



Strong production and cashflow today

A clear pathway to delivering substantial increases in production and mine life

2017 Precious Metals Summit Beaver Creek – September 2017 / Peter Cash, Chief Executive Officer

Disclaimer



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Note: All USD amounts referred to in this presentation are AUD converted at a rate of AUD/USD 0.80.

Investment Overview



Debt-free Australian gold miner, currently producing ~80,000oz pa with strong cash generation

Guidance of 41-43,000oz at AISC of US\$1088 - 1112/oz for six months to 31 Dec 2017

Market cap: US\$109m at US\$0.14 a share

1.3Moz Resource inventory to underpin significant increase in production and mine life – expansion studies complete



The Assets and the Growth Strategy



Nullagine Operations

- ▶ Evolving mining strategy
- ▶ Investing in future growth

Exploration

- ▶ US\$17.6M exploration commitment for 2017
- ▶ Outstanding success to date



Positive Expansion Study

- ▶ Unlock +850,000oz fresh Mineral Resource
- ▶ Processing breakthrough

Moving Underground

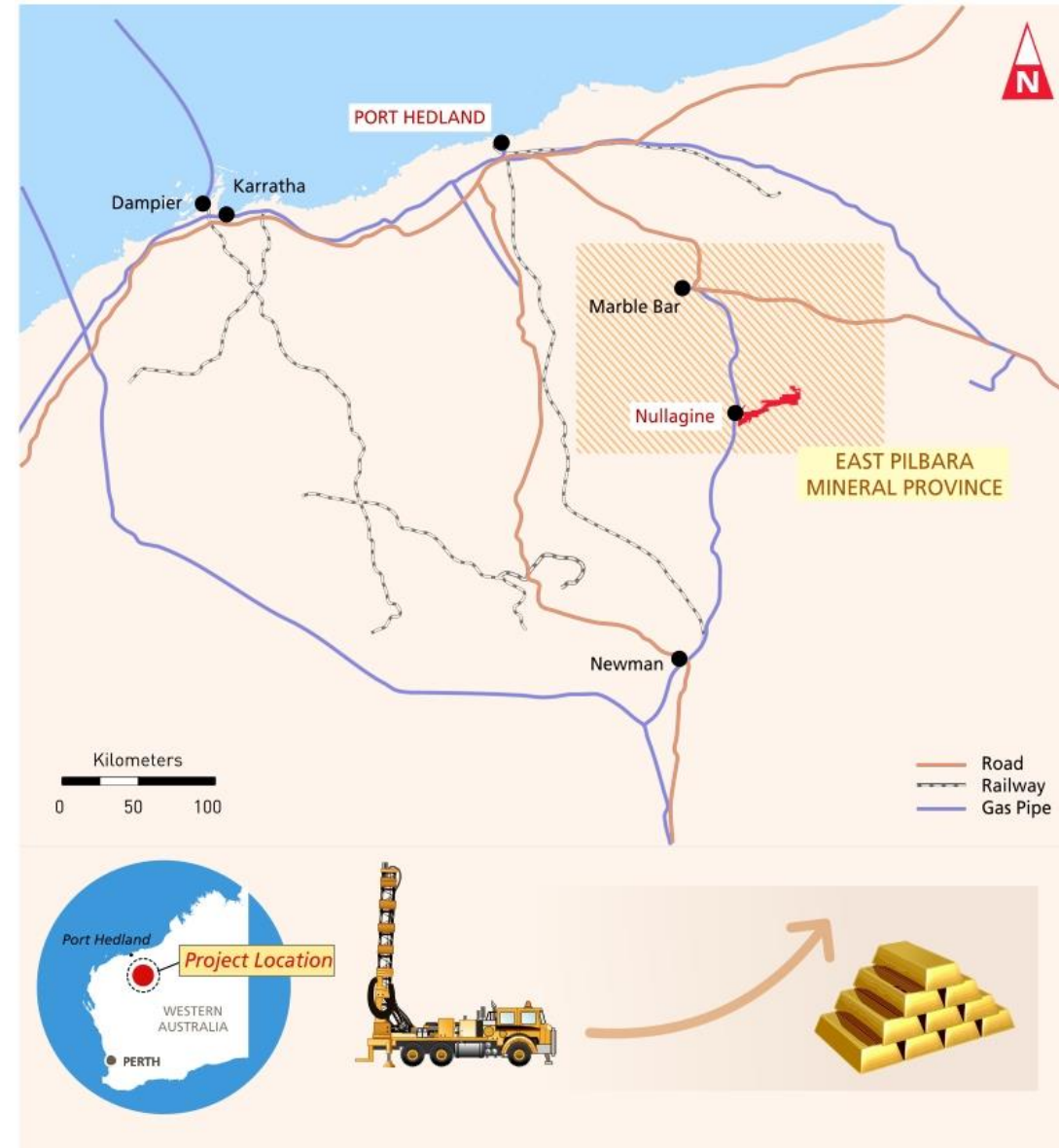
- ▶ First UG resource and positive Scoping Study at Bartons
- ▶ Assessment of UG potential at other deposits underway



