



Building on Tomingley Gold Development

Tomingley Gold Corridor



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1. Background

2. Geology

3. New Discoveries

Roswell Prospect

San Antonio Prospect

El Paso Prospect

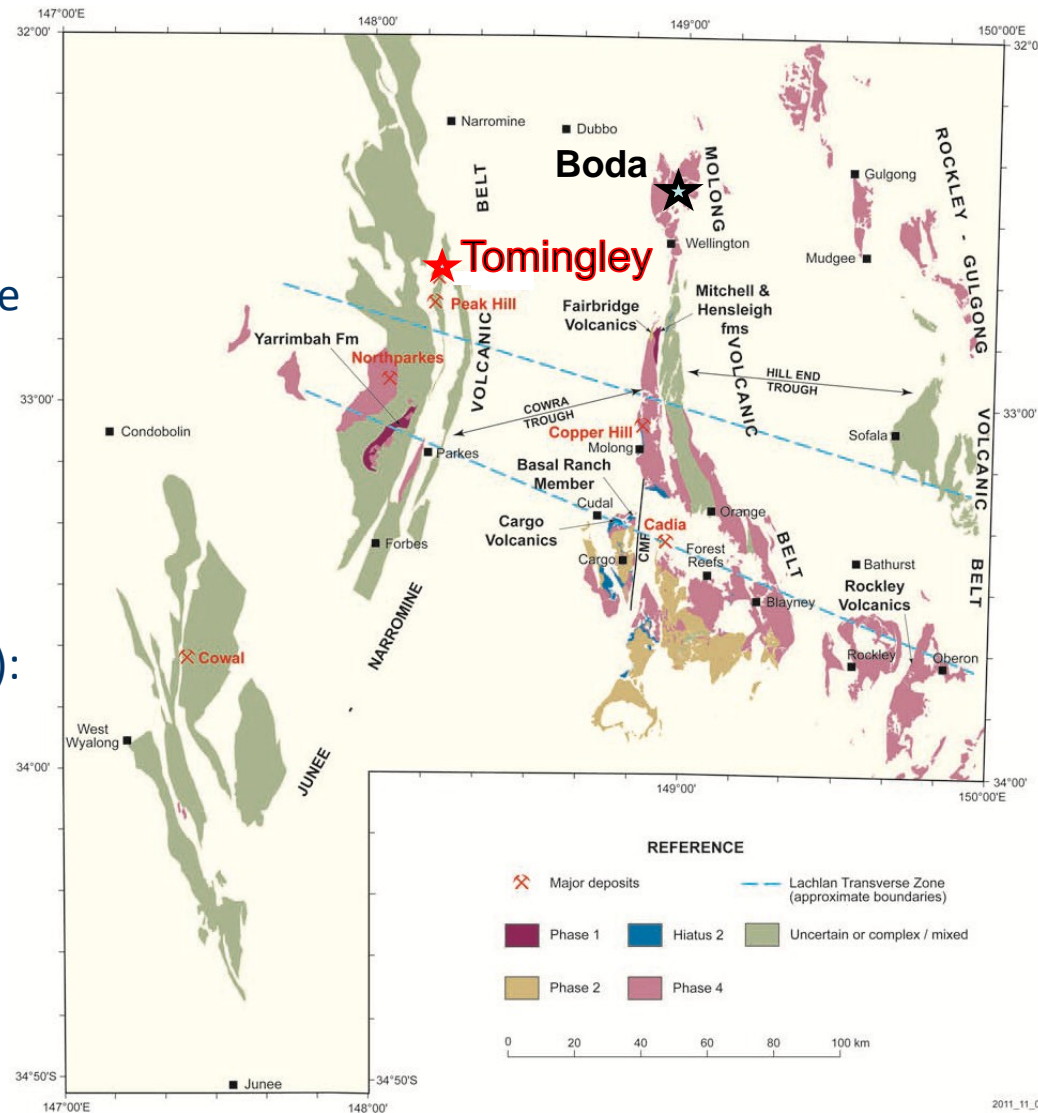
4. Geological Model

5. Conclusions



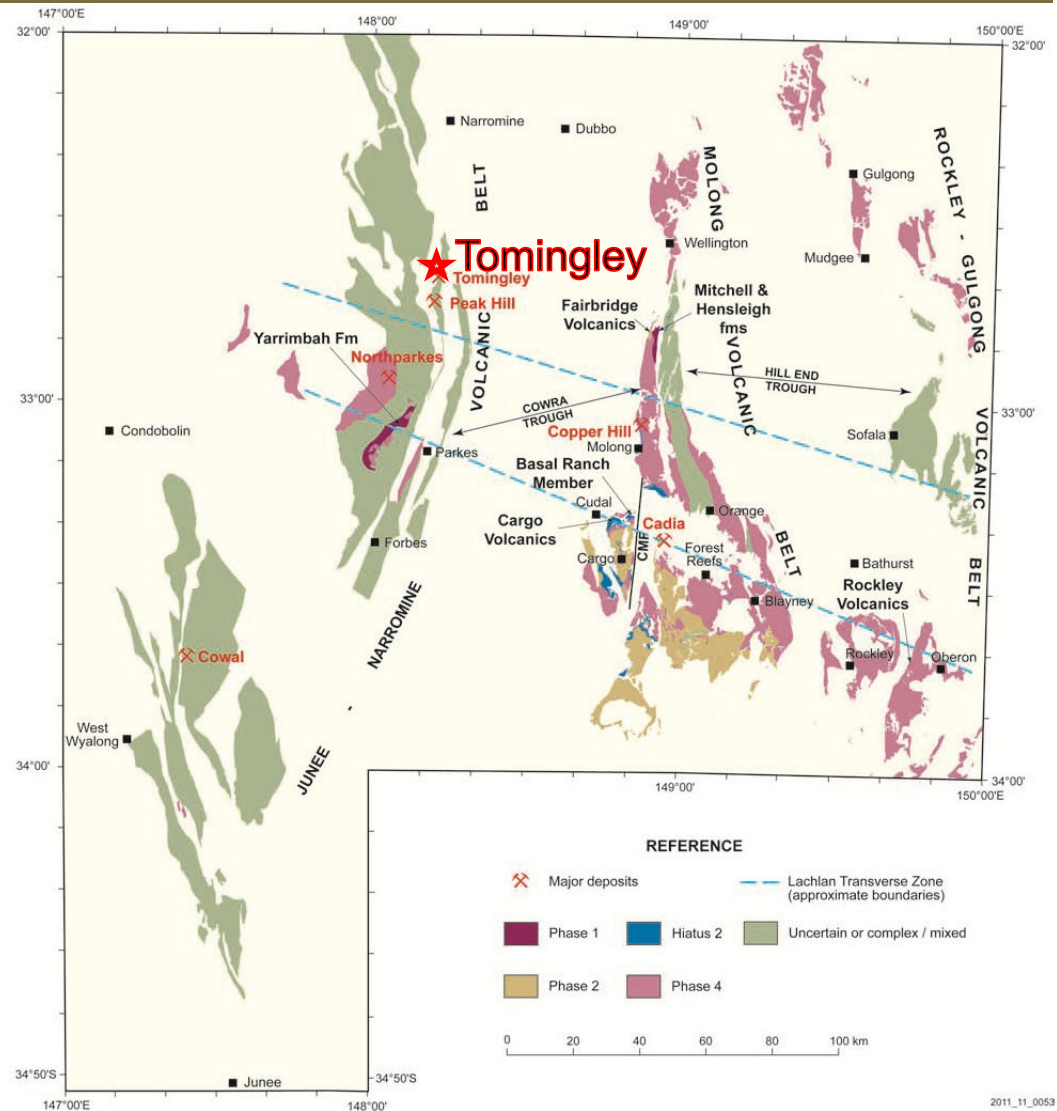
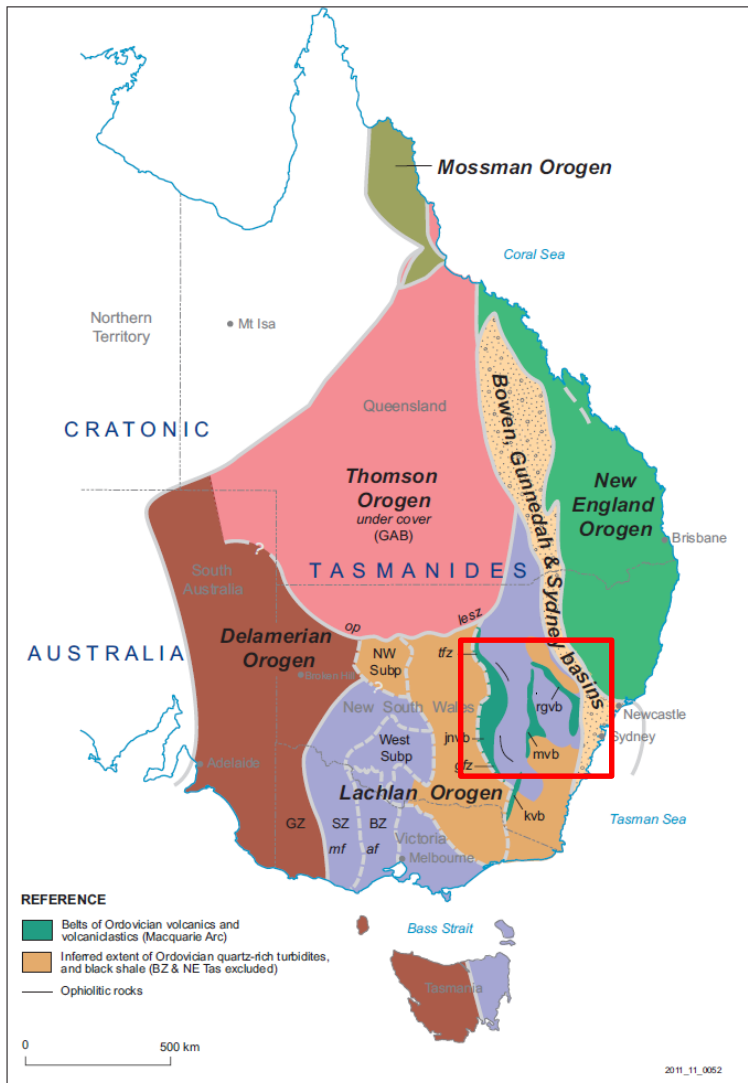


- Significant orogenic gold in Ordovician volcanics (Mingelo Volcanics)
- Mingelo Volc. hosts Peak Hill high sulphidation epithermal gold mine and the Tomingley orogenic gold mine
- Global Resource (pre mining): 14.3Mt @ 2.0g/t Au (921,000oz)
- Total mining production (June 19): 6.27Mt @ 1.95g/t Au for 393,040oz
- Open cut mining completed November 2018, underground mining development underway





