

# COMPANY PRESENTATION

Wednesday 3 March 2021

**SUNRISE**  
RESOURCES plc



**Developing a new source of  
industrial minerals in Nevada**

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## Aim:

**To to be self-funding through the development of profitable mining projects.**

## Strategy:

- **Priority is to develop the CS Pozzolan-Perlite Project through to production**

*Industrial minerals projects have the greatest potential to achieve an early cash flow as these typically have fewer permitting issues enabling production to advance more quickly than base or precious metal projects.*

- **To unlock the value inherent in our other mineral projects through exploration, joint venture, sale or other arrangements.**

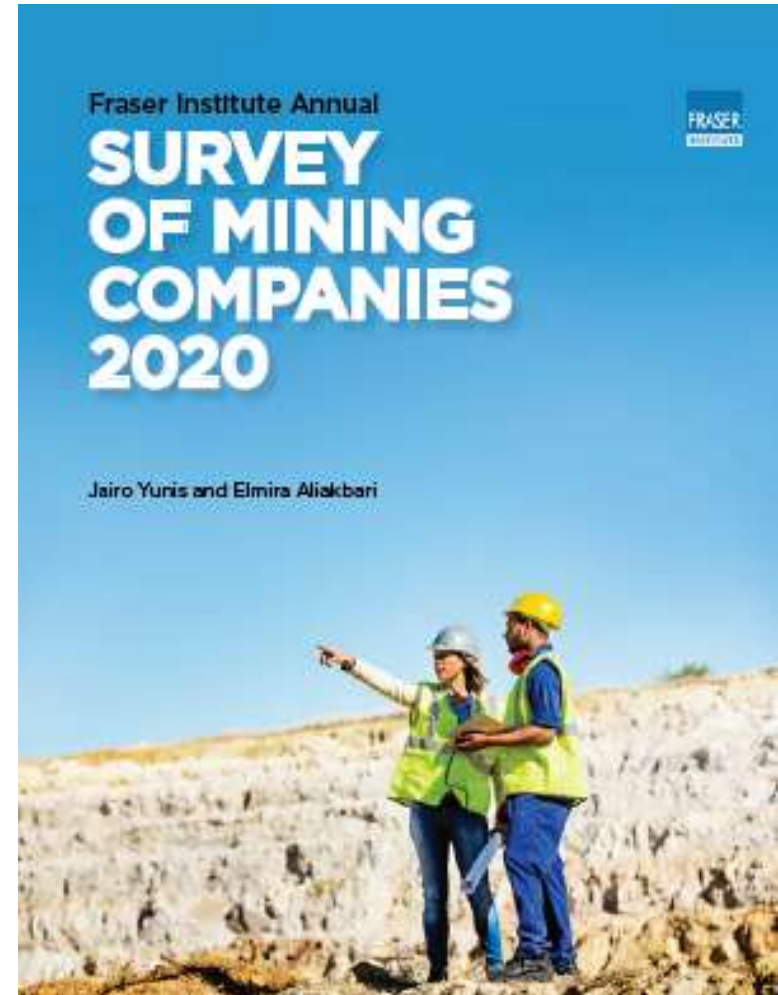
*Significant value creation for shareholders in junior mining companies comes from early drill-discovery of mineral deposits.*



# Focus - Nevada, USA

## Nevada:

- Voted top jurisdiction in the world for investment based on the Investment Attractiveness Index (Fraser Institute Annual Survey of Mining Companies 2020).
- One of the top gold producing jurisdictions in the world.
- Is a significant producer of copper and industrial minerals.
- 63% public lands (forty-eight million acres) where mineral rights can be “claimed” under Mining Law of 1872.
- Has a robust mine permitting process.



# About Pozzolan

**Pozzolan** is a silica or silica and aluminium rich material which will, in the presence of moisture, chemically react with lime at ordinary temperatures to form compounds possessing cement-like properties.

Pozzolans can be:

- *Industrial by-products* e.g. coal-fired power station fly ash, blast furnace slag, etc.
- *Natural* – various glassy volcanic materials such as tuff, tephra, pumice & perlite (e.g. CS Project deposits)

The Romans were the first to use natural pozzolan on a grand scale to construct public buildings, monuments, & infrastructure such as roads and ports, many of which have endured for over 2,000 years

... in contrast, modern concretes using Portland cement without the addition of pozzolan are susceptible to “concrete cancer” (alkali-silica attack) after just a few tens of years

Pozzolans are used to partially replace ordinary Portland cement in mortars and concrete mixes in amounts up to 35% and can improve the strength and chemical resistance of concrete.

Industrial pozzolans, mainly fly ash, have become widely used in concrete since the 1970s.



Pont du Gard



Pantheon Dome



Concrete cancer  
in recent build

# Pozzolan's Market Opportunity

Combating climate change is increasingly a driver of industrial change:

Major trends:

- Move to renewables.
- Phasing out of coal-fired power stations.
- Reducing CO<sub>2</sub> emissions.

Under the Biden Plan:

100% clean energy economy and net-zero emissions no later than 2050.

**Fly ash supplies declining as coal fired power stations close.**

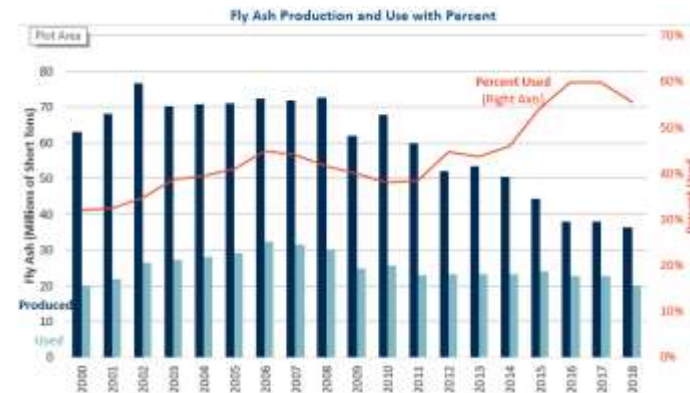
Production of Portland cement is responsible for 5% of the global man-made carbon dioxide emissions. One tonne of cement = one tonne of CO<sub>2</sub>.

Integrated Cement and Ready-Mix companies (CRMCs) under strong pressure to reduce carbon footprint by using less ordinary Portland cement and improve the longevity of concrete structures.