Nullagine Operations – Production and Cash-Flow Today



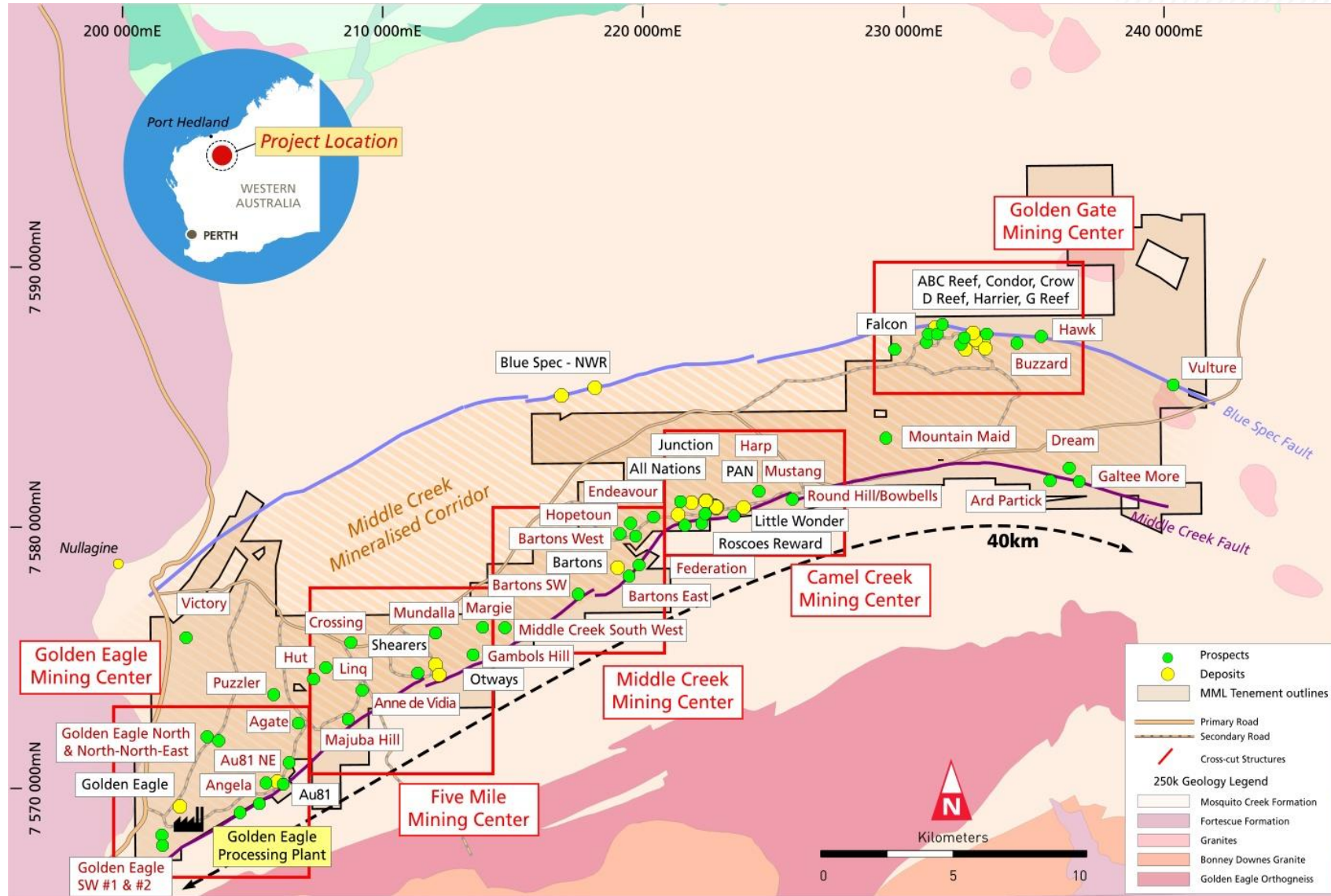
- ▶ Located in the East Pilbara region of Western Australia
- ▶ 100%-owned land-holding covering 264km² of the highly prospective and under-explored Mosquito Creek Gold Belt
- ▶ 2Mtpa CIL ore treatment plant
- ▶ Free operating cash-flow of US\$32.1M for CY2016
- ▶ CY2017 production guidance of 75-80,000oz at AISC of US\$1088 - 1112/oz:
 - ▶ *First half impacted by heavy rain, production forecast to return to steady-state rate in second half*
 - ▶ *Guidance for six months to 31 Dec 2017 of 41-43,000oz at AISC of US\$1088 - 1112/oz*
- ▶ Focus switched to mining larger-scale, longer-life deposits
- ▶ Strategy aimed at establishing more sustainable, lower cost ore sources, e.g.
 - ▶ *Bartons large-scale pit cut-back (currently underway)*
 - ▶ *Majuba deposit (set for mining in the 2H CY2017)*



