



# ***ARCHER GRAPHITE***

***Ten reasons why Archer Graphite is a compelling business opportunity***

***IM Events Graphite & Graphene Conference  
New York***

***25-26 November 2013***

Gerard Anderson

Managing Director Archer Exploration Limited

## Competent persons statement

*The exploration results 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 2004 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.*

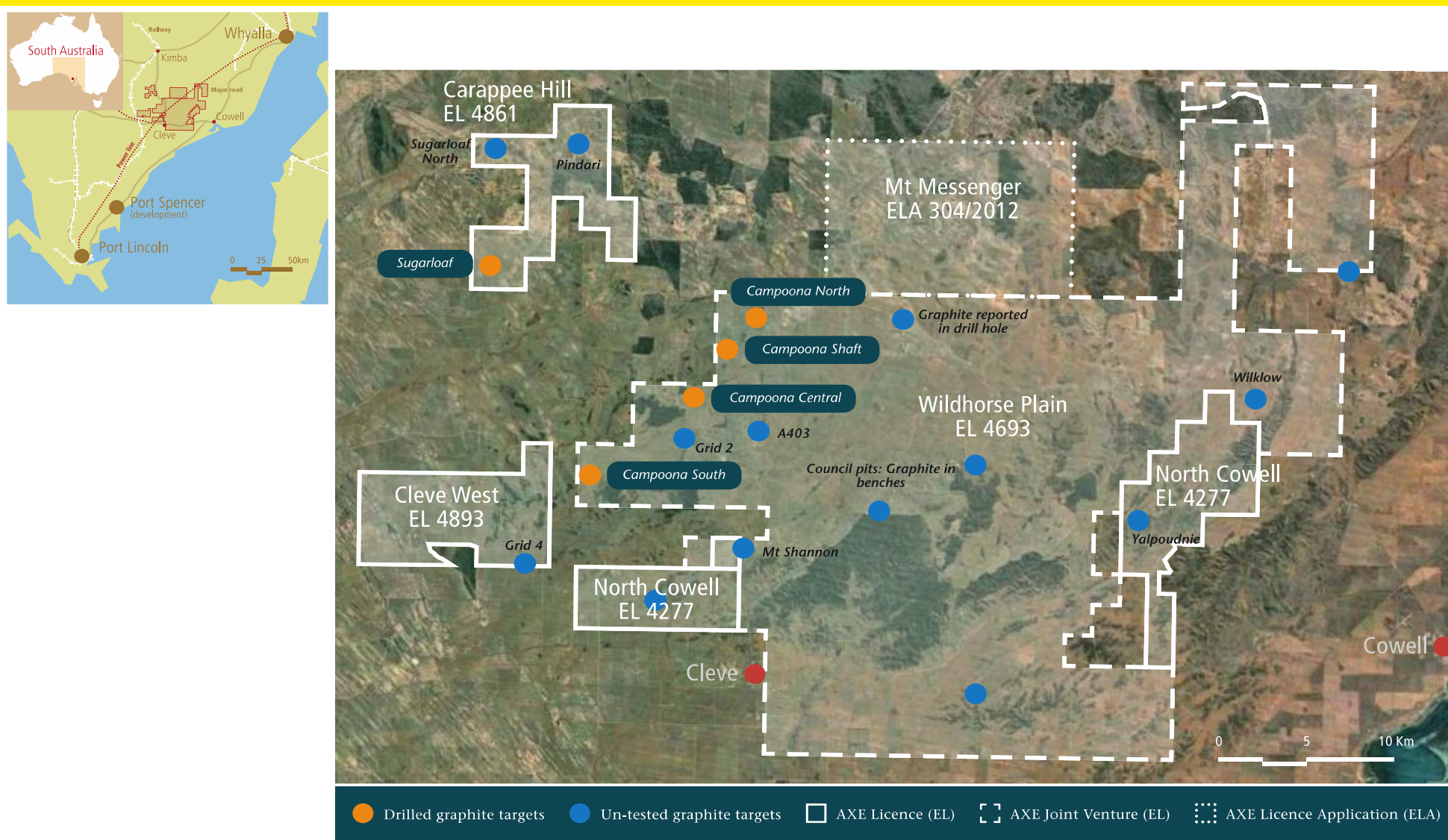
*The information in this report that relates to the Mineral Resource estimation has been prepared by Mr B Godsmark who is a Member of the AusIMM and peer reviewed by Mr G Reed who is also a Member of the AusIMM (CP). Mr Godsmark is a full time employee of Mining Plus Pty Ltd and Mr Reed is a sub-contractor to 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 2004 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Godsmark and Mr Reed have consented in writing to the inclusion in this announcement of the Mineral Resource estimation information in the form and context in which it appears.*

## 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.*

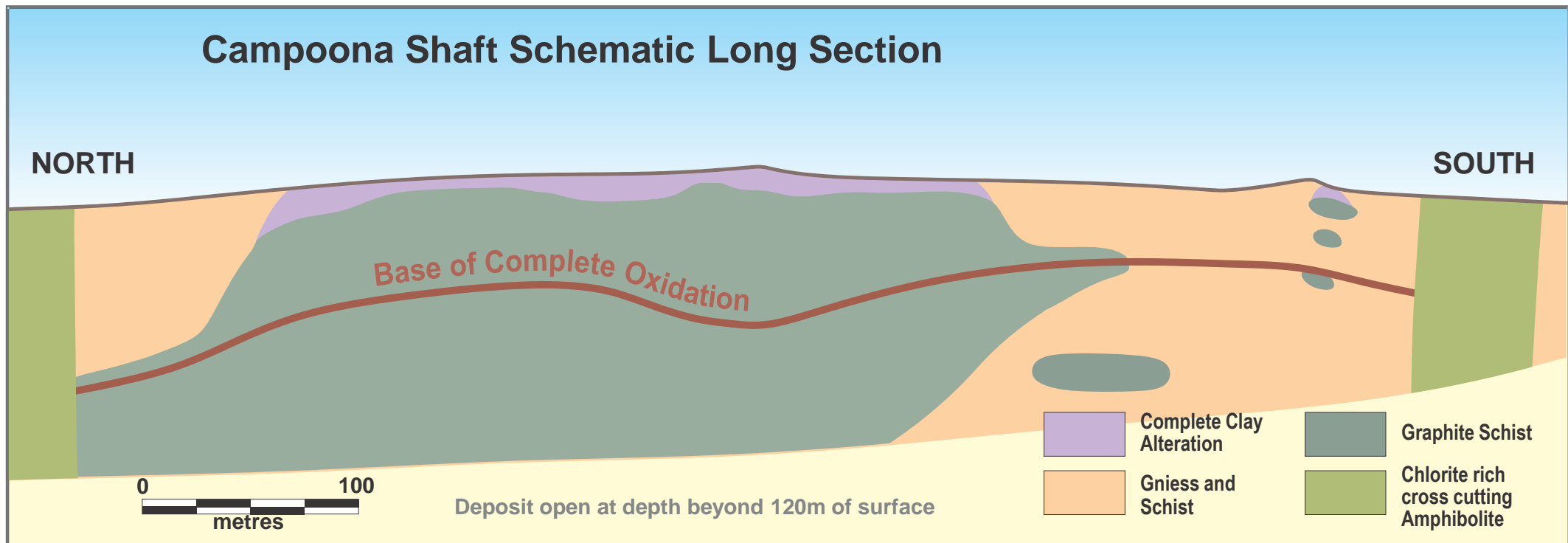
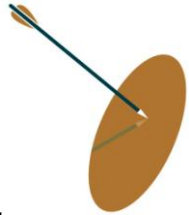
*Although Archer Exploration Limited believes that its expectations reflected in these forward-looking statements are reasonable, such statements involve risks and uncertainties and no assurance can be given that actual results and outcomes will be consistent with these forward-looking statements.*



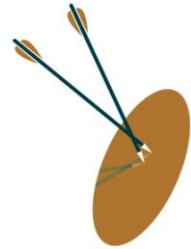


**Substantial land position (1,100km<sup>2</sup>) in graphite province. Two main deposits – Campoon and Sugarloaf plus several nearby flake occurrences.**

- Graphite outcrops.
- 10-50m thick highly graphitic schist.
- Deep complete oxidation.
  - **Upper Claystone** -  $\approx 5\text{m}$  thick clay-rich highly graphitic zone of graphite + kaolin + quartz
  - **Upper BOCO** - porous graphite + quartz + kaolin + tourmaline  $\pm$  garnet  $\pm$  iron oxides  $\pm$  sillimanite  $\pm$  muscovite gangue. Feldspars all converted to kaolin and most removed. Some clay-rich zones occur as cavity fill.
  - **Lower BOCO** - Below  $\approx 70\text{m}$  depth the graphitic schist becomes progressively more competent. Strong weathering persists to at least  $100\text{m}$  depth. Feldspars all converted to illite  $\pm$  kaolin with minor smectite below  $80\text{m}$ .



