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# **BROCKMAN**

## **BROCKMAN MINING LIMITED**

**布萊克萬礦業有限公司\***

*(incorporated in Bermuda with limited liability)*

**(SEHK Stock Code: 159)**

**(ASX Stock Code: BCK)**

### **OVERSEAS REGULATORY ANNOUNCEMENT**

The shares of Brockman Mining Limited (the “Company”) are dually listed on The Stock Exchange of Hong Kong Limited and on ASX Limited. This announcement is made pursuant to Rule 13.10(B) of the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited.

The following is the text of an announcement released by the Company on ASX Limited on 15 November 2016.

By order of the board of directors of  
**Brockman Mining Limited**  
**Chan Kam Kwan, Jason**  
*Company Secretary*

Hong Kong, 15 November 2016

*As at the date of this announcement, the board of directors of the Company comprises Mr. Kwai Sze Hoi (Chairman), Mr. Liu Zhengui (Vice Chairman) and Mr. Ross Stewart Norgard as non-executive directors; Mr. Chan Kam Kwan, Jason (Company Secretary), Mr. Kwai Kwun Lawrence and Mr. Colin Paterson as executive directors; Mr. Yap Fat Suan, Henry, Mr. Uwe Henke Von Parpart and Mr. Choi Yue Chun, Eugene as independent non-executive directors.*

\* *For identification purpose only*

# BROCKMAN

BROCKMAN MINING LIMITED  
布萊克萬礦業有限公司



## A New Paradigm for the Pilbara

Melbourne Mining Club – 15 November 2016  
Hendrianto Tee – Business Development Director

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# Brockman Brief

Brockman is listed on SEHK (159) and ASX (BCK)

## Capital Structure

Ordinary shares 8.4 billion

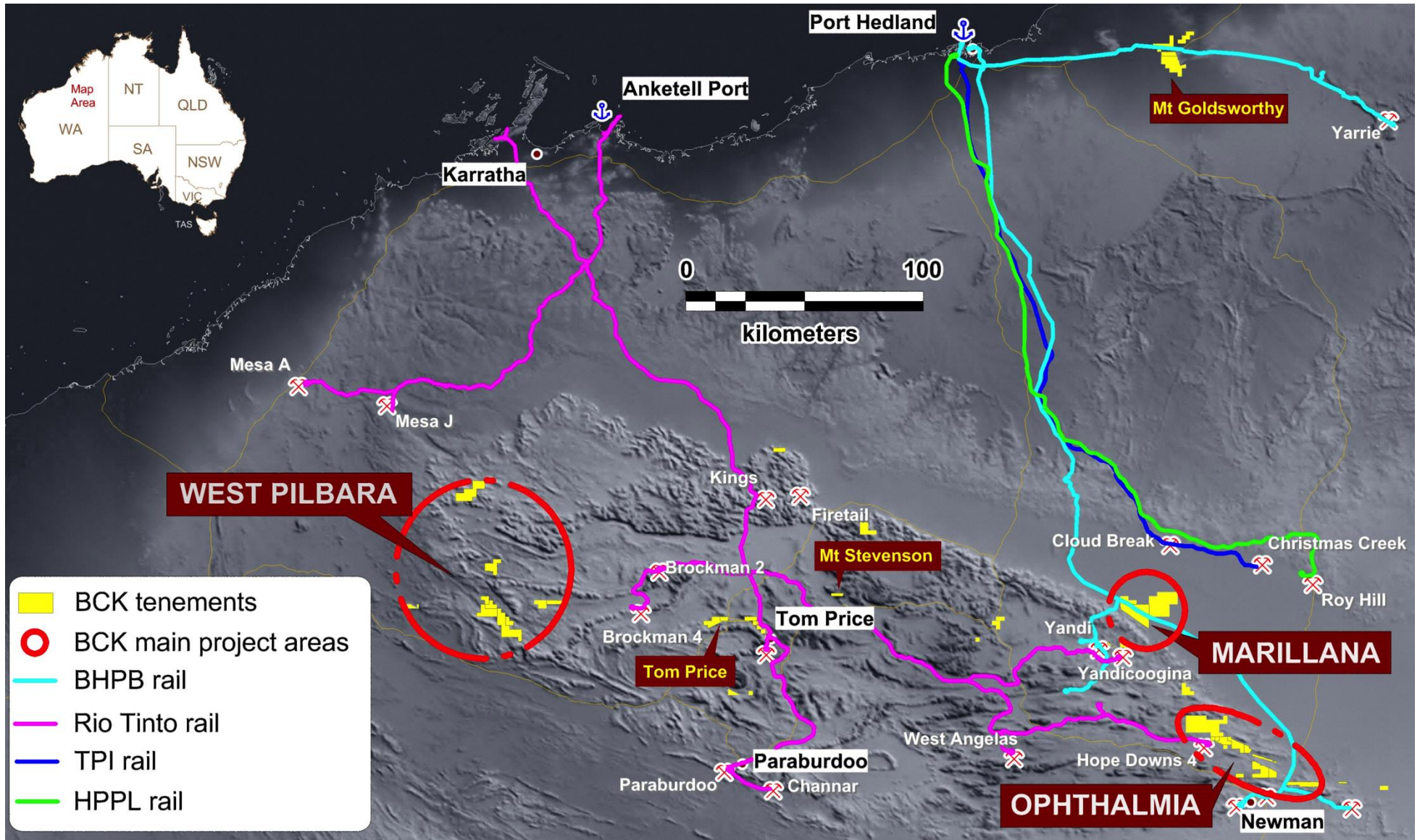
Share price  
(4-Nov-16) HKD 0.109

**Market capitalisation** **HKD 913.6 million**  
**(A\$ 153.5 million)**

Cash HKD 59.7 million  
(A\$ 10 million)

- Brockman operates through two segments:
  - 1) Iron ore mine acquisition, exploration and development in Western Australia:
    - Marillana Iron Ore Project
    - Ophthalmia Iron Ore Project
    - West Pilbara Exploration
  - 2) Copper ore concentrate production and sales in China.
- Ocean Line Group is the single largest shareholder with 21.92%.
  - Wholly owned, operates and manages a modern dry bulk fleet of more than 30 oceangoing vessels.

