



# **Calingiri Copper Project**

Advancing a world class resource with  
proven ore sorting technology

**Investor Presentation**

**March 2018**

# Important Information

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## Forward-Looking Statements

This presentation includes certain statements that may be deemed “forward-looking statements”. All statements in this presentation, other than statements of historical facts, that address future production, reserve or resource potential, exploration drilling, exploitation activities and events or developments that Caravel Minerals Limited (the **Company**) expects to occur, are forward-looking statements.

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## Competent Person Statement

The information in this report that relates to the Calingiri Mineral Resource estimates is extracted from an ASX Announcement by Caravel Minerals dated 4 April 2016 (“*Calingiri Maiden JORC Resource*”) available at [www.caravelminerals.com.au](http://www.caravelminerals.com.au) and [www.asx.com.au](http://www.asx.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 announcement and that all material assumptions and technical parameters underpinning the Mineral Resource 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 are represented have not been materially modified from the original market announcement.

## Production Targets and Financial Information

Information in relation to the Calingiri Project Scoping Study, including production targets and financial information, included in this report is extracted from an ASX Announcement by Caravel Minerals dated 28 June 2016 (“*Scoping Study Confirms Outstanding WA Copper Project*”) available at [www.caravelminerals.com.au](http://www.caravelminerals.com.au) and [www.asx.com.au](http://www.asx.com.au). The Company confirms that all material assumptions underpinning the production target and financial information set out in the announcement released on 28 June 2016 continue to apply and have not materially changed.



*Driving **Calingiri Copper Project** returns via the application of proven ore sorting technology*



## A world class copper resource

- 🔸 **Location:** Developed, premier strategic jurisdiction in Western Australia
- 🔸 **Scale & simplicity:** Large resource, low strip ratio and conventional flotation
- 🔸 **Upside:** Resource extensional and higher grade optimisation potential
- 🔸 **Advanced: Scoping Study** completed by CSA Global in June 2016

## Proven ore sorting technology

- 🔸 **Successful** Phase 2 testwork confirms potential for major project upgrade
- 🔸 **Higher Feed Grades, greatly reduced plant feed with only modest metal losses**
- 🔸 Resounding confirmation of **potential** from recent testwork



## Enhanced project returns

- 🔸 Lower plant throughput combined with **higher mill feed grade**
- 🔸 **Decreased power/water** consumption and tailings requirements
- 🔸 **Reduced upfront capital requirements** and unit operating costs
- 🔸 Targeting updated Scoping Study in 4Q18 and DFS in late 2019

# Corporate Snapshot



*A highly experienced Board and management team with strong ownership alignment*

## Capital structure

|                                   |          |
|-----------------------------------|----------|
| ASX ticker                        | CVV      |
| Share price (26 February 2018)    | A\$0.061 |
| Shares on issue                   | 118 M    |
| Unlisted options                  | 37 M     |
| Market capitalisation (undiluted) | A\$7.2 M |
| Cash (31 December 2017)           | A\$1.9 M |
| Debt                              | Nil      |

## Board and key management

|                 |                         |
|-----------------|-------------------------|
| Peter Alexander | Non-Executive Chairman  |
| Marcel Hilmer   | CEO, Executive Director |
| James Harris    | Non-Executive Director  |
| Dan Ryan        | Non-Executive Director  |
| Tony Poustie    | Director of Exploration |
| Dale Hanna      | CFO                     |

## CVV share price performance (1 year)



## Major shareholders

|                                    |              |
|------------------------------------|--------------|
| Copulos Group                      | 7.0%         |
| AFR Australia Pty Ltd              | 6.4%         |
| Capital Sanctuary Victoria Pty Ltd | 5.8%         |
| Tony Poustie Group                 | 5.6%         |
| Marcel Hilmer Group                | 5.6%         |
| Hartree Pty Ltd                    | 5.3%         |
| <b>Top 20 shareholders</b>         | <b>65.1%</b> |
| <b>Board and management</b>        | <b>17.0%</b> |

# Calingiri: A world class copper resource...



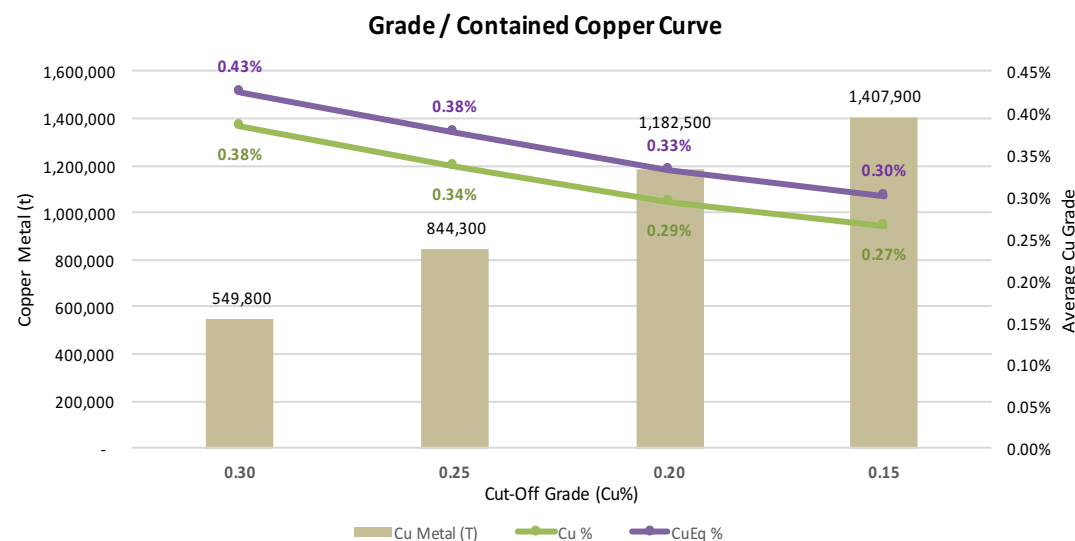
*A substantial mineral inventory with strong expansion potential*