*Outcropping, thick, high grade graphite deposit*



- Grade on its own gives no insight into a graphite deposit's commerciality.
- Grade does however give a reasonable insight as to likely mining and milling costs that a deposit will have to carry.
- Archer Graphite's Campoona deposit has a JORC Resource grade of 12.3% C which is comparable to or better than many deposits awaiting development.

**Campoona JORC Resource (5%C lower cut-off grade)**

Area	Resource Category	Tonnes (Mt)	Graphite (% C)	Contained Graphite (tonnes)
Campoona Shaft	Measured	0.339	14.8	50,200
	Indicated	1.056	12.7	134,100
	Inferred	0.837	10.7	89,600
Central Campoona*	Inferred	0.295	12.5	36,900
Combined	Total Resource	2.527	12.3	310,800

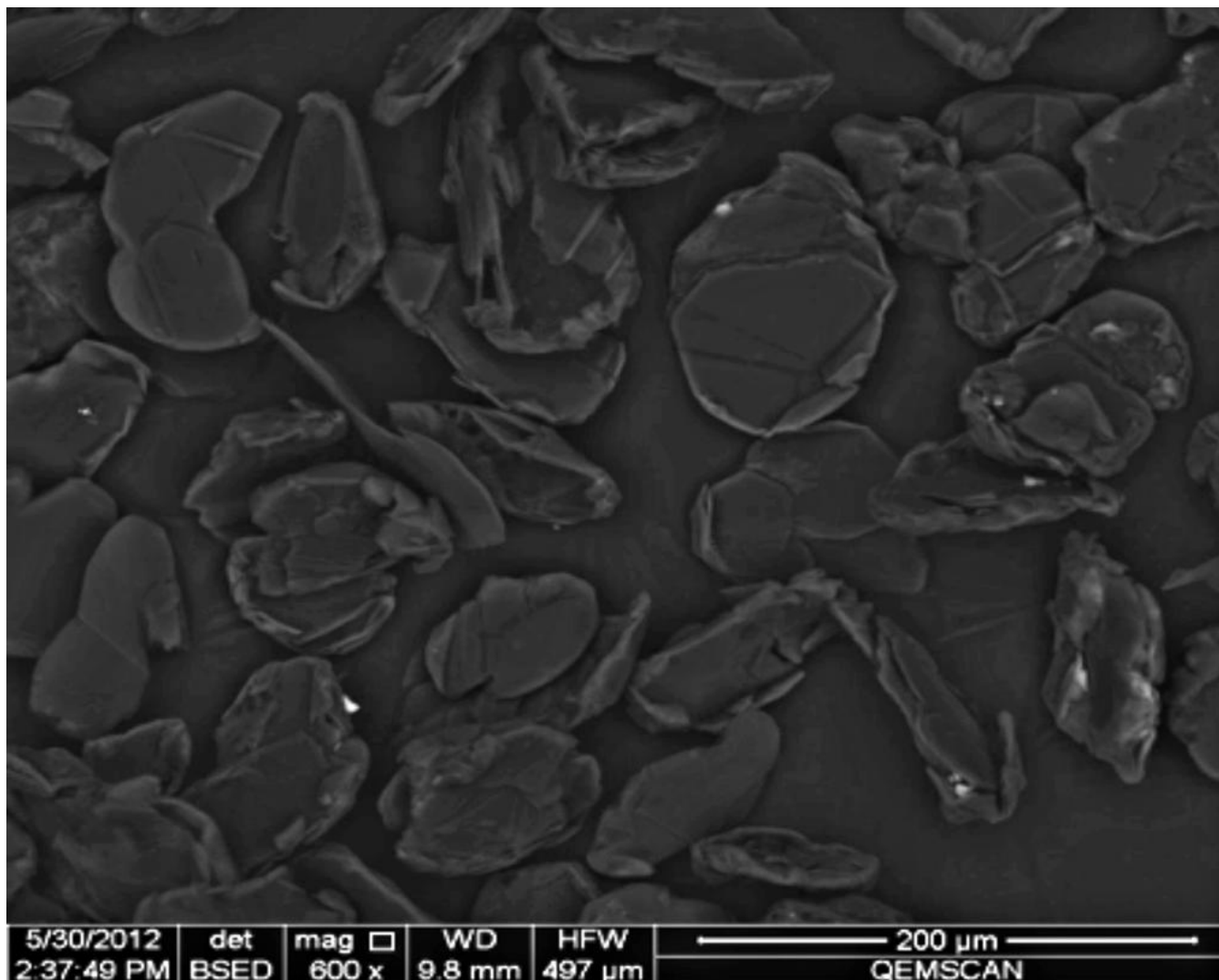
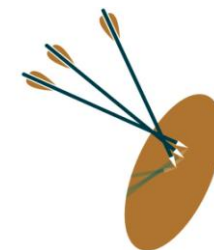
*\*\*Central Campoona Resource estimation confined to 200m of known strike of 1,400m*

***Campoona is in the upper quartile of world graphite deposits in terms of grade.***



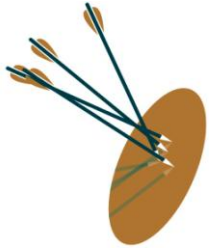
## Reason 3. Outstanding liberation

- Prolonged intense lateritic weathering has resulted in high natural liberation of graphite from clay + quartz  $\pm$  tourmaline  $\pm$  garnet  $\pm$  muscovite gangue.



Typical high purity  
Campoona  
graphite  
concentrate prior  
to re-cleaning.

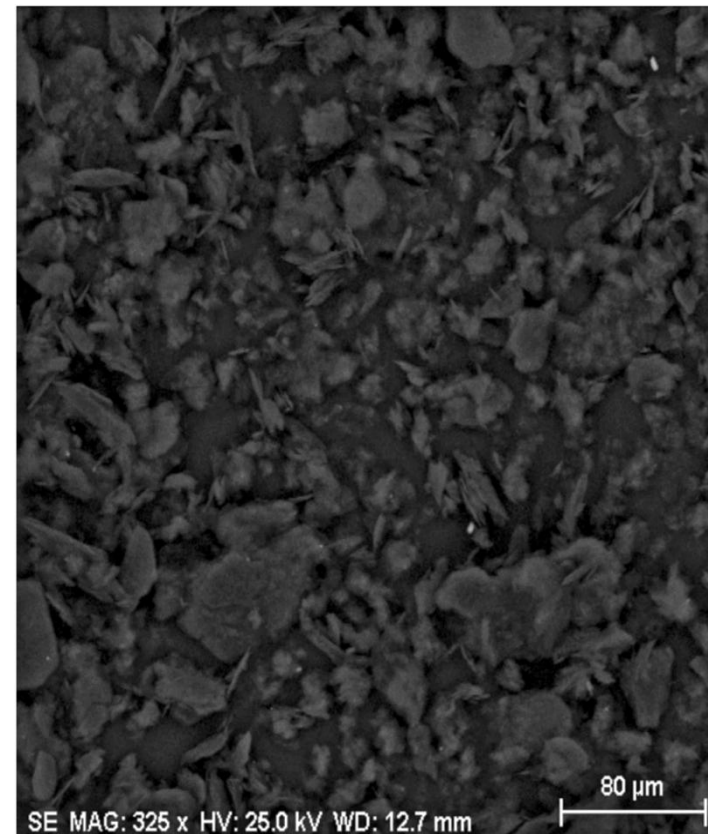
*Outstanding natural liberation*



- Recoveries through all three Campoona geological horizons  $\geq 90\%$ .
- All ore horizons can be processed using the same method and equipment.
- Rigorous bench-scale testing has defined key processing parameters.
- Bulk flotation tests emulate bench-scale results.
- High purity -75 micron concentrates grading  $\approx 98\%$  C with re-cleaning to 99.4% C.