Substitution of natural pozzolan for cement in concrete:

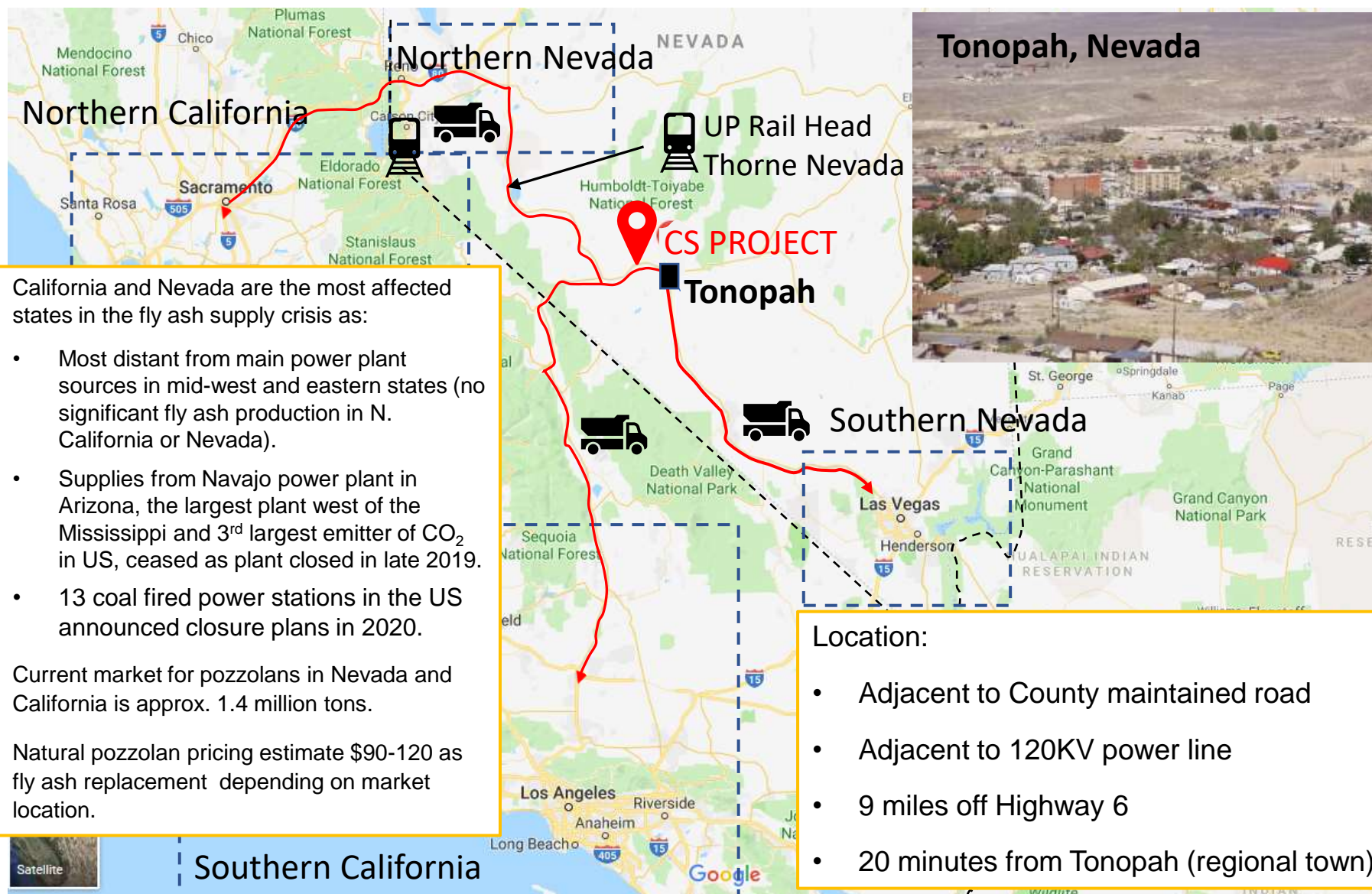
- Reduces CO<sub>2</sub> emissions.
- Substantially reduces the impact of concrete cancer.

**Despite Covid-19 pandemic construction in US increased 4.3% IN 2020 over 2019 levels** (Sources: [www.constructconnect.com](http://www.constructconnect.com)).





# CS Pozzolan - Markets



# Perlite – Uses and Markets

Perlite is a glassy volcanic raw material which, when heated in a furnace, pops like popcorn and expands up to 20 times in volume into a white or pale coloured, low density material used in various household and industrial applications such as:

Horticulture (Coarse perlite - 16% of total usage)

- A potting medium in gardening and horticulture to aid water retention and aeration and a favoured growing medium for cannabis.

*Producers of horticultural grade perlite are reporting record sales volumes.*

Construction uses medium and fine perlite (84% of total usage)

- Insulation.
- Paint texturing, plaster and concrete fillers.
- Ceiling tiles and wallboard jointing compounds.
- Fire proofing.
- Industrial cryogenic storage vessels (e.g. LNG Tankers).

Demand linked to construction industry demand – especially retail construction up 9.6% in 2020.

Other major use of fine perlite is in beer and wine filtration.

Dicaperl Minerals LLC announced (1 March 2021) 20% price increases up to 20% across their perlite ore and expanded perlite products in North America.





# CS Perlite - Markets

- World production 3.4 million tonnes (USGS2020) : China 38%, Turkey 19%, Greece 21%, USA 15%
- US Consumption 610,000 tons consumed, 31% imported (USGS 2020)
- Only three large perlite mines – all now downstream integrated with their own expansion plants
- Numerous expansion plants in 27 states. Many are independent with no captive mine supply
- Last independent mining company now taken over by multinational and moving down stream to compete with its customers
- Opportunity to supply raw perlite to independent expanders
- Raw perlite (horticultural grade) : c \$90-100/ton ex-mine
- Expanded Perlite average \$350/t >\$850/t for filter grade