## Calingiri Global Resource<sup>1</sup>

844kt copper and 17kt molybdenum

251Mt at 0.34% Cu (0.38% CuEq<sup>2</sup>)

- ☛ Sulphides at depths of 5-50m below surface
- ☛ Tabular zones of 50-200m+ true thickness
- ☛ Low 1:1 strip ratio<sup>3</sup>
- ☛ 92% Cu recovery with conventional flotation<sup>3</sup>
- ☛ Open along strike and at depth



1 Based on Bindi, Dasher and Opie Prospects. (0.25% cut-off)

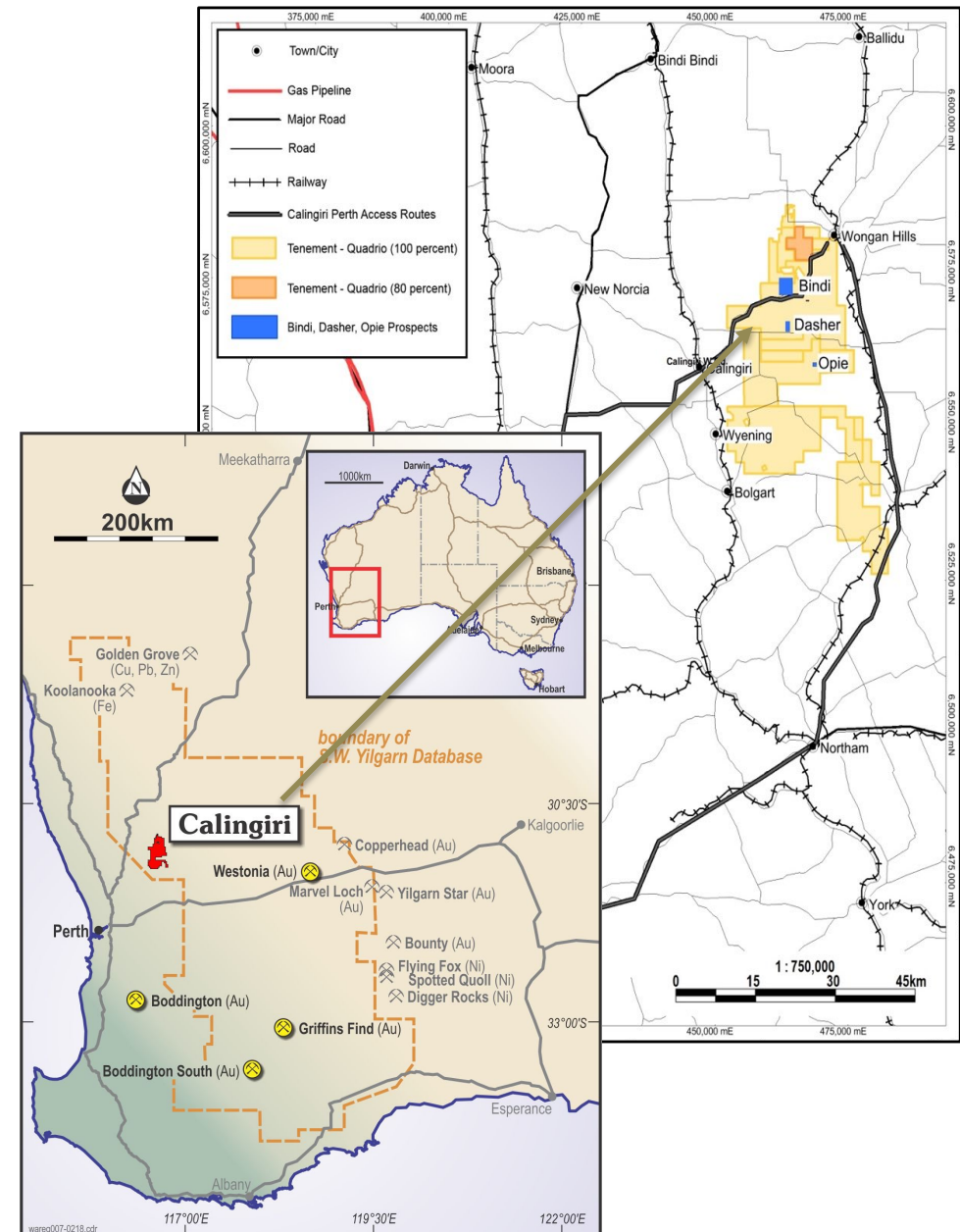
2 Refer to previous Mineral Resource Estimate disclosures by Caravel and Appendix slides.

