



Orion Minerals<sub>NL</sub>

ASX Code: ORN

# *A rare consolidation opportunity in a proven minerals belt*

Africa Down Under Conference  
6-8 Sep 2017



***"Expediting development at Prieska while seeking to unlock the minerals potential of the land package through advanced exploration"***

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# Orion: Corporate Summary



## Capital Structure Summary

Shares on Issue	990M
Options on Issue	217M
Market Capitalisation (at 2.4cps)	\$24M
Bridge Loan (12% interest, Dec '17 term) <sup>(1) (2)</sup>	\$6.0M
Convertible Notes (2.6cps convert, 12% coupon, Mar'19 maturity) <sup>(2) (3)</sup>	\$6.0M
Cash on Hand (at 30 June '17)	\$3.4M

## Board

Denis Waddell	Non Executive Chairman (chartered accountant)
Errol Smart	CEO, Managing Director (geologist)
Bill Oliver	Non Executive Director (geologist)
Alexander Haller	Non Executive Director (economist)
Tembo Capital Nominee <sup>(4)</sup>	Non Executive Director

## Significant Holder Name

## %

Tembo Capital	19.99%
Tarney Holdings	9.34%
Silja Investment & Alexander Haller <sup>(5)</sup>	6.98%
Independence Group	5.47%
Significant Holder Total	41.78%

## Key Management

Martin Bouwmeester	CFO, Company Secretary (FCPA)
Michelle Jenkins	Executive: Finance and Admin (CA, engineer, geologist)
Walter Shamu	Executive: Mining & Development (engineering, law)
Louw van Schalkwyk	Executive: Exploration (geology)
Nelson Mosiapoa	Social Responsibility Advisor (chemical engineering, government policy)

**(1)** Refer to ASX release 18 Aug '17 for additional information.

**(2)** Refer to the Company's Jun '17 Appendix 5B for information related to a Redeemable Preference Shares Agreement (ZAR15.75M) and a Loan Agreement (ZAR14.25M) that Repli Trading No 27 (Pty) Ltd (a 73.33% owned subsidiary of Agama Exploration & Mining (Pty) Ltd) has entered into with Anglo American Sefa Mining Fund.

**(3)** Refer to ASX releases 8 Mar '17 and 17 Mar '17 for additional information.

**(4)** Tembo has the right to appoint a non-executive director to Orion's Board for so long as it holds at least 12.5% of Orion's issued shares. Refer to ASX release 31 May '17 for additional information.

**(5)** Mr Alexander Haller is deemed to have a relevant interest in securities held by Silja Investment Ltd.



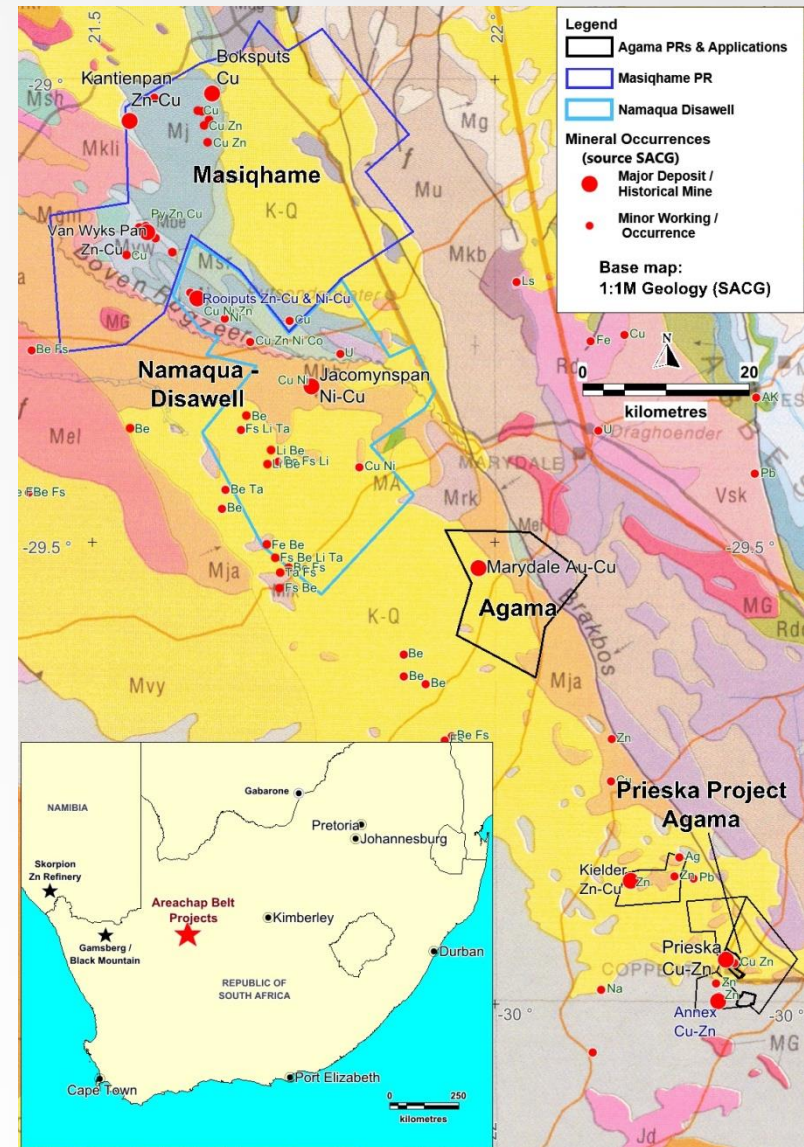
- **Orion will seek a secondary listing on JSE September 2017**
  - *Facilitating Increased Equity Participation by South Africans*
  
- **JSE KEY FACTS (as at June 2017) (source JSE)**
  - *Market capitalisation: R13.64 trillion (approximately A\$1.4 trillion)*
  - *Number of companies listed: 386*
  - *Foreign-domiciled companies: 75*
  - *World Federation of Exchanges: Top 20 global exchanges by market capitalisation*
  - *In the World Economic Forum Global Competitiveness Report:*
    - *SA Ranked 1: Strength of auditing and reporting standards, protection of minority shareholders' rights, and financing through the local equity market.*
    - *SA Ranked 2: Financial services meeting business needs and soundness of banks.*
    - *SA Ranked 3: Efficiency of corporate boards and regulation of securities.*
  - *The JSE is currently ranked the **19th largest stock exchange in the world by market capitalisation** and the largest exchange in the African continent.*
  - *the JSE strives to offer secure, efficient primary and secondary capital markets across a diverse range of instruments, supported by cost-effective services.*
  - *JSE market liquidity: 80% 2016 (67% 2015)*
  
- **Orion remains Australian registered, ASX primary listed and ASIC regulated.**



