

4177

GEOLOGICAL AND GEOCHEMICAL REPORT

ON THE  
CYPRESS CLAIM GROUP

situated near  
HECATE BAY  
seven air miles north of Tofino  
Alberni Mining Division, British Columbia

Latitude 49°16'N; Longitude 125°56'W  
N.T.S. 92F/5

on behalf of  
TEXADA MINES LTD.  
of  
Vancouver, B.C.

Field Work Between August 1, 1972 and January 19, 1973.

Report by:

Vancouver, B.C.  
February 26, 1973.

P.T. McCullough, B.Sc., M.S.  
John DeLeeh, B.A. Sc., P. Eng.

Department of	
Mines and Petroleum Resources	
ASSESSMENT REPORT	
NO. 4177	MAP

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GEOLOGICAL AND GEOCHEMICAL REPORT ON THE CYPRESS CLAIM GROUP

SUMMARY

Irregularly between August 1, 1972 and January 19, 1973 a two to four-man field crew employed and in part subcontracted by Texada Mines Ltd. completed 18,100 feet of line cutting and collected 213 soil and silt samples. Geologic mapping was done synchronously with geochemical sampling.

The work was conducted principally on Cypress No. 1 - 10, 12 - 15, and Top No. 1 - 8.

This report describes the field mapping, petrography, petrology, and copper geochemistry of the group and discusses the results. Geological and geochemical maps are included at the end of the report.

CONCLUSIONS

The relationship between deformation, metamorphism, and intrusion is established. An area of favourable geology and geochemistry is outlined in the western part of the claim group. A further geochemical anomaly is indicated in the northern part of the area (Plate 2).

LOCATION, ACCESS, AND TOPOGRAPHY

The Cypress claim group is located in the Alberni Mining Division between Hecate Bay and Cypre River, seven miles north of Tofino, B.C. The claims are on map 92F/5 West Half (N.T.S.) and are centered about Latitude 49°16' N and Longitude 125°56' W (Figure 1).

The topography varies from rolling hills in the east to the steep slopes of the Catface Range in the west. The elevation varies from 0 to 2,000 feet.

The claim group is accessible by boat or float plane from Tofino and is traversed by a logging road. Logging is still active on and adjacent to the claim group.

