



**MAGNETITE MINES LIMITED**  
Making Steel **Stronger**

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## ASX Announcement

18 April 2017

# *Olary Magnetite Project - Broker & Investor Presentation*


Following recent ASX announcements<sup>1,2,3</sup> detailing the proposed merger between Magnetite Mines Limited (ASX: MGT) (Company) and Lodestone Equities Limited, please find attached the broker and investor presentation describing the benefits of the potential 'fast-track' Olary Project and Razorback Project work plan moving forward.

1. ASX Release: 07/04/2017 – Framework Agreement For Proposed Merger With Lodestone Equities Limited
2. ASX Release: 11/04/2017 – Chairmans Intension To Exercise Options
3. ASX Release: 12/04/2017 – Proposed Lodestone Merger – Potential Gateway to Early Production

For further information contact:

Gordon Toll  
Chairman and Chief Executive Officer  
+61 8 8427 0516

Peter Schubert  
Non-Executive Director  
+61 416 375 346



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## **OLARY MAGNETITE DEPOSIT**

**PHASE 1 - ON THE FAST TRACK TO  
PRODUCTION**

April 2017



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## Forward Statement

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*The details contained in this resource report that pertains to Mineral Resource Estimates for the Olary Project are based upon information compiled by Mr Simon Tear (BSc(Hons), MAusIMM, PGEO, EurGeol, IOM3), a Director of H&S Consultants Pty Ltd. Mr Tear is a member of Australian Institute of Mining and Metallurgy. Mr Tear has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity to which he is undertaking to qualify as a Competent Persons as defined in the December 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" (JORC 2012 Code). Mr Tear gives consent to the inclusion in this report of the matters based upon his information in the form and context in which it appears.*

*The details contained in this report that pertains to exploration results is based upon information compiled by Gavin England BSc (Hons), PhD, a full-time employee of the Magnetite Mines Limited. Dr England is a member of Australian Institute of Geosciences (AIG) and Australian Institute of Mining and Metallurgy. He has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as a Competent Persons as defined in the in "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" (JORC 2012 Code). Dr England consent to the inclusion in this report of the matters based upon their information in the form and context in which it appears.*

*The details contained in this report that pertains to ore and mineralisation and the resource for the Razorback Project and Ironback Hill Deposit is based upon information compiled by Gavin England BSc (Hons), PhD, a full-time employee of the Magnetite Mines Limited and Mr Lynn Widenbar BSc(Hons), MSc, DIC, Principal Consultant Widenbar and Associates Pty Ltd. Dr England and Mr Widenbar are members of Australian Institute of Geosciences (AIG) and Australian Institute of Mining and Metallurgy. These two people have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as a Competent Persons as defined in the December 2004 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" (JORC 2004 Code), as well as the current JORC 2012 Code. Dr England, and Mr Widenbar consent to the inclusion in this report of the matters based upon their information in the form and context in which it appears. The information for the Razorback Deposit was prepared and first disclosed under the JORC Code 2004. The information has not been updated since to comply with the JORC Code 2012 on the basis that the information has not materially changed since it was last reported.*

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## PHASE 1 - OLARY'S DEPOSIT FAST TRACK TO PRODUCTION

- The merger of MGT and Lodestone Equities provides access to a new high-grade magnetite deposit at Olary, in the Mawson Iron Project, South Australia
- Concentrates at ~ 70% Fe<sup>1</sup>, opening opportunity for Direct Reduction (DR) iron making market
- Olary Project potentially could be developed at a smaller scale, start up project compared to the Razorback Project
- Critical infrastructure already identified (water, power, rail, port site)
- This “proof of concept” project, could potentially get product into the market, and assist in financing larger scale operations such as Razorback

<sup>1</sup> Concentrate assay grades based on concentrate production metallurgical testwork completed at Bureau Veritas Laboratories August 2016 for Lodestone Equities. Test work consisted of grind to 38 micron, 3 stage LIMS, followed by gravity clean up on Wilfley Tables.

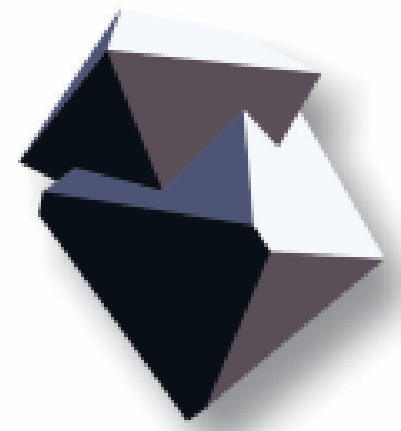


## WHAT IS DIRECT REDUCTION IRON MAKING?

- Direct Reduced Iron (DRI) is an alternative to Blast Furnaces (BF) iron making
- With DRI, iron ore is reduced to metallic iron in the solid state which then has to be melted in an electric arc furnace, unlike the BF process where it reduced in the solid state in the top of the furnace and melted to liquid hot metal in the bottom of the furnace
- DRI predominates in countries with cheap natural gas – Middle East, North Africa, SE Asia
- DRI generally requires lower capital investment and small scale production compared to BF iron making



*Midrex DRI Plant*



## OPPORTUNITY FOR DR CONCENTRATE AT RED DAM

- DR Pellets are a niche, high value market, requiring high grade product > 68.5% Fe
- Companies like BHP, RIO, FMG and Vale do not currently produce DR grade product
- The Razorback Deposit product more suited for blast furnace market
- Olary Deposit has produced DR grade in DTR and metallurgical testwork<sup>1</sup> (> 69% Fe)
- Initial discussion with DRI steel makers are attracted to the Olary product



<sup>1</sup> Concentrate assay grades based on concentrate production metallurgical testwork completed at Bureau Veritas Laboratories August 2016 for Lodestone Equities. Test work consisted of grind to 38 micron, 3 stage LIMS, followed by gravity clean up on Wilfley Tables.