Nullagine Project – Extensive Organic Growth Opportunities



- ▶ Five Mining Centres defined with +40km strike length and +30 targets
- ▶ Drilling of over 150,000m YTD in 2017 and 220,000m completed in 2016
- ▶ Initial focus targeting incremental oxide ounces:
 - ▶ *Near-mine, shallow targets including extensions adjacent to existing pits*
 - ▶ *New brownfields discoveries*
- ▶ Immediate success with 48% increase in Ore Reserves (after mining depletion) to 186koz as at 31 Dec 2016
- ▶ **While oxide exploration is continuing aggressively, Millennium is also progressing an exciting new growth opportunity at Nullagine...**



Fresh Ore – The New Growth Opportunity

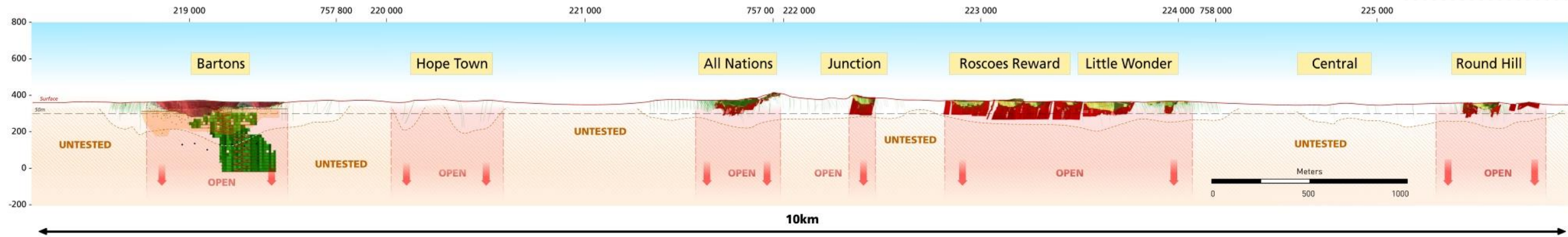


- ▶ Nullagine Mineral Resource includes ~850,000oz contained in fresh mineral resource inventory (at December 2016)
- ▶ Recent metallurgical testwork has delivered a major breakthrough, showing that portions of the fresh material can be processed in existing CIL plant and the rest in a conventional flotation circuit
- ▶ Recoveries of up to 90% on fresh material
- ▶ Expansion Study confirmed integrated CIL and flotation circuit as preferred plant configuration:
 - ▶ *Delivers maximum flexibility in processing all ore types – throughput of 1.5Mtpa achievable when treating fresh ore only*
 - ▶ *Increased throughput delivers significantly lower operating costs = lower cut-off grades*
 - ▶ *Test work shows that precious metals sulphide concentrate of up to 60g/t Au can be produced*
 - ▶ *Capital cost estimated in the range of US\$32.0 - 36.8M (including contingency)*
- ▶ Re-optimisation of entire Mineral Resource inventory underway to underpin next stage of expansion study
- ▶ Feasibility Study targeted for completion in December 2017 Quarter



Results offer potential to unlock value from the existing 850,000oz of fresh material in current Mineral Resource inventory

