



ARCHER

***ARCHER EXPLORATION LIMITED***

**Eyre Peninsula Mineral & Energy Resources  
Community Development Taskforce**

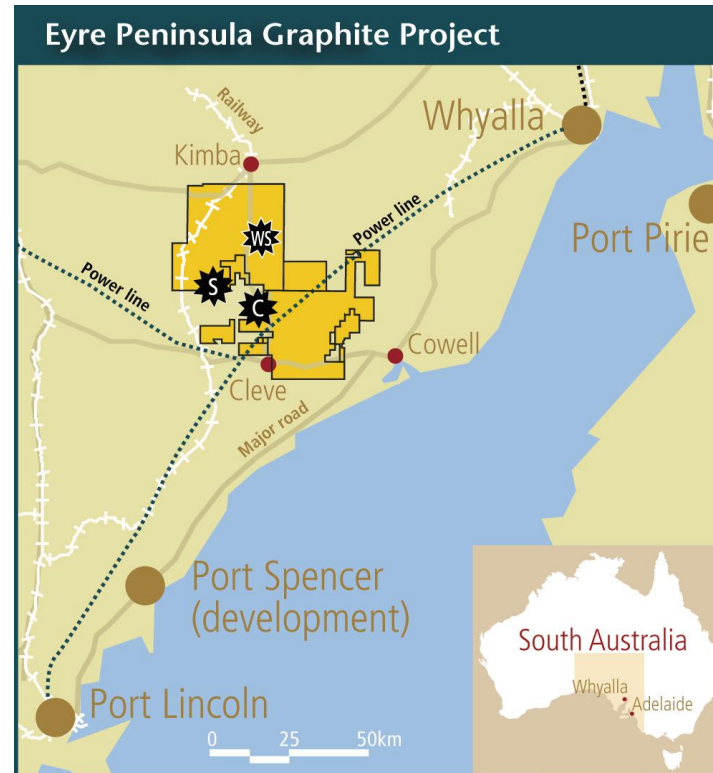
9<sup>th</sup> June 2015

Gerard Anderson

Managing Director

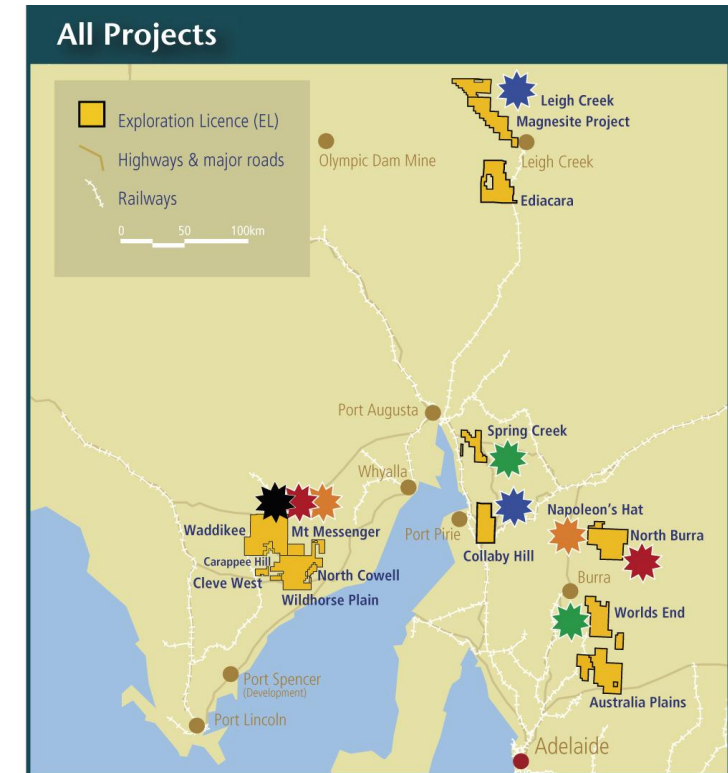


- Introduction
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- Eyre Peninsula Graphite Project
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    - Key Elements
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    - Geology
    - Mining
    - Mineral Processing
    - Water Supply
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- Projects
  - Waddikee flake
  - Sugarloaf
- Graphene research



Advanced Graphite Projects

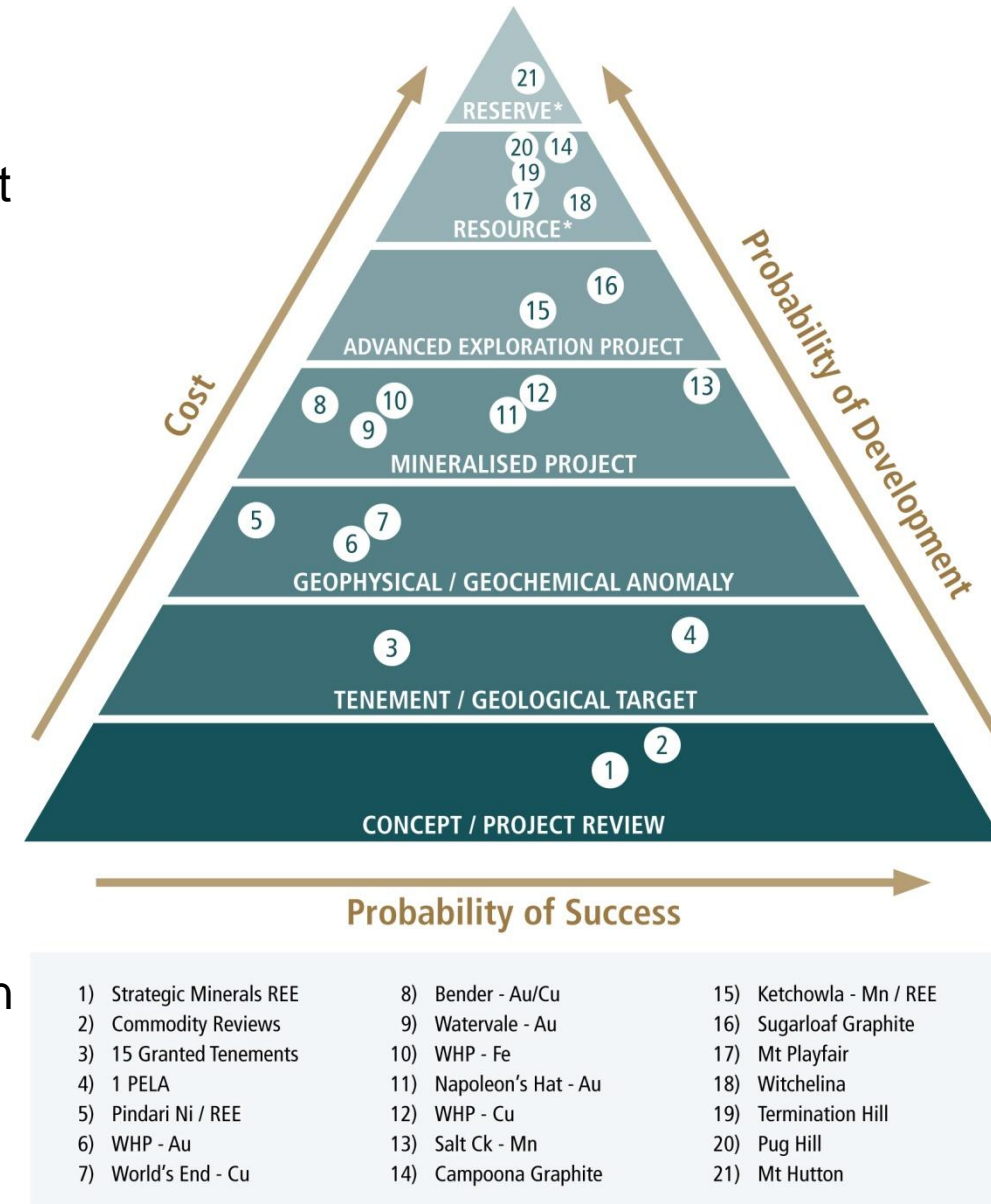
Campoona
 Sugarloaf
 Wilclo South



Priority 1 and 2 targets:

Graphite
 Magnesite
 Manganese
 Copper
 Gold

- Archer is a South Australian based minerals explorer
- Primary focus is developing its graphite assets
- 1. Eyre Peninsula Graphite project – Australia's largest JORC 2012 graphite resource
  - ✓ Campoona ultra pure ultra-fine flake graphite
  - ✓ Waddikee large flake graphite
  - ✓ Sugarloaf bulk graphite
- Campoona Shaft is most advanced project with Draft MLP submitted 14<sup>th</sup> May 2015
- Other significant portfolio assets include:
  1. Leigh Creek magnesite – the world's largest high grade cryptocrystalline magnesite resource
  2. SA Manganese – 7 manganese prospects located in South Australia. 3 prospects with grades ranging from 15%-20% Mn
- Record of identifying projects and creating value