# Brockman Pilbara Hematite Assets



# A New Paradigm for the Pilbara

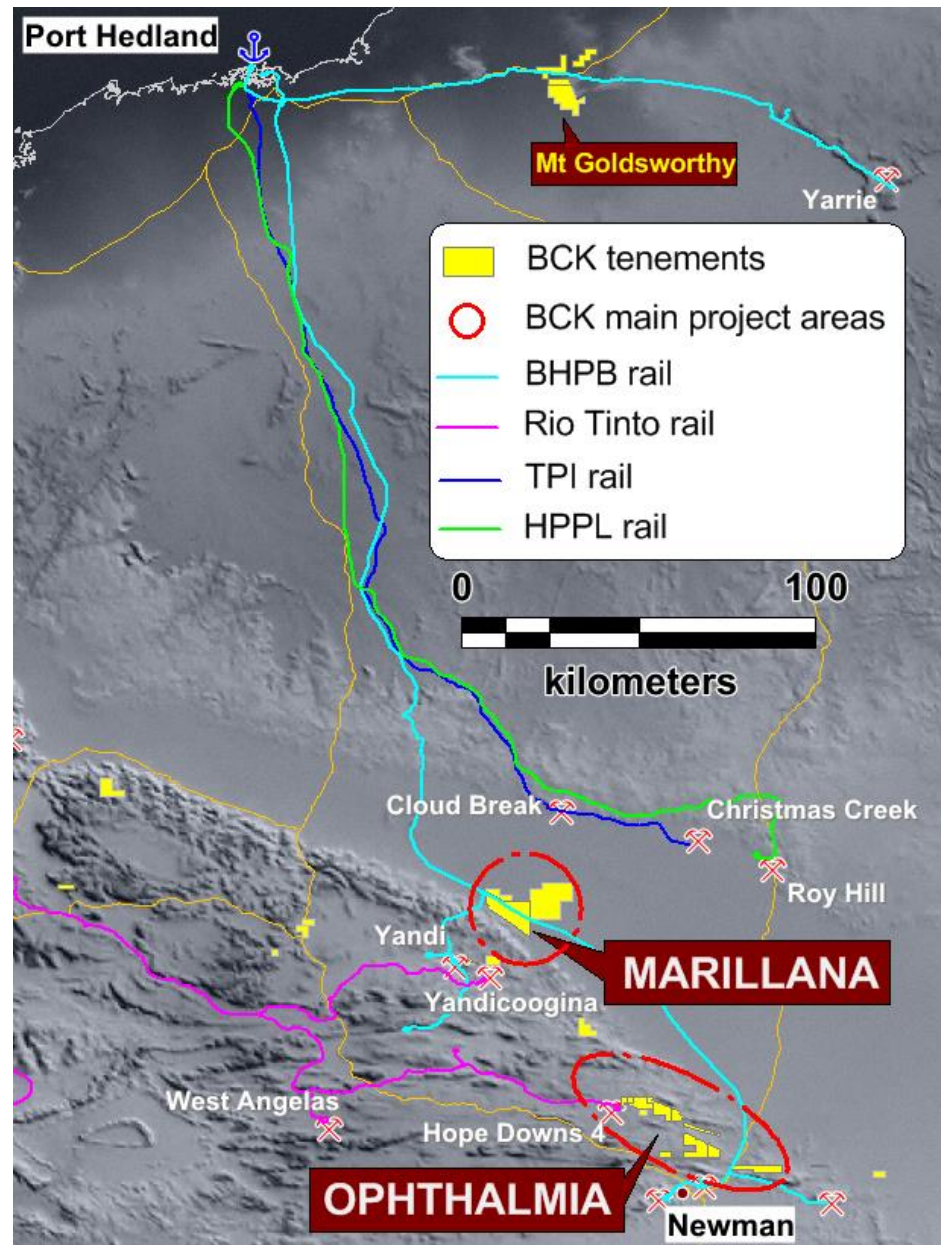
- New price environment: successful iron ore projects in the Pilbara require new strategies with lateral thinking.
- Project developments must include strategies to improve sequencing, more rigorous capital allocation and adoption of innovative logistics solutions to move down the cost-curve.
- The new Pilbara paradigm – start small, low capital, fit for purpose solutions, get to market quickly and preserve options for growth.

## *Practical Implications*

- Exploit options to offer niche product.
- Minimize capex by using existing infrastructure where possible.
- Dramatically reduce time to construct by smart project phasing.
- Utilising new breed of road trains as an advantage and look for lighter rail options.
- Reverse the Pilbara mindset - share infrastructure and reduce costs.
- Be practical and nimble – just like the first generation of Pilbara producers.

# Marillana – Quality in the heart of the Pilbara

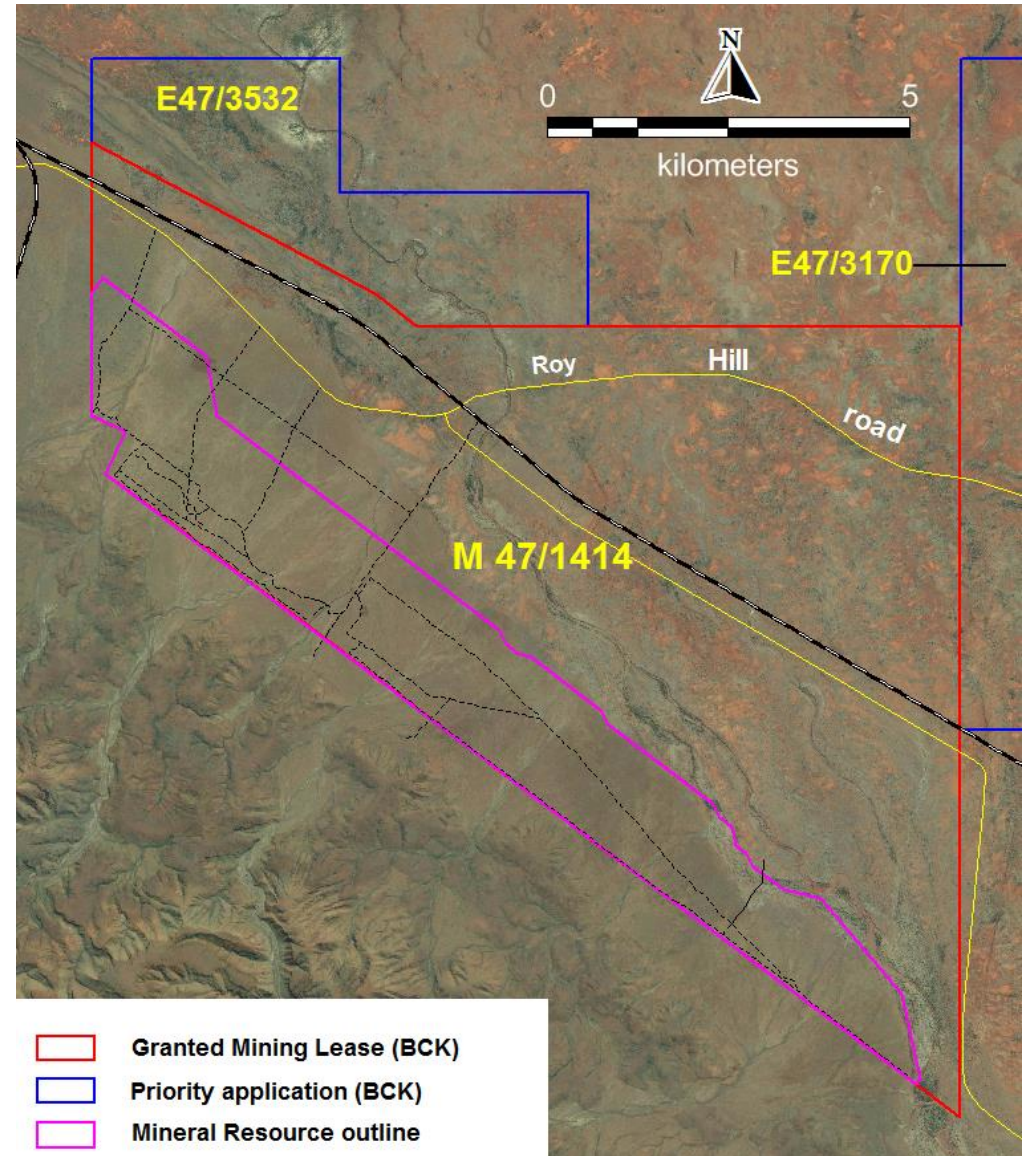
- Marillana is the largest single deposit outside of the majors and could support a 20Mtpa operation for more than 20 years.
- Contains a substantial Mineral Reserve over 1.0 billion tonnes (JORC compliant).
- Free dig (no drill & blast), low strip ratio (0.8:1 LOM), excellent continuity in thickness and grade.
- Very marketable 60.5% to 61.5% Fe high grade coarse fines with excellent sintering capability.
- Key approvals already in hand.





