

10 October 2022

The Manager  
ASX Limited  
Level 40, Central Park,  
152-158 St Georges Terrace  
Perth WA 6000

### Sheffield Resources Limited – Addendum to Investor Presentation

Sheffield Resources Limited (**Sheffield**) (**ASX:SFX**) wishes to advise that the investor presentation titled “*Final Investment Decision – Presentation*” and lodged with the ASX on Friday, 7 October 2022 has been updated to include source data references specifically in relation to Slide 5 of the investor presentation.

An updated investor presentation is attached herein. Specific changes include an additional footnote to Slide 5, and the insertion of Slide 33 noting peer group information sources. All other information within the investor presentation remains unchanged.

Yours sincerely,



**Mark Di Silvio**  
Chief Financial Officer & Company Secretary



# INVESTOR PRESENTATION

FINAL INVESTMENT  
DECISION

BRUCE GRIFFIN  
EXECUTIVE CHAIR

October 2022

ASX: SFX

[www.sheffieldresources.com.au](http://www.sheffieldresources.com.au)



SheffieldResources  
LIMITED





# NOTICE AND DISCLAIMER

**IMPORTANT: You must read the following in conjunction with this document.**

## Summary information in relation to Sheffield

This document contains summary information about Sheffield Resources Limited (ACN 125 811 083) (Company or Sheffield), its subsidiaries and their activities which is current as at the date of this document, unless otherwise indicated. The information in this document remains subject to change without notice, and Sheffield is not responsible for updating, nor does it undertake to update, it. This document should be read in conjunction with Sheffield's periodic and continuous disclosure announcements lodged with the Australian Securities Exchange (ASX), which are available at <http://www.sheffieldresources.com.au/irm/content/asx-announcements1.aspx?RID=398> or [www.asx.com.au](http://www.asx.com.au), including and in particular the "Kimberley Mineral Sands Bankable Feasibility Study", "Thunderbird BFS, Financing and Project Update" and "KMS Executes EPC Construction and Offtake Agreements" announcements (the "BFS Announcements") which set out the relevant assumptions, key risks and other information to consider when assessing information contained in this document. The Company confirms that all material assumptions underpinning any production target and any forecast financial information derived from any production target that is disclosed in this announcement continue to apply and have not materially changed. The Company confirms that the form and context of the Competent Person's findings are presented and have not been materially modified from the original market announcements.

## Industry data

Certain market and industry data used in connection with or referenced in this document, including in relation to other companies in Sheffield's peer group, may have been obtained from public filings, research, surveys or studies made or conducted by third parties, including as published in industry-specific or general publications. Neither Sheffield or their respective representatives have independently verified any such market or industry data.

## Compliance Statements

Information and documentation which forms the basis of the Kimberley Mineral Sands Bankable Feasibility Study (KMS BFS) announced by Sheffield on 24 March 2022 and related information in this document in relation to Mineral Resources, Ore Reserves and metallurgy and process design has previously been reported as detailed below. The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcements and, in the case of the 24 September 2019 Thunderbird Mineral Resource and Ore Reserve Statement, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. In the case of the announcement entitled "Thunderbird BFS Results, Financing and Project Update" dated 24 March 2022, the Company confirms that all material assumptions underpinning any production target and any forecast financial information derived from any production target that is disclosed in this announcement continue to apply and have not materially changed. The Company confirms that the form and context of the Competent Person's findings are presented and have not been materially modified from the original market announcements.

## Not financial product advice

This document does not constitute, and is not intended to constitute, investment or financial product advice (nor tax, accounting or legal advice). This document should not be relied upon as advice to investors or potential investors and has been prepared without taking account of any person's individual investment objectives, financial situation or particular needs. Any investment decision should be made based solely upon appropriate due diligence.

## Financial data

A number of figures, amounts, percentages, estimates, calculations of value and fractions in this document are subject to the effect of rounding. Accordingly, the actual calculation of these figures may differ from the figures set out in this document. All currency amounts are in Australian Dollars (\$) or A\$) unless otherwise stated.

## Future performance, forward-looking statements and key risks

This document contains certain "forward-looking statements". Forward-looking statements can generally be identified by the use of forward looking words such as "forecast", "likely", "believe", "future", "project", "opinion", "guidance", "should", "could", "target", "propose", "to be", "foresee", "aim", "may", "will", "expect", "intend", "plan", "estimate", "anticipate", "continue", "indicative" and "guidance", and other similar words and expressions, which may include, without limitation, statements regarding plans, strategies and objectives of management, anticipated production dates, expected costs or production outputs for the Company, based on (among other things) its estimates of future production of the Thunderbird Project and the future operation of Sheffield and the Thunderbird Project.

To the extent that this document contains forward-looking information (including forward-looking statements, opinions or estimates), the forward-looking information is subject to a number of risk factors, including those generally associated with the mineral sands industry. Any such forward-looking statement also inherently involves known and unknown risks, uncertainties and other factors that may cause actual results, performance and achievements to be materially greater or less than estimated. These factors may include, but are not limited to, changes in commodity prices, foreign exchange fluctuations, general economic and share market conditions, increased costs and demand for production inputs, the speculative nature of exploration and project development (including the risks of obtaining necessary licenses and permits and diminishing quantities or grades of reserves), changes to the regulatory framework within which the Company operates or may in the future operate, environmental conditions including extreme weather conditions, geological and geotechnical events, and environmental issues, and the recruitment and retention of key personnel.

## Estimates of Mineral Resources and Ore Reserves and Exploration Results

This document and the KMS BFS contains estimates of Ore Reserves and Mineral Resources and information that relates to exploration results.

The Mineral Resources and Ore Reserves have been extracted from Sheffield's ASX releases;

"THUNDERBIRD ORE RESERVE UPDATE" 24 March 2022

"SHEFFIELD DOUBLES MEASURED MINERAL RESOURCE AT THUNDERBIRD" 5 July 2016

"HIGH GRADE MAIDEN MINERAL RESOURCE AT NIGHT TRAIN" 31 January 2019

"MINERAL RESOURCE AND ORE RESERVE STATEMENT" 24 September 2019

"THUNDERBIRD ORE RESERVE UPDATE" 31 July 2019

"THUNDERBIRD ORE RESERVE UPDATE" 16 March 2017

The exploration results have been extracted from Sheffield's ASX releases;

"NEW LARGE HIGH GRADE DISCOVERY SOUTH OF THUNDERBIRD" 13 November 2018

"EXCEPTIONAL RESULTS CONFIRM MAJOR DISCOVERY AT NIGHT TRAIN" 9 October 2018

A copy of these announcements is available at <http://www.sheffieldresources.com.au/irm/content/asx-announcements1.aspx?RID=398> or [www.asx.com.au](http://www.asx.com.au)

## Bankable Feasibility Study ("BFS")

This document contains information that relates to a Bankable Feasibility Study. This information was extracted from the following ASX releases by Sheffield:

"THUNDERBIRD BFS RESULTS, FINANCING AND PROJECT UPDATE" dated 24 March 2022

"THUNDERBIRD BFS DELIVERS OUTSTANDING RESULTS" 24 March, 2017

"KMS BANKABLE FEASIBILITY STUDY PRESENTATION" 24 March 2022

"BFS UPDATE MATERIALLY IMPROVES PROJECT ECONOMICS" 31 July 2019

## Other Extracted Information

In addition to those ASX releases referred to above, this document contains information extracted from the following ASX releases:

"KMS EXECUTES EPC CONSTRUCTION AND OFFTAKE AGREEMENTS" 24 March 2022

"BINDING OFFTAKE SECURED FOR THUNDERBIRD ZIRCON CONCENTRATE" 8 June 2021

"SHEFFIELD AND YANSTEEL EXECUTE BINDING JV AGREEMENTS" 6 January 2021

"TRANSFORMATIONAL THUNDERBIRD JOINT VENTURE" 11 August 2020

"MINING LEASE GRANTED OVER THUNDERBIRD MINERAL SANDS PROJECT" 26 September 2018

"QUARTERLY ACTIVITIES REPORT" and "APPENDIX 5B CASHFLOW REPORT" 25 January 2022

"JOINT VENTURE COMPLETION AND BOARD RESTRUCTURE" 12 March 2021

"FIRB ENABLES \$130M THUNDERBIRD INVESTMENT BY YANSTEEL" 15 December 2020

"NATIVE TITLE AGREEMENT SIGNED BY TRADITIONAL OWNERS" 1 November 2018

"FEDERAL ENVIRONMENTAL APPROVAL GRANTED FOR THUNDERBIRD" 28 September 2018

The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcements and, in the case of estimates of Mineral Resources and Ore Reserves, that all material assumptions and technical parameters underpinning the 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 presented have not been materially modified from the original market announcements.

# THUNDERBIRD

## MINERAL SANDS PROJECT

### FINAL INVESTMENT DECISION

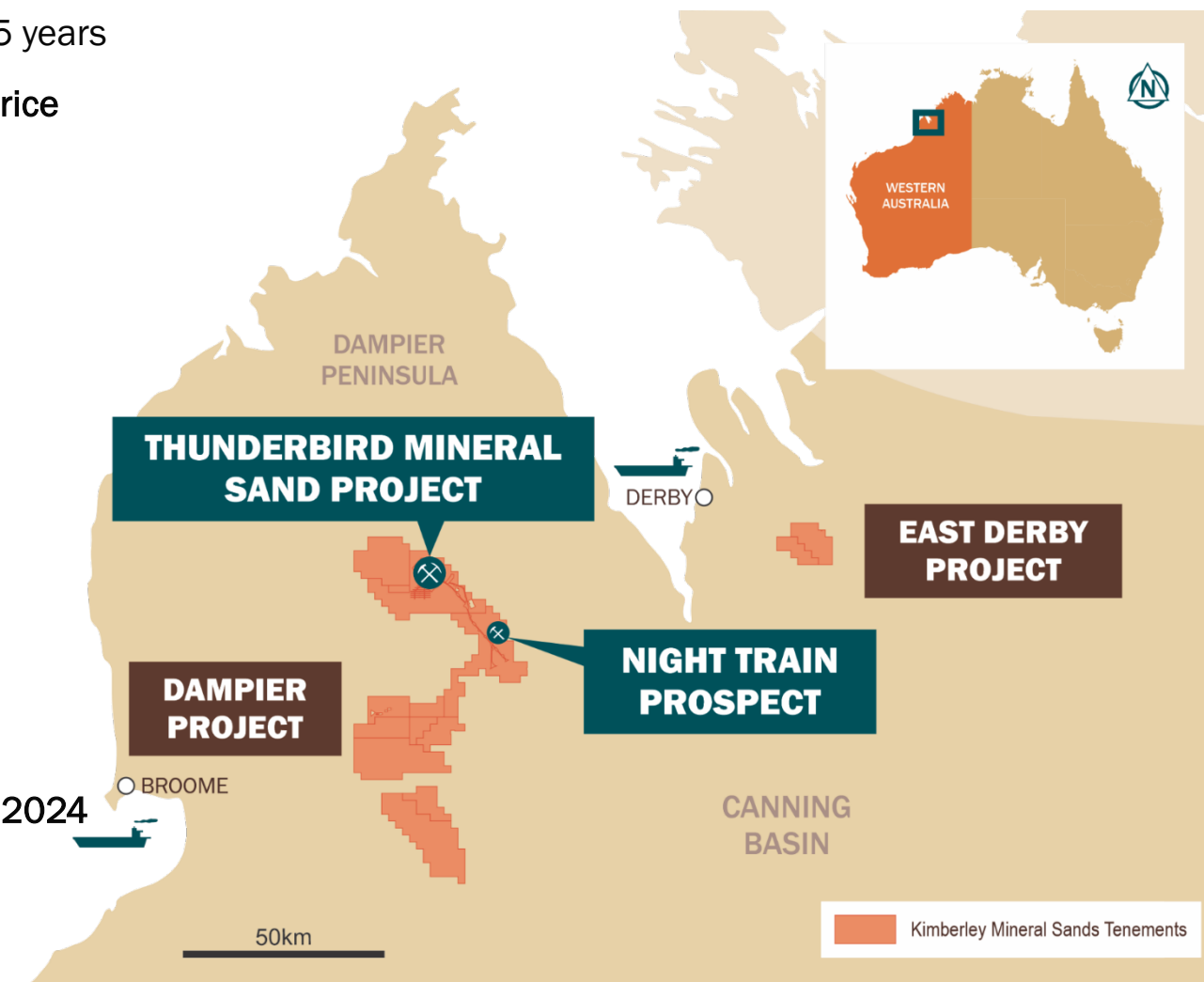


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# THUNDERBIRD MINERAL SANDS PROJECT

