

# CORPORATION FALCONBRIDGE COPPER

MEMORANDUM

DATE: October 3, 1985  
A TO: A. J. Davidson  
COPIES TO: D. H. Watkins, M. J. Knuckey  
DE FROM: L. D. Pirie  
SUJET SUBJECT: Rea Gold Option - Work Proposal

822885

## Introduction

Our work to date on the Rea Gold option, near Kamloops, B. C., has succeeded in outlining two major mineralized horizons within cherty sediments at the contact between mafic volcanoclastics and argillaceous to arenaceous sediments. These are known as the Rea horizon and the Silver Zone horizon.

On the Rea horizon shallow drill testing over 750m of strike has resulted in the discovery of two small massive sulphide/barite lenses with exceptionally high Au grades (approx. 1/2 oz.) sitting atop intensely altered mafic rocks. A distinct gold-arsenic (-barite) association is apparent.

On the Silver Zone horizon three drill holes have tested a strike length of 150m. to a depth of 150m, all of them intersecting strongly mineralized exhalative material returning good Ag grades (approx. 14 oz) and reasonable Zn (4%) and Cu (1%) grades over widths of close to a metre. Little or no alteration has been found in the footwall mafic rocks and a distinct silver-antimony relationship is apparent.

Despite these differences both horizons are extremely similar in their geological characteristics and are currently considered to be the same stratigraphic horizon structurally repeated. The different metal associations simply represent slight chemical variations in a very widespread hydrothermal system.

The combination of geological environment and metal association suggests that valid comparisons can be made with the Green's Creek deposit within rocks of similar age in Alaska (see abstract attached). Higher Au and Cu (and As?) values at Rea are probably due to the greater volume of mafic volcanics in the footwall. Another potentially significant difference is the coarse nature of sedimentation in the hangingwall at Rea. It indicates very

*Au likely to be very high at Green's Cr*  
*note variability of ore at G.C.*

*Subsidence*  
rapid uplift and therefore major rifting perhaps of the type associated with the Sullivan deposit.

In any event, the potential tonnage is significant. Both horizons must be extensively explored by drilling and the following proposal is designed as the next step in that process.

### Linecutting and MaxMin

MaxMin has proved to be very useful for tracing the two mineralized horizons. Although not responding to the horizons themselves, it traces argillites occurring slightly above them in the stratigraphy.

At the current time our MaxMin coverage of the Silver Zone horizon is limited to L100 at the SE end and to the NW the anomaly trends off the north end of the grid between lines 108 and 109. It is therefore proposed to extend our coverage as follows:

(See Compilation Map in pocket)

Linecutting 14km @ \$320/km = \$4480

- this will extend the grid into an area of Dighem anomalies believed to represent the northerly continuation of the Silver Zone horizon package.

MaxMin II 17km (5days @ \$1000/day) = \$5000

- to cover the grid extension and to extend coverage of the Silver Zone horizon 1km to the southeast into the area of the RG35/36 exhalite (believed to be the same horizon).

### Diamond Drilling

Proposed diamond drillholes are divided into 3 categories.

- A. Firm - these are meritorious targets in their own right and do not depend upon further work.
- B. Probable - these are likely targets whose final location is dependant upon the proposed MaxMin survey results.

C. Contingent - these depend entirely upon the results of the MaxMin survey and/or holes yet to be drilling.

Category A

P1 L103+50, 9+50N, -85°, 200m

P2 L102, 8+75N, -70°, 100m

P3 L100+50, 8+25N, -85°, 200m

sub total = 500m.

- these will test the strike extension of the Silver Zone to the SE at 150m intervals and to a depth of 150m in a pattern illustrated on the vertical long section (in pocket). *no - in report*

P4 L108, 10+10N, -70°, 100m

sub total = 600m.

- this will test the strike extension of the Silver Zone to the NW as indicated on the long section.

P5 L94, 4+50N, -70°, 200m

sub total = 800m.

- this will test a strong, short strike length VLF anomaly in an area of anomalous soil geochem (Ag, Cu, Zn) on the Silver Zone horizon 300m NW of where it was intersected by RG35/36.