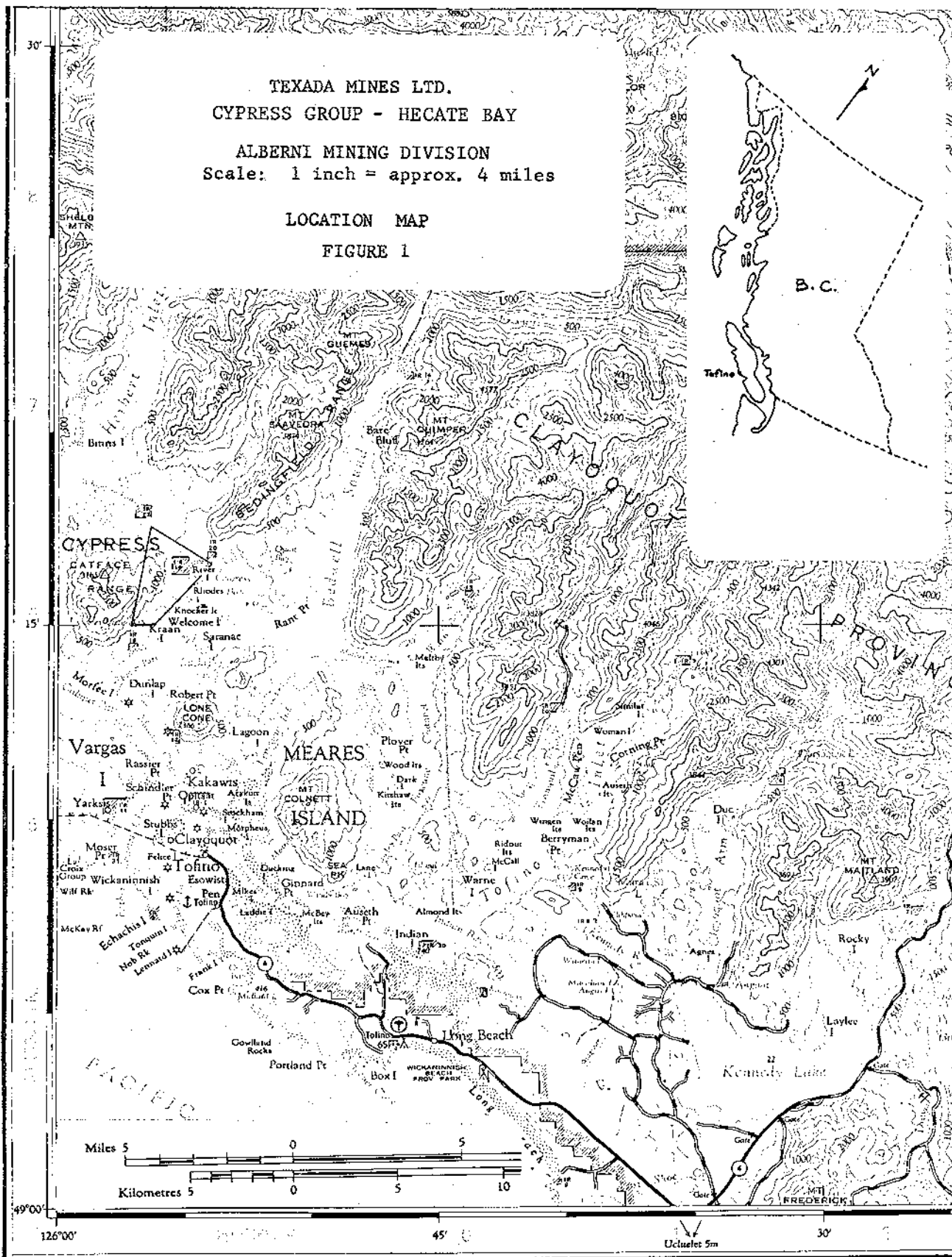
CLAIM OWNERSHIP

The Cypress group is optioned by Texada Mines Ltd. and consists of 28 claims as follows:

<u>Name of Claim</u>	<u>Record No.</u>	<u>No. of Claims</u>
Cypress No. 1 to 2 inclusive	5061-5062	2
Cypress No. 3 to 10 inclusive	6162-6169	8
Cypress No. 12	7810	1
Cypress No. 13 to 15 inclusive	10226-10228	3
Top No. 1 to 8 inclusive	16638-16645	8
Top No. 9 to 12 inclusive	19297-19300	4
Top No. 13 to 14 inclusive	19330-19331	<u>2</u>
		28 claims

GEOLOGY

The claim group is underlain by diorite gneiss, quartz diorite gneiss, amphibolite, and pyroxene and amphibole gabbro of the West Coast Crystalline Complex, and by Paleozoic Sicker group andesite and sedimentary rocks (Plate 1). These rocks were intruded by dacite diorite dykes followed by a stock of hornblende quartz diorite emplaced during the Tertiary. These rock units are covered by Pleistocene to Recent glacial till and alluvial sediments which are commonly thin, but reach considerable thickness along the shore

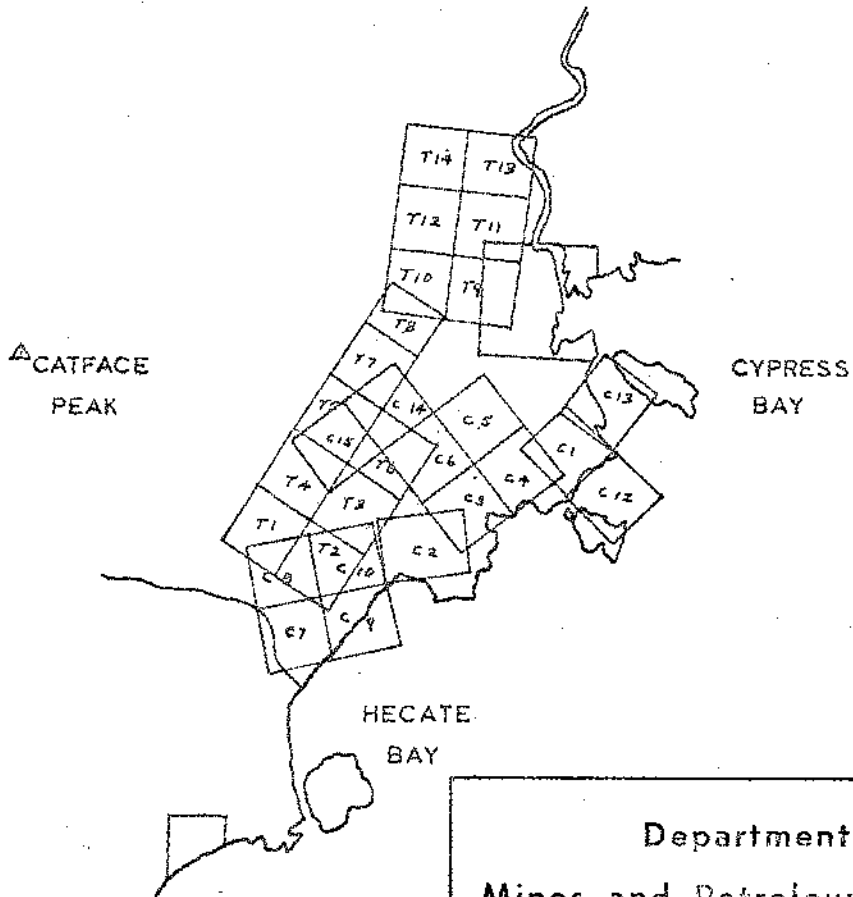
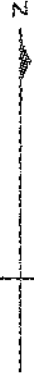


4177 M-1

Feb. 26/73  
Terry McCallough  
John [unclear]

LEGEND

C - Cypress  
T - Top



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NO. **4177** MAP **#2**

*John Decker*  
*Jerry McCallough*

KACC 5419 (12/70)

TEXADA MINES LTD.  
VANCOUVER, B. C.