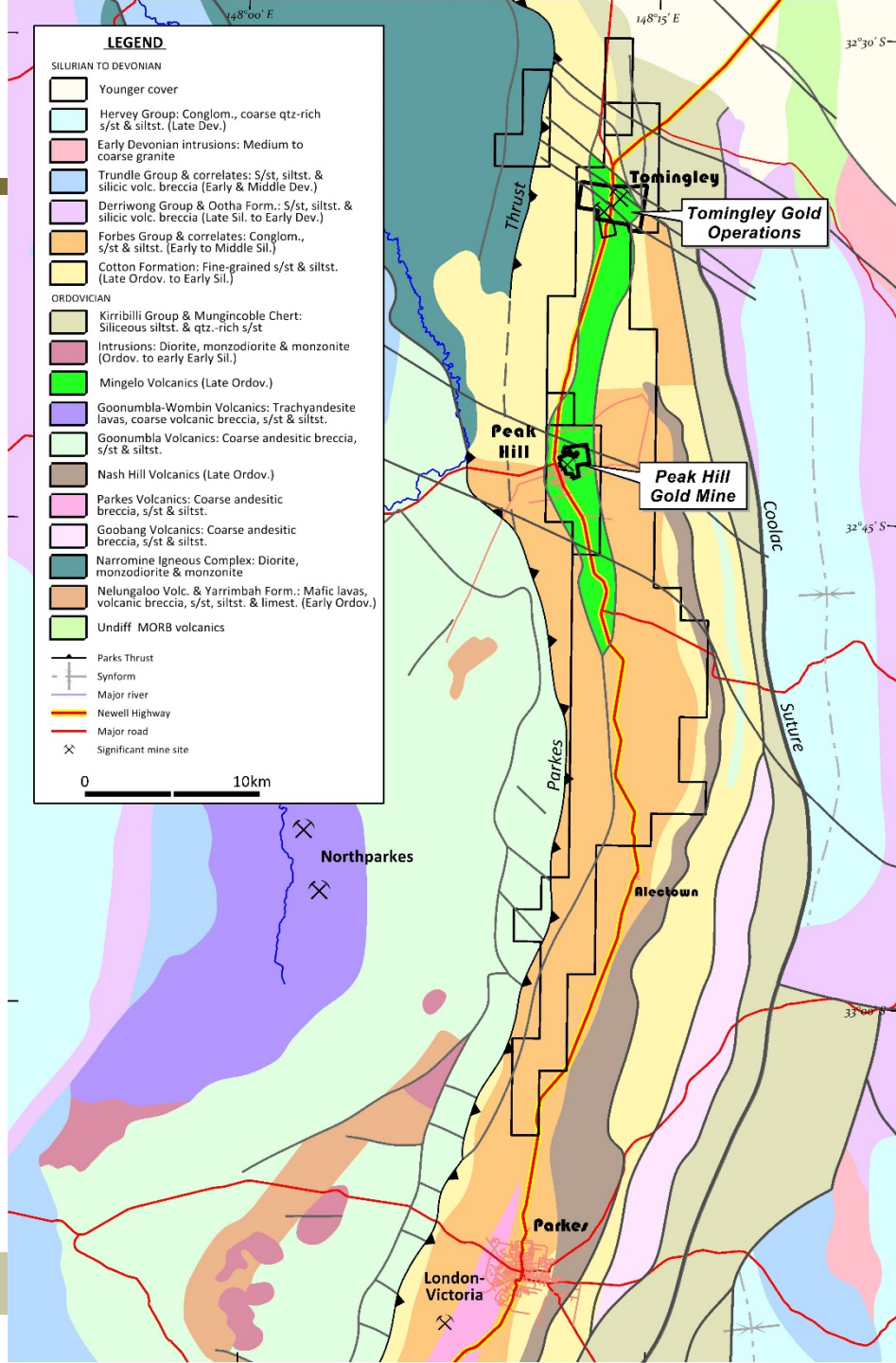
Wyoming One UG – Gold Vein



TGP Tenements Regional Geology

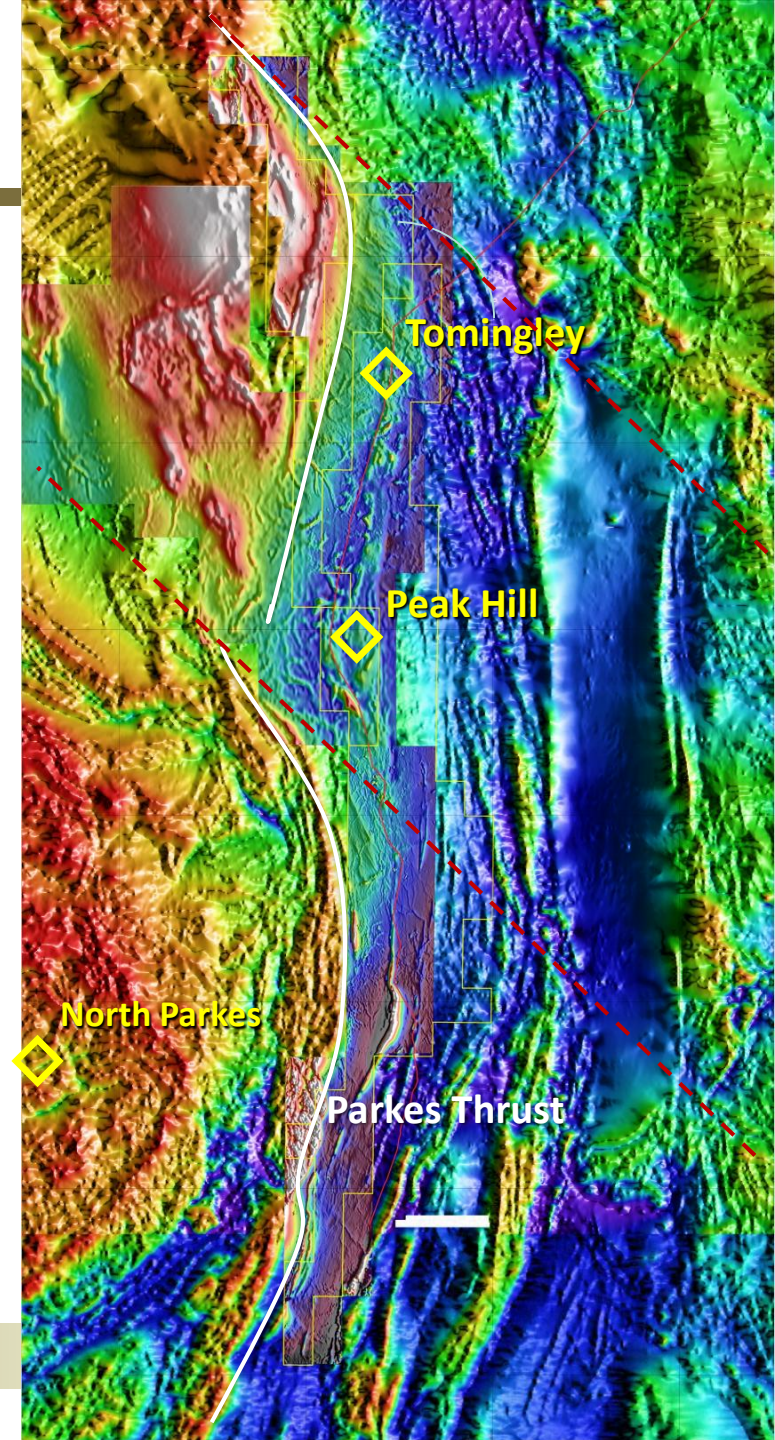


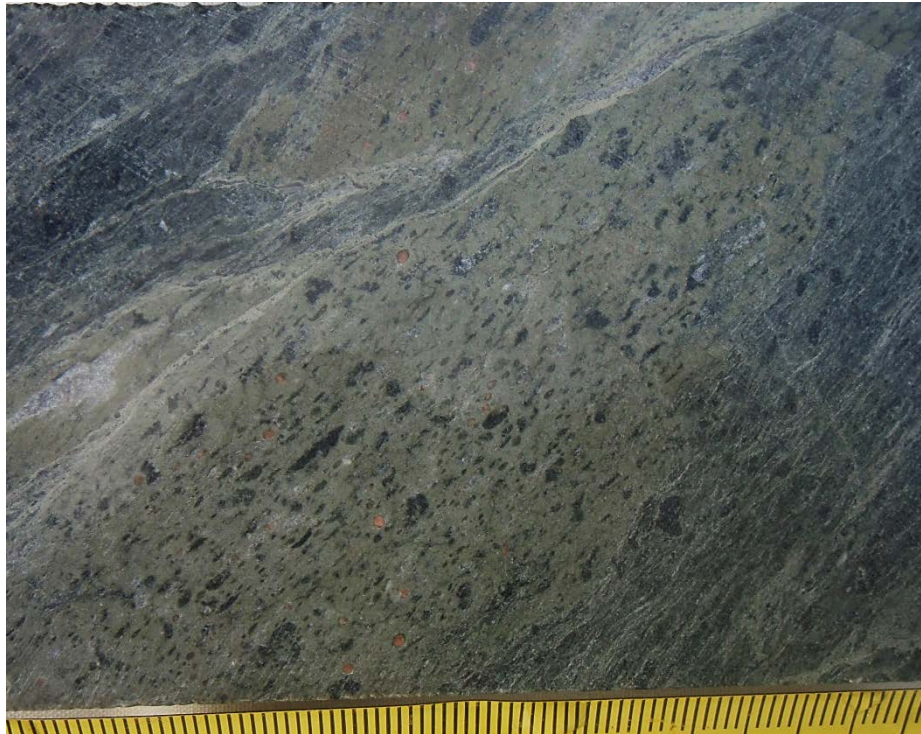
Mingelo Volcanics



Parkes - Narromine Regional Aeromagnetics

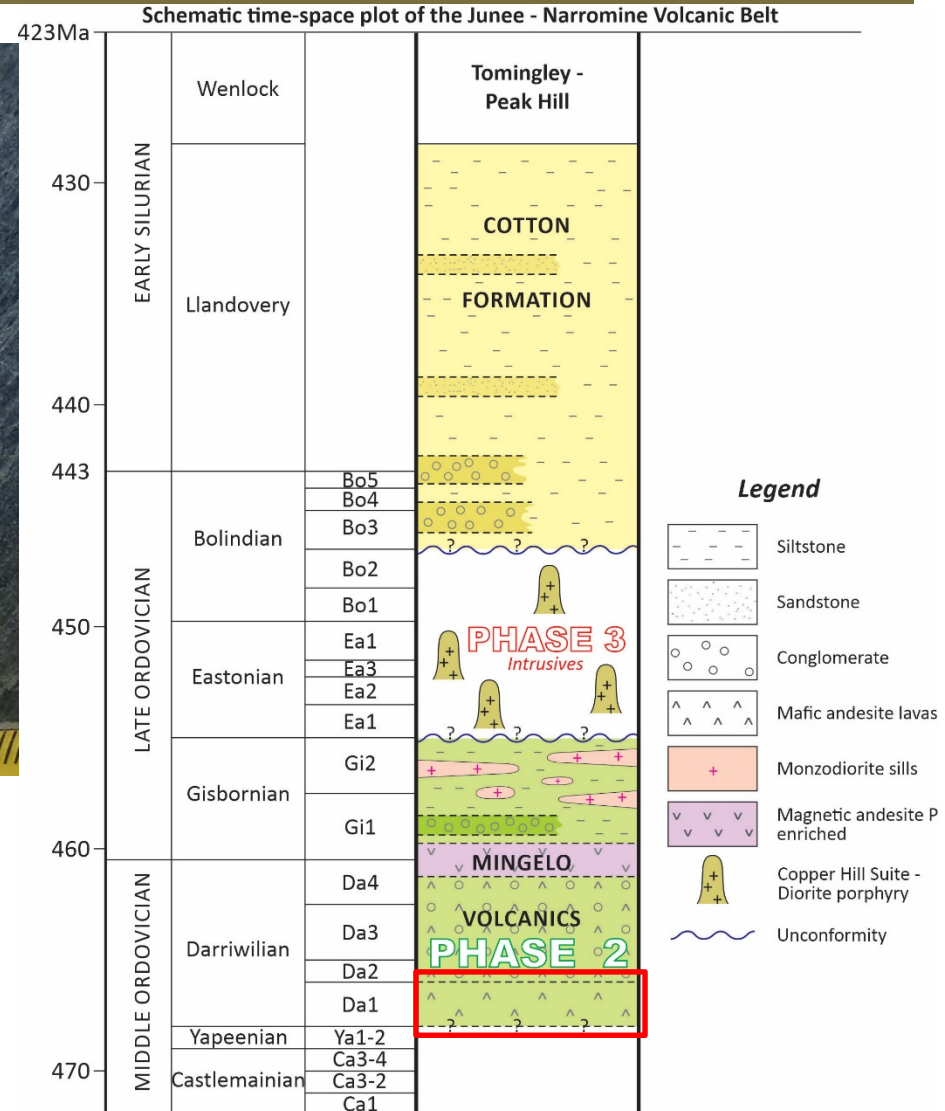
Merged
Alkane detailed with DMR regional data