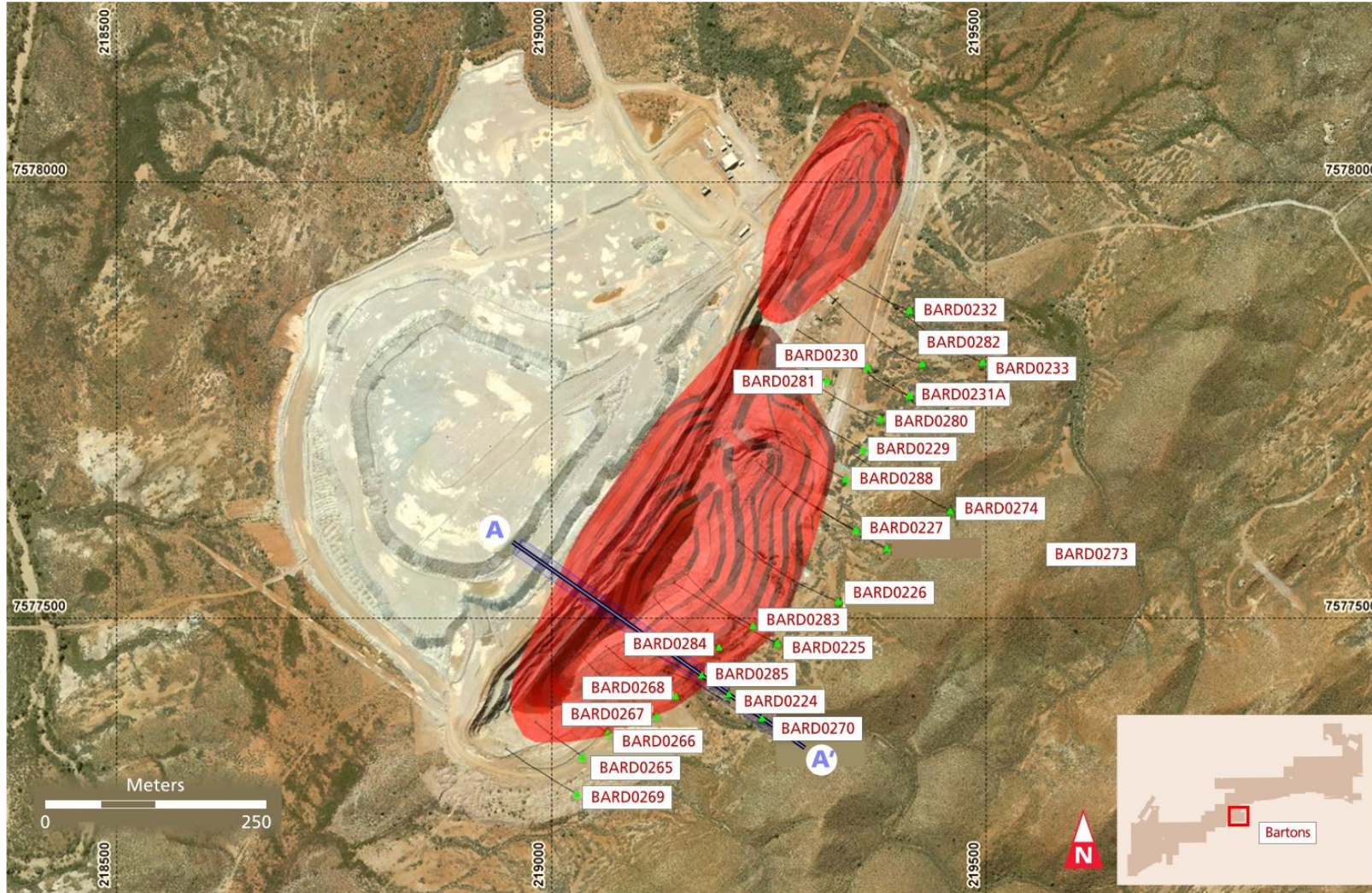
Going Deeper at Nullagine – Fresh Ore, Fresh Opportunities



- ▶ **Scope for substantial increase in fresh Mineral Resource with extensive mineralisation beneath all known resources**
 - ▶ Extensive drilling program already underway to grow fresh ore inventory below several deposits
 - ▶ Positive Scoping Study completed for Bartons Underground mining operation, with studies underway on additional UG deposits
 - ▶ Leading global mining consultants Entech engaged to undertake all underground mining studies
 - ▶ First-pass evaluation also shows that some fresh Resources can be accessed by larger open pit cut-backs