3 Scoping Study by CSA Global in June 2016.

# ...in a globally attractive location

*Only 120km from Perth*

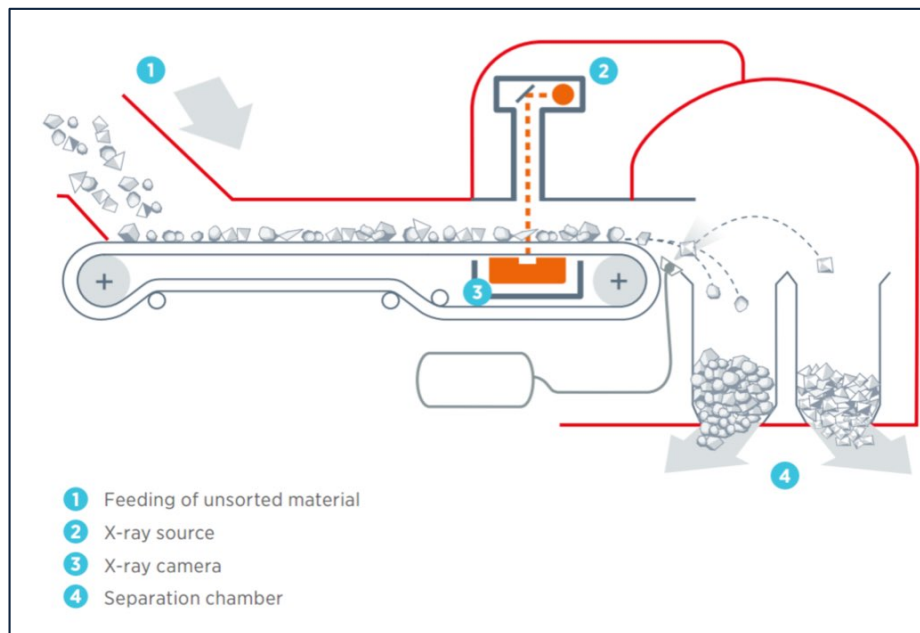
- First World, premier strategic jurisdiction
- No existing native title on Calingiri tenement base
- Minimal/low environmental risks
- Proximate sealed road and rail network
- Linking to suitable ports – Fremantle and Geraldton
- Extensive regional power infrastructure
- Highly skilled, resident local workforce



# The Ore Sorting Opportunity

*Upgrading of plant ore feed to further enhance project returns*

Bulk ore sorting is a commercially proven pre-concentration technology in which barren gangue is separated from mineralisation based on grade as measured from a sensor measurement



## Ore sorting potential

- Lower plant throughput
- Higher feed grade
- Similar metal output
- Lower power & water consumption
- Lower tailings output
- Lower plant capex
- Lower unit operating costs
- **Enhanced project economics**

# A Proven Process

*Ore sorting is a well established pre-concentration technology*

- 👉 Commercially proven, high capacity process globally
- 👉 Currently testing **TOMRA** DE-XRT technology (with plans to test other key suppliers' equipment)
  - 250 ore sorting installations globally
  - 3,500 employees and A\$1.1B turnover (2016)
- 👉 Commercial ore sorting technology is currently in use by a wide range of resource extraction businesses globally from large diversified miners and mid-tier producers, through to single mine operators and niche product specialists



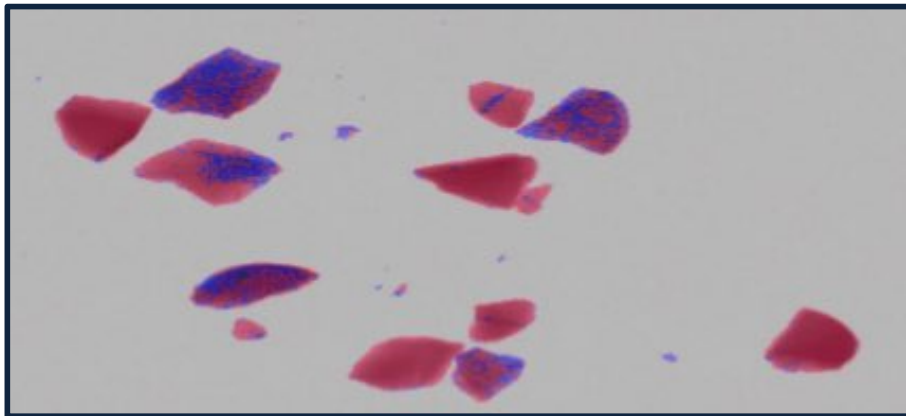


# Why is Calingiri so well suited to ore sorting?

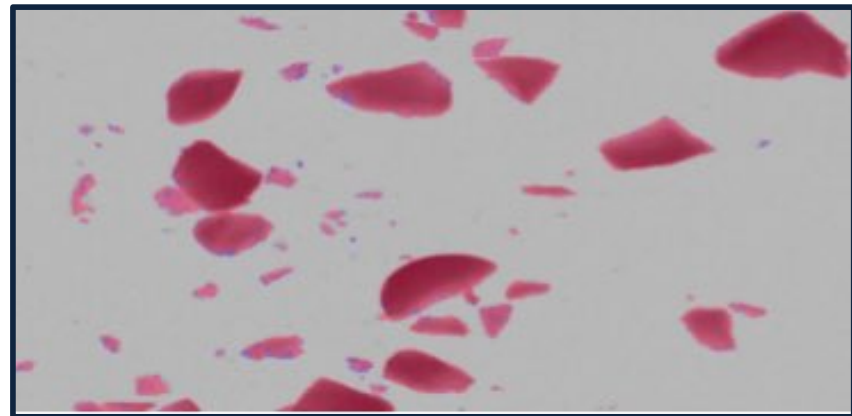
*Readily amenable to density-driven ore beneficiation process*