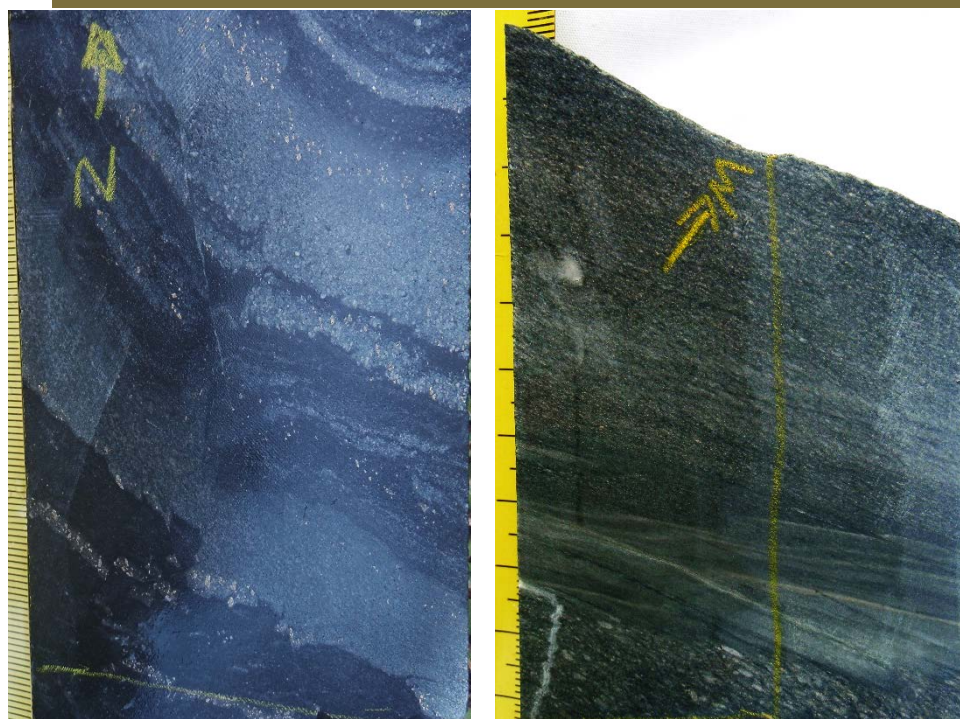




Mingelo Volcanics - 'Basal' vesicular plagioclase + olivine phyric basaltic lava

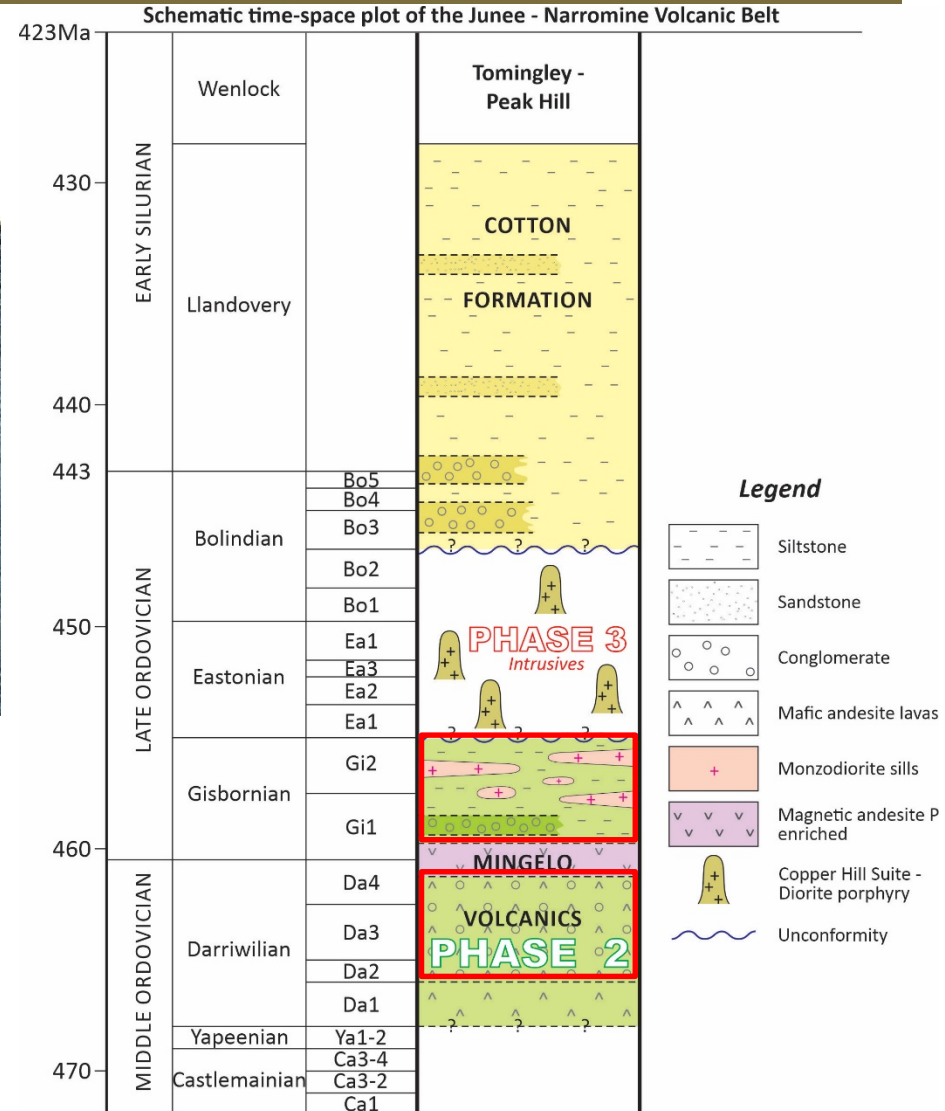
- Extensive ~500m thick unit
- Unknown base contact relationship

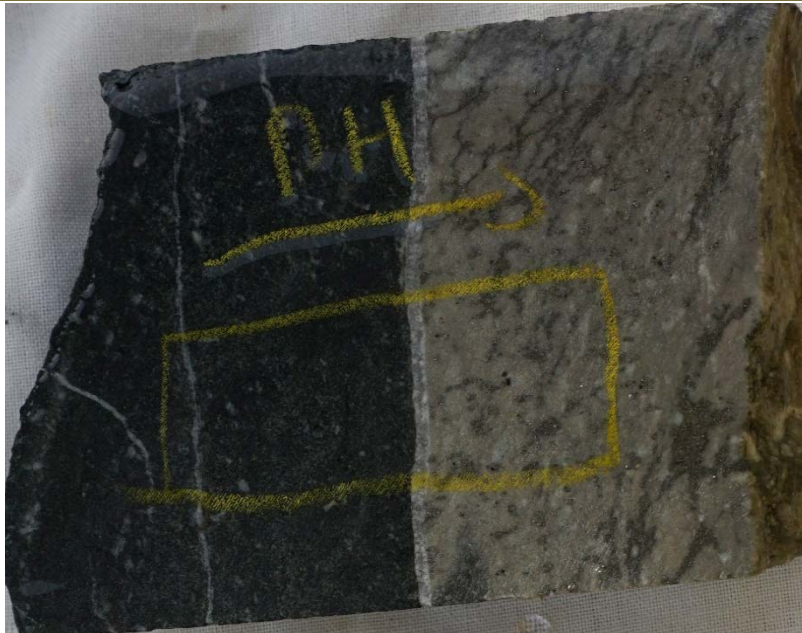




Mingelo Volcanics - Immature volcanoclastics

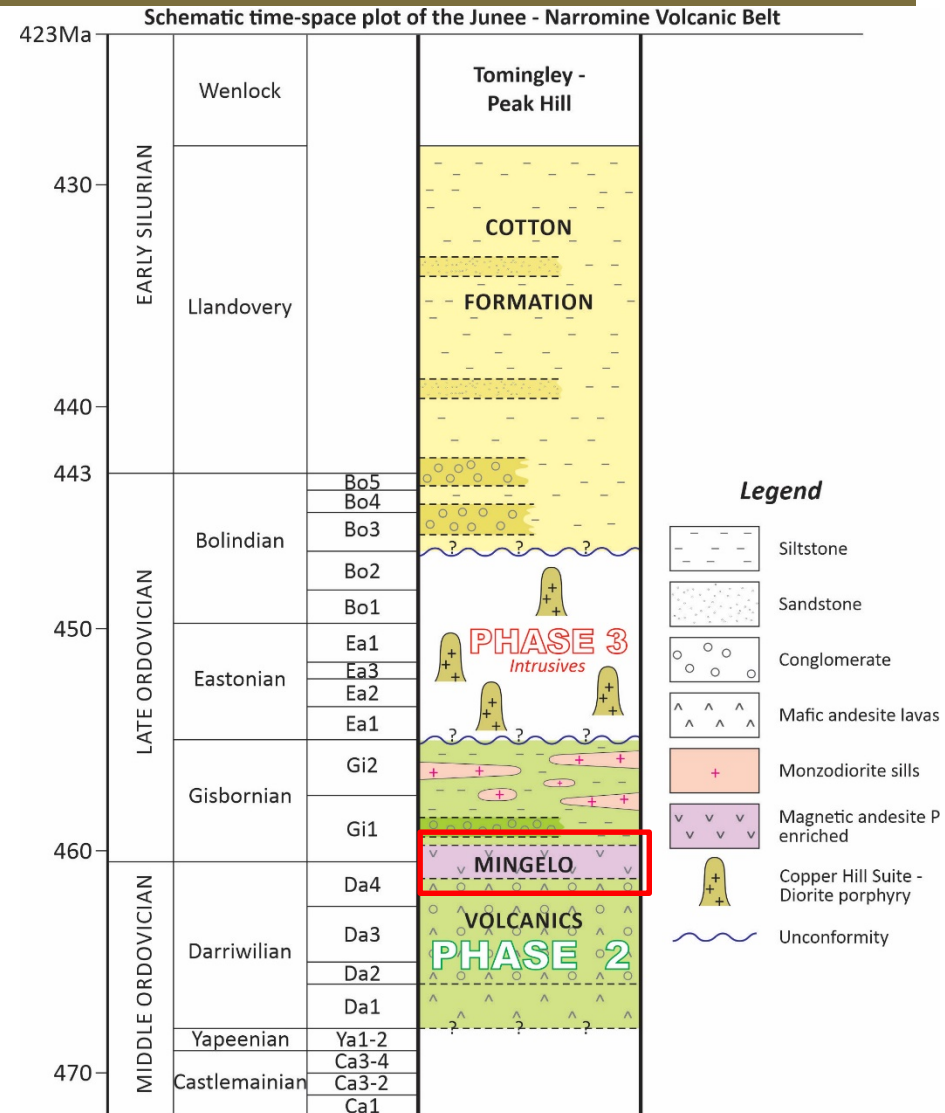
- Composed of intermediate sandstones and volcanic breccias
- Fining to volcanoclastic siltstone and graphitic mudstones north of Wyoming One deposit