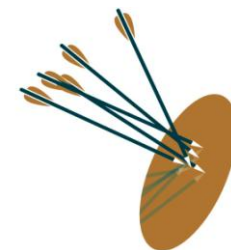
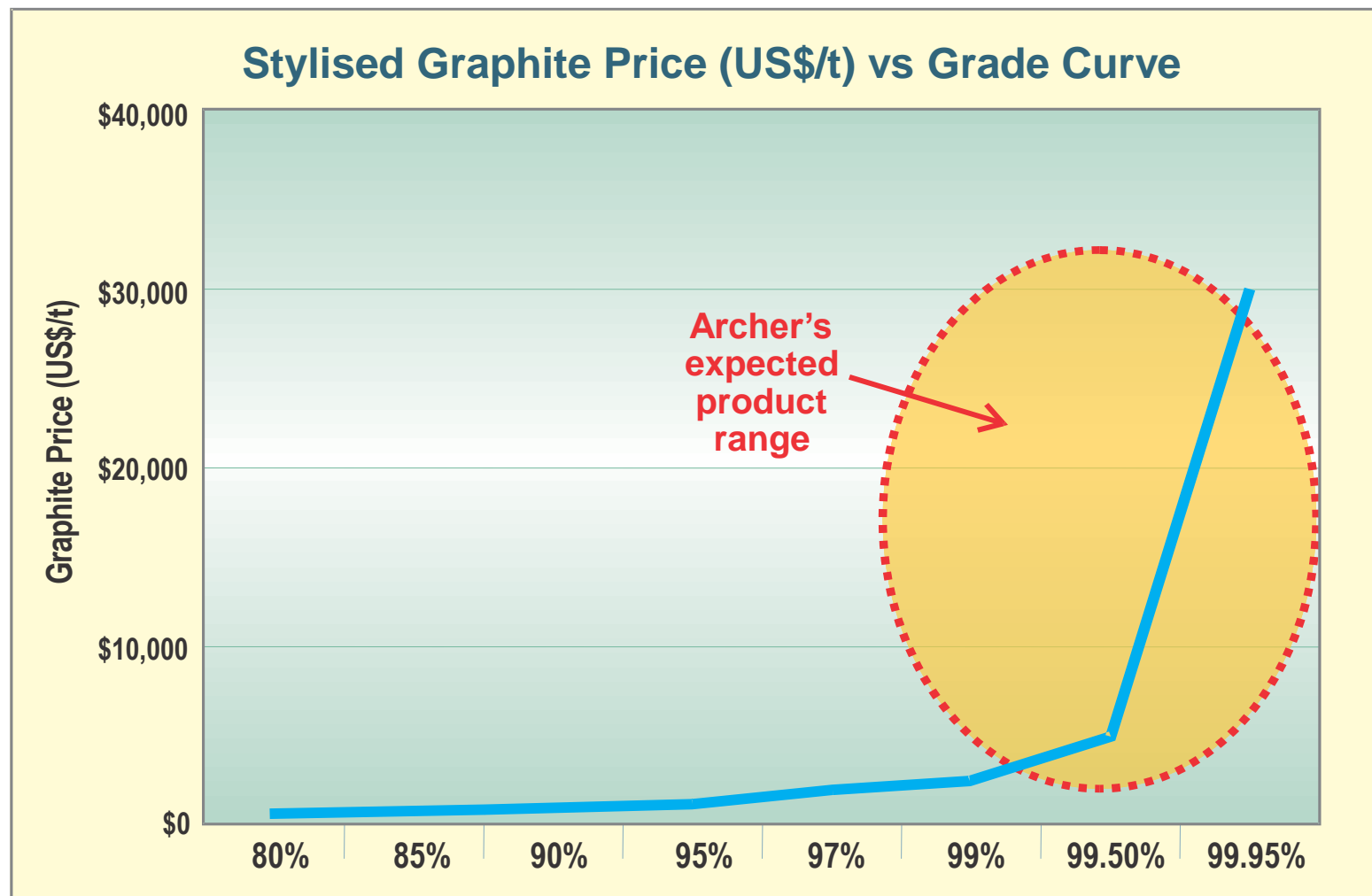
Bulk flotation concentrates



Bulk flotation re-cleaner concentrates + tail under SEM

**98 - >99% C concentrates at  $\geq 90\%$  recovery**

## Reason 5. High purity, high value products



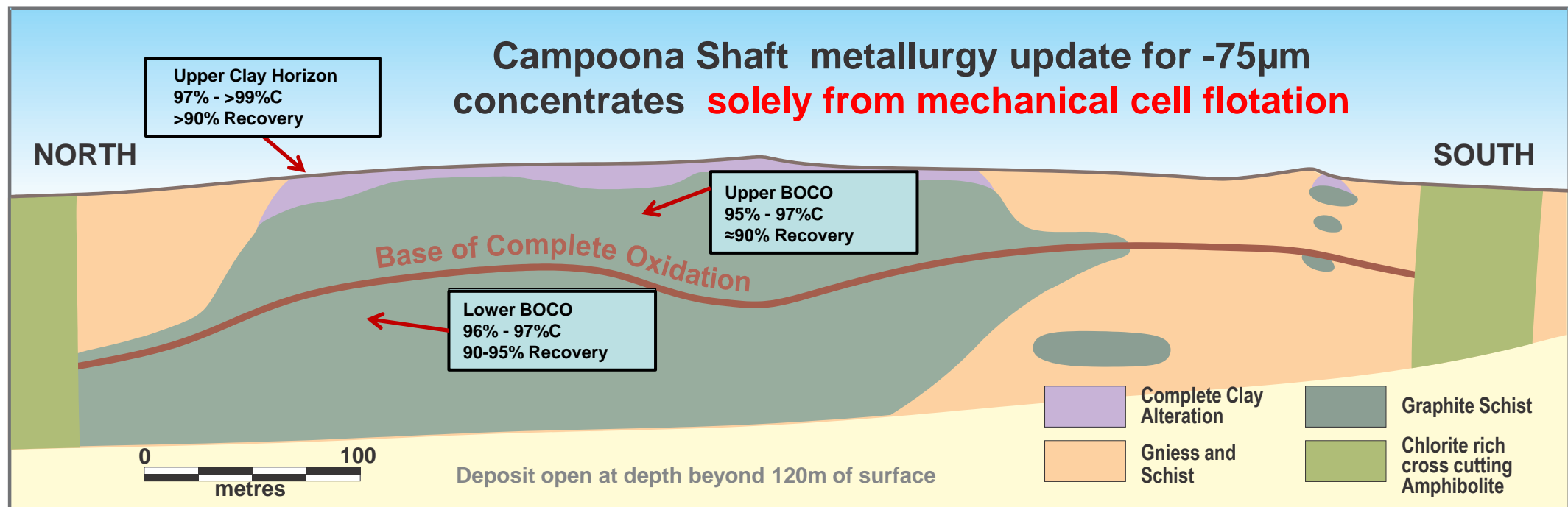
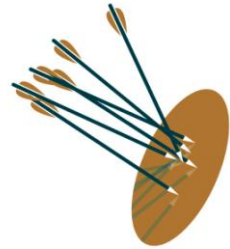
**“Prices for flake graphite of 99.0% and higher in particle size ranges from 5 micron to -100 Mesh will command between A\$2,500 to A\$5,000 per metric tonne”.**