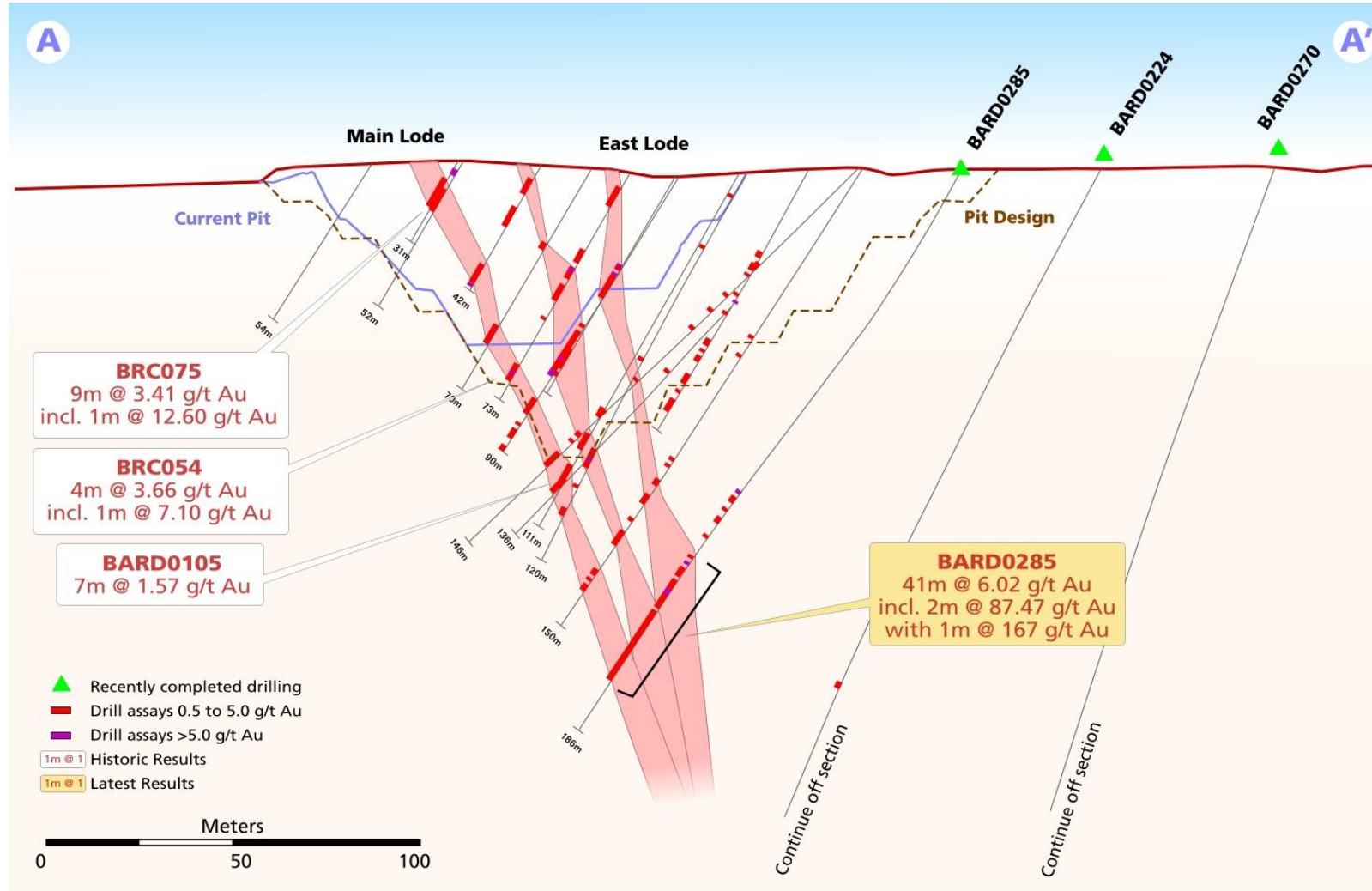
Bartons – The First Significant Fresh Ore Opportunity



Recent testwork has confirmed that deeper fresh ore at Bartons is free-milling and can be treated through the existing CIL plant with recoveries of up to 90%

- ▶ First pass results from deep drilling provided significant encouragement to pursue cut-back and assess underground potential:
 - ▶ 16m @ 5.91g/t incl. 2m @ 31.95g/t
 - ▶ 8m @ 11.56g/t incl. 3m @ 29.63g/t
 - ▶ 6m @ 12.69g/t incl. 2m @ 32.42g/t
 - ▶ 4m @ 18.6g/t incl. 2m @ 36.19g/t
 - ▶ 8m @ 9.13g/t incl. 3m @ 22.41g/t
- ▶ Major pit cut-back now underway to access ~25,000oz of high-grade material (~2.15g/t Au) – exceeds current run-of-mine grade