- ☛ DE-XRT sensor based on atomic weight/density of component minerals
  - High density (blue in images below) = typically *sulphides* (mineralisation)
  - Low density (red in images below) = typically *silicates* (gangue)
- ☛ **Specific stringer and vein mineralisation style at Calingiri readily lends itself to effective sensor reading**
- ☛ **Very low strip ratio** at Calingiri also delivers significant scope for ore sorting to drive much higher returns

**Bindi high-grade ore sample**



**Bindi unmineralised ore sample**

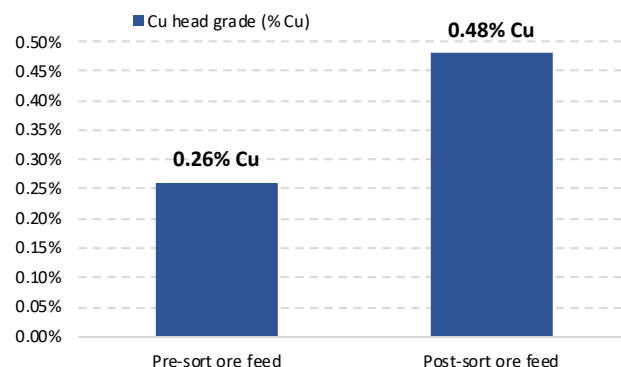


# Outstanding Bulk Ore Sorting Results

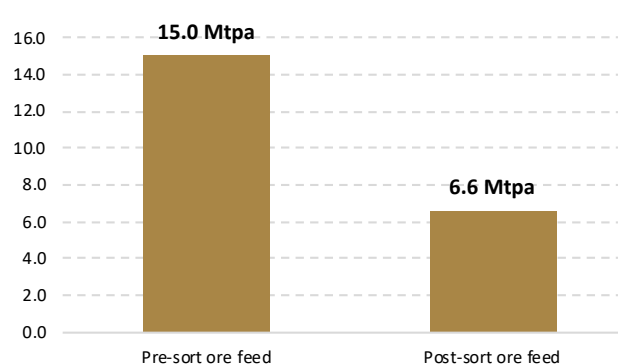


*Very high upgrade levels achieved in Phase 2 testwork<sup>1</sup>*

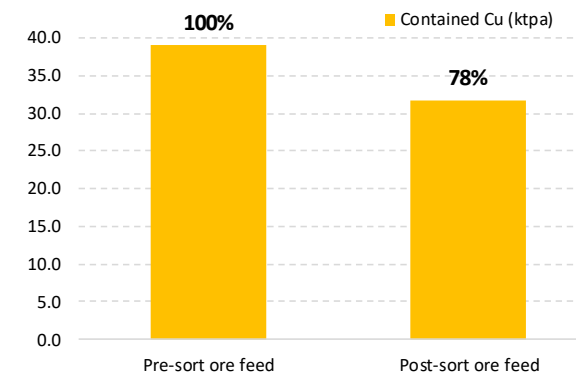
**Copper grade increase of 86%...**



**Reduction in plant feed of 56%...**



**Deferral/loss of contained copper only 22%...**



- o **Outstanding results:** Average 86% increase in head grade with accompanying 56% reduction in ore feed
- o **Low deferral/loss of contained Cu:** Achieved with deferral/loss of in-situ copper content limited to 22%
- o **Scale and representativeness:** Phase 2 testwork based on large bulk samples totalling approx. 1 tonne
- o **Even higher upgrades to Mo and Ag levels:** CuEq head grade increased from 0.30% CuEq to 0.55% CuEq
- o **Competing processes:** Ongoing review and assessment of other compatible ore sorting technologies

<sup>1</sup> See Caravel ASX Release, 26 February 2018, "Outstanding Bulk Ore Sorting Results"

# Strong Potential for Project Re-rating



*Targeting aggressive re-positioning of Calingiri mine economics<sup>1</sup>*

## **1 Lower throughput = smaller plant = lower project capital**

Process plant capital in the Scoping Study was A\$250M, representing 57% of total pre-production capital (A\$440M).

Also potential to maintain annual copper output if plant throughput only reduced to 8-9mtpa (versus 6.6mtpa).

## **2 Reduced unit operating costs**

Processing a higher feed grade, even with additional ore sorting costs and higher material movements, offers clear potential to reduce final cash cost per pound of copper produced.

## **3 Process above LOM feed grade in early operating years**

High-grade sort stream (37% of post-sort plant feed at 0.83% Cu) delivers real potential to accelerate mining and sorting activities during construction and deliver higher grade plant feed during the early operating years.

## **4 Re-optimize existing mine planning to replace deferred/lost contained copper**

Opportunity to re-optimize Calingiri mine planning with a lower overall cut-off grade, potentially replacing some or all of the deferred/lost contained copper and possibly even extending previously defined mine life.