# Brockman strategy for Marillana's development

- Marillana is well studied and understood with extensive beneficiation testing.
- Wide and consistent orebody provides opportunities for a staged development to minimise capital and time to market.
- Start with a small project at western side of the orebody, exploiting the option to utilise existing infrastructure in the Pilbara (State roads and Utah Point port).
- Commercial in current price environment; builds cash flow and momentum.
- Creates further optionality for the main orebody with product utilised by end-users; opens up higher tonnage development.
- Deploy lighter rail options, supporting up to 30Mtpa capacity; build to share infrastructure.



# Marillana Stage-1: Project Maverick

## Small, quick and capital light

- Relates to a small portion of the total ore reserves of Marillana.
- Open pit, simple mining with an overall strip ratio of 0.31:1 (waste/ore) during the first 7-year operation.
- Proven technology for processing of the ores.
- Favourable economics of early phase.
  - Niche development 2.5 to 3.0 Mtpa for 7 years.
  - Quick to market – 9 month construction period.
  - Low capital requirement – mine site less than A\$ 60 million.
- Existing port available – Utah Point.
- Utilising new breed of road trains on existing roads for transport.
- All key State and Commonwealth Government approvals in hand.
  - Q1 2017 – execution of key commercial agreements; project funding closure.
  - Q2 2017 – construction commences.
  - Q1 2018 – commissioning and first shipment.

# Marillana Stage 2: Project Agincourt

## Capital light, practical technology, phased step up

- Leverages Brockman's presence in the market through Maverick.
- Phased 10 + 10 Mtpa processing plants.
- Reduces capital, minimises time to market and de-risks commissioning.
- Logistics solution to target low capital and cost sharing.
- Innovative, ballast-less light rail for Pilbara (axle loadings 22 – 26 tonnes).
- Design to include future Ophthalmia and include spare capacity for third parties.
- Requires port development for a single berth at South West Creek in Port Hedland.

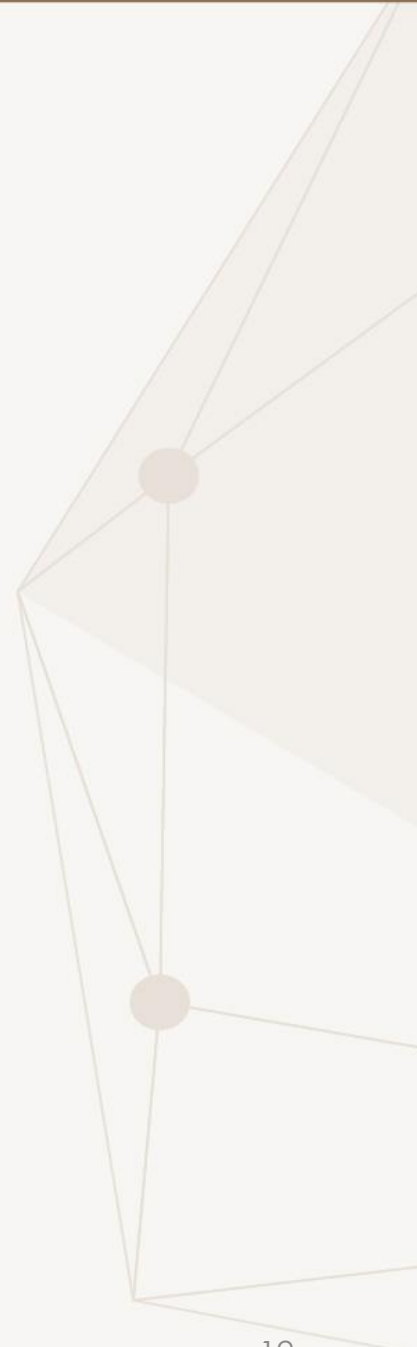
# The New Paradigm for the Pilbara

- Low capital
- Phased development
- Fit for purpose solutions
- Get to market
- Options for growth