# Major consolidation play in a proven mineralised district



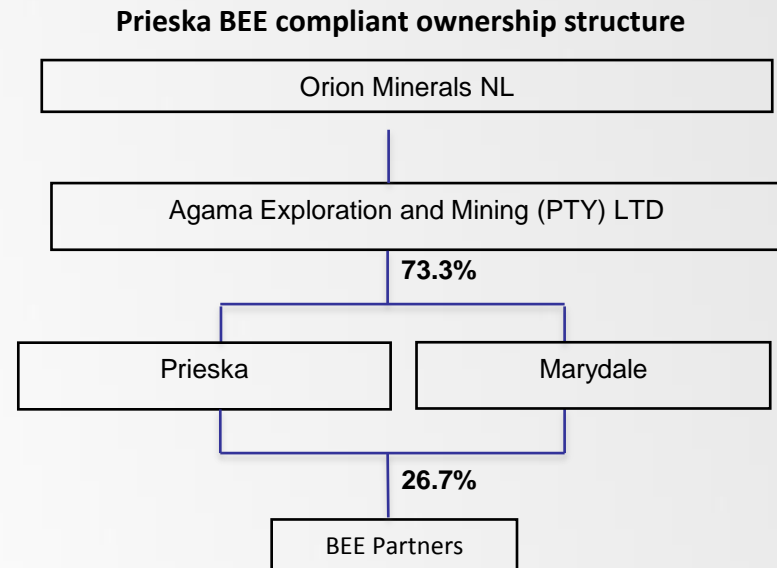
- Orion acted at bottom of cycle in 2015 and secured a large consolidated land package (1,790 km<sup>2</sup>)
  - Secured a potential company making project in Prieska
  - First time this highly prospective region has been consolidated under a single owner
- No major exploration activity over the past 20 years
  - Application of modern exploration techniques presents a significant opportunity in target generation and testing
  - Many identified mineral occurrences not drilled and most targets remain open down dip and along strike
- Three superimposed geological events produce an exceptional metals province
  - Prieska deposit recorded as one of world's 30 largest VMS deposits with 22 other occurrences on Orion's prospecting rights
  - Mafic intrusive analogous in tectonic and time to the Fraser Range, WA with Ni-Cu deposits intruding pre existing VMS & VHMS
  - Late stage granites and pegmatites intrude, with Li and REE deposits



# Prieska ownership structure



- Orion acquired option to purchase Agama Exploration & Mining in July 2015
  - Extensive DD process completion, including technical, regulatory and economic work streams
  - Transaction consideration A\$8.9m\*, completed in March 2017
- Orion has a 73.3% economic interest in Prieska and Marydale VMS project
- Full compliance with prevailing South African Black Economic Empowerment legislation
- BBE partner is empowered at the asset level
- BEE partners are the Mosiapoa Family and Power Matla



\* Acquisition consideration comprised Cash A\$3.3m, ORN shares A\$2.2m (each share having one attaching option), shareholder loan settlement A\$3.4m, refer to ASX release 29 March 2017

# Prieska – SA mining success story



- Operated from 1971-1991, employed 4,000 people by Anglovaal
  - Infrastructure rich with all key services remaining on site
- Milled 46.8mt producing >430kt copper and >1mt zinc in concentrate
- Post May 1987, no more than 2mt of ore was blasted (milling of surface stockpiles from 1989)
- Mine closed and site rehabilitated 1991
- Historic resource estimation practices conformed to “Industry Best Practice” of the time
  - Extensive historic drill hole data
  - Mine survey and geology plans show un-mined extensions and support last reported mine planning reports

Prieska in operation mode



Mine Manager’s planning proposal to Anglovaal corporate office (June 1987)\*

PAGE 2

MINING & MILLING	MONTH - MAY 1987						TOTAL FOR PREVIOUS YEAR		
	PLAN			ACTUAL			TONS	Cu %	Zn %
A. Tonnage Mined & Milled	TONS	Cu %	Zn %	TONS	Cu %	Zn %	TONS	Cu %	Zn %
Drilled Mining Reserve				806766	1.458	4.888	23765496	1.569	4.259
Broken from Ore Reserves				82278	2.388	5.972	1978253	1.679	4.896

\*This is an historical estimate and is not reported in accordance with the 2012 Edition of the JORC Code. A Competent Person has not completed sufficient work to classify the historical estimate as Mineral Resources or Ore Reserves as defined in the JORC Code. It is uncertain whether Mineral Resources or Ore Reserves will be able to be reported until the current drilling program is completed

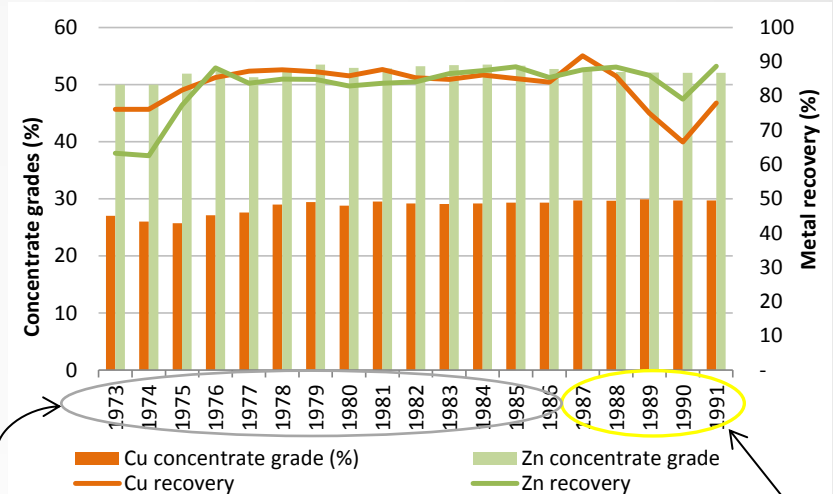
Source: Mine Archive, refer ASX release 9 May 2017

# Extended history of metallurgical success



- Proven metallurgical process flowsheet at operational scale to handle variable ore feed
- Mill feed grade decline post 1987 reflects the cessation of underground development
- Historical production demonstrates consistent concentrate grades and recoveries despite variable ore feed over LOM
- BFS will optimise plant design and match proposed mining sequence
  - Initial open pit mining with a mixed oxide/transitional feed
  - Transitioning to sulphide feed from underground
- 3.5t of samples submitted to MINTEK for metallurgical test work to confirm previous results for +105 Level Target (open pit) material

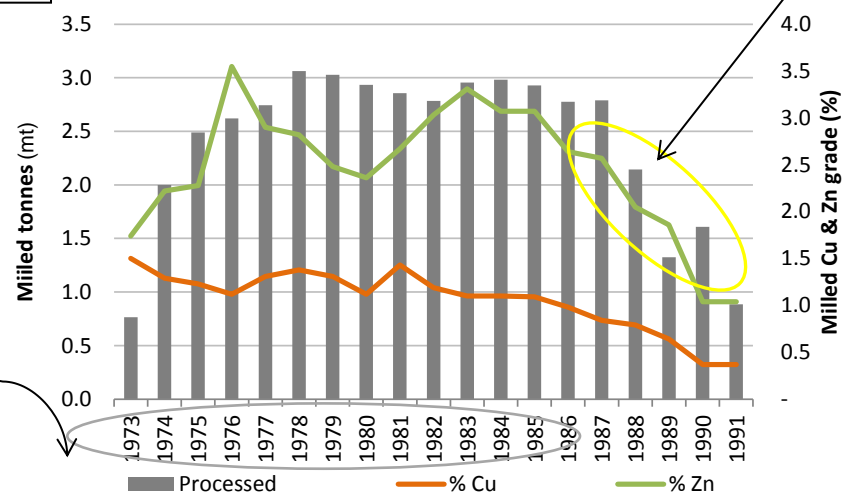
Consistent concentrate grades and recoveries despite change in feed<sup>1</sup>