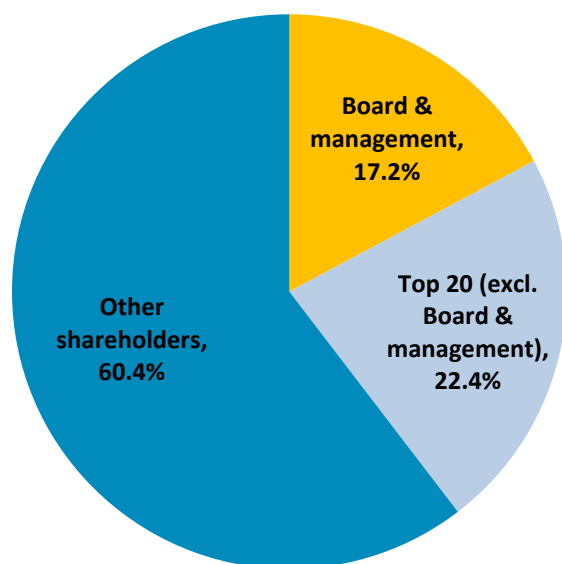


## Tight capital structure

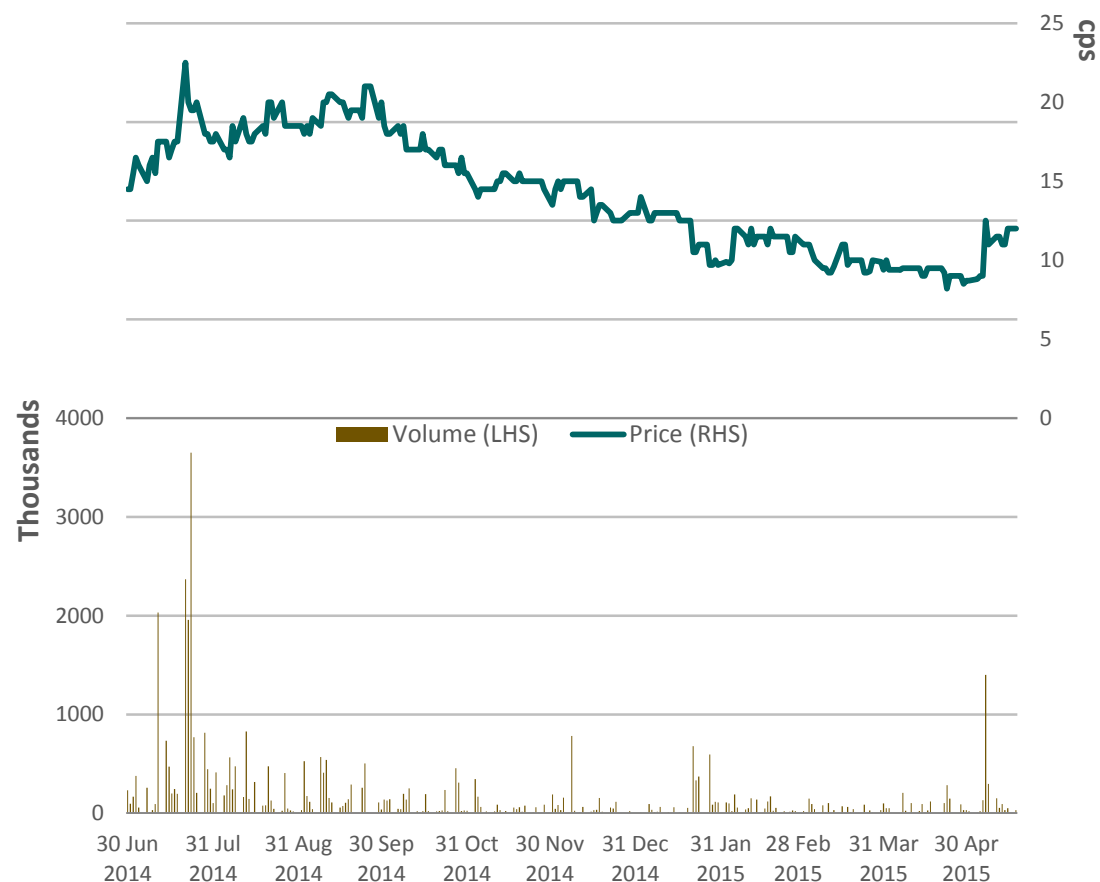
### Capital structure

Shares on issue	84.5m
Performance Rights (exp. 31/7/16)	2.32m
Share price (5/6/15)	\$0.10
Market capitalisation	\$8.5m
Cash (as at 31/3/15)	\$2.4m
Enterprise value	\$6.1m

### Share ownership summary



### Market performance



## *Experienced board and management*



**Greg English**  
*Non-Executive  
Chairman*

- Qualified mining engineer and lawyer
- Experience in capital raising, tenement acquisition, project management and business relationships



**Tom Philips AM**  
*Non-Executive  
Director*

- Former director of Uranium SA and current director of several not-for-profit organisations
- Australian industry and international business knowledge



**Alice McCleary**  
*Non-Executive  
Director*

- Chartered Accountant
- Current Chairman of Uranium SA
- Professional interests in financial management and corporate governance



**Gerard Anderson**  
*Managing Director*

- 40 years experience in exploration and mine geology
- Held senior management positions for a number of mining companies
- Previously managing director of Centrex Metals



**Wade Bollenhagen**  
*Exploration  
Manager*

- Geologist with 14 years industry experience in gold, base metals and iron ore exploration in Australia and overseas

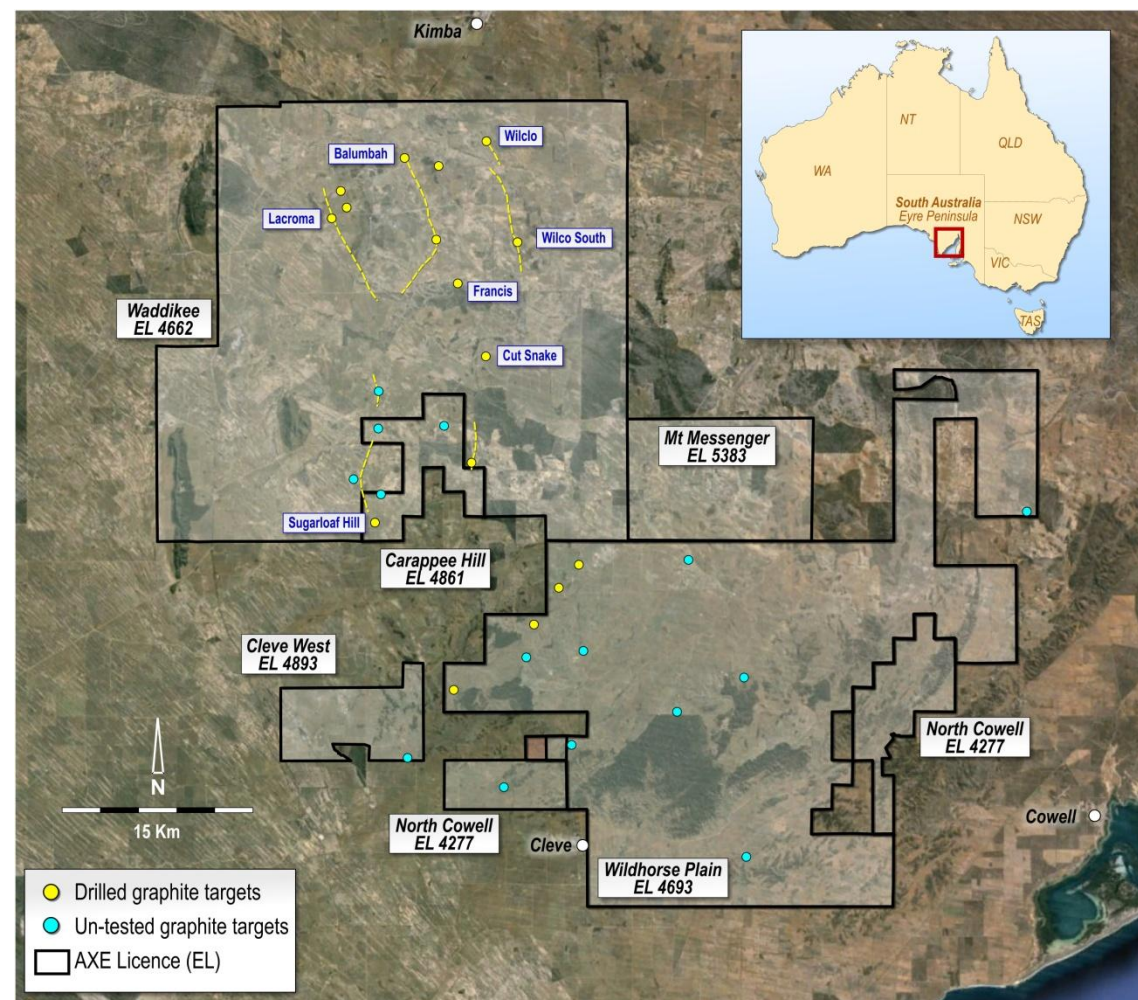
## Australia's largest combined JORC 2012 graphite resource

**8.55Mt @ 9.0 Cg% (lower cut-off grade of 5% Cg)\***

Area	Resource Category	Tonnes (Mt)	Graphite (% Cg)	Contained Graphite (tonnes)
Campoona Shaft	Measured	0.32	12.7	40,600
	Indicated	0.78	8.2	64,000
	Inferred	0.55	8.5	46,800
Central Campoona	Indicated	0.22	12.3	27,100
	Inferred	0.30	10.3	30,900
Wilclo South	Inferred	6.38	8.8	561,400
<b>Combined</b>	<b>Total</b>	<b>8.55</b>	<b>9.0</b>	<b>770,800</b>