- World's largest high grade zircon reserve, in a low risk jurisdiction
- **Stage 1 Production** targeting 1.1mt of zircon and ilmenite rich concentrates<sup>1</sup>
- **Offtake agreements in place** for ~80% of Stage 1 revenue for first 5 years
- **Stage 1 & 2 economics improved from BFS, driven by commodity price**
  - ▶ Post Tax NPV<sub>8</sub> A\$1.39 billion (A\$695 million SFX 50% share)
  - ▶ Post Tax IRR 26.6%
- **Stage 1 Development Capex = A\$379 million**
  - ▶ >75% (A\$298 million) is fixed price or already spent
  - ▶ Total Stage 1 funding package of A\$484 million
    - ✓ Up to 65% (A\$315 million) debt funded from NAIF and Orion
    - ✓ A\$154 million equity contributed from JV partner Yansteel<sup>2</sup>
    - ✓ A\$34 million equity contributed by Sheffield<sup>3</sup>
    - ✓ Sheffield equity contribution fully funded from cash on hand<sup>4</sup>
- **Construction is >40% complete with first shipment expected in Q1 2024**

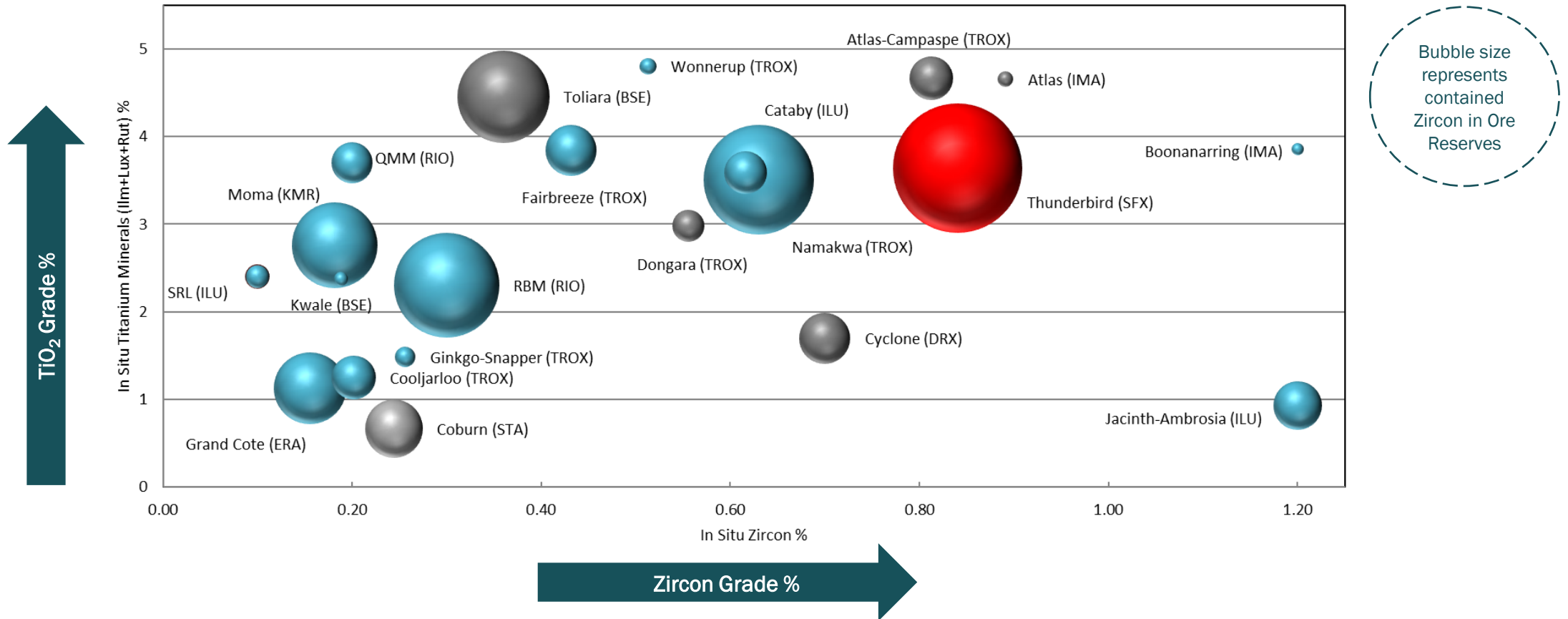


1. ASX Announcement "Thunderbird BFS, Financing and Project Update" 24 March 2022  
2. Includes \$19m of equity contributions toward corporate costs of the joint venture, not directly attributable to the project  
3. Includes \$10m post-FID equity contribution from Sheffield Resources  
4. ASX Announcement "Quarterly Activities/Appendix 5B Cash Flow Report" 28 July 2022



# LARGEST ZIRCON RESERVES GLOBALLY - IN LOW-RISK JURISDICTION

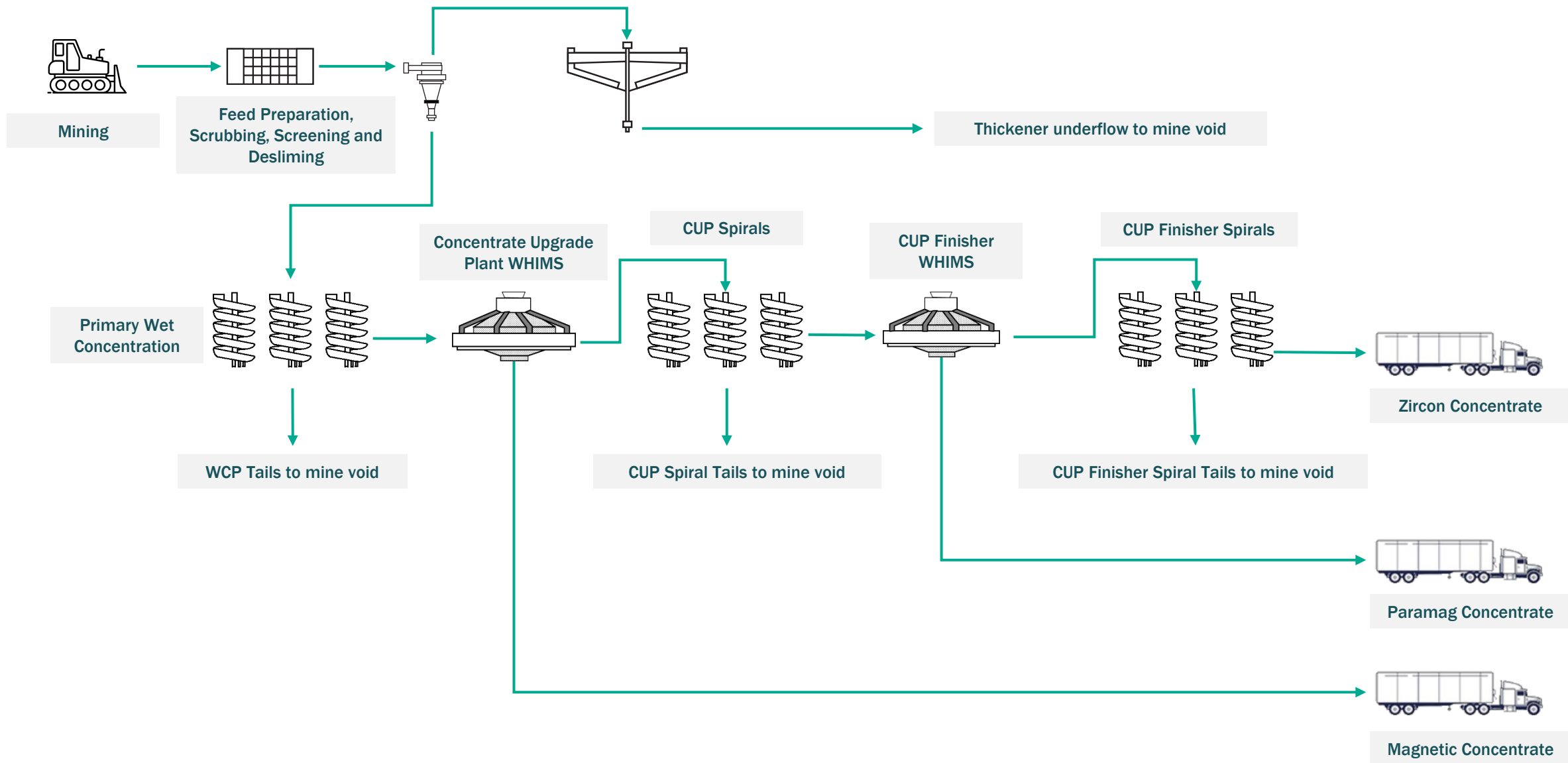
Contained Zircon in Ore Reserves and Grade for Selected Mineral Sands Deposits<sup>123</sup>