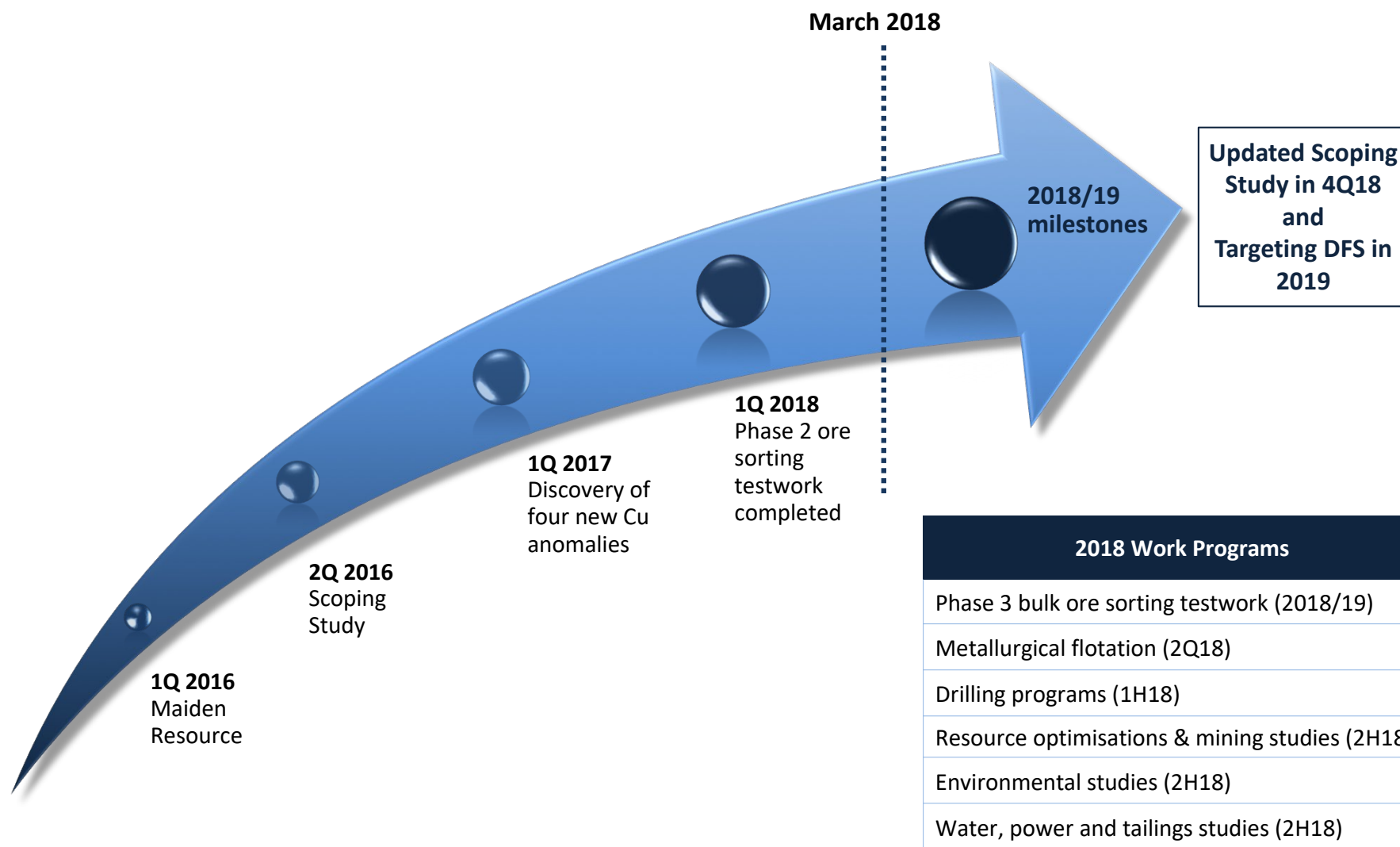
## **5 Improved project economics**

Clear potential to reduce project capex and lower cash costs, thereby improving forecast project economics.

<sup>1</sup> See Caravel ASX Release, 26 February 2018, "Outstanding Bulk Ore Sorting Results"

# Calingiri Roadmap and Newsflow Pipeline

*Driving towards an updated Scoping Study in 2018 and DFS in 2019*





# A high quality leadership team<sup>1</sup>



*Deep exploration, project, mining, commercial and corporate expertise*

## Management Team



Marcel Hilmer  
**CEO and Executive Director**



Dale Hanna  
**CFO and  
Company Secretary**



Tony Poustie  
**Director of Exploration**

## Board



Peter Alexander  
**Non-Executive Chairman**



James Harris  
**Non-Executive Director**



Dan Ryan  
**Non-Executive Director**

<sup>1</sup> See Caravel Website: click on "About Us" for full bio's.