\* This information was prepared and first disclosed under the JORC Code 2012 (Archer Exploration Limited, ASX Announcement 6<sup>th</sup> August 2014)

- 2,154km<sup>2</sup> tenement holding in graphite province
- Further prospects offer large resource upside
  - High quality EM identifies numerous conductors
  - Large flake at Wilclo, Wilclo South, Francis, Cut-Snake and Argent graphite prospects
  - Resource likely to grow appreciably with further drilling

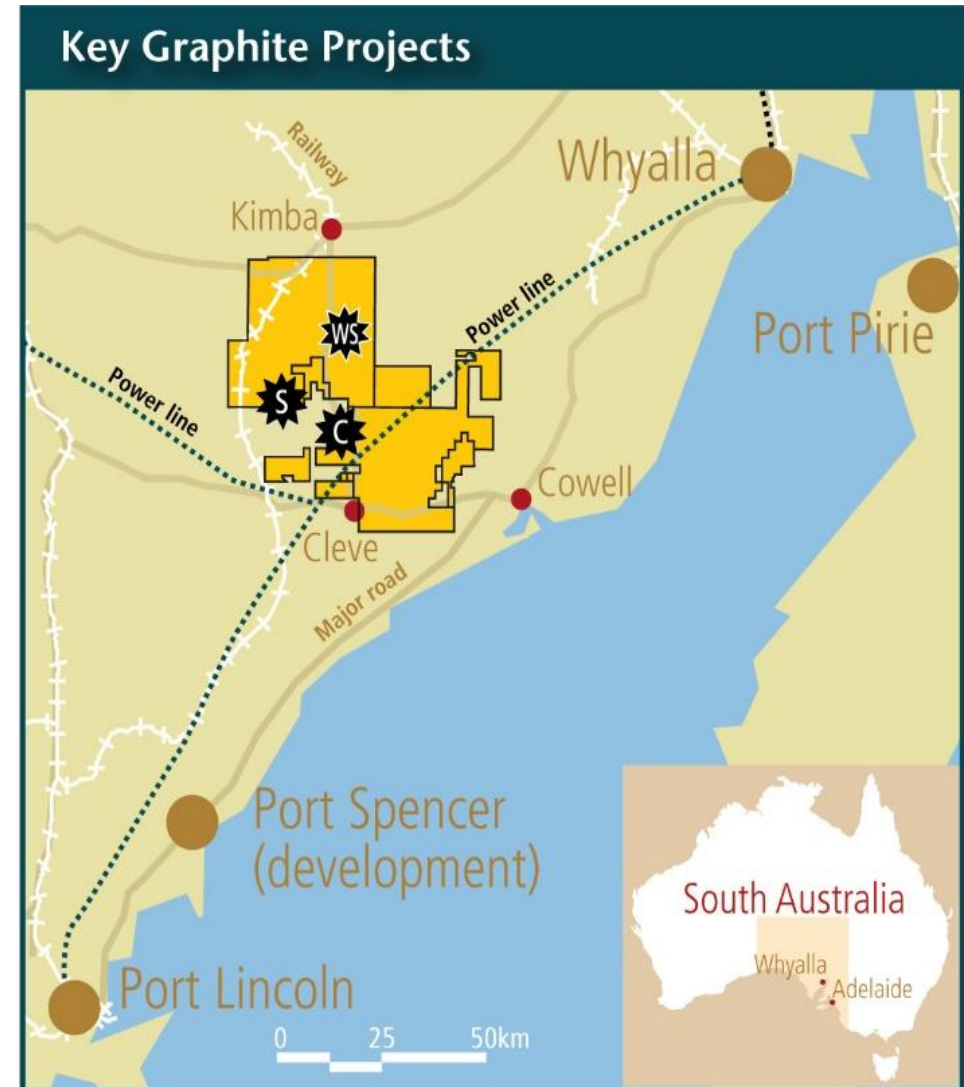


*Archer's objective is to produce 10,000 tonnes per annum of ultra pure Campoona graphite*

- Mechanical cell flotation
- High purity, high value crystalline fine graphite
- Testing of indicates suitability for lithium-ion batteries
- Future complimentary developments at Wilclo South (large flake) and Sugarloaf

Area	Resource Category	Tonnes (Mt)	Graphitic Carbon %	Contained Graphite (t)
Campoona Shaft	Measured	0.32	12.7	40,600
	Indicated	0.78	8.2	64,000
	Inferred	0.55	8.5	46,800
Central Campoona	Indicated	0.22	12.3	27,100
	Inferred	0.30	10.3	30,900
Combined	Total Resource	2.17	9.6	209,400

Campoona JORC 2012 Graphite Resources  
(5%Cg cut-off grade)

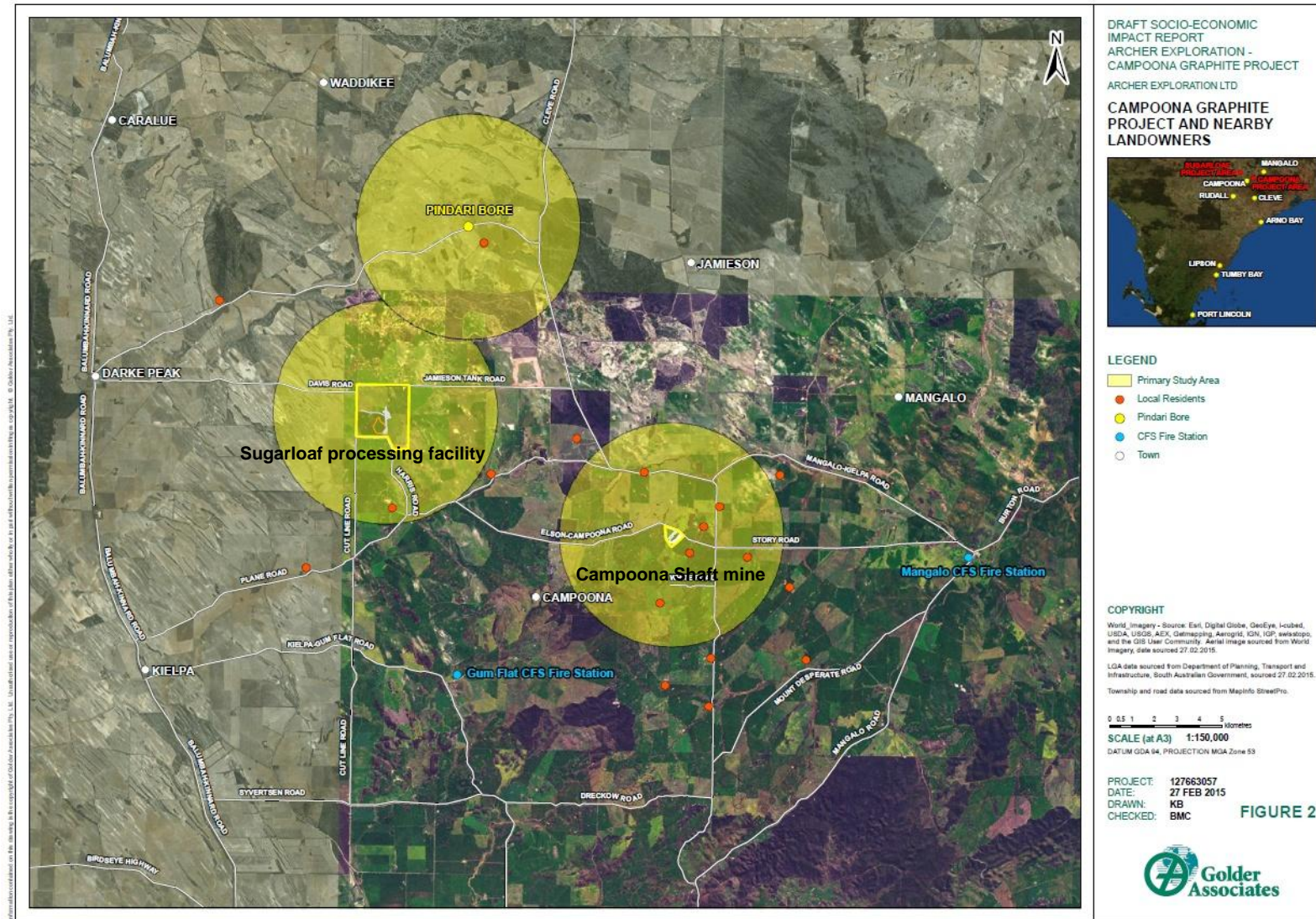


Advanced Graphite Projects

- Campoona
 Sugarloaf
 Wilclo South

## MLP covers:

- MC Campoona Shaft - ≈ 65 ha covering the mine
- MPL Sugarloaf - covering the Sugarloaf processing site and TSF
- MLP Process Water - covering the Pindari Borefield and process water line to Sugarloaf
- MPL Potable Water – covering potable water line from Jamieson Tank to Sugarloaf
- MPL Power – covering electricity line from Darke Peak water treatment facility to Sugarloaf



- Hosted focus group meeting in September 2013.
- Established a Community Consultative Committee (CCC) with community representatives, Archer, invited guests (facilitated)
- CCC meetings held regularly (~every 2 months) during 2013, 2014 and 2015.
- Provided written publications to the region through mail and internet access, including project newsletters in October and December 2013, and February, April, June, August and October 2014
- Provided written information in the EP Tribune.
- Hosted community open house information day in October 2014.
- Provided online technical study information
- Participated in annual Eyre Peninsula Field Days (Cleve)
- Liaised with Cleve Council, local and State government regulators through the life of project.