Treatment of predominantly sulphide material

Treatment of mixed oxide, intermediate, sulphide ore and low grade stockpiles

Prieska milled tonnes and Cu & Zn grades<sup>1</sup>



1. Historical production data from 1973 to 1991 under Anglovaal ownership

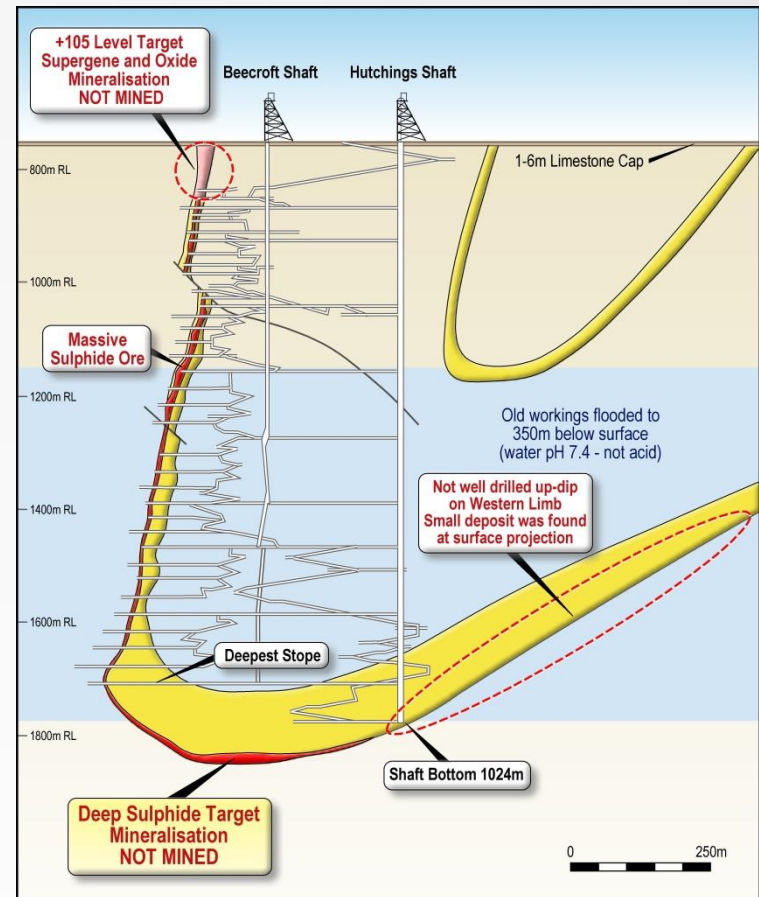


# Systematic and low risk path to advancing Prieska



## Prieska target mineralisation and existing mine infrastructure

- BFS scheduled for completion Q4 2018
  - DRA appointed as lead BFS consultants
- Key BFS technical project parameters include
  - Construction of 1.2mtpa throughput flotation plant to produce Zn and Cu concentrates
  - Confirm optimal sequence of open pit feed for consistency in ore presentation through oxide and high grade supergene zones
  - Confirm suitability of using a drift-and-fill and longhole stoping for the mining of deep sulphide mineralisation to minimise dilution
  - Use of underground water for process & dust suppression dewatering underground while mining open pit
  - Closed, Zero-Discharge environmental strategy
- ABS Africa will manage the EIA studies to comply with leading international standards to support project finance
- Mining Right and Environmental Authorisation applications to be submitted in Q1 2018



# Significant infrastructure footprint



- Sealed access roads to project site
- 48km via bitumen road to existing rail siding
- 75MW operational solar power plant
  - 4 HV regional lines linked to national electricity grid
- 800km rail link to major, bulk commodity and deep water port at Saldanha Bay
- Bulk water pipeline supplies site
  - Sourced from Orange River with all year pumping capacity
- Good contractors accommodation available in the private town of Copperton, ~3km from project site
- Low regional environmental sensitivity
  - Existing disturbed/rehabilitated mine footprint

Decline portal viewed from Prieska headframe

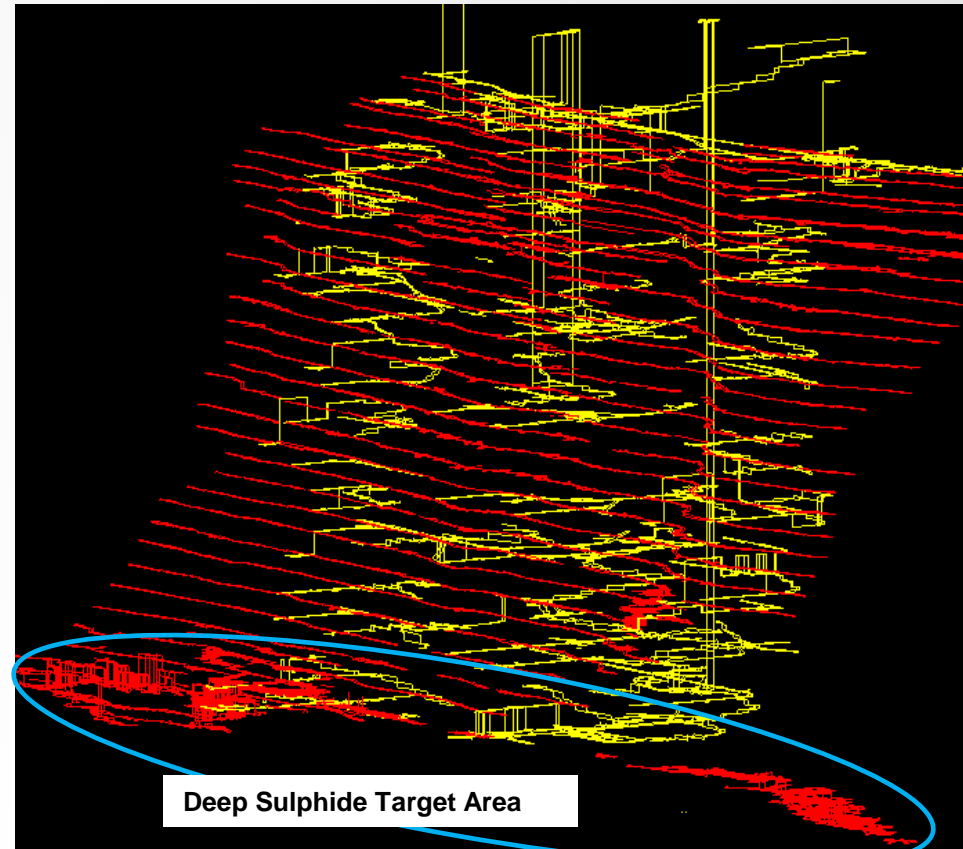


# Re-entry to underground development commenced



- Regulatory permits received and mine decline and shaft re-entry commenced in April 2017
  - Initial findings indicate ground conditions and infrastructure in good order
  - Increasing confidence that refurbishment will not require substantial engineering works
- Mine development in place to reach deep sulphide mineralisation
  - 8.6m diameter concrete lined vertical shaft to 1,024m
  - 3 separate ramp declines (6.5 x 3.8m) reach deepest ore at 1,140m
- Ground water accumulated in the underground working to within 360m of surface
- Water sampling at 100m intervals to a depth of 600m below surface has confirmed non-acidic nature (pH 7.4)