# **APPENDIX 1**

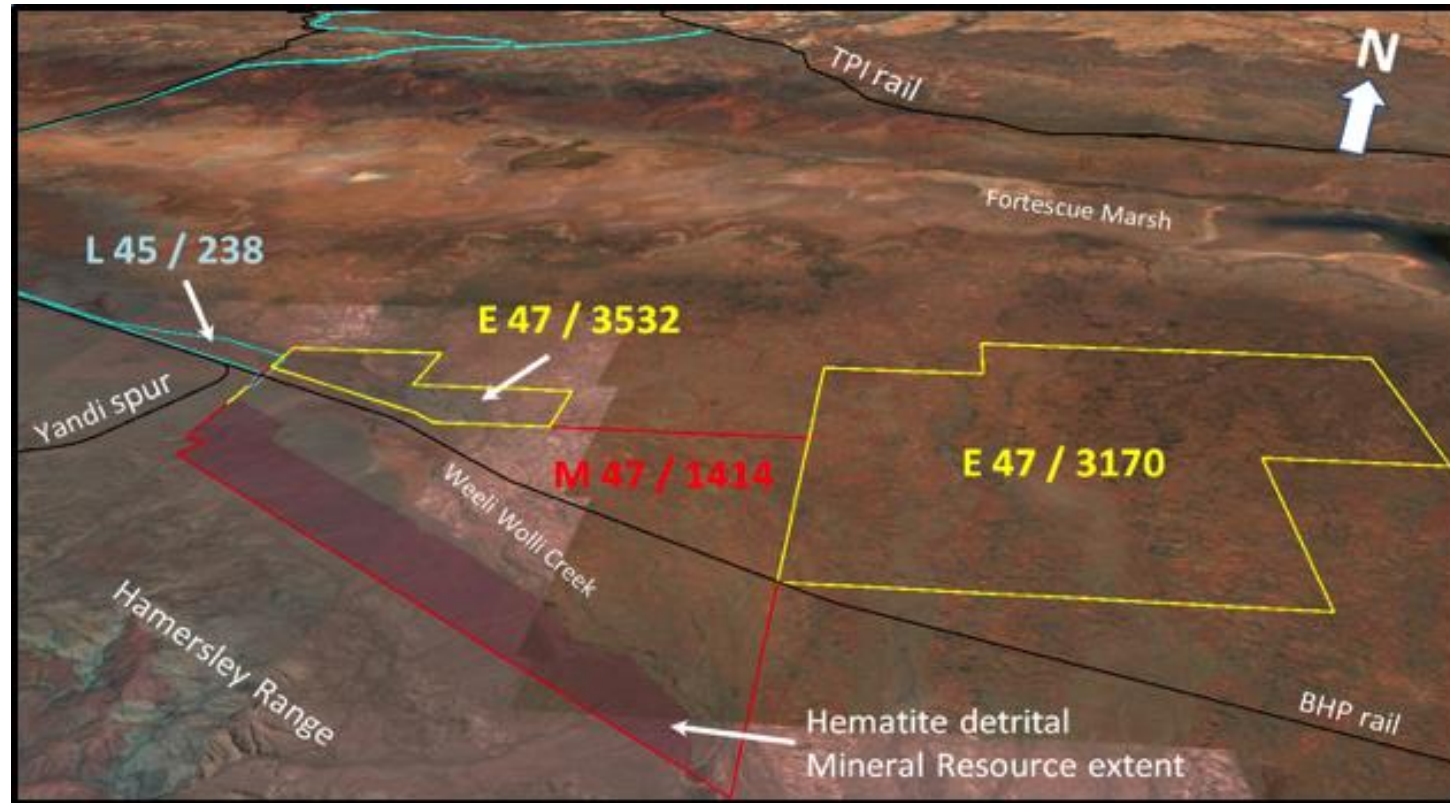
# **MARILLANA PRODUCTION &**

# **INFRASTRUCTURE STRATEGIES**



# Marillana Mine Site

- Located approximately 100km north west of the Newman township
- Mine operating site is contained between tenement boundaries, Weeli Wollli Creek and BHPB railway.
- Detrital resource strike length 14.5km (west to east), average width 1.5km.



# Marillana – Key Features

- Located in the Pilbara region, Western Australia the hub of Australian iron ore production.
- 100% owned by Brockman (HKEx: 0159; ASX: BCK).
- A substantial iron ore Mineral Reserve over 1.0 billion tonnes (JORC Compliant) supporting production of 20+ million tonnes per annum (Mtpa) for at least 20 years.
- All key State and Commonwealth approvals for the development of the Marillana Project have been obtained.
- Product: 60.5% to 61.5% Fe high grade, high yield coarse fines with high sintering capability – high acceptance with any steel mills.
- Targeted production of 20+ million tonnes per annum (Mtpa) for at least 20 years, which is to be developed in 2 stages:
  - Stage-1: 2.5 Mtpa (Q1-2018) for 7 years (**Project Maverick**).
  - Stage-2: 20 Mtpa (Q1-2021) for 20 years (**Project Agincourt**).

# Marillana – Development

Brockman has completed all key planning work for Marillana, including:

- a scoping study between 2007 – 2008;
- preliminary feasibility study in 2009;
- definitive feasibility study in 2010 (**DFS**);
- front end engineering and design in 2011 (**FEED**); and
- ongoing value adding studies.

Extensive beneficiation (processing) test work has been completed as part of the DFS and FEED studies on ore samples taken from the deposit.



# Project Maverick

- Relates to a small portion of the total ore reserves of Marillana.
- Open pit, simple mining with an overall strip ratio of 0.31:1 (waste/ore) during the first 7-year operation.
- Matured modules for processing of the ores.
- 9 months construction period.
- All key State and Commonwealth approvals have been obtained.
- Existing port available, Western Australia government owned Utah Point. Port allocation and stockyard yard lease to be finalized.
- Mine to port transportation using Road Train on existing road.
- Existing utilities network.
- Mine site capital cost of less than A\$60 million.
- FOB cost below A\$48/dmt (mine gate cost A\$17.0/dmt).
- Requires only 100 people on the site.

# Maverick Product

## Product Specification

Fe (%)	SiO <sub>2</sub> (%)	Al <sub>2</sub> O <sub>3</sub> (%)	P (%)	LoI (%)
61.5	5.75	3.2	0.075	1.89

## Product Sizing

11.2-8.0mm	8.0-2.0mm	2.0-0.8mm
19%	50%	31%

- Maverick product will be coarser compared to average of whole Marillana considering some ores from Pit-1 and Pit-2 will not go through crushing but direct to DMS plant after scrubbing and screening.
- The attractiveness of the Marillana/Maverick product is in its high Fe content and the coarseness of its size. These benefits offset the relatively high impurities of the ore. The CISRI (China Iron & Steel Research Institute) of report indicates that by using the coarse Maverick product as a 10% to 25% replacement of other major Australian seaborne ores, a steel mill could achieve an average increase in sinter productivity of 5% to 10%, with the added benefit of a 5% reduction in fuel usage.

