



# Mineral Hill

## A Mining Centre Renaissance

### September 2007

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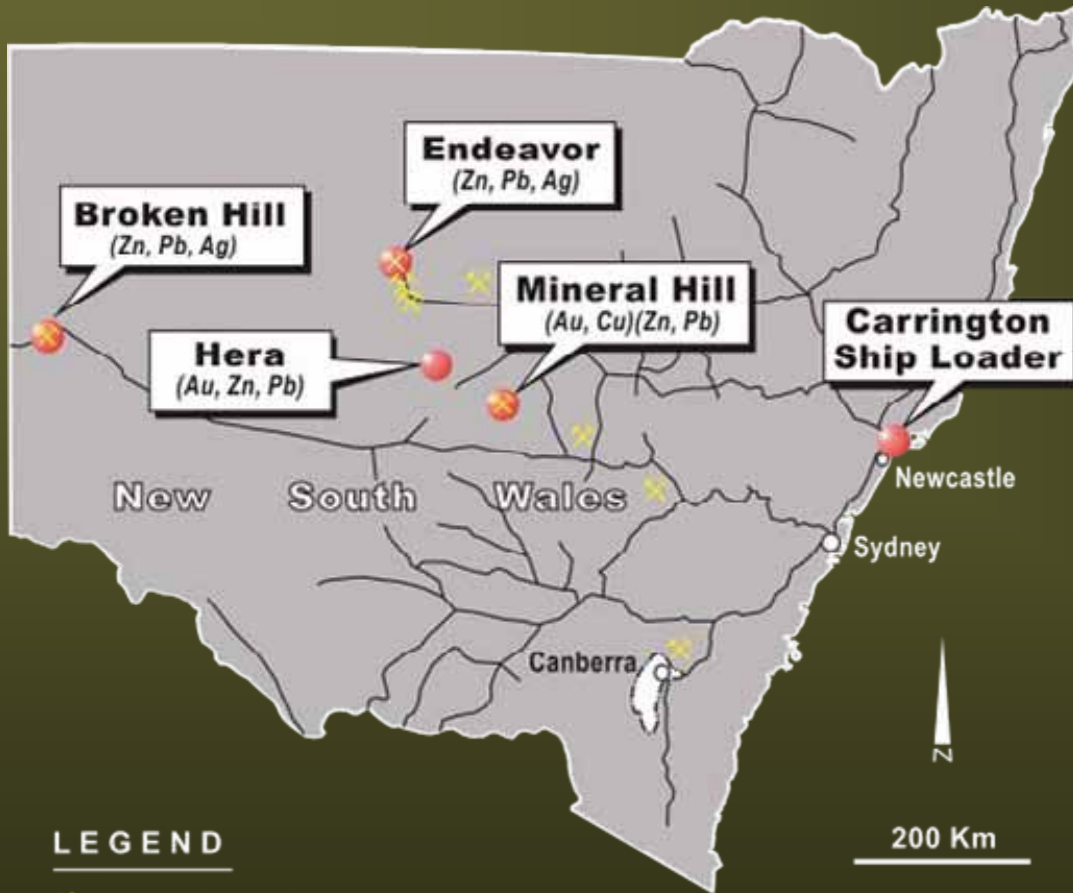
## MINERAL HILL

- **Geology**
- **Mineralization**
- **Opportunity**
- **Future Development**

## HERA

- **Geology**
- **Current work**
- **Future Development**

# Project Locations - NSW



## LEGEND

Significant Base Metal - Gold Mines

CBH Projects

Railway

## Endeavor Mine

1.2Mt U/G operation

## Broken Hill – Rasp Mine

750,000tpa U/G mine & mill.  
Decline commenced

## Hera Deposit

200,000tpa U/G mine.  
Final feasibility in progress.

## Mineral Hill Mine

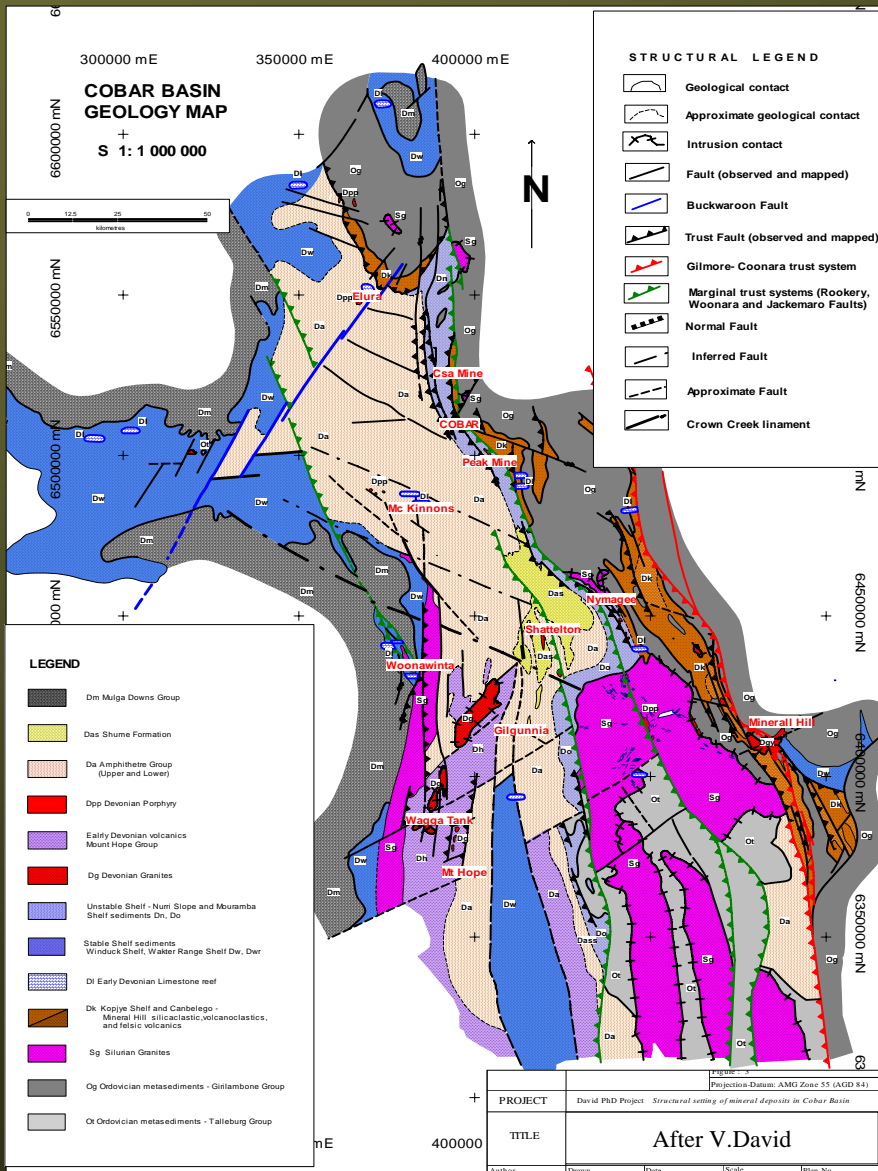
200->400,000tpa mine.  
Recommissioning and  
expansion study in progress

# Mineral Hill - History



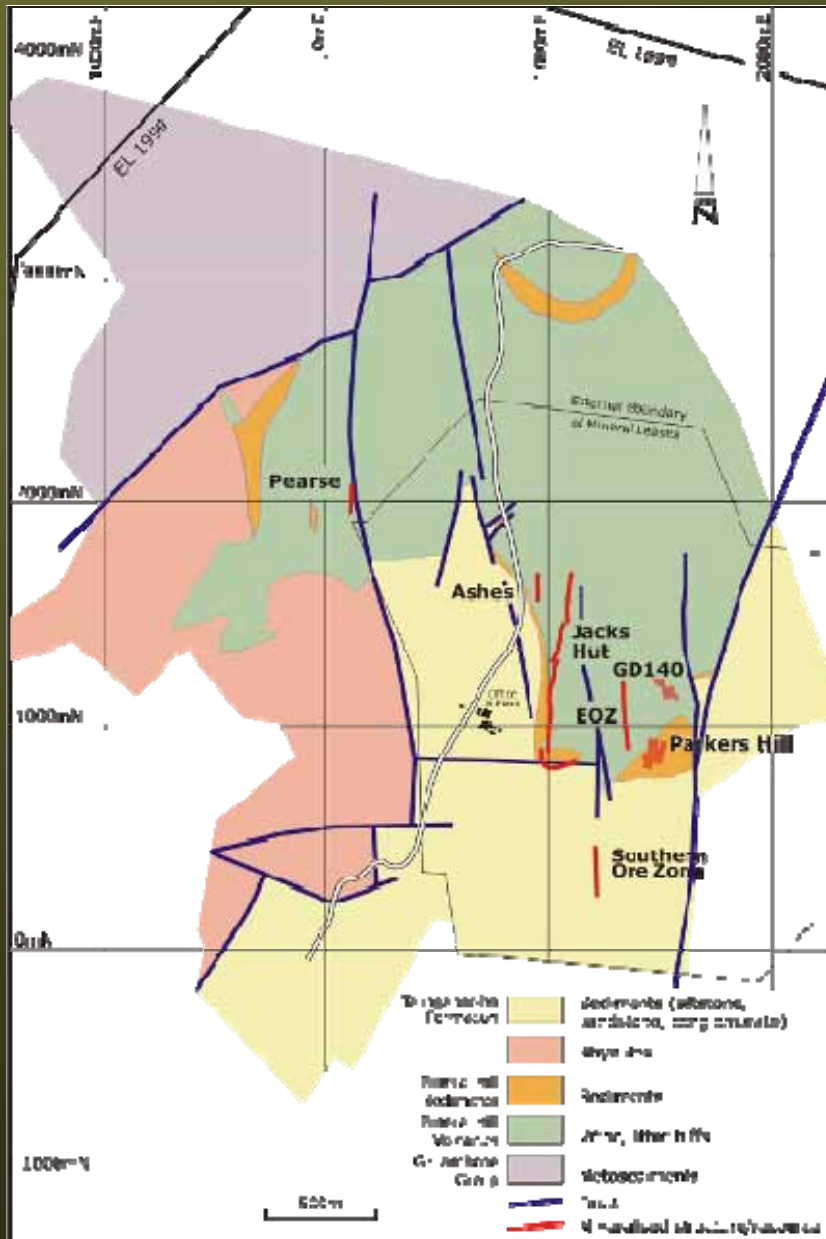
- Discovered in 1908
- Until 1957
  - 14,300t @ 24oz/t Ag, 19% Pb
- 1989 to 2005
  - 2.1Mt @ 6.5g/t Au, 1.14% Cu
  - 360,280oz Au and 20,350t Cu
- C&M in 2005