CYPRESS CLAIM MAP

SCALE: 1500' 11500' BY T. M. DATE Jan. 24/73 DWG. NO.

of Hecate Bay and in the delta of the Cypre River.

South of the Cypre River the "West Coast Crystalline Complex" described by Muller and Carson (1968) consists mainly of amphibolite and gabbro. In this area the foliation strikes east northeast and dips vertically. This attitude varies markedly from the predominantly northerly trending foliations described by Muller and Carson as typical for the rock unit. The variation is due in part to intrusion of the Catface stock. The gabbro is amphibole-rich, fine to medium-grained, and in part porphyritic with elongate phenocrysts of amphibole up to 2.5 mm. long. The amphibole is partly altered to chlorite. Plagioclase is commonly zoned and altered in part to clay minerals. Amphibole embays plagioclase in part and is, in part, interstitial. Mineralization consists of pyrite, pyrrhotite, minor chalcopyrite, and locally considerable magnetite. Chalcopyrite is locally abundant in and adjacent to a few widely separated quartz veins.

The Sicker group consists of andesitic pyroclastics, flows, sills, and dykes with interbedded water-laid tuff, chert, limestone and lesser amounts of slate and quartzite. The following is the thickest section of sedimentary rocks:

Andesite	
Massive chert	30+ feet
Thin bedded chert	6 feet
Limestone	30+ feet
Andesite	

Although it is open at the top and bottom, the sedimentary pile is no more than 10 to 20 feet thicker than indicated.

In general the grey limestone and cherty lenses are only a few feet thick and discontinuous suggesting shallow lagoonal deposition during periods of quiescence broken by periods of active volcanism. Some samples, although macroscopically similar to thin bedded chert, are composed of very fine volcanic fragments and are probably water-laid tuffs. The quartzite is brown to pink and the slates are black to grey; both rock types are restricted to the northern part of the mapped area.

The volcanic rocks consist of light green, dark green, and black andesite with minor basalt (?) composed of irregular grains to microlites of plagioclase and irregular grains of amphibole with traces of opaques and locally abundant epidote, calcite, chlorite, clinozoisite, and clay minerals. Most of the andesite unit is massive and dark coloured although some is porphyritic with zoned phenocrysts of plagioclase and other parts of the unit are spherulitic or amygdaloidal with spherulites of chlorite and amygdules (?) of clinozoisite. Some of the andesitic unit consists of thin-bedded tuffs and lapilli tuffs.

The rocks of the Cypress property are in the lower greenschist facies of regional metamorphism with amphibole partly altered to chlorite and plagioclase partly saussuritized. The metamorphic grade is increased to biotite grade with contact metamorphism adjacent to the Catface intrusion. The location of a biotite isograd is drawn on Plate 1. Sample Cyp 35 in the northwest part of the claim group also contains biotite. As a result of regional metamorphism there is an approach to 120° triple junctions in the quartzite indicating that textural equilibrium is approached.

Deformation was mainly after regional metamorphism and probably occurred both before or during and after intrusion of the Catface stock. This sequence is indicated by the evident preparation of the host rocks for quartz veining and weak mineralization associated with igneous intrusion, particularly along the logging haulage road. The typical chloritic rocks are destroyed along the north trending fault zone suggesting strong post-metamorphic movement. From the lineaments and fracture patterns in the hornblende quartz diorite it appears there was movement post-intrusion. Metamorphism of biotite grade, associated with the Catface intrusion is superimposed on lower grade epidote-chlorite regional metamorphism. The Catface copper-molybdenum deposit is undoubtedly related to the intrusion, so the age relations of intrusion,



mineralization, deformation, and regional metamorphism are established.

The folds resulting from deformation are a series of asymmetric, open anticlines, and synclines which are best exposed along the shoreline. The north to northeast trending fault zone appears to have cut off the northwestern extension of the folds.

