across Misima Island to specifically seek input and feedback from women community representatives. Agreements on long term benefits to the local communities during and post-operations will be further developed through the ESIA and through direct engagement with those communities.</p> <p>Mitigation measures to manage these environmental and social impacts have been developed for the Project and will be presented in the ESIA.</p>
<p><i>Other</i></p>	<p>The proposed Project is situated within the granted exploration licence, EL1747, which covers the eastern portion of Misima Island and is held by Gallipoli Exploration a subsidiary of Kingston Resources Limited, a publicly-listed exploration and development company on the Australian Stock Exchange (ASX: KSN). KSN owns 100% of the Misima Gold Mine through its subsidiaries WCB Pacific Ltd and Gallipoli Exploration (PNG) Ltd.</p> <p>The Property consists of a single Exploration Licence, (EL) 1747, comprising 53 sub blocks, covering a total area of 180 km<sup>2</sup>. This EL is valid up until the 20th March 2023, a two-year renewal will be applied for prior to this date, as completed on previous occasions. All conditions pertaining to compliance of the title have been met. The Property is located on the eastern portion of the island and includes the historic mining areas of Umuna and Ewatinona. There are no known impediments.</p> <p>There are two streams of approval required for a mineral development in Papua New Guinea (PNG). The first is the granting of the ML, which is controlled by the Mining Act 1992 and administrated by the Mineral Resources Authority (MRA). The second is the grant of the Environmental Permit which is controlled by the Environment Act 2000 and administered by the PNG Conservation and Environment Protection Authority (CEPA). The Environment Permit must be granted before a Mining Licence (ML) can be issued under the PNG Mining Act 1992.</p> <p>Kingston commenced the project approval process in October 2020 with the submission of the EIR to CEPA. The process is underway for the completion of the studies and agreements required to submit the ML application.</p>



Criteria	Commentary
	<p>Kingston Resources conducted two risk workshops throughout the Project, an initial risk assessment that reviewed the risks from the PFS phase and added any additional risks and a second risk workshop that reviewed and closed any risks that were addressed throughout the DFS phase.</p> <p>The following are the key level 4 risks identified during the Project:</p> <ul style="list-style-type: none"> <li>• Community resistance to waste rock dumps, consumption of garden lands and village proximity to the dumps.</li> <li>• Deep-sea tailings creating an unacceptable risk to the marine environment.</li> <li>• Geotechnical risk associated with infrastructure and processing plant being built over the top of existing foundations.</li> <li>• Slope failure in the pit and on the waste rock dumps.</li> <li>• Pricing escalations as a result of COVID-19 and uncertain global geopolitical risks.</li> </ul> <p>An internal risk assessment review by KSN concluded that on the information currently available none of these risks have a significant likelihood of preventing development and operation of the project or realisation of its value as set out in the DFS.</p>
<i>Classification</i>	<p>The modifying factors for conversion of the Mineral Resource to the Ore Reserve are defined at a DFS level of confidence. The current Mineral Resource has no Measured Resources so only Indicated Resources are available for conversion to Ore Reserves. Probable Ore Reserves are derived from Indicated Mineral Resources.</p> <p>The Ore Reserve does not include any Inferred Mineral Resources.</p> <p>In the opinion of the Competent Person for the Ore Reserves, Mr John Wyche, classification of the Probable Ore Reserve is an accurate reflection of the level of confidence for a mine plan based on many years of operating history and the current DFS level of project definition.</p>
<i>Audits or reviews</i>	<p>No external audits of the Ore Reserve estimate have been undertaken.</p>
<i>Discussion of relative</i>	<p>The Competent Person, John Wyche, believes the Ore Reserves provide a good global estimate of the tonnes and contained gold in the Umuna and Ewatinona Pits. Records from 12 years of mining by Placer provide very good confidence in the location of the mineralised zones exposed during mining. Most of the gold is in down dip extension</p>



Criteria	Commentary
<i>accuracy/ confidence</i>	<p>of the zones mined in the final benches of the Placer pits. However, the steep topography, dense vegetation, flooded pit voids and location of target zones in the walls and floor of the old pits make it difficult to drill new exploration holes to define the gold and silver distribution in the targets to a high degree of confidence. This is reflected in the Mineral resource Estimate comprising Indicated and Inferred Resources but no Measured Resources.</p> <p>On the current level of resource definition it is likely that actual mined grades may show significant variance from the scheduled Ore Reserves on a month to month basis but should show better agreement over longer periods of one year or more. The Ore Reserve is expected to be a good global estimate but less reliable locally.</p>



## 6 RESOURCE AND RESERVE CATEGORIES – EXPLANATION

According to the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code) 2012 Edition:-

A 'Mineral Resource' is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade (or quality), and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade (or quality), continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling. Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories.

An 'Inferred Mineral Resource' is that part of a Mineral Resource for which quantity and grade (or quality) are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade (or quality) continuity. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.

An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to an Ore Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

An 'Indicated Mineral Resource' is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit.

Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes, and is sufficient to assume geological and grade (or quality) continuity between points of observation where data and samples are gathered.

An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Ore Reserve.

A 'Measured Mineral Resource' is that part of a Mineral Resource for which quantity, grade (or quality), densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit.

Geological evidence is derived from detailed and reliable exploration, sampling and testing gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes, and is sufficient to confirm geological and grade (or quality) continuity between points of observation where data and samples are gathered.

