

JUN 28 1982

# CORPORATION FALCONBRIDGE COPPER

MEMORANDUM

021834

DATE: June 24, 1982  
A TO: B. D. Simmons ✓  
COPIES A COPIES TO: M. J. Knuckey  
DE FROM: P. W. A. Severin  
SUJET SUBJECT: E & B EXPLORATIONS - ECSTALL RIVER PROJECT, B.C. NTS 103H/13E,14W

## SUMMARY

The following is a preliminary brief summary of the E & B Explorations Ecstall situation. A field trip has been arranged for July 28, 1982.

The Ecstall Joint Venture involves four companies who have acquired a substantial ground (18,350 acres) position in the Ecstall River meta-volcanic/sedimentary "belt" in west central British Columbia approximately 80Km south of Prince Rupert.

*3MS deposits*  
At least three reasonably sized (each + 3 MT) massive sulphide (py) deposits occur in the area and are supplemented by numerous sulphide (Py- Cp-Sph) showings. These include the two massive sulphide deposits collectively referred to as the Ecstall deposit (owned by Kidd Creek) containing 8 MT of ~0.5% Cu, 3% Zn, 0.1% Pb, 0.8oz T Ag and 0.01 oz/T Au., with local areas within the MS reported to grade up to 5% Cu and 15% Zn.

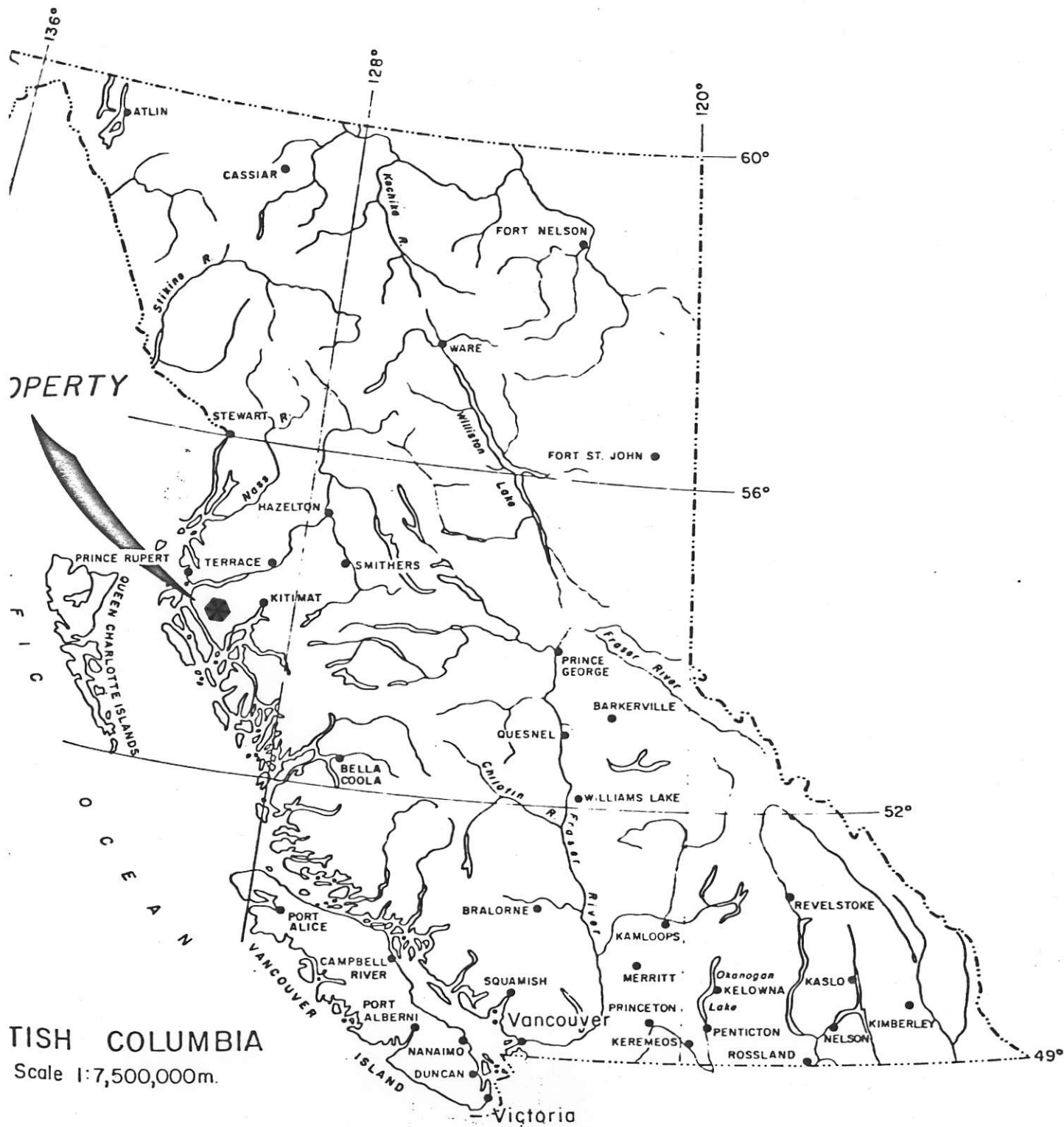
Airborne EM and magnetometer surveys and limited ground silt and soil geochemistry emphasize the fact that the areas in the vicinity of 4 known showings/deposits that the Joint Venture holds warrant detailed follow-up. The prime example is a +150 mho AEM conductor located in the vicinity of the Horsefly massive pyrite showing which assays up to 0.31% Cu, 4.55% Zn, 0.08% Pb, 1.5 oz/T Ag and 0.01 oz/T Au from grab samples (apparently not much exploration done to date). *what method?*