# Mineral Hill – Regional Geology



- Within the Canbelego-Mineral Hill rift zone
- Widespread Siluro – Devonian extensional tectonics associated with Cobar Basin formation
- I-Type intrusive activity and associated volcanism

# Mineral Hill - Geology

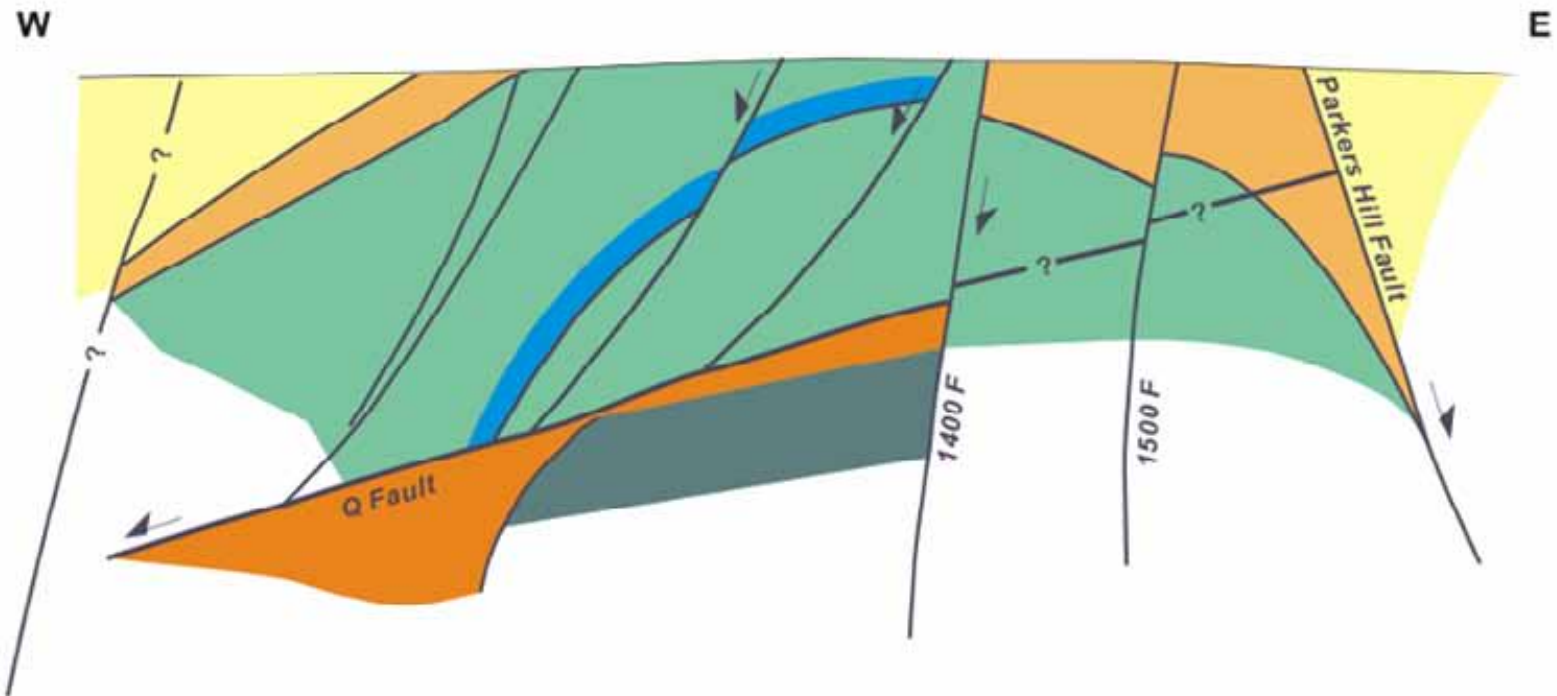


- Mine Area sequence –
  - Talingaboolba sediments
  - Mineral Hill sediments
  - Mineral Hill volcanics
  - Girilambone metasediments
- Folded into shallowly SE plunging anticline
- NW oriented steeply faults offset shallow west dipping faults
- Faults control and partially bound areas of mineralization.



# Mineral Hill - Geology



## MINERAL HILL SCHEMATIC GEOLOGY



### LEGEND

	Talingaboolba		Coarse Marker Unit
	Upper Sediments		Lower Sediments
	Upper Volcanics		Lower Volcanics

Modified After Corbett

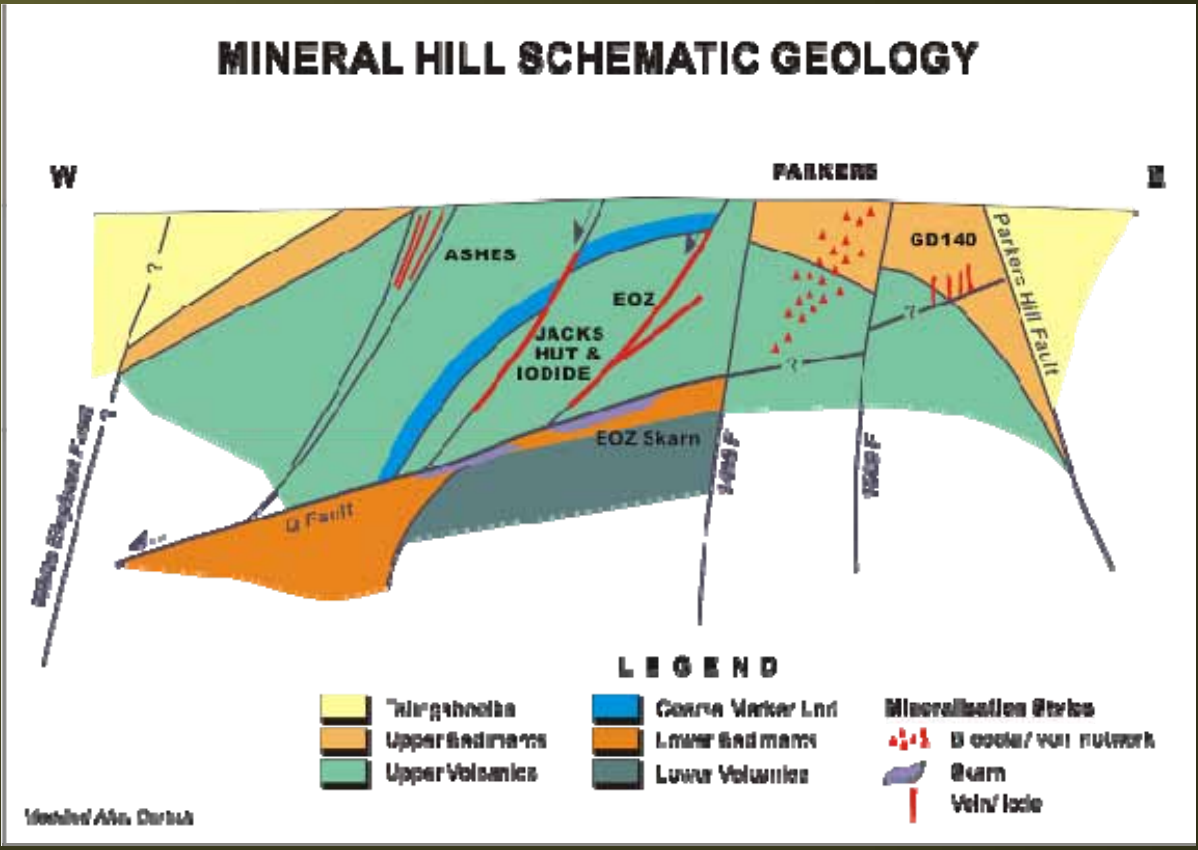


# Mineral Hill Mineralization Styles



## Four main styles

- Vein/Lode
- Breccia/vein network
- Skarn hosted
- Disseminated shear hosted Au-Ag