P6 L97, 2+00N, -89°, 275m

P7 L95+50, 2+00N, -89°, 300m

sub total = 1375m.

- these holes will test downdip of the RG-8 lens on the Rea Horizon (see Rea Contact long section, in pocket). The nearest hole to these, RG-30, returned 3.17 g/tonne Au over 1.5m at the Rea horizon and showed a weak off-hole response. It is approximately 150m from P6.

P8 L107, 1+00N, -50°, 100m

- this hole is designed to intersect a previously untested MaxMin anomaly with an interpreted depth of 46-52m and conductance

*Ag zone*

*600m*

*200m*

*575m*

*Rea horiz.*

*100m*

of 1-2.5 mhos (see MaxMin profile P8).  
Although geological extrapolation would put it  
in the hangingwall sediments, given the  
structural repetitions that are occurring in  
the area, it would appear to warrant testing.

Total = 1475m.

Category B

P9 L111, ?, 100m

P10 L114, ?, 100m

P11 L97, ?, 100m

- these will test the continuance of the Silver  
Zone horizon as defined by the proposed MaxMin.

*all on  
AS zone*

Total = 300m.

*1775 m*

Category C

P12 250m (line 102?)

P13 300m (line 100+50?)

- to test targets downdip of P1, 2 and 3 if  
warranted

P14 200m (line 109+50?)

P15 200m (line 112+50?)

P16 200m (line 115+50?)

- to test between and beyond P4, P9 and P10  
if warranted.

P17 200m (line 95+50?)

P18 200m (line 98+50?)

- to test between P3, P11 and P5 if warranted

sub total = 550m.

sub total = 1150m.

*all AS zone  
contingencies*

Total = 1550m.

