

THE PHOENIX MINE

History

The first claims in the Phoenix area were staked by Henry White and Matthew Hotter in July 15th 1891

In 1896 a rubber footwear manufacturer from Granby Quebec, J.H.C Miner and mining promoters J.P. Graves and A.L. Little of Spokane Washington formed the original Granby company

In 1898 the C.P.R. extended a branch line to Phoenix and mining was begun using a combination of square-set and room and pillar stopes, serviced by numerous shafts and adits.

In 1900 the City of Phoenix was incorporated and the Granby smelter at Grand Forks was completed.

Most of the ore came from the Ironsides zone but all eight zones shown on the map produced. Production ranged up to 3000 T/day

In 1919 the mine and smelter closed due to low copper prices, low grade ore, and a shortage of coal.

In 1956 the Granby company re-purchased the property and began mining the old underground mine by open pit.

In 1960 production began at 900 T/day of ore. A 25% Cu concentrate was produced and shipped to Japan for smelting

In 1961 production was expanded to 2000 T/day which rose to 3000 T/day in 1972

In 1973 declining production from the pit was augmented by low grade ore stockpiled in previous years.

The completion of mining is presently for cast for 1976.

Geology

Most of the copper showings in the district occur in patches of Triassic volcanic-sedimentary rocks which lie unconformably on a pre-Permian group of andesites and cherts (Knobhill Group). These Triassic rocks usually consist of a conglomerate of green chert and andesite fragments which are angular and very poorly sorted. Within the conglomerate lenses of ash tuff occur plus sequences of well bedded limestone which contain marine fossils. At Phoenix these limestones have been

strongly metamorphosed and partially converted to garnet skarn. The ore in the largest zone (Ironside) occurs in two parallel lenses. The upper ore is banded ($\frac{1}{2}$ " to 3") consists of calcite 40%, chlorite 20%, quartz 20% and specular hematite 10%, pyrite 5% and chalcopyrite 3 to 5%. The lower ore band is more quartzitic and contains some magnetite. This ore is thought to be epigenetic although it could be syngenetic at least in part. Along the lower contact of the lower ore band small (5-10 ft.) lenses of massive magnetite-pyrite-chalcopyrite occur which have sharp contacts and appear to be injections of magmatic ore. Toward the south all the limy rocks are replaced by garnet and epidote. The source of heat for this metamorphism is not evident. No contemporaneous intrusives occur for at least 2000 feet to the north or south.