## Introduction

Welcome to the Community Newsletter.  
This is the Archer Exploration Limited's  
monthly Campoona Graphite Project.

This issue includes an overview of the Community  
Consultative Committee (CCC) following an  
introduction to the CCC's new members. Mr. Iain  
Mason and an update on baseline studies for the  
project's Mining Lease Renewal (MLR). The MLR is the  
environmental and social impact assessment  
document required for the Department for  
Mining, Innovation, Trade, Resources and  
Energy (DMITRE) and before the government's  
development approval assessment process.

Remember, you can view and download copies of  
our online newsletters on the Archer website  
[www.archerexploration.com.au](http://www.archerexploration.com.au).

We will be at the Clare Road Show in August and  
hope to see you there. We anticipate holding a  
Community Information Day in September/October  
2014 and will keep you updated on this. Once  
finalised, the date for the Community Information  
Day will be advertised in the Eyre Peninsula Tribune  
(close to the time). Our Information Day will  
enable you to talk with us about the Campoona  
Graphite Project, update you on project progress,  
and enable you to share your views and questions.

As always, we welcome your feedback, updates,  
either directly to Archer or through the CCC.

Gordon Anderson  
Managing Director



Project location

## June 2014 Archer Exploration Community Consultative Committee (CCC) Update

The Clare District Archer Exploration Community  
Consultative Committee (CCC) held its 10th  
meeting on 16 June 2014 in Clare, attending  
local members Heather Sedgwick and David  
Peak representative Lisa Pearson and welcoming  
a new face, Iain Mason (see baseline study)  
from the Clare office of the Eyre Peninsula  
Natural Resource Management Board.

Under the CCC agenda of reference CCC  
agreements around access to community  
representatives. The CCC members identified  
that with 10th members' input, a new  
agenda was required to represent the field.  
CCC Chairman Iain Mason explained the  
CCC's role, that there is a healthy and  
representative mix of members with the  
addition of a Clare Peak representative.

# Environment Impact Assessment

## Campoona Graphite Project



Transport route



Services Tank Road looking away



View of the Campoona Graphite Project site from the road



View of the Campoona Graphite Project site from the road



View of the Campoona Graphite Project site from the road

## Proximity to Residences

- Closest residence to Campoona mine site is approximately 800m away.
- Closest residence to Sugarcane is more than 4 km away.

## Transport Assessment

- Transport route for graphite ore from Campoona mine to Sugarcane processing facility is via the Campoona Road, Clare-Kilbride Road and Jamieson Tank Road (see map for transport route).
- Minor impact expected on road capacity on late operations of the existing road network.
- Department of Planning, Transport and Infrastructure (DPTI) approval required for 180-degree trucks using unimproved roads.
- Truck movement schedules between Campoona and Sugarcane would seek to avoid school bus times.

## Ecology

- Spill and water ecology surveys conducted around Campoona, Sugarcane and Birdy's areas (see Figure for Campoona study area).
- Project sites located on cleared land.
- No threatened or significant species recorded.
- No significant native vegetation within proposed mine area.
- Pit and waste rock would be contained within an area of less than 20 hectares (see Figure of proposed mine layout).



Project location



Project location



Project location



Project location

## Noise Assessment

- Noise modelling assessed potential construction and operational impacts.
- Softness of the rock means mining would be mostly 'free day' - positive noise warning needed in future or pit deeper.
- Construction will meet EPA noise limits if management measures are taken.
- Operations will meet EPA noise limits without special management measures.
- Noise from haul trucks on public roads meets DPTI noise level guidelines for 100m roads.
- Campoona mine design includes a waste rock noise wall on the south-eastern side (beyond the nearest residences) to minimise noise (see Figure of proposed mine layout).
- Once the pit is developed the natural 'nighttime' noise will be contained at an effective noise barrier.

## Air Quality

- Air modelling assessed potential dust impacts during construction and operations.
- Model results indicated ground-level dust concentrations at all access roads would be less than National Environment Protection Council limits for ambient air pollution (50 µg/m³) (see example image of dust).
- A Dust Management Plan will include dust control measures and dust monitoring.
- The Sharn-Campoona Road east from the mine site to junction with Cleve-Kilbride Road to be sealed to minimise dust during transport. All ore trucks would be sealed.

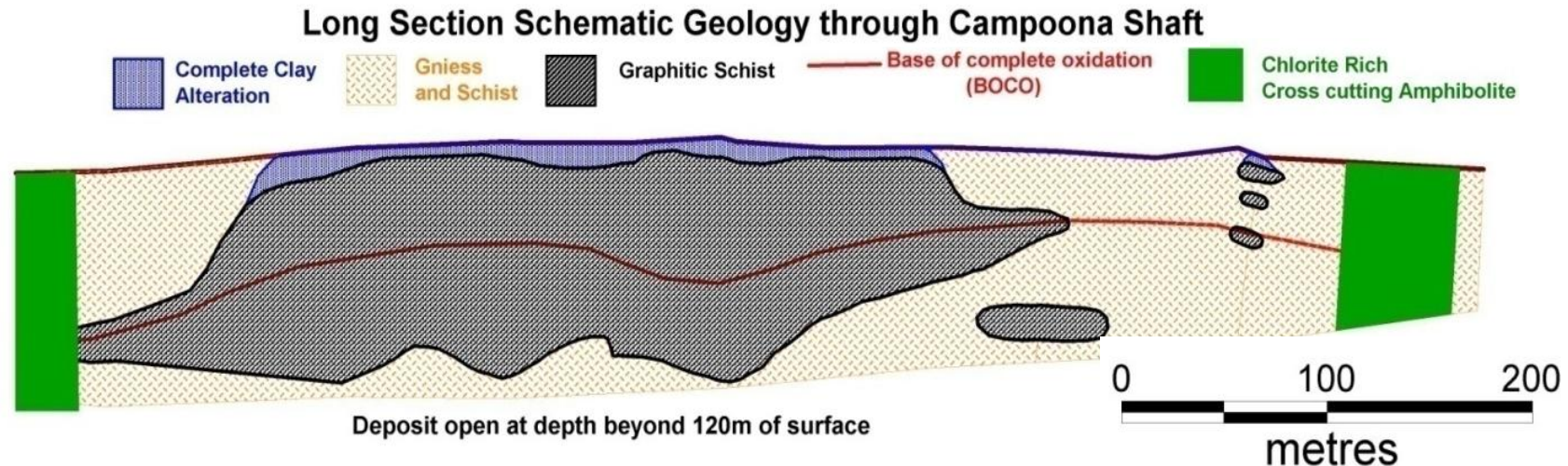
## Water and Geochemistry

- Desk-based review assessed surface water, groundwater and potential for metaliferous drainage.
- Campoona mine and Sugarcane processing facility are not within a protected water protection or water resources area.
- No significant watercourses near project area.
- Design would capture and store site stormwater, mine drainage and processing waste (tailings) on site.
- Campoona mine pit not expected to intercept significant groundwater during operation.
- Geochemistry has shown a very low likelihood of acid generation during mining.
- Local groundwater is saline and low yielding. Majority of water used by local agricultural industry is from surface water dams.
- Suitable groundwater resources for graphite processing currently being investigated in the area. A new water plan is to be prepared from the field to suggest a new map for location of the field. Most water quality not suitable for agricultural use.

## Visual Assessment

- After Community Consultative Committee (CCC) discussion, Sugarcane processing facility was moved from the site to reduce potential visual impact for the field.
- A revised model was developed showing areas where project sites can be seen (available at Information Day event).
- Artist impressions of the Campoona and Sugarcane sites were generated to help visualise what the Project will look like from key road and public view points (see separate Artist Impression poster with 'before' and 'after' images).
- Rehabilitation would include progressive shaping of waste dumps to reflect existing topography.
- Project land forms will be re-planted with vegetation.
- On-site vegetation and infrastructure would be preserved.

Community  
Newsletter No.6  
(top) and  
Community  
Information day  
poster (right).