# The Caravel Investment Proposition



*An emerging Australian growth story propelled by the flagship Calingiri Copper Project*

- ✓ Fully funded to complete updated Scoping Study in 2018
- ✓ Significant potential for resource expansion (exploration underway)
- ✓ Bulk ore sorting Phase 2 results to support robust economics
- ✓ Environmental, social, tenure and infrastructure low risk
- ✓ A premier strategic location
- ✓ Low technical risk
- ✓ No native title issues
- ✓ Local workforce
- ✓ Basic, low cost open pit mining with very low 1:1 strip ratio
- ✓ Conventional flotation processing to deliver +90% copper recoveries

# Contact

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# Mineral Resource Estimate Disclosures<sup>1</sup>

| Table 1: Consolidated Indicated and Inferred Resource Estimate (0.25% Cut-off) |             |             |             |                |
|--|-------------|-------------|-------------|----------------|
| Classification   | Tonnes (MT) | Cu %        | Cu Eq % *   | Cu Metal (T)   |
| Indicated  | 187         | 0.34        | 0.38        | 626,300        |
| Inferred   | 64          | 0.34        | 0.38        | 218,000        |
| <b>Total</b>   | <b>251</b>  | <b>0.34</b> | <b>0.38</b> | <b>844,300</b> |

| Table 2: Calingiri Project Mineral Resources Categories at Various Cut-off Grades |             |            |              |             |            |              |                |            |              |
|---|-------------|------------|--------------|-------------|------------|--------------|----------------|------------|--------------|
|   | Indicated   |            |              | Inferred    |            |              | Total Resource |            |              |
| Cut-off Grade   | Tonnes (MT) | Grade Cu % | Cu Metal (T) | Tonnes (MT) | Grade Cu % | Cu Metal (T) | Tonnes (MT)    | Grade Cu % | Cu Metal (T) |
| 0.30  | 106         | 0.38       | 405,000      | 38          | 0.39       | 144,751      | 143            | 0.38       | 549,800      |
| 0.25  | 187         | 0.34       | 626,300      | 64          | 0.34       | 218,022      | 251            | 0.34       | 844,300      |
| 0.20  | 297         | 0.30       | 874,900      | 105         | 0.30       | 307,600      | 402            | 0.30       | 1,182,500    |
| 0.15  | 390         | 0.27       | 1,039,800    | 139         | 0.28       | 368,129      | 530            | 0.27       | 1,407,900    |

- ☛ Density is reported at 2.75 for all resource estimates
- ☛ Metal equivalent values were calculated using the formula:  $\text{Cu ppm} + (\text{Mo ppm} \times 2.73) + (\text{Ag ppm} \times 77.9) + (\text{Au ppb} \times 4)$ .
- ☛ Assumed commodity prices were Cu (\$2.87/lb), Mo (\$8.00/lb), Ag (\$17.37 / Oz) and Au (\$1,206/Oz). Prices in USD; sourced from consensus reports supplied by the Bank of Montreal in March 2016.
- ☛ Assumed recoveries are 92% (Cu), Mo (90%), Ag (80%) and Au (60%). Supported by initial metallurgical results suggesting copper along with the associated potential metal by-products; molybdenum, silver and gold can be readily recovered via conventional flotation processes.
- ☛ In estimating Au grades a nominal value of 1 ppb Au has been applied where samples had not been analysed for Au.
- ☛ It is the company's opinion that all the elements included in the metal equivalents calculation have a reasonable potential to be recovered and sold.
- ☛ There may be some minor rounding errors in the tables

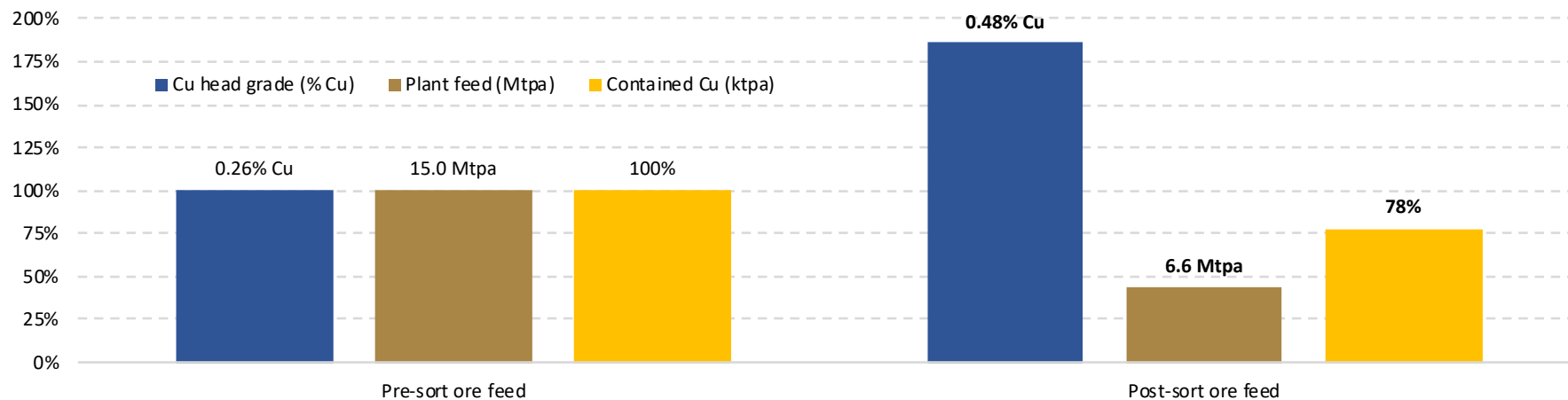
<sup>1</sup> See Caravel ASX Release, 4 April 2016, "Calingiri Maiden JORC Resource"