This is definitely an interesting situation located in a significant, albeit *(Geones on 33)* subeconomic to date, massive sulphide district. The accessibility of this area, compared to others, is not as attractive, however this is somewhat compensated by the amount of favourable ground held by the existing joint venture group, and by favourable ground apparently still open for staking.

The situation will be investigated further by means of a property visit and a preliminary discussion regarding possible terms of agreement. It is recommended that C.F.C. not consider committing themselves to any programs in B.C. prior to say October 31, 1982 in order that our on-going study may be far enough advanced to allow us to put the various opportunities in proper perspective ( unless of course we have adequate funds and acquire personnel to commit ourselves to more than one major project initially - i.e. annual budget +\$1,500,000). *very unlikely*

## INTRODUCTION

C.F.C was offered participation in the Ecstall River Joint Venture Project as a result of a conversation that Dave Watkins had with Pat McAndless of E & B Exploration Inc., on May 13, 1982.



**BRITISH COLUMBIA**  
 Scale 1:7,500,000m.

EBB EXPLORATION INC. AND WELCOME NORTH MINES LTD.			
ECSTALL JOINT VENTURE			
LOCATION MAP			
PLAN No.	DRAWN C.G. / E.D.S.	DATE SEPT. 1981	FIGURE <b>I</b>
Revised		N.T.S. 103 / H, I	
ACTIVE MINERAL EXPLORATIONS LTD.			

EXCLUSIVE DRAFTING SERVICES

The Ecstall Joint Venture was organized in 1981 to explore for massive sulphide deposits in the vicinity of Kidd Creek's (Texasgulf) Ecstall deposits ( 8 MT ~.5% Cu, 3% Zn, 0.1% Pb, 0.8oz/T Ag, 0.01oz/T Au) located within meta-volcanic (meta-sedimentary) rocks of the Ecstall-Quaal Rivers area in West Central British Columbia. The Joint Venture currently involves: Welcome North Mines Ltd., Esperanza Explorations Ltd., Active Mineral Explorations Ltd., and E&B Explorations Incorporated.

A report on the Joint Venture's 1981 exploration program by Chris W. Graf of Active Mineral Explorations Limited has been reviewed and is the subject of this brief summary.