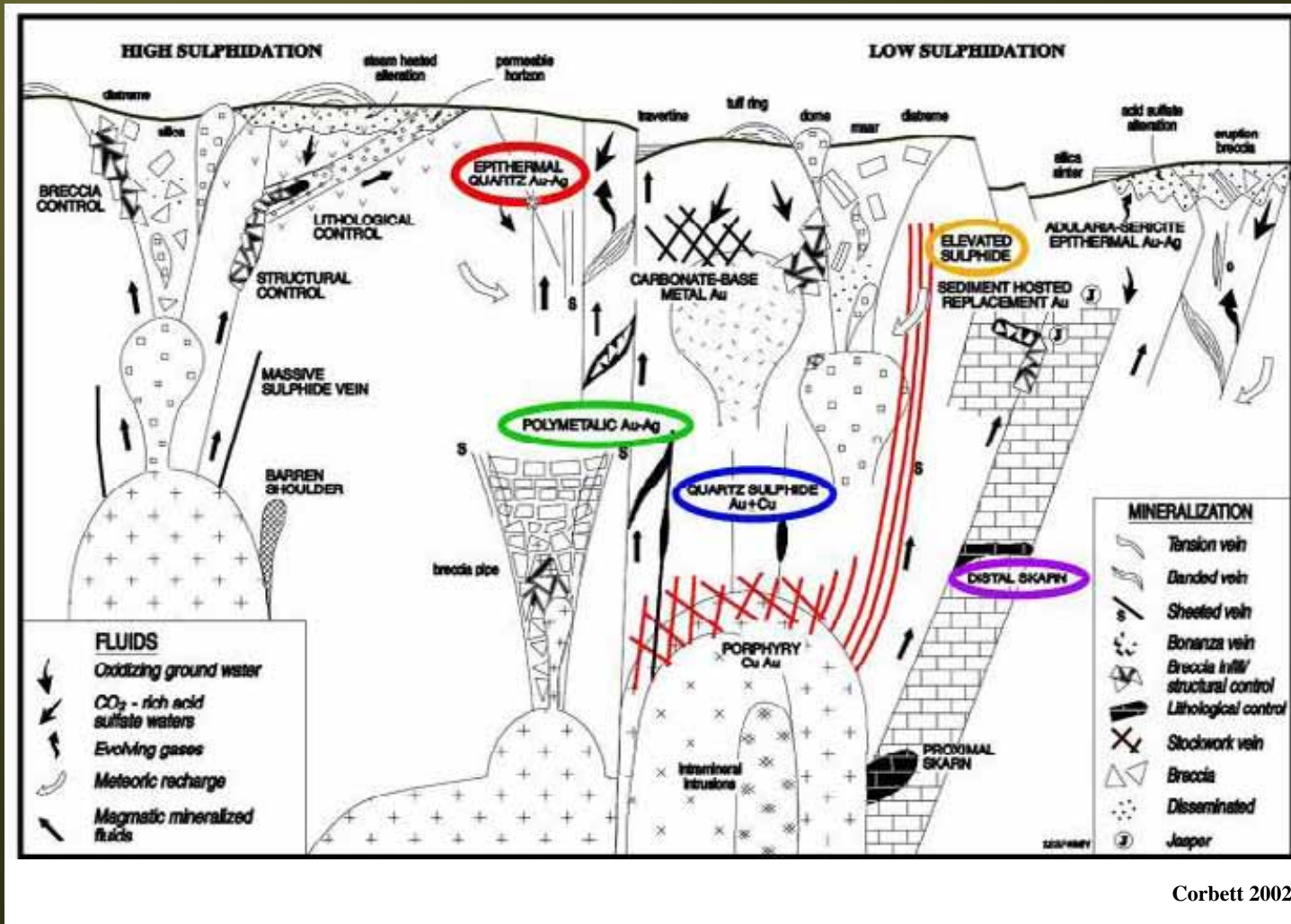


Modified After Curtis

# Mineral Hill Classification



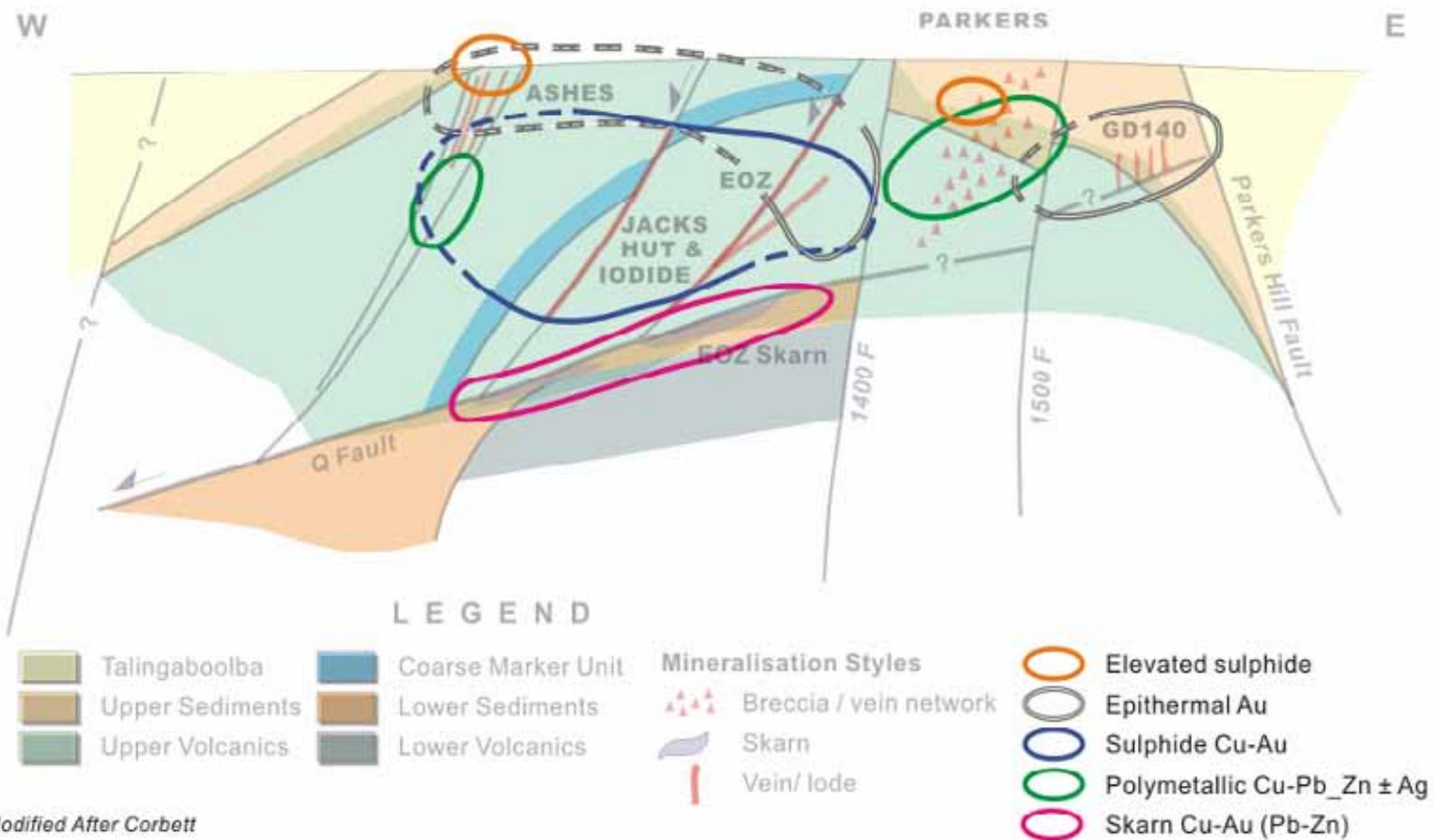
Low sulphidation epithermal (precious and base metal) and deeper Cu-Au intrusive related mineralization



# Mineral Hill Classification



## MINERAL HILL MINERALIZATION CLASSIFICATION



# Mineral Hill – Mineralization Characteristics

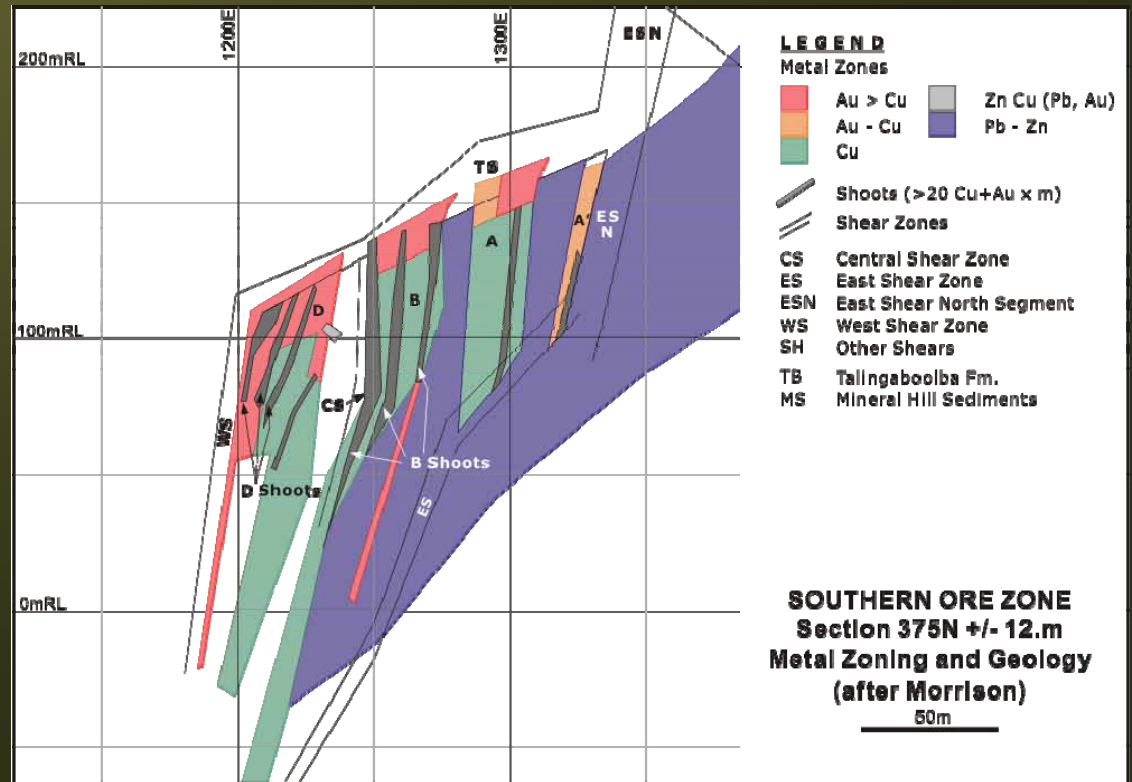
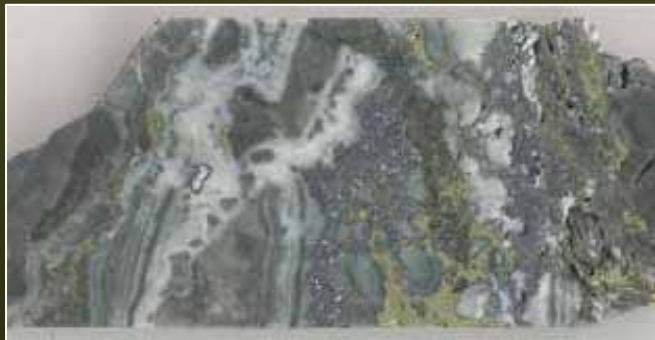