# Bulk Ore Sorting Outcomes<sup>1</sup>

|                             | Consolidated Product, Middlings and Fines |                   |                 |              |                       |                       |
|-----------------------------|---|-------------------|-----------------|--------------|-----------------------|-----------------------|
|                             | Beneficiated Grade                        | Increase in Grade | % of Total Feed | Cu Eq.       | Reduction in Ore Feed | Contained Cu Dilution |
| <b>Copper - High Grade:</b> | <b>0.83%</b>                              | <b>217%</b>       | <b>37%</b>      |              |                       |                       |
| Copper - Fines:             | 0.36%                                     | 36%               | 30%             |              |                       |                       |
| Copper - Middlings:         | 0.24%                                     | -6%               | 33%             |              |                       |                       |
| <b>Copper - LoM Feed</b>    | <b>0.48%</b>                              | <b>86%</b>        | <b>100%</b>     | <b>0.55%</b> | <b>56%</b>            | <b>22%</b>            |
| Molybdenum (ppm)            | 122                                       | 84%               |                 |              |                       |                       |
| Silver (g/t)                | 2.4                                       | 104%              |                 |              |                       |                       |

## Consolidated bulk ore sorting testwork results (Phase 2)



<sup>1</sup> See Caravel ASX Release, 26 February 2018, "Outstanding Bulk Ore Sorting Results"

# Calingiri Scoping Study outcomes (June 2016)<sup>1</sup>



The Scoping Study requires updating to reflect the improvements from bulk ore sorting testwork

| Operating parameters               | Units | Scoping Study (June 2016) |
|------------------------------------|-------|---------------------------|
| Pre-production mine development    | years | 1.5                       |
| Production mine life               | years | 20.7                      |
| Total mined and milled ore         | Mt    | 310                       |
| Strip ratio                        | t : t | 1.0                       |
| Annual plant throughput            | Mtpa  | 15.0                      |
| Copper head grade (LOM avg)        | % Cu  | 0.26                      |
| Molybdenum head grade (LOM avg)    | % Mo  | 0.005                     |
| Copper recovery (LOM avg)          | %     | 92                        |
| Molybdenum recovery (LOM avg)      | %     | 91                        |
| Total copper-in-concentrate        | kt    | 748                       |
| Total molybdenum-in-concentrate    | kt    | 15.2                      |
| Annual copper production (LOM avg) | kt    | 36                        |
| Annual moly production (LOM avg)   | kt    | 0.7                       |

| Financial parameters                 | Units      | Scoping Study (June 2016) |
|--------------------------------------|------------|---------------------------|
| Forecast copper price (LOM avg)      | US\$/lb    | 2.75                      |
| Forecast molybdenum price (LOM avg)  | US\$/lb    | 8.00                      |
| Forecast A\$/US\$ (LOM avg)          | USc        | 0.72                      |
| Total net revenue                    | A\$M       | 7,100                     |
| Operating cashflow                   | A\$M       | 2,000                     |
| Operating cash cost (excl royalties) | US\$/lb Cu | 1.50                      |
| Pre-production capital cost          | A\$M       | 440                       |
| LOM sustaining capital cost          | A\$M       | 110                       |
| Net cashflow after tax               | A\$M       | 1,500                     |
| Pre-tax NPV (7% discount rate)       | A\$M       | 800                       |
| Post-tax NPV (7% discount rate)      | A\$M       | 520                       |
| Pre-tax IRR                          | %          | 31                        |
| Post-tax IRR                         | %          | 23                        |
| Payback period (after tax)           | years      | 3.0                       |
| Post-tax NPV / pre-production capex  | x          | 1.2                       |

<sup>1</sup> Scoping Study prepared by CSA Global in June 2016; see Caravel ASX Release, 28 June 2016, "Calingiri Scoping Study Confirms Outstanding WA Copper Project"