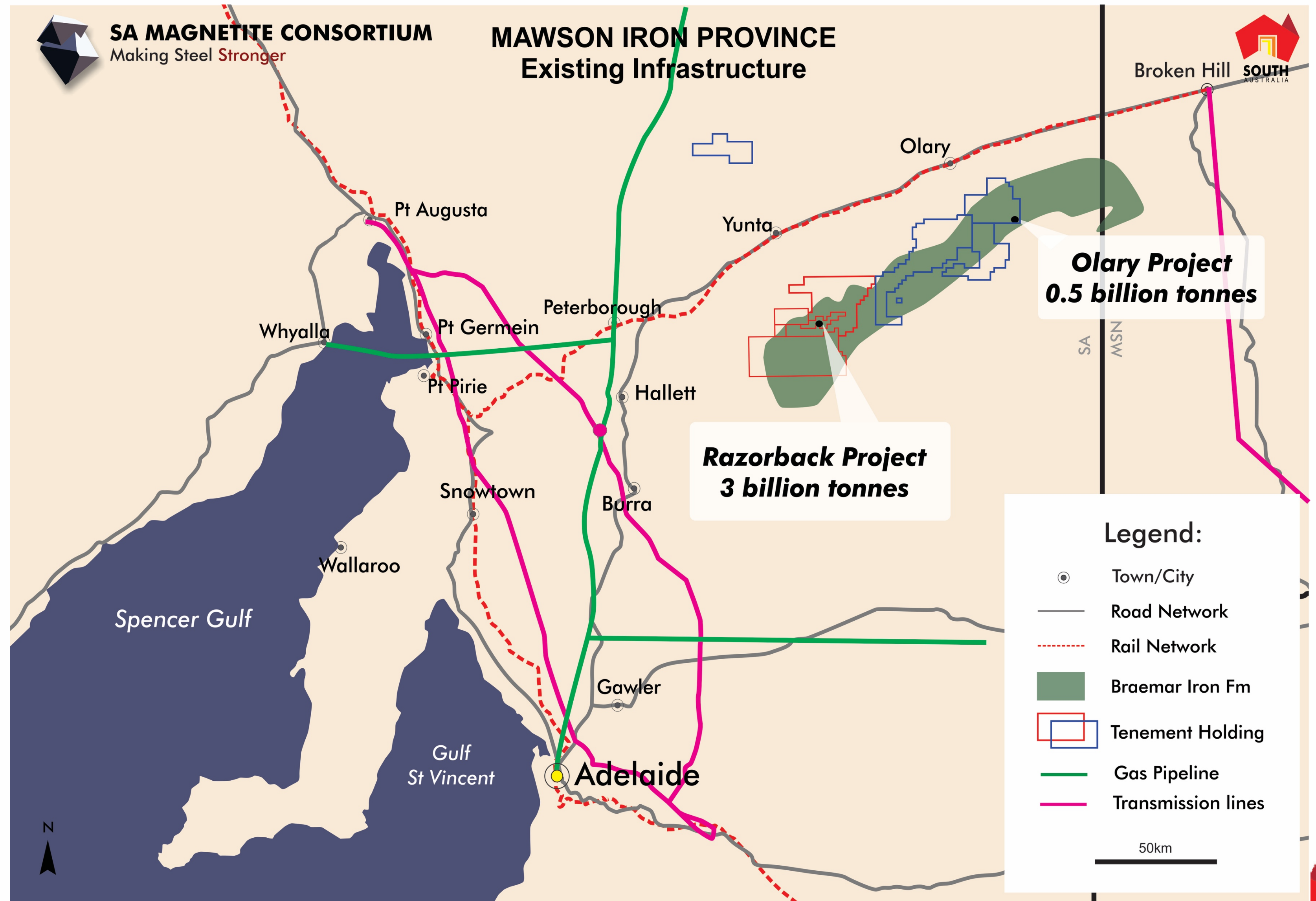


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## MAWSON IRON PROJECT

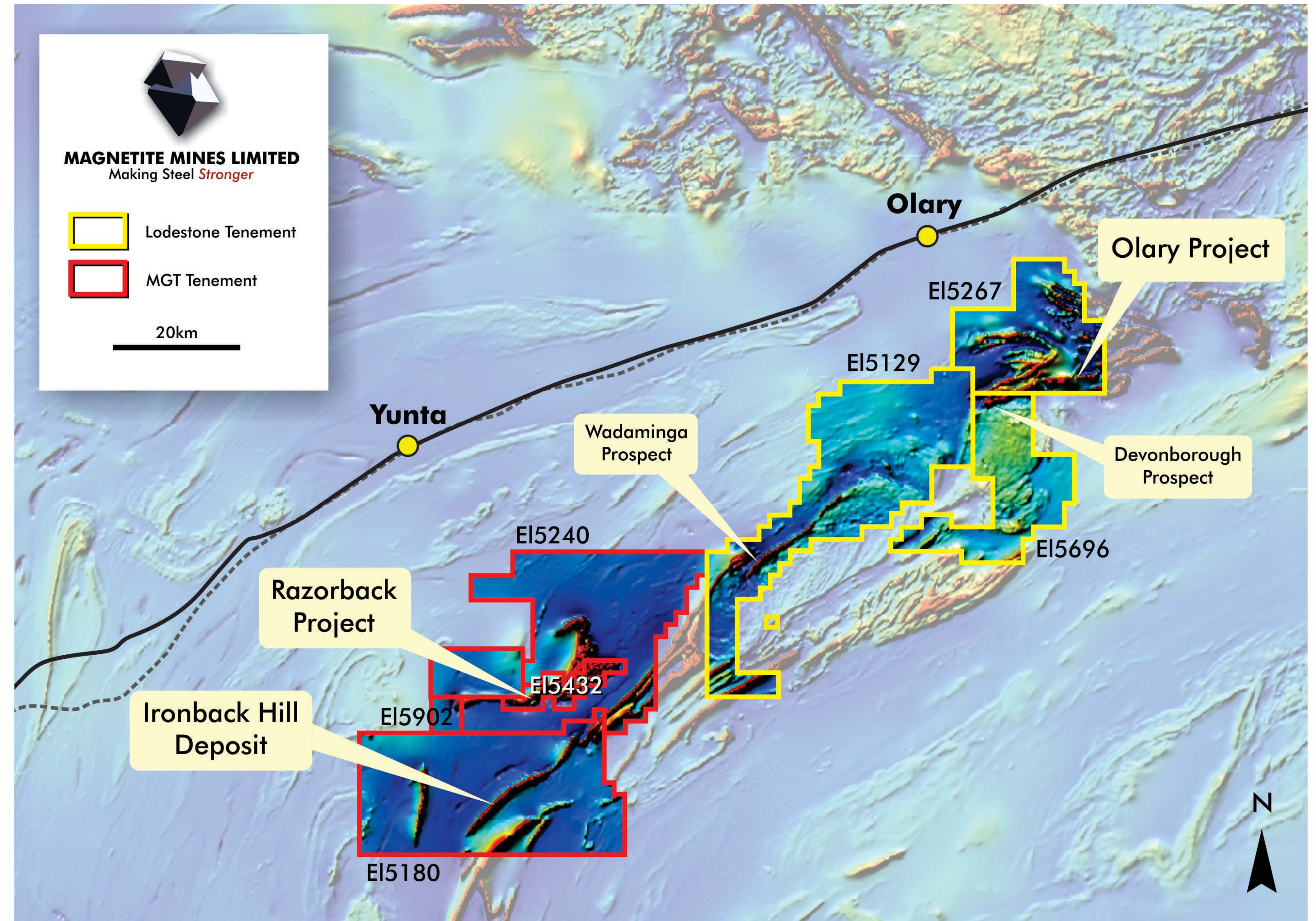
- Existing infrastructure
- Sheltered port site
- Available workforce
- Supportive government
- Large magnetite potential





## MAWSON IRON PROJECT LAND HOLDING

- Combined MGT and Lodestone landholding ~ 2947 km<sup>2</sup>
- > 200 km of strike length of magnetite-rich Braemar Iron Formation