**Note:**

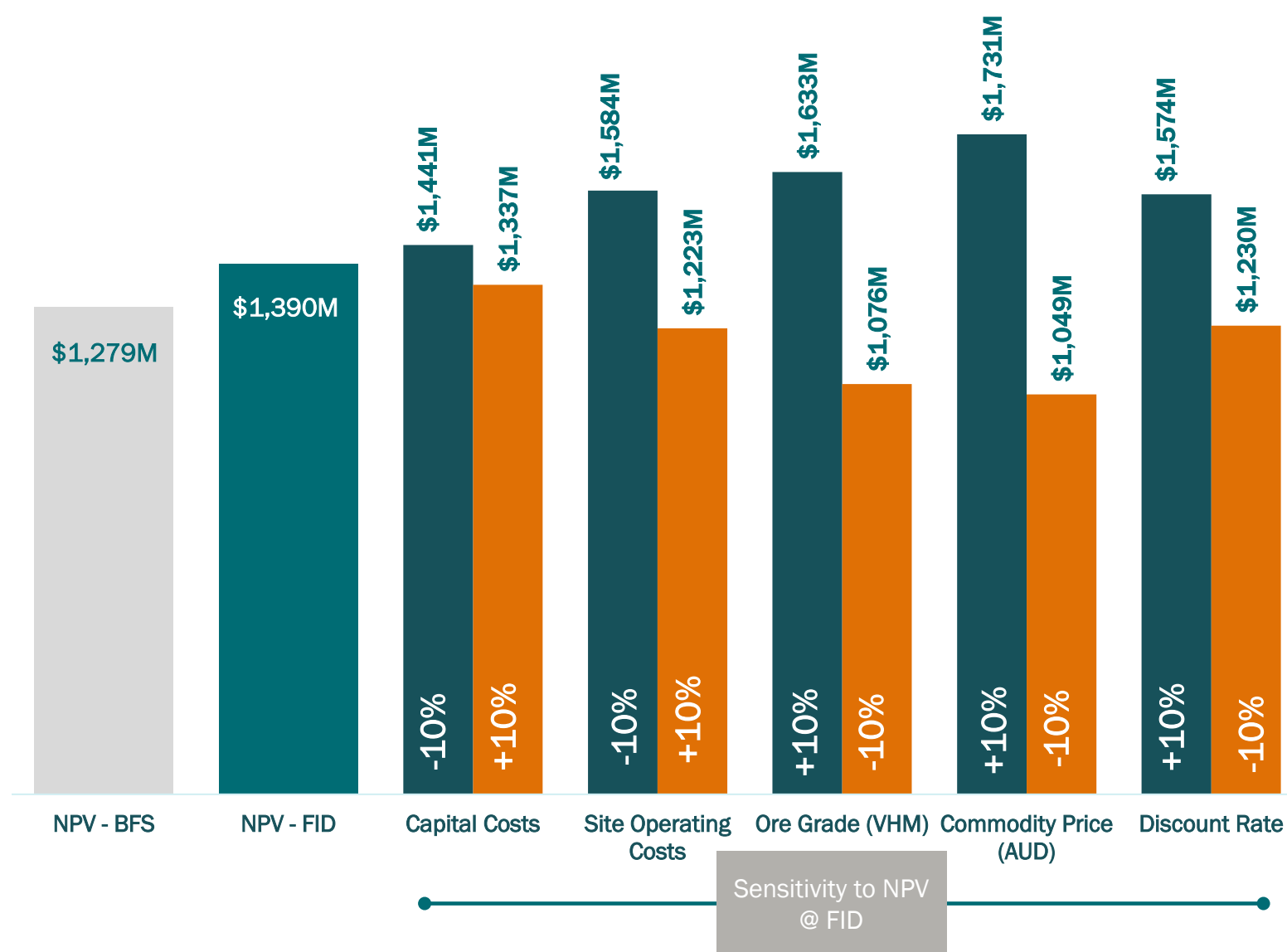
1. Ore Reserve, published on the ASX on 24 March 2022. Thunderbird Ore Reserves ranked against latest published Ore Reserves of current mineral sands operations and projects under investigation globally. Accordingly, for the operating projects, no account is made for any volumes of product already produced
2. Blue bubbles are operating mines, grey bubbles are Ore Reserves reported but the project is not operating
3. Data compiled by Sheffield from public sources, refer to Page 33 in the Appendices. This analysis does not illustrate the variance in product value between rutile, leucoxene and ilmenite

# SIMPLE FLOWSHEET PRODUCING CONCENTRATES



# ROBUST STAGE 1 & 2 ECONOMICS

Metric	2022 BFS <sup>1</sup>	2022 FID
NPV <sub>8</sub> post-tax	A\$1.28B	A\$1.39B
IRR post-tax	27.5%	26.6%
Revenue to Cost Ratio (first 10 yrs)	2.4	2.5
Project Capital (Stage 1)	A\$361m	A\$379m
Total Funding Requirement (Stage 1)	A\$484m	A\$484m
Process rate (Stage 1 tonnes p/hour)	1,085	1,085
Production (kt pa all products)	1,365	1,365
Mine Life	36 years	36 years
LT Average FX (A\$/US\$) <sup>2</sup>	0.75	0.75
Long Term Zircon Price – FOB (TZMI) <sup>3</sup>	US\$1,516	US\$1,607



Reference:

- ASX Announcement: "KMS Bankable Feasibility Study Presentation" 24 March 2022
- 2022 FID assumes 0.71:1.00 AUD:USD for 2023, increasing to 0.75:1.00 by 2025
- 2022 BFS real 2020, 2022 FID real 2021



# STAGE 1 FUNDING IN PLACE

Stage 1 capex of A\$379m with total funding requirement of A\$484m<sup>1,2</sup>

- >75% of Stage 1 capex (before contingency) is fixed price or already spent as at 30 June 2022
- Total funding requirement includes \$40m cost overrun facility in addition to \$36m of project contingency
- NAIF and Orion facilities completed and available for drawdown
- A\$34m of equity contributed by Sheffield – fully funded from existing SFX cash of A\$40m

Cost	A\$m	Comments
Processing	185	Fixed price EPC contract
Other Capex	170	
Stage 1 Capex	355	\$298m is fixed price or spent by 31 August
Contingency	24	Contingency at 31 August
<b>Stage 1 Capex + Contingency</b>	<b>379</b>	
Working Capital	22	Start-up & commissioning
Financing Costs	43	Interest during construction, fees & costs
Cost Overrun Facility	40	
<b>Total Other Requirements</b>	<b>105</b>	
<b>Total Uses<sup>3</sup></b>	<b>484</b>	

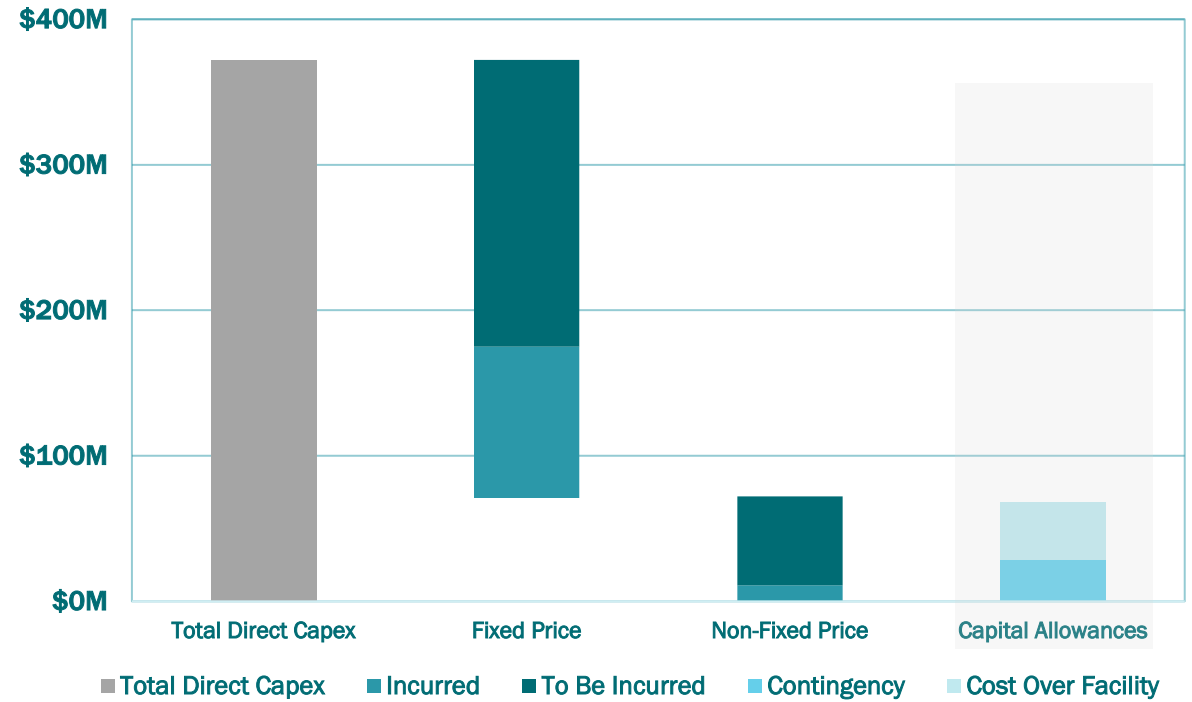
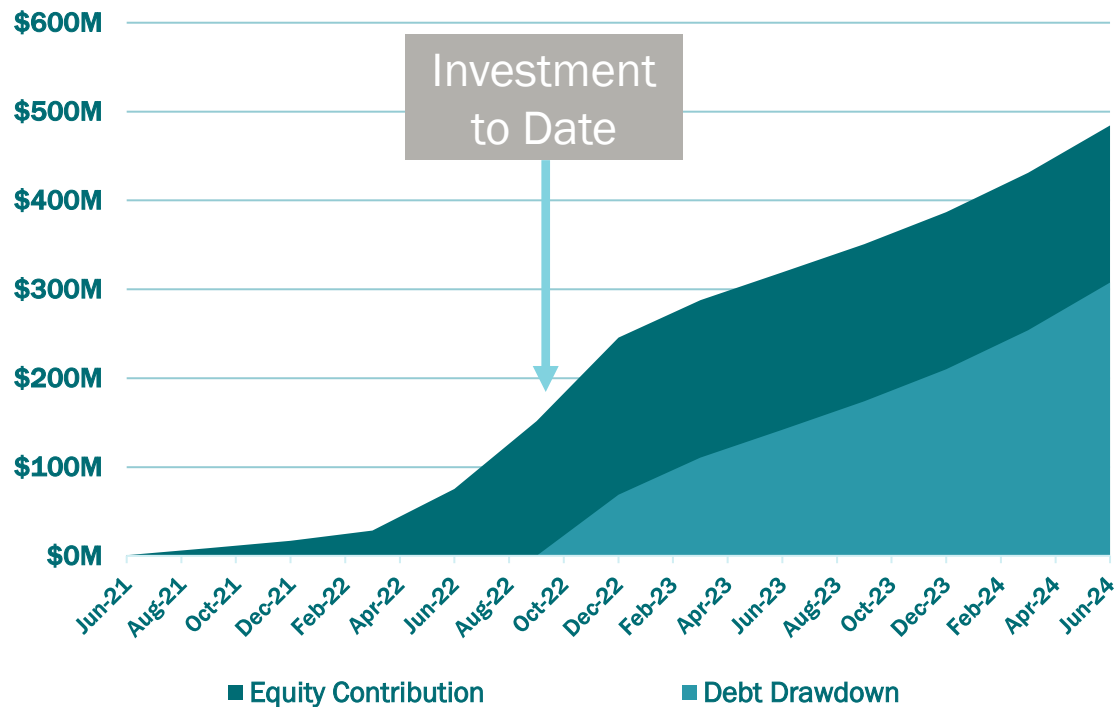
Capital	A\$m	Comments
NAIF	160	Includes \$40m cost overrun facility
Orion	155	(US\$110m @ 0.71 AUD/USD FX)
<b>Loan Facilities</b>	<b>315</b>	
JV Assets	111	JV cash on hand + incurred construction expenditure
Equity Proceeds	58	Sheffield share = \$34m
<b>Total Equity</b>	<b>169</b>	
<b>Total Funding<sup>3</sup></b>	<b>484</b>	

1. ASX Announcement "Thunderbird BFS, Financing and Project Update" 24 March 2022  
 2. ASX Announcement "Quarterly Activities/Appendix 5B Cash Flow Report" 28 July 2022  
 3. Actual amounts may differ due to rounding