- Graphite under a thin (0.5m) topsoil veneer
- 20-50m wide steep westerly dipping graphitic schist within protogneiss
- Complete oxidation enhances liberation of graphite



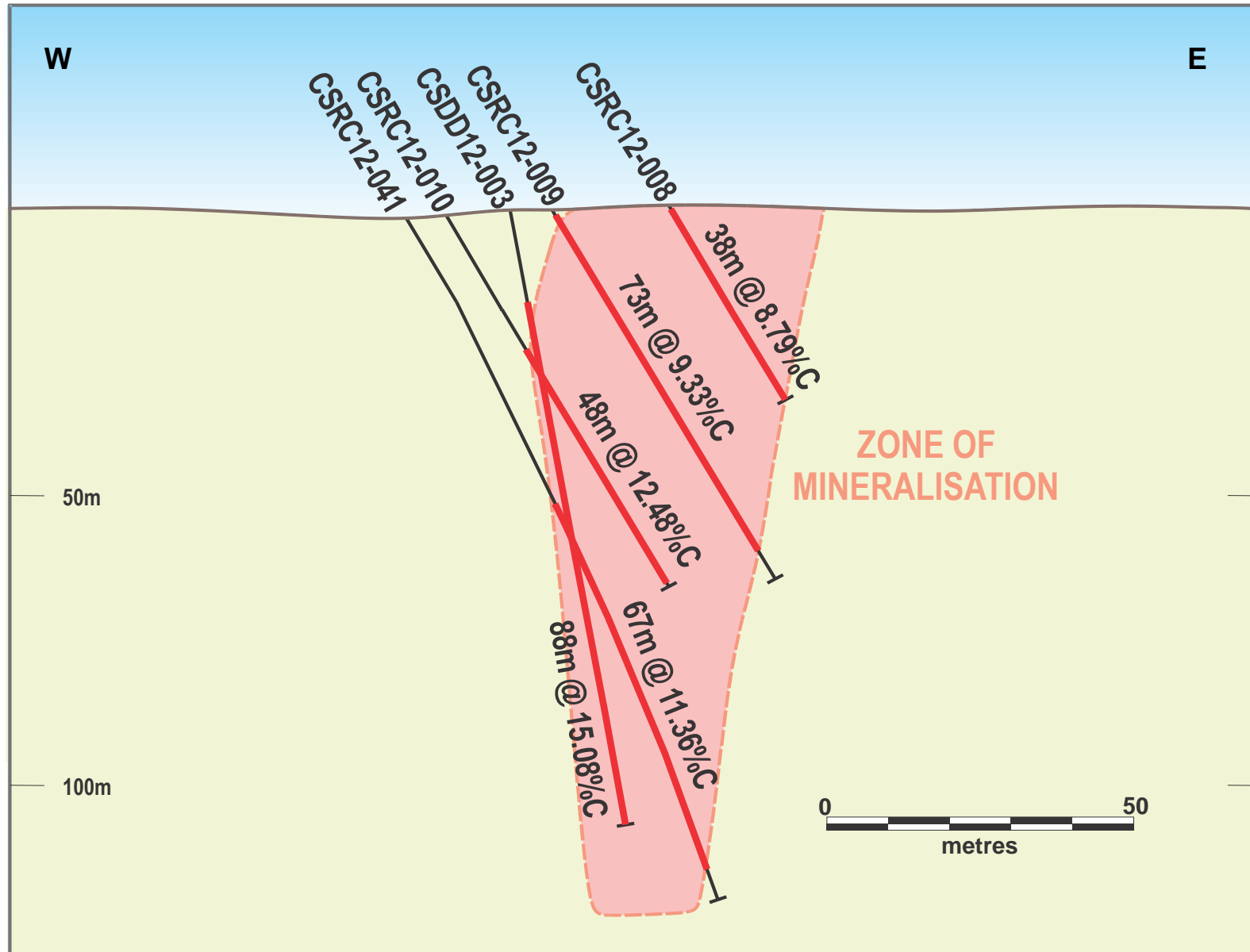
Hangingwall contact with highly weathered gneiss passing directly into completely weathered graphitic schist



Highly weathered graphitic schist representing the graphite deposit above the base of complete oxidation (BOCO).

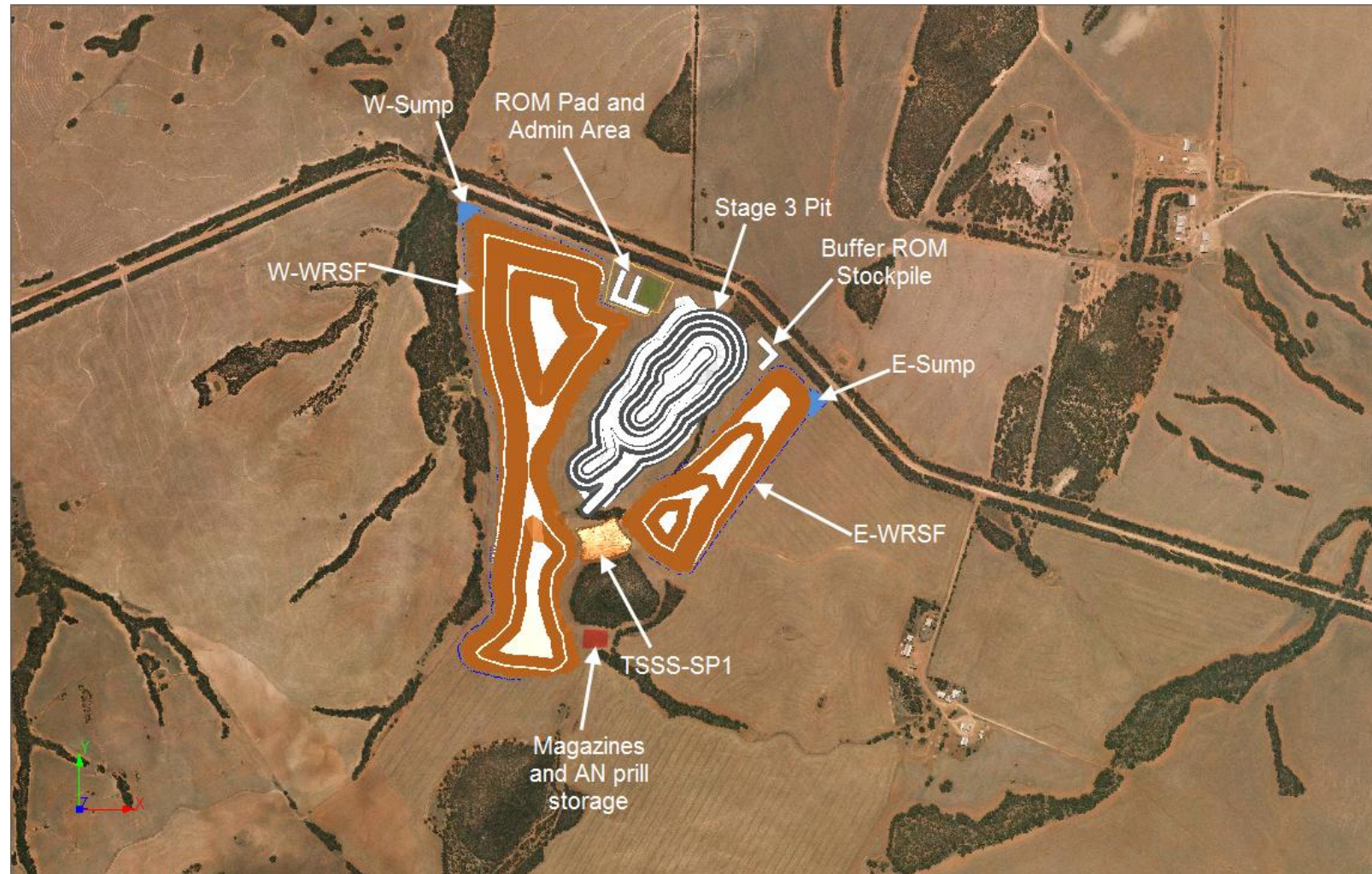


Strongly weathered graphitic schist below BOCO. Graphitic schist progressively more competent with depth. 11



## Mining

- Campaign day shift only mining (notionally spring and autumn), six days per week
- Largely free-dig 60-70 m bgl
- Dry pit. Rainfall harvested to augment bore water for dust suppression
- Starter pit west of ridge line with waste rock stored in E-WRSF
- E-WRSF constructed Year 1- 4 will add further noise attenuation. Battered to 20° and progressively rehabilitated.
- Trenches and bunds around WRSFs to protect integrity of western ephemeral creek.
- ROM stockpile sized to ensure Sugarloaf supplied between mining campaigns