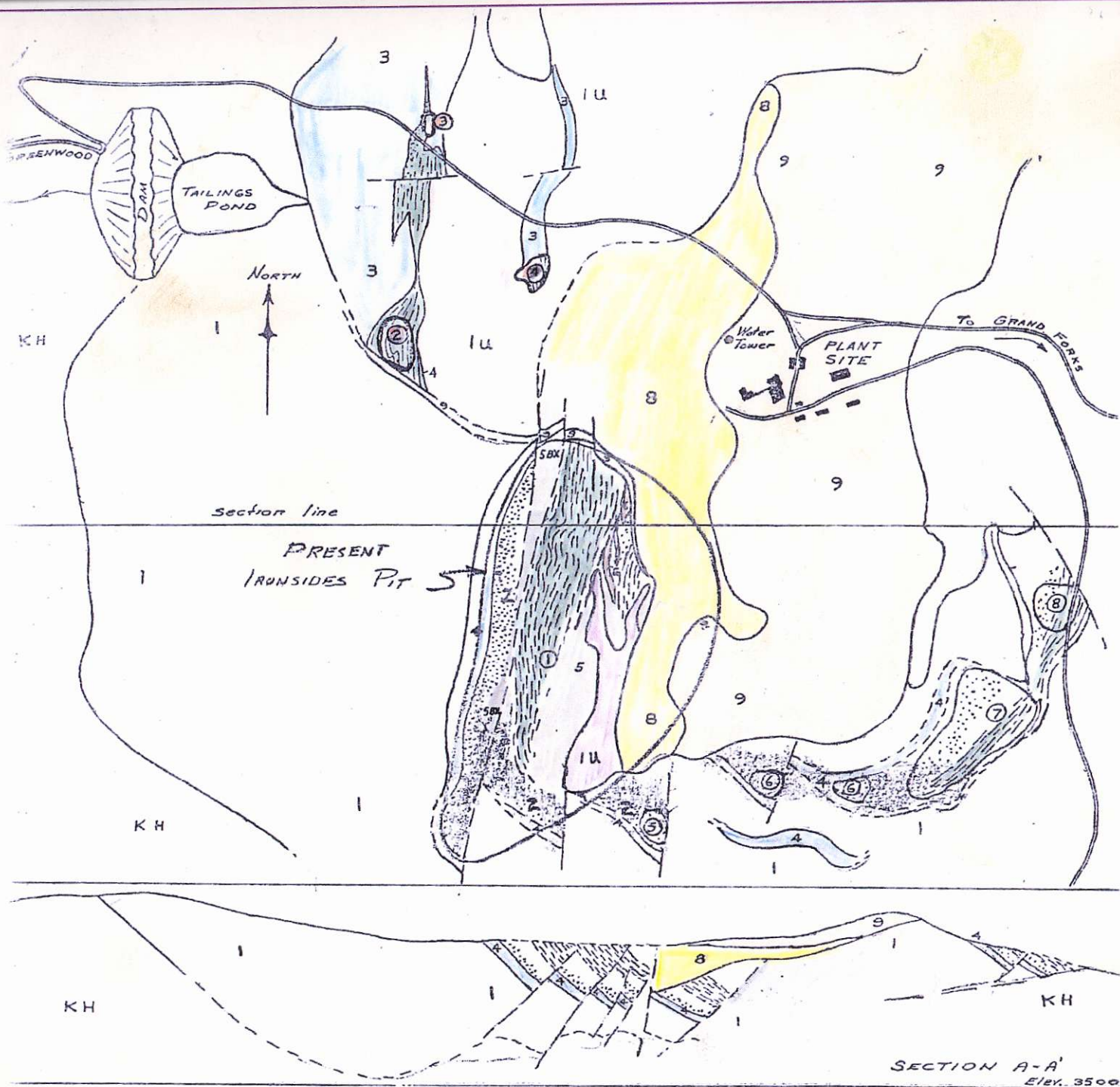
Above the Triassic rock a thick sequence of pale yellow-grey arkosic sandstones occur and above these a series of porphyritic and vesicular flows fed by similar dykes which cut through all older rocks. The arkoses contain numerous tertiary fossils.

Production

In the period 1900-1919 13,000,000 tons grading 1.2% Cu were shipped to the smelter at Grand Forks. Small amounts of ore also went from the Snowshoe and Rawhide zones to the Dominion Copper Smelter at Greenwood. At the end of the present phase of mining another 12,000,000 tons grading 0.8% Cu will have been mined.

As well as copper the ore contains 0.3 oz per ton of Ag plus 0.02 oz per ton of Au