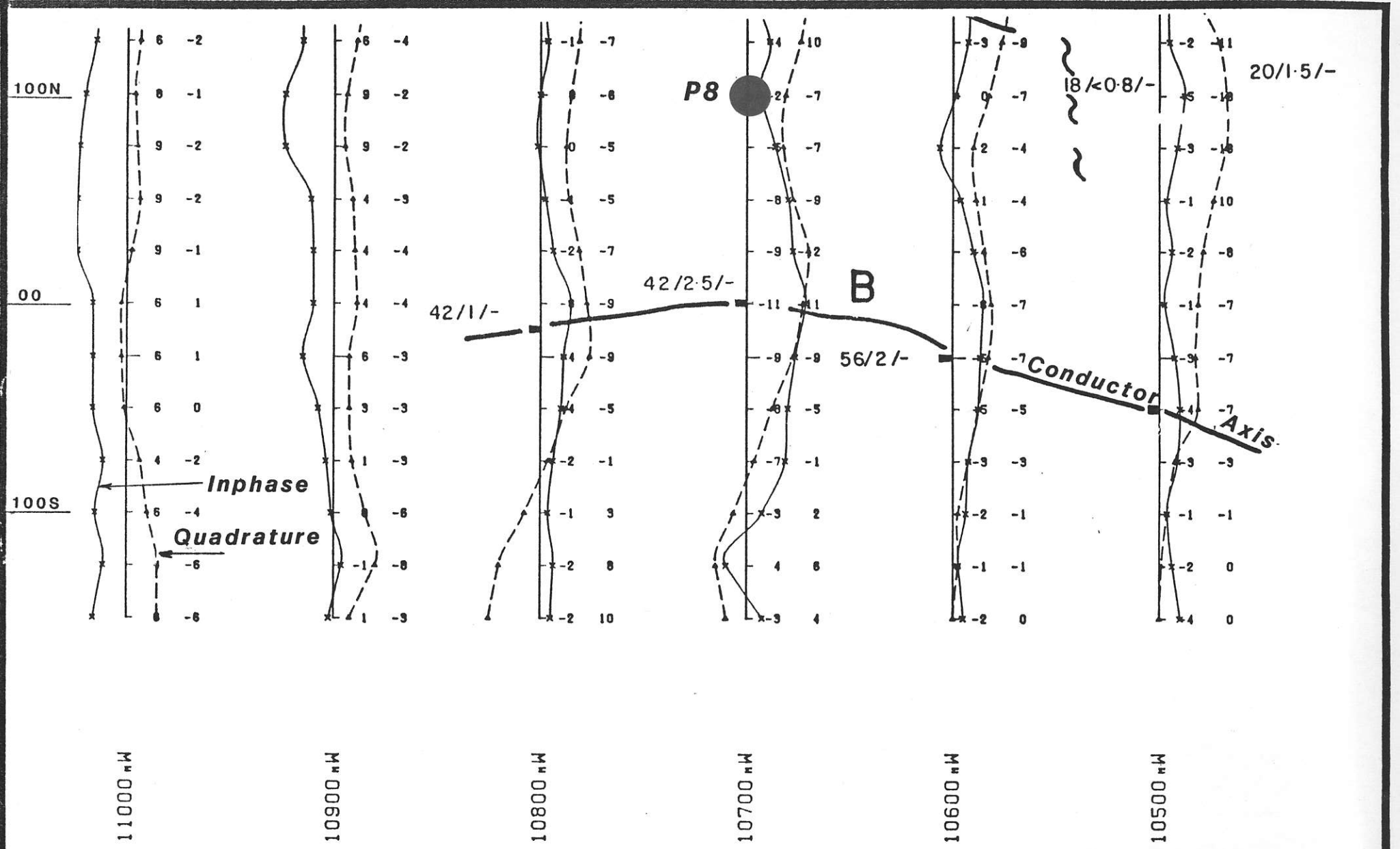
Summary

Category A - firm targets	1475m.
Category B - probable targets	300m.
Category C - contingency holes	<u>1550m.</u>
	3325m.

Obviously 3325m. of drilling is impossible under the present budget scenario. However, priorities will be made and amended as results present themselves. At the current time I propose that we start with 2 drills, drilling P1, 2 and 3 with one, P5, 6 and 7 with the other and take things from there.

Ian D. Pirie

IDP/ik



**REA GOLD OPTION  
MAX MIN II SURVEY  
1777 Hz**



# ABSTRACTS

Presented at the

ALASKA MINERS ASSOCIATION  
NINTH ANNUAL CONVENTION  
AND TRADE SHOW

ANCHORAGE, ALASKA  
October 31 - November 3, 1984  
Egan Civic & Convention Center

## Geologic Update Greens Creek Deposit

### ABSTRACT

*D. Scherkenbach*

*Noranda Exploration, Inc., Anch., AK*

*E. Harrison*

*Noranda Mining Inc., Juneau, AK*

*T. Crafford*

*Anaconda Minerals Comp., Anch., AK*

Ten years ago the first discovery hole was drilled at Greens Creek intersecting over 80 feet of massive sulfide ore. By the end of 1984, over 85,000 feet of core drilling from about 170 surface and subsurface stations established reserves of 3.5-4.0 mt of 10.3 opt Ag, 6.4% Zn, 2.1% Pb and .09 opt Au. A high grade ore reserve of about 1.5 mt of 17.5 opt At, .11 opt Au, 9.7% Zn and 3.4% Pb exists within the ore body. Drilling results from the past three years suggest that the ore bodies are restricted to several depressions that extend down dip and toward the southwest.