***Target is to produce >98% C concentrates and undertake post recovery treatment to deliver tailored products.***



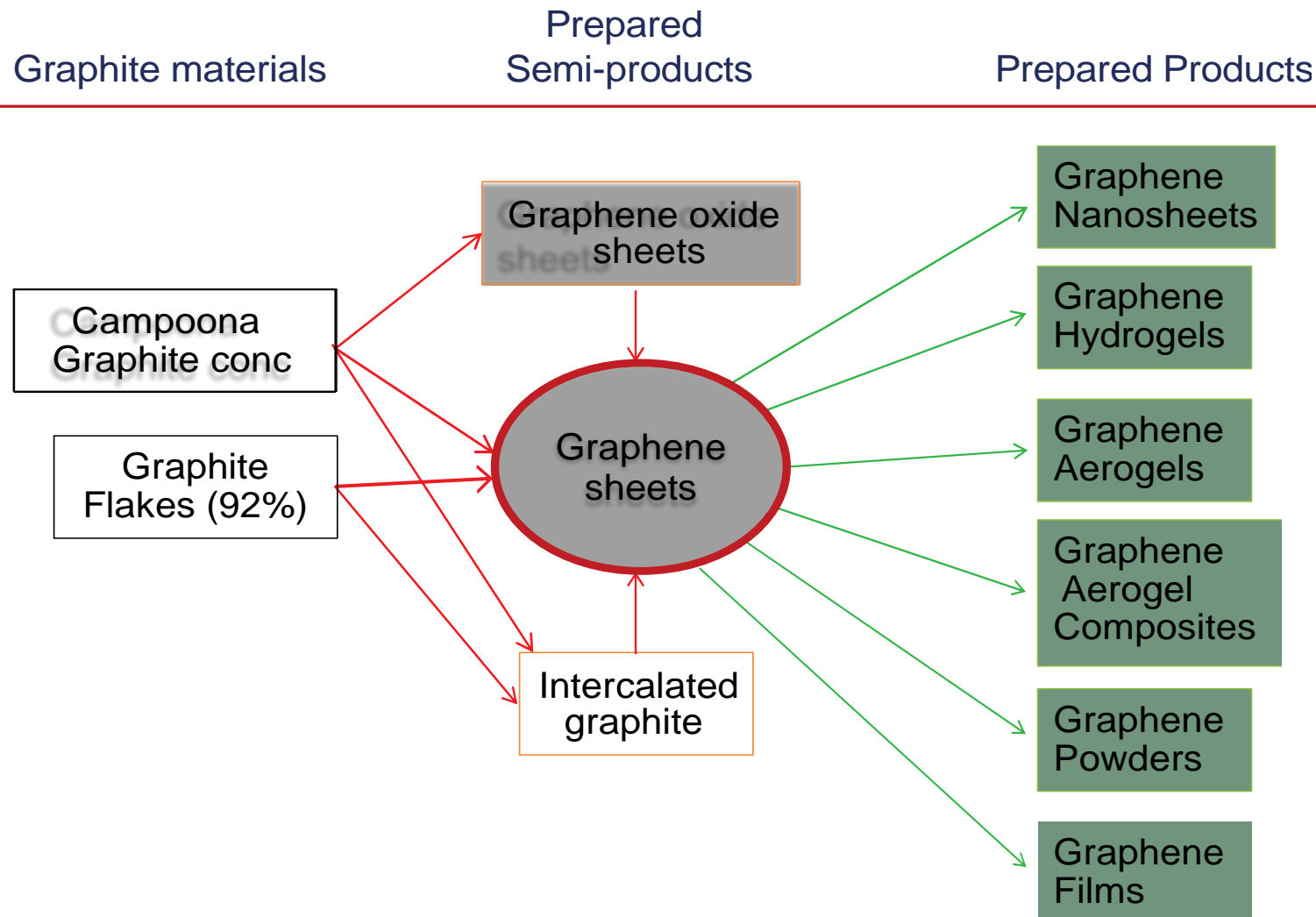
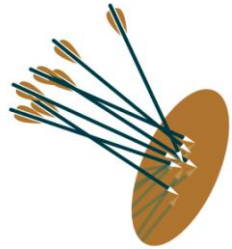
## Rigorous bench-scale metallurgical testing undertaken

- 35 bench scale tests completed on samples across the length, breadth and depth of the deposit.
- High purity graphite concentrate repeatable for all three geologic horizons representing the uppermost 100m (approx) of the deposit commencing at the surface. Such high purity natural graphite concentrates are rare.
- Further improvements expected.



**Rigorous deposit-wide metallurgical testing completed**

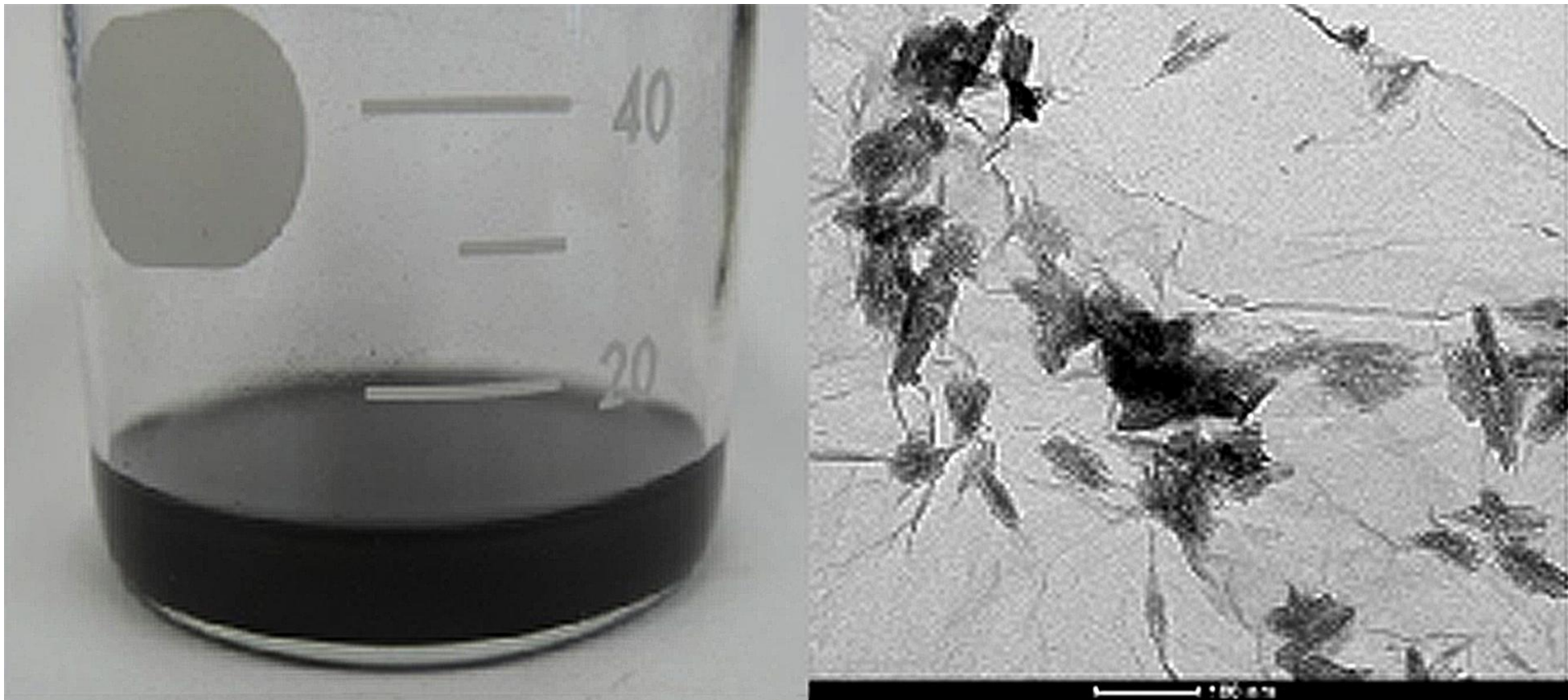
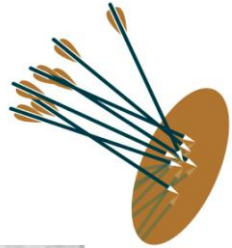
## Summary of products from Archer graphite