*Active = operator ??*

*Yes! see later.*

### LOCATION AND ACCESS

The Ecstall area of interest is located in the Coast Range Mountains, approximately 80km south of the town of Prince Rupert (Fig. 1). The property is accessible by float plane and/or helicopter which are available in both Prince Rupert and Terrace.

There are ~~not~~ roads into the area; however, the broad, low elevation, Ecstall-Quaal River Valley would provide relatively easy access to tidewater at Douglas Channel (40 Km south) or the Skeena River (50 Km north).

The area is mountainous with elevations ranging between sea-level and 6000 feet. Generally, the slopes are steep with numerous cliffs. The larger valley bottoms are difficult to walk through because they are commonly beaver-dammed and swamp-covered.

### HISTORY

The Ecstall massive pyrite deposits were discovered near Red Gulch Creek during the late 1890's. Four Crown-Granted claims covering the deposits were recorded in 1900, and still comprise the core of the main Ecstall property. At that time the deposits were investigated by adits and some drilling.

The two massive lenses (300 X 40m; 400 X 5m) occur within a northerly trending remnant (5 X 10km) of meta-sedimentary and meta-volcanic rocks of Late Paleozoic (Permian?) age that are surrounded by the Coast Range batholith. Mineralization consists of a friable intergrowth of mg to cg, euhedral pyrite with minor sphalerite, chalcopyrite, and minute amounts of galena, pyrrhotite, and marcasite. The deposits are associated with sericite schist, quartz-biotite-chlorite schist, quartz-mica schist and minor black argillite.

The property remained idle from 1903 to 1917, when Granby Mining Company took an option on the claim group. They subsequently drilled the deposits in 1918, 1919 and dropped the option. A second option was obtained by Granby in 1923, but after additional drilling it was dropped once again.

In 1937 the property was acquired by Northern Pyrites Limited who completed some diamond drilling to check previous work. By 1940 an 8' X 9' adit (2,700 feet long), seven crosscuts totalling 725 feet and a 600 foot raise to surface had been completed. In 1952 the company completed 1378 feet of surface drilling, 8880 feet of underground drilling and geological reconnaissance of the area. Some low frequency EM was also completed.