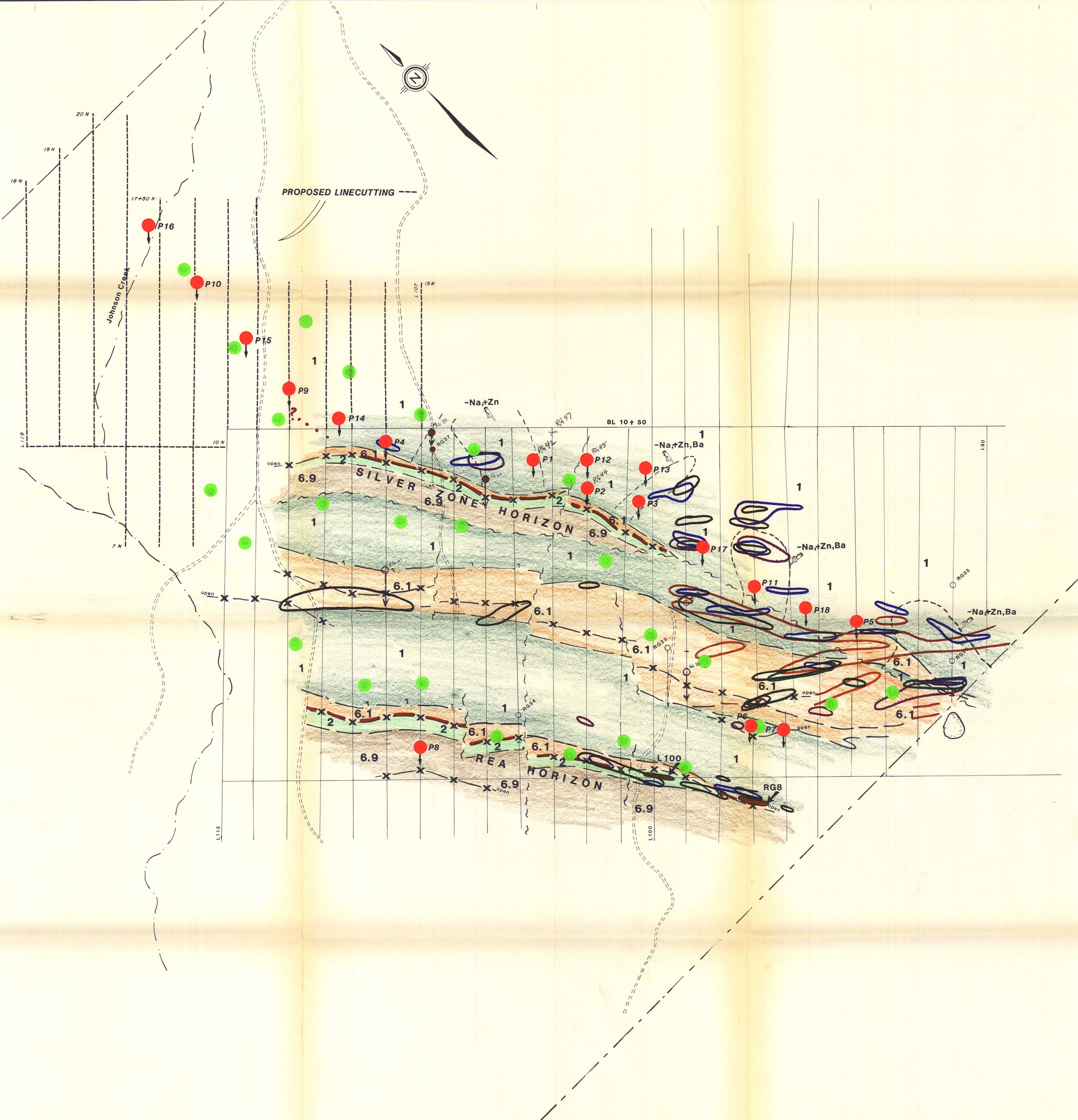
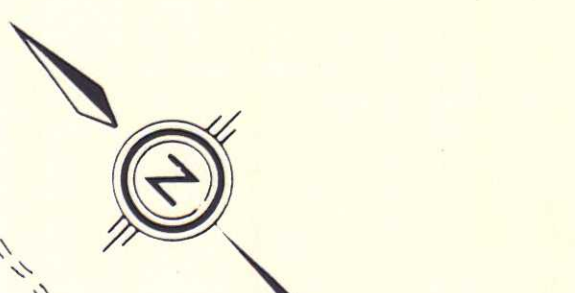
Chemical and fine grained, clastic sediments both underlying and overlying the ore suggest that Greens Creek belongs to the family of sediment hosted deposits. A minimum of 300 meters of fine grained (< 200 microns) chloritic schist and mudstones underlie the ore horizon. Within 60 meters of the ore horizon sericite-quartz schist predominates. Both chert and carbon increase markedly within 20-30 meters of the ore horizon. Overlying the exhalite horizon is a thick (<500 meters) monotonous section of black carbonaceous argillite, carbonate and chert. Mafic and ultramafic intrusions and volcanics that are now strongly serpentinized, underlie the deposit and may be associated with hydrothermal activity.