Prospect	Host Rock	Wallrock Alteration	Veining	Style	Mineralisation	Ratios
Parkers Hill (Volcanics)	lapilli tuff	quartz-adularia, quartz-hematite-chlorite, sericite-illite/smectite-Fe carbonate	colloform qtz	Breccia/Vein network	chalcopyrite-low Fe sphalerite-galena-pyrite-tetrahedrite/tennantite-bornite	cpy=sph=gn
Pearse	vitric and lapilli tuffs	Hanging wall - illite/sericite then chalcedony-carbonate (clinochlore-talc), then late kaolin; Footwall albite-Mg chlorite-qtz	qtz-carbonate	Shear	pyrite-asp-y-stibnite-gold-electrum (sphalerite-tetrahedrite/tennantite)	
EOZ Skarn	volcanogenic siltstone	chlorite-qtz-magnetite-Fe carbonate (barite), late calcite-hematite	qtz-chlorite	Skarn	pyrite-chalcopyrite-bornite-bismuth-bismuthinite-gold (low Fe sphalerite), late chalcocite	cpy>>sph
Jacks Hut Skarn	calc-siltstone, limestone	prehnite-chlorite-grandite-qtz-graphite-Ca mica-Fe epidote, late calcite	qtz-sulphide, late calcite	Skarn	low Fe sphalerite-galena	
Access Breccia	vitric tuff	quartz-chlorite-illite/sericite	qtz-chlorite-adularia	Vein/Lode	gold-pyrite (low Fe sphalerite)	py>>cpy>sph
Ashes	lapilli tuff	quartz-chlorite-illite/smectite	qtz-chlorite	Vein/Lode	pyrite-chalcopyrite-galena-sphalerite-bismuth-gold	cpy>gn>sph
EOZ	lapilli / vitric tuffs	quartz-chlorite-illite/smectite	qtz-chlorite	Vein/Lode	chalcopyrite-pyrite-low Fe sphalerite-galena-bismuth-bismuthinite-gold-electrum	cpy>>sph>gn
GD140	lapilli tuff	quartz-chlorite (adularia)	qtz (hematite)	Vein/Lode	gold (pyrite-chalcopyrite-bismuth, bismuthinite-galena-sphalerite)	py>>cpy>sph
Jacks Hut	lapilli tuff	quartz-Fe chlorite (siderite)	qtz-chlorite	Vein/Lode	pyrite-chalcopyrite-bismuth-bismuthinite-gold (Fe sphalerite-galena)	cpy>>sph>gn
SOZ (northeast)	lapilli tuff	quartz-chlorite-illite-sericite	colloform qtz	Vein/Lode	pyrite-chalcopyrite-galena-sphalerite-bismuth-gold	cpy>>sph=gn
SOZ (southeast)	lapilli tuff	sericite-illite-quartz-chlorite	colloform qtz	Vein/Lode	chalcopyrite-low Fe sphalerite-galena-pyrite-tetrahedrite/tennantite	cpy=sph=gn
West Iodide	lapilli tuff	quartz-chlorite-illite/sericite-carbonate	quartz	Vein/Lode	zoned sphalerite-galena-chalcopyrite-bornite-pyrite-tetrahedrite/tennantite (native silver)	sph>gn>cpy

# Mineral Hill - Zonation



- Au-Cu to Pb-Zn-Ag+ - As and Sb and decreasing Bi.
- Chalcopyrite-pyrite joined by galena, sphalerite, bornite, and tetrahedrite-tennantite.
- Temperature decrease and possible wall rock interaction.



# Mineral Hill - Reactivation



## STATUS

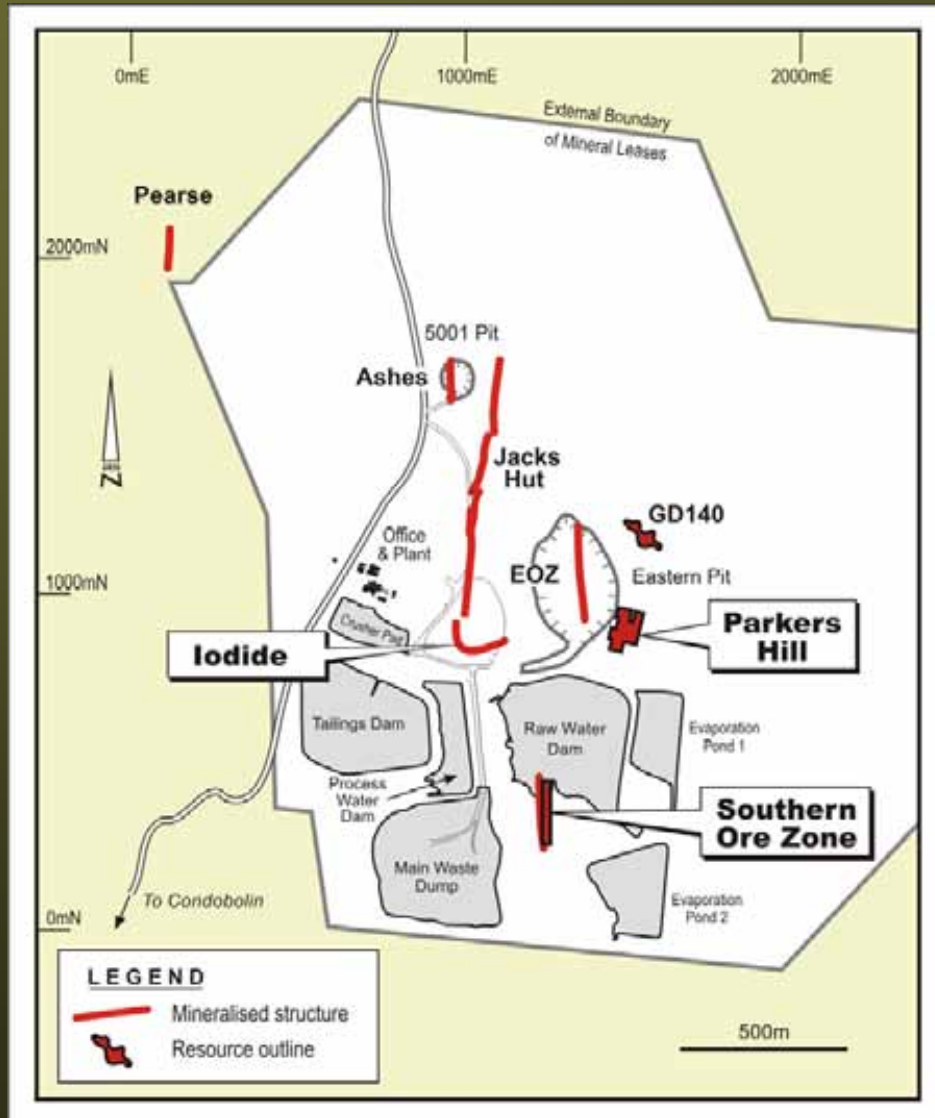
- Previous focus - Cu-Au
- Closure - persistent low metal prices
- Remaining Cu-Au resources and strong residual potential
- Very little exploration into Pb-Zn-Ag
- Likelihood for mineable blocks

## OPERATION

- Plant in very good condition – Cu-Au configuration
- Approvals in place for 200,000tpa underground operation
- Modest capital required for restart