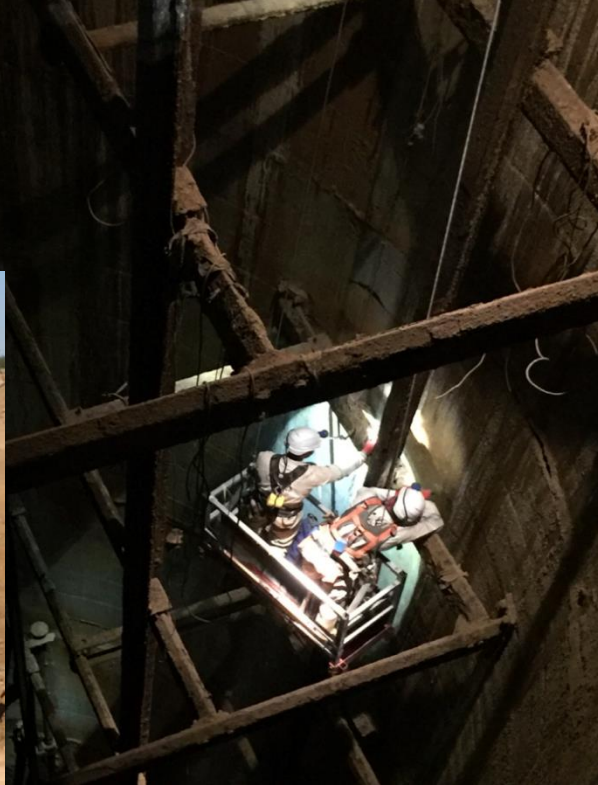
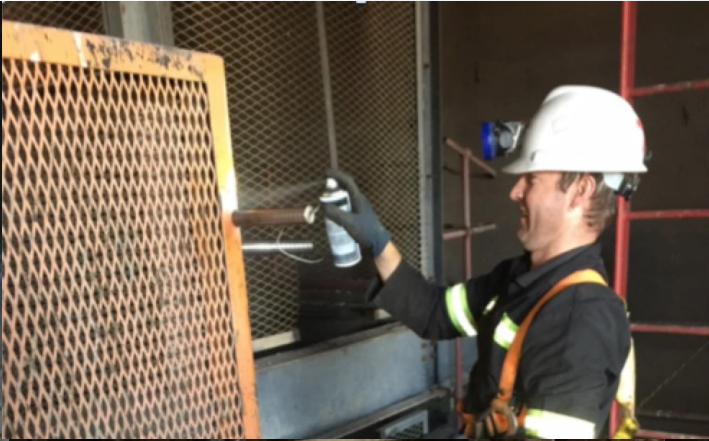
Mine infrastructure, development and Deep Sulphide target



Source: Anglovaal mine Records, refer ASX Release 18 November 2015.



# Shaft & Underground Roadway Conditions Inspected by Expert Safety Inspectors & Engineers (Q2 2017)



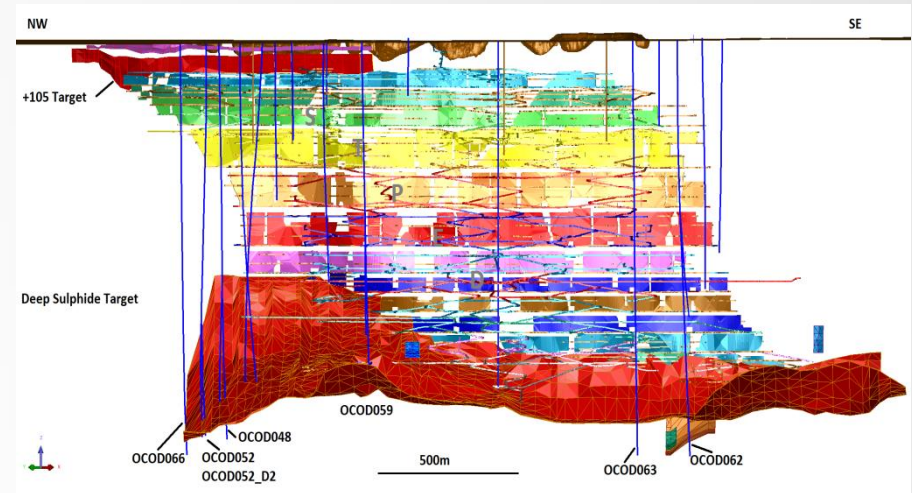


# Deep sulphide target drilling progressing rapidly



- Drilling underway with 14 rigs on site to confirm statistical validity of extensive historical drilling database, infill and extend delineated mineralisation
  - Previous drilling focused on mine scheduling at various spacing and QC/QA which do not always meet JORC 2012 classifications requirements
- Duel drilling focused program
  - Confirm extensive historical drilling database on remaining mineralisation to delineate a JORC compliant Mineral Resource
  - Targeting dip and strike extensions of historically identified mineralisation
- Utilising multiple daughter holes to test 30-40m radius from mother hole at target depth of 1,200m
  - Established technical practice and capital efficient drilling

Long section with current drilling and historical development



refer ASX release 6 September 2017

Drilling rigs mobile and active



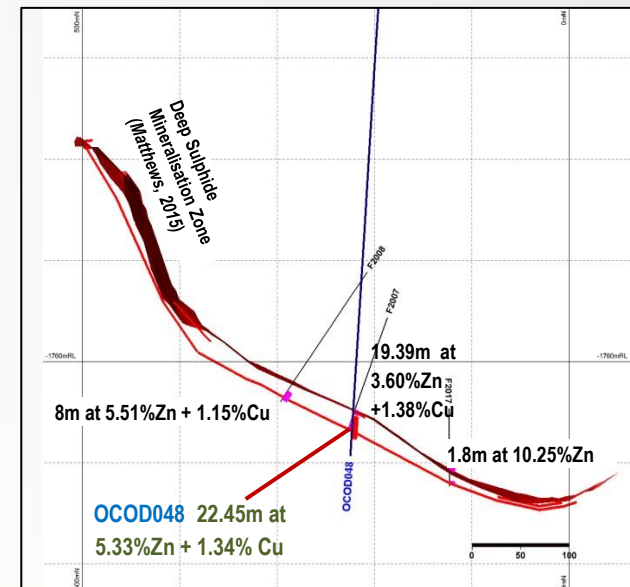
# First Deep Holes Intersect High Grade Massive Sulphides



- First six drill holes in Deep Sulphide target have intersected massive sulphides
  - Provides proof of concept and validation of historical database
- Hole OCOD048 intersected 22.45m at 5.33% Zn and 1.34% Cu, 0.26g/t Au & 10.6g/t Ag from 1,060m<sup>(1)</sup>
  - Includes a high grade zone of 5.7m at 10.89% Zn
  - 8m along strike from historical hole which F2007
  - Sphalerite and chalcopyrite mineralisation consistent with historical drill logs
- Hole OCOD052 intersected 16.15m at 3.30% Zn and 1.72% Cu, 0.26g/t Au & 13.72g/t Ag from 1,116m<sup>(2)</sup>
  - Significantly thicker than expected (6m width) highlights material upside to known mineralisation
  - ~100m along strike of historical mineralisation and Orion drill hole OCOD048
  - Potential to significantly increase the scale of previously identified mineralisation
- Recovered core exhibits a high level of geotechnical competency