- Largest undeveloped magnetite province in the world
- Major tenement holder in the region



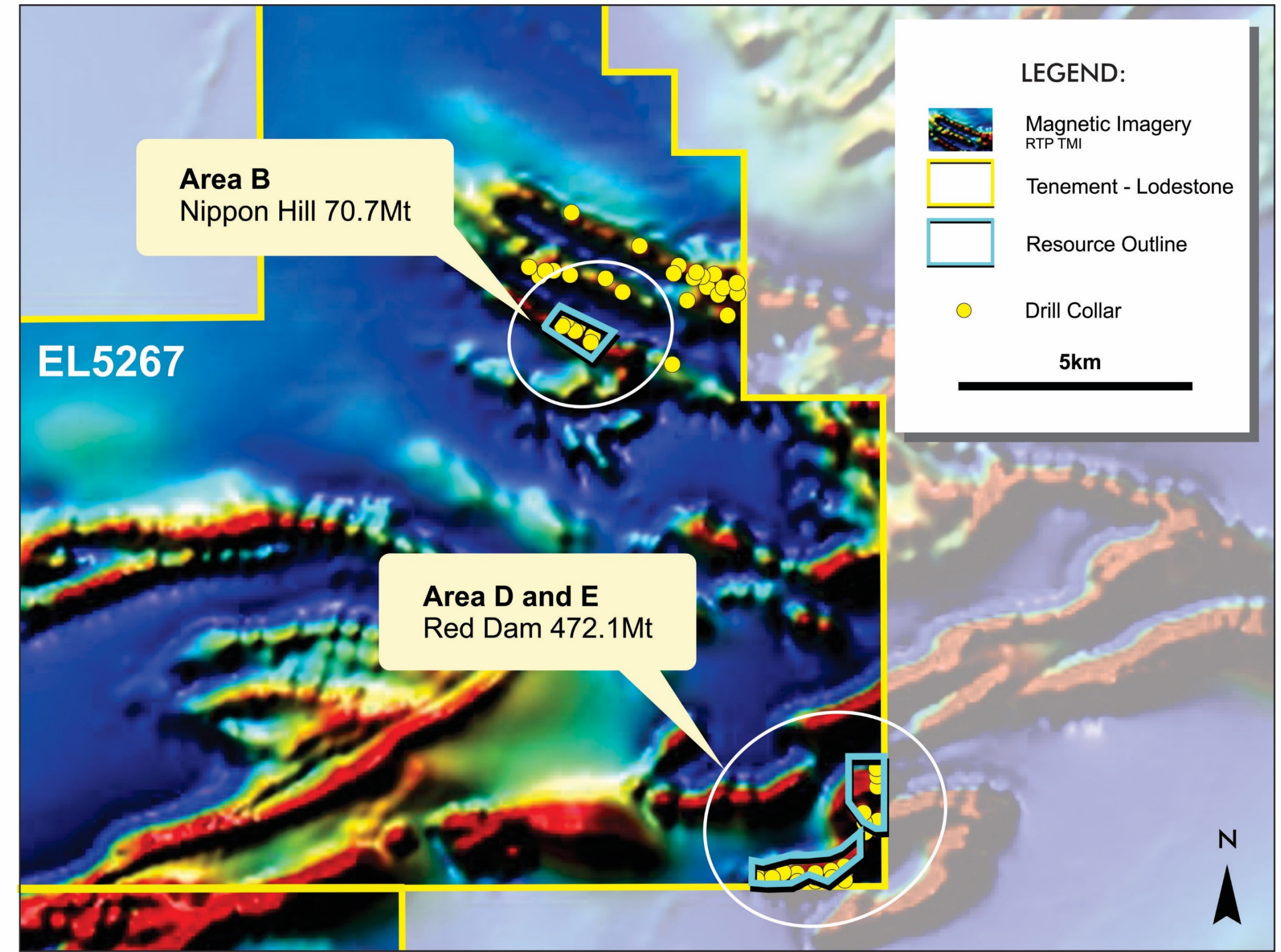


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## LODESTONE'S OLARY ~ 0.54 BILLION TONNE JORC RESOURCE\*

- Red Dam is the area of focus, with high concentrate grades - 69 to 71% Fe and mass recovery at ~ 20%
- Potential to extend Red Dam Resource to the west, with > 10 km strike length of Braemar Iron Formation in Lodestone Tenure