# Mineral Hill Mine- Reactivation



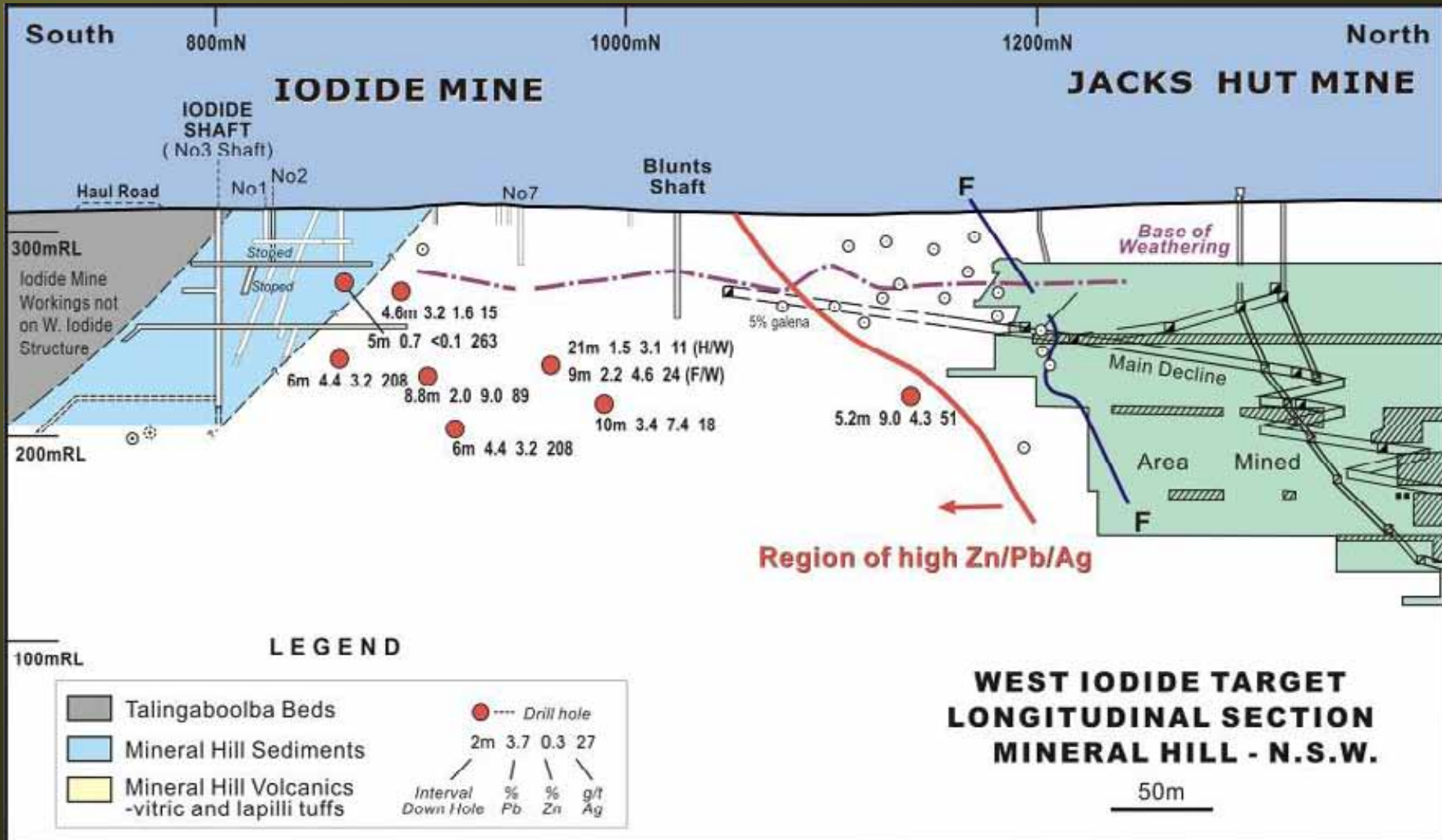
## STRATEGY

Restart operation, modifying plant to handle Pb-Zn + Cu-Au

- Phase one at 200,000tpa
- Expand to +400,000tpa

## SHORT TERM PROSPECTS

# Mineral Hill Mine – West Iodide Prospect

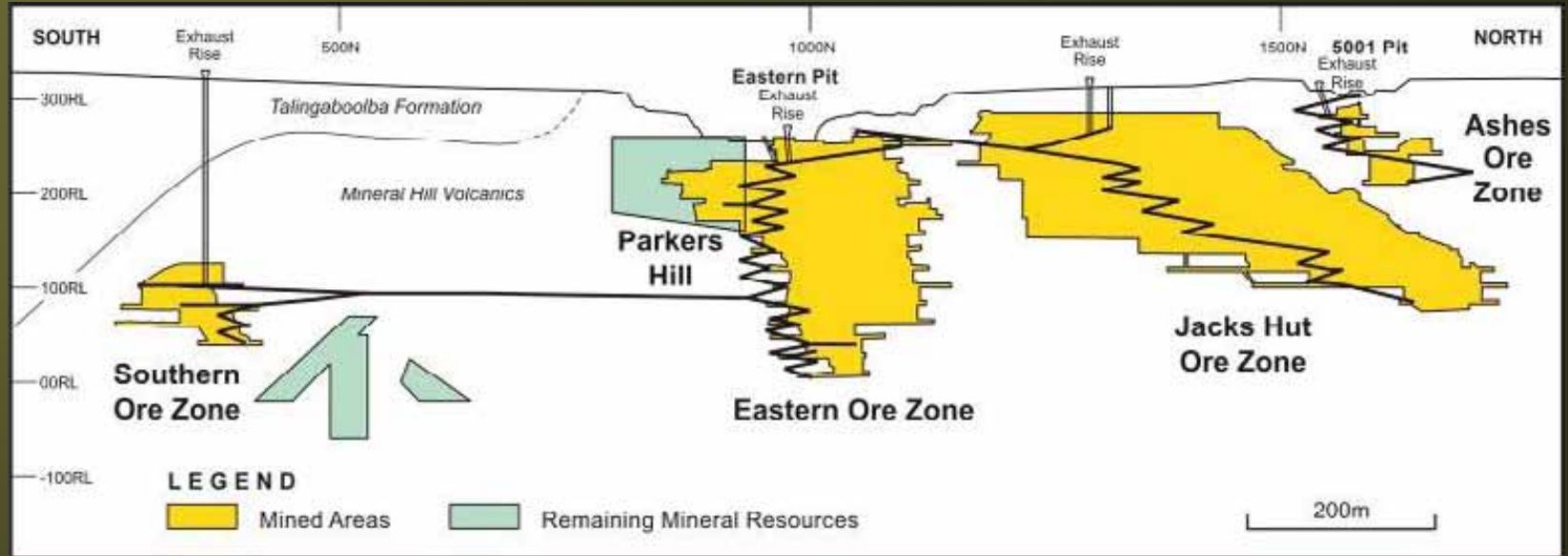




# Mineral Hill - SOZ



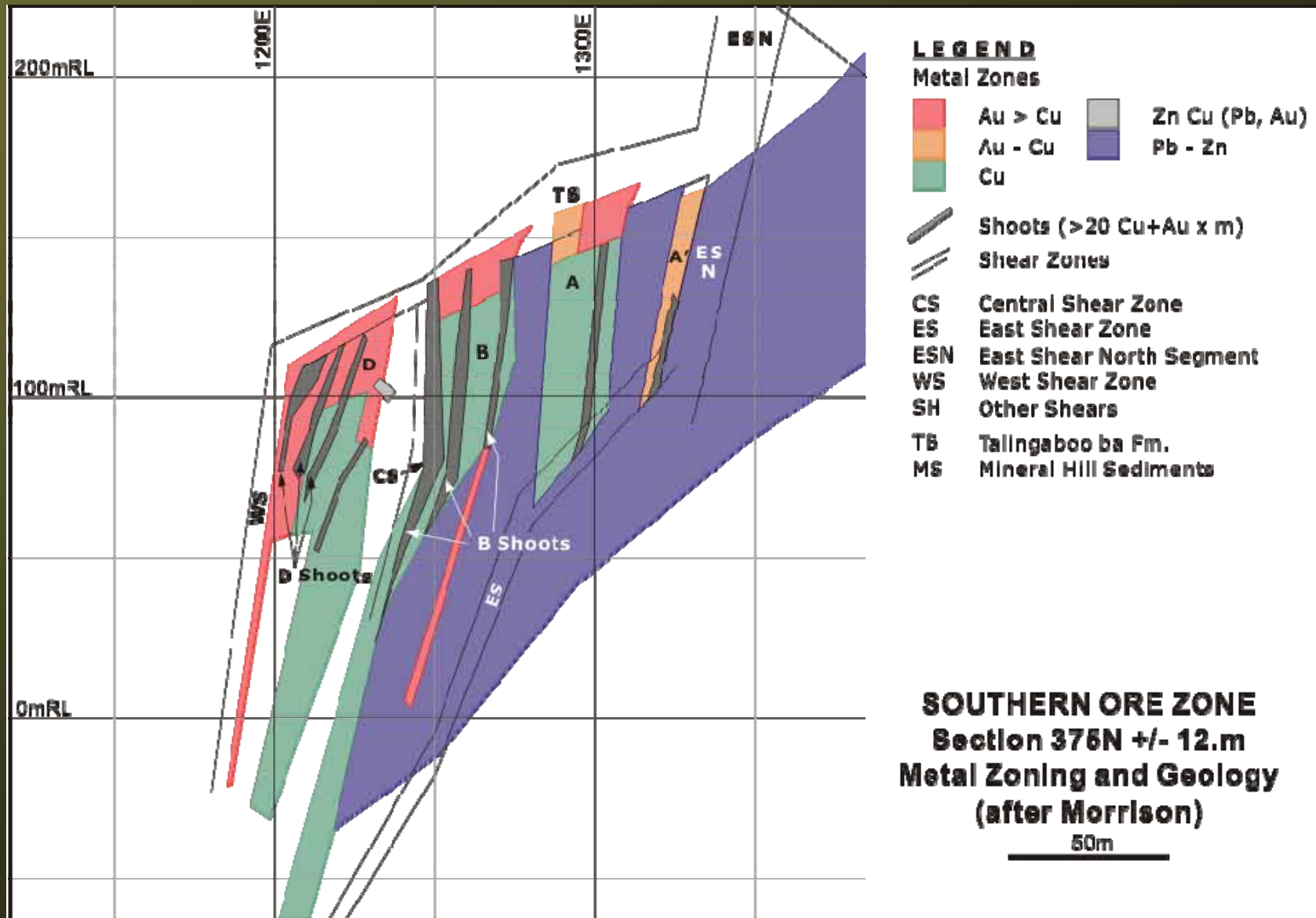
Long Section Looking W



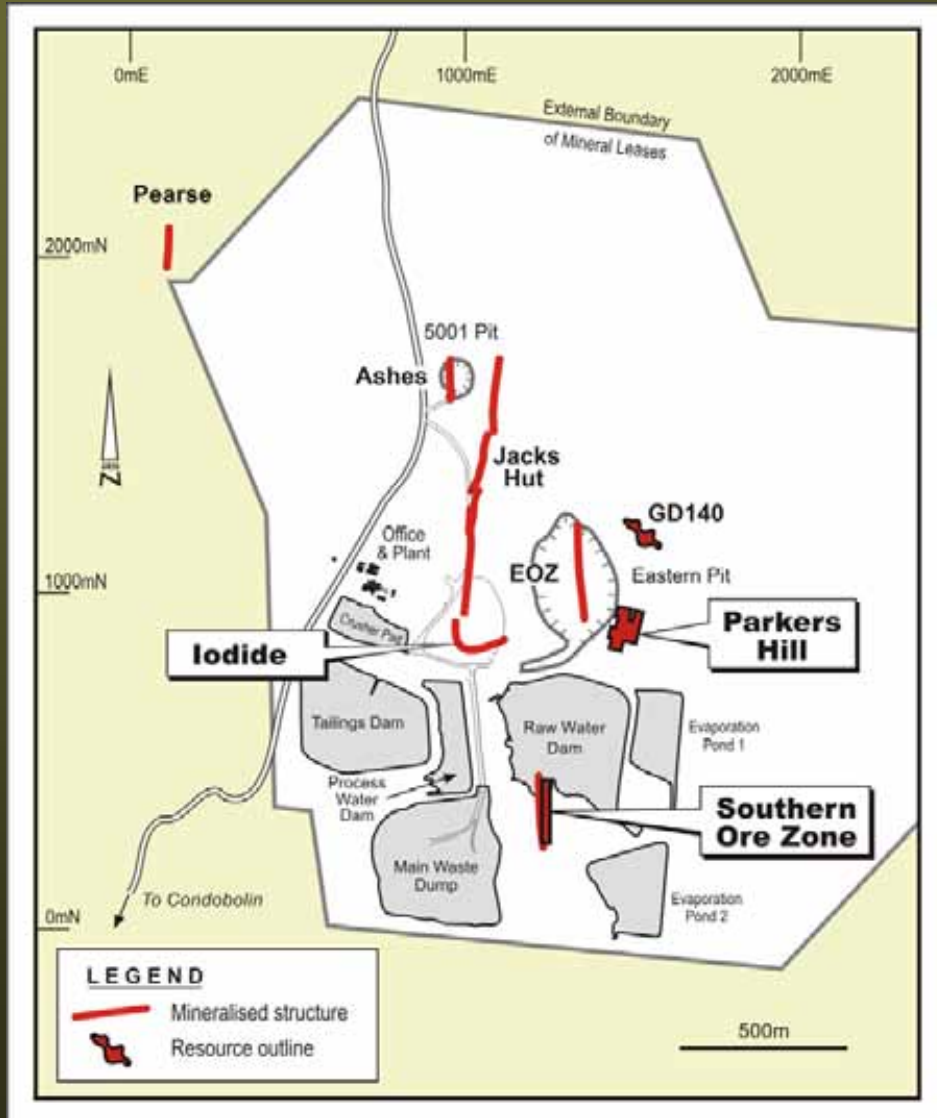
## 2005 PUBLISHED RESOURCE

	<b>Tonnes</b>	<b>Au gpt</b>	<b>Cu %</b>
Southern Ore Zone	182,600	7.4	1.3
Parkers Hill	146,000	0.7	5.4
GD140	49,000	5.2	0.1
<b>TOTAL</b>	<b>377,600</b>	<b>4.5</b>	<b>2.7</b>

# Mineral Hill – SOZ



# Mineral Hill Mine- Parkers Hill Deposit



- Key ore source
- Partially developed from U/G
- Bulk mining U/G or open cut
- Double mill output?
- Oxide?