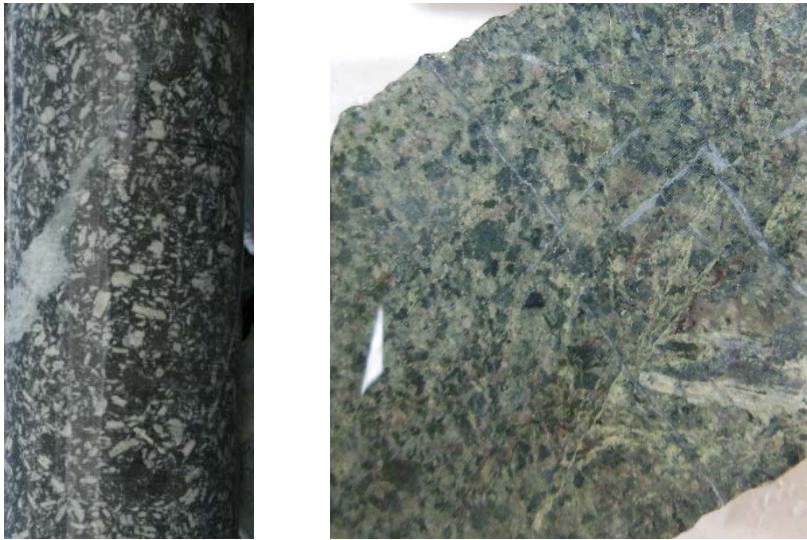




Mingelo Volcanics – Andesite

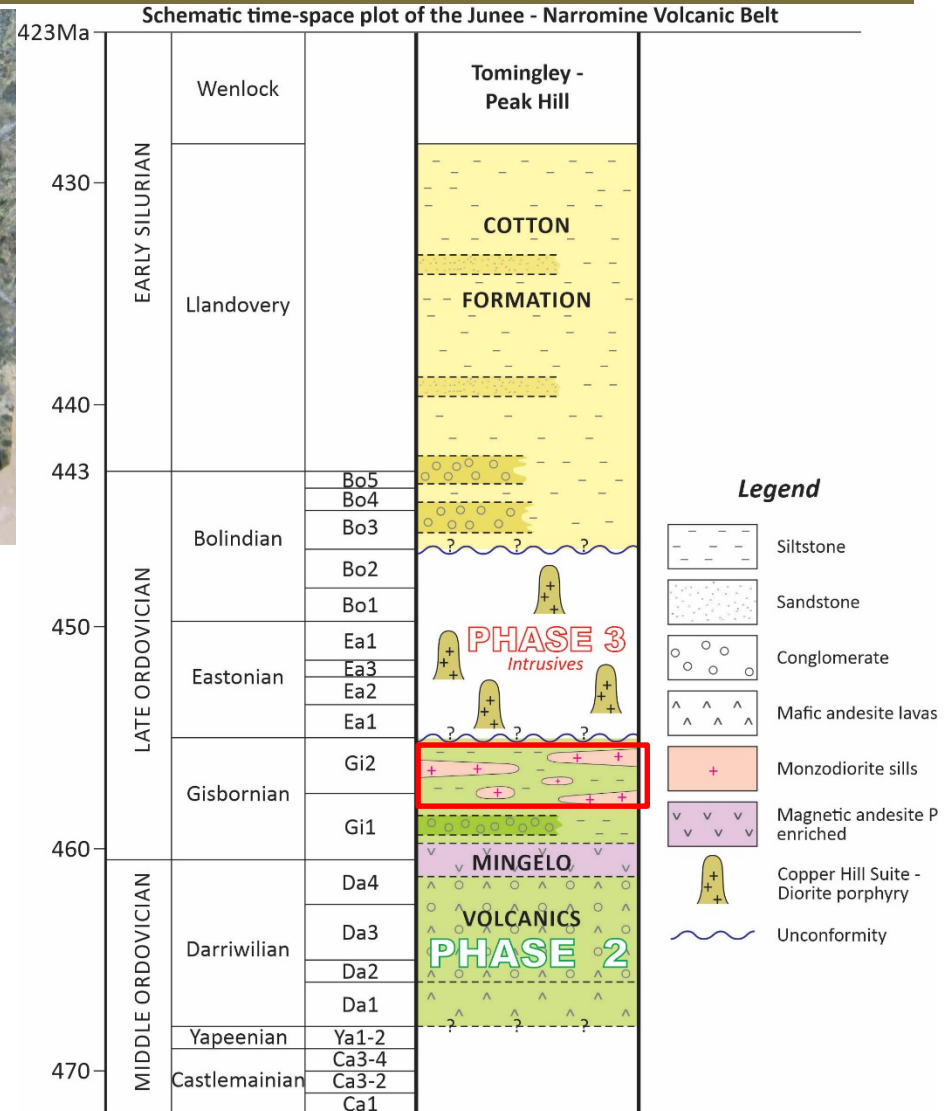
- Plagioclase phryic
- Elevated phosphorus – apatite needles
- Slightly magnetic
- 80m thick, extensive strike length from Roswell to El Paso prospects
- Hosts majority of mineralisation south of Tomingley deposits





Mingelo Volcanics – Monzodiorite

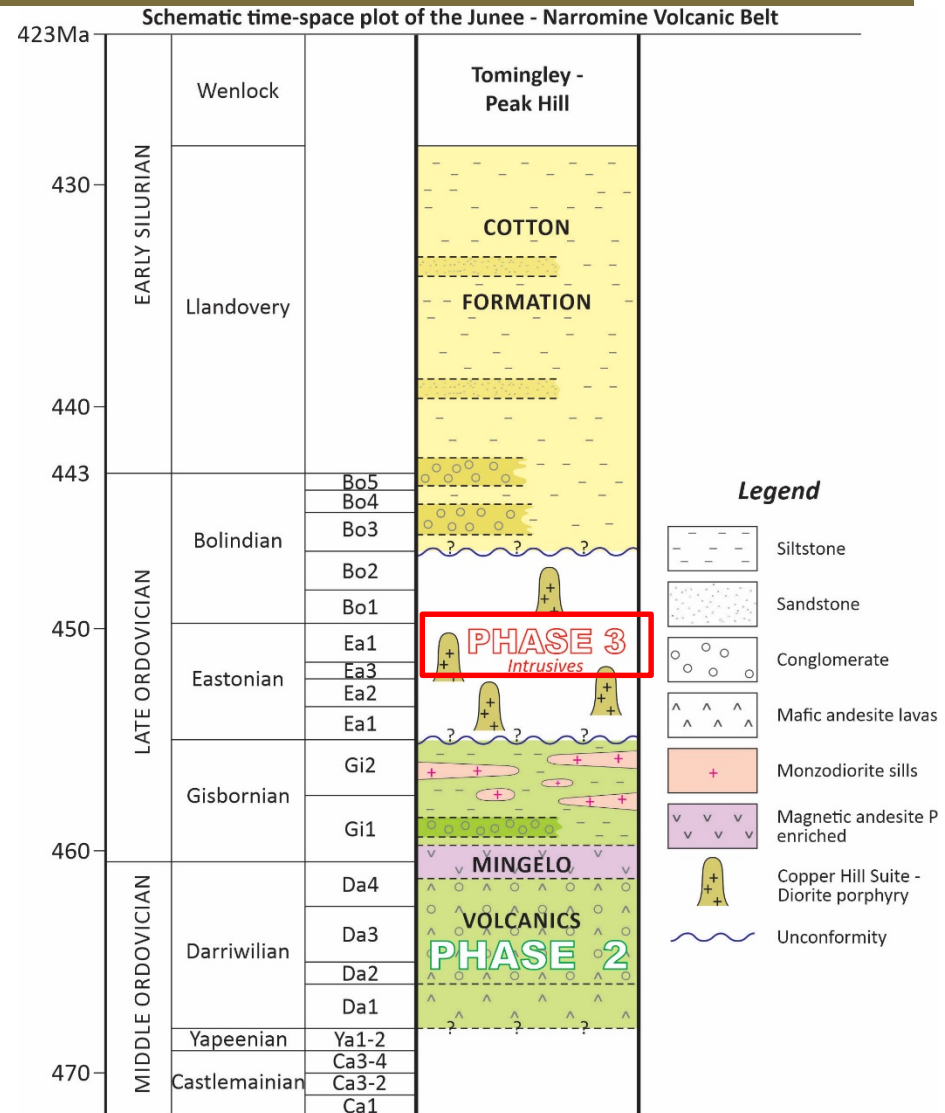
- Plagioclase + augite porphyritic
- Porphyritic sills or holocrystalline intrusives
- Hosts majority of mineralisation from north of Roswell to Tomingley deposits