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LEGEND

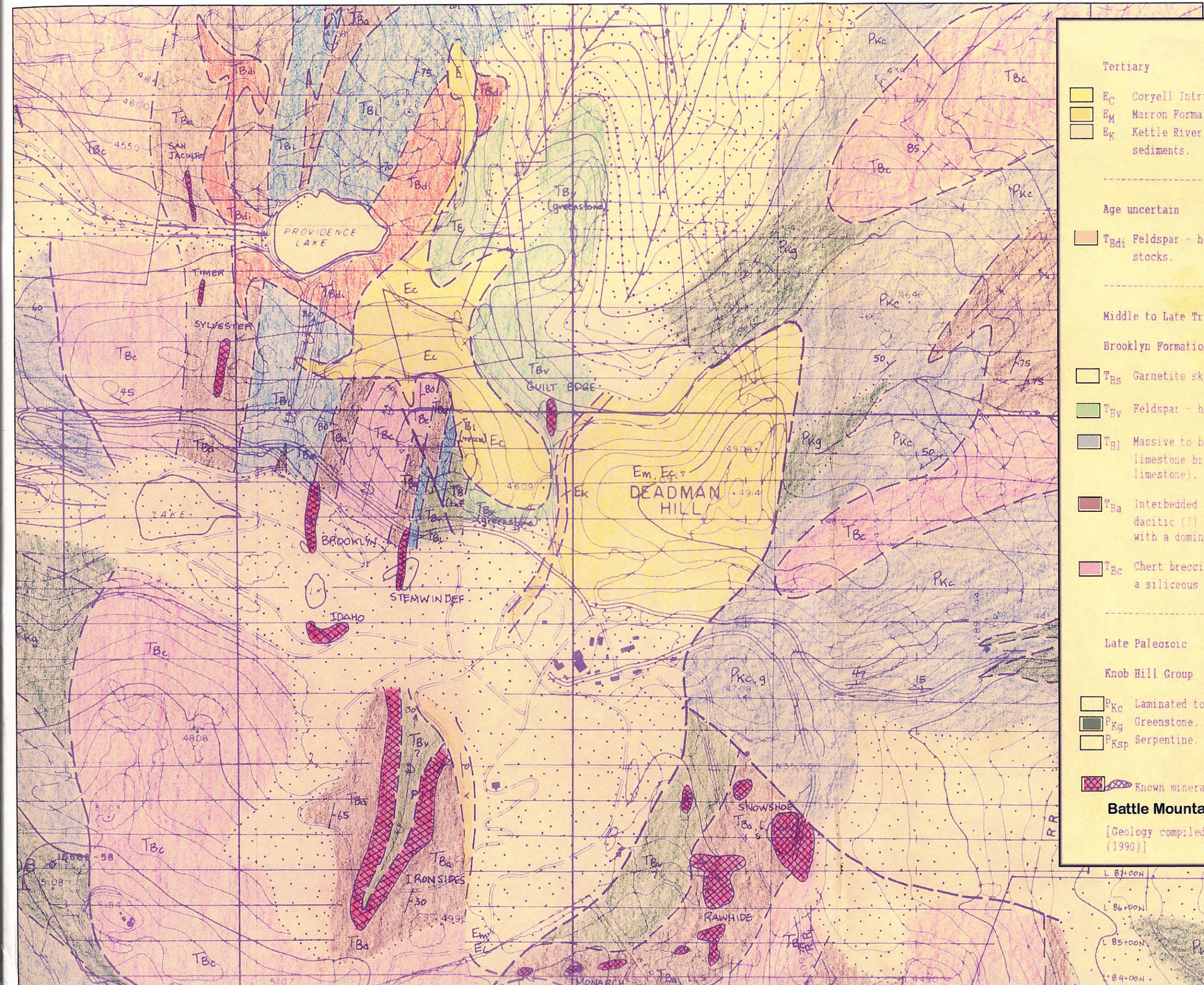
Tertiary	9	Syenite porphyry flows & dykes
	8	Arkosic sandstone
	1U	Upper chert conglomerate ("sharpstone")
		Garnet skarn with magnetite
	6	Siliceous, pyritic dykes ("Alaskite")
	5	Greenstone
		Banded calc-silicate skarn ("Upper ore band")
	5BX	Greenstone breccia (Intermediate waste band)
		Unbanded calc-silicate skarn ("Lower ore band")
		3
Cretaceous	2	Coarse sandstone & quartzite ("Aeolian sandstone")
	4	Footwall tuff ("Footwall argillite")
	1	Lower chert conglomerate ("sharpstone")
Permian	KH	Chert & Andesite

Ore Zones

- ① IRONSIDES
- ② IDAHO
- ③ BROOKLYN
- ④ STEMWINDER
- ⑤ WAR EAGLE
- ⑥ MONARCH
- ⑦ RAWHIDE
- ⑧ SNOWSHOE

PHOENIX MINE
 PLAN & SECTION OF ORE ZONES
 Scale: 1" = 1000'
 J. Poston Feb. 1974





LEGEND

- Tertiary
- E_C Coryell Intrusions: syenite and other intrusions.
 - E_M Marron Formation: pulaskite flows.
 - E_K Kettle River Formation: arkose and volcanoclastic sediments.
- Unconformity -----
- Age uncertain
- T_{Bdi} Feldspar - hornblende phyric diorite sills, dykes and stocks.
- Intrusive contact -----
- Middle to Late Triassic
- Brooklyn Formation
- T_{BS} Garnetite skarn.
 - T_{Bv} Feldspar - hornblende phyric andesite flows and tuffs.
 - T_{Bl} Massive to bedded limestone (Brooklyn limestone) and limestone breccia to conglomerate (Stemwinder limestone).
 - T_{Ba} Interbedded tuffaceous siltstones (Rawhide shale), dacitic (?) ash and lapilli tuffs, and chert breccia with a dominantly tuffaceous matrix.
 - T_{Bc} Chert breccia (Sharpstone conglomerate) with dominantly a siliceous matrix and rare beds of tuff.
- Unconformity -----
- Late Paleozoic
- Knob Hill Group
- P_{Kc} Laminated to massive cherts and chert breccia.
 - P_{Kg} Greenstone.
 - P_{Ksp} Serpentine.
- Known mineralization

Battle Mountain Canada Inc. - Phoenix Project

[Geology compiled from Pyles (1984-1986), Caron et al. (1990)]



Kettle River Resources Ltd.