The setting for the deposit was probably back arc or strike slip extensional basin. Ore accumulated within a third or fourth order basin following a 'tectonic snap'. Such tectonic activity, accompanied by intrusion of mafic rocks, allowed hydrothermal solutions to percolate up along fault scarps and deposit exhalite in troughs along with locally derived slump and

debris breccias. Association of ore with synsedimentary breccias suggest basin scraps existed at the time of exhalative activity. Ore accumulated in thick pods as well as wedge like blanket deposits.

Three types of ore have been recognized at Greens Creek, black ore, massive ore, and white ore. Black ore, so called because of its color resulting from a high carbon content, forms a regionally extensive blanket deposit up to 10 meters thick. It is composed primarily of fine grained (125-250 microns) sphalerite, galena, tetrahedrite and pyrite. Black ore is commonly diluted by fine grained clastic sedimentation and may be transitional to massive ore. Massive ore is composed of accumulations of sphalerite, chalcopryrite, tetrahedrite, pyrite + bornite. Massive ore exhibits fine banding indicative of a chemical sedimentary origin and accumulates into lenses up to 30 meters thick probably near hydrothermal vents. It commonly contains less clastic material and organic carbon than black ore. White ore, a hydrothermally reworked ore, is locally distributed as pods of coarsely crystalline barite, quartz, tetrahedrite and pyrite near massive ore lenses.

The Greens Creek deposit is different from other massive sulfide deposits because of its high Ag content. Much lower silver is found in black shale basin deposits such as Red dog or Selwyn Basin deposits and higher Copper, lower silver values are common in volcanogenic settings. Mt. Isa and Sullivan formed different basinal settings and have different metal contents from Greens Creek. Roseberry may be the closest analogy and also occurs within a sediment dominated basin.

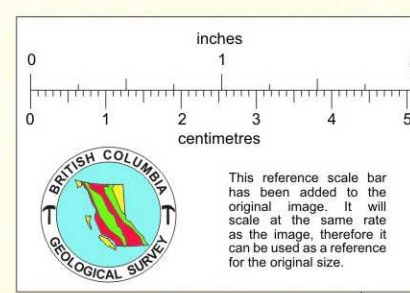
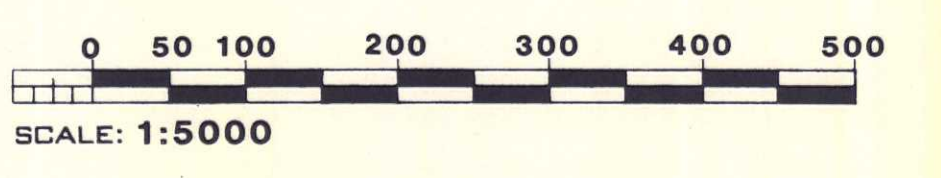


**LEGEND**

- 1 Mafic pyroclastics
- 6.1 Chert, cherty tuff, cherty argillite
- 2 Intermediate & mafic pyroclastics, muddy tuff
- 6.9 Greywacke, argillite
- X-X Max Min anomaly
- Zn in soils (>636ppm)
- As in soils (>89ppm)
- Pb in soils (>186ppm)
- Ag in soils (>2ppm)
- Cu in soils (>110ppm)
- AEM
- Proposed Drillholes