# Mineral Hill Mine- Parkers Hill Deposit

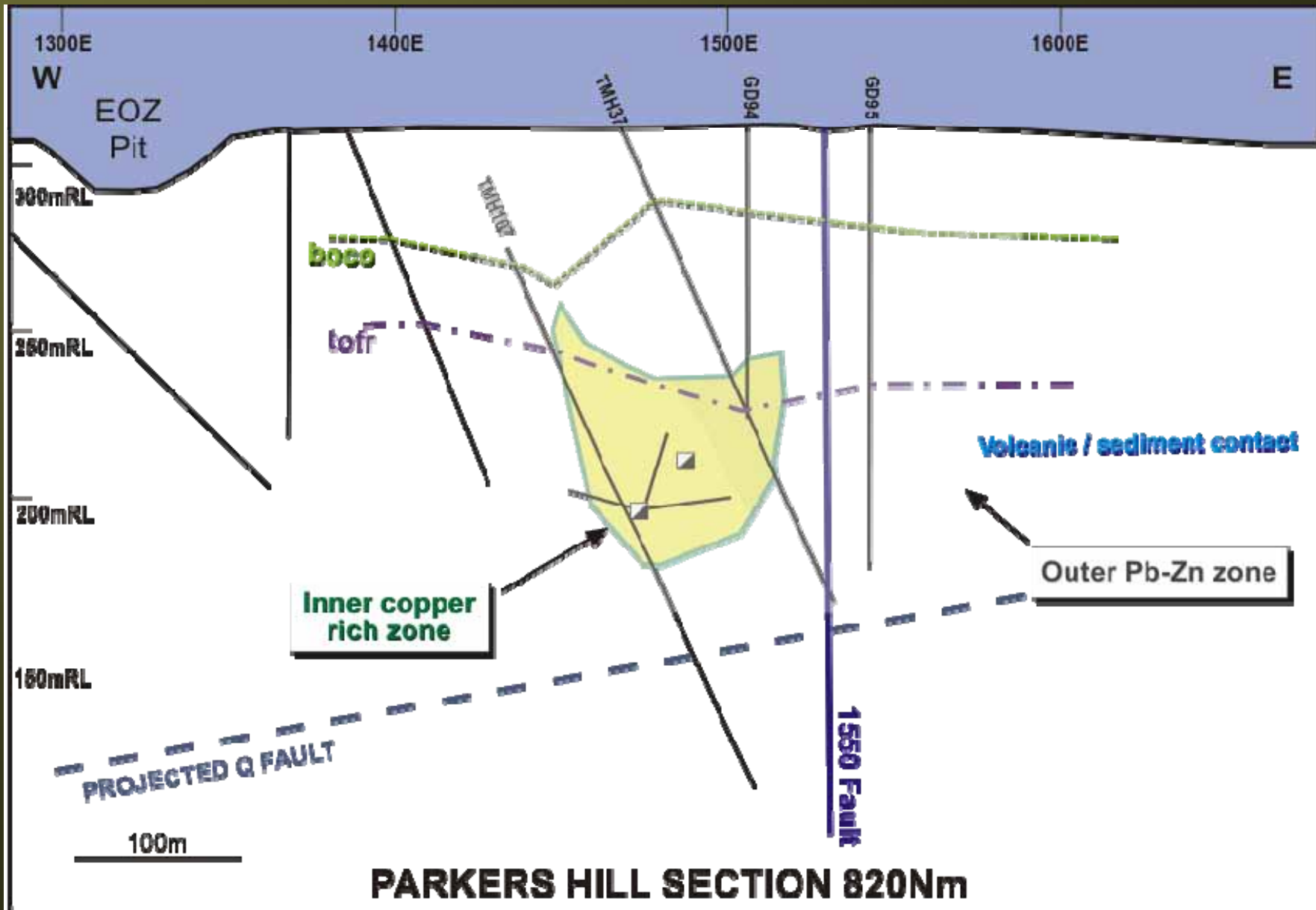


- Zoned breccia / vein network
- Moderate west dip
- Strongly structurally disrupted
- Highly variable vein orientations
- Substantially larger than any other deposit in field?
- Core zone of Cu (Au) (+\_ Pb-Zn)
- Modeled carapace of Pb-Zn-Ag (+-Cu)
- Outcropping - oxide Pb values up to 15%

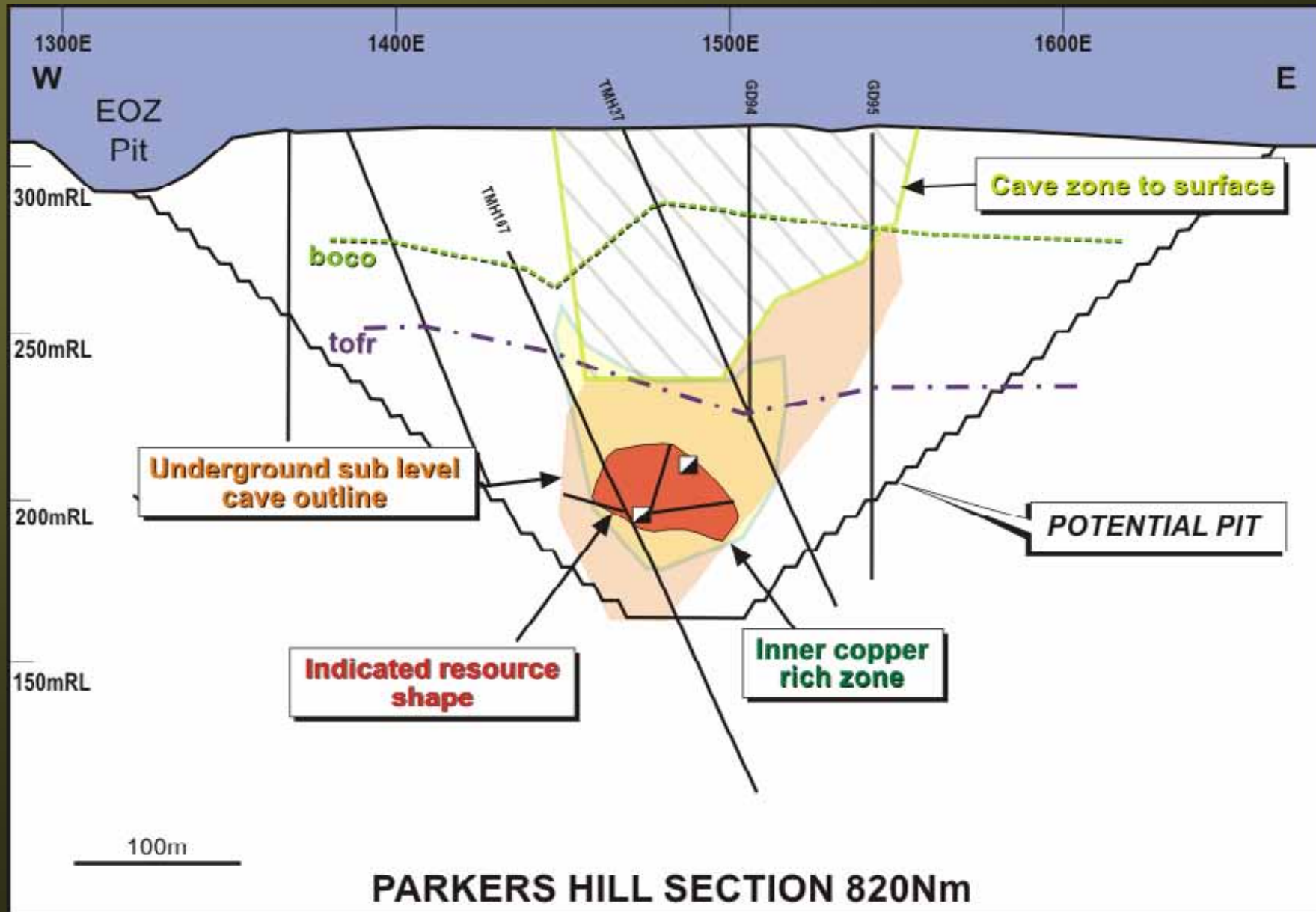


	Au (g/t)	Cu (%)	Pb (%)	Zn (%)	Ag (g/t)	Bi (ppm)	As (ppm)	Sb (ppm)
<b>Parkers Hill (seds)</b>	0.03	3.69	2.26	1.45	133	7	1028	5760
<b>Parkers Hill (volcs)</b>	0.45	2.80	1.12	1.58	16	82	64	44