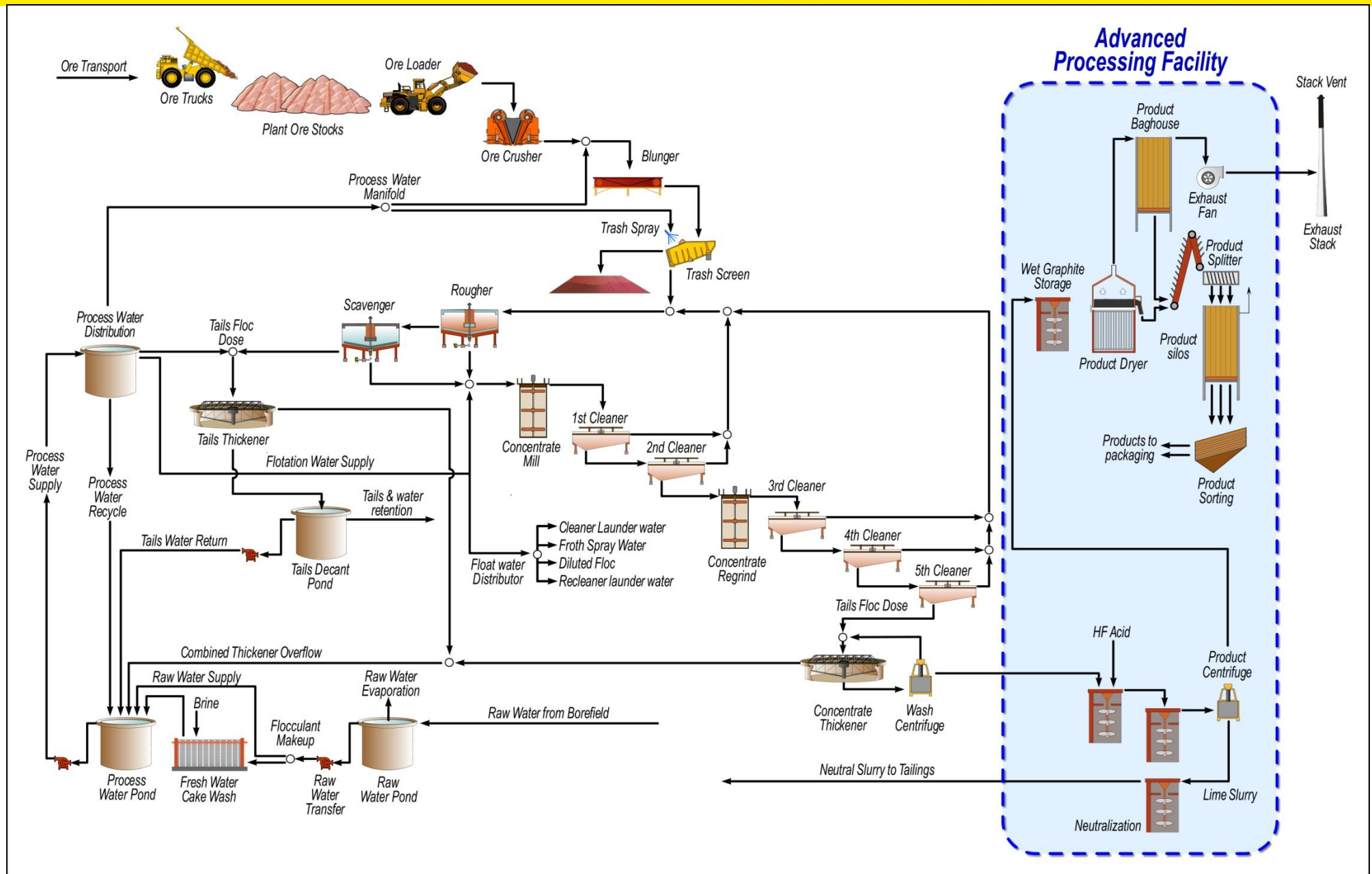
- Comprehensive metallurgical studies have defined optimum processing conditions.
- Process steps:
  - Crushing
  - Blunging
  - Rougher Flotation
  - Concentrate Milling
  - Cleaner/Re-cleaner Flotation
  - Screening
  - Drying
  - Bagging
- Deposit displays improved flotation recovery and improved concentrate grade with depth



**Free flowing well ordered froth conditions during bulk flotation results in less entrainment and excellent launder flow.**

# Campoona Shaft ore treatment process

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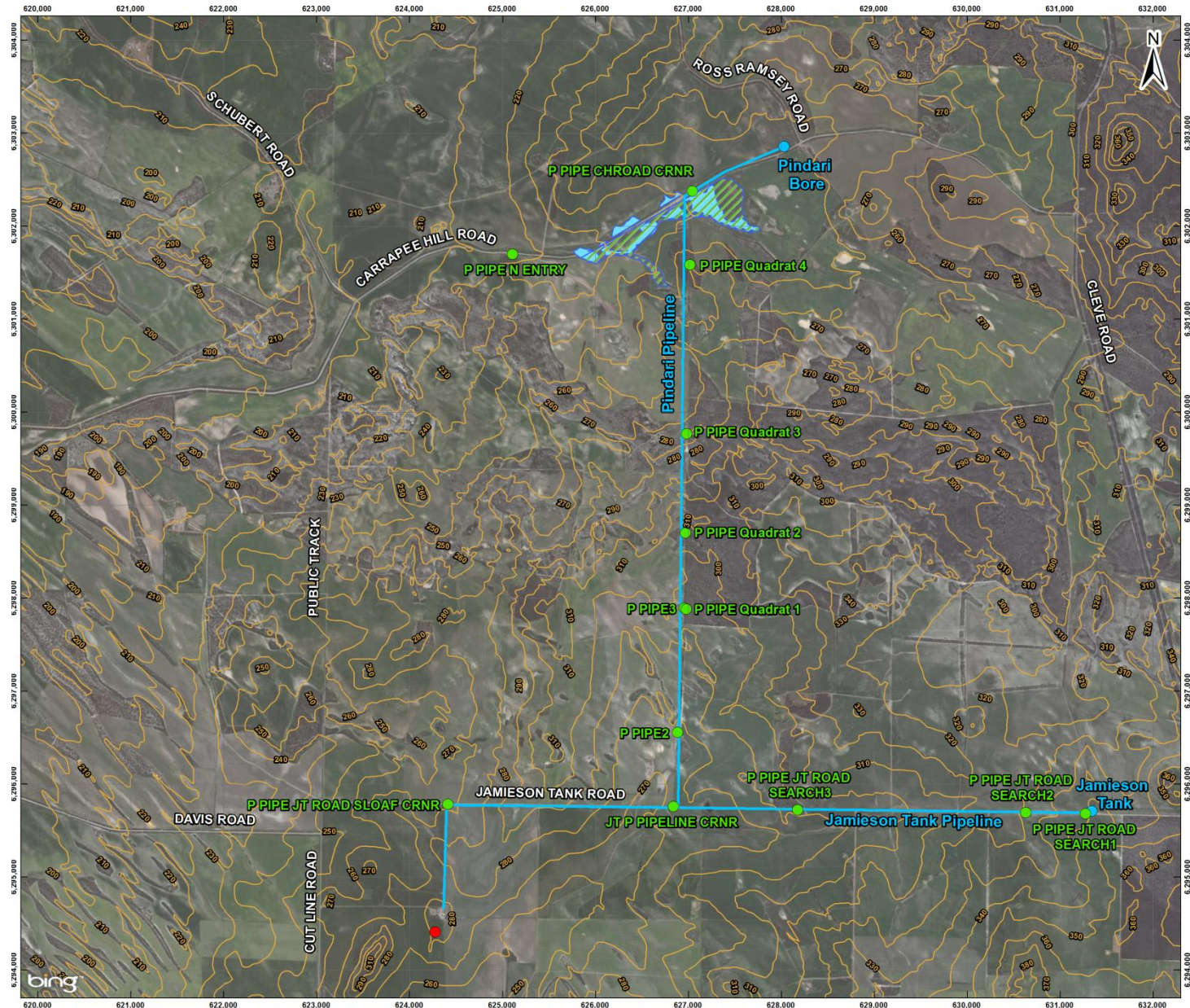


## Process water

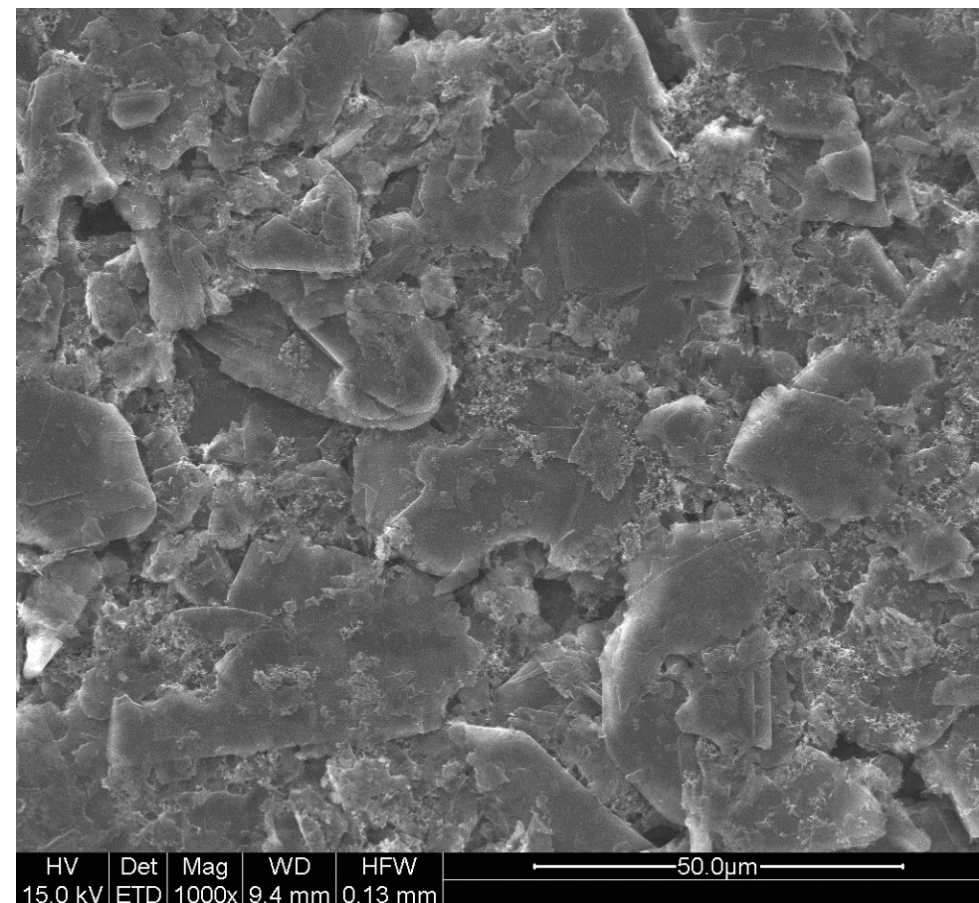
- High yielding fractured rock aquifer at Pindari located 8kms north of Sugarloaf
- Two bores at Pindari capable of supplying requirement of 100ML/yr
- Saline water quality  $\approx 22,500\text{TDS}$  with no current other beneficial use
- TSF decant expected to provide 40ML/yr predominantly over winter period

## Potable water

- Agreement with SA Water for supply of 40ML/yr rising to 80ML/yr at Archer's election
- Water to be used for site domestic use as well as final concentrate wash water.