**Imports into  
eastern states  
from Greece**

# Pozzolan & Perlite Deposits

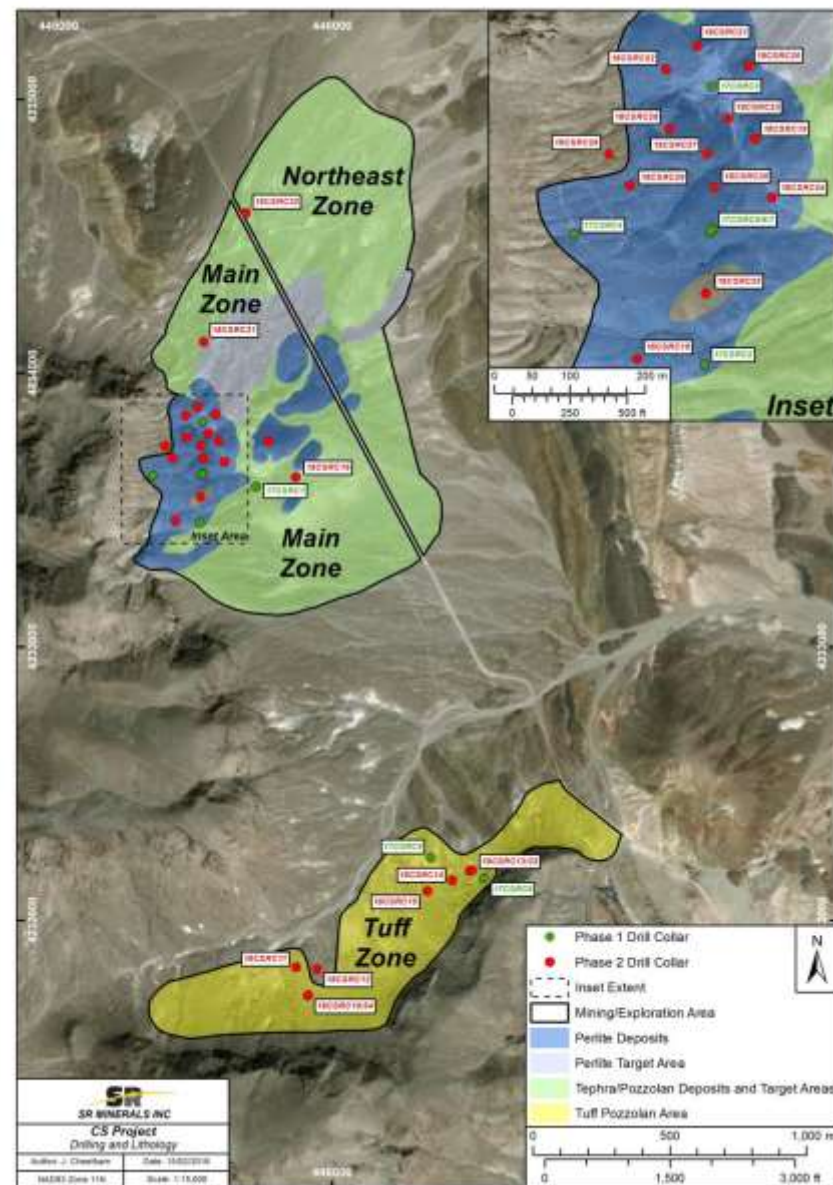
Perlite in outcrop



Tephra-type pozzolan

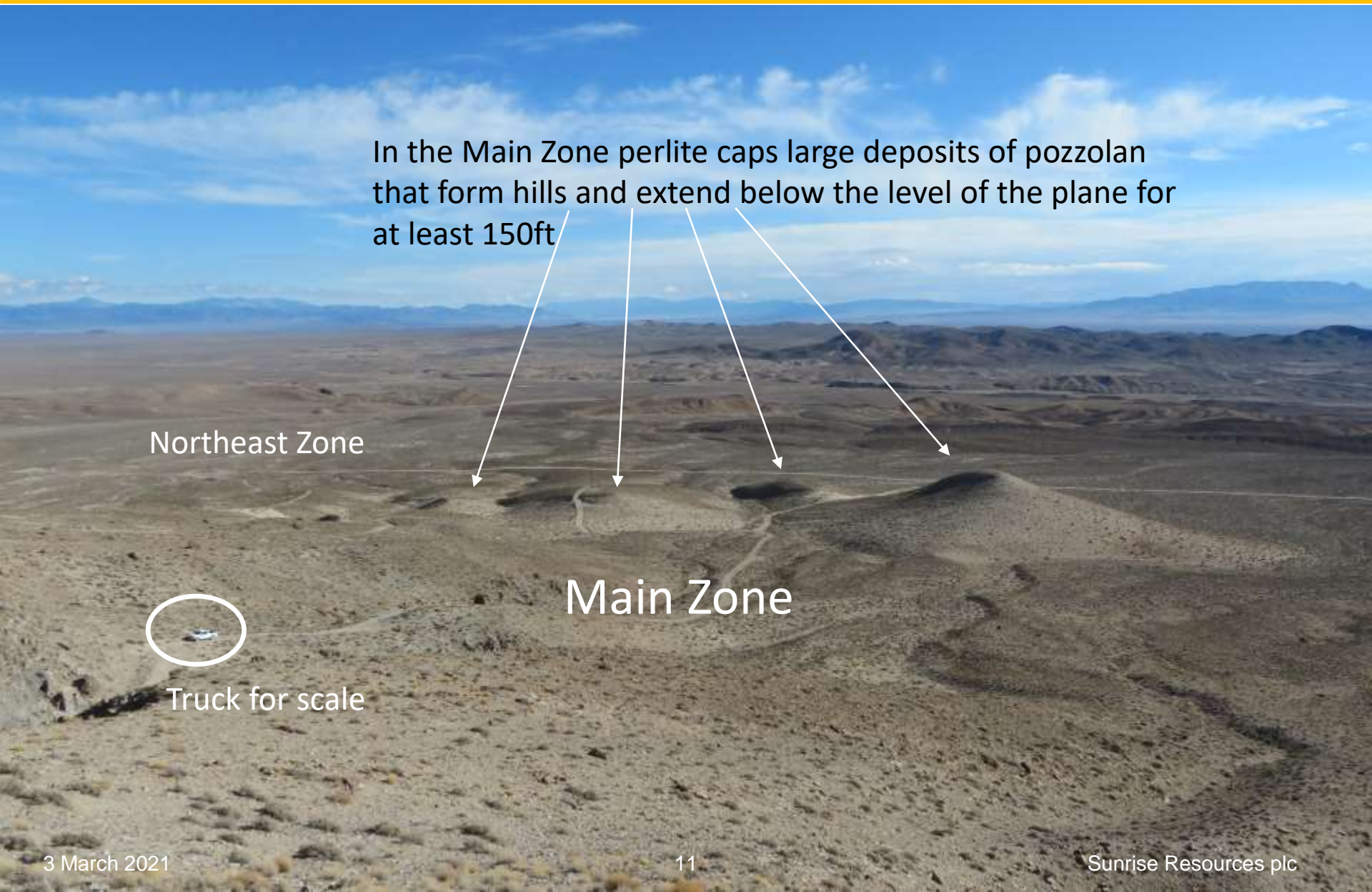


Tuff Zone Tuff-type pozzolan





# CS Project – Main Zone Pozzolan





# CS Project – Tuff Zone

In the Tuff Zone large deposits of pozzolan extend along the hillside and to depths of at least 200ft in drill holes