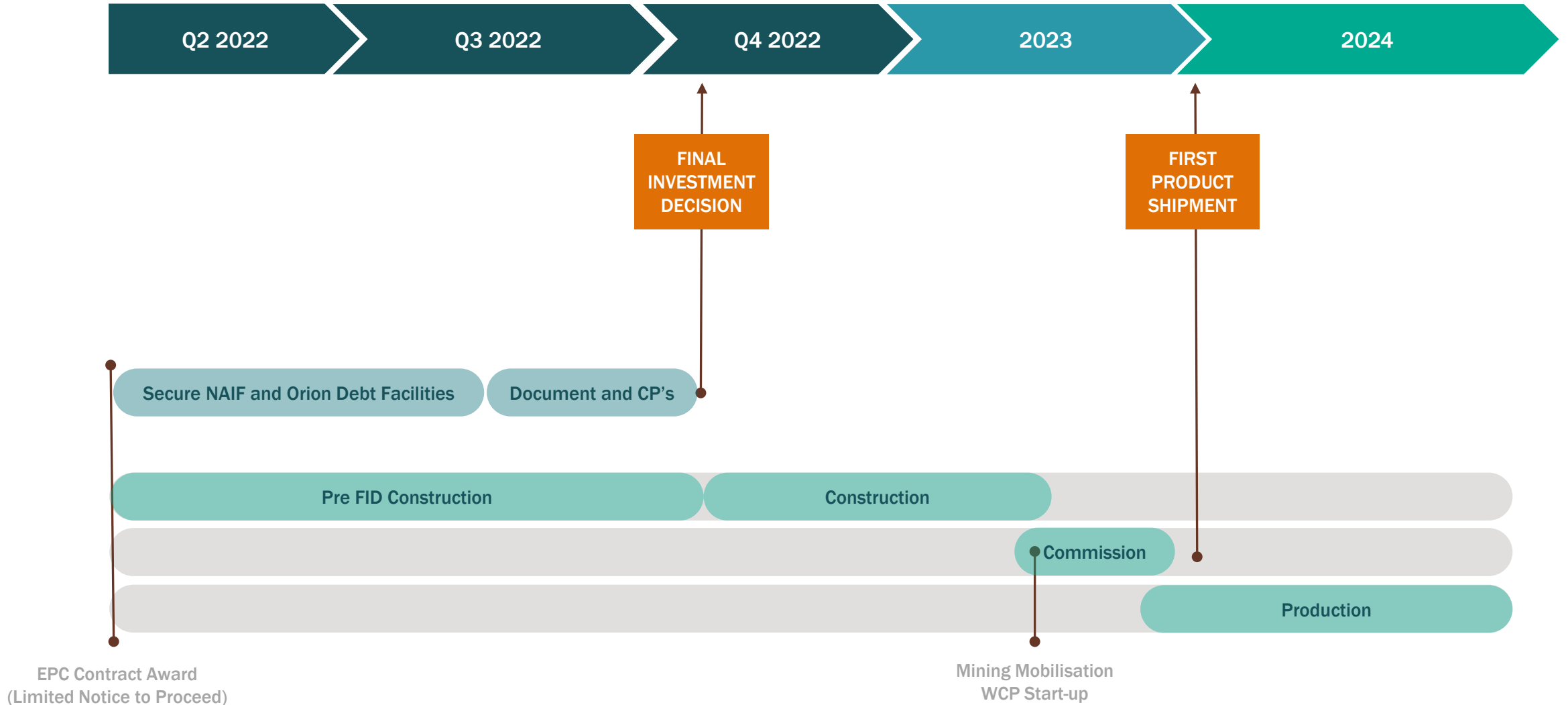
# STAGE 1 FUNDING PROGRESS – SIGNIFICANT INVESTMENT TO DATE

Stage 1 total funding requirement of A\$484m

- >\$115m of equity proceeds already invested into project construction as at 30 September 2022
- Total attributable equity contribution of \$169m committed during 2022
- First drawdown of NAIF and Orion facilities expected in early Q4 2022



# FIRST PRODUCTION IN Q1 2024

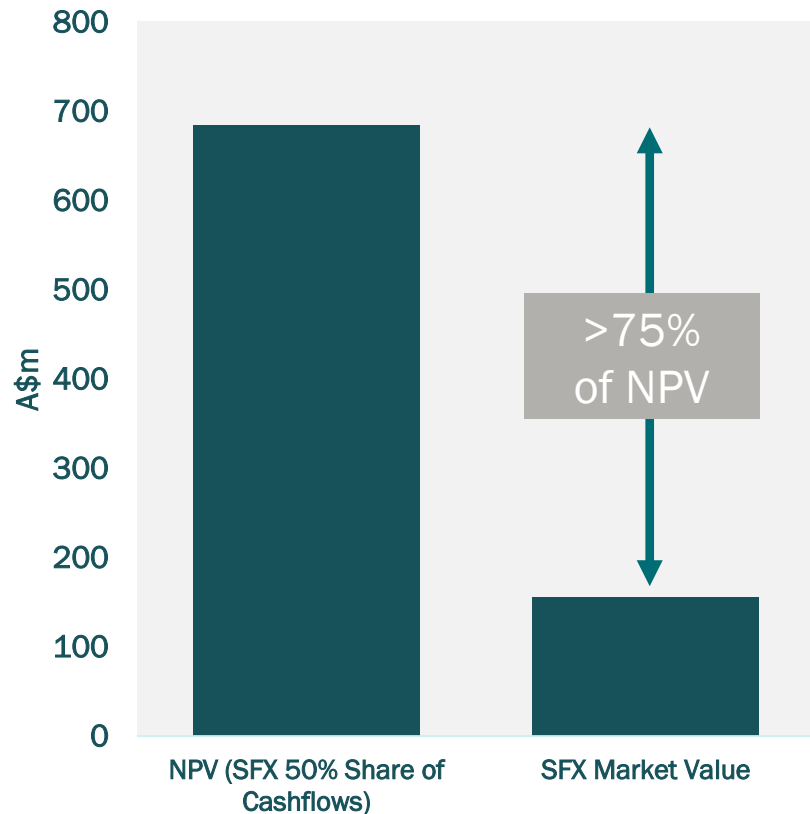




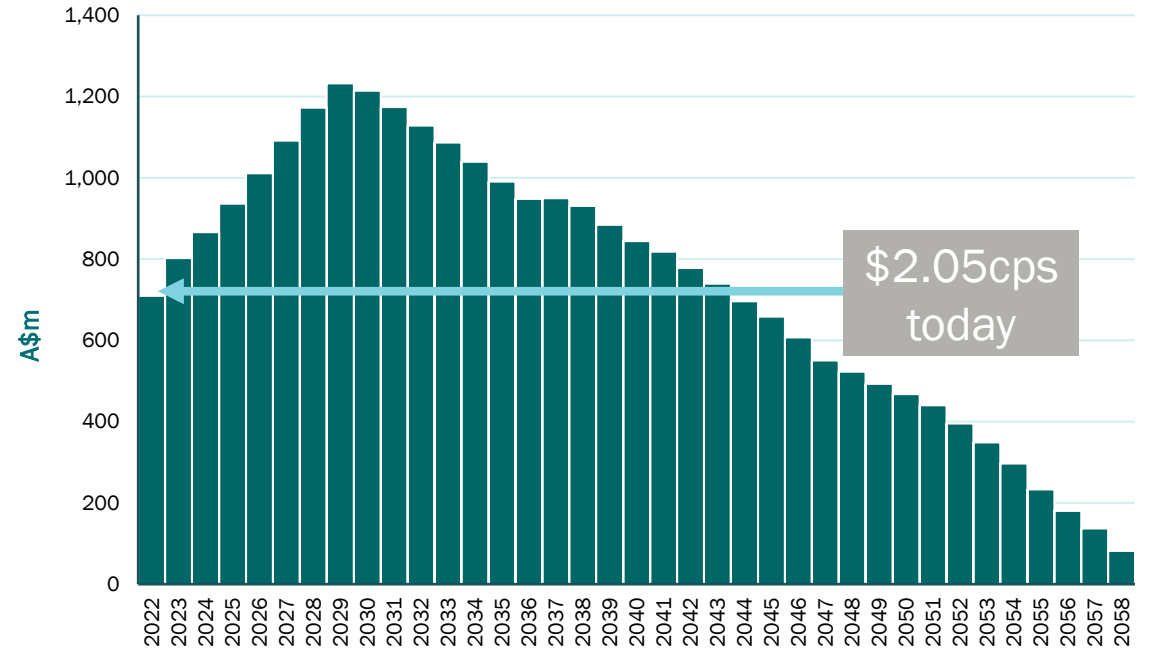
# DEEP DISCOUNT TO ASSET VALUE

>75% discount to NPV of SFX share in KMS despite:

- Low risk jurisdiction
- Robust BFS delivering compelling economic value
- \$315M of debt funding complete with drawdown to follow

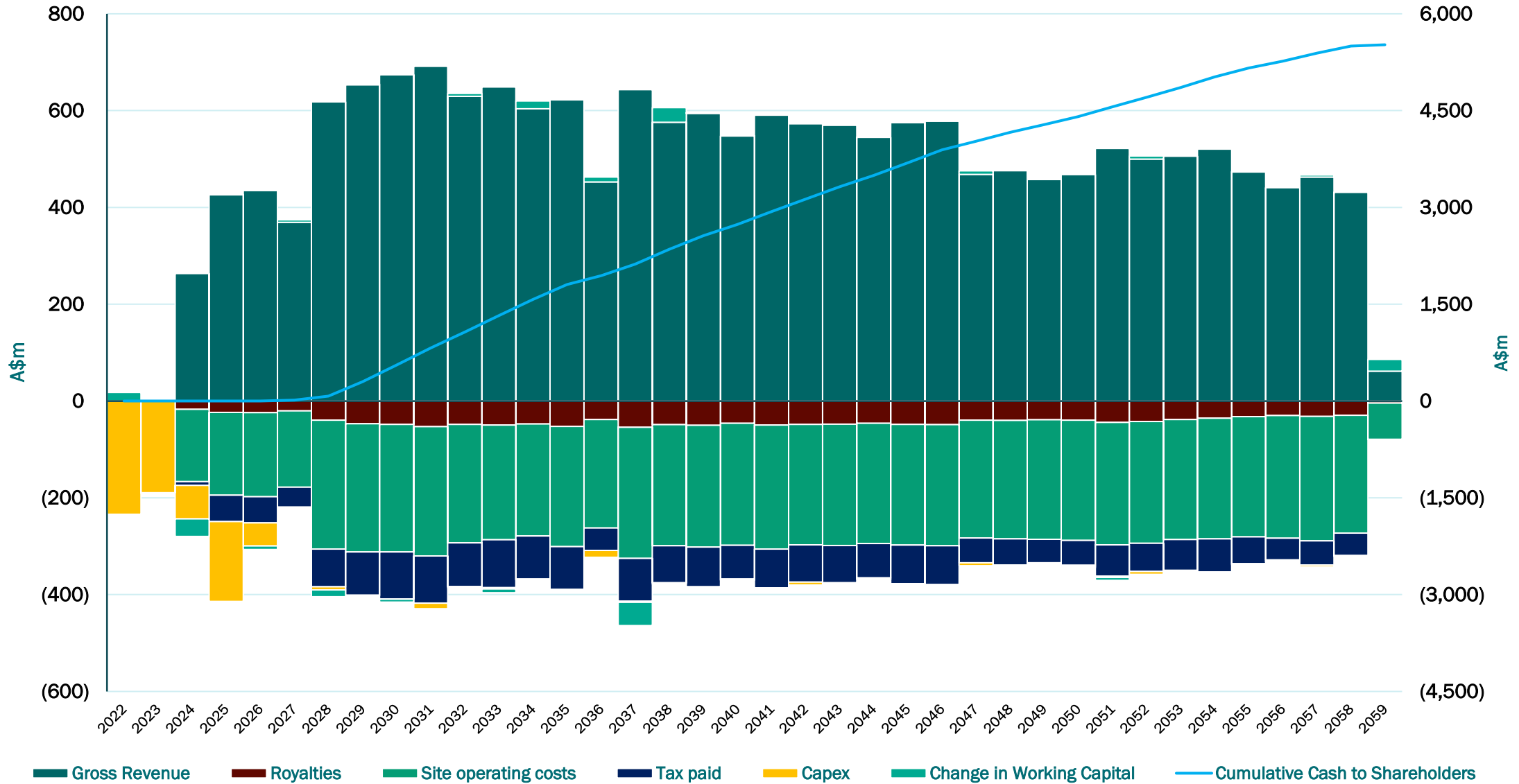


NPV of forecast Sheffield cash dividends from KMS peaks at \$1.2B from 2028 to 2031 and remains above \$0.5B until 2048