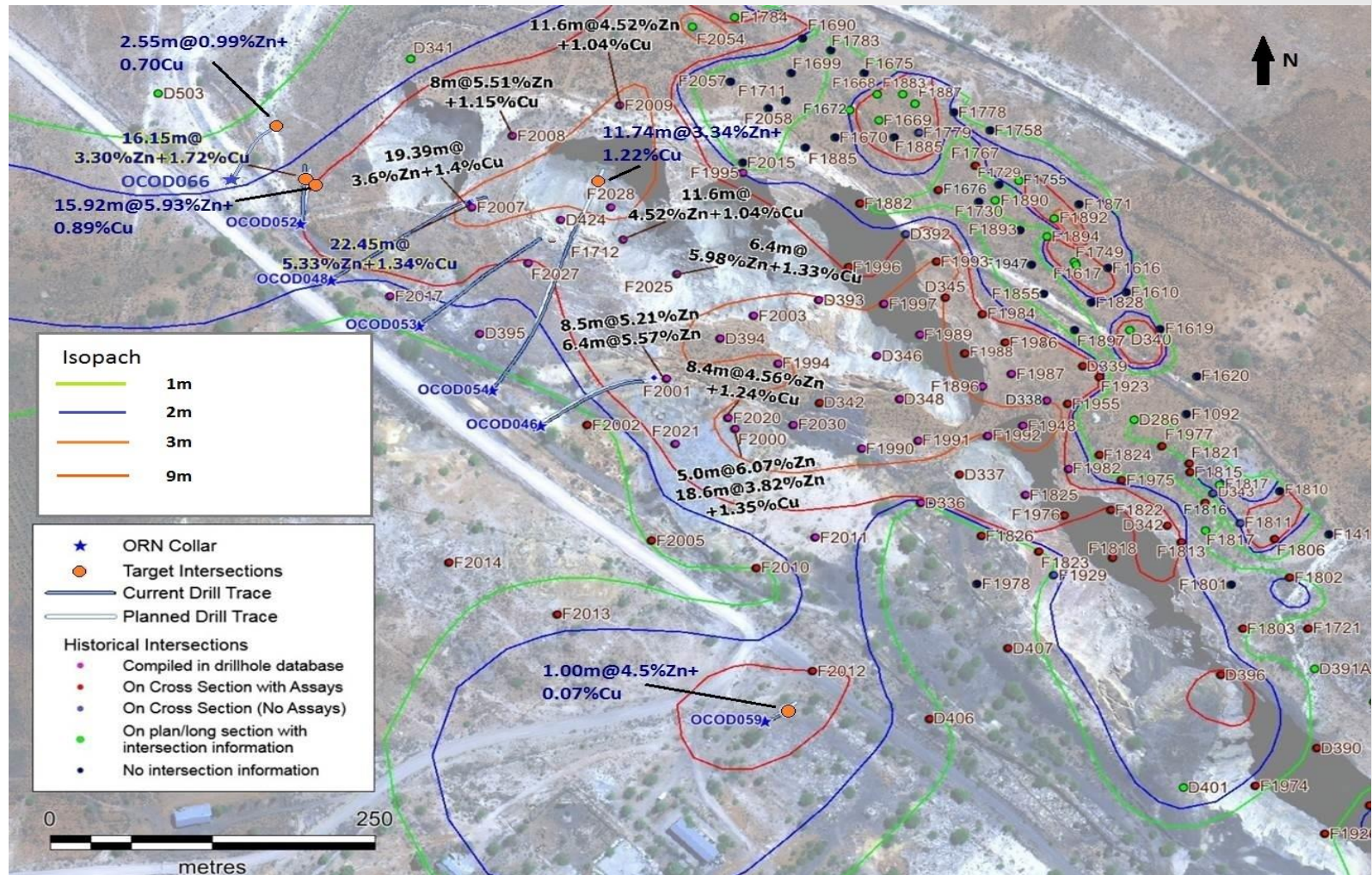
1. Refer ASX release 17 July 2017
2. Refer ASX release 22 July 2017

Deep sulphide drilling





### Plan view of Deep Sulphide drilling program highlighting completed holes



refer ASX release 6 September 2017

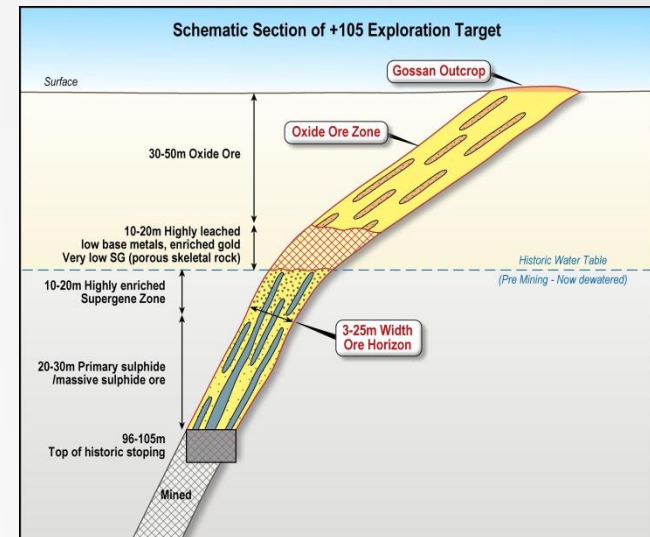
# +105 Level Target - a high grade open pit opportunity



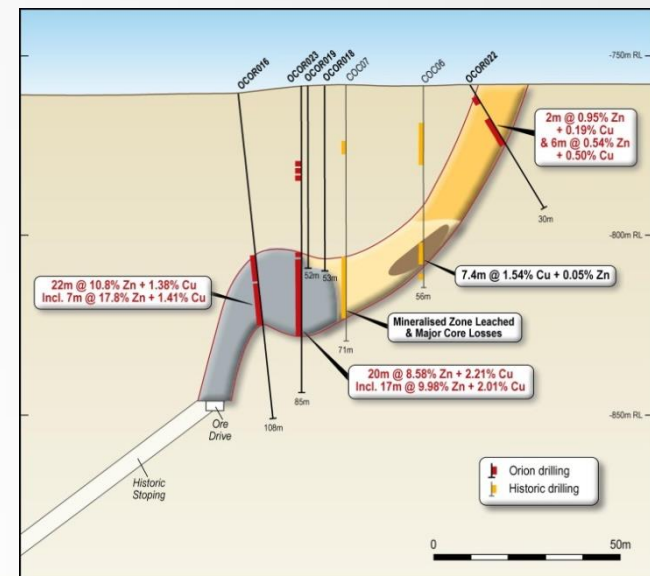
- +105 Level Target is up-dip extension unmined mineralisation JORC resource estimate targeted for completion in late 2017
- Step out drilling confirms continuity and tenor of mineralisation along strike to the southeast
- 3,197m surface drill program completed over past 12 months delivering high grade Zn and Cu intersections, including<sup>1</sup>
  - 22m at 10.8% Zn, 1.38% Cu and 0.3g/t Au from 57m incl. 7m at 17.8% Zn and 1.41% Cu (OCOR016)
  - 12m at 4.14% Cu, 1.89% Zn and 0.29g/t Au from 57m incl. 3m at 7.4% Cu and 4.34% Zn (OCOR017)
  - 20m at 8.58% Zn, 2.21% Cu and 0.3g/t Au from 48m, incl. 17m at 9.98% Zn and 2.01% Cu (OCOR023)
- Underground drilling underway to infill drill and extend mineralisation drilled from surface to test for strike extensions