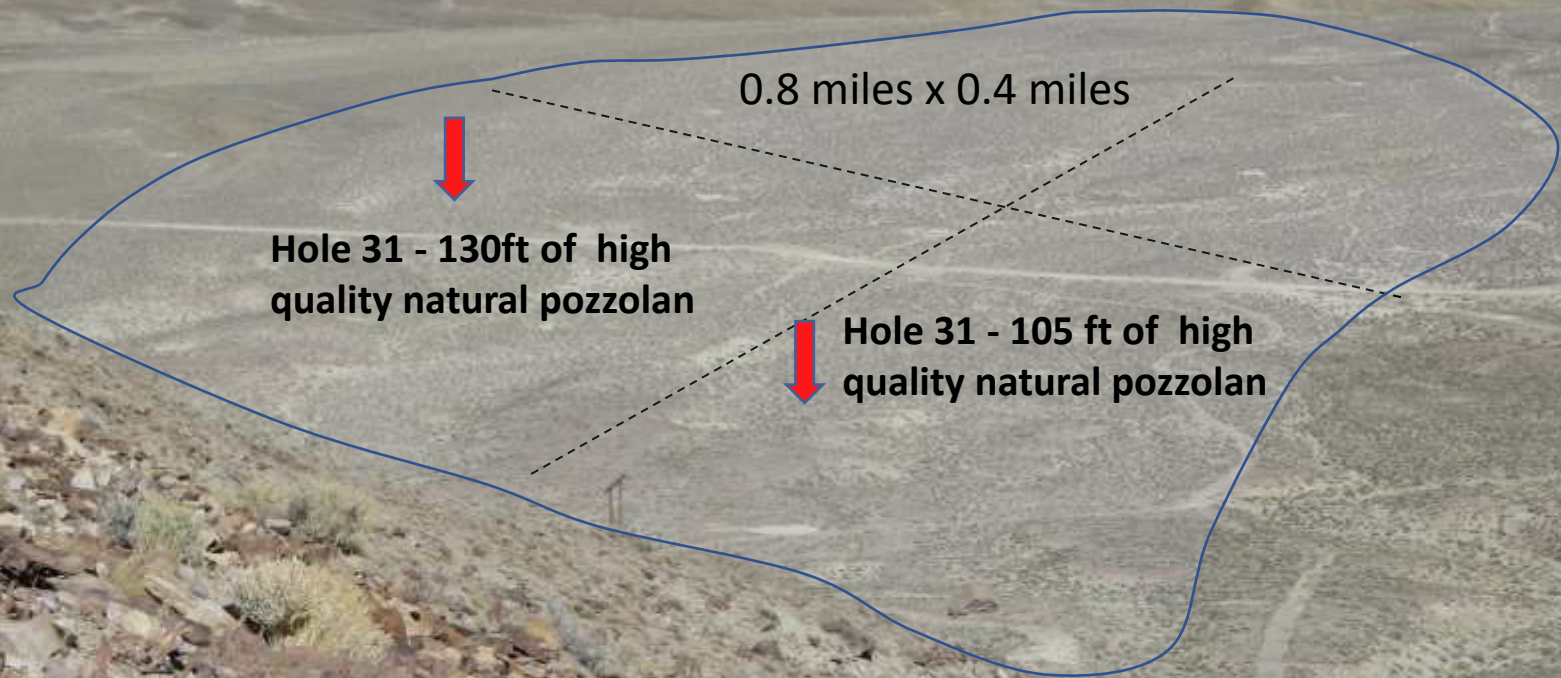
Tuff Zone

Truck for scale



# CS Project – Northeast Zone

- Largely unexplored Northern Main Zone & NE Zone
- Large basin of tephra type volcanic pozzolan – two drill holes to date.
- Large tonnage potential





# Mine Permitting in Nevada

Mine Permitting Process on public land based on surface disturbance and:

Exploration/sampling: <5 acres disturbance – Notice Level

>5 acres (most advanced projects) – Environmental Assessment of Exploration Plan under NEPA (National Environmental Policy Act)

Mine Plan of Operations: Under NEPA

- If no Significant Environmental Impact – Environmental Assessment
- Significant Environmental Impact – Environmental Impact Statement

|                   | Notice level<br>Exploration Drilling<br><br>( <5 acres disturbance)   | NEPA Exploration plan<br>(extensive drilling /trial mining)<br><br>( > 5 acres disturbance)   | NEPA Mine Plan<br><br>Environmental<br>Assessment (EA)                                   | NEPA Mine Plan<br><br>Environmental Impact<br>Statement (EIS) |
|-------------------|---|---|--|---|
| Metallic Deposits | Notice: 1 month   | EA: 2 years   | EA: 2 Years  | EIS: 2-5 years  |
| CS PROJECT        | Notice: 1 month<br><br>Unable to take large bulk samples due to acreage limits (has impacted customer trials) | Not undertaken<br><br>Industrial minerals have more continuity and lower resource risk<br><br>Keen to shorten overall time frame for production | EA: 2 years<br><br>Now able to take large bulk samples under approved Plan of Operations | Not applicable as no toxicity issues or chemical processing   |



# CS Project – Mine Plan

Approved Mine Plan – Mine to be developed in phases:

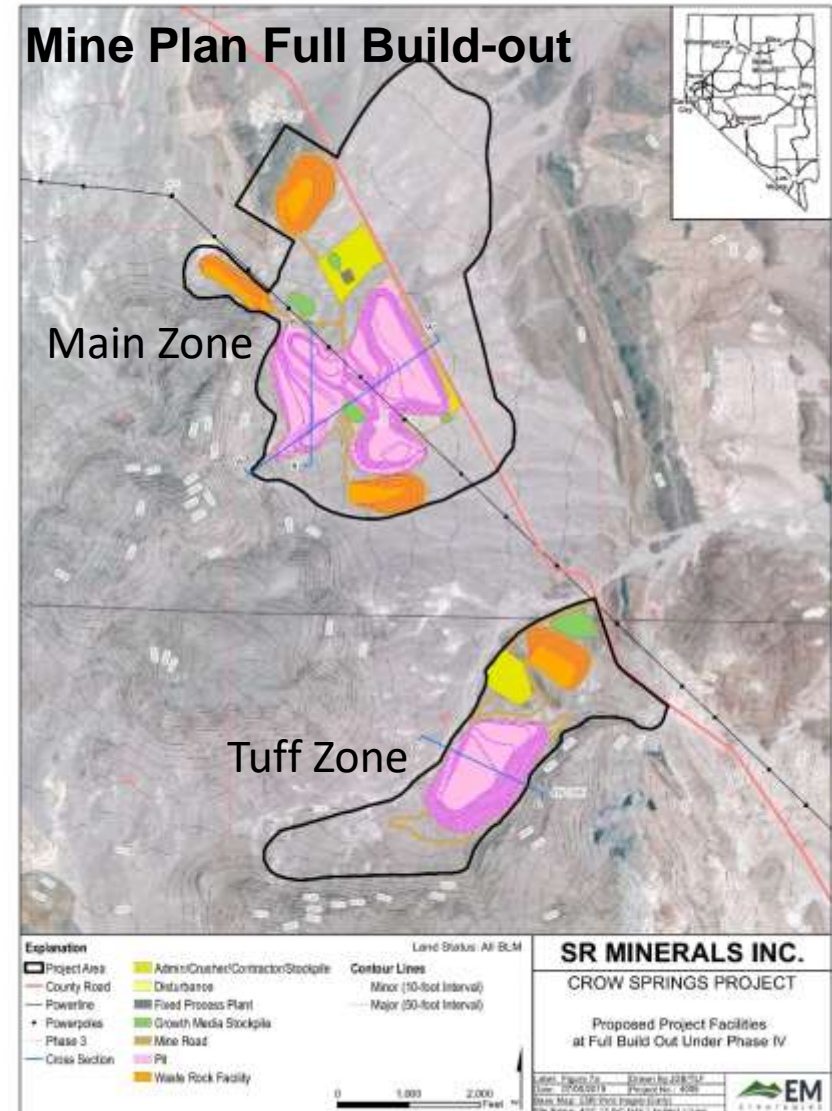
27-year mine plan includes four-phase pit design targeting production of:

- 14.5 million tons of pozzolan starting at rate of 100,000t per year climbing up to 500,000t per year.
- 1.3 million tons perlite starting at minimum rate of 20,000t per year climbing up to 100,000t per year (for 15 years).

Low strip ratios: 0.25 tons waste per ton ore in Main Zone, 0.16 in Tuff Zone, most waste mined after Year 8.

Mining in Main Zone in years 1-15.

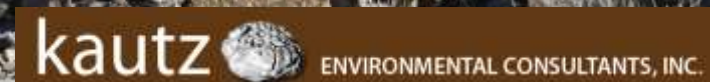
Mining in Tuff Zone in years 15-27.



# CS Project – Mine Permitting

## Major mine permitting work completed (September 2020)

- Project is on Federally owned land - Lead regulatory authority is US Bureau of Land Management (BLM).
- Mine Plan authorised by BLM.
- Reclamation permit issued by Bureau of Mining Regulation & Reclamation.
- Air Quality Operating Permit approved by Nevada Division of Environmental Protection.
- Road use/indemnity and maintenance agreement in place with County.
- Transmission use Agreement in place with NV Energy.
- Right of Ways granted for water well development.
- Water rights leased from Liberty Moly.
- Water permit granted by Nevada Division of water Resources.
- Minor short lead-time permits to be obtained prior to mine start-up.





# CS Project's Green Credentials



Maximum annual production of natural pozzolan from the Project would displace over **500,000 metric tpy of CO<sub>2</sub>** production that could otherwise be emitted from an equivalent tonnage of Portland cement production and consumption in the absence of natural pozzolan and/or fly ash replacements or CO<sub>2</sub> capture.

Equivalent to:

- average annual CO<sub>2</sub> emissions from over 10,400 US households, or
- the carbon sequestered by over 8.2 million tree seedlings grown for ten years (EPA 2019b), or
- 65 percent of the incremental CO<sub>2</sub> emissions resulting from annual net migration into Nevada in 2019.



# CS Project – Production Options

## Pozzolan:

**Low Capital Cost Start up Option (c. \$1m)** –  
Sell run of mine ore to cement companies –  
Commercial trials in progress.

- Low risk, lower cost but lower value product.

**Investment Option (c.\$20-30m)** – Build a grinding facility (off site) to produce a fine ground pozzolan for sale to the cement *and* ready-mix concrete markets.

- Requires capital investment - higher value product with larger market.



# CS Project – Production Options

## Perlite:

### Low Capital Cost Start up Option (c.\$2-3m)

Produce only coarse horticultural grade raw perlite using contract mobile crushing and screening operation.

- Low risk, lower cost single perlite product with by-product pozzolan for sale to cement companies.

**Investment Option (c. \$10 million)** - Build a fixed perlite processing plant to produce a range of perlite products for horticulture and industrial applications. Preliminary plant design completed.

- Require higher capital investment but achieves higher utilisation of the perlite resource for perlite markets.

Mobile crushing & screening plant



Perlite screening plant Milos, Greece

# CS Pozzolan – Commercial Trials

## Stage 1 - 2019

- 100-ton bulk sample mined and submitted to potential customer (cement company).
- Bulk sample ground in production clinker mill to produce a finished ground pozzolan product.
- Tested for compliance with ASTM C618.
- Scale up from lab results confirmed.

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**[2019-2020 Break for Mine Permitting]**

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## Stage 2 - 2020-21

- 500-ton bulk sample mined and submitted to large cement and ready-mix company (CRMC).
- Scheduled for grinding by end March 2021.
- Ground pozzolan to be tested in a number of real-world concrete jobs.





# CS Perlite – Commercial Trials

## Stage 1 – 2018-19

- Few tons of graded perlite submitted to two separate potential customers where offtake MOUs already in place.
- Short commercial scale test runs completed.
- Expanded horticultural grade perlite produced with good yields in good agreement with laboratory tests.