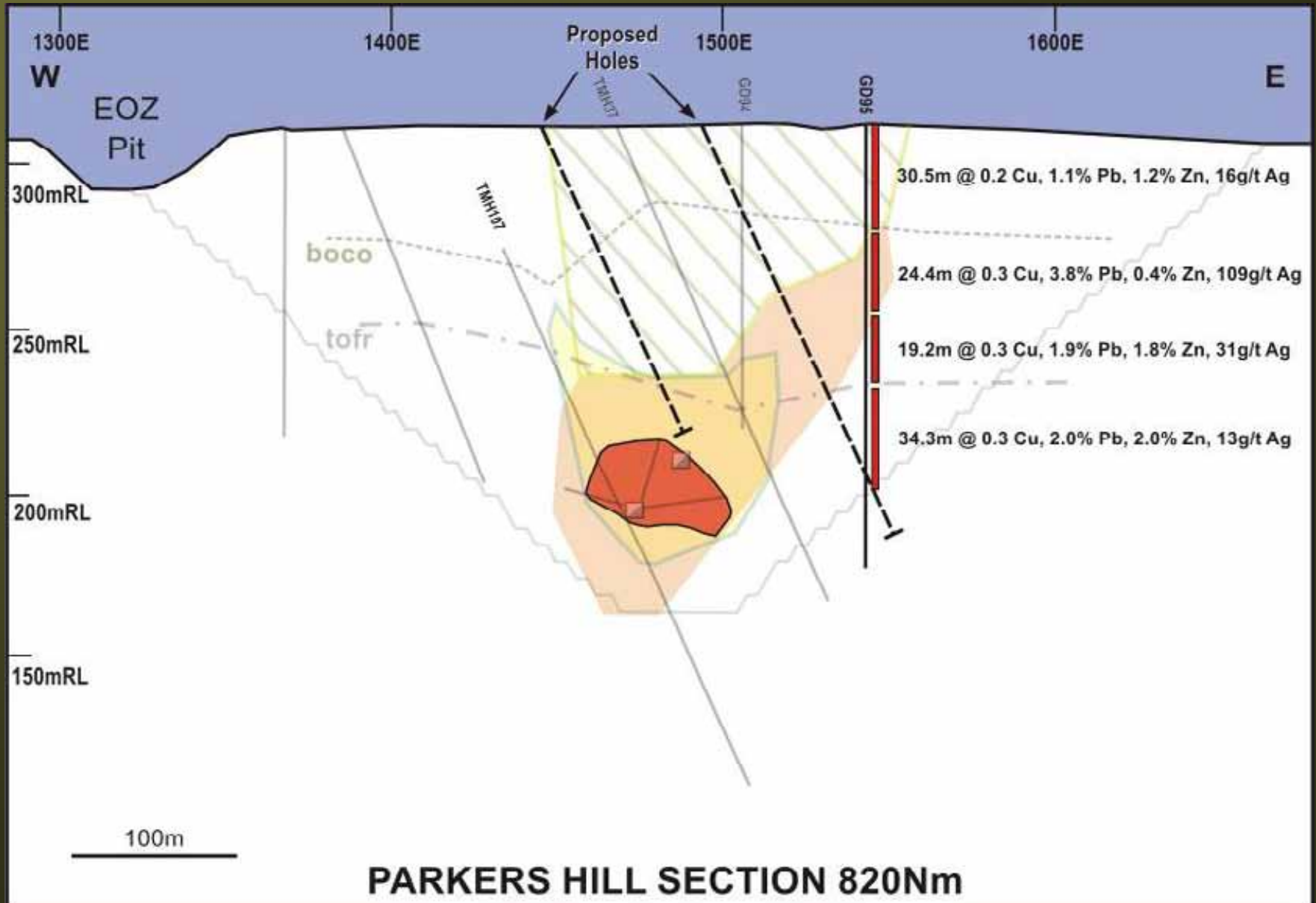
# Mineral Hill Mine- Parkers Hill Deposit



# Mineral Hill Mine- Parkers Hill Deposit



# Mineral Hill Mine - Parkers Hill Deposit



# Mineral Hill Mine - Plan Forward



## Short Term – 200,000 t/a

- Drill West Iodide and SOZ
- Mill refurbishment (reconfigure to Pb-Zn-Ag)
- Recommence production – 12 months

## Parkers Hill – 4 to 500,000 t/a

- Resource / metallurgical drilling - 6,000m initially
- Metallurgical studies
- Mine optimization work
- Mill expansion – 2 years





# Hera Deposit



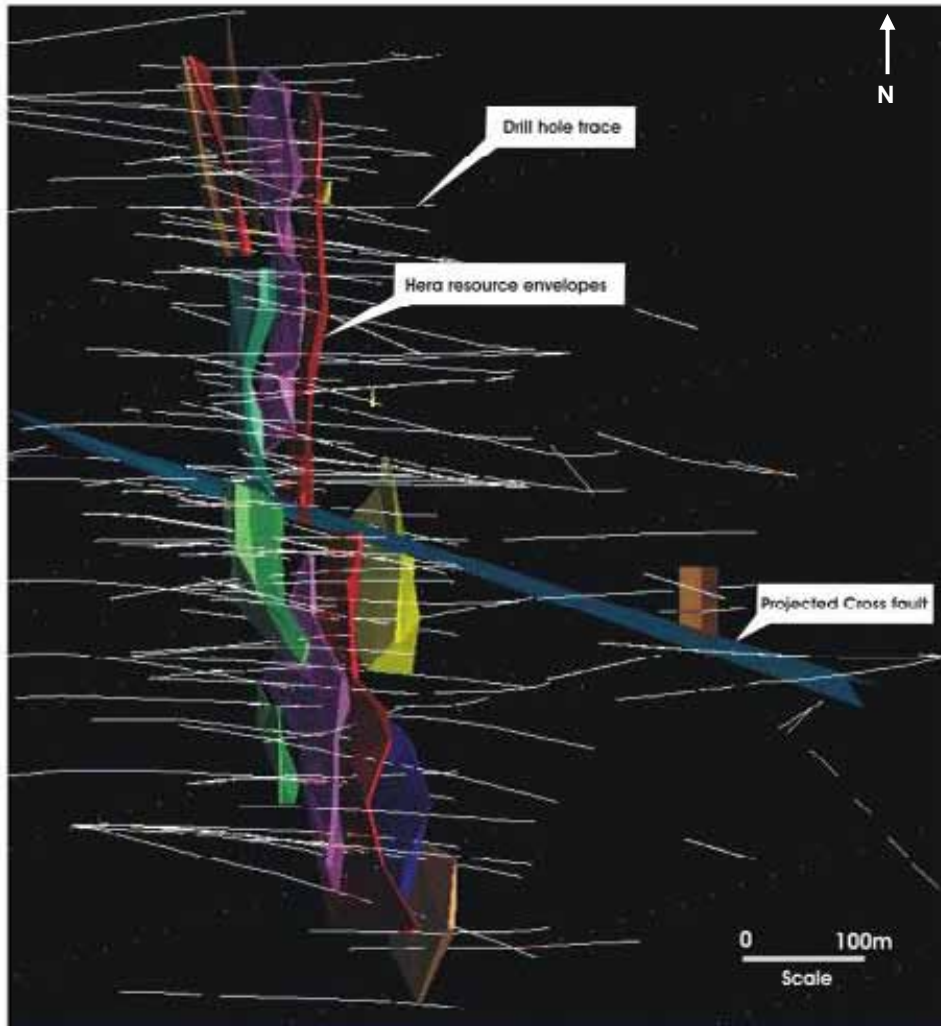
- 100km SSE of Cobar
- SE corner of Cobar Basin
- Typical Cobar style deposit – but high Au + Pb-Zn

**POTENTIAL ADJUNCT FOR MINERAL HILL OPERATION**

# Hera Deposit



Plan View of Hera / Kershaws Mineralised Zones



- Discovered in 2000
- Blind deposit
- 83 holes drilled to date
- Main Lens 50% of resource
- 2007 Resource :  
  
**2.2Mt @ 3.4g/t Au, 4.2% Zn,  
3.1 Pb%, 0.2% Cu, 18g/t Ag**

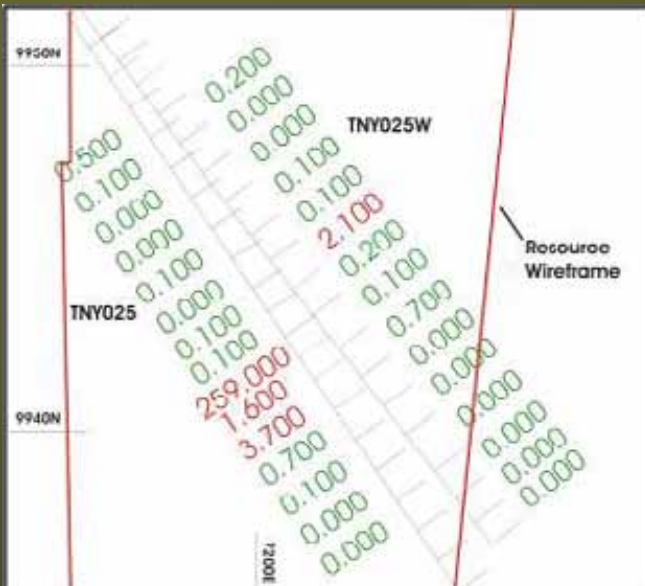
# Hera Deposit



- Thin and steeply dipping Pb-Zn-Au (+-Cu)
- Steeply south? plunging high grade shoots
- Deposition paragenesis – base metals followed by Au
- High gold grades associated with coarse free visible gold particles. Very high CV – high nugget effect.
- Base metal zones are less variable and erratic