\* ASX Announcement on 12th April, 2017, "PROPOSED LODESTONE MERGER – POTENTIAL GATEWAY TO EARLY PRODUCTION".

Area	Classification	Tonnes (million)	DTR %	Con Fe%	Con SiO <sub>2</sub> %	Con Al <sub>2</sub> O <sub>3</sub> %	Con P%	Con S%
Areas D and E (Red Dam)	Inferred	472.1	19.7	69.8	2.56	0.24	0.005	0.007
Area B (Nippon Hill)	Inferred	70.7	14.4	68.5	4.06	0.32	0.003	0.003
<b>Total</b>	Inferred	<b>542.9</b>	<b>19.0</b>	<b>69.6</b>	<b>2.76</b>	<b>0.25</b>	<b>0.005</b>	<b>0.006</b>





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## COMBINED MGT / LODESTONE JORC RESOURCES - 4.5 BILLION TONNES

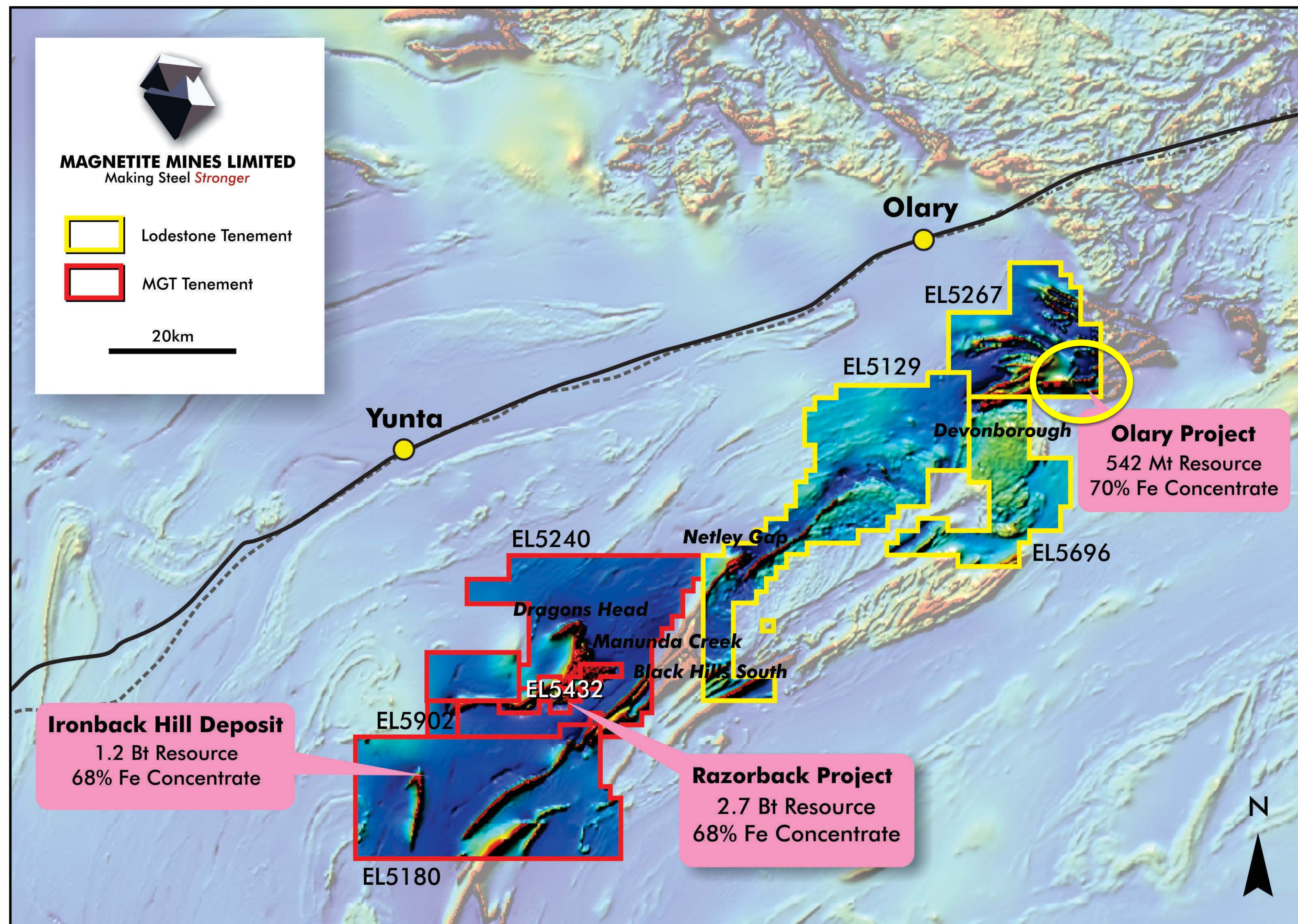
- Razorback (MGT)<sup>1,3</sup>
- Ironback Hill (MGT)<sup>2,3</sup>
- **OLARY + (~ 80 km NE of Razorback)<sup>4</sup>**

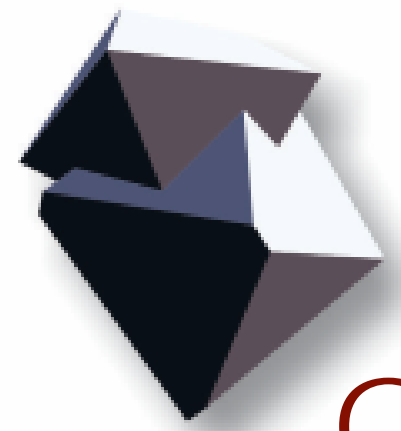
<sup>1</sup> ASX Announcement on 11th June, 2013, "ROYAL OPTIMISES RAZORBACK RESOURCE".