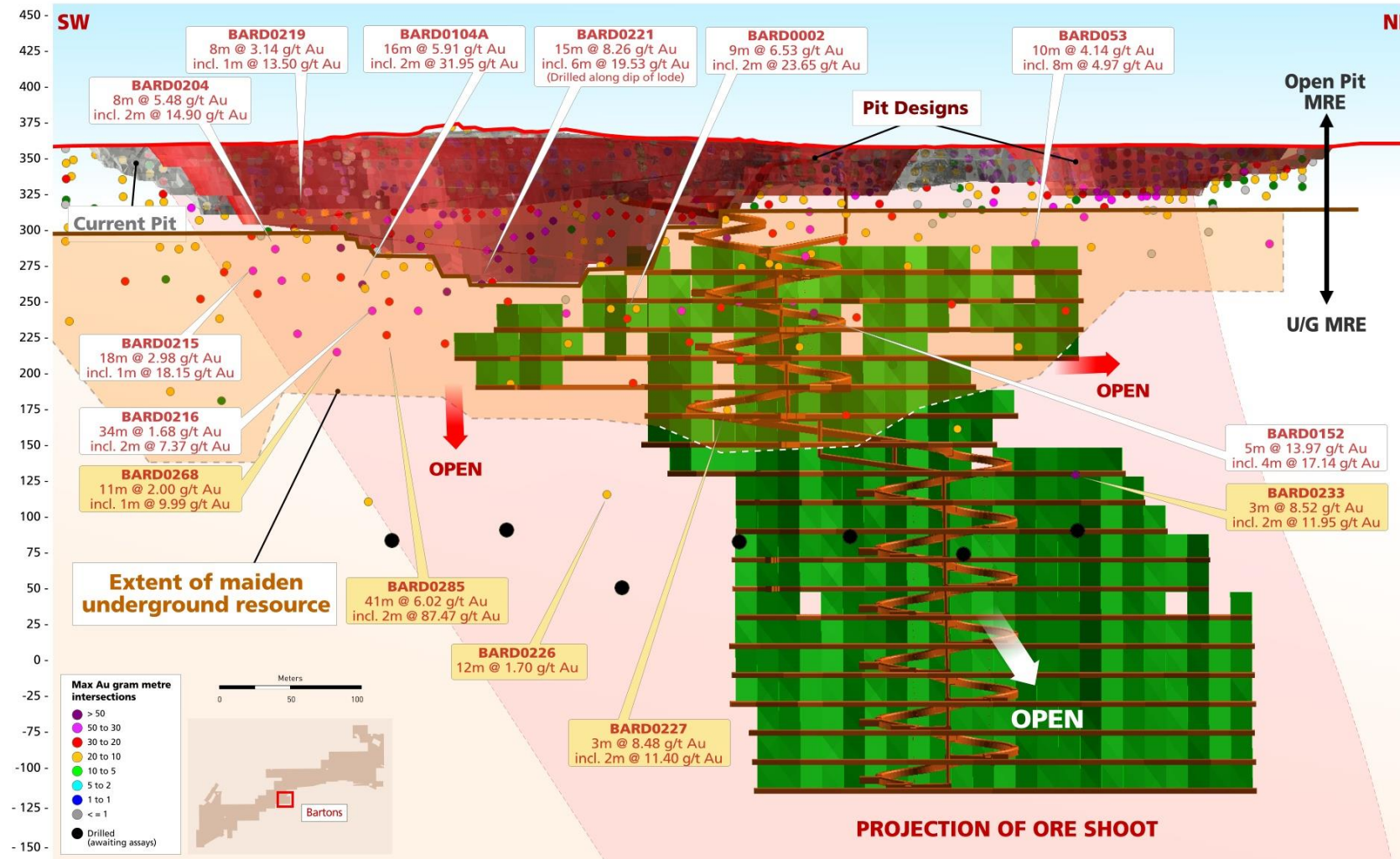
Bartons – The First Significant Fresh Ore Opportunity



- ▶ Outstanding thick, high-grade results from recent deeper drilling, including a standout intercept of:
 - ▶ **41m at 6.02g/t Au, including 2m @ 87.47g/t and 1m @ 167g/t**
- ▶ All holes have successfully intersected the main ore zone and continue to define extensions of the mineralization both along strike and down-plunge
- ▶ **Results confirm potential to establish underground mining operation**

Recent drilling has demonstrated that Bartons mineralised system extends at depth, with three steeply-plunging lodes coalescing at depth