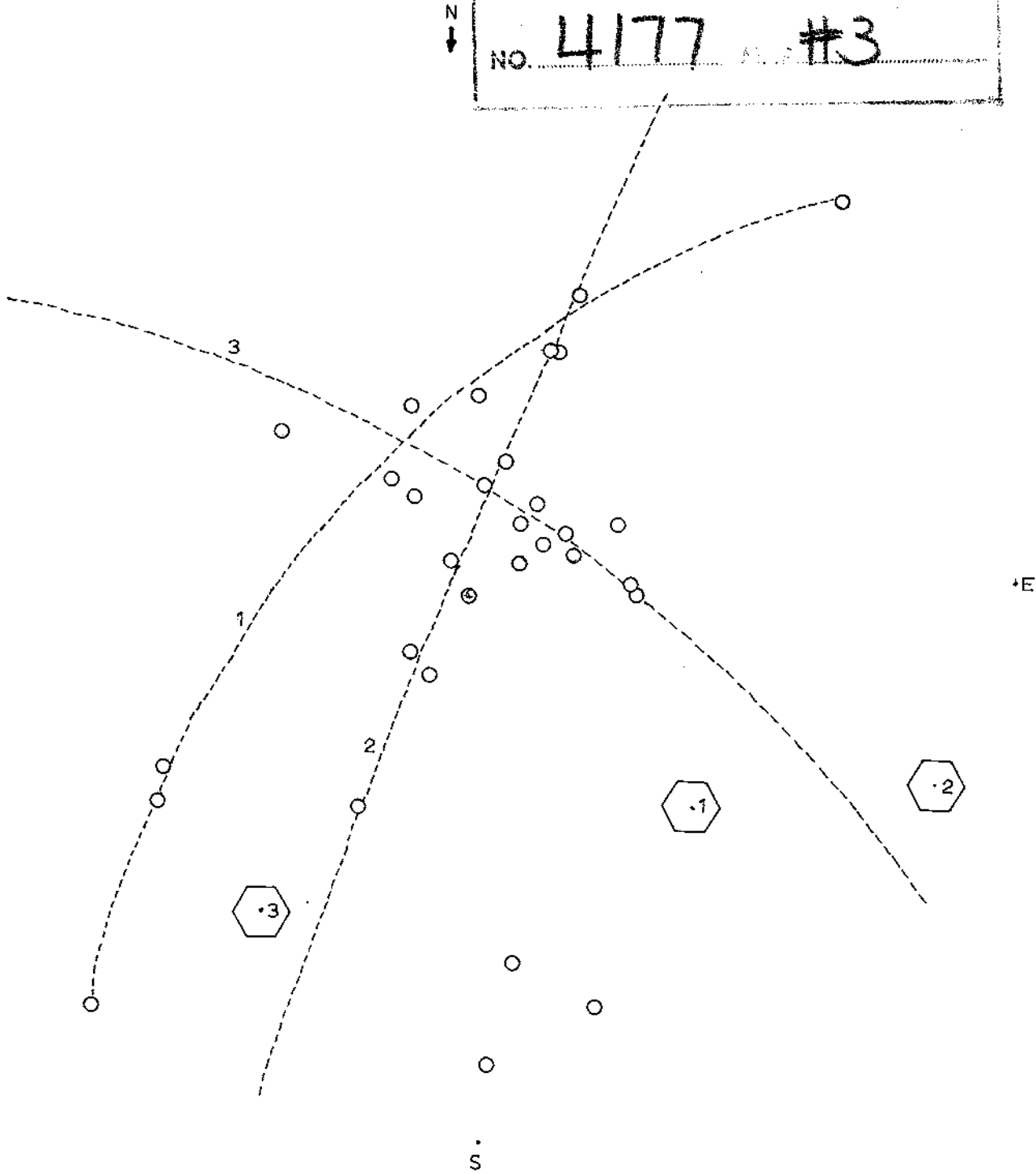
Polyphase folding is indicated from stereographic projections of structural data (Figures 3 and 4). Foliation in the amphibolite-gneiss unit trends east northeast and dips vertically. From foliation, bedding, and trends of minor folds in Sicker group rocks two fold attitudes were defined. One dominant axial plane attitude is  $116^\circ$  dipping  $56^\circ$  SW, with the axis plunging  $134^\circ$  at  $32^\circ$ ; another set of axial planes strikes  $123^\circ$ , dips between  $20^\circ$  and  $45^\circ$  NE, and the fold plunges  $113^\circ$  at  $5^\circ$ . Another possible direction of plunge based on orientation of layering is No. 3 in Figure 3 which is  $213^\circ$  at  $21^\circ$ . There is however, insufficient spread in the attitudes to safely define this trend.

#### GEOCHEMISTRY

Because bedrock is for the most part at or near the surface geochemistry was expected to be a useful tool in locating areas enriched in copper. To this end a number of streams were sampled and some gaps were filled by soil sampling. As a result of the initial reconnaissance a particularly anomalous zone was defined between the two creeks in the southwest part of the claim group. Detailed sampling in this area was done on lines 300 feet apart, with samples taken every 100 feet, resulting in a total of 213 soil and silt samples.

Overburden on the steep hillsides consists of a thin layer of glacial till under a dense mat of moss and/or roots. In some areas moss covers talus and no samples were obtained. Old logged areas were not sampled because it appears the ground was too disturbed by the logging to provide an acceptable soil sample.