1. refer ASX release 27 July 2017

## Interpreted section of +105 Level Target

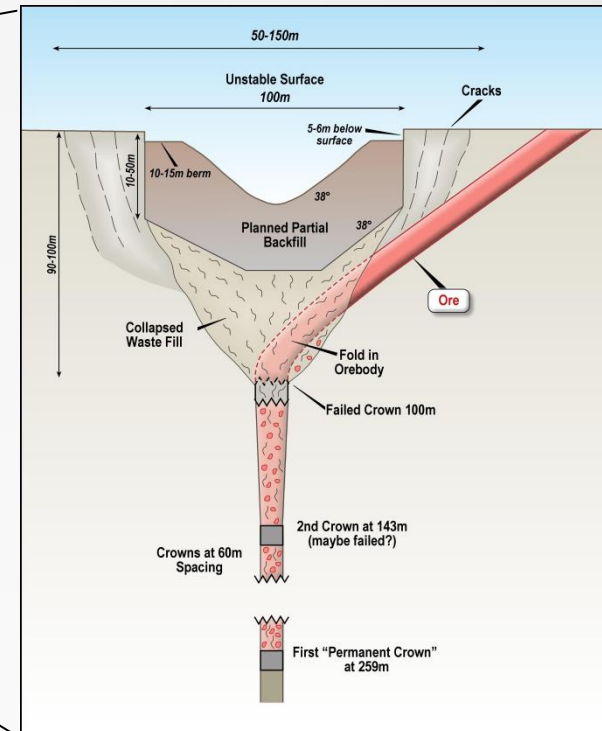
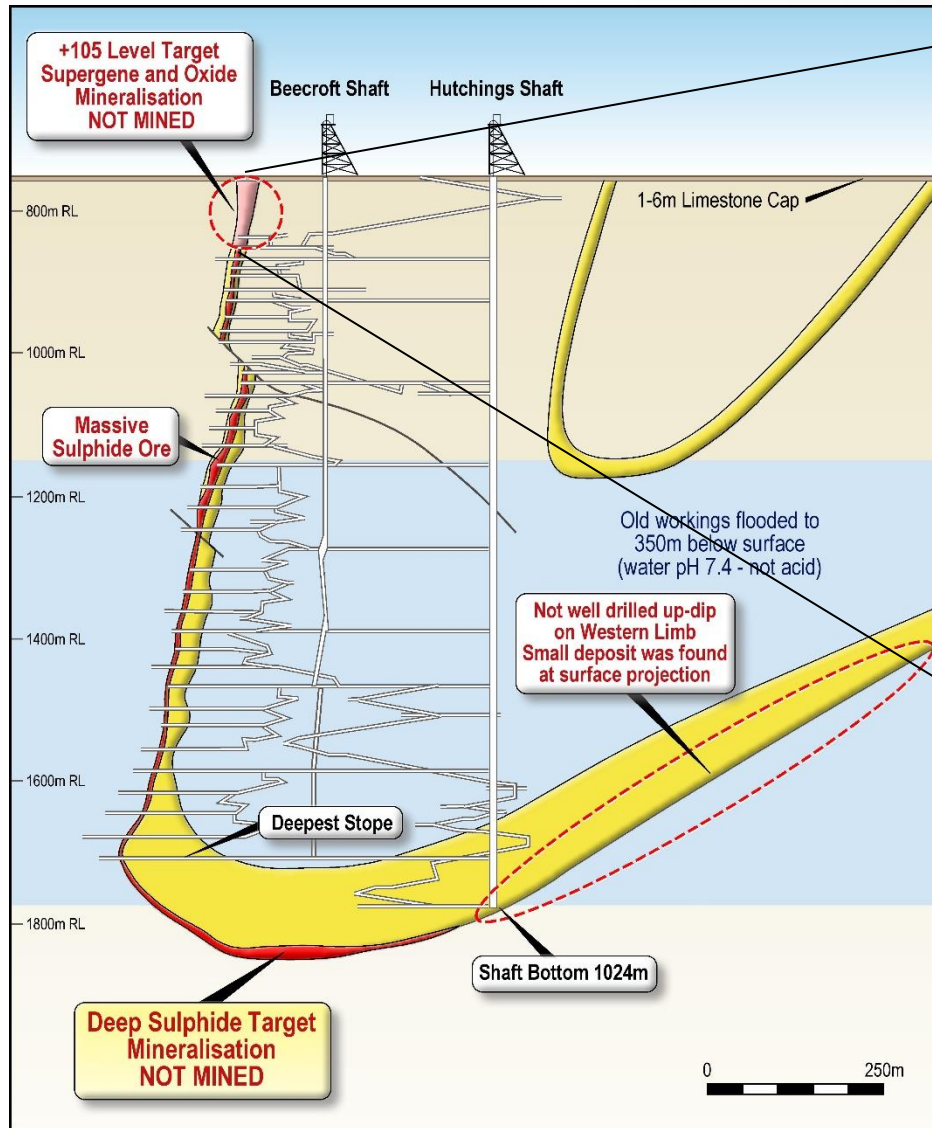


## Cross section with Orion and historical drilling





# +105 Level Target - a high grade open pit opportunity



# Ground conditions support mining strategy



- Geotechnical solution to mining challenge developed to unlock potential of this important target
  - Drilling techniques have allowed for successful testing of areas effected by sinkholes and mining subsidence
- Underground inspection of ore drives and draw points has indicated no hanging wall failure
  - Painted survey lines on hanging wall dating back to first mining activities in 1971

**Underground drilling has commenced**



**Draw point on 105 mining level**





# +105 Level Target drilling plan



# Generating significant momentum on the ground



- Orion Board approval to commence BFS in July 2017 with target completion in Q4 2018
  - +105 Level Target, maiden JORC compliant Mineral Resource expected Q4 2017
  - Deep Sulphide Target, maiden JORC compliant Mineral Resource expected Q1 2018
- In parallel to BFS, Orion will progress key commercial work streams
  - Concentrate marketing
  - Project finance capacity and optimal structure
- Regional exploration and targeting work to ramp up in 2H 2017
- Mining Right and Environmental Impact Assessment to be submitted in Q1 CY18

**Prieska aspirational project timeline**

Milestone	Q3 CY17	Q4 CY17	Q1 CY18	Q2 CY18	Q3 CY18	Q4 CY18	Q1 CY19	Q2 CY19	Q3 CY19	Q4 CY19	CY 2020	CY 2021	CY 2022
Resources Estimate (+105 Level Target)													
Resources Estimate (Deep Sulphide Target)													
Environmental Authorisation Application													
Mining Right Application													
Bankable Feasibility Study Completion													
Project Construction Approval													
First Ore Production - Open Pit													
First Ore Production - Underground													





- Orion is a catalyst for socio-economic development.

*We strive for :- \* Sustainability \* Focus \* Entrepreneurship \* Impact*

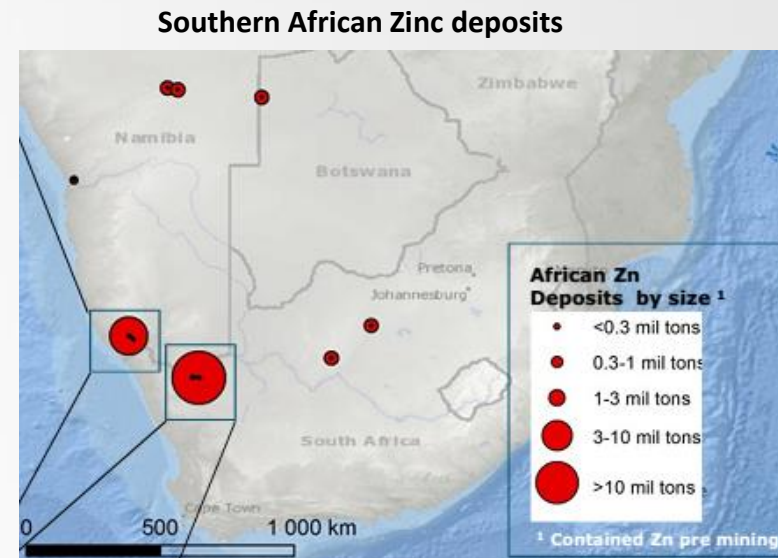
**Public participation meeting in Siyathemba - Prieska**