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**[2019-2020 Break for Mine Permitting]**  
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## Stage 2 - 2020-2021 Ongoing

- 100-ton bulk sample processed to produce graded perlite - submitted to multiple separate potential customers including Stage 1 customer.
- Sample crushed and screened too fine.
- 200-ton sample extracted December 2020, further tests planned



# CS Project – CRMC 500-ton bulk sample December 2020





# CS Project – Perlite 200-ton bulk sample December 2020





# CS Project – Perlite Processing 2020



Crushing plant



Screening plant



Screening plant

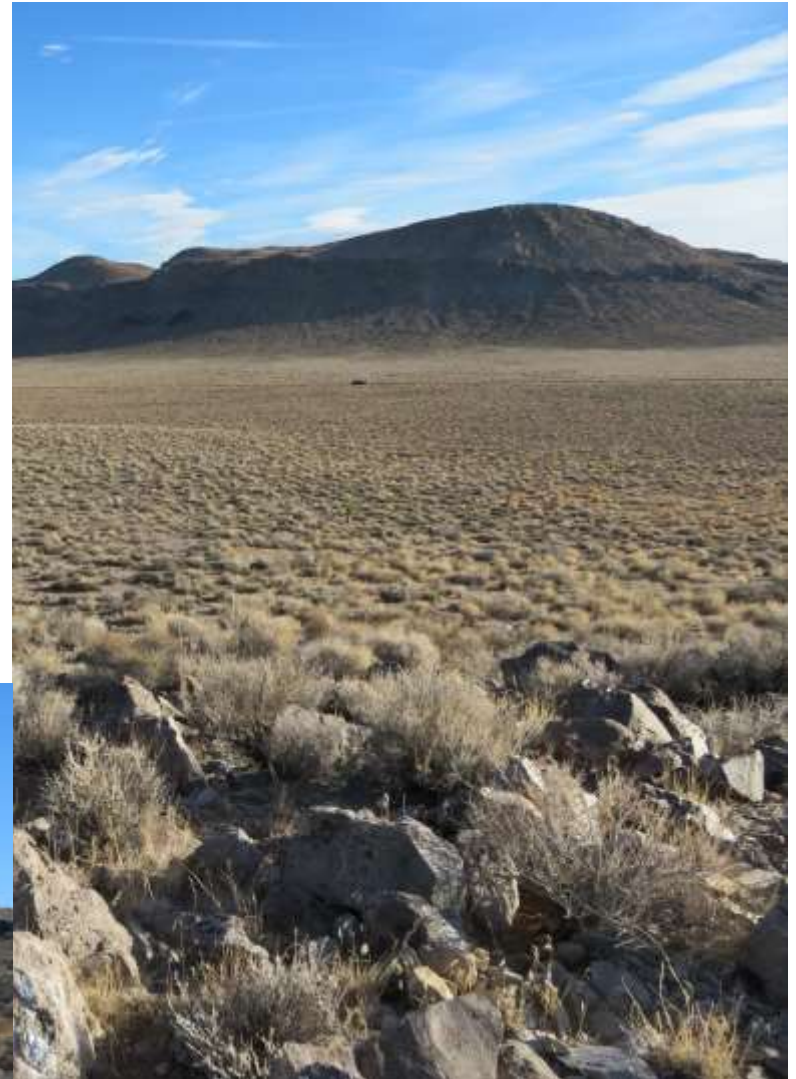
# NewPerl Perlite Project

## A future source of feed for the CS Project?

- Located 85 miles from CS Project.
- Company prospecting discovery following up anomalous areas identified using in-house exploration technique that led to discovery of CS Project deposits.
- Large hills of outcropping perlite discovered. In two areas – NewPerl and Jackson's Wash.
- Initial application testing suggests NewPerl perlite is suitable for production of horticultural grade expanded perlite.
- Drill programme planned and permitted.



3 March 2021



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# Clayton Silver-Gold Project, Nevada

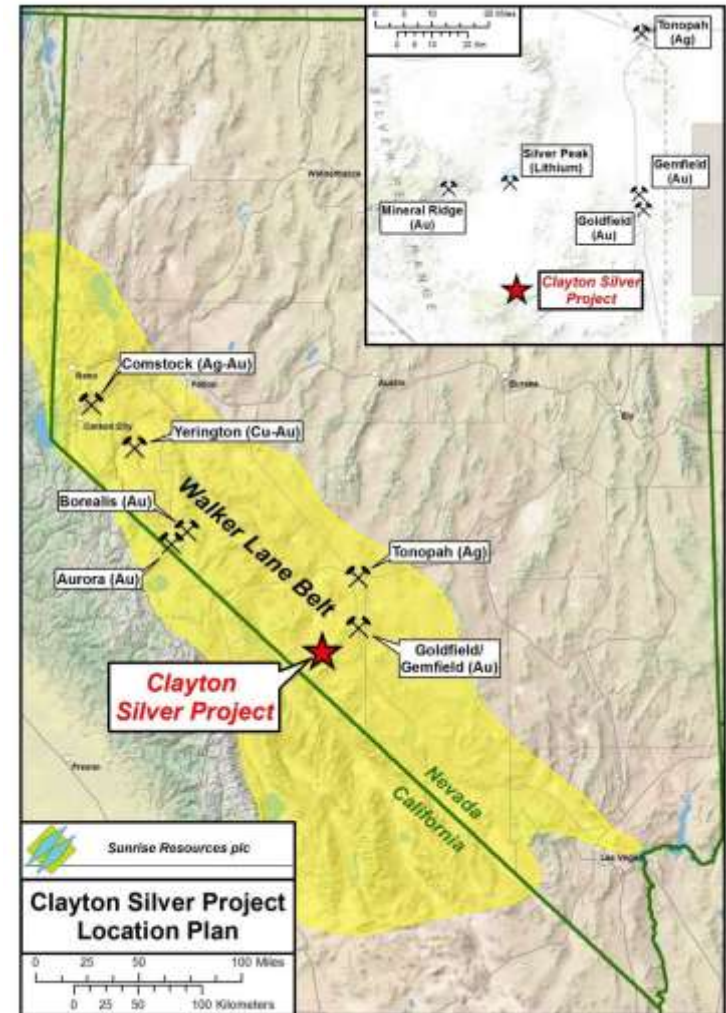
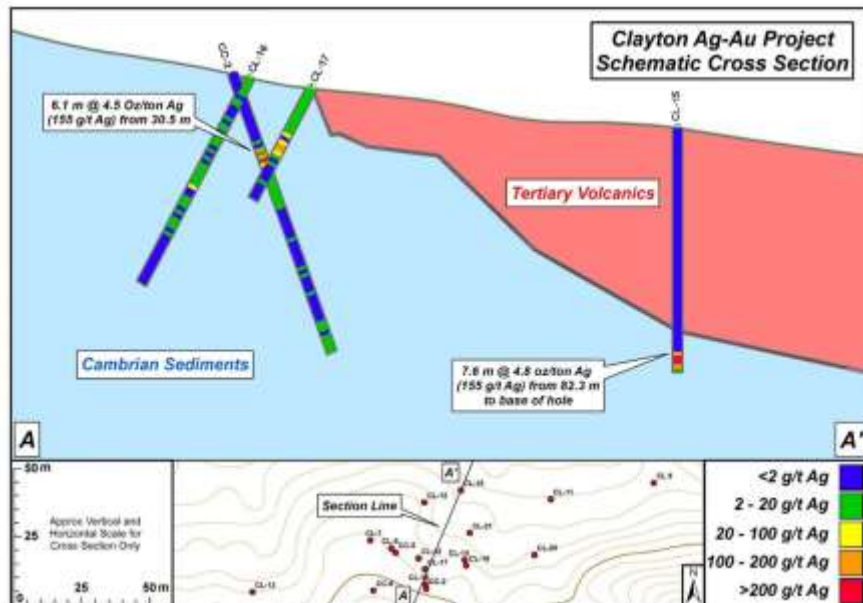
## Historic Exploration