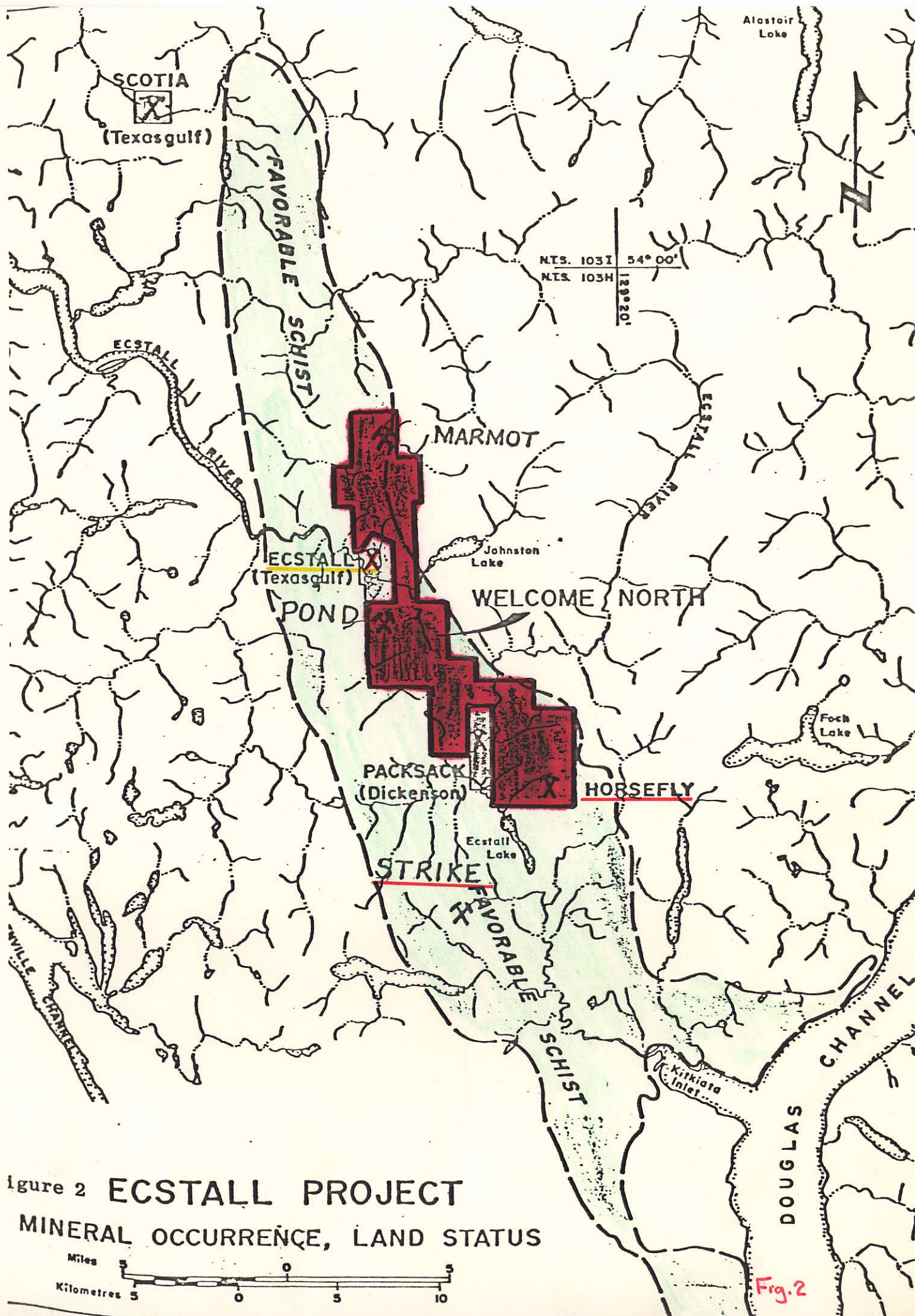


Figure 2 ECSTALL PROJECT  
MINERAL OCCURRENCE, LAND STATUS

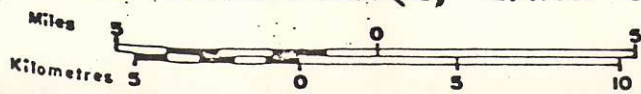


Fig. 2

Ecstall Mining?

Huh!?

Texasgulf Inc., was subsequently formed to further develop the property, and in 1958 carried out a regional exploration project to search for other deposits in the district. This led to the discovery of the MASS or PACKSACK massive pyrite deposit in 1958 and the HORSEFLY massive pyrite showing in 1960. The MASS (Packsack) deposit was extensively drilled in 1959 and 1960 and is reported to be in excess of 3 MT. The HORSEFLY deposit was explored in 1960 by geological mapping, prospecting and a ground EM survey. This survey apparently outlined a conductor roughly 400 metres long.

According to C. Graf no further exploration is known to have been carried out in the district prior to the field work performed by Active Mineral Exploration Limited on behalf of the Ecstall Joint-Venture in 1981. The 1981 exploration program consisted of reconnaissance geology, stream silt and soil geochemistry (Cu, Pb, Zn, (Ag, Au)), local detailed soil geochem and helicopter EM (Geonics 33-1) and magnetometer (Geometrics 803) survey.

#### CLAIM STATUS

A claim block of 257 units (Fig. 2) was staked late in 1980 to cover the favourable ground on strike from the known deposits.

##### B.C. Mineral Claim:

This is a variable size claim consisting of 1 to 20 units, a unit being a 500 metre (1640 foot) by 500 metre square containing 25 hectares (61.78 acres).

The Ecstall Joint Venture 14 claim block consists of 6425 hectares or 15877.5 acres which is equivalent to the size of 397 (40 acre) claims in Ontario.

The block of 14 claims (Ecstall 1-14) was staked by Chris Graf and recorded on December 17, 1980. Two additional claims (40 units) Ecstall 15 and 16 were staked on August 5, 1981 to bring the total ground held to 7425 hectares or 18,348.7 acres (459 Ontario claims) in 297 units.