# The regional potential of the Northern Cape district



- Established mining region without the challenges of gold, coal and platinum industries
  - Supportive and engaged local stakeholders
- Presence of leading global mining houses and robust institutions
- Vedanta Resources is established and is growing its globally significant zinc business in Southern Africa
  - Gamsberg and Black Mountain mines and Skorpion refinery are the cornerstone assets which underpin Vedanta's regional operations
- Region has the highest concentration of zinc on the African continent<sup>1</sup>
  - Large-scale sediment hosted deposits classified as Borken-Hill, Sedex and VMS types
  - >40mt of contained zinc
  - Vedanta has flagged a belief that significant potential exists in the region
- Orion has established a commanding landholding and exploration position in the Areachap belt and is set to play a major role this emerging minerals district



Source: Vedanta, March 2015

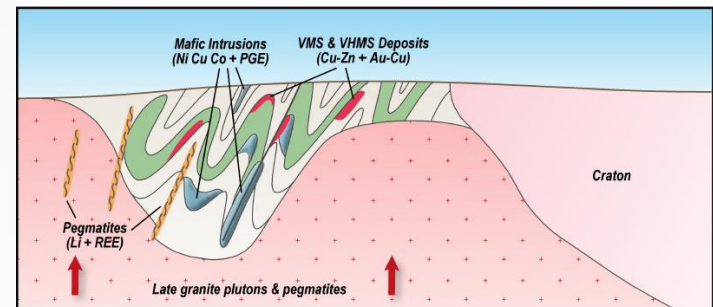
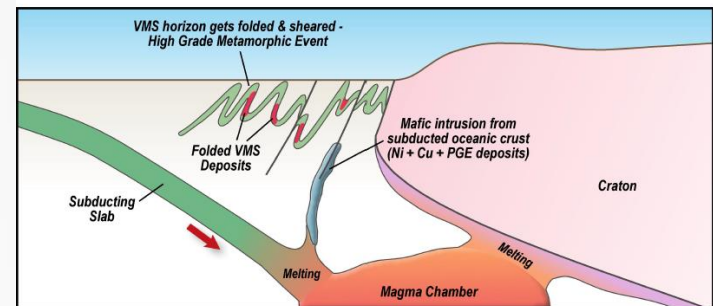
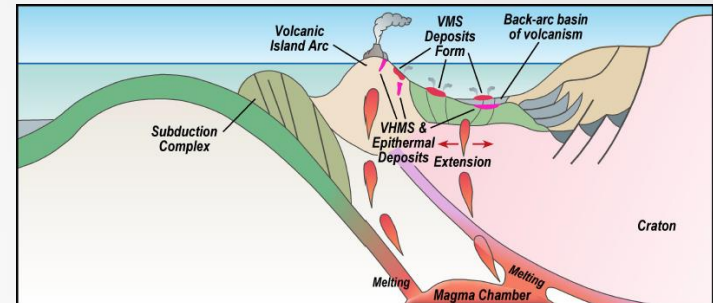
1. Vedanta Capital Markets Day presentation, March 2015



# Areachap - a highly prospective base metals belt

- The Areachap terrain is within a tectonic/mobile belt on western margin of Kaapvaal Craton and has subsequently been intensely altered & tectonised
  - The Areachap Group is a heterogeneous assemblage of metavolcanic and metasedimentary gneisses exposed intermittently for 280km on the easternmost margin of the Namaqua Province
  - It represents a Proterozoic volcanic island arc resulting from the subduction of oceanic crust underneath the Kaapvaal Craton
- 22 identified VMS occurrences confirmed within the prospective Areachap sequence by major mining houses
- Several known intrusive Ni-Cu-PGE occurrences with limited further exploration for this style of mineralisation
  - Discovery of large low grade Ni-Cu deposit previously subject to feasibility study
  - Significant advances in technology has resulted in improved target generation methodology

## Three superimposed geological events produce exceptional exploration potential

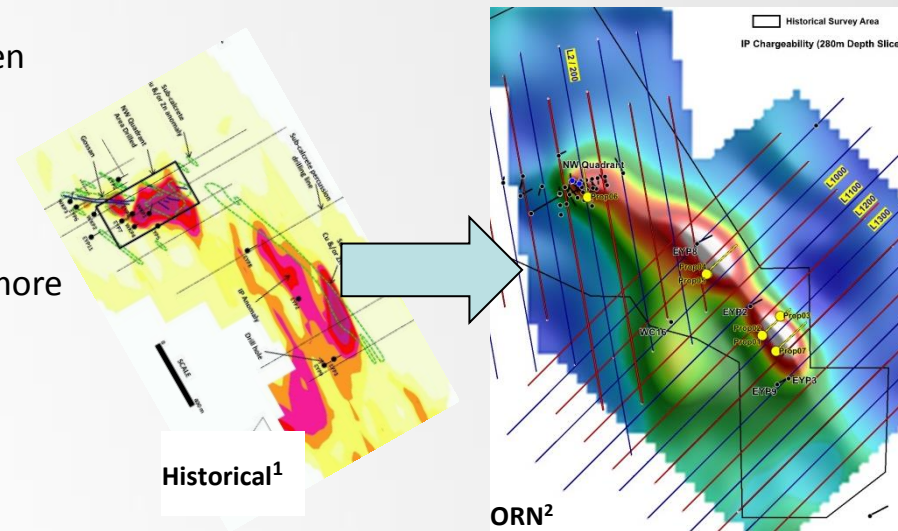




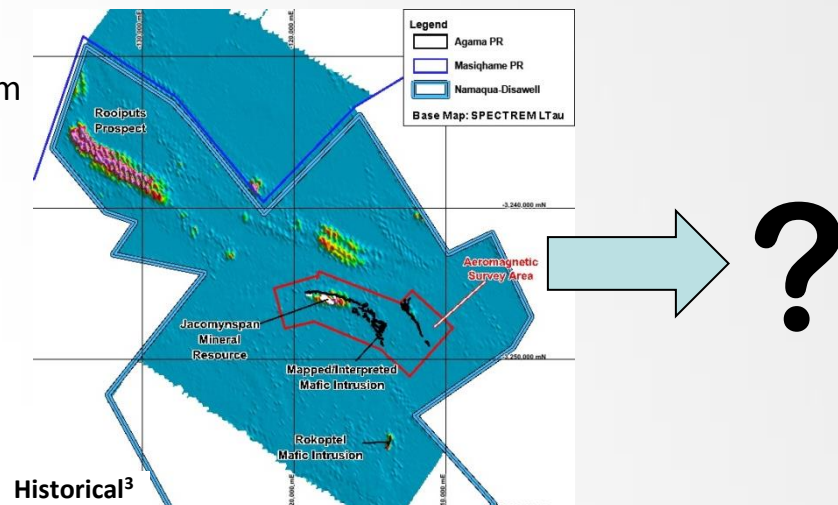
# Strategy to unlock regional potential of the belt

- Value of modern exploration techniques have already been demonstrated by recent geophysical surveys
  - Majority of historical surveys 1980's
  - Techniques have been refined or superseded
  - Modern day geophysics looks deeper and detects more subtle anomalism – ideal for looking for massive sulphides below a mineralised body such as at Jacomynspan
  - Improved dataset illustrated by ORN surveys in the Fraser Range and at Marydale
- Major regional airborne EM survey planned for Q4 2017
- To be followed by ground EM and gravity surveys
- Drill rigs to move onto priority targets identified from regional survey in early 2018

Marydale IP Survey



Namaqua-Disawell Airborne EM



1. Refer ASX release 17 August 2016  
2. Refer ASX releases 5 October 2016, 23 November 2016  
3. Refer ASX release 14 July 2016