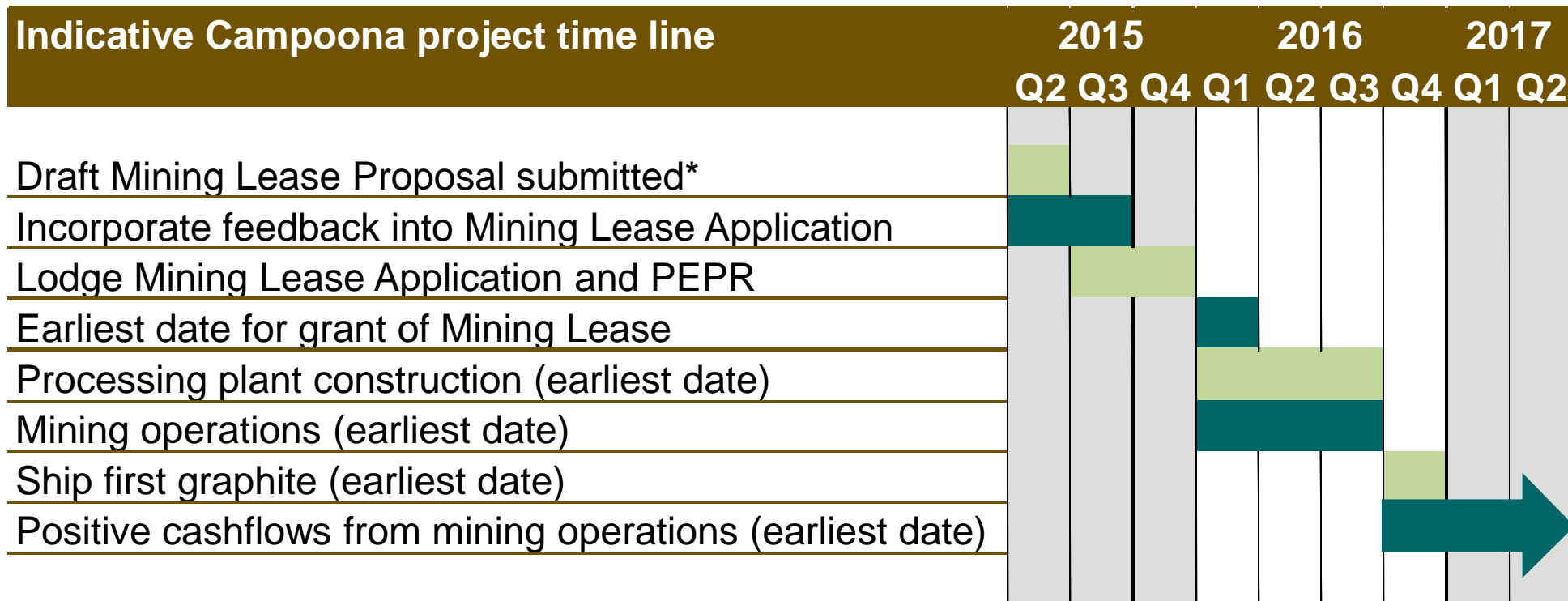


- Campoona final product 15-28 $\mu$ m (or finer depending on customer requirements) micronised graphite grading 98.5 – 99.7% Cg
- Testing found that Archer's natural graphite at Campoona met anode standards for use as in current generation lithium-ion batteries
- Battery electrodes were prepared from Campoona natural graphite and other commercially available graphite powders, which were then used to construct coin cells in a half-cell configuration. The performance of each cell and the properties of the anodes in each cell were then tested. Test results showed that the performance of Campoona ultra grade graphite in terms of charge capacity was equivalent to that of commercial synthetic graphite.
- Lithium-ion battery use is expected to increase dramatically:
  - Electric cars
  - Lithium-ion batteries for storing electricity generated by roof-top photovoltaic systems, has the potential to fundamentally change the retail electricity market and to substantially increase the demand for high quality graphite.



**SEM image of 99.5% Cg Campoona micronised graphite**

Archer's objective is to manufacture at least 10,000 tonnes per annum of battery grade graphite.



\*ASX announcement 14 May 2015

***Following success at Campoona, Sugarloaf and Waddikee will be prioritised for either second train options for Campoona production or stand alone projects***

- Draft Mining Lease Proposal submitted 4 May 2015
- Ore body outcrops and is free dig for first 70 metres
- Project is easily scalable to meet demand
- Construction of on-site advanced processing facility
- When combined with Central Campoona Resource project has a + 20 year mine life
- Critical infrastructure available:
  - ✓ water
  - ✓ power
  - ✓ transport
  - ✓ processing site
  - ✓ workforce accommodation and services



Campoona Shaft core samples



Drilling at Campoona in March 2012

## Social

- Employment and training through EPMA, including indigenous employment opportunities
- ~4 personnel in Administration
- ~18 in mine operations
- ~18 in processing operations
- Expect multiplier of 2.5-3
- Employees to reside in the District – no FIFO

## Infrastructure

- Some infrastructure upgrades

## Environmental

- Green need for high end graphite
- Contributed to biological research of area

## Economic

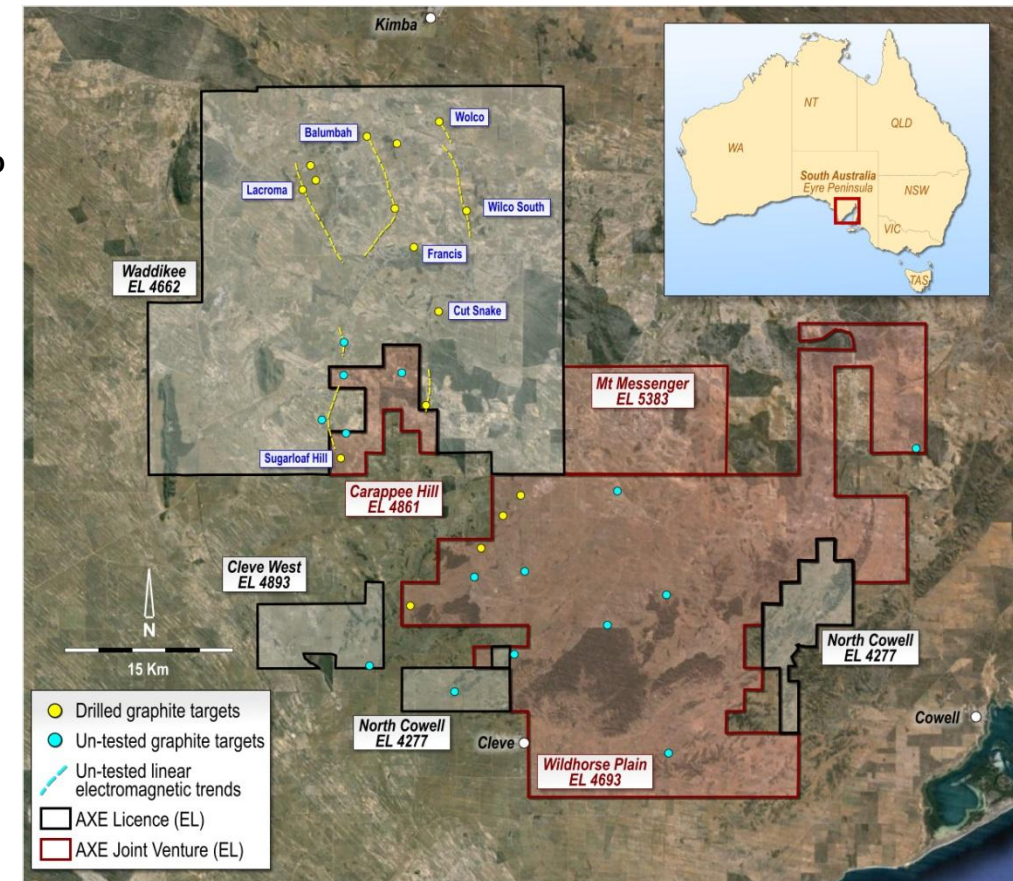
Local sourcing of goods and services

## Wilclo South

- Extra Large, Large, Medium and Fine Flake graphite at grades of 91-93% Cg.
- Inferred Resource of 6.38Mt @ 8.8% Cg (5% Cg cut-off)
- Only 20% of all graphite targets drilled
- Resource upgrade expected with further drilling
- Flake content  $\approx$  50%