*Campoona readily offers “new age” materials opportunities*

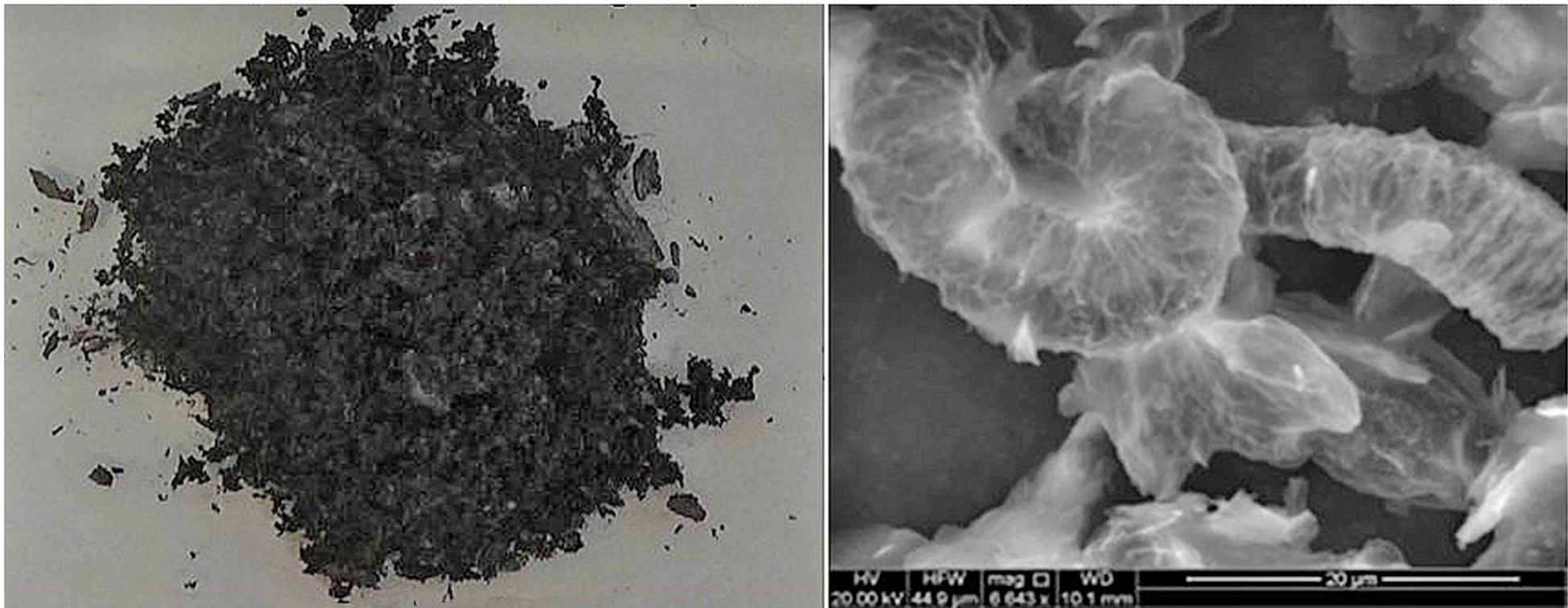
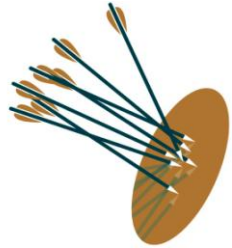


### Graphene products from Archer graphite



*Graphene from raw Archer graphite*

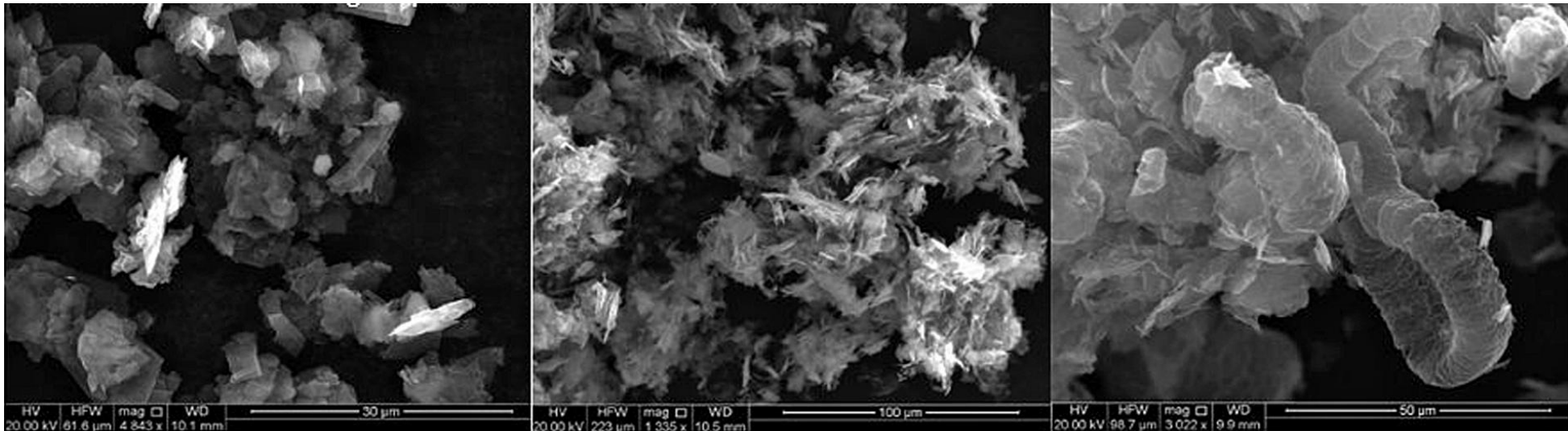
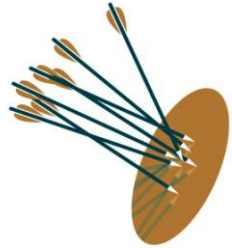
### Graphene products from Archer graphite