<sup>2</sup> ASX Announcement on 1st November, 2012, "RED DRAGON VENTURE EXCEEDS 3 BILLION TONNES".

<sup>3</sup> The information was prepared and first disclosed under the JORC Code 2004. The information has not been updated since to comply with the JORC Code 2012 on the basis that the information has not materially changed since it was last reported.

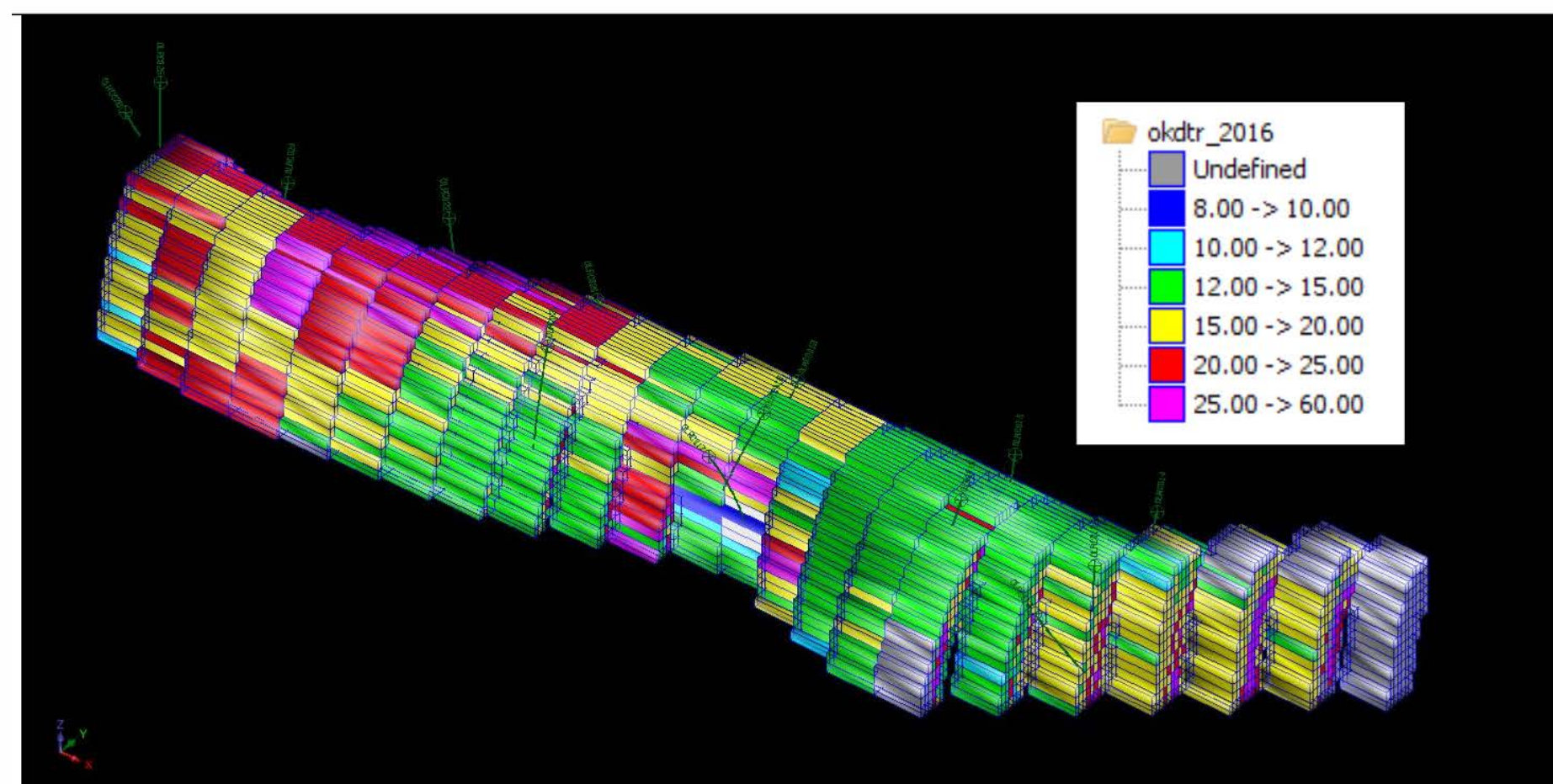
<sup>4</sup> ASX Announcement on 12th April, 2017, "PROPOSED LODESTONE MERGER – POTENTIAL GATEWAY TO EARLY PRODUCTION".