Significant silver intersections in historic drilling with a number of holes ending in mineralisation, e.g.

Hole CL-15: 7.6m grading 4.8 troy ounces/ton (165 grammes/tonne) silver from 82.3m depth to the base of hole.

A number of holes ended in mineralisation or did not reach the target depth. Grades were thought to be understated due to loss of fine silver-bearing sulphide minerals during the RC drilling programme.

Drill Hole completed in October 2020 to twin historical hole CL-15.





# Clayton Silver-Gold Project, Nevada



Drilling completed October/November 2020



3 March 2021



# Clayton Silver-Gold Project, Nevada

Ground conditions very difficult – highly fractured – significant core loss and broken core in the mineralised intervals.

Massive quartz vein and quartz breccia intersected in target zone between 83.52m and 91.44m downhole (true thickness unknown) containing fine grained disseminated sulphides including mineral logged as the silver sulphide mineral acanthite.



3 March 2021



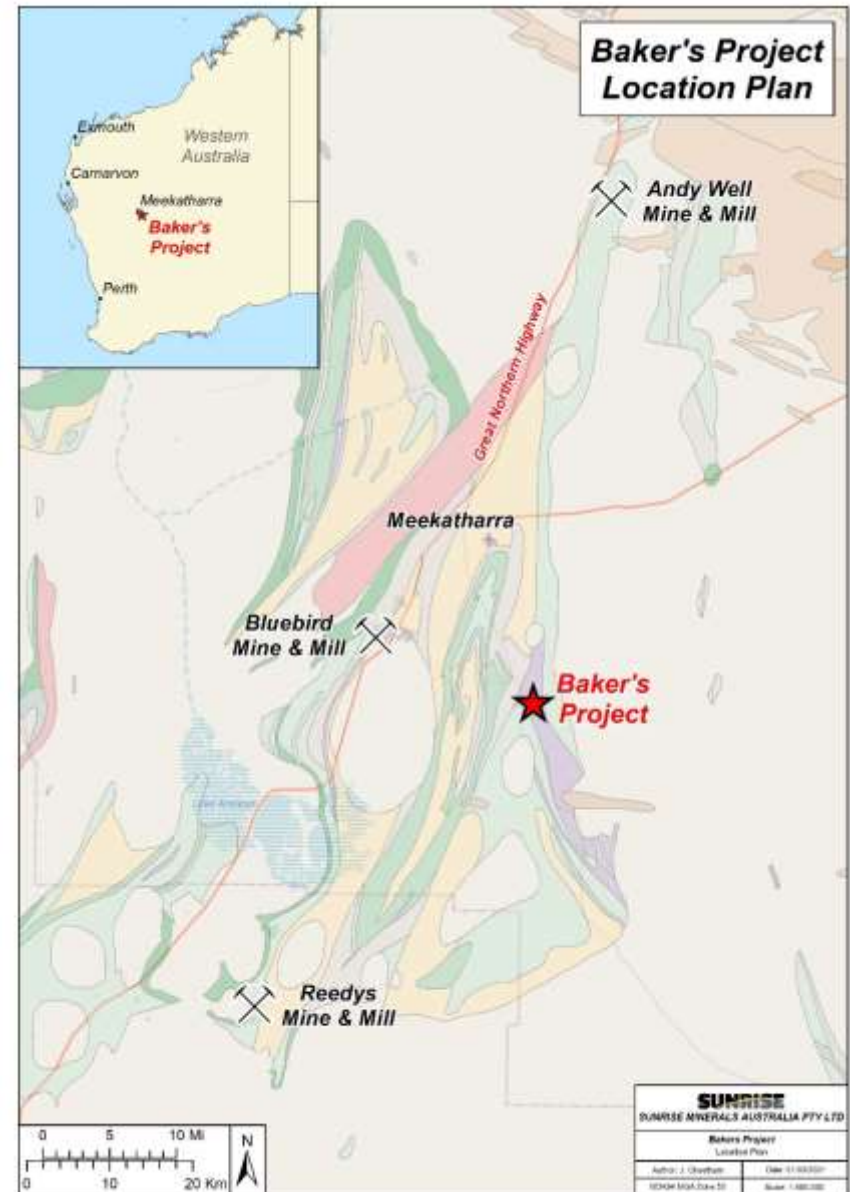
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# Baker's Gold Project – Australia