*Thermally intercalated graphite from medium-grade 92%C Campoona concentrate*



### Graphene products from Archer graphite

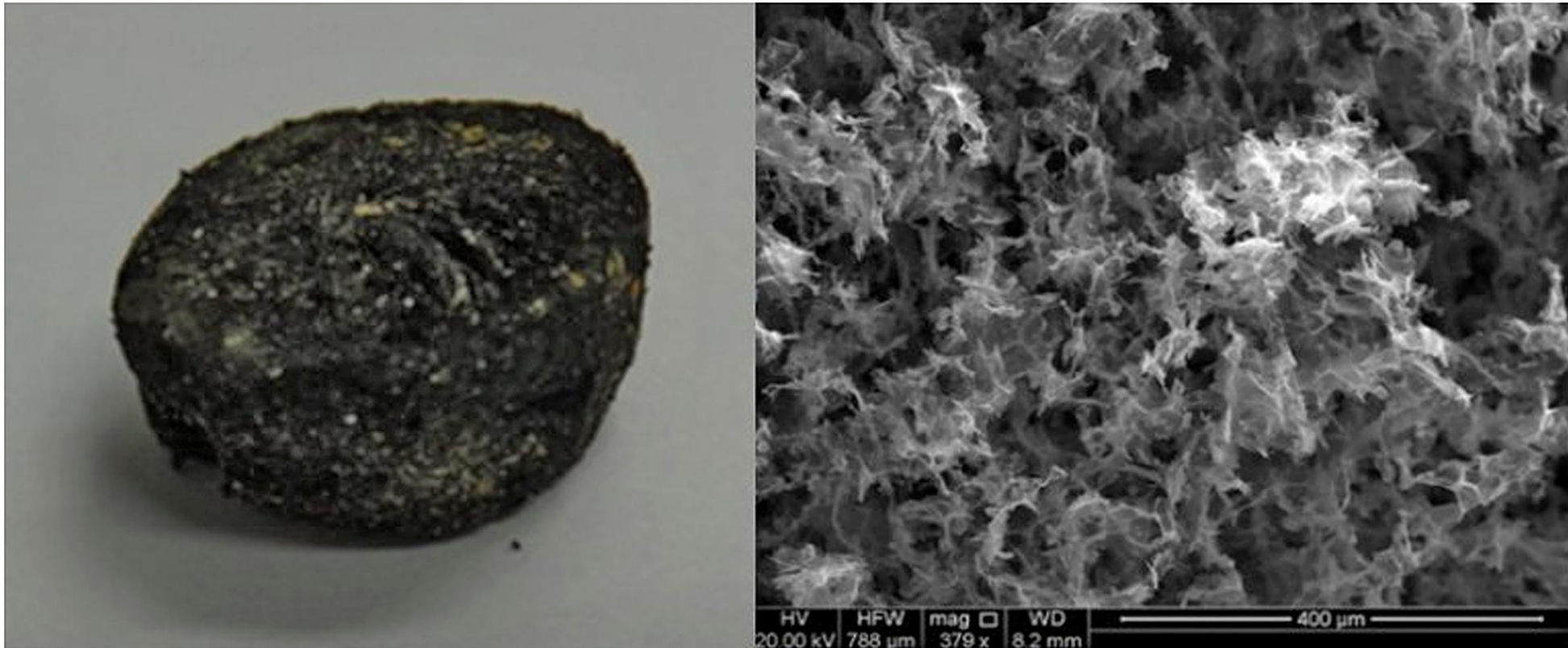
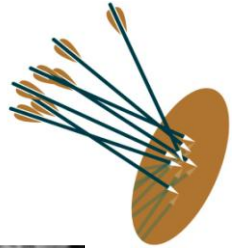


*Archer graphite concentrates*

*Chemically intercalated graphite*

*Thermally intercalated graphite*

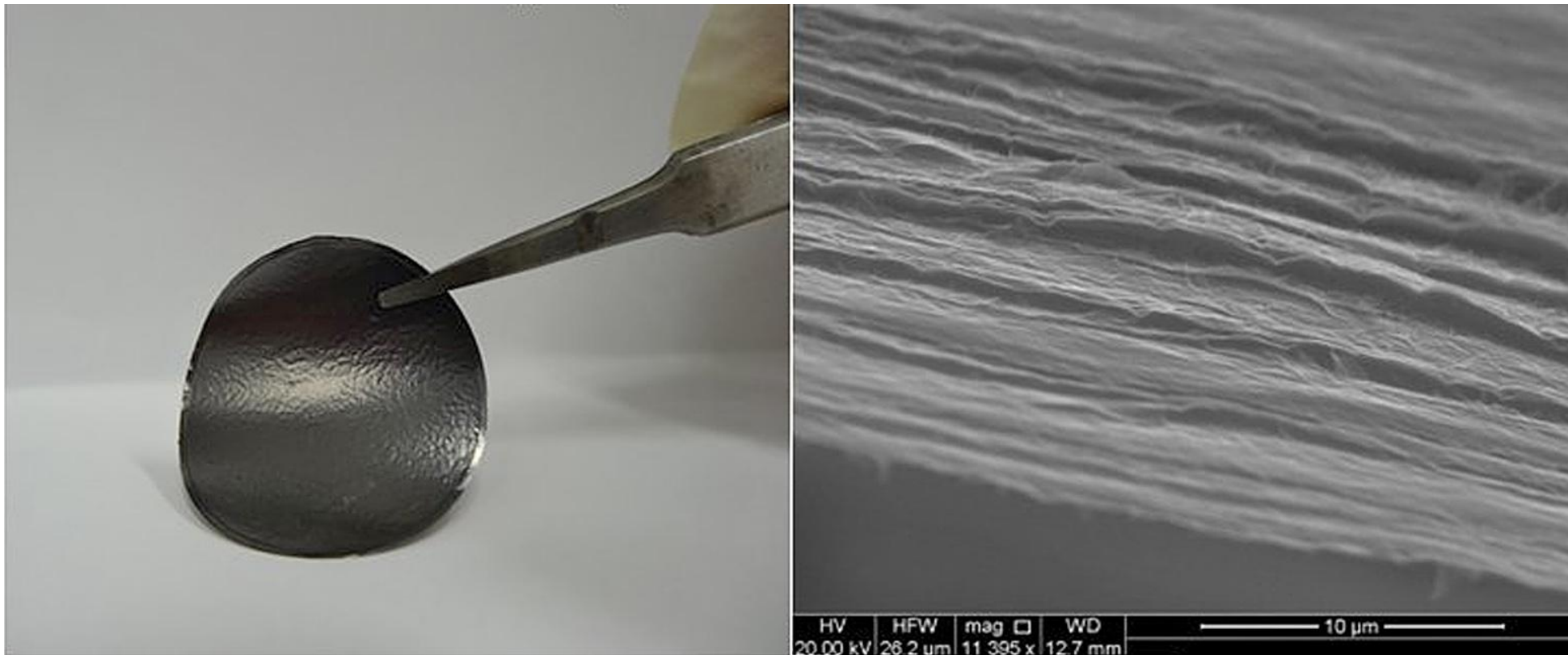
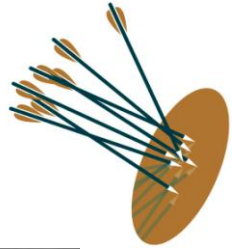
### Graphene products from Archer graphite