# Maverick - Mine Layout Drawing

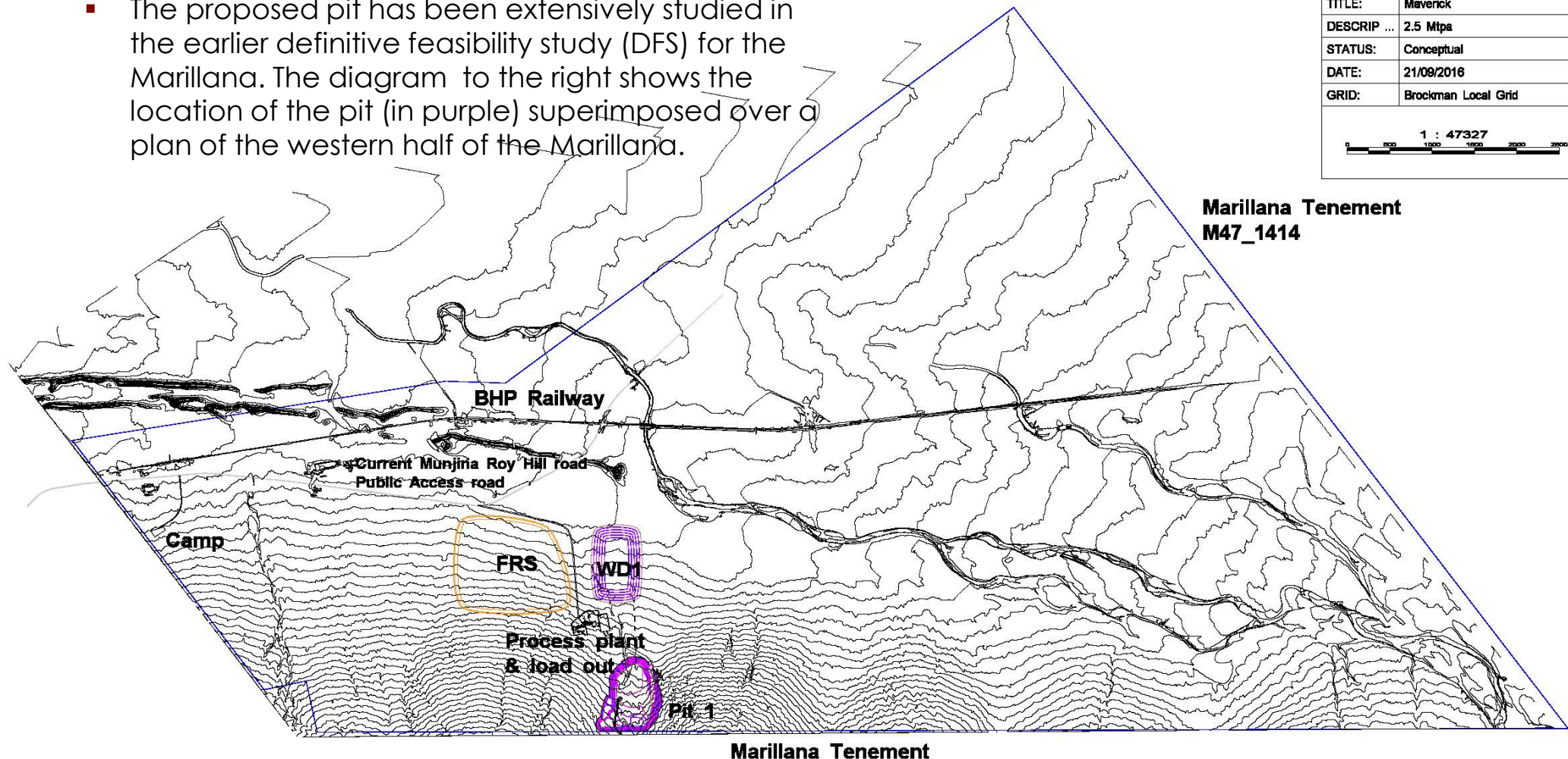
- A single pit (Pit-1) will be established for Maverick inside Marillana tenement.
- The proposed pit has been extensively studied in the earlier definitive feasibility study (DFS) for the Marillana. The diagram to the right shows the location of the pit (in purple) superimposed over a plan of the western half of the Marillana.

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PROJECT:	Marillana Iron Ore
TITLE:	Maverick
DESCRIP ...	2.5 Mtpa
STATUS:	Conceptual
DATE:	21/09/2016
GRID:	Brockman Local Grid