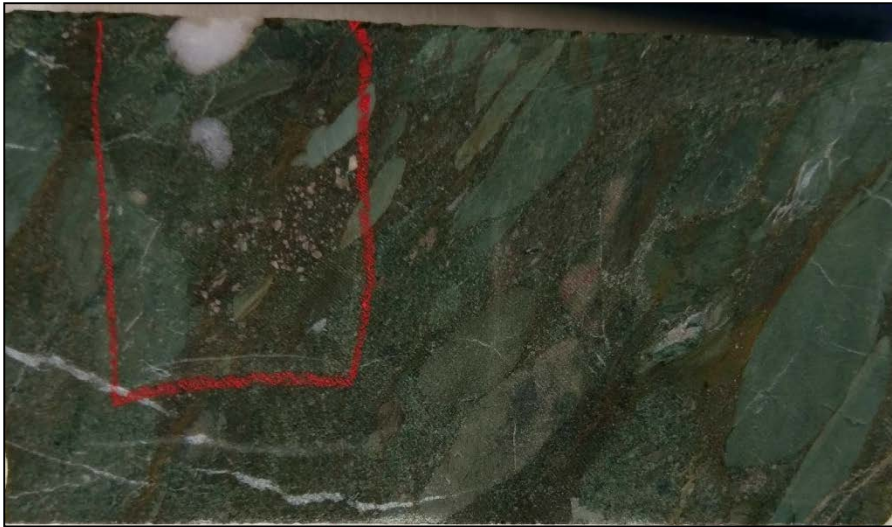




Copper Hill Suite – Hornblende + plagioclase porphyry diorite

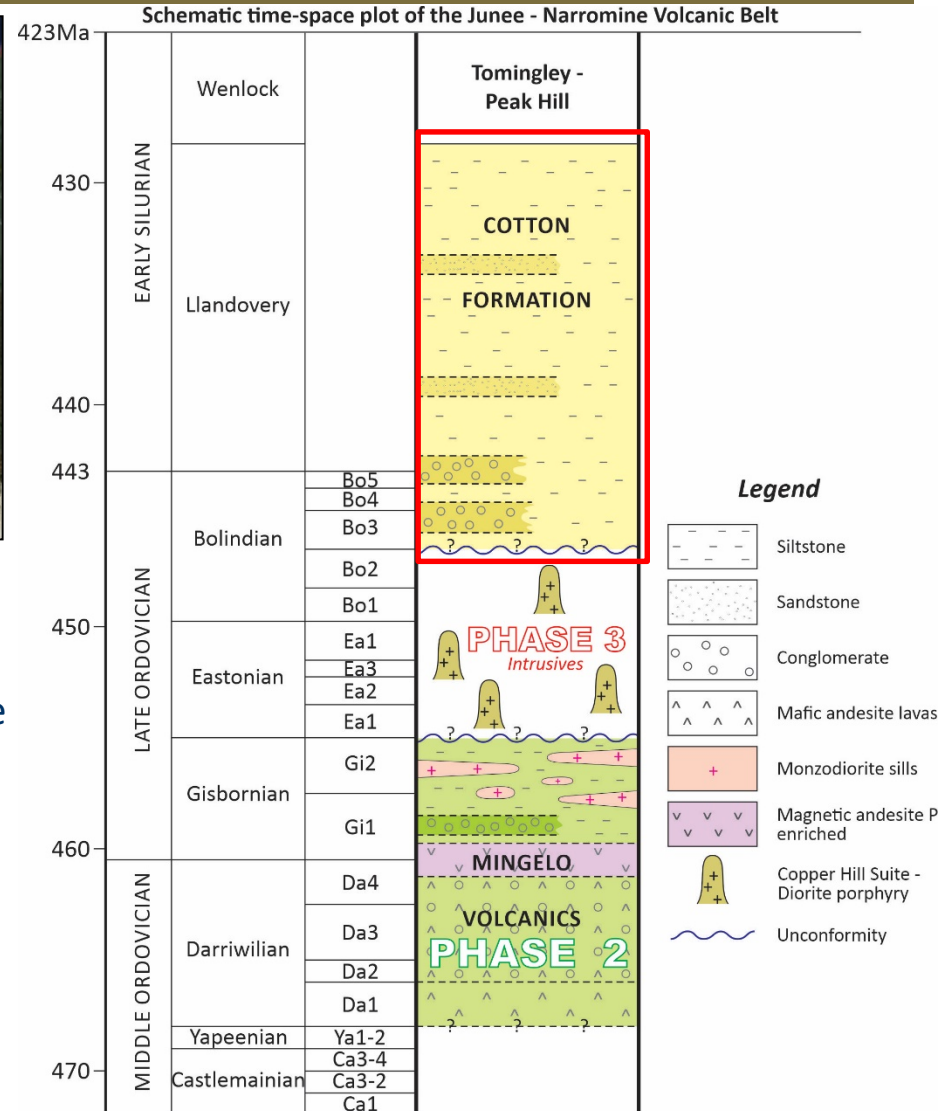
- Phase 3
- Only mapped in air-core drilling

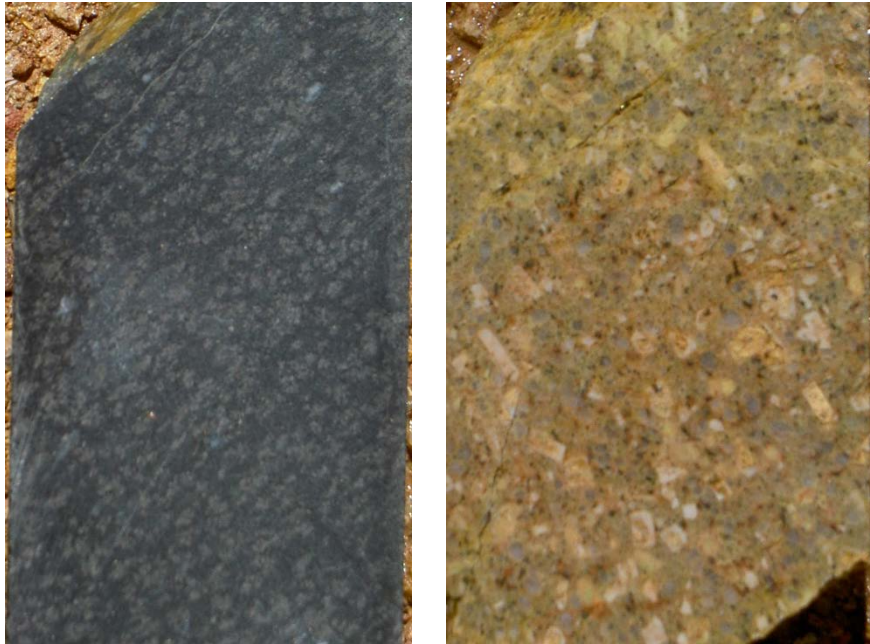




Cotton Formation – Quartz pebble conglomerate

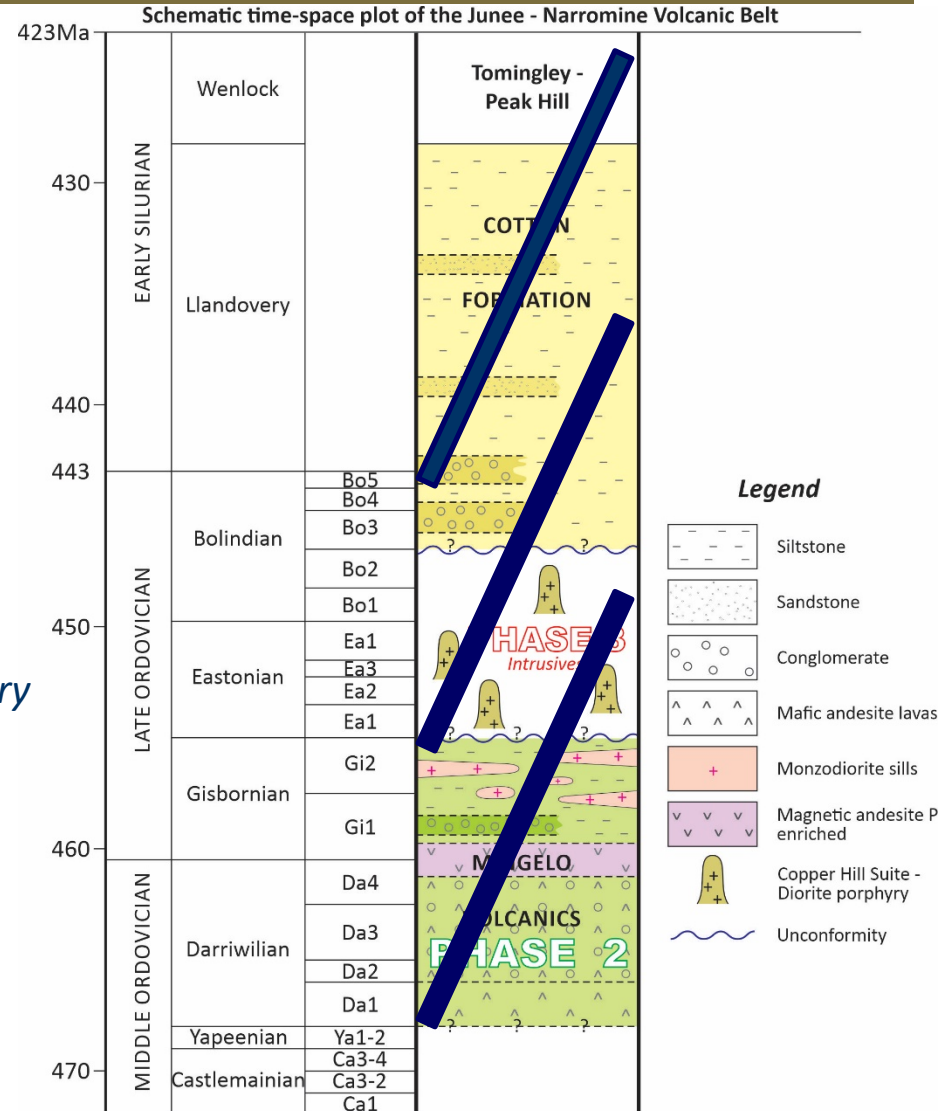
- Siliciclastic siltstones and mudstones with characteristic basal quartz pebble conglomerate
- First appearance of detrital quartz – craton derived
- Angular unconformity, often faulted
- Hosts mineralisation in prospects north of Tomingley