# Global open-pit copper development projects<sup>1</sup>

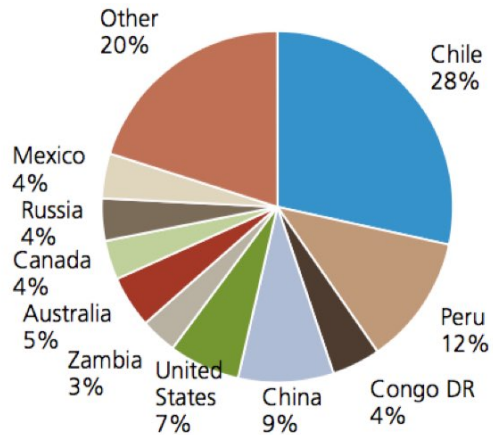


| Company                       | Caravel<br>ASX: CVV | Hot Chili<br>ASX: HCH | Altona<br>ASX: AOH | Redhawk<br>TSX: RDK | Copper Fox<br>TSX: CUU |
|-------------------------------|---------------------|-----------------------|--------------------|---------------------|------------------------|
| Market capitalisation (A\$m)  | 7                   | 18                    | 75                 | C\$5                | C\$55                  |
| Flagship project              | Calingiri           | Productora            | Little Eva         | Copper Creek        | Schaft Ck (25%)        |
| Location                      | Australia           | Chile                 | Australia          | US                  | Canada                 |
| Study phase completed         | Scoping             | PFS                   | FS                 | Scoping             | FS                     |
| Initial life-of-mine (LOM)    | 21                  | 10                    | 14                 | 17                  | 21                     |
| Throughput (Mtpa)             | 15.0                | 14.4                  | 7.0                | 9.0                 | 45.0                   |
| Strip ratio (waste t : ore t) | 1.0                 | 2.7                   | 1.8                | NA                  | 2.0                    |
| Cu grade (% Cu)               | 0.26%               | 0.43%                 | 0.52%              | 0.77%               | 0.27%                  |
| CuEq grade (% CuEq)           | 0.30%               | 0.55%                 | 0.56%              | 0.81%               | 0.43%                  |
| Cu recovery (%)               | 92%                 | 86%                   | 95%                | >90%                | 87%                    |
| Total copper produced (kt)    | 748                 | 527                   | 433                | 965                 | 2,211                  |
| Initial capital cost (A\$m)   | 440                 | US\$725               | 288                | US\$857             | C\$3,257               |
| C1 operating cost (US\$/lb)   | 1.50                | 1.47                  | 1.65               | 1.74                | 1.15                   |
| Study copper price (US\$/lb)  | 2.75                | 3.00                  | 2.95               | 3.00                | 3.25                   |
| Discount rate used (%)        | 7%                  | 7%                    | 7.5%               | 7.5%                | 8%                     |
| Pre-tax NPV (A\$m)            | 800                 | US\$360               | NA                 | US\$231             | C\$513                 |
| Post-tax NPV (A\$m)           | 520                 | US\$220               | 293                | NA                  | C\$67                  |
| Pre-tax IRR (%)               | 31%                 | 18%                   | NA                 | 12%                 | 10%                    |
| Post-tax IRR (%)              | 23%                 | 15%                   | 28%                | NA                  | 8%                     |

<sup>1</sup> Sourced from publicly available company data, February 2018.

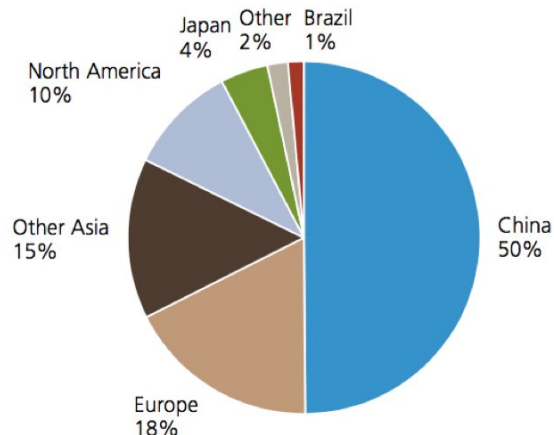
# The Smart Money is on Copper

**Over 40% of global supply concentrated in Chile & Peru**



Source: UBS, AME, WBMS

**Over 50% of global demand from high growth China**



Source: UBS, AME, WBMS

**Key drivers**

**Demand Up**

Used in nearly every major industry of the world

**China Growth**

Driving the recovery with India

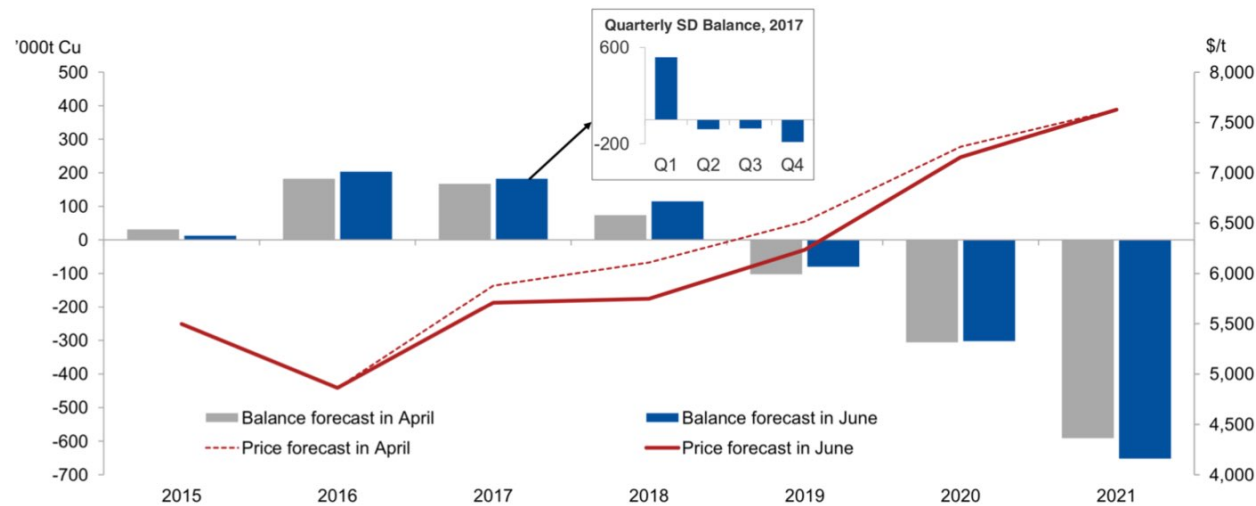
**Supply Risks**

Disruptions, no major discoveries

**Price Outlook**

L/T Forecast remains over US\$3.00/lb

**Medium term market deficits remain intact**



Data: CRU

[www.cruigroup.com](http://www.cruigroup.com)