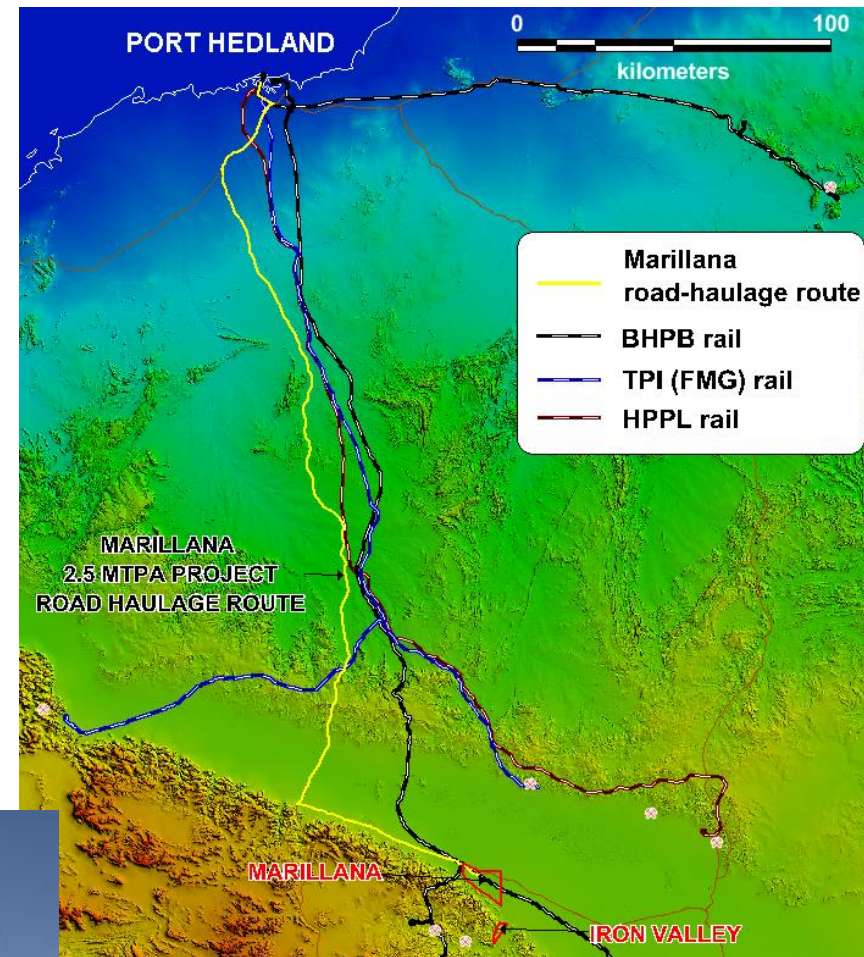


**Marillana Tenement  
M47\_1414**



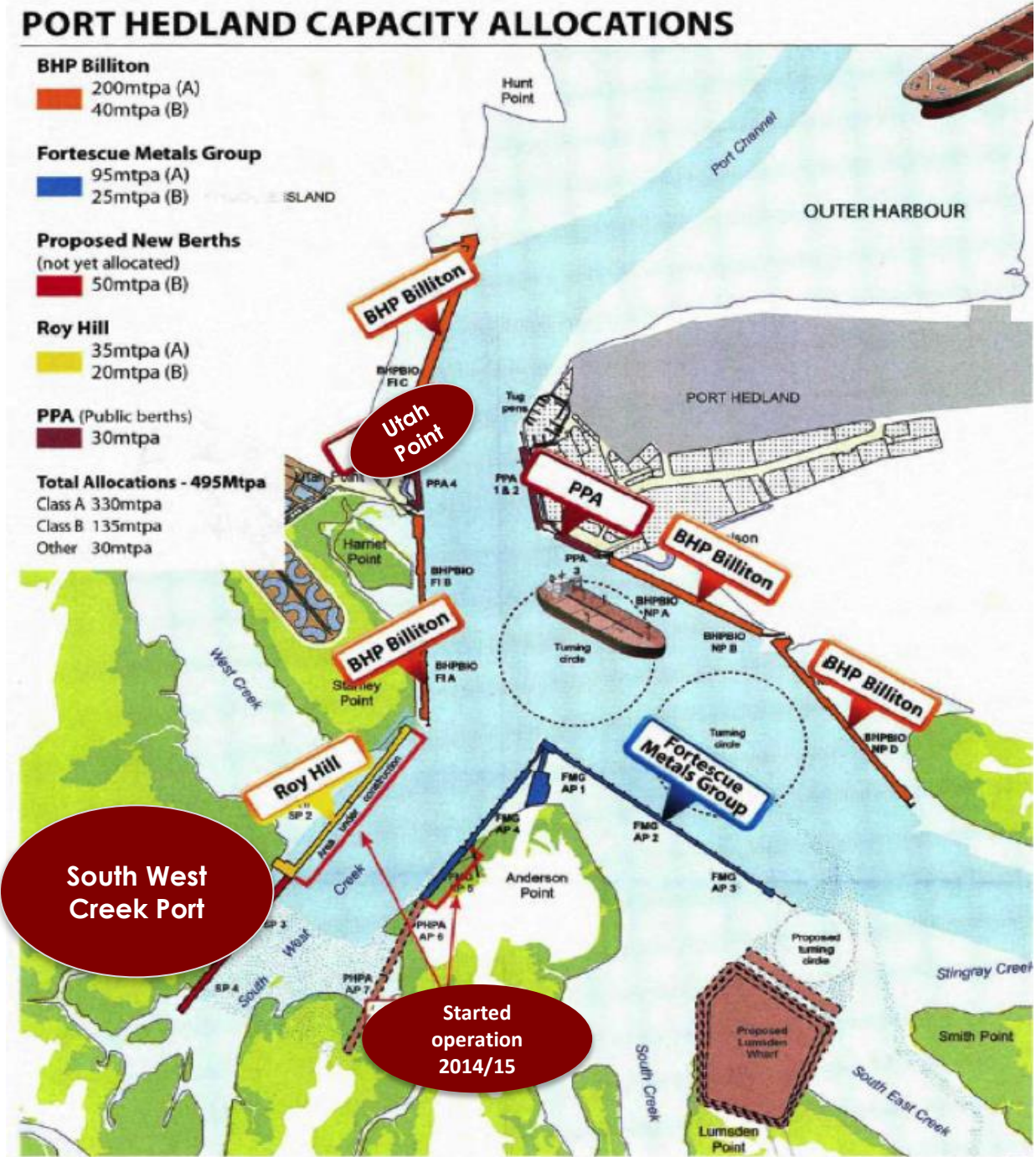
# Road Haulage to Port Hedland

- Marillana is located 320km from Port Hedland's Utah Point
- Brockman's coarse iron ore fines will be transported to Utah Point using efficient Road Trains.



# Port Hedland

- Port Hedland is managed by the Pilbara Ports Authority (PPA), a Western Australia government enterprise.
- PPA owns 4 of the 19 existing berths at Port Hedland with remaining berths owned by BHP, FMG and Roy Hill.
- Utah Point is one of the 4 PPA berths that exports iron ore for various junior producers.
- South West Creek Port, currently under development for another 2 berths.



# Utah Point

- Utah Point Bulk Handling Facility is currently under the management of PPA. It was constructed in 2010 to facilitate export of bulk products, currently iron ore and manganese.
- Utah Point assets include:
  - 272m long berth with a harbour depth of 14.5m.
  - 7,500 tonnes per hour ship loader.
  - Two stockyard product storage facilities.
  - Automated cavotec mooring system.
- Over 20Mtpa of “C” Class allocation in the world’s premium iron ore port (there may be the potential for Utah point BHF to ship additional volumes subject to loading efficiencies).
- PPA has granted a non-exclusive stevedoring licence to Qube Bulk Pty Ltd (Qube). Qube then has separate contractual arrangements with Utah Point users (currently: Atlas Iron, Mineral Resources and Consolidated Minerals).

# Maverick Estimated Schedule

- **September to December 2016** – Negotiation with all the contractors.
- **Q1 2017** - Executable commercial agreements, including:
  - Port agreement
  - The logistics services agreement for road haulage;
  - Mining, processing and site administration capital development and operating agreement; and
  - Product offtake agreements.
- **Q1 2017** – Project funding closure.
- **Q2 2017 to Q1 2018** – Construction.
- **Q1 2018** - Commissioning and first ore on ship.

# Project Agincourt

- Mine plan completed for Agincourt's 25/10 + 25/10Mtpa (detrital feed/product) for 20 years mine life.
- Mining method will be conventional (free dig) using backhoe excavators and dump trucks. Life of mine strip ratio is 0.84:1.
- The construction of 10 + 10 Mtpa processing plant will be executed in 2 stages, which reduces start-up capital and de-risks commissioning.
- A new scoping study (Agincourt Study) completed in June 2016 provided an updated capital cost for DMS (Dense Media Separation) processing plant with its supporting infrastructure as well as processing cost.
- Agincourt Study provided an encouraging result for further development of Brockman's phased development plan.
- Agincourt Study was done on the back of previously completed (2010) Definitive Feasibility Study for a single 20Mtpa processing plant as well as its various optimisation studies conducted between 2011 to 2014.