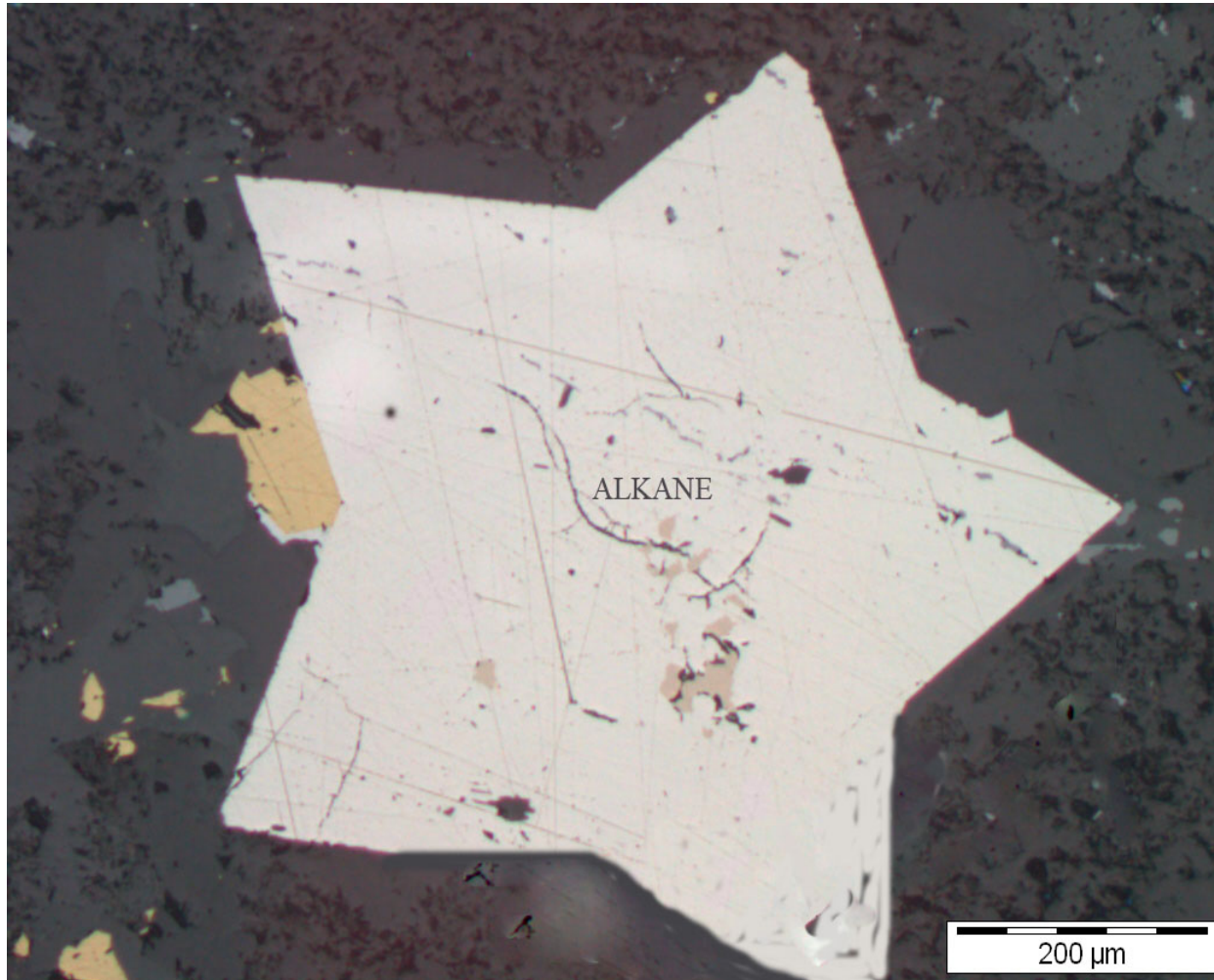




Devonian Intrusives – Dolerites and rhyolitic porphyry dykes

- Rhyolite dated $381.8 \pm 2.1\text{Ma}$ (Bodorkos, 2010)
- Post mineralisation
- Trend WNW and subvertical



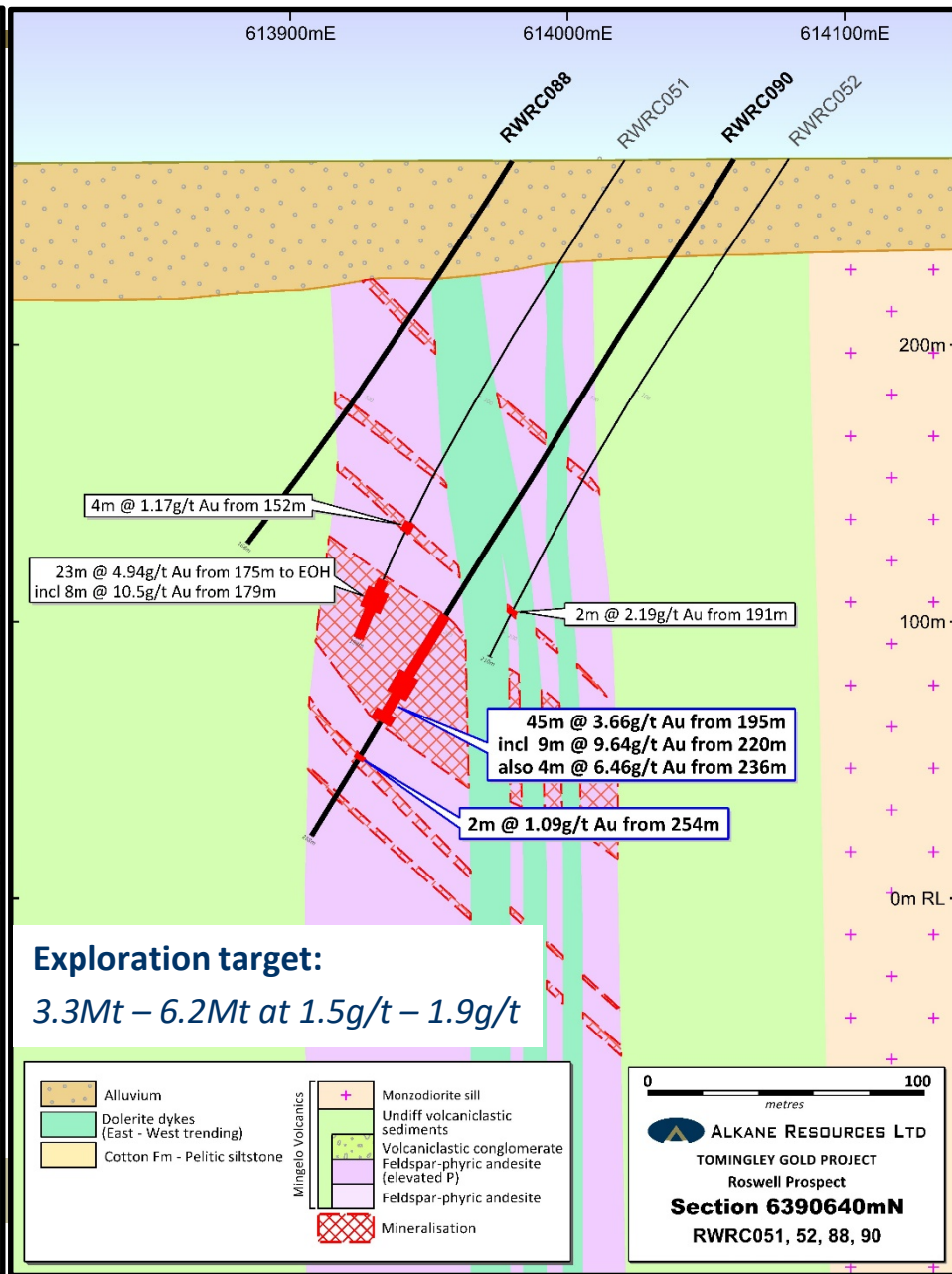
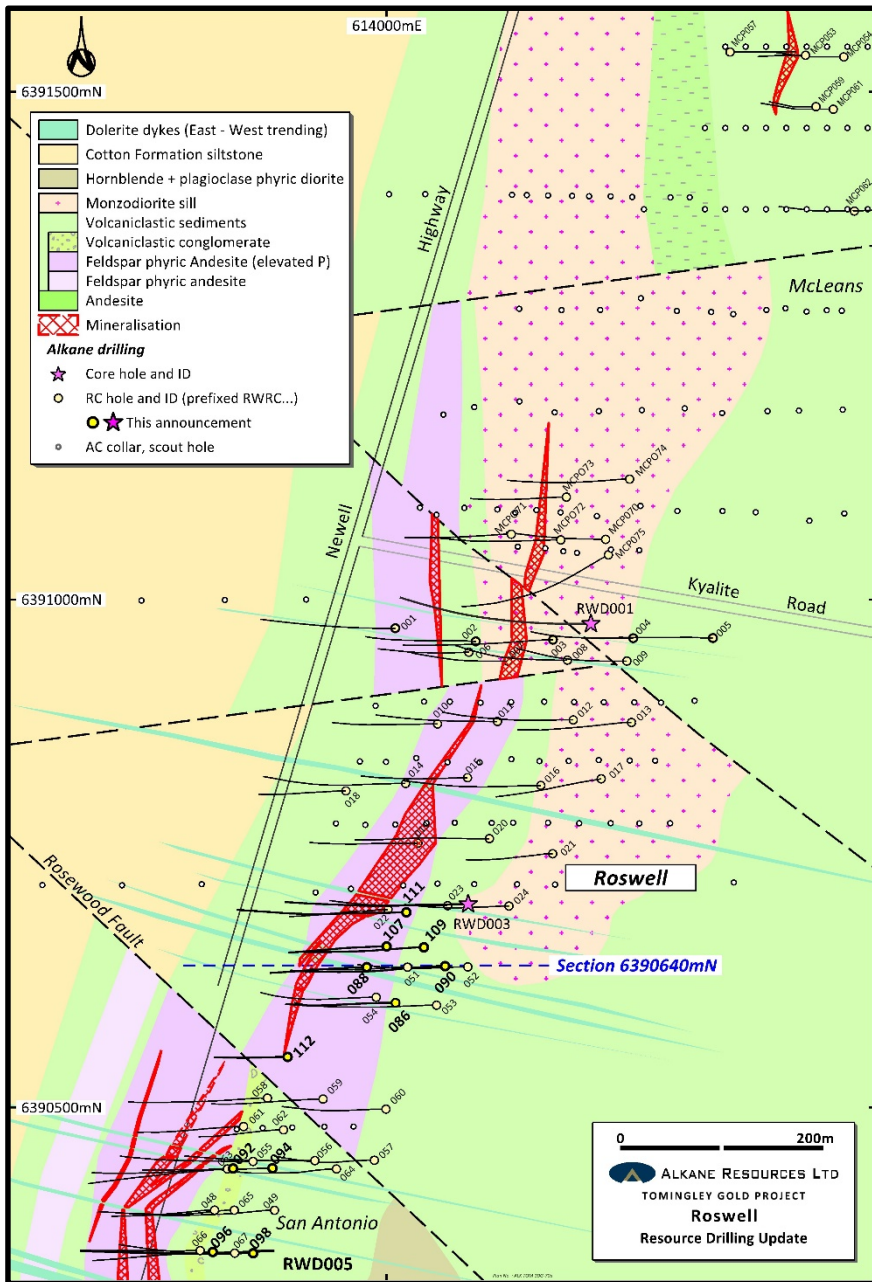