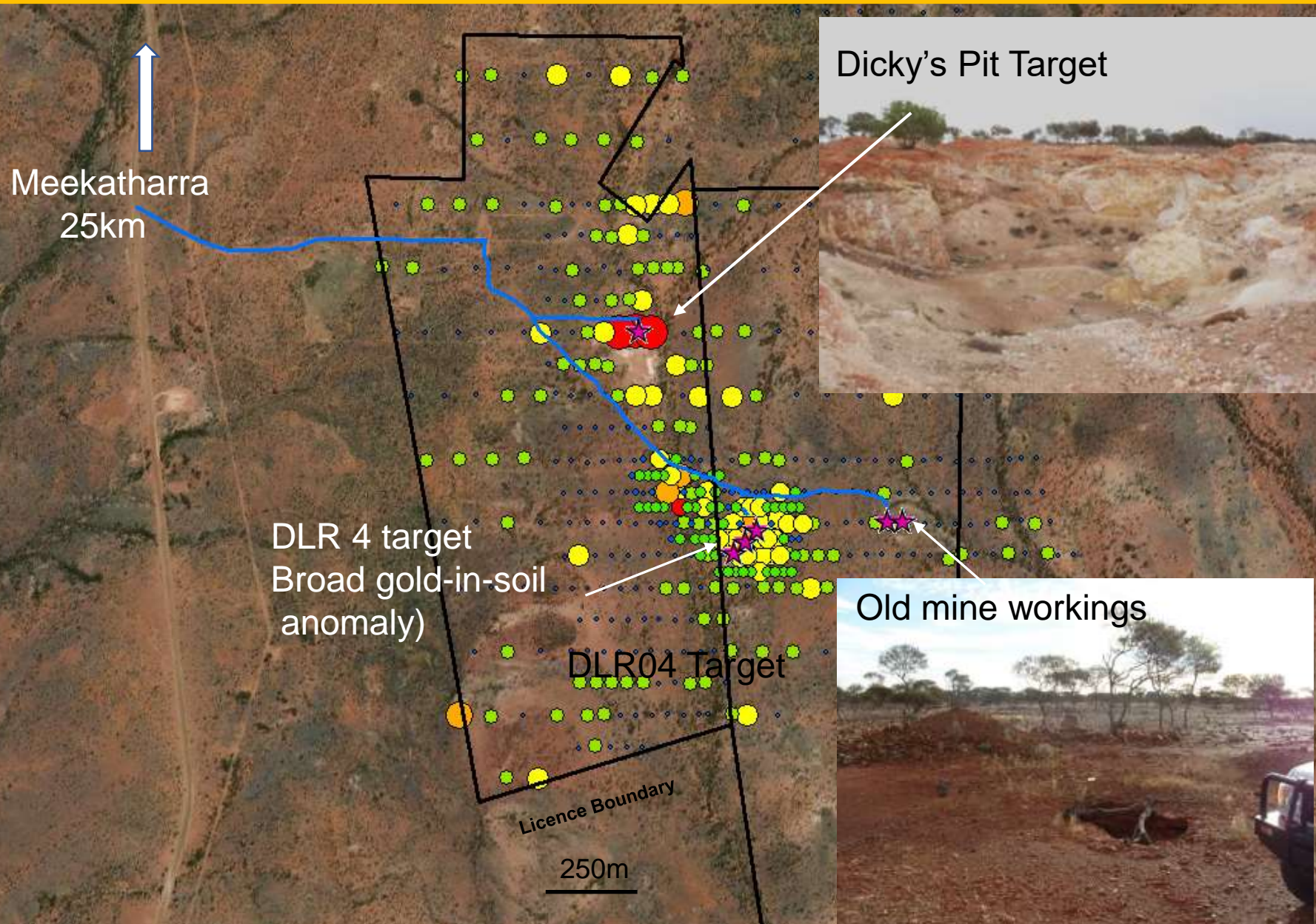
- Drilling provisionally scheduled for end of March 2021.
- Archaeological (Aboriginal site) survey completed for drill sites access, etc.
- Ethnographic survey completed for the whole of the Bakers Project.
- No archaeological sites were identified within the three proposed drill areas, and
- No ethnographic issues were identified by Yugunga-Nya representatives as being within tenements P51/2837 and P51/2884.





# Baker's Gold Project – Drill Targets

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# Directors



Patrick Cheetham  
Executive Chairman

A geologist with 40 years in exploration management and 35 years as executive director of publicly traded companies. Currently Executive Chairman Tertiary Minerals plc.



David Swan  
Senior Non-Executive Director

Chartered Accountant. Former Group Leader in Mining and Resource Group, Ernst & Young, Sydney and former CFO of Oriel Resources. Currently a director of Central Asia Metals plc.



Roger Murphy  
Non-Executive Director

Formerly CEO Power Metal Resources plc and MD Investment Banking, Dundee Securities Europe Ltd. Worked as a geologist for various companies, including Anglovaal Mining and British Petroleum.



# Key Advisers & Consultants



## **Buster Hunsaker (Hunsaker Inc.)**

A geologist engaged in exploration and evaluation of mineral deposits since the 1980's. Hunsaker Inc. has been providing full-service geological consulting and project management to minerals exploration companies since 1995, primarily in the western United States.



## **Joe Thomas (Magmatics Inc.)**

An acknowledged expert on the application of natural pozzolans and is a voting member of both the ASTM1 and ACI2 pozzolan committees. 20 years' involvement in the development of natural pozzolan products for market including over 16 years as Vice President – R&D at Hess Pumice Products, a leading producer of natural pozzolan in Idaho.



## **Tom Adams (KMR Collaborative)**

A geomaterials engineer with strong technical and marketing focus on construction aggregates, industrial minerals and cementitious materials including natural pozzolan. Formerly with Nevada Cement Company providing technical support to the development of its natural pozzolan business. President of the Sierra Nevada Concrete Association.

## **In.Mat-Lab**

A specialist company providing testing and consulting services for a range of industrial minerals with an emphasis on perlite. Company principals have technical and managerial backgrounds with S & B (now part of Imerys) in perlite mining and processing operations.



Working in the world's best mining jurisdictions – Nevada, USA and Western Australia.

CS Project in Nevada has large deposits of both natural pozzolan and perlite – not a single commodity project.

- Both products are experiencing strong market growth in the construction and horticultural industries and seeing price increases.
- Climate change is now a major driver for industrial change – set to accelerate under Biden's New Green Deal - both products will benefit.
- Relatively low capital costs for development – low costs options being evaluated first.
- Permitted for production – long life mine plan.
- Commercial trials in progress – both products.

Portfolio of precious metal projects at the drill stage and have potential for transformational mineral discovery and value adding:

- Drilling results imminent for the Clayton Silver-Gold Project, Nevada.
- Drilling planned for Baker's Gold Project, W. Australia at end of March





THANK YOU FOR YOUR ATTENTION

Contact:  
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