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○ POLES TO BEDDING  
 ◡ FOLD AXIS

FIGURE 3

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LAYERING IN ANDESITE AND SEDIMENTARY ROCKS

SCALE: BY DATE DWG. No.

MINES BRITISH COLUMBIA  
 ASSESSMENT REPORT  
 NO. 4177 #4

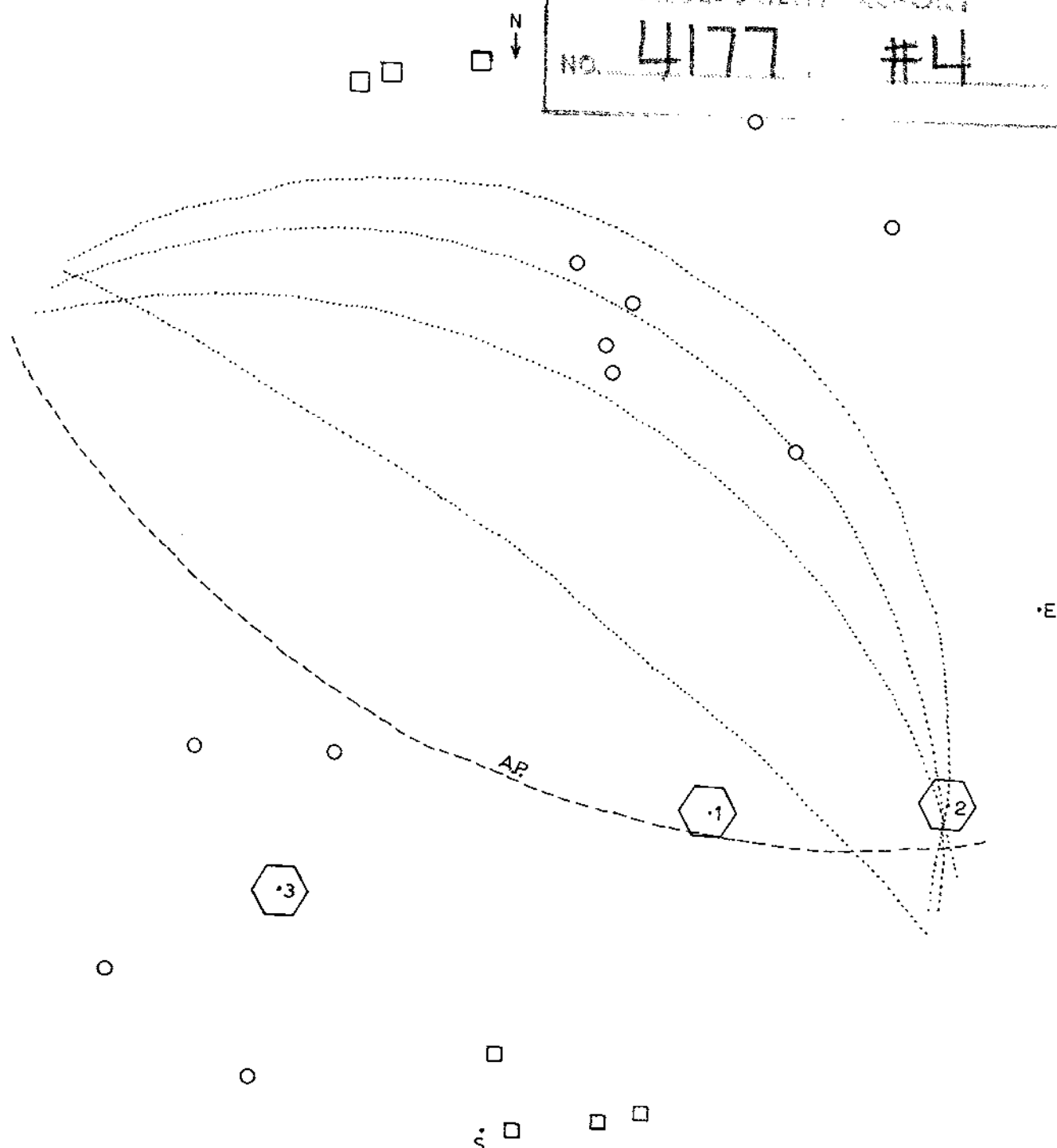





FIGURE 4

 FOLD AXIS  
 POLES TO FOLIATION IN ANDESITE AND SEDIMENTARY ROCKS

 POLES TO FOLIATION IN GNEISS  
 - - - - AXIAL PLANE (FOLIATION-ANDESITE)  
 ..... AXIAL PLANE (MINOR FOLDS)

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 VANCOUVER, B.C.

FOLIATION, AXIAL PLANES, FOLD AXES

SCALE: BY DATE DWG. NO.