# Project Agincourt – Infrastructure Solution

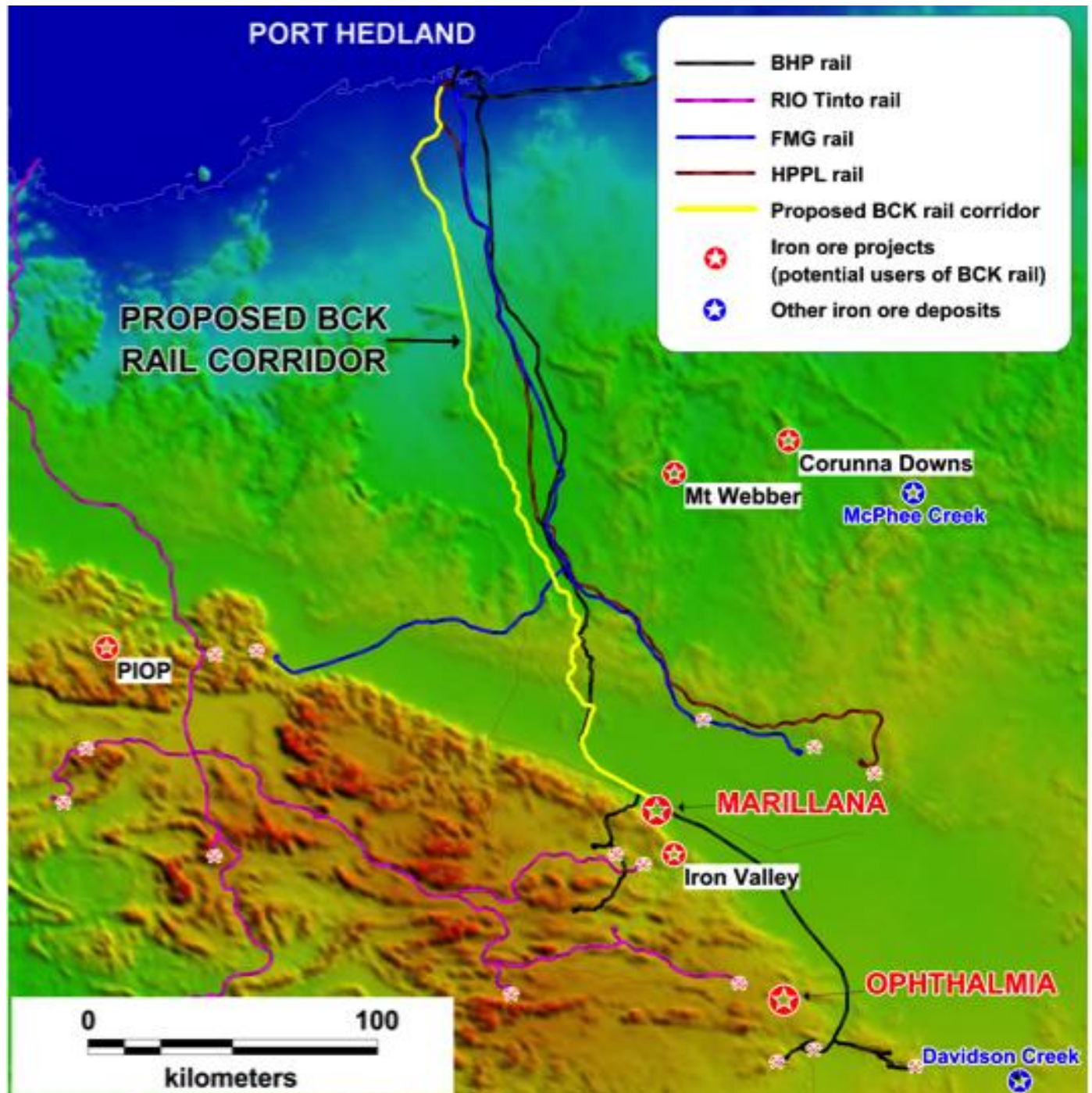
## Rail

- A fit for purpose solution that would accommodate Marillana and Ophalmia (total 30Mtpa) with a spare capacity for other third parties.
- An initial study for a Ballast-less track system developed by Ausbeam Technologies (study by Engenium) completed in June 2016.
- Axle loading 22 – 26 tonnes
- Rail operation to be developed with a qualified third party operator.

## Port

- Developing a cape size single berth at South West Creek (SWC). The berth will have a capacity of 30Mtpa with the ability to cater to 180-200 thousand tonnes cape vessels.
- Use bottom-dump rail cars for reduced capital.
- Option to develop a second berth for another 30Mtpa, bringing SWC port total output to 60Mtpa.

# Brockman Rail – to Port Hedland



# **APPENDIX 2**

# **MARILLANA RESOURCE AND**

# **RESERVE**



# Competent Person Statement

*The Mineral Resources and Ore Reserves referred to in this presentation relating to Marillana are reported in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves 2004 Edition ("JORC Code 2004"). It has not been updated since to comply with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves 2012 Edition ("JORC Code 2012") on the basis that the information has not materially changed since it was last reported to ASX on 9 September 2010. When reserves and resources are reported under the JORC Code 2004, the ore reserve figures (tonnage and grade) are included within the mineral resource figures (tonnage and grade). Estimates of Mineral Resources, Ore Reserves, recoveries and operating costs are largely dependent on the interpretation of geological data obtained from drill holes and other sampling techniques, and feasibility studies which derive estimates of operating costs based on anticipated tonnage, expected recovery rates, equipment operating costs and other factors. No assurance can be given that the Mineral Resources and Ore Reserves presented in this presentation will be recovered at the quality or yield presented. In addition, it should not be assumed that the Mineral Resources and Ore Reserves reported under the JORC Code 2004 are capable of being directly reclassified under the JORC Code 2012.*

## **Competent Persons' Statements**

*The information in this presentation that relates to Mineral Resources and Ore Reserves is based on and fairly represents, information and supporting documentation prepared by Mr I Cooper, Mr J Farrell and Mr A Zhang.*

*The Ore Reserves were compiled by Mr Cooper, who is a Member of Australasian Institute of Mining and Metallurgy and a former full-time employee of Golder and Associates. Mr Cooper has sufficient experience in Ore Reserve estimation relevant to the style of mineralisation and type of deposit under consideration to qualify as Competent Person as defined in the JORC Code 2004. Mr Cooper consents to the inclusion in this presentation of the matters based on this information in the form and context in which it appears.*

*Mr Farrell, who is a Member of the Australasian Institute of Mining and Metallurgy and a former full-time employee of Golder and Associates, produced the Mineral Resource estimates based on the data and geological interpretations provided by Brockman. Mr Farrell has sufficient experience that is relevant to the style of mineralisation, type of deposit under consideration and to the activity that he undertook to qualify as a Competent Person as defined in the JORC Code 2004. Mr Farrell consents to the inclusion in this presentation of the matters based on this information in the form and context in which it appears.*

*Mr Zhang, who is a Member of the Australasian Institute of Mining and Metallurgy and a full-time employee of Brockman, provided the geological interpretations and the drill hole data used for the Mineral Resource estimation. Mr Zhang has sufficient experience that is relevant to the style of mineralisation, type of deposit under consideration and to the activity that he undertook to qualify as a Competent Person as defined in the JORC Code 2004. Mr Zhang consents to the inclusion in this presentation of the matters based on this information in the form and context in which it appears.*

# Mineral Resource Summary

Beneficiation Feed			
Mineralisation Type	JORC Resource Classification	Tonnes (million)	Grade (% Fe)
Detrital	Measured	173	41.6
	Indicated	1,036	42.5
	Inferred	201	40.7
Pisolite	Indicated	117	47.4
Total Tonnes			
	<b>Measured</b>	<b>173</b>	<b>41.6</b>
	<b>Indicated</b>	<b>1,154</b>	<b>43.0</b>
	<b>Inferred</b>	<b>201</b>	<b>40.7</b>
	<b>Total</b>	<b>1,528</b>	<b>42.6</b>

Mineral Resources are inclusive of Ore Reserves

# Mineral Reserve Summary

<b>Detrital Ore Reserve</b>			
<b>JORC Reserve Classification</b>	<b>Tonnes (million)</b>	<b>Fe (%)</b>	
Proven	133	41.6	
Probable	868	42.5	
<b>Total</b>	<b>1.001</b>	<b>42.4</b>	