Presumably the 1981 exploration program by Active Mineral Explorations Limited has been submitted as assessment work and the claims are in good standing (this has to be verified).

Twenty-six Crown-Granted claims, and a "contiguous 9 unit modified grid claim" cover the original Ecstall deposit area and are owned by Kidd Creek (Texasgulf).

Twelve Km south of the Ecstall deposit, the Mass claim (16 units) covers another significant (+ 3MT), potentially economic massive pyrite body, which is owned by Dimac Resources.

#### GENERAL GEOLOGY

The Ecstall area is underlain by a zone of Mid-Paleozoic? meta-volcanic/sedimentary rocks over 120 Km in length and 11 to 25 Km in width. It is bounded on the west by a complex amphibolite facies metamorphic belt which borders the Coast Granodiorite of Mesozoic age.



SHOWING	% Cu	% Pb	% Zn	oz Ag	oz Au	
Mark - pyritic, qtz-seric-chl schist	0.14	0.01	0.02	0.06	0.002	Beyond AEM coverage
Marmot - qtz-seric schist - soil/silt geochem moderately anom	0.006	0.01	0.02	0.01	0.002	" "
Ecstall - pyritic qtz-seric schist - hosts 3 separate MS deposits (P) - local areas with MS - the 2 main deposits total BMT.	0.90	0.01	3.10	0.80	0.013	No AEM report - located in a deep ravine and the EM sensor was probably too distant from the deposit to detect it.
Pond - pyritic qtz-ser schist - soil geochem locally anom G, Pb, Zn	0.013	0.01	0.13	0.12	0.001	Not much of a response with AEM
Mass - pyritic qtz-ser schist 3MT MS - this is open at depth and likely to the north as well	0.50	0.01	0.20	1.00	0.01	Not much of a response - AEM
* Horsefly - pyritic qtz-ser schist + MS - soil/silt geochem moderately to highly anomalous	0.31	0.08	4.55	1.5	0.01	Likely represented by T-5 response
* Strike - pyritic qtz-ser schist + MS - silt moderately anom. Cu, Zn	0.17	0.27	2.83	1.13	0.01	Outside AEM coverage
Marlyn - pyritic qtz-ser schist - not anomalous (silt) in Cu, Zn	0.005	0.01	0.05	0.05	0.002	Outside AEM coverage

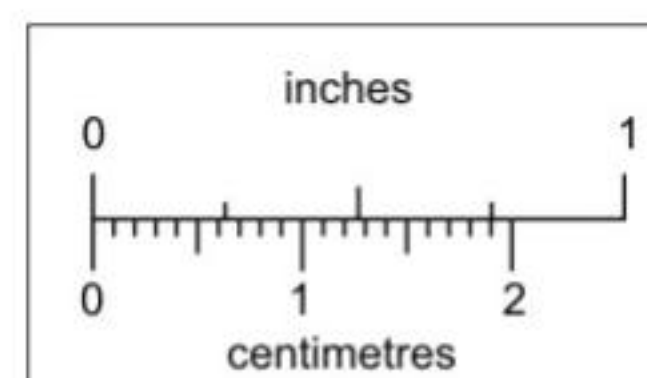
LEGEND

- 7 Coast Intrusions - granodiorite, granite
- / Active Horizon - pyritic, quartz-sericite and chloritic schist, massive sulphide
- 6 Volcanic Formation - green schist, greenstone
- 5 Sedimentary Formation - turbidites, orthoquartzite, cherty black argillite, siltstones, minor marble
- 4 Streaky Gneiss - metamorphosed sediments
- 3 Metamorphics - amphibolite, garnet-muscovite schist, banded biotite-hornblende gneiss, pyritic quartz-sericite schist
- 2 Quaal River Gneiss
- 1 Prospect Hill Intrusions - metadiorite