*Graphene aerogel from raw graphite*

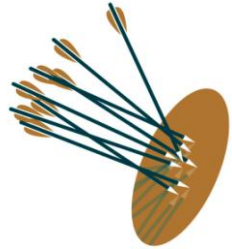


### Graphene products from Archer graphite

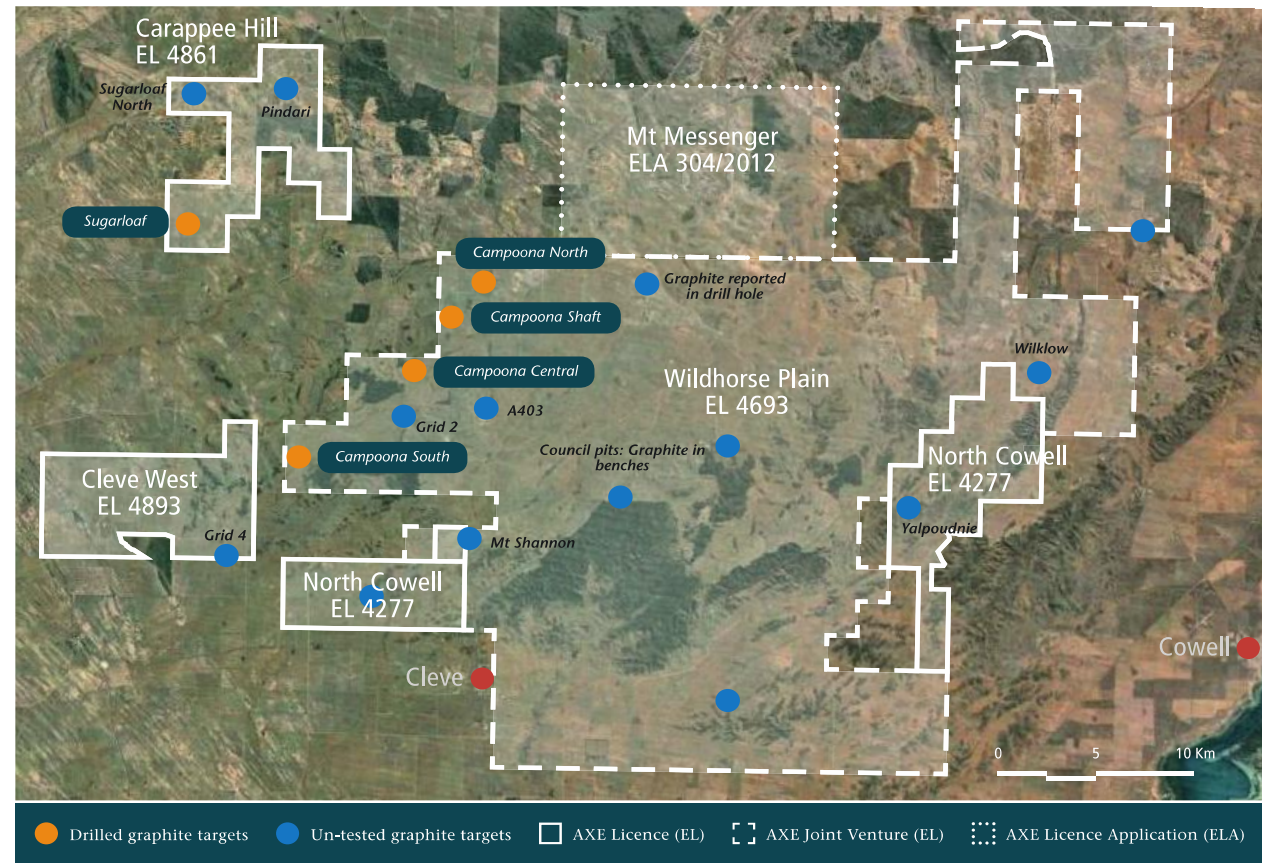


*Membrane of graphene sheets from raw graphite*

## Airborne EM and reconnaissance drilling has identified strike extensions and fold repetitions of the target graphitic schist



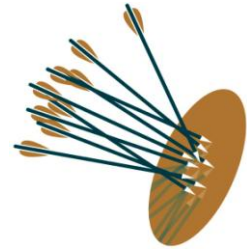
- <2% of 1,100km<sup>2</sup> tenure explored to date.
- EM identified several possible graphite bodies along strike from the known graphite occurrences at Campoona.
- Initial regional exploration drilling outlined three additional high grade graphitic schist bodies and several other bodies requiring follow-up drilling.
- Numerous untested regional graphite occurrences.
- Sugarloaf has an Exploration Target of 40-70Mt grading 10-12% C.



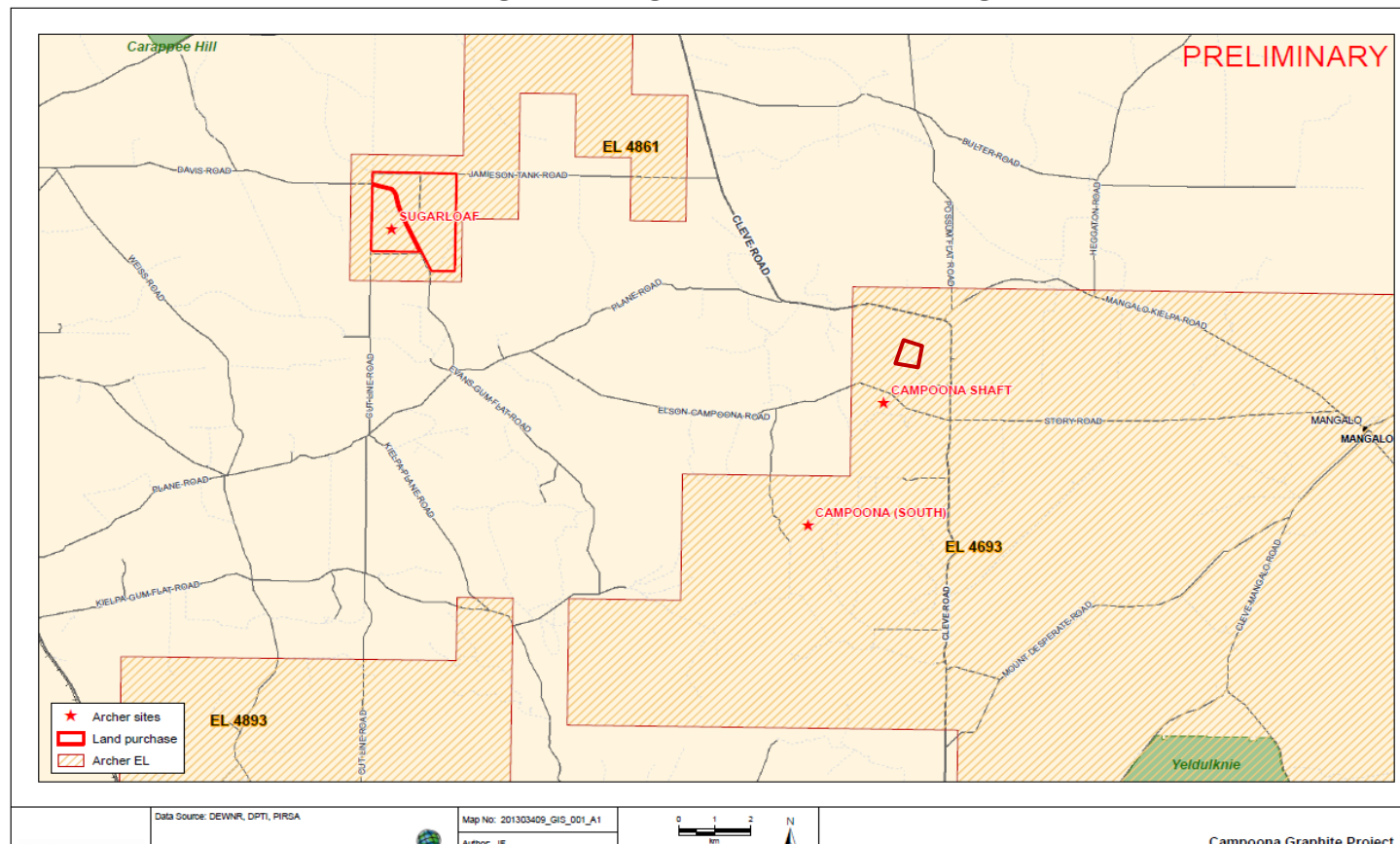
*\*The potential quantities and grades presented are conceptual in nature, there has been insufficient exploration to define an overall Mineral Resource and it is uncertain if further exploration will result in the determination of a Mineral Resource*

**Resource extensions highly likely but not important right now**



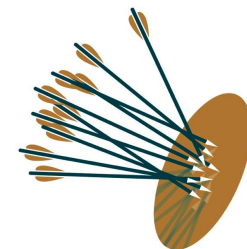


- Campoona Shaft and Sugarloaf both occur on freehold pastoral land.
- Archer owns Sugarloaf (1,403 acres) and has binding HoA over sufficient land at Campoona Shaft for mining to proceed.
- Early land purchases has secured access and mitigated land risk associated with developing mining and processing operations.



***Archer owns the land needed for mining and mineral processing***

**Australia is a stable democracy with robust and transparent laws governing mineral ownership, mineral exploration and mining.**



- All Minerals are vested in the Crown.
- Mineral Title covers all Minerals.
- All States have longstanding Mining Legislation.
- Royalty rate for graphite in South Australia is 2% of mineral value for Yrs 1-5 rising to 3.5% of mineral value for Yr 6 onwards.

## **Two-stage mining proposals and applications in South Australia**

1. Applications for a mineral lease (ML) must be supported by a 'Mining Lease Proposal'.
2. Once a tenement is granted, a program for environment protection and rehabilitation (PEPR) is required to be approved before mining may commence.