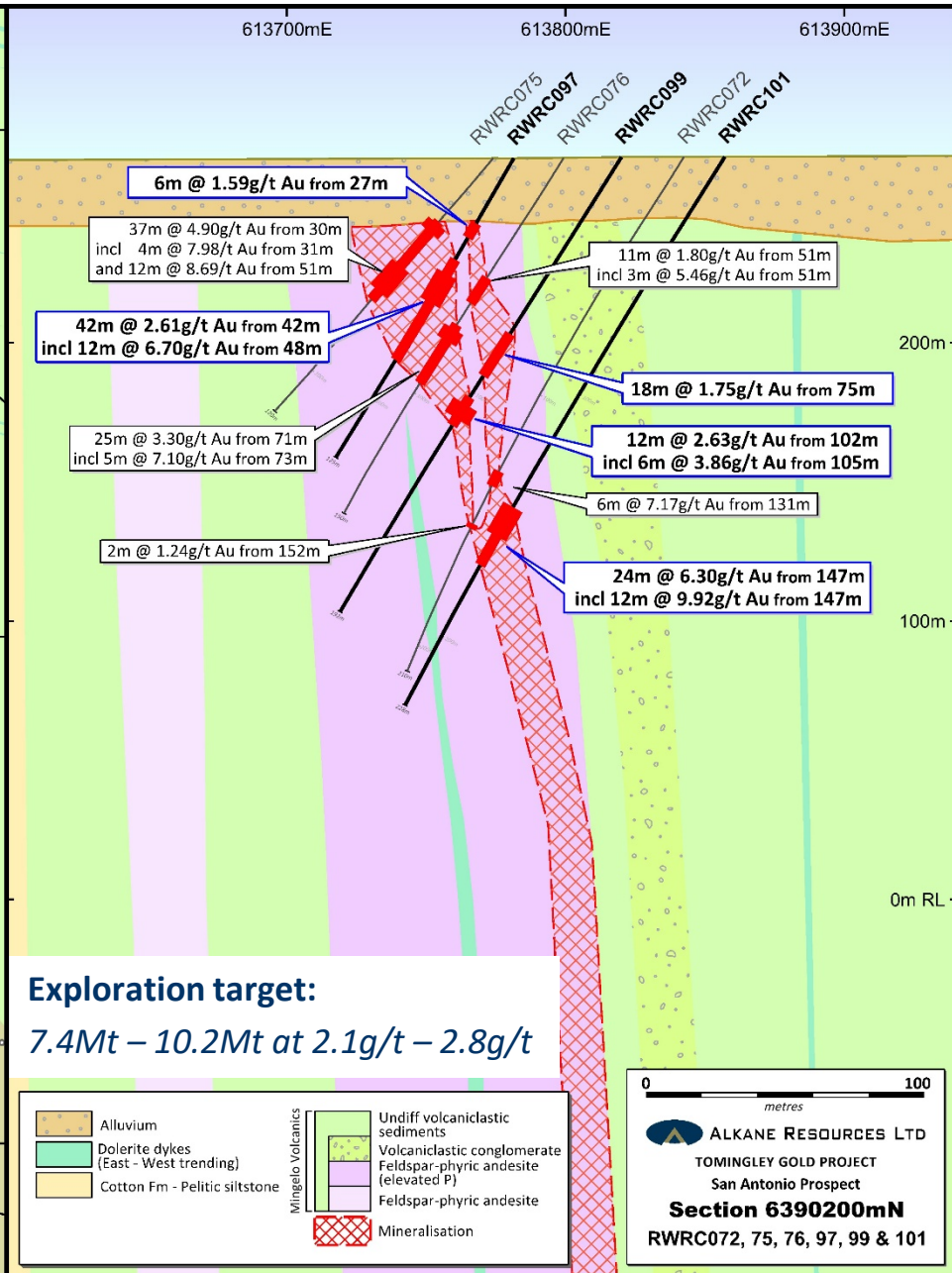
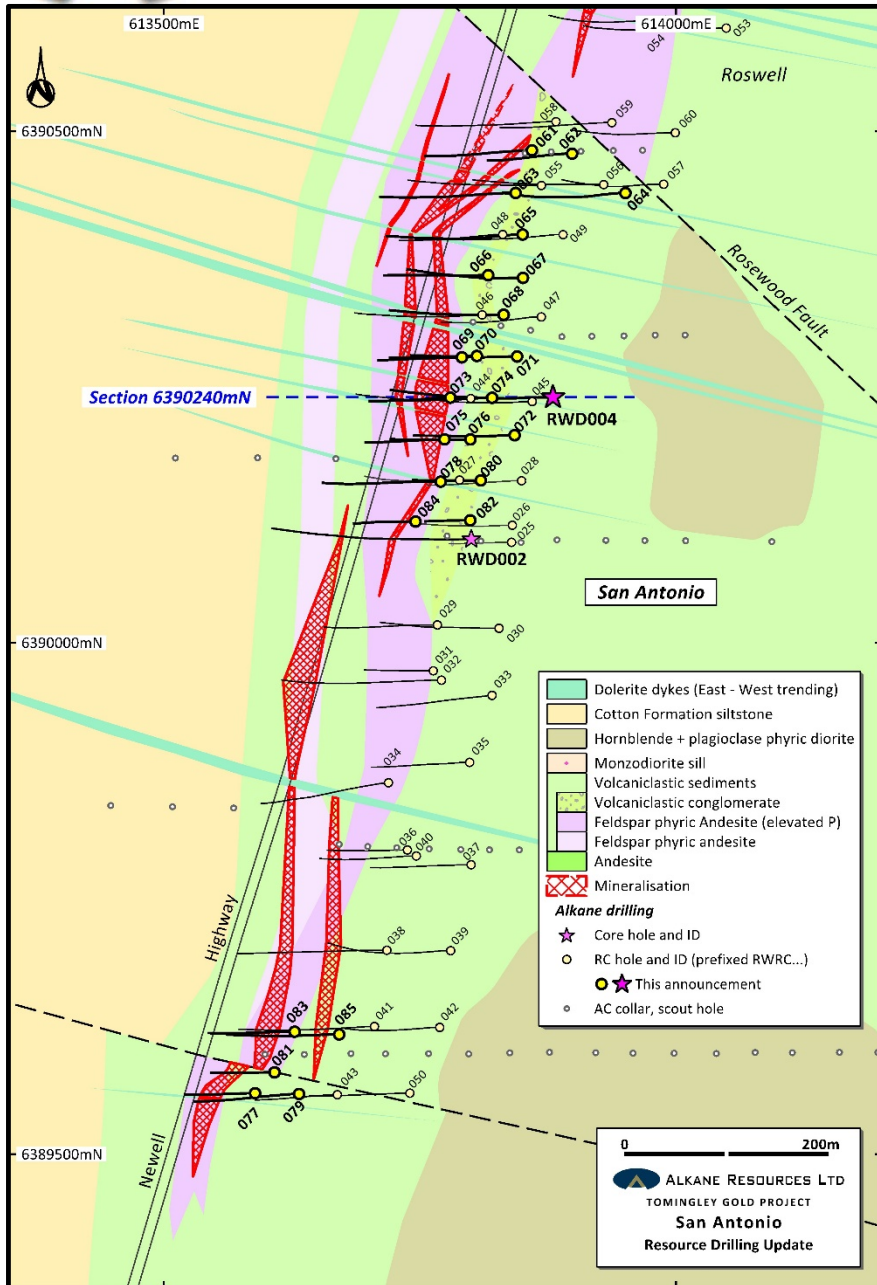
Arsenopyrite in Caloma core

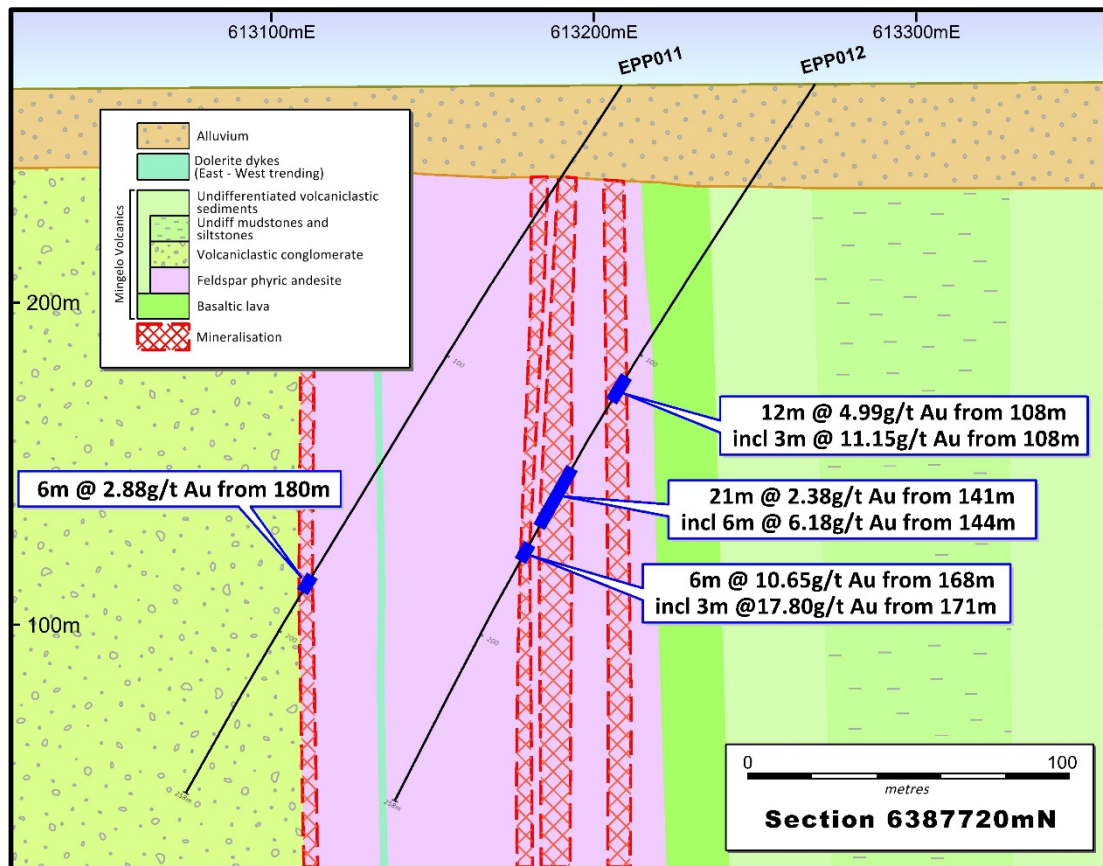
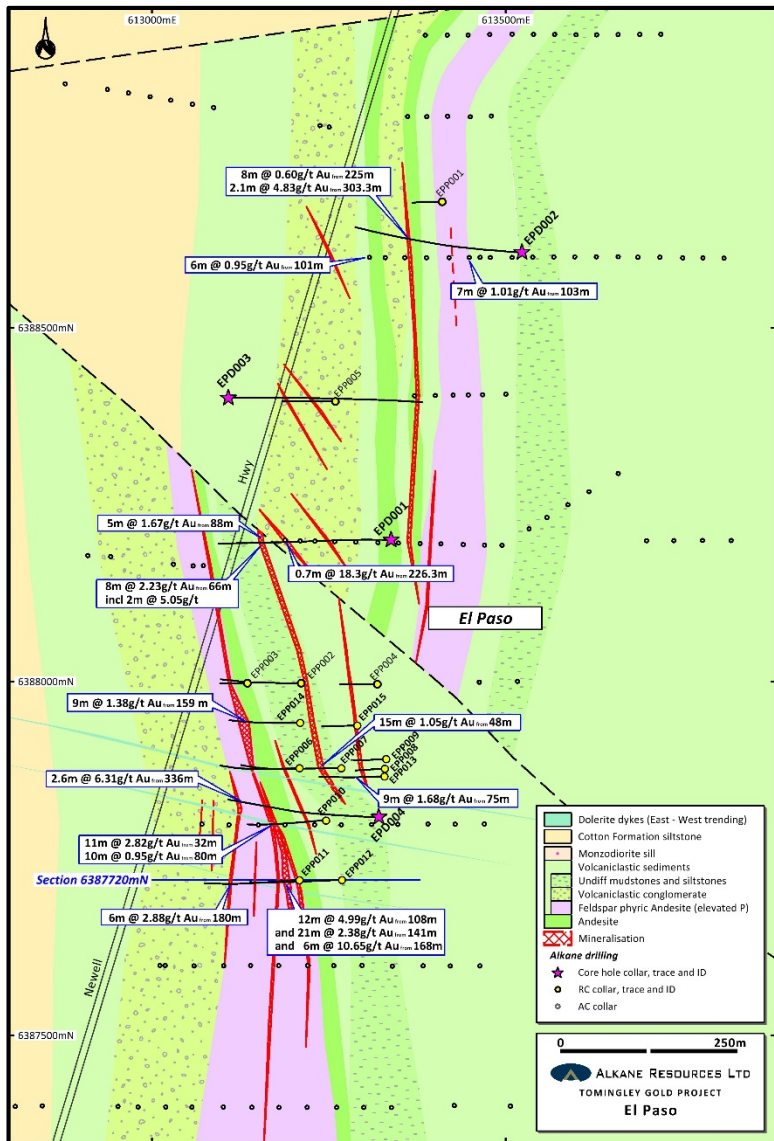
- Multiphase alteration assemblage: sericite – ankerite – albite – chlorite – quartz – (fuchsite)
- Weak zoning of carbonate spotting (ankerite)
- Mineralisation: pyrite – arsenopyrite (up to 5% As)
trace: sphalerite, chalcopyrite, pyrrhotite
- Gold forming within brittle fractures within quartz veins and pyrite; late timing associated with sphalerite + chalcopyrite (Cherry, 2013)
- 2 significant deformation events, E-W compression with subsequent sinistral transpression associated with mineralisation
- Ar-Ar date 404 ± 41 Ma (Downes) Bindian Orogeny?