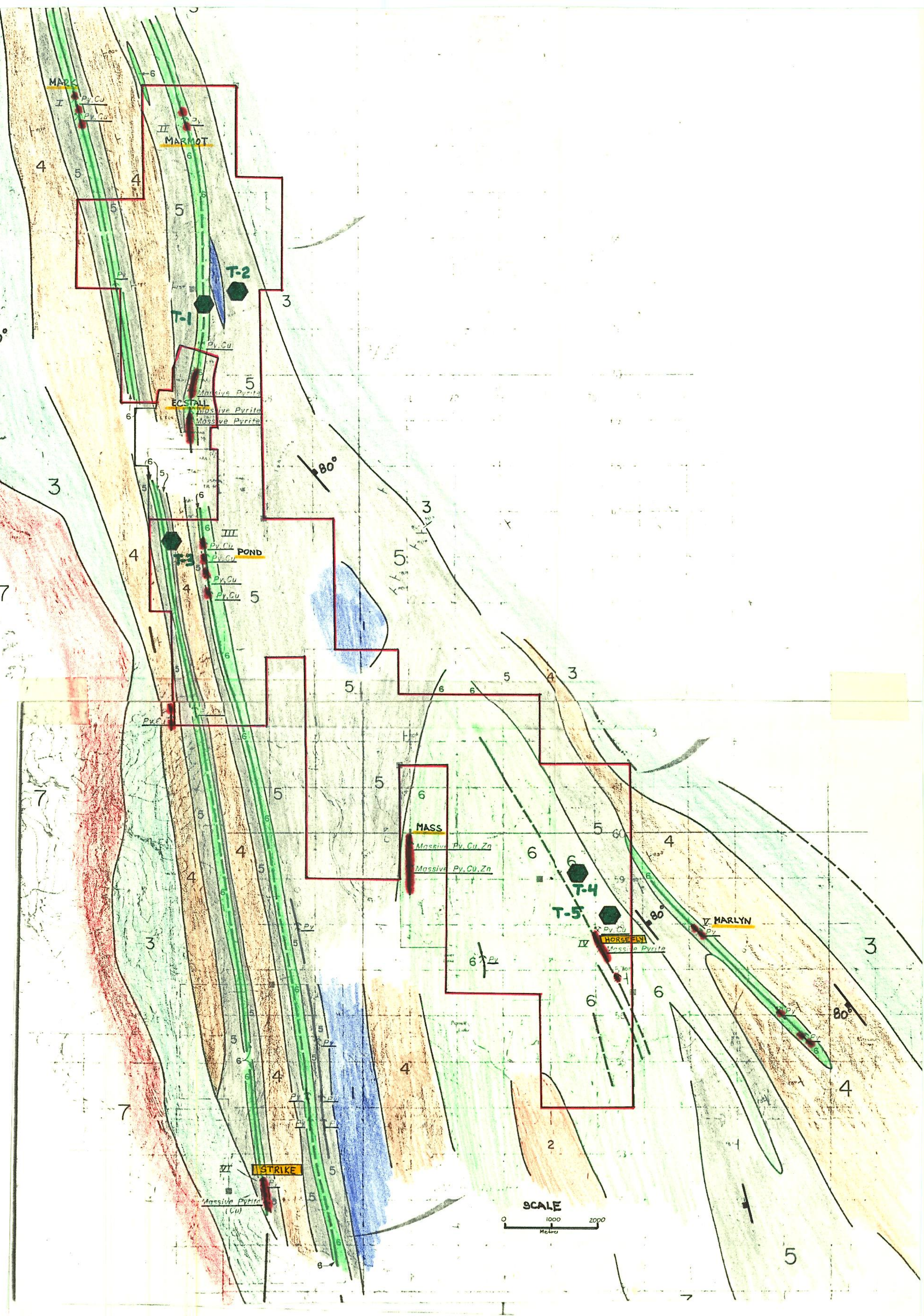
- SHOWINGS
- I Mark Showing
  - II Marmot Showing
  - III Pond Showing
  - IV Horsefly Showing
  - V Marlyn Showing
  - VI Strike Showing

- AIRBORNE EM ANOMALIES
- T-1
  - T-2
  - T-3
  - T-4
  - T-5

90° Strike and Dip



This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.