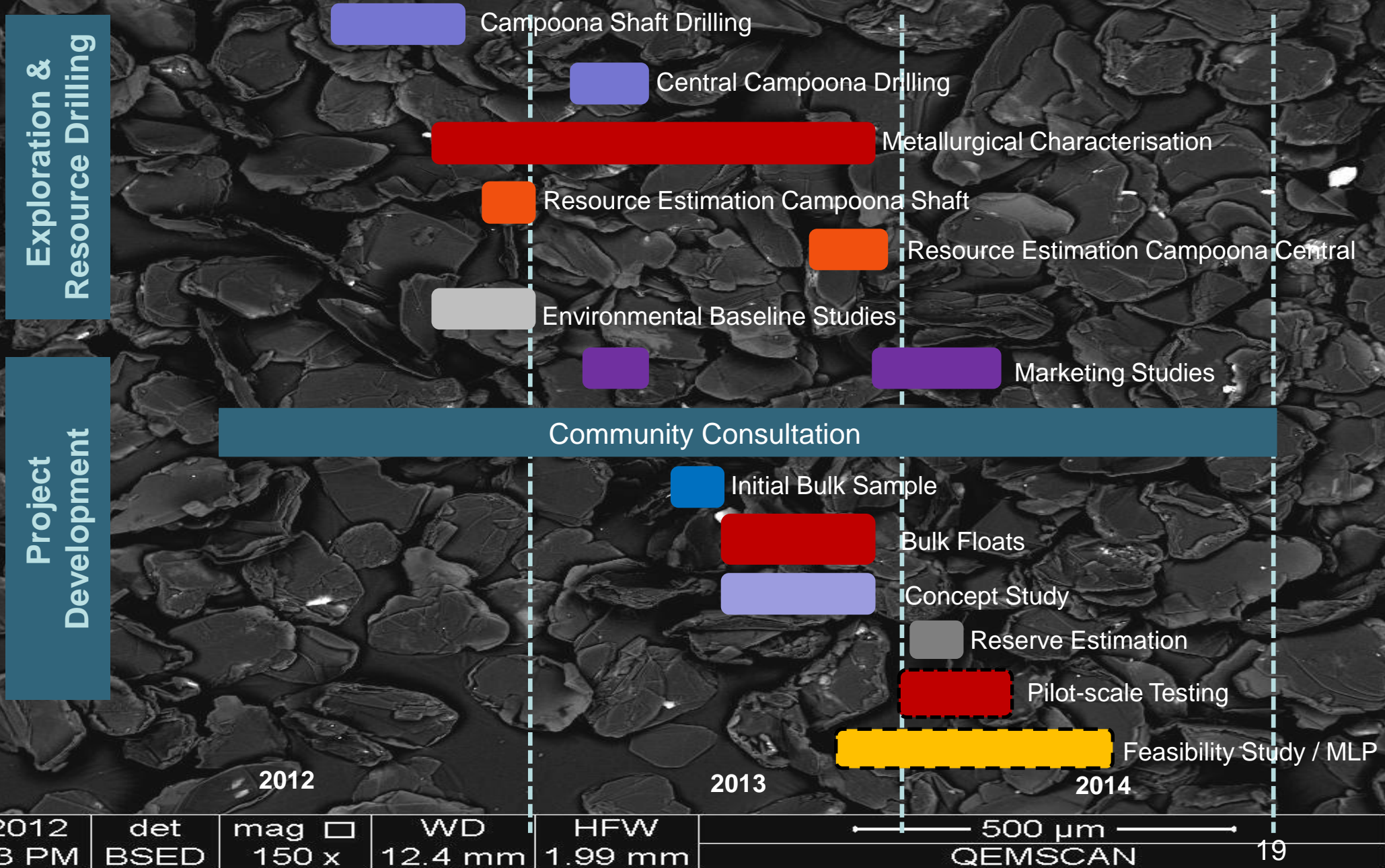
Appropriate documentation is required to be prepared and submitted to provide a comprehensive and detailed description of environmental, social and economic risks and benefits of the proposed operation so that stakeholders and the government can make an informed, risk-based and balanced judgement about the proposed operation.

***Australia is a stable democracy with longstanding and robust laws governing mineral exploration and mining***



# Fully funded work plan

ARCHER EXPLORATION LIMITED





- ✓ **Quality:** Expect base product  $\geq 98\%$  C. Purification remains untested beyond basic re-cleaning.
- ✓ **Recovery:** Excellent recoveries for all geologic horizons.
- ✓ **Grade:** 12.3%C places Campoona in the upper quartile of emerging graphite projects.
- ✓ **Value adding potential:** Graphene extraction and product applications. Other test results pending.
- ✓ **Long-Life:** Phase 1 JORC Resource could support >15 year project. Resource additions expected.
- ✓ **Exploration:** 1,100km<sup>2</sup> land position in graphite province. Many untested graphite occurrences.  
Sugarloaf Exploration Target of 40 – 70Mt grading 10-12% total carbon\*.  
\*The potential quantities and grades presented are conceptual in nature, there has been insufficient exploration to define an overall Mineral Resource and it is uncertain if further exploration will result in the determination of a Mineral Resource
- ✓ **Mining:** Predominantly free-dig, open cut mining with low overall strip ratio.
- ✓ **Infrastructure:** Critical infrastructure - roads, power, water, accommodation and services all in area.
- ✓ **Land:** Company owns and has a binding HoA over the freehold land needed to commence operations.
- ✓ **Low Sovereign Risk:** South Australia one of the world's most stable AAA mining jurisdictions.

***Mining Lease Proposal well underway with submission planned  
for Q3 calendar 2014***

## Contact details

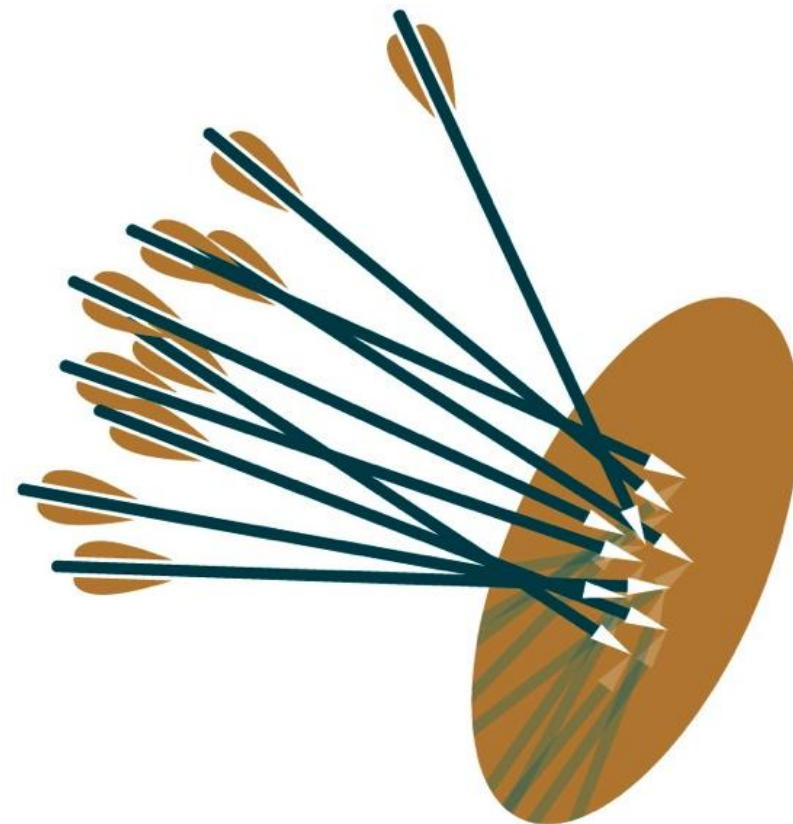
### Archer Exploration Limited

Potential customers and potential equity partners are encouraged to contact Archer Exploration Limited

Ph: +61 8 8272 3288

Fax: +61 8 8272 3888

Email: [ganderson@archerexploration.com.au](mailto:ganderson@archerexploration.com.au)



# Thank you