# APPENDIX 3

# OPHTHALMIA PROJECT



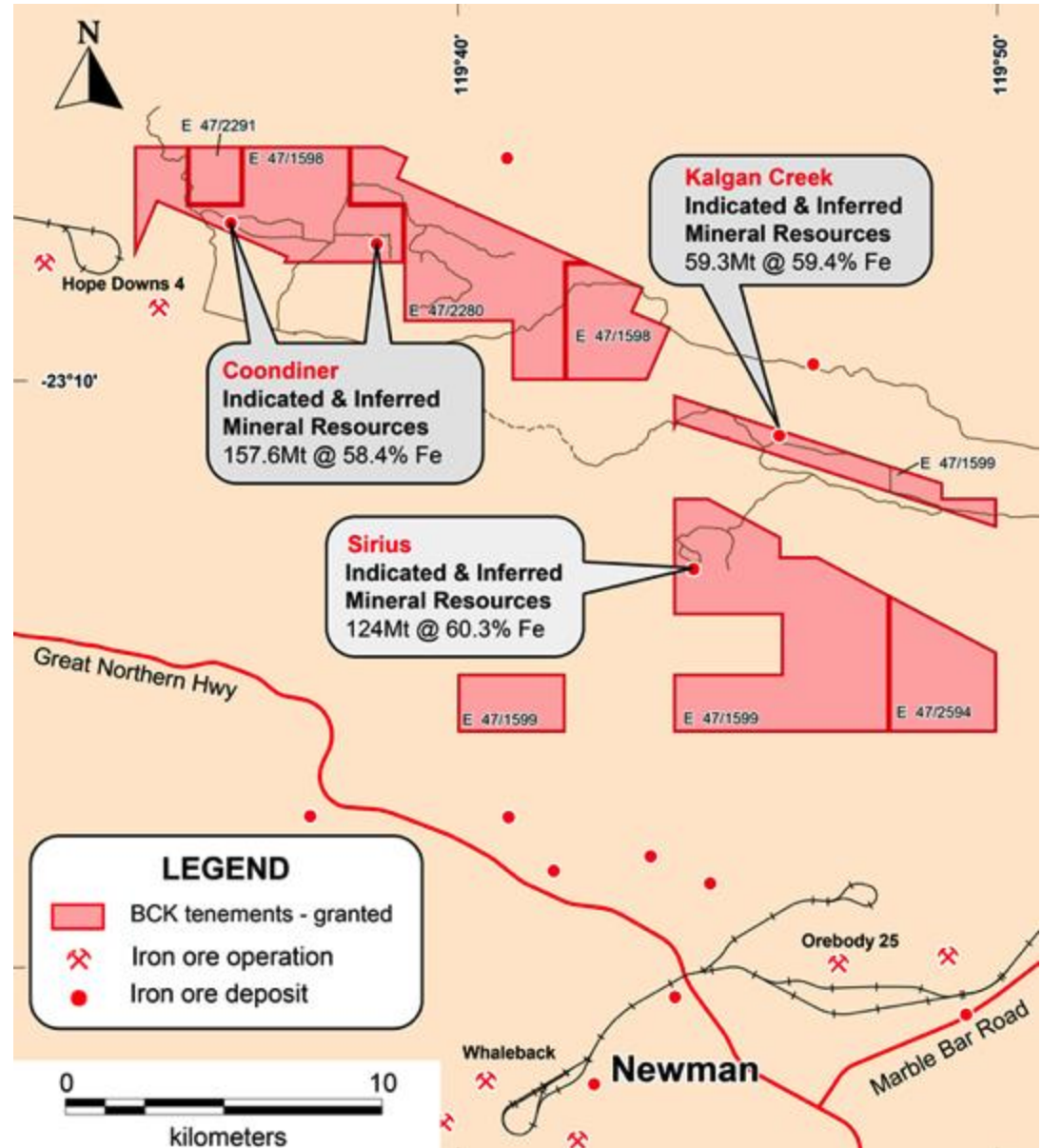
# Competent Person Statement

*In accordance with ASX Listing Rule 5.23 and the JORC Code 2012, Brockman confirms that the Mineral Resources referred to in this presentation relating to Ophthalmia were originally sourced from the final update of the Mineral Resources of the Ophthalmia project announced to ASX on 1 December 2014. Since then there has been no further exploration drilling. Brockman confirms that it is not aware of any new information or data that materially affects the information included in that announcement and that all material assumptions and technical parameters underpinning the estimates in that announcement continue to apply and have not materially changed.*



# Ophthalmia – DSO Operation

- Located only 70 – 80 km from Marillana, providing opportunities to connect to the Marillana Project infrastructure solution.
- Pre-Feasibility study currently ongoing.



# Ophthalmia - Mineral Resource Summary

Deposit	JORC Resource Classification	Tonnes (million)	Fe (%)	CaFe* (%)	SiO <sub>2</sub> (%)	Al <sub>2</sub> O <sub>3</sub> (%)	S (%)	P (%)	LOI (%)
Kalgan Creek	Indicated	34.9	59.3	62.7	4.08	4.57	0.009	0.183	5.49
	Inferred	24.4	59.5	63.2	4.38	3.90	0.007	0.157	5.81
	<b>Sub Total</b>	<b>59.3</b>	<b>59.4</b>	<b>62.9</b>	<b>4.21</b>	<b>4.29</b>	<b>0.009</b>	<b>0.173</b>	<b>5.63</b>
Coondiner (Pallas and Castor)	Indicated	140.5	58.5	62.0	5.18	4.46	0.007	0.176	5.71
	Inferred	17.1	58.1	61.5	6.06	4.45	0.008	0.155	5.47
	<b>Sub Total</b>	<b>157.6</b>	<b>58.4</b>	<b>62.0</b>	<b>5.52</b>	<b>4.45</b>	<b>0.008</b>	<b>0.174</b>	<b>5.64</b>
Sirius	Indicated	105.0	60.4	63.7	3.54	3.97	0.007	0.178	5.22
	Inferred	19.0	60.2	63.4	4.09	3.83	0.009	0.168	5.14
	<b>Sub Total</b>	<b>124.0</b>	<b>60.3</b>	<b>63.6</b>	<b>3.62</b>	<b>3.95</b>	<b>0.007</b>	<b>0.177</b>	<b>5.20</b>
<b>Ophthalmia Project</b>	<b>Indicated</b>	280.4	59.3	62.7	4.42	4.23	0.007	0.178	5.45
	<b>Inferred</b>	60.5	59.3	62.8	4.82	4.35	0.006	0.160	5.43
	<b>Total</b>	<b>340.9</b>	<b>59.3</b>	<b>62.7</b>	<b>4.49</b>	<b>4.25</b>	<b>0.007</b>	<b>0.175</b>	<b>5.45</b>

\*CaFe represents calcined Fe and is calculated by Brockman using the formula  $CaFe = Fe\% / ((100-LOI\%)/100)$

**THANK YOU**