1. Based upon ASX market price of Sheffield Resources as at 4 October 2022 and sourced from ASX market based data and reports published by Sheffield Resources Limited

# KIMBERLEY MINERAL SANDS - CASH FLOWS



# OUR ESG APPROACH

## Environmental

- Full State and Federal environmental approvals granted following a detailed Public Environmental Review ("PER") process
- Rehabilitation throughout mine life – minimises disturbed area
- Environmental practices & protocols mirror Equator Principles - Addressing the Climate Change challenge

## Social

- Co-existence Agreement (Native Title Agreement) in place
  - ▶ Targeted 40% Aboriginal Employment by year 8 of operations
  - ▶ Includes Aboriginal Training Fund & Business Support programs
  - ▶ Cash royalties to Traditional Owners across a 36 year mine life
- High standards in safeguarding the environment, water, diversity and Aboriginal heritage
- Focus on Local Employment – 300 jobs on a Drive In, Drive out basis
- State and Federal Tax Contribution of >A\$1B over 36 year mine life

## Governance

- Compliant with ASX recommended governance framework
- Commitment to increase Board and management diversity



# MINERAL SANDS

## MARKET



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# MINERAL SANDS – USED IN EVERYDAY LIFE

## Titanium Minerals

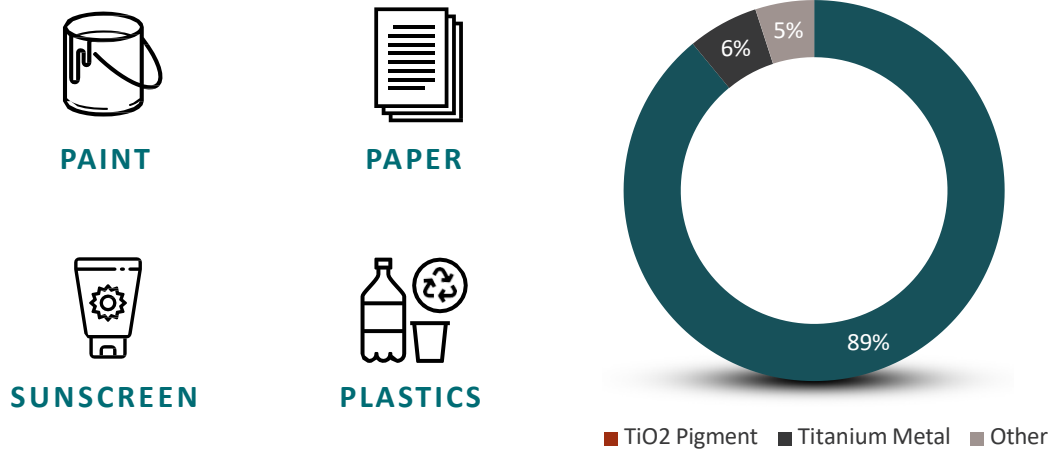
Primary market (90%) is TiO<sub>2</sub> pigment

- ▶ Key applications are paint, plastics and paper
- ▶ Delivers opacity and non-toxic UV protection
- ▶ Smaller quantities of titanium are used in the production of titanium metal and welding



Thunderbird will produce 3.5% of the global Ilmenite supply

### Global TiO<sub>2</sub> market



## Zircon

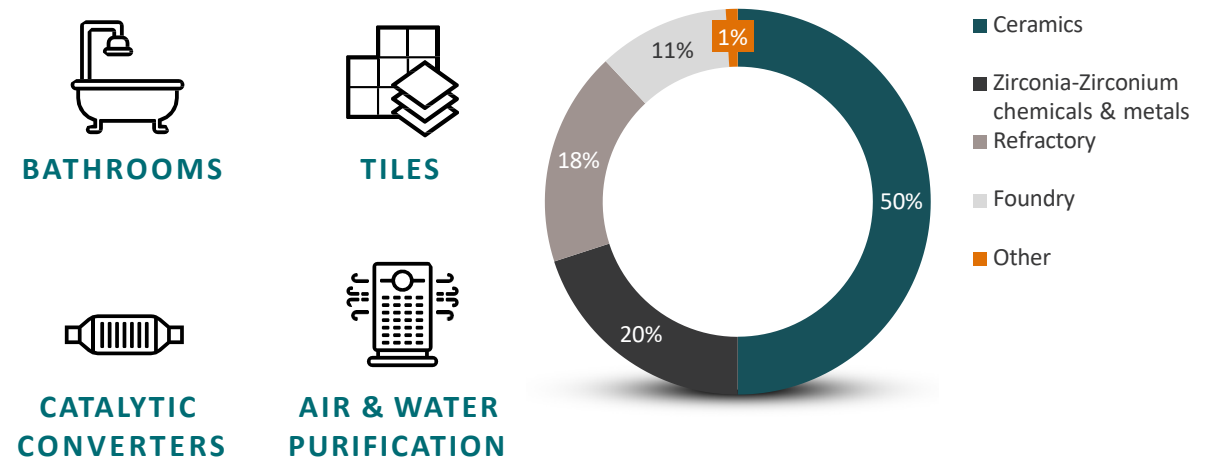
Primary market is ceramics

- Also used in refractories and foundry casting
- Growing use in catalytic converters, and air and water purification



Thunderbird will produce 6.5% of the global Zircon supply

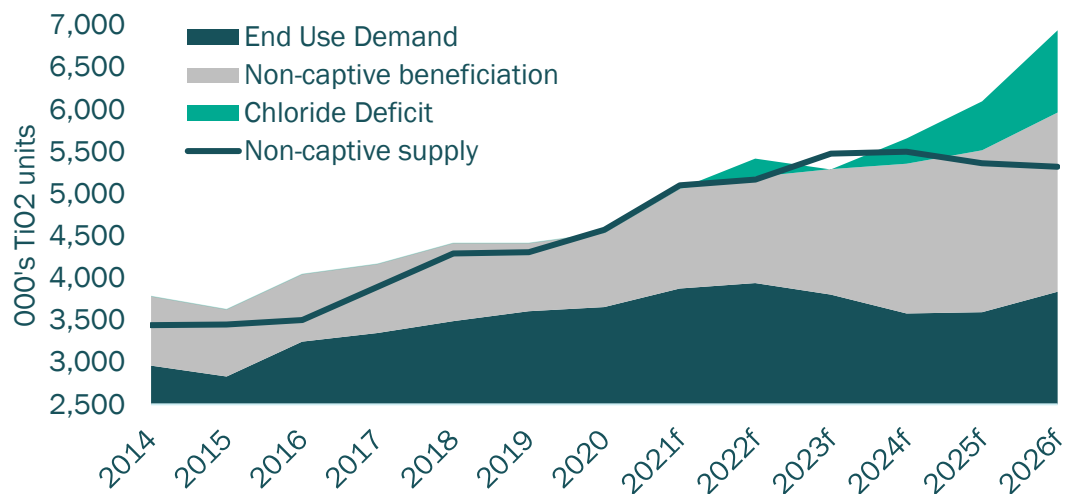
### Global zircon market



# SUPPLY LAGGING DEMAND

## New Ilmenite Projects Required to Meet Demand

### Sulfate Ilmenite Supply and Demand Actual and Forecast<sup>1</sup>



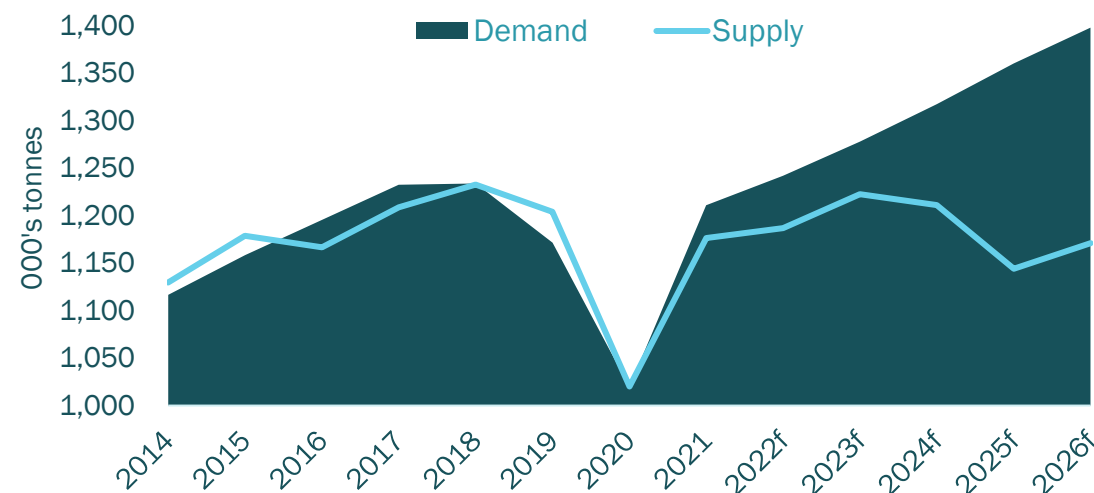
### Observations

- Sulfate pigment provides solid demand base
- New chloride slag smelters driving beneficiation demand
- Chloride feedstock deficit driving further ilmenite demand
- Supply deficit emerging unless new projects are developed

1. Sourced from TZMI and Sheffield estimates

## Zircon Supply Gap Forecast to Continue

### Zircon Supply and Demand Actual and Forecast<sup>1</sup>



### Observations

- Supply deficit starting in 2021 forecast to continue
- Mid-term shortfall is supply not demand driven
- Supply decline driven by depletion and jurisdictional risks