Soil samples were restricted to the yellow brown to brown "B" soil horizon where possible. In some cases a mixture of "B" and "C" was taken. Soil samples were taken with a mattock and/or auger, whichever was more convenient. The depth of sampling ranged from 0.5 feet to 2.0 feet. "Silt" samples were mainly sandy silts. The samples were bagged and sent to Vancouver Geochemical Laboratories Ltd. in Vancouver for analysis.

METHOD OF ASSAY

The samples were dried and sieved; the -80 mesh fraction was dissolved by hot  $\text{HClO}_4$  and  $\text{HNO}_3$  digestion and the resulting solution analyzed by atomic absorption.

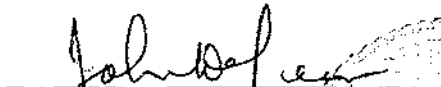
RESULTS

From the reconnaissance geochemistry and geology the most favourable zone was determined based on consistently "very anomalous" stream silts, proximity to the mineralized Catface stock, and the presence of a zone of intense alteration and mineralization along the north-south fault through Hecate Bay (Plate 2). The anomalous zones are oriented northwest-southeast due to a combination of migration in a downslope direction, parallelism with the contact of the Catface intrusion, and/or bedding orientation with replacement by chalcopyrite along favourable horizons in the volcanic rocks.

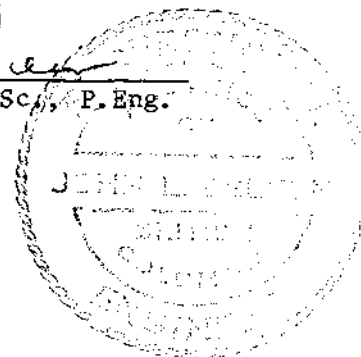
There is a moderately anomalous zone west of the Indian Reserve (Plate 2) and other scattered areas of anomalous copper, principally due to accumulations at the bases of steep slopes.

Respectfully submitted,

  
P. T. McCullough, B.Sc., M.S.

  
John DeLeen, BA Sc., P. Eng.

Vancouver, B. C.  
February 26, 1973.



SURVEY COSTS

LINE CUTTING AND TRAILS

3.4 miles at \$233.50/mile

Wages:

B. Locke (Manex)	2 days @ \$50.00/day	\$ 100.00
P. Dupras (Manex)	2 days @ \$60.00/day	120.00
A. Dupras (Manex)	2 days @ \$60.00/day	120.00
P.T. McCullough (Geologist)	2 days @ \$40.20/day	80.40
G. Nordin (Geologist)	2 days @ \$40.20/day	80.40
D. Boyd (Helper)	2 days @ \$24.00/day	48.00
L. Hansen (Boatman, Cook)	2 days @ \$26.60/day	53.20

Room and Board 85.90

Transportation 66.00 \$ 753.90

GEOCHEMICAL SURVEY

Analysis: 213 samples - charges applied for 104 of these \$ 135.20

Wages:

B. Locke (Manex)	1 day @ \$50.00/day	50.00
P. Dupras (Manex)	1 day @ \$60.00/day	60.00
A. Dupras (Manex)	1 day @ \$60.00/day	60.00
P.T. McCullough (Geologist)	7 days @ \$40.20/day	<del>281.40</del> 281.40
G. Nordin (Geologist)	1 day @ \$40.20/day	40.20
E. Black (Helper)	7 days @ \$24.00/day	168.00
L. Hansen (Boatman, Cook)	8 days @ \$26.60/day	212.80

Drafting: P.T. McCullough,  
(Geologist) 2 days @ \$40.20/day 80.40

Room and Board 150.10

Transportation 58.00

Equipment and Maintenance 6.10

Flagging Tape 5.10 1,307.30

Carried forward \$2,061.20

Although 8 days were spent by the Manex crew on the Cypress property only 3 days of this has been credited for assessment because some of the work is off the claim group. Similarly only charges for 104 geochemical samples has been credited from a total of 213 samples.

Brought forward \$2,061.20

GEOLOGICAL SURVEY

Wages: - Field Work

P.T. McCullough (Geologist)	14 days @ \$40.20/day	\$ 562.80
E. Black (Helper)	14 days @ \$24.00/day	336.00
L. Hansen (Boatman, Cook)	14 days @ \$26.60/day	372.80