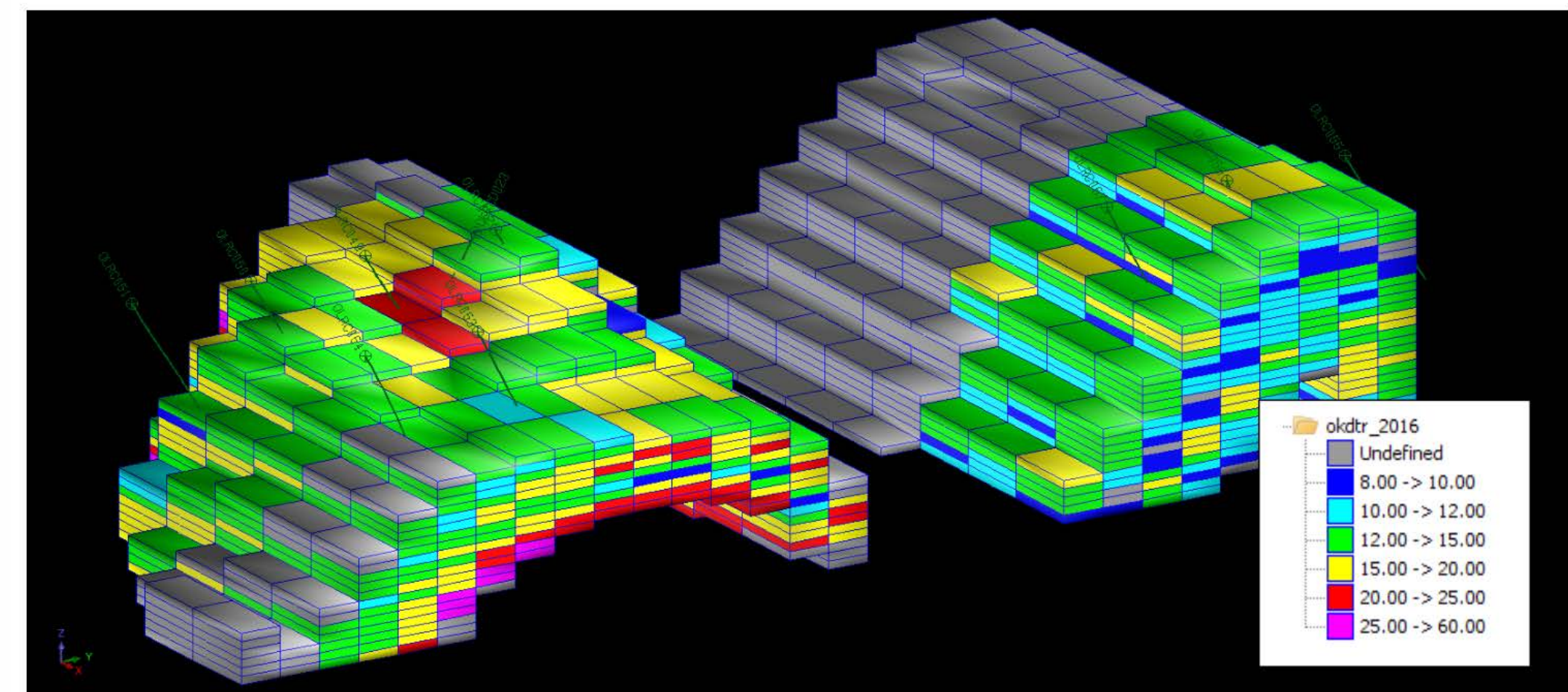


## OLARY (RED DAM) MINERALISED BODY

- Mineralised body geometry suggests favourable mine to waste ratios, either as flat lying bodies or anticlinal hinge zones
- Part of mineralisation close to surface, therefore possibly low mining pre-strip at early stage
- High grade zones of ~ 30% DTR, could be potentially optimised
- Further drilling planned for resource upgrade and metallurgical bulk sampling



Red Dam South mineralised body - 2.5 km strike



Red Dam North mineralised body – 1.5 km strike



## OLARY HAS HIGH QUALITY CONCENTRATES

- Sighter metallurgical testwork confirms excellent DTR results, - high Fe and FeO, very low impurities
- Discussions underway with DR steel makers in Middle East and North Africa
- Further concentrate production, metallurgical studies and pellet test work underway



Magnetite Concentrate 38 micron

### Olary (Red Dam) – Concentrate production results from 60kg of representative diamond core samples<sup>1</sup>

Fe%	FeO%	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	MgO%	K <sub>2</sub> O%	CaO%	P%	S%	Na <sub>2</sub> O%	TiO <sub>2</sub> %
70.0	29.4	1.8	0.2	0.15	0.03	0.23	0.02	0.03	0.07	0.07

<sup>1</sup> Concentrate assay grades based on concentrate production metallurgical testwork completed at Bureau Veritas Laboratories August 2016 for Lodestone Equities Limited. Test work consisted of grind to 38 micron, 3 stage LIMS, followed by gravity clean up on Wilfley Tables.