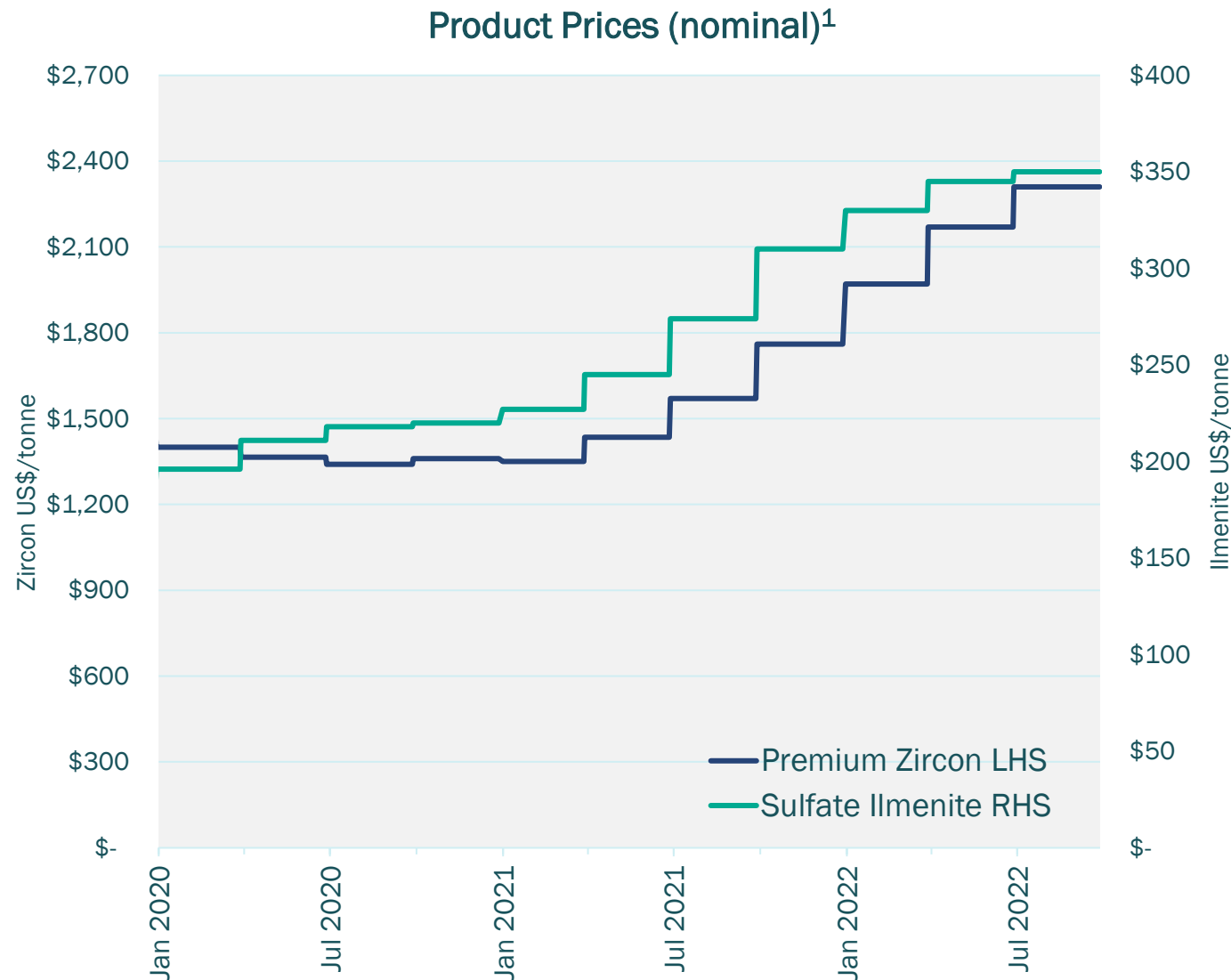
# HIGH PRICES SUSTAINED IN Q3 2022

## Sulfate Ilmenite

- Price up ~80% since January 2020
- Prices +/- flat in 2H 2022
- Long term price assumption ~\$200/t real

## Premium Zircon

- Current price +/- \$2300/t
- Prices +/- flat in 2H 2022
- Long term price assumption ~\$1600/t real



# SHEFFIELD RESOURCES

- Current Market Value = A\$156 million (347m shares at \$0.45/share)<sup>1</sup>
- 50% owner of the Thunderbird Mineral Sands Project via Kimberley Mineral Sands

## Thunderbird Mineral Sands Project

- World's largest high grade zircon reserve, in a low risk jurisdiction
- **Stage 1 Production** targeting 1.1mt of zircon and ilmenite rich concentrates
- **Offtake agreements in place** for ~80% of Stage 1 revenue for first 5 years
- **Robust Stage 1 & 2 economics**
  - ▶ Post Tax NPV<sub>g</sub> A\$1.39 billion (A\$695 million SFX 50% share)
  - ▶ Post Tax IRR 26.6%
- **Total Stage 1 funding package of A\$484 million**
  - ✓ Up to 65% (A\$315 million) debt funded from NAIF and Orion
  - ✓ >60% (A\$298 million) is fixed price or already spent
  - ✓ A\$154 million equity contributed from JV partner Yansteel
  - ✓ Sheffield \$34m equity contribution fully funded from cash on hand
- **Construction is >40% complete with first shipment expected in Q1 2024**



1. Based upon ASX market price of Sheffield Resources as at 4 October 2022





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# THANKYOU

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# APPENDICES



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# CORPORATE OVERVIEW

## CAPITAL STRUCTURE<sup>1</sup>

Item	Unit	Value
Ordinary Shares	#m	347
Share Price	A\$/sh	0.45
<b>Market Capitalisation</b>	<b>A\$m</b>	<b>156</b>
Cash Balance <sup>2</sup>	A\$m	6
Debt Balance	A\$m	-
<b>Enterprise Value</b>	<b>A\$m</b>	<b>150.0</b>

## SHARE PRICE INFORMATION



1. Share Price quoted as at 4 October 2022. All other metrics as otherwise denoted

2. Cash balance as at 4 October 2022 and follows \$34m equity contribution to the KMS joint venture..



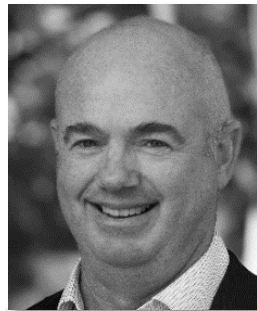
# SHEFFIELD BOARD & MANAGEMENT



**Bruce Griffin**  
Executive Chair

Bruce was the Senior Vice President Strategic Development of Lomon Billions Group, the world's third largest producer of high-quality titanium dioxide pigments.

Bruce has also held positions with several resource companies, including Acting Chief Executive Officer / Director of TZ Minerals International Pty Ltd, the leading independent consultant on the global mineral sands industry, World Titanium Resources, a development stage titanium project in Africa and as Vice President Titanium for BHP Billiton.

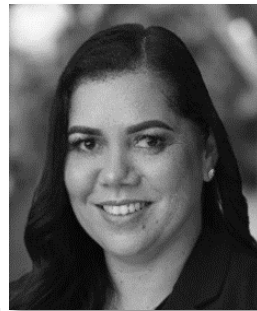


**John Richards**  
Non-Executive Director  
Lead Independent Director

An economist with more than 35 years' experience in the resources industry; holding various positions within mining companies, investment banks and private equity groups.

Mr Richards has held previous positions at Normandy Mining Ltd, Standard Bank, Buka Minerals and Global Natural Resources Investments

Non-Executive Director of Northern Star Limited and Sandfire Resources Limited.



**Vanessa Kickett**  
Non-Executive Director

Vanessa has extensive experience and involvement with Aboriginal engagement, native title and heritage matters throughout Western Australia.

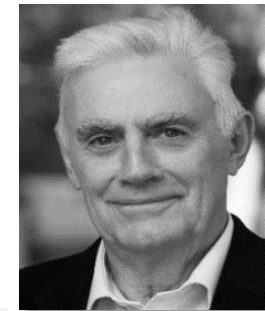
Vanessa is currently Deputy Chief Executive Officer of the South West Aboriginal Land and Sea Council, responsible for the recent implementation and operation of the South West (Western Australia) native title settlement.



**Ian Macliver**  
Non-Executive Director

Ian is the Executive Chairman of Grange Consulting Group Pty Ltd & Grange Capital Partners. Prior to establishing Grange, Ian held positions in various listed and corporate advisory companies with experience covering all areas of corporate activity including capital raisings, acquisitions, divestments, takeovers, business and strategic planning, debt and equity reconstructions, operating projects and financial review and valuations.

Ian is also Non-Executive Chairman of MMA Offshore Limited.



**Gordon Cowe**  
Non-Executive Director

Gordon is a qualified mechanical engineer with over 30 years' experience, He has had significant involvement in leading business start-up, planning and delivery of multiple complex projects including Mining & Mineral Processing, Oil & Gas and Resources based infrastructure projects globally.

Gordon has had an extensive career with leading contractors (including Bechtel, Worley Parsons) and project owners on a wide range of projects.



**Mark Di Silvio**  
Chief Financial Officer &  
Company Secretary

Mark is a qualified CPA and MBA with over 30 years' resources industry experience including operations and project development experience both in Australia and overseas, including project financing, commercial agreement structuring and product offtake agreements

Mark has held senior finance roles with Woodside Petroleum Limited in Australia and Africa prior to his engagement as CFO with Central Petroleum Limited, and Centamin Plc and Mawson West Limited.



# ESG - ENVIRONMENT

## All necessary State and Federal environmental approvals received

- Strong social licence to operate is supported by full State and Federal environmental approvals following an extensive Public Environmental Review ("PER")
- The PER process required full environmental impact assessment, with detailed public consultation and identification of key environmental concerns for the community. The key issues identified were:
  - Impact on the Greater Bilby
  - Impact on ground water resources
  - Haulage of mineral sands products through Derby
  - Impact of ocean going vessels on marine animals
- **The Environmental Protection Authority ("EPA") conducted a detailed review, including a site visit by the EPA Board and two periods of public comment and consultation**
- All environmental approvals were received on the following basis:
  - PER standard industry conditions and controls
  - Specific concluded all risks can be adequately managed
  - Approvals contain Greater Bilby management plans in place
  - Environmental offset fund established
  - Restrictions on speeds and travel times for haulage of products
- Practices to mirror Equator Principles



Thunderbird personnel receive training in Bilby management as part of our Bilby Management Program

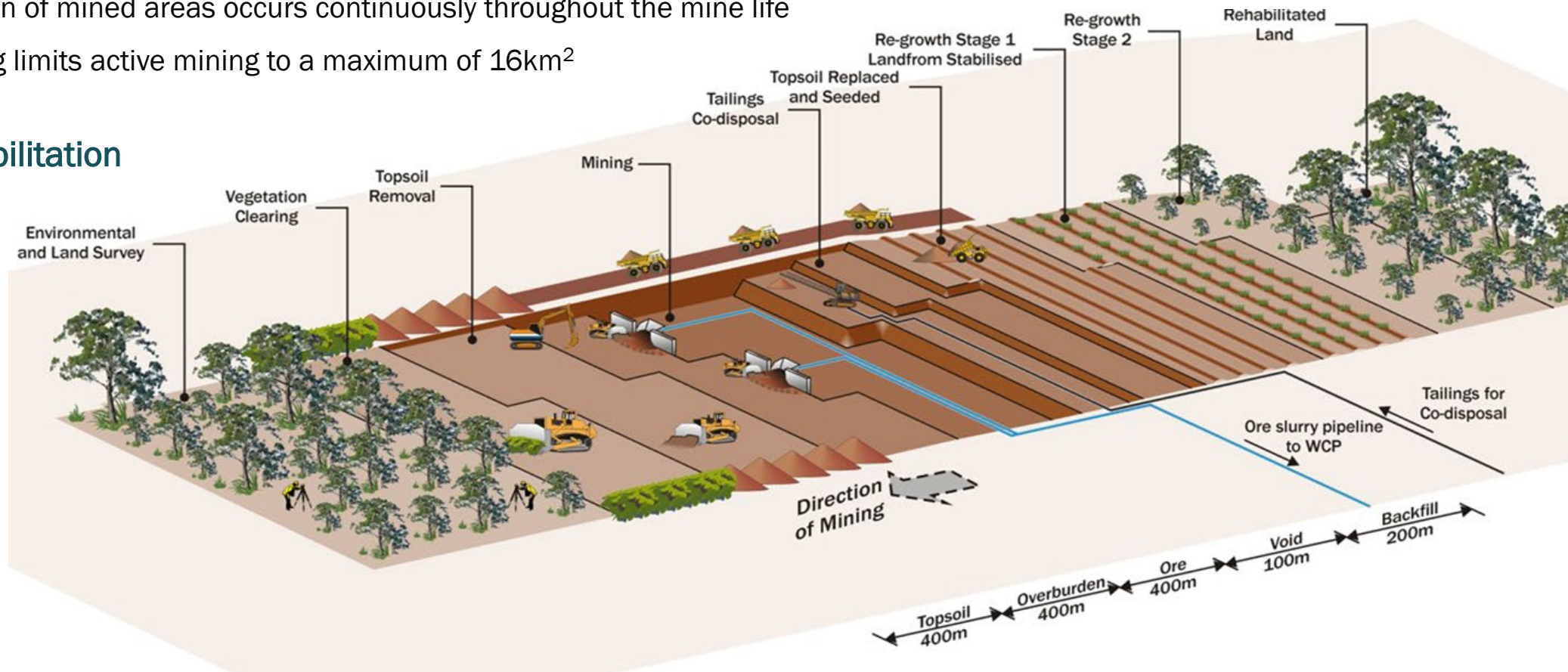


# ESG - ENVIRONMENT

- Proposed dry mining via conventional dozer trap mineral sand mining
- Topsoil and overburden excavated and transported using truck and excavators
- Topsoil is deposited and seeded following completion of mining within each zone
- Active rehabilitation of mined areas occurs continuously throughout the mine life
- Progressive mining limits active mining to a maximum of 16km<sup>2</sup>