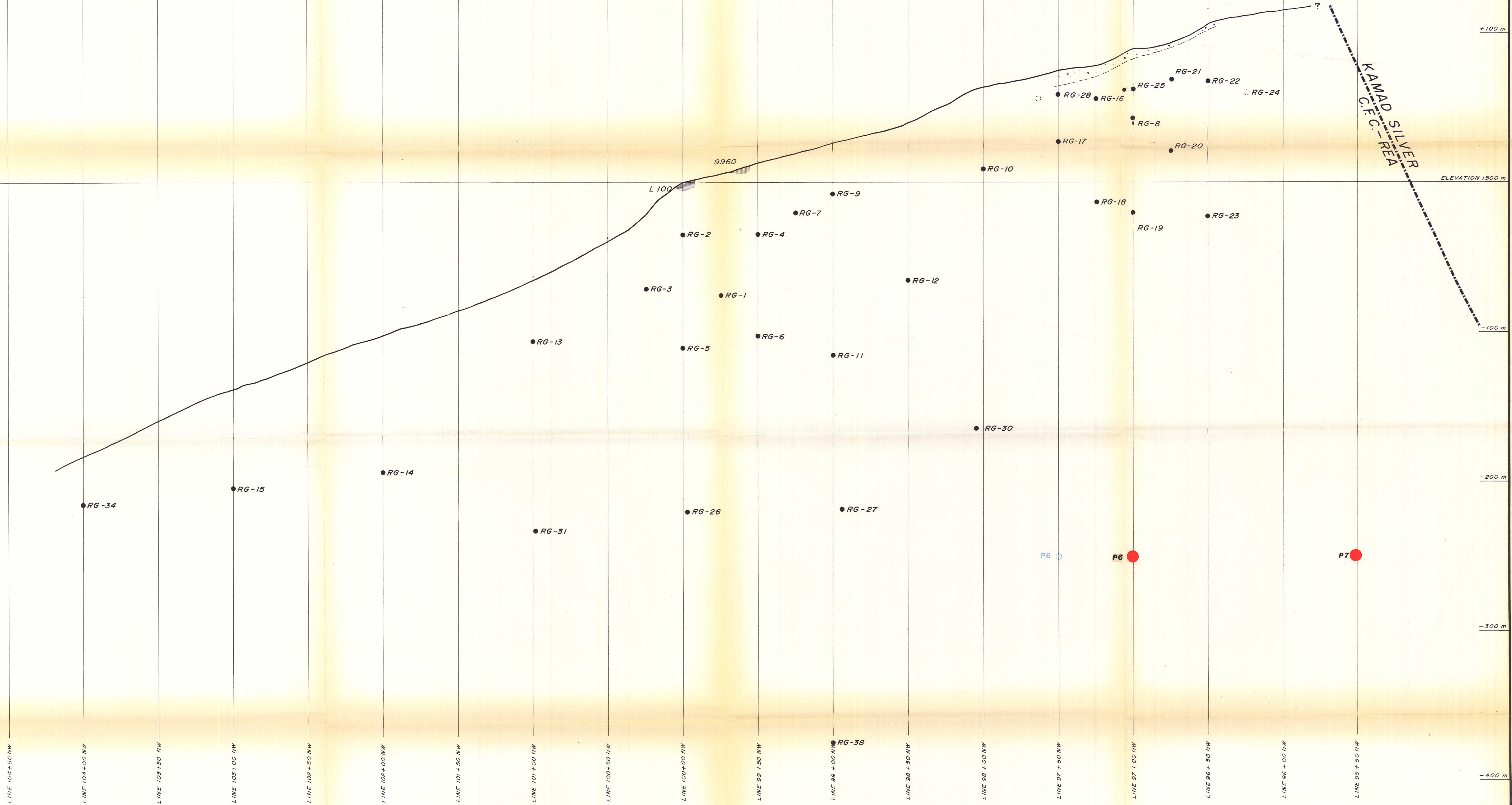
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**REA GOLD OPTION  
COMPILATION MAP**