Drafting: P.T. McCullough,  
(Geologist) 1 day @ \$40.20/day 40.20

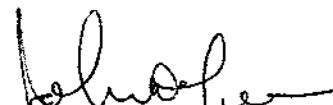
Room and Board 221.30

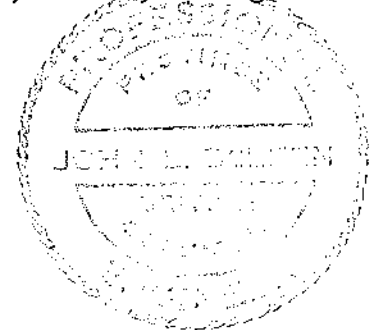
Transportation 14.00

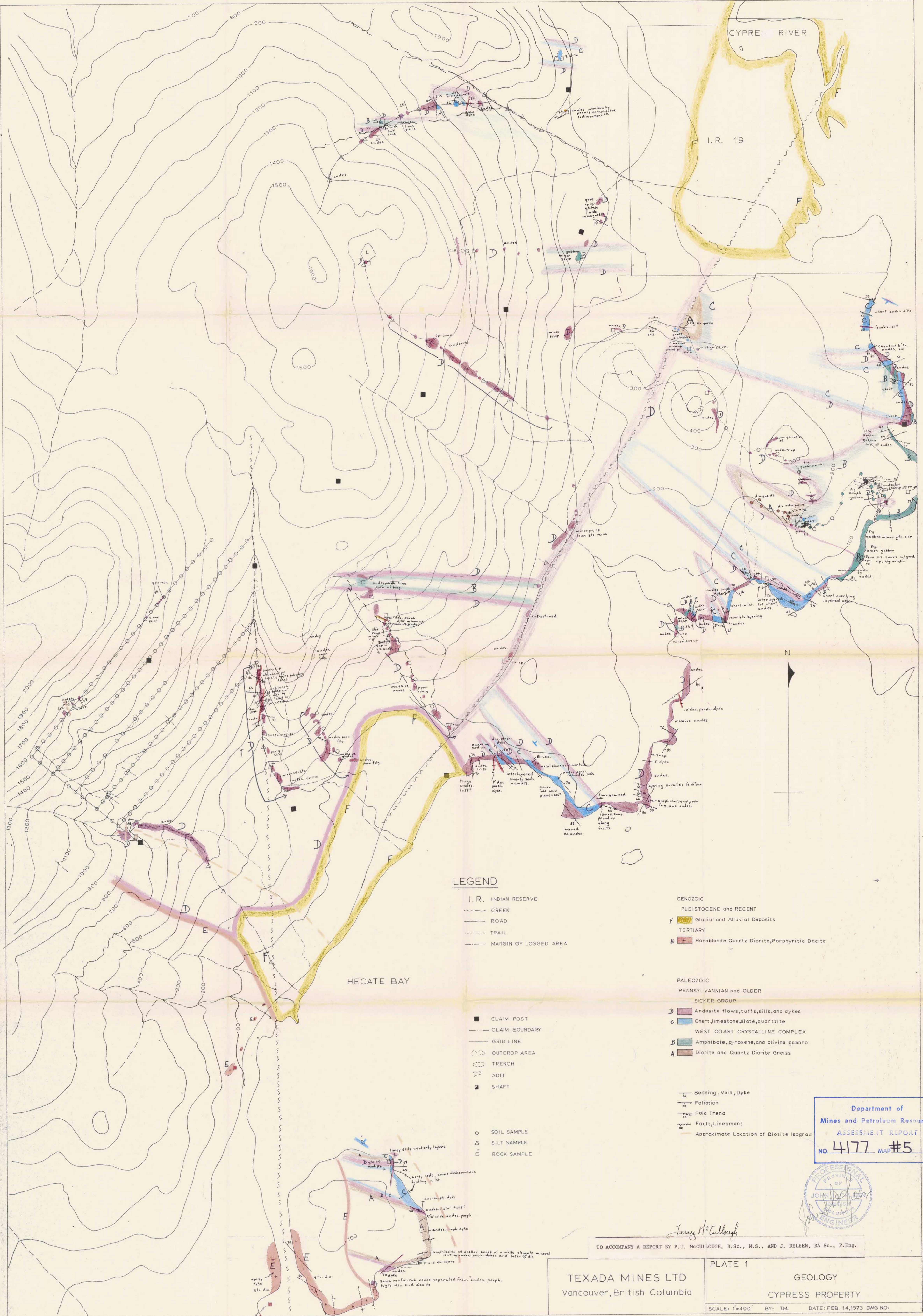
Thin Sections 229.50 1,856.60

TOTAL \$3,917.80

APPLIED FOR ASSESSMENT \$3,600.00

  
John DeLeen, BA Sc., P. Eng.