## Continuous rehabilitation

Continuous rehabilitation limits maximum disturbed area during mine life to 60km<sup>2</sup>



# ESG - ENVIRONMENT

## Embracing the Climate Change challenge

- CO<sub>2</sub> baseline Scope 1 emissions estimated in BFS 2017 at 11mt CO<sub>2</sub>e (c.40 year life of project)\*
- Significant reduction expected following removal of Low Temperature Roaster
- Independent third-party validation of emissions commissioned for 2022 BFS

## CO<sub>2</sub> reduction opportunities across a 36 year mine life

- ✓ Introduction of renewable electricity to complement LNG gas generation
- ✓ BFS assumes Thunderbird village accommodation converted to solar/battery solution of 2MW
- ✓ Innovation within the process plant value chain
- ✓ Logistics at the mine site and to port (eg, electric fleet solutions)
- ✓ Agree 2030 target and target date for net zero emission

## Our Goals for a Sustainable Future

Acceptance	Seek Low Carbon Technology	Invest in Climate Safe Practices	Promote Our Climate Policy
Accept Climate change science	Renewables for power generation	Measure our climate performance	Partner with our local community
Support net-zero global ambitions	Diesel substitution	Consider carbon offsets	Determine net zero emissions pathway
Support our community's goals	Partner with innovative suppliers	Climate Risk Assessments	Engage with our peers, suppliers and customers
		Low-carbon inputs	

\*Emissions forecast based upon 2017 Public Environmental Review and 2017 (Stage 1 & Stage 2) Bankable Feasibility Study estimates

# OUR COMMUNITY STAKEHOLDERS

## ACTIVELY WORKING WITH COMMUNITY STAKEHOLDERS TO CREATE AND MAINTAIN A ROBUST RELATIONSHIP

- Central to the Kimberley regional strategy is our social licence to operate
  - Built over ten years and based on formal and informal community relations practices
- Strategy focuses on:
  - **Aboriginal engagement** and advancement
  - **Local content employment** and workforce on a drive-in and drive-out basis (as opposed to fly-in, fly-out)
  - **Low environmental and Aboriginal Heritage impact**
  - **Regional economic opportunities** and local business development
- Community engagement practices to date are built on strong stakeholder, social and community support for Thunderbird and ensures a positive foundation for project development, land access, construction and project operation
- Achieved through development and implementation of communication and consultation strategies which ensure stakeholders to the ports, Traditional Owners, pastoralists, local shires, government authorities, local businesses and local communities are informed and engaged positively
- Strongly supported by State and Federal Government, Thunderbird has a 36-year mine life which will see opportunity flow within the Kimberley region for future generations



Kimberley Mineral Sands community consultations (Broome, 2021)





# NATIVE TITLE AGREEMENT

Native title agreement signed and is irrevocably binding on both sheffield and the traditional owners

- Signed the Co-existence Agreement (Native Title Agreement) for Thunderbird on 31 October 2018
- The Traditional Owners authorised the Named Applicants to sign the Co-existence Agreement for Thunderbird, making it binding on both the Company and the Traditional Owners
- Details of the Co-existence Agreement are confidential, however the final agreement is in line with the Company's commitment to the community and contains:
  - Royalty payments to the Traditional Owners across mine life
  - Local and Aboriginal employment and business commitments
  - Protection for Aboriginal heritage and the environment
- The Co-existence Agreement establishes the framework by which the Company can work with the Traditional Owners to protect Aboriginal heritage and the environment while delivering sustainable employment and business outcomes for Traditional Owners and the wider Aboriginal community
- Joombarn-Buru native title claim formally determined by Federal Court in Oct 2021



Joombarn-Buru native title claim formally determined by Federal Court (Perth, October 2021)

## ABORIGINAL EMPLOYMENT STRATEGY

Previous success in building a strong locally based workforce to be replicated particularly in the area of Aboriginal employment. Strong commitment to training and development which results in ongoing employment

Key strategy targets include:

- **To achieve 40% Aboriginal employment by operations year 8**
- **To commit to Aboriginal businesses during construction and operations**



# KIMBERLEY MINERAL SANDS



## Kimberley Mineral Sands

- Owns 100% of the Thunderbird Project
- Yansteel (via YGH Australia) contributed A\$130.1m in equity to acquire 50%
- Sheffield retains 50%
- Four person Board with two Yansteel and two Sheffield directors
- Key decisions require unanimous approval of both Yansteel and Sheffield
- Operates as a standalone entity with its own management and employees

## Yansteel

- Yansteel is a wholly-owned subsidiary of Tangshan Yanshan Iron & Steel Co., Ltd (Tangshan)
- Tangshan is a privately owned steel company headquartered in Hebei, China
- Tangshan produces around 10mt per annum of steel products and has annual revenues of ~A\$6bn
- Tangshan is in the process of commissioning a 500ktpa integrated titanium dioxide processing facility, this complex will consume the magnetic concentrate from Stage 1

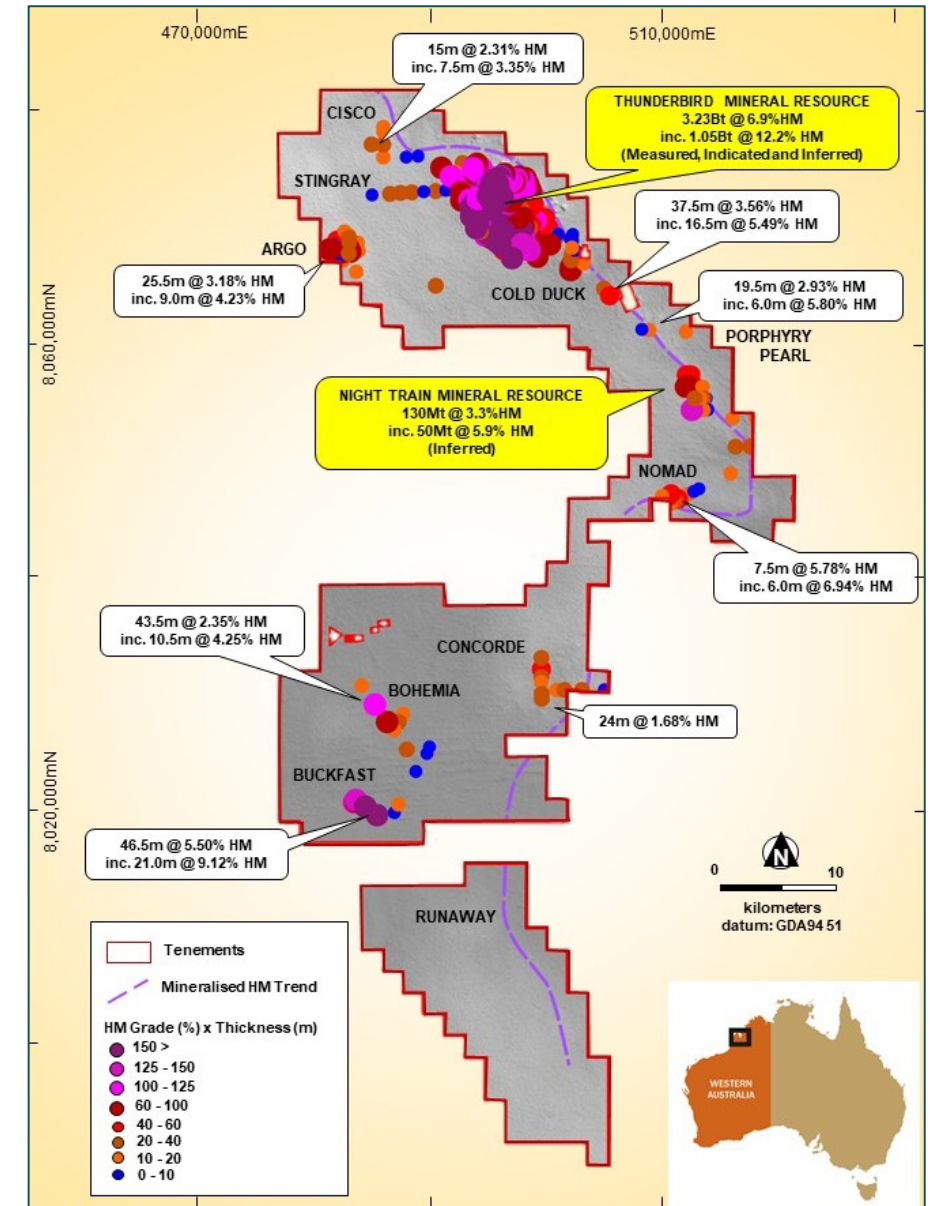
## Offtake<sup>2</sup>

- Market price, life of mine, take or pay, for 100% of the Stage 1 magnetic concentrate
- First right of refusal at market price for 100% of magnetic concentrate from subsequent expansions

# SIGNIFICANT REGIONAL EXPLORATION UPSIDE

Strategic value demonstrated through multiple discoveries made along a 120km long trend

- Exploration has delineated 14 zones of significant mineralisation along a 120km long highly mineralised trend
- High grade Mineral Resource<sup>1</sup> at Night Train
  - ▶ 130Mt @ 3.3% HM, containing 3.6Mt of VHM including 50Mt @ 5.9% HM, containing 2.6Mt of VHM
  - ▶ In-situ grades of 0.82% zircon, 0.33% HiTi leucoxene and rutile, 2.9% leucoxene, 1.06% ilmenite
- **Three substantial new mineral sands discoveries have been outlined at Buckfast, Bohemia and Concorde**
  - ▶ Mineral assemblages with high proportions of VHM dominated by leucoxene, altered ilmenite and zircon with low to moderate levels of trash
- Opens up a new 60km long highly prospective corridor south of Thunderbird
  - ▶ Thick high grade intervals<sup>2</sup> have been intersected, including;
    - ▶ 46.5m @ 5.50% HM from 57.0m (NLAC025), including 21.0m @ 9.12% HM from 64.5m (Buckfast)
    - ▶ 37.5m @ 5.01% HM from 67.5m (NLAC027), including 25.5m @ 5.74% HM from 75m (Buckfast)
- **Numerous zircon-rich targets identified for follow-up drilling**



# THUNDERBIRD ORE RESERVES

## THUNDERBIRD ORE RESERVES: VALUABLE HEAVY MINERAL IN-SITU GRADE<sup>1</sup>

Ore Reserve Category	Ore Tonnes (Mt)	In-situ HM Tonnes (Mt)	HM Grade (%)	Valuable Heavy Mineral Grade (In-situ) <sup>2</sup>					Oversize (%)	Slimes (%)
				Zircon (%)	HiTi Leucoxene (%)	Leucoxene (%)	Ilmenite (%)			
Proved	239	31	12.9	0.96	0.29	0.28	3.4	14	16	
Probable	514	52	10.1	0.79	0.26	0.27	2.9	11	15	
<b>Total</b>	<b>754</b>	<b>83</b>	<b>11.0</b>	<b>0.84</b>	<b>0.27</b>	<b>0.27</b>	<b>3.1</b>	<b>12</b>	<b>15</b>	