Graphite size ( $\mu\text{m}$ )	Grade (% Cg)	Graphite distribution in flake product
Extra large / Jumbo flake +425 $\mu\text{m}$	92.2	5%
Extra large flake +300 $\mu\text{m}$	91.6	10%
Large flake +180 $\mu\text{m}$	91.8	29%
Fine & Medium flake +75 $\mu\text{m}$	92.3	56%

Indicative Flake distribution from the oxide profile at Wilclo South

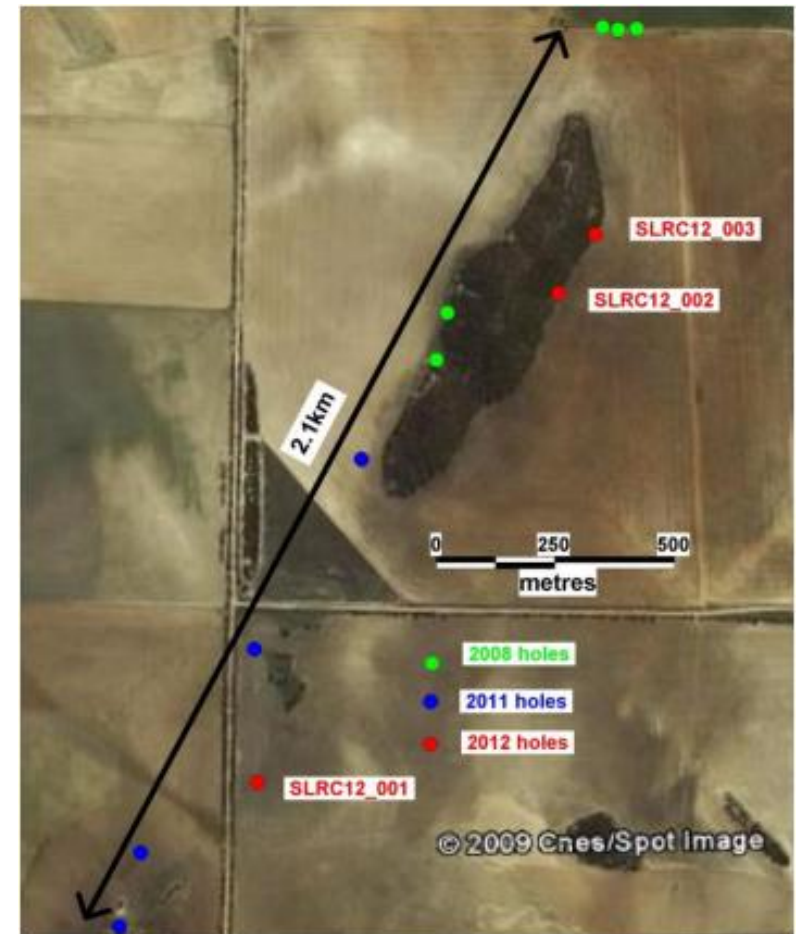


Key graphite deposits and prospects on Waddikee EL4622

- Large highly graphitic schist with an exploration target of 40 – 70Mt at 10-12% Total Carbon
- Graphite readily transformed into graphene products
- Ideal resource for bulk use projects
- Graphite was historically mined from two shafts at Sugarloaf, but records state mining ceased before 1915
- Mineralisation within 100m of graphite processing facility

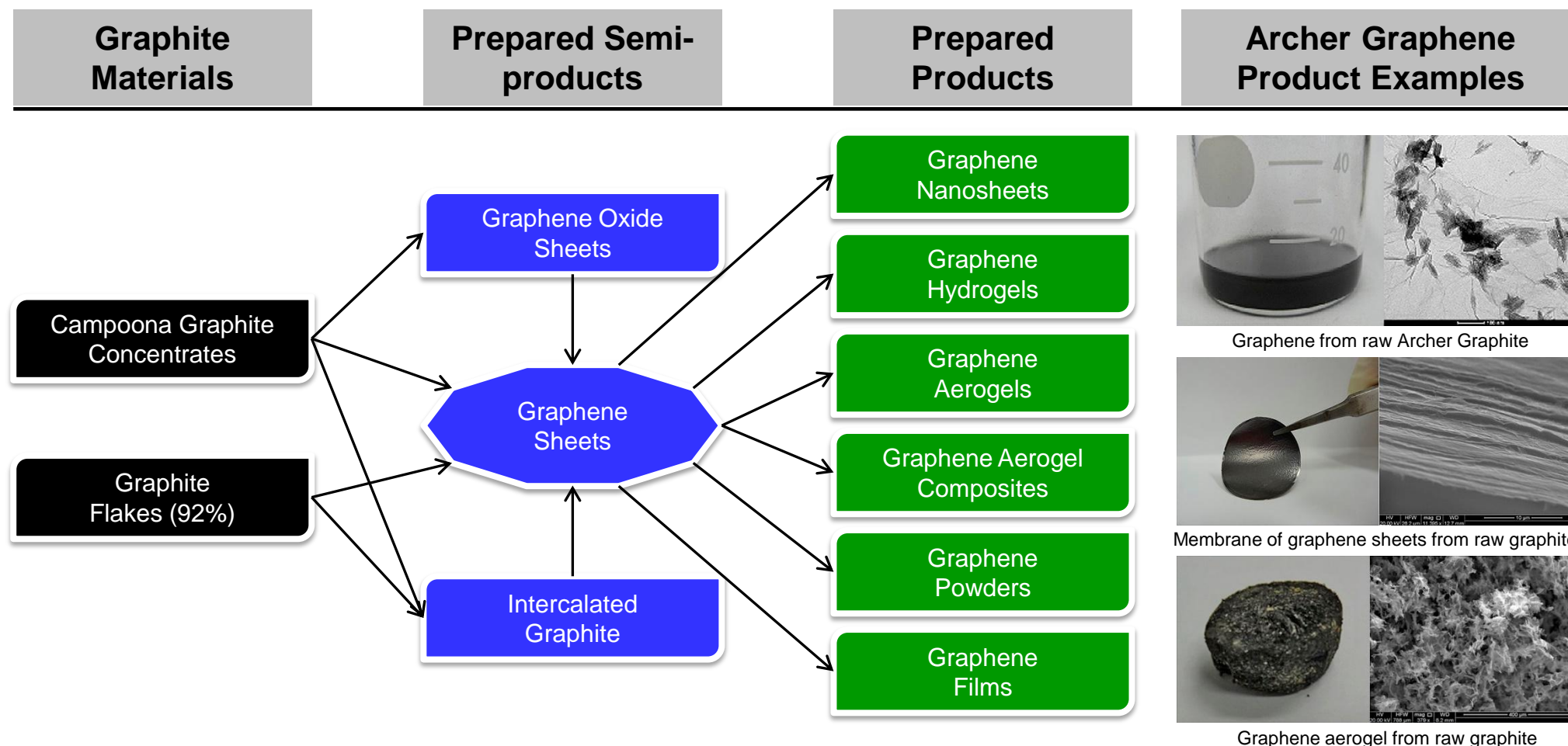


One of the historic mine shafts at the Sugarloaf deposit



Location of all Archer holes drilled at Sugarloaf

*Two-year research program with University of Adelaide showing promising results for commercial uses of Archer graphite and graphene related products*



## Competent persons statement

*The exploration results and Exploration Target reported herein, insofar as they relate to mineralisation, are based on information compiled by Mr Wade Bollenhagen, Exploration Manager of Archer Exploration Limited. Mr Bollenhagen is a Member of the Australasian Institute of Mining and Metallurgy who has more than eighteen years experience in the field of activity being reported. Mr Bollenhagen has sufficient experience which is relevant to the styles of mineralisation and types of deposit under consideration and to the activity that he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' relating to the reporting of Exploration Results. Mr Bollenhagen consents to the inclusion in the report of matters based on his information in the form and context in which it appears.*

*The information in this report that relates to the Campoona Shaft and Central Campoona JORC 2012 Mineral Resource estimation has been prepared by Mr B. Knell who is a Member of the AusIMM and peer reviewed by Dr. C Gee who is also a Member of the AusIMM (CP). Mr Knell is a full time employee of Mining Plus Pty Ltd and Dr. Gee is a full time employee of Mining Plus Pty Ltd., both have more than five years' 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 Competent Persons as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Knell has consented in writing to the inclusion in this announcement of the Mineral Resource estimation information in the form and context in which it appears. This information was prepared and first disclosed under the JORC Code 2012.*

## Forward looking statements

*The information in this presentation is published to inform you about Archer Exploration Limited and its activities. Some statements in this presentation regarding estimates or future events are forward looking statements.*

*Although Archer Exploration Limited believes that its expectations reflected in these forward-looking statements are reasonable, such statements involve risks and uncertainties and no assurance can be given that actual results and outcomes will be consistent with these forward-looking statements.*