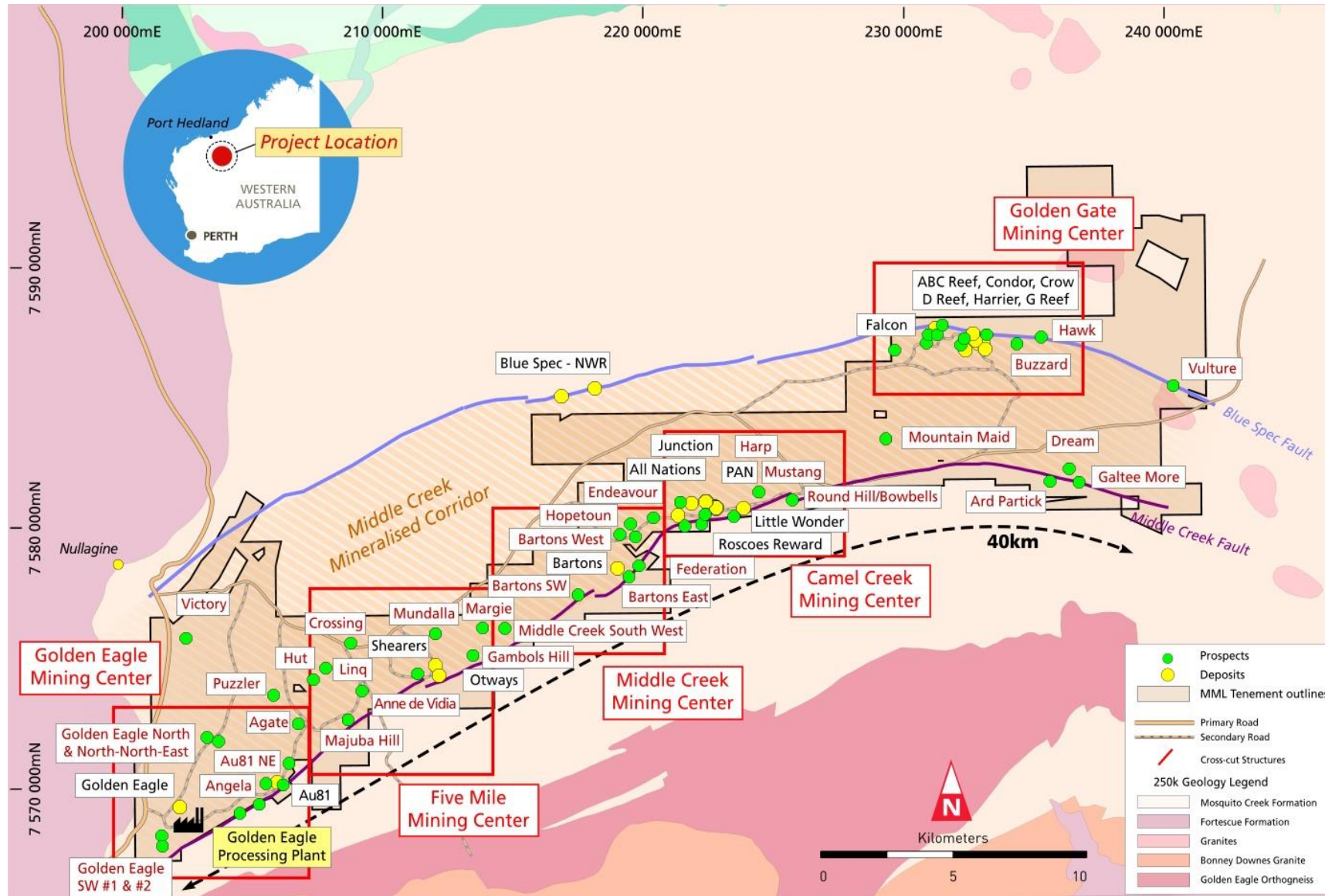
Bartons – The First Significant Fresh Ore Opportunity



- ▶ Phase 1 underground Mineral Resource:
 - ▶ **475,900t at 5.3g/t Au for 80,400oz**
- ▶ Mineralisation open at depth and along strike
- ▶ Positive Scoping Study completed, fast-tracked Feasibility Study now underway:
 - ▶ **In-fill drilling program underway to upgrade Resource status**
- ▶ Aiming to commence underground development in Q1 2018
- ▶ Further drilling to be conducted from underground drilling platforms:
 - ▶ **Expected to generate significant cost savings compared with drilling from surface**

Bartons is rapidly emerging as Millennium's first underground mining opportunity at Nullagine

Oxide Exploration – Remains a Key Priority

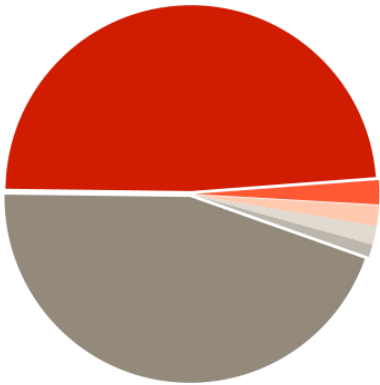


- ▶ Oxide exploration has been highly successful and will continue to remain a key focus
- ▶ Drilling to grow inventory and mine life continues to deliver thick, high-grade intersections across multiple prospects
- ▶ Exploration budget recently increased from US\$11.9M to \$17.6M for CY2017
- ▶ +200,000m of drilling planned with up to 5 rigs operating throughout the year
- ▶ 4 RC Rigs and 1 diamond rig now on site