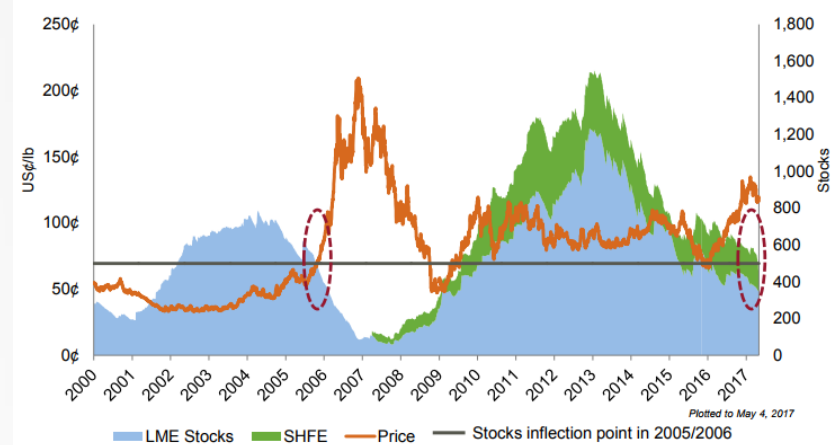


# Zinc: Raw materials constraints drive positive outlook



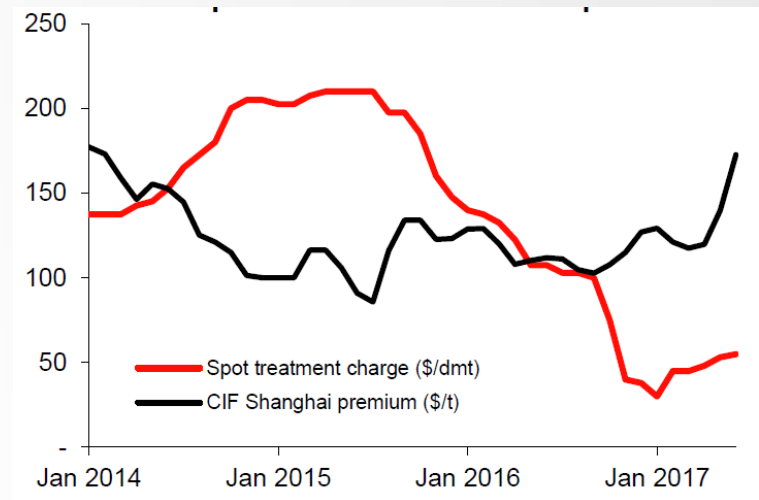
- Key mine closures and reductions over the past year starting to bite, 2016 mine output down 5.2%
  - Discretionary supply cuts from Glencore (500ktpa) and Nyrstar (100ktpa)
  - Comments from Glencore indicate a sustained period of higher prices is required prior to a restart
- Global zinc exchange stocks have experienced a significant drawdown and under 500t for the first time since 2010
- Spot TC/RC and metal premiums are at multi year lows
- Large scale uncommitted project pipeline dominated by projects with technical or geo-political challenges
- Demand dominated by galvanized steel production for use in the construction industry (infrastructure and property)
  - China accounts for 50% of zinc demand
  - Galvanizing of crude steel in China of ~5% compared to United States at 18-20%

Declining zinc stock and pricing impacts



Source: Teck Resources, LME/SHFE, July 2017

Zinc TC/RCs at multi year lows

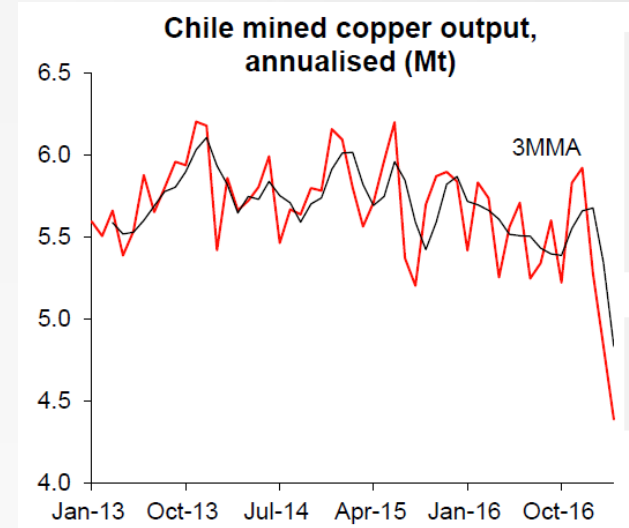


Source: Macquarie Research, July 2017

# Copper: Growing demand with supply challenges

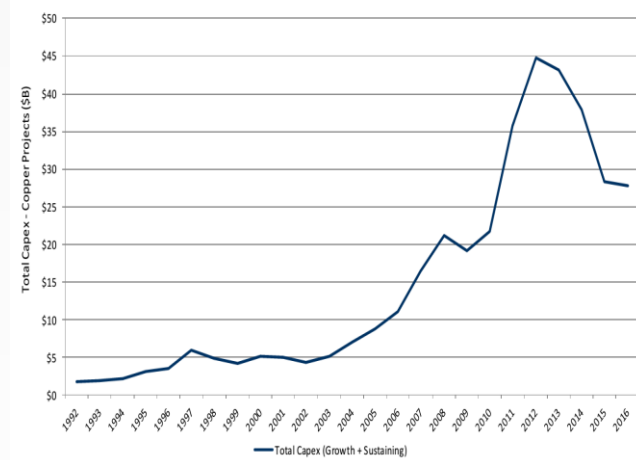


- Chilean mine supply continues to struggle
  - Grade declines and labour issues at major mines
  - Power and water challenges increase cost pressures for future Chilean production
- Large supply projects carry technical and/or geo-political challenges in emerging and frontier markets
- TC/RC's continue to trade at relatively low levels supported by continued concentrate supply challenges and robust demand
- Substitution efforts have not resulted in meaningful demand destruction/thrift in end markets despite lower relative price performance of other metals over past decade
- Megatrend momentum towards electric vehicles has potential to be a material positive demand driver
  - Transportation demand is currently 8% of global demand, a 25% EV penetration rate would double transportation demand



Source: Macquarie Research, July 2017

## Significant slowdown in global copper capex



Source: RBC, November 2016

# Competent Persons Statement



- The information in this report that relates to Exploration Targets at the Prieska Zinc Copper project complies with the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (**JORC Code**) and is based on information compiled by Mr Paul Matthews, a Competent Person who is a Member of the Australian Institute of Geoscientists. Mr Matthews has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the JORC Code. Mr Matthews consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears. The Exploration Results are based on standard industry practises for drilling, logging, sampling, assay methods including quality assurance and quality control measures as detailed in the ASX release dated 18 November 2015.
- The information in this report that relates to Exploration Results at the Areachap Belt projects complies with the JORC Code and is based on information compiled by and for Mr Errol Smart, Orion Minerals NL's Managing Director. Mr Smart (PrSciNat) is registered with the South African Council for Natural Scientific Professionals, a ROPO for JORC purposes, and sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the JORC Code. Mr Smart consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears. The Exploration Results are based on standard industry practises for drilling, logging, sampling, assay methods including quality assurance and quality control measures as detailed in the ASX releases referred to in the text.



Orion Minerals NL contact information:

Phone: +61 (0)3 8080 7170

Email: [info@orionminerals.com.au](mailto:info@orionminerals.com.au)

Website: [www.orionminerals.com.au](http://www.orionminerals.com.au)