## OLARY WILL TEST MANY OF THE CONCEPTS ALREADY IN PLACE FOR THE LARGER SCALE RAZORBACK DEVELOPMENT

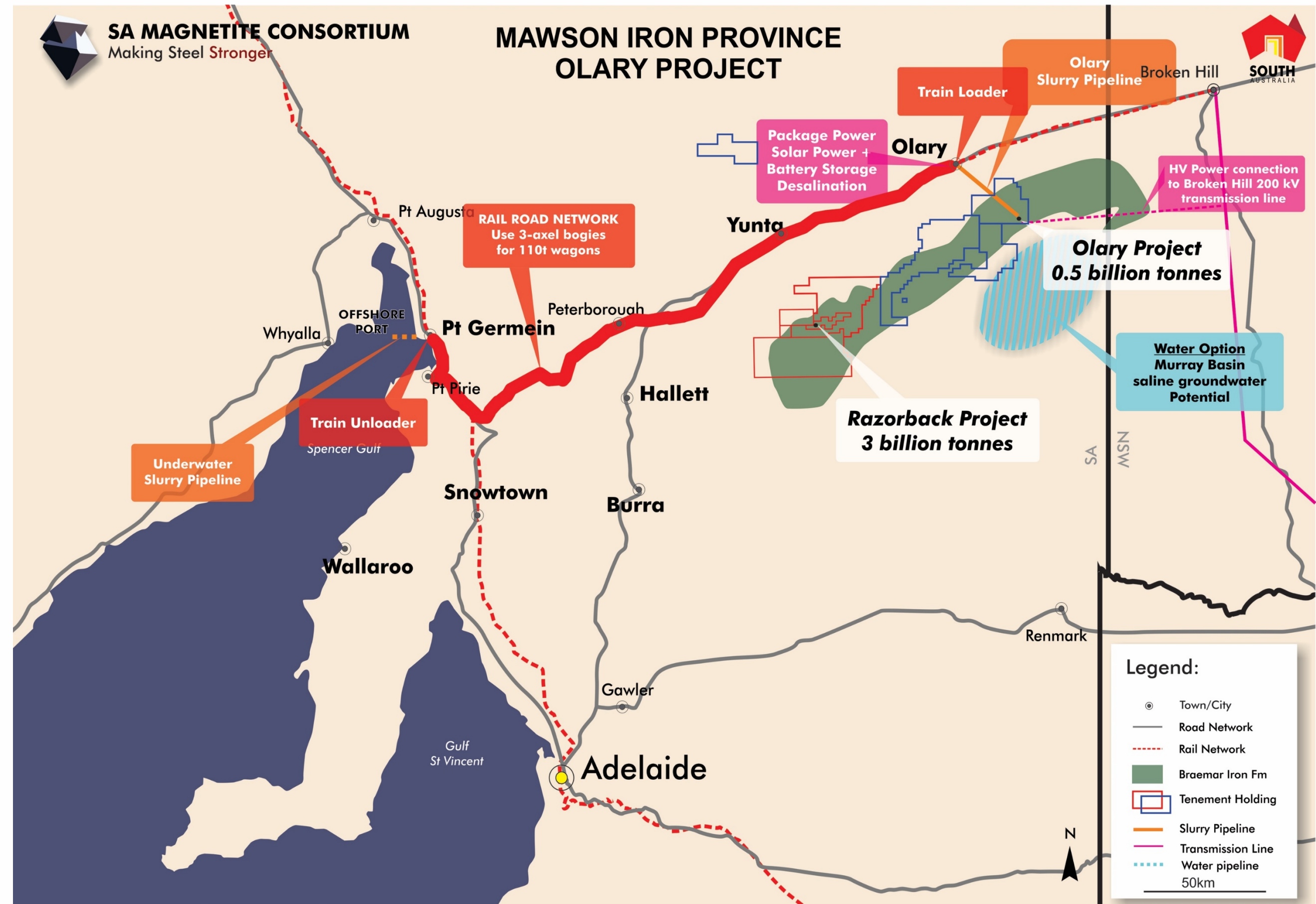
### **Sustainable, low cost delivery chain configuration**

- Initial low to medium scale magnetite mining operation planned
- Ultra high powder factor blasting
- In-pit crushing and conveying (IPCC)
- Intelligent comminution and concentration
- Slurry pipeline transportation of concentrate in parts of the transport route
- Offshore iron ore port in deep water
- Absolute minimum stockpiles



## PHASE 1 - OLARY DEPOSIT INFRASTRUCTURE<sup>1</sup>

- Uses a combination of existing rail and new slurry pipelines to transport magnetite
- Development of low cost offshore port
- Potential to connect to national power grid in NSW or self generation at Olary
- Multiple water sources identified
- State Government support
- Broken Hill, potential source of workforce, ~ 100km NE of deposit



1. The Scoping Study referred to in this release is based on low-level technical and economic assessments, completed by Lodestone and is insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Scoping Study will be realised.



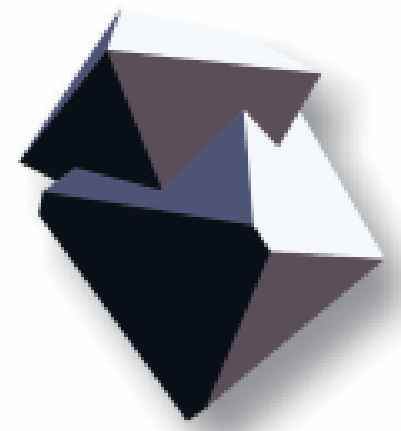
## HOW DOES THIS DEPOSIT FIT WITH THE DEVELOPMENT OF THE MAWSON IRON PROJECT?

1. **Phase 1**<sup>1</sup> - Olary Project, low to medium scale magnetite operation, start-up option, using combination of rail and short distance slurry pipeline
2. **Phase 2**<sup>2,3</sup> – Razorback Project, large scale magnetite operation – with fully integrated slurry pipeline and floating port; studies will continue in parallel to Phase 1 development

<sup>1</sup> The Scoping Study referred to in this release is based on low-level technical and economic assessments, and is insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Scoping Study will be realised.

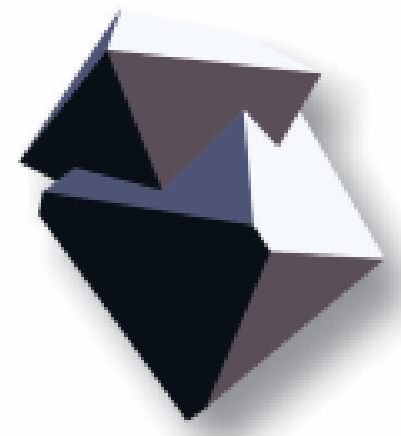
<sup>2</sup> ASX Release 27/11/2013 “Optimisation Study Dramatically Improves Razorback’s Economics”

<sup>3</sup> ASX Release 29/01/2013 “Razorback Project Returns a Positive PFS”