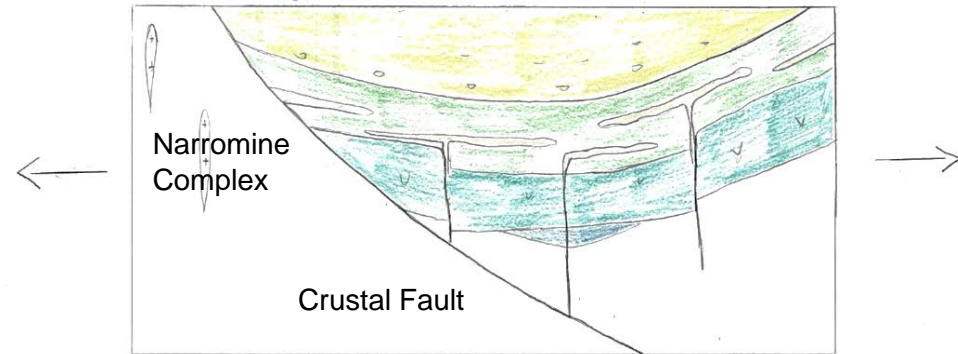
El Paso exploration target:

5.1Mt – 7.4Mt grading 1.3g/t – 1.6g/t



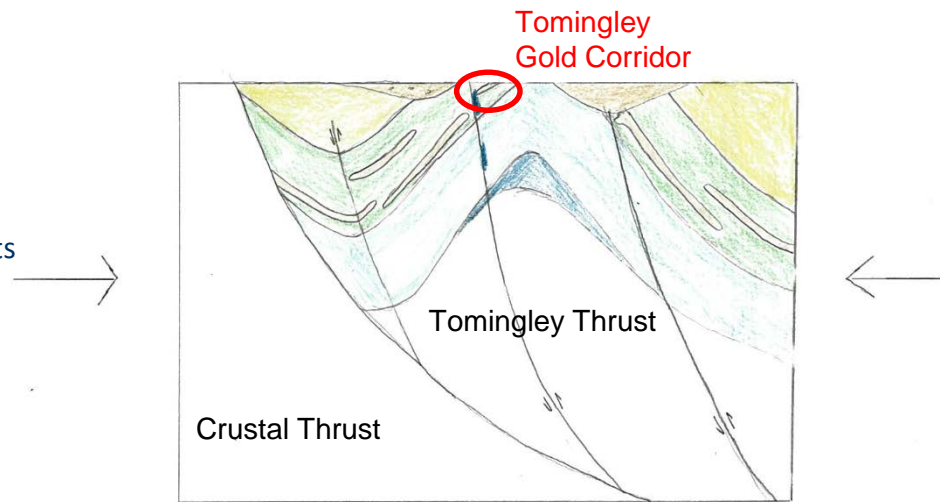
Original Basin (Forearc setting)

- Cotton Formation (Yellow)
- Mingelo Volcanics (Greens)
- Mingelo Volcanic monzodiorite sills (Pink)
- Crustal scale fault – Parkes Thrust extension?



Deformed Basin – Accretionary Wedging

- Inverted basin deformed against crustal thrust (extension to Parkes Thrust?)
- Tomingley Thrust forming during accretion – ‘Tomingley Structure/ Gold Corridor’ within regional anticline
- Gold camps locally positioned at intersections of Tomingley Thrust and NW transpressional faults (sinistral) in brittle hosts in upper Mingelo stratigraphy

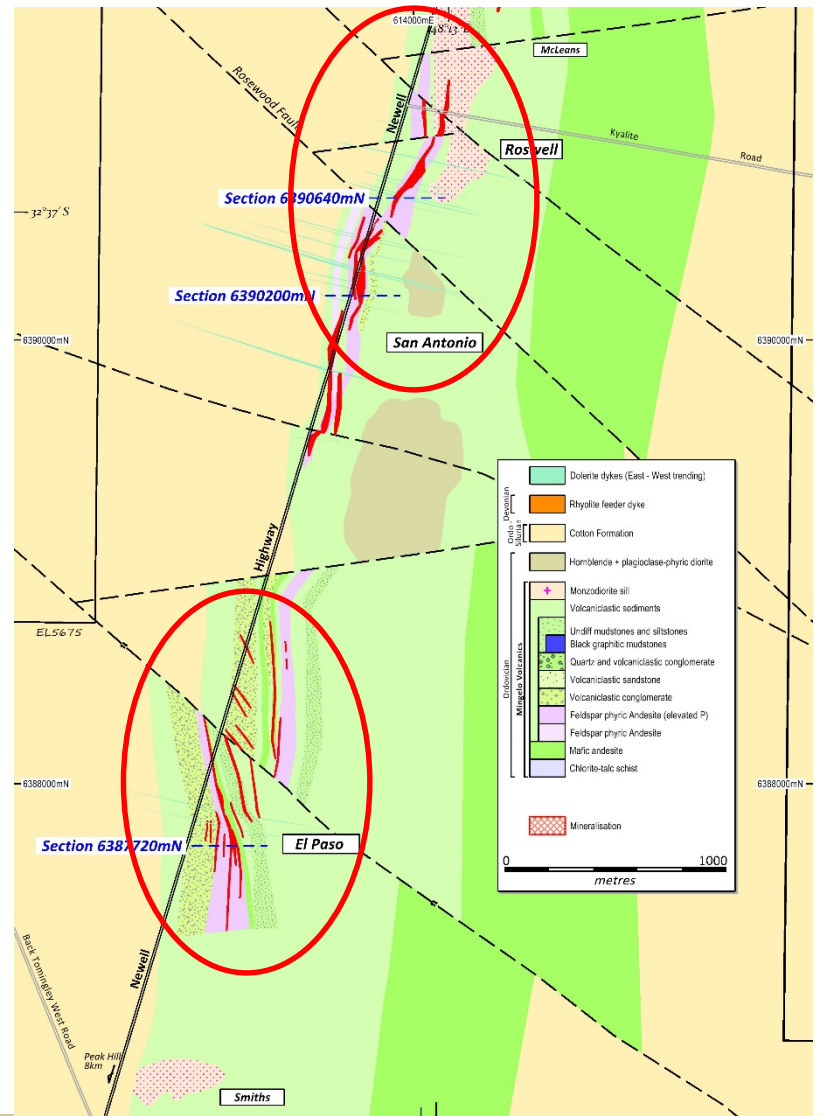
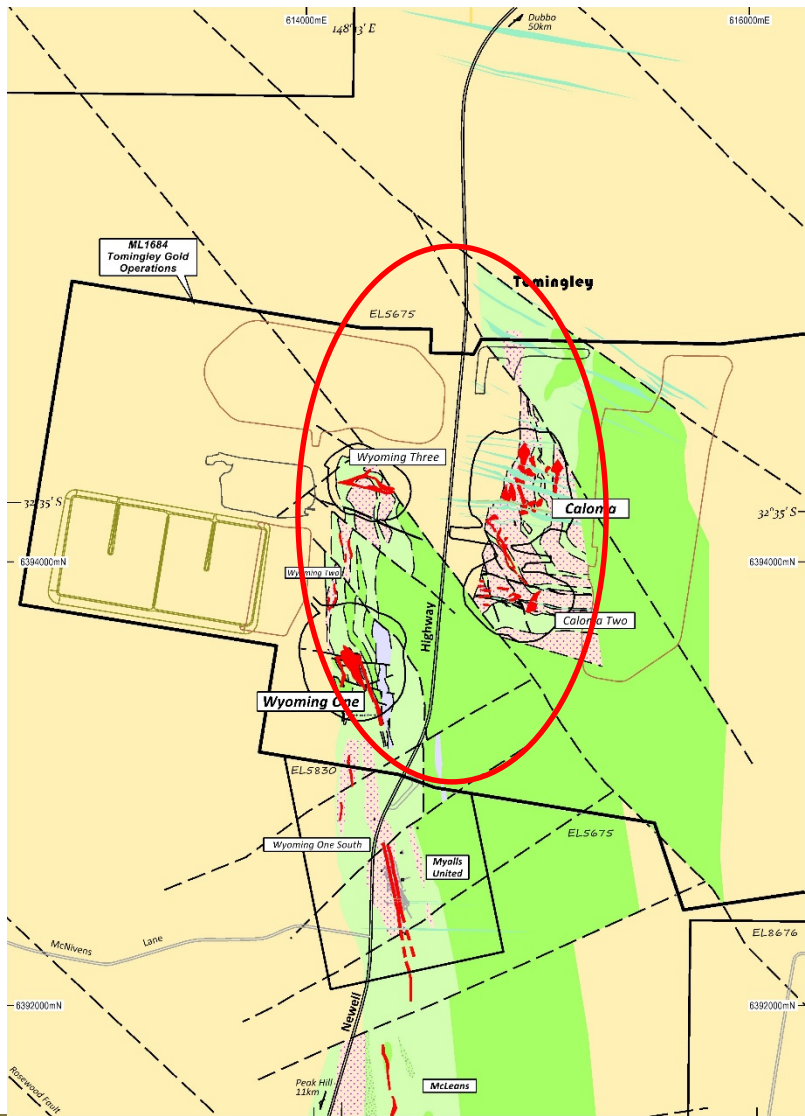


Further Deformation (Taberabberan?)

- Pre-existing NW structures reactivated dextrally

Dulladerry Rift

- Rhyolite and dolerite dyking



- Exploration has identified a significant Au-As structure capable of producing >1Moz orogenic gold within Ordovician volcanics of the Eastern Lachlan Fold Belt.
- Secondary/tertiary northwest trending structures are generally proximal to gold camps within the Tomingley Gold Corridor.
- Gold mineralisation is focused within brittle volcanic host lithologies positioned in ductile metasediments immediately east of the Cotton Formation contact.
- Ongoing exploration:
 - Underground reserve definition drilling at Wyoming One
 - Resource drilling ongoing at Roswell and San Antonio to define ~0.5Moz
 - Exploration drilling at El Paso planned for late 2019