Corporate Overview



ASX Code	Cash & Bullion at 30 June 17
MOY	US\$22.2M
Shares on Issue	Debt
780.9M	NIL
ASX Index	Market Cap (US\$0.14/share)
All Ords	~US\$109M



Key Shareholders

- IMC Group - 48.6%
- Oppenheimer Funds - 2.1%
- Old Mutual - 1.8%
- Mr David Teoh - 1.6%
- Mr Andrew L Rouse - 1.1%
- Other - 44.8%



Board	
Greg Bittar	Non Executive Chairman
Peter Lester	Non Executive Director
Tim Kennedy	Non Executive Director
Michael Chye	Non Executive Director
Management	
Peter Cash	Chief Executive Officer
Dean Will	Chief Operating Officer
Stacey Apostolou	Chief Financial Officer
Asareh Mansoori	General Manager - Operations

Millennium – Key Investment Takeaways



Nullagine Gold Project generating consistent production and cash-flows (75-80koz for CY 2017)

Strong balance sheet maximises free cash-flow and minimises risk – no debt

Improved mining strategy delivering benefits – focusing on larger, more sustainable ore sources

Expansion study completed – confirms potential to unlock +850,000oz inventory

Maiden underground resource and Scoping Study completed – more underground deposits to follow

Nullagine now moving rapidly to the next level – unlocking the significant value of the fresh resources



Mineral Resource Estimates



December 2016 Mineral Resource (including Fresh Ore ounces)

Mineral Resource Category	Million Tonnes (Mt)	Grade (g/t Au)	Thousand Ounces (Koz)	Incl. Ounces in Fresh Ore (Koz)
Measured	11.02	1.3	459.7	283
Indicated	11.37	1.3	470.1	270
Inferred	9.37	1.2	350.6	294
Total	31.76	1.3	1,280.4	847

Bartons Underground Mineral Resource

Mineral Resource Category	Tonnes (000's)	Grade (g/t Au)	Ounces (000's)
Indicated	62.0	5.1	10.1
Inferred	413.9	5.3	70.4
Total	475.9	5.3	80.4

Competent Person's Statement



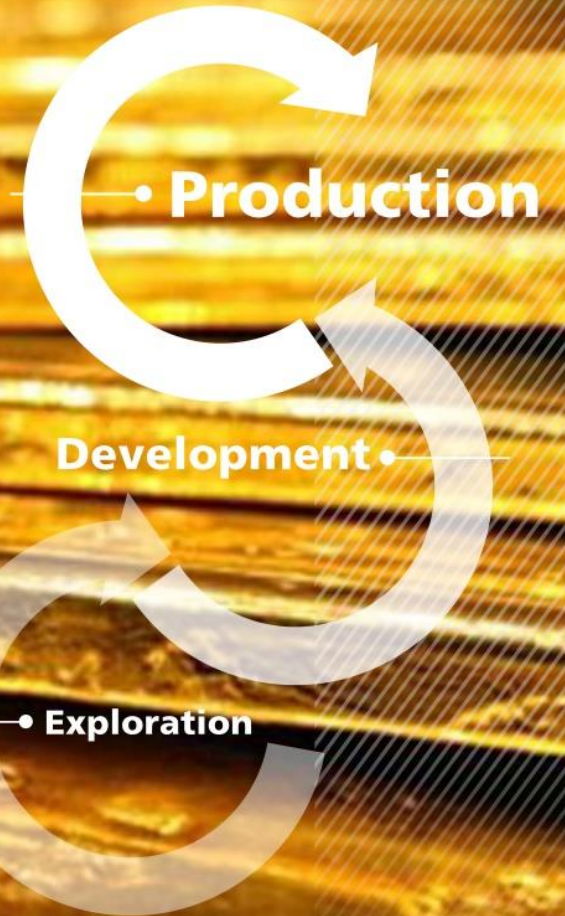
The information in this presentation relating to exploration results from the Nullagine project has been extracted from various Company announcements and are available to view at www.millenniumminerals.com.au.

The information in this presentation relating to Mineral Resources or Ore Reserves is extracted from the announcements titled:

- 1. Mineral Resources and Ore Reserve Statement dated 15 February 2017; and*
- 2. Growth strategy gains momentum with maiden underground Resource dated 7 August 2017,*

and are available to view at www.millenniumminerals.com.au.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that all material assumptions and technical parameters underpinning the results and estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings as presented have not been materially modified from the original market announcement.



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A clear pathway to delivering substantial increases in production and mine life

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