A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proved Ore Reserve or under certain circumstances to a Probable Ore Reserve.





An ‘Ore Reserve’ is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified.

The guidelines in the JORC Code state that the term ‘economically mineable’ implies that extraction of the Ore Reserves has been demonstrated to be viable under reasonable financial assumptions. This will vary with the type of deposit, the level of study that has been carried out and the financial criteria of the individual company. For this reason, there can be no fixed definition for the term ‘economically mineable’.

A ‘Probable Ore Reserve’ is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying Factors applying to a Probable Ore Reserve is lower than that applying to a Proved Ore Reserve.

A ‘Proved Ore Reserve’ is the economically mineable part of a Measured Mineral Resource. A Proved Ore Reserve implies a high degree of confidence in the Modifying Factors.

The guidelines provided in the JORC Code note that “A Proved Ore Reserve represents the highest confidence category of reserve estimate and implies a high degree of confidence in geological and grade continuity, and the consideration of the Modifying Factors. The style of mineralisation or other factors could mean that Proved Ore Reserves are not achievable in some deposits.”

The following figure, from the JORC Code, sets out the framework for classifying tonnage and grade estimates to reflect different levels of geological confidence and different degrees of technical and economic evaluation.

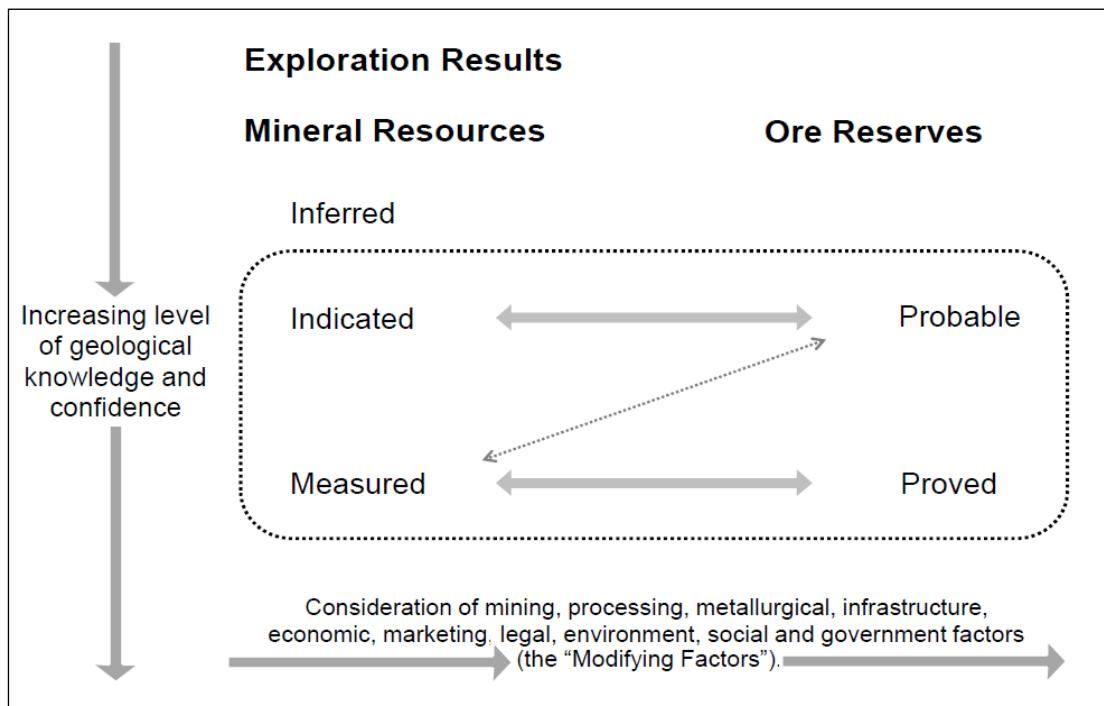


Figure 5 General relationship between Exploration Results, Mineral Resources and Ore Reserves, from 2012 JORC Code Figure 1



Mineral Resources can be estimated on the basis of geoscientific information with some input from other disciplines. Ore Reserves, which are a modified sub-set of the Indicated and Measured Mineral Resources (shown within the dashed outline in the Figure above), require consideration of the Modifying Factors affecting extraction, and should in most instances be estimated with input from a range of disciplines.

Measured Mineral Resources may be converted to either Proved Ore Reserves or Probable Ore Reserves. The Competent Person may convert Measured Mineral Resources to Probable Ore Reserves because of uncertainties associated with some or all of the Modifying Factors which are taken into account in the conversion from Mineral Resources to Ore Reserves.

Inferred Resources cannot convert to Ore Reserves.



## References

JORC. (2012). *JORC Code 2012*. Web document

[https://www.google.com.au/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKewjknb-W-ObWAhVFtJQKHamsDOMQFggzMAA&url=http%3A%2F%2Fwww.jorc.org%2Fdocs%2Fjorc\\_code2012.pdf&usg=AOvVaw0Ck7UKoAypFxmNAllumixT](https://www.google.com.au/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKewjknb-W-ObWAhVFtJQKHamsDOMQFggzMAA&url=http%3A%2F%2Fwww.jorc.org%2Fdocs%2Fjorc_code2012.pdf&usg=AOvVaw0Ck7UKoAypFxmNAllumixT) last retrieved 11/10/2017