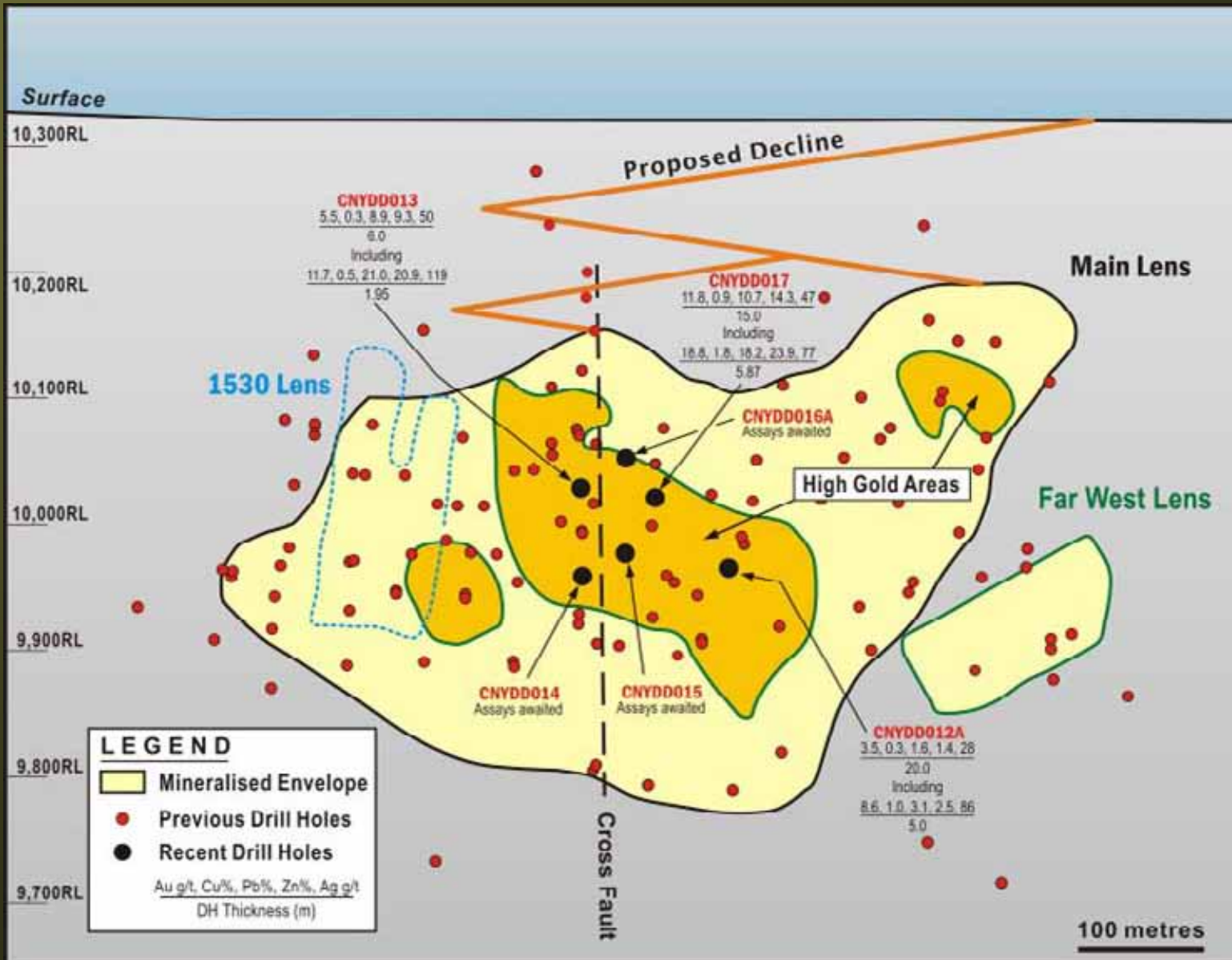
# Hera Deposit



Lens	Coefficient of Variation					
	Au g/t	Ag g/t	Cu%	Pb%	Zn%	SG
HMNN	5.99	1.85	2.92	1.90	1.69	0.10
HMNS	4.20	2.42	4.03	2.71	2.47	0.10
HHAYN	4.40	2.29	3.05	2.16	1.93	0.14
HHAYS	5.64	1.90	2.21	2.06	1.94	0.07
HWER	3.20	1.71	3.36	1.71	1.59	0.03
HWPZA	3.93	1.84	1.69	1.89	1.77	0.07
HWPZB	2.14	1.00	1.90	1.06	1.66	0.02
HMSE	2.61	2.97	2.66	3.06	1.22	0.06
HESTS	6.68	2.00	2.40	1.62	1.86	0.02
HESTN	2.56	1.85	3.13	1.91	1.77	0.07
H1530	4.30	1.82	2.19	1.86	2.48	0.04
HFWB	2.82	1.59	3.35	2.00	2.07	0.10
HFWA	1.81	1.92	2.23	2.09	2.11	0.02
HFWC	2.61	2.11	1.35	1.34	1.33	0.05



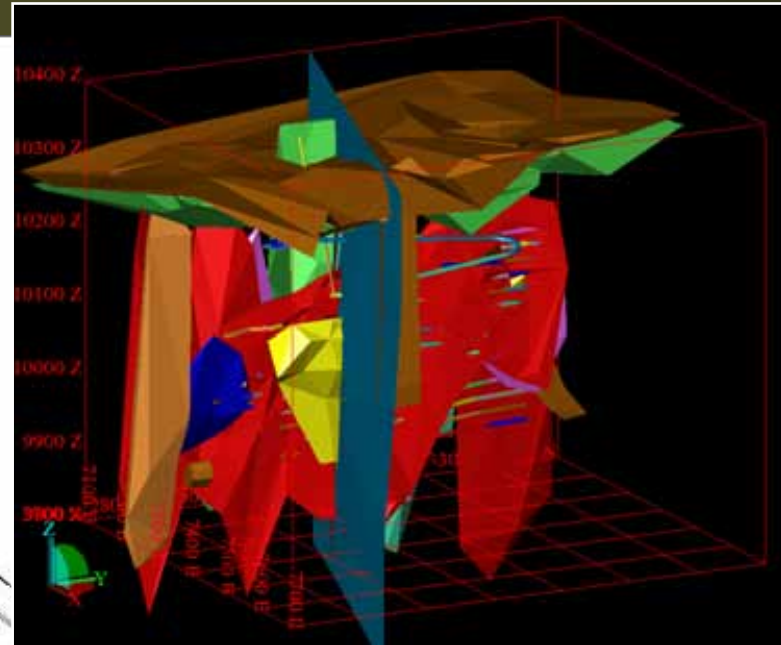
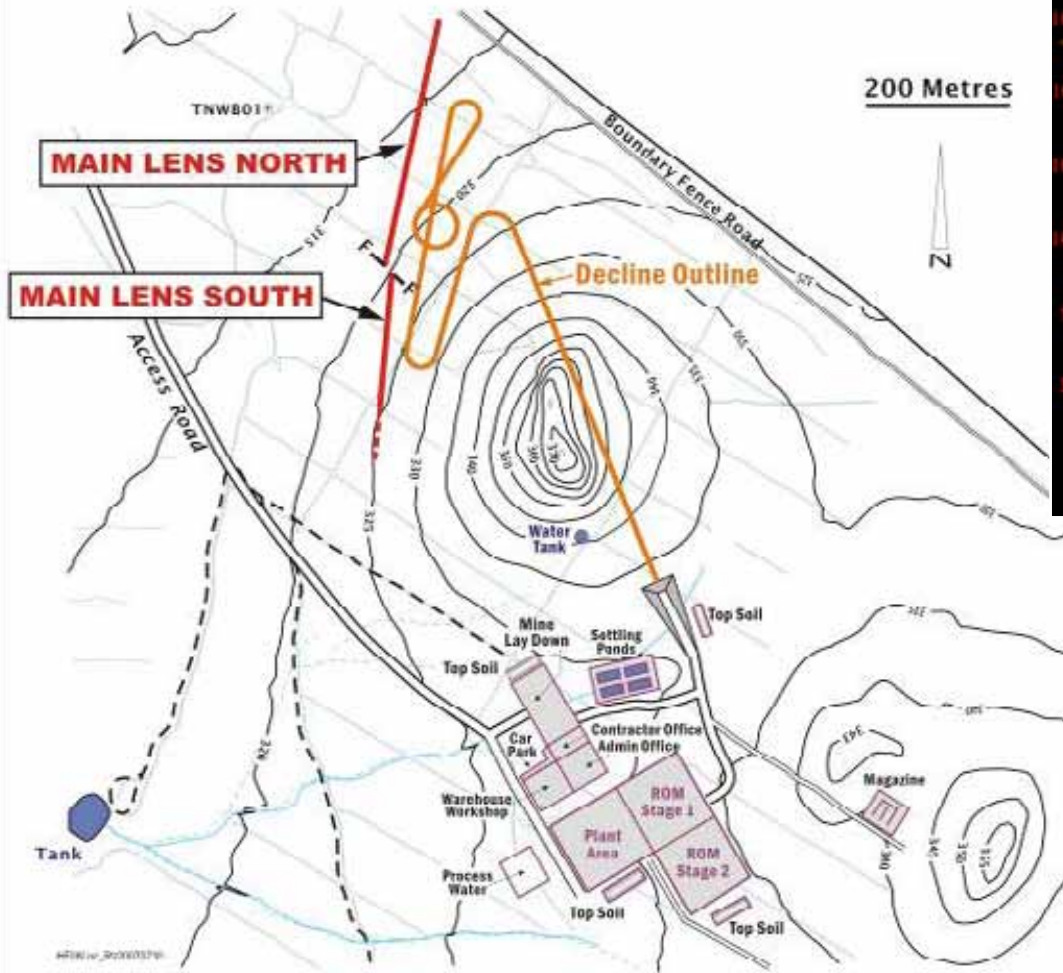
# Hera Deposit



# Hera Deposit



## HERA PROJECT - Site Conceptual Layout





## STATUS

- Exploration decline approvals in place
- Infill drilling of central Main Lode – completed
- Resource estimates and geotechnical review
- Decline tenders received

## PLAN

- Contract award late 07
- Development start Feb, 2008
- Seek mine approvals shortly thereafter

**+5 year mine life at 200,000tpa**

**TOTAL ESTIMATED CAPITAL - \$21M**

# Summary



- **Mineral Hill - A zoned, polymetallic, low sulphidation system**
- **Strong Pb-Zn-Ag (and Au-Cu) potential evident**
- **Reactivation - initial 200,000tpa focused on Pb-Zn-Ag**
- **Possibility for significantly expanded production**
- **New mine development at Hera to establish 200,000 tpa source**
- **Targeting combined production from area of 50,000t Zn equiv.**