## THUNDERBIRD ORE RESERVES: MINERAL ASSEMBLAGE AS PERCENTAGE OF HM GRADE<sup>1</sup>

Ore Reserve Category	Ore Tonnes (Mt)	In-situ HM Tonnes (Mt)	HM Grade (%)	Mineral Assemblage <sup>3</sup>					Oversize (%)	Slimes (%)
				Zircon (%)	HiTi Leucoxene (%)	Leucoxene (%)	Ilmenite (%)			
Proved	239	31	12.9	7.5	2.2	2.2	27	14	16	
Probable	514	52	10.1	7.8	2.6	2.6	28	11	15	
<b>Total</b>	<b>754</b>	<b>83</b>	<b>11.0</b>	<b>7.7</b>	<b>2.4</b>	<b>2.5</b>	<b>28</b>	<b>12</b>	<b>15</b>	

Notes:

- Ore Reserves are presented both in terms of in-situ VHM grade, and HM mineral assemblage. Tonnes and grades have been rounded to reflect the relative accuracy and confidence level of the estimate, thus the sum of columns may not equal. Ore Reserves reported for the Dampier Project were prepared and first disclosed under the JORC Code (2012). Refer to Sheffield's ASX Announcement dated 24 March 2022 titled "Thunderbird Ore Reserve Update" for further detail. Ore Reserve is reported to a design overburden surface with appropriate consideration for modifying factors, costs, mineral assemblage, process recoveries and product pricing
- The in-situ grade is determined by multiplying the HM Grade by the percentage of each valuable heavy mineral within the heavy mineral assemblage

# THUNDERBIRD MINERAL RESOURCES

## THUNDERBIRD MINERAL RESOURCES: VALUABLE HEAVY MINERAL IN-SITU GRADE<sup>1</sup>

Cut-off (HM%)	Mineral Resource Category	Ore Tonnes (Mt)	In-situ HM Tonnes (Mt)	HM Grade <sup>2</sup> (%)	Valuable Heavy Mineral Grade (In-situ) <sup>3</sup>					
					Zircon (%)	HiTi Leucoxene (%)	Leucoxene (%)	Ilmenite (%)	Silimes (%)	Oversize (%)
> 3% HM	Measured	510	45	8.9	0.71	0.20	0.19	2.4	18	12
	Indicated	2,120	140	6.6	0.55	0.18	0.20	1.8	16	9
	Inferred	600	38	6.3	0.53	0.17	0.20	1.7	15	8
	<b>Total</b>	<b>3,230</b>	<b>223</b>	<b>6.9</b>	<b>0.57</b>	<b>0.18</b>	<b>0.20</b>	<b>1.9</b>	<b>16</b>	<b>9</b>
>7.5% HM	Measured	220	32	14.5	1.07	0.31	0.27	3.9	16	15
	Indicated	640	76	11.8	0.90	0.28	0.25	3.3	14	11
	Inferred	180	20	10.8	0.87	0.27	0.26	3.0	13	9
	<b>Total</b>	<b>1,050</b>	<b>127</b>	<b>12.2</b>	<b>0.93</b>	<b>0.28</b>	<b>0.26</b>	<b>3.3</b>	<b>15</b>	<b>11</b>

## THUNDERBIRD MINERAL RESOURCES: MINERAL ASSEMBLAGE AS PERCENTAGE OF HM GRADE<sup>1</sup>

Cut-off (HM%)	Mineral Resource Category	Ore Tonnes (Mt)	In-situ HM Tonnes (Mt)	HM Grade <sup>2</sup> (%)	Mineral Assemblage <sup>4</sup>					
					Zircon (%)	HiTi Leucoxene (%)	Leucoxene (%)	Ilmenite (%)	Silimes (%)	Oversize (%)
> 3% HM	Measured	510	45	8.9	8.0	2.3	2.2	27	18	12
	Indicated	2,120	140	6.6	8.4	2.7	3.1	28	16	9
	Inferred	600	38	6.3	8.4	2.6	3.2	28	15	8
	<b>Total</b>	<b>3,230</b>	<b>223</b>	<b>6.9</b>	<b>8.3</b>	<b>2.6</b>	<b>2.9</b>	<b>28</b>	<b>16</b>	<b>9</b>
>7.5% HM	Measured	220	32	14.5	7.4	2.1	1.9	27	16	15
	Indicated	640	76	11.8	7.6	2.4	2.1	28	14	11
	Inferred	180	20	10.8	8.0	2.5	2.4	28	13	9
	<b>Total</b>	<b>1,050</b>	<b>127</b>	<b>12.2</b>	<b>7.6</b>	<b>2.3</b>	<b>2.1</b>	<b>27</b>	<b>15</b>	<b>11</b>

Notes:

- The Thunderbird Mineral Resources are reported inclusive of (not additional to) Ore Reserves. The Mineral Resource reported above 3% HM cut-off is inclusive of (not additional to) the Mineral Resource reported above 7.5% HM cut-off. All tonnages and grades have been rounded to reflect the relative accuracy and confidence level of the estimate and to maintain consistency throughout the table, therefore the sum of columns may not equal. The Mineral Resource estimate was prepared and first disclosed under the JORC Code (2012). Refer to Sheffield's ASX announcement dated 5 July 2016 titled "Sheffield Doubles Thunderbird Measured Mineral Resource" for further detail
- Total heavy minerals (HM) is within the 38µm to 1mm size fraction and has been reported as a percentage of the total material quantity
- The Valuable HM in-situ grade is reported as a percentage of the total material quantity and is determined by multiplying the percentage of total HM by the percentage of each valuable heavy mineral within the HM assemblage at the resource block model scale
- The Mineral Assemblage is represented as the percentage of HM grade. Estimates of mineral assemblage are determined by screening and magnetic separation. Magnetic fractions were analysed by QEMSCAN for mineral determination as follows: >90% liberation; ilmenite 40-70% TiO<sub>2</sub>; leucoxene 70-94% TiO<sub>2</sub>; high titanium leucoxene (HiTi Leucoxene) >94% TiO<sub>2</sub> and zircon 66.7% ZrO<sub>2</sub>+HfO<sub>2</sub>. The non-magnetic fraction was analysed by XRF and minerals determined as follows: Zircon ZrO<sub>2</sub>+HfO<sub>2</sub>/0.667 and HiTi Leucoxene TiO<sub>2</sub>/0.94



# NIGHT TRAIN MINERAL RESOURCES

## THUNDERBIRD MINERAL RESOURCES: VALUABLE HEAVY MINERAL IN-SITU GRADE<sup>1</sup>

Cut-off (HM%)	Mineral Resource Category	Ore Tonnes (Mt)	In-situ HM Tonnes (Mt)	HM Grade <sup>2</sup> (%)	Valuable Heavy Mineral Grade (In-situ) <sup>3</sup>					
					Zircon (%)	HiTi Leucoxene (%)	Leucoxene (%)	Ilmenite (%)	Slimes (%)	Oversize (%)
> 3% HM	Measured	510	45	8.9	0.71	0.20	0.19	2.4	18	12
	Indicated	2,120	140	6.6	0.55	0.18	0.20	1.8	16	9
	Inferred	600	38	6.3	0.53	0.17	0.20	1.7	15	8
	<b>Total</b>	<b>3,230</b>	<b>223</b>	<b>6.9</b>	<b>0.57</b>	<b>0.18</b>	<b>0.20</b>	<b>1.9</b>	<b>16</b>	<b>9</b>
>7.5% HM	Measured	220	32	14.5	1.07	0.31	0.27	3.9	16	15
	Indicated	640	76	11.8	0.90	0.28	0.25	3.3	14	11
	Inferred	180	20	10.8	0.87	0.27	0.26	3.0	13	9
	<b>Total</b>	<b>1,050</b>	<b>127</b>	<b>12.2</b>	<b>0.93</b>	<b>0.28</b>	<b>0.26</b>	<b>3.3</b>	<b>15</b>	<b>11</b>

## THUNDERBIRD MINERAL RESOURCES: MINERAL ASSEMBLAGE AS PERCENTAGE OF HM GRADE<sup>1</sup>

Cut-off (HM%)	Mineral Resource Category	Ore Tonnes (Mt)	In-situ HM Tonnes (Mt)	HM Grade <sup>2</sup> (%)	Mineral Assemblage <sup>4</sup>					
					Zircon (%)	HiTi Leucoxene (%)	Leucoxene (%)	Ilmenite (%)	Slimes (%)	Oversize (%)
> 3% HM	Measured	510	45	8.9	8.0	2.3	2.2	27	18	12
	Indicated	2,120	140	6.6	8.4	2.7	3.1	28	16	9
	Inferred	600	38	6.3	8.4	2.6	3.2	28	15	8
	<b>Total</b>	<b>3,230</b>	<b>223</b>	<b>6.9</b>	<b>8.3</b>	<b>2.6</b>	<b>2.9</b>	<b>28</b>	<b>16</b>	<b>9</b>
>7.5% HM	Measured	220	32	14.5	7.4	2.1	1.9	27	16	15
	Indicated	640	76	11.8	7.6	2.4	2.1	28	14	11
	Inferred	180	20	10.8	8.0	2.5	2.4	28	13	9
	<b>Total</b>	<b>1,050</b>	<b>127</b>	<b>12.2</b>	<b>7.6</b>	<b>2.3</b>	<b>2.1</b>	<b>27</b>	<b>15</b>	<b>11</b>

Notes:

- The Thunderbird Mineral Resources are reported inclusive of (not additional to) Ore Reserves. The Mineral Resource reported above 3% HM cut-off is inclusive of (not additional to) the Mineral Resource reported above 7.5% HM cut-off. All tonnages and grades have been rounded to reflect the relative accuracy and confidence level of the estimate and to maintain consistency throughout the table, therefore the sum of columns may not equal. The Mineral Resource estimate was prepared and first disclosed under the JORC Code (2012). Refer to Sheffield's ASX announcement dated 5 July 2016 titled "Sheffield Doubles Thunderbird Measured Mineral Resource" for further detail.
- Total heavy minerals (HM) is within the 38µm to 1mm size fraction and has been reported as a percentage of the total material quantity.
- The Valuable HM in-situ grade is reported as a percentage of the total material quantity and is determined by multiplying the percentage of total HM by the percentage of each valuable heavy mineral within the HM assemblage at the resource block model scale.
- The Mineral Assemblage is represented as the percentage of HM grade. Estimates of mineral assemblage are determined by screening and magnetic separation. Magnetic fractions were analysed by QEMSCAN for mineral determination as follows: >90% liberation; ilmenite 40-70% TiO<sub>2</sub>; leucoxene 70-94% TiO<sub>2</sub>; high titanium leucoxene (HiTi Leucoxene) >94% TiO<sub>2</sub> and zircon 66.7% ZrO<sub>2</sub>+HfO<sub>2</sub>. The non-magnetic fraction was analysed by XRF and minerals determined as follows: Zircon ZrO<sub>2</sub>+HfO<sub>2</sub>/0.667 and HiTi Leucoxene TiO<sub>2</sub>/0.94.

## ADDITIONAL PEER INFORMATION

Company	Company Material Reference
Kenmare Resources	2020 Annual Report
Strandline Resources	2019 Reserve Statement
Eramet	2021 Universal Filing
Tronox	2021 Annual Report
Diatreme Resources	2016 Reserve Statement
Rio Tinto	2021 Annual Report
Base Resources	2022 Reserve Statement
Iluka Resources	2021 Reserve Statement
Image Resources	2021 Annual Report