DRAWN BY: IDP	FIG. NO.:
DATE: OCT. 1985	N.T.S. 82M/4W





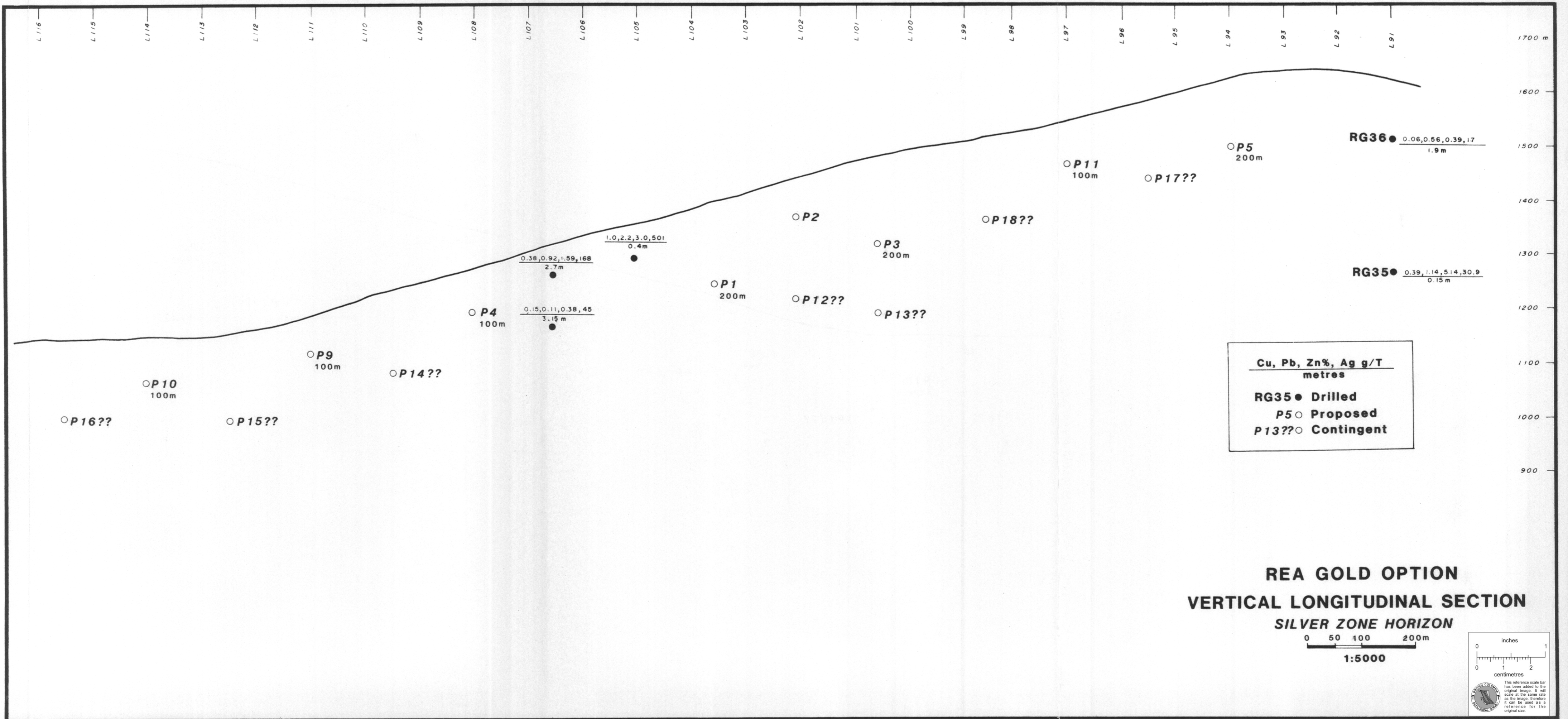
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**REA GOLD OPTION**

LONGITUDINAL SECTION  
PLANE OF REA CONTACT  
LOOKING NORTHEAST

SCALE: 1:1000

DRAWN BY: P/dg	UPDATE: OCT. 1985	FIG. NO.:
DATE: NOV. 1984	N.T.S. 82M/4 W	



L 116 L 115 L 114 L 113 L 112 L 111 L 110 L 109 L 108 L 107 L 106 L 105 L 104 L 103 L 102 L 101 L 100 L 99 L 98 L 97 L 96 L 95 L 94 L 93 L 92 L 91

1700 m  
1600  
1500  
1400  
1300  
1200  
1100  
1000  
900

○P16??

○P10  
100m

○P15??

○P9  
100m

○P14??

○P4  
100m

0.15, 0.11, 0.38, 45  
3.15 m

0.38, 0.92, 1.59, 168  
2.7 m

1.0, 2.2, 3.0, 501  
0.4 m

○P1  
200m

○P12??

○P13??

○P3  
200m

○P2

○P18??

○P11  
100m

○P17??

○P5  
200m

RG36 ● 0.06, 0.56, 0.39, 17  
1.9 m

RG35 ● 0.39, 1.14, 5.14, 30.9  
0.15 m