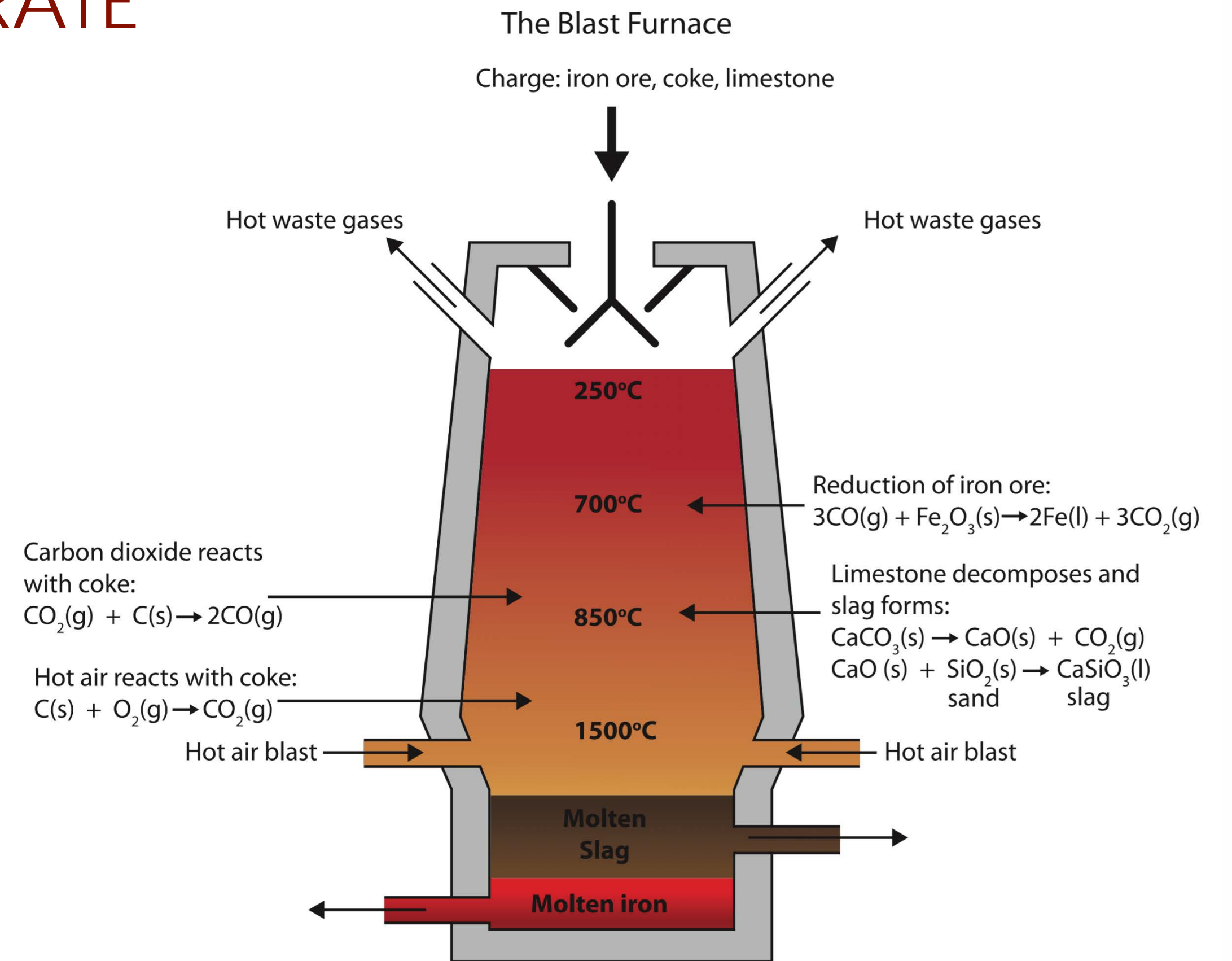
## PHASE 1 - PATH TO PRODUCTION

- **Olary** - Planned next phase of work (*next 6 months*)
  1. High resolution ground magnetic survey at Olary (Red Dam area)
  2. Metallurgical drilling and testwork
  3. Resource Upgrade
  4. High level scoping work relating to processing, mining and infrastructure
  
- **Razorback** - Planned next phase of work (*next 6 months*)
  1. Near Resource exploration drilling at Razorback Ridge and Iron Peak
  2. Metallurgical testwork and flowsheet development
  3. Infrastructure studies



## TARGET MARKETS FOR OLARY CONCENTRATE

- Direct Reduction Pellet Feed – no real competition from big four – premium market
- Blast Furnace Pellet Feed - Grade higher than average grade of pellet feed. Impurity levels much lower – replacement market
- Sinter Blend component to blend down Phosphorous and other deleterious contaminants – iron ore mainstream market






## MGT AND LODESTONE HAVE LOI / MOU NON BINDING AGREEMENTS FOR SALE AND PURCHASE OF PRODUCT

1. **Sha Steel (Shagang)** - 2 Mtpy (*Announced to the ASX 27 March 2017*)
2. **Mitsubishi Corporation RtM Japan Ltd** - 1 Mtpy (*Announced to the ASX 16 March 2017*)
3. **Ningbo Iron and Steel Co Ltd** – 1 Mtpy (*Announced to the ASX 17 January 2017*)
4. **Qingdao Steel** - 1 Mtpy (*Announced to the ASX 28 November 2016*)
5. **Shandong Steel** (*Announced to the ASX 18 July 2016*)
6. **Jinan Steel** (*Announced to the ASX 20 June 2016*)
7. **Sinosteel Resources** (*Announced to the ASX 26 April 2016*)



## OLARY FAST TRACK

1. Potential to produce Direct Reduction (DR) quality concentrate (~70% Fe), which commands significant price premium over 62% Fe Pilbara Fines
2. Previous studies / concepts derived by MGT applicable to Olary Project
3. Fast tracked - developed as a “curtain raiser” for the Razorback larger scale project
4. Demonstrate as “proof of concept” for the vast magnetite deposits of the Mawson Iron Province
5. Non-binding LOI / MOUs in place with steel mills and iron ore traders to purchase concentrate
6. Act as a major focus for magnetite R&D in the state of SA



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