The 1981 work by Active Expl. Ltd., suggests that this belt may be divided into at least three major mappable units:

- a "basal group of high grade metamorphic schists and gneisses"
- a "middle schistose, grey, streaky laminated gneiss unit"
- an "overlying volcanic-sedimentary group"

"The overlying volcanic-sedimentary group is an average of 2500 metres thick and is comprised of a lower sequences of thin to medium-bedded turbidites and quartzites which grade upwards into black argillites, siltstones, greenstones, greenschists and pyrite-quartz-sericite schist." The pyritic-quartz-sericite schist "hosts exclusively all the known stratabound volcanogenic massive sulphide deposits." (see fig. 3)  
A list of the showings/deposits is given at the top left of fig. 3.

### 1981 EXPLORATION PROGRAM

*L* ACTIVE was the operating partner during 1981 and was responsible for completing a first stage airborne EM and magnetometer survey (flown by Apex Airborne Surveys Ltd.) and a second stage ground follow-up in terms of reconn. geology, drainage silt geochem., local detailed soil geochem., and some reconn. soil geochem.

#### Geophysics

- Geonics 33-1 EM, 2 coaxial coils, 918 Hz, flight lines 250 metres
- Geometrics 803 Mag., total field precession, 1% sensitivity.
- Data presentation - profile map shows in-phase and quadrature response
  - total mag. field contour map ( 20% intervals)
- General comment - the 8 million ton Ecstall pyrite deposit gave no response! *A*  
The reason given was that the deposit is located in a ravine and the EM sensor was probably too distant from it to sense it.
  - not much response over the Pond Showing
  - a weak response over the 3 million ton Mass or Packsack pyrite deposit
- Five geophysical responses are shown in green on fig. 3:
  - a) T-1 - located in qtz-ser schist
    - no known mineralization
    - very subtle, broad, 60% mag. "high" over T1 & 2
    - $\sigma t = 30 - 50$  mhos, depth 0 - 5 metres
  - b) T-2 - associated with T-1
    - $\sigma t = 6 - 10$  mhos, 0 - 5 metres.
  - c) T-3 - in qtz-ser-schist/siltstones, cherty black argillite
    - narrow response
    - no mag. variation
    - $\sigma t = 15 - 20$  mhos, 0 - 3 metres.
  - d) T-4 - local distortion in mag.
    - $\sigma t = 20-30$  mhos.
    - in qtz-ser. schists
  - d) T-5 - in qtz-ser. schists
    - likely corresponds to the HORSEFLY deposit
    - corresponds to 150 mag. high.
    - high  $\sigma t = + 150$  mhos.
    - looks like it could be deep, +5 - 20 metres
- Conclusions - five AEM anomalies require ground follow-up
  - should question this survey for missing known significant occurrences

*Good conductivity*

Geochemistry

Reconn. stream silt-sampling - drainage within and outside claim block sampled  
 - one sample per 500 metres  
 - total 600 samples collected  
 - analysed for Cu, Zn, Pb, (Ag, Au)

Horsefly soil sampling - soil grid sampling over Horsefly deposit area  
 - grid 2 Km long, lines at 200 m intervals  
 - samples at 100 m intervals, 440 samples  
 - "B" horizon sampled  
 - anomalous threshold: Cu 80PPM  
                                   Pb 50PPM  
                                   Zn 100PPM

Reconn. soil sampling - some reconn. style soil geochem. was also done over the Pond showing and the Red Gulch area just east of the Ecstall deposit.

Conclusions - the geochem. (silt/soil) indicated four known showings as being moderately anomalous/locally moderately anomalous in Cu, Zn: Horsefly deposit  
                                   : Strike showing  
                                   : Pond showing  
                                   : Marmot showing

EXISTING JOINT VENTURE TERMS

Agreement: E & B Explorations Ltd. vs Active Min. Expl. Ltd., Welcome North/Esperanza.  
 : Date April 9, 1981

- 50% E & B*  
*50% Welcome/Esp -*  
*10% OPPE -> Active*
- Active Minerals Expl. - retains 10% Net Proceeds of Production
  - Welcome/Esperanza has 50% carried interest to Dec. 31, 1981 after which it must provide 50% of the total exploration costs or be diluted as per the factor:  

$$\frac{\text{Party's deemed and actual expenditure \& payments}}{\text{Total deemed and actual expenditures plus 300\% of option payment}}$$
  - E & B may earn 50% interest by expending \$200,000 during 1981. Thereafter, it must provide 50% of the money.
  - in the event that a non-contributing party has its interest diluted to less than 10% working interest - it will be converted to 10% net proceeds of production royalty.
  - option payments:  
   E & B and Welcome/Esperanza to pay Active Expl. their respective proportions of the following payments:  
     \$20,000 Dec. 31, 1981  
     \$20,000 Dec. 31, 1982  
     \$40,000 Dec. 31, 1983
  - operator committed to propose a minimum \$100,000 exploration program per year
  - the proposed exploration budget that was to be spent by E & B during 1981 is shown as schedule A



ECSTALL PROJECT  
EXPLORATION BUDGET 1981

1.	Reimbursement, prior expenditures		\$20,000.00
2.	Assays, Geochemical 1000 x 5.00 ea		5,000.00
3.	Camp Costs 225 man days x \$25/man/day	5,600	
	Camp Rental	3,000	8,600.00
4.	Consulting Senior Field Geologist		
	80 days @ \$250/day	20,000	
	Consultant 5 days		
	@ \$300/day	1,500	21,500.00
5.	District Costs Expediting, Radio Rental		1,500.00
6.	Field Equipment Maps, supplies		3,000.00
7.	Fuel - included in helicopter charges.		
8.	Aircraft - Fixed wing support	10,000	
	Helicopter 150 hours		
	@ \$250/hour	37,500	47,500.00
9.	Salaries - 2 Assistants 2 months		
	x \$1200/month	4,800	
	Drafting	2,100	6,900.00
10.	Transportation - Airlines	1,500	
	Travel	1,500	3,000.00
11.	Geophysical Surveys A.E.M. (Apex)		68,000.00
12.	Administration and Overhead	15,000	15,000.00
			<u>\$200,000.00</u>



CONCLUSIONS

Chris Graf of Active Minerals Exploration Ltd., and the Ecstall Joint Venture have acquired an impressive "chunk" of ground (18,350 acres) in the Ecstall River meta-volcano-sedimentary belt in west central British Columbia. At least 3 reasonably sized massive sulphide deposits (pyrite) occur in the area in addition to numerous showings. Grades of up to 0.17-0.90% Cu and 2.83-4.55% Zn are not uncommon.

Airborne geophysics and ground geochem surveys have located at least five specific targets worthy of detailed follow-up in search of an economic Cu-Zn-Ag-Au-(Pb) deposit.

RECOMMENDATIONS

This is one of possibly several projects that C.F.C. may be in a position to consider towards the end of 1982. The accessibility of this area compared to other areas is not as attractive but this is somewhat compensated by the amount of favourable ground held by the existing joint venture group and by favourable ground apparently still open for staking.

This is definitely an interesting situation located in a significant, albeit subeconomic to date, massive sulphide district in B.C. If C.F.C. became involved, it would have to be a long term commitment and they would have to be prepared to spend significant amounts  $\pm$  \$300,000/yr on detailed geology, geophysics and geochemistry culminating in a major drilling program at an elevated cost, perhaps a total in the order of \$2 million over five years.

It is recommended that a property visit be completed and details of a potential deal be investigated before further consideration is given. (this will be done on July 27 and 28 in Prince Rupert) In any event, it is recommended that C.F.C. not commit themselves before October 31, 1982 in order that our on-going study may be far enough advanced to allow us to put this opportunity into proper perspective.

Respectfully submitted,

Paul Severin  
P. W. A. Severin

Agreed!  
v. dependent on deal  
esp. ultimate CFC interest.

BSS - June 29/82.