**LEGEND**

- I. R. INDIAN RESERVE
- CREEK
- ROAD
- - - TRAIL
- - - MARGIN OF LOGGED AREA

- CENOZOIC
- PLEISTOCENE and RECENT
- F Glacial and Alluvial Deposits
- TERTIARY
- E Hornblende Quartz Diorite, Porphyritic Dacite

- PALEOZOIC
- PENNSYLVANIAN and OLDER
- SICKER GROUP
- D Andesite flows, tuffs, sills, and dykes
- C Chert, limestone, slate, quartzite
- WEST COAST CRYSTALLINE COMPLEX
- B Amphibole, pyroxene, and olivine gabbro
- A Diorite and Quartz Diorite Gneiss

- CLAIM POST
- - - CLAIM BOUNDARY
- GRID LINE
- OUTCROP AREA
- TRENCH
- ADIT
- SHAFT
- SOIL SAMPLE
- △ SILT SAMPLE
- ROCK SAMPLE

- Bedding, Vein, Dyke
- Foliation
- Fold Trend
- Fault, Lineament
- Approximate Location of Biotite Isograd

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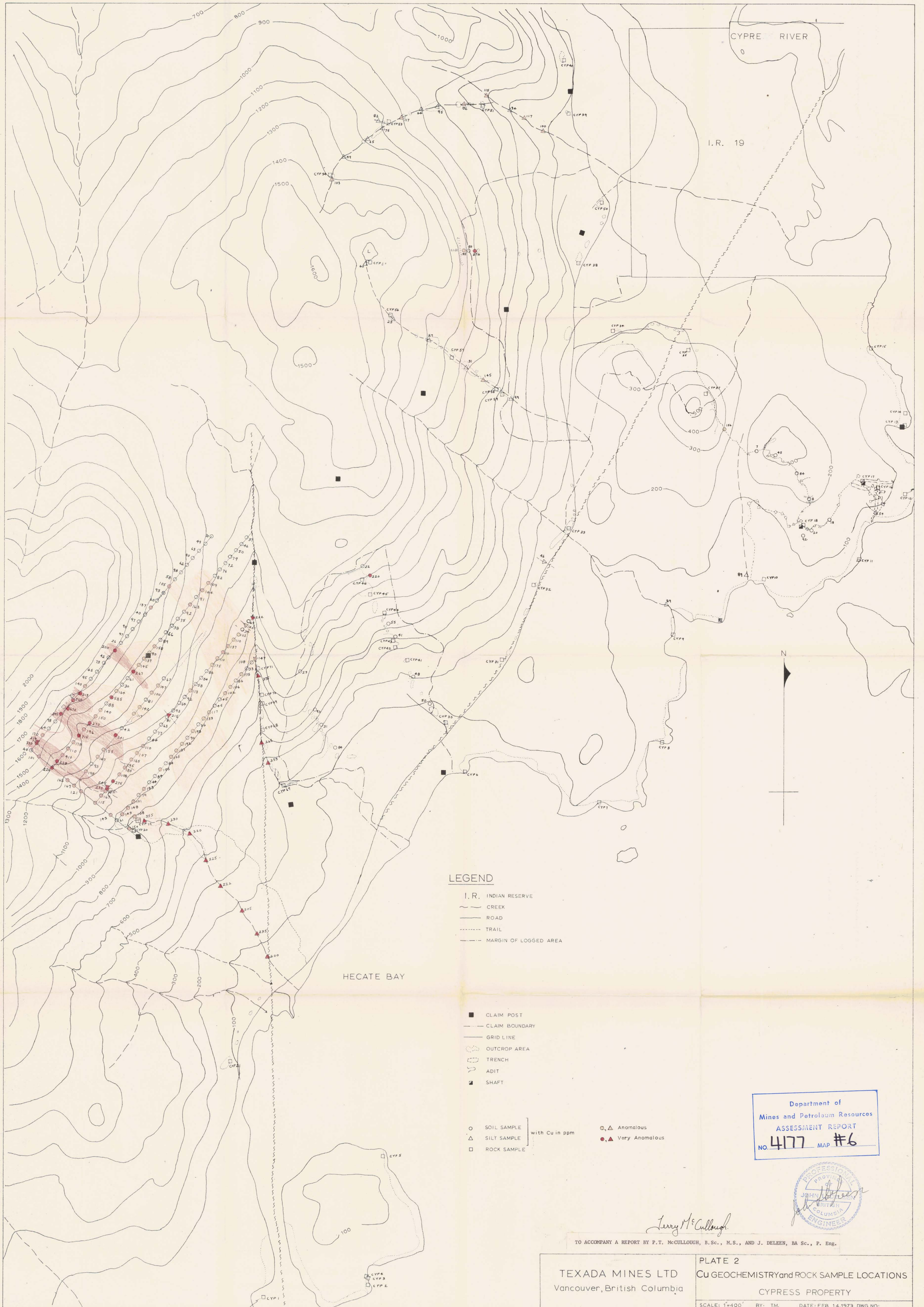
*Jerry McCullough*

TO ACCOMPANY A REPORT BY P. T. McCULLOUGH, B.Sc., M.S., AND J. DELEEN, B.A. Sc., P. Eng.

TEXADA MINES LTD  
Vancouver, British Columbia

PLATE 1  
GEOLOGY  
CYPRESS PROPERTY

SCALE: 1"=400' BY: TM. DATE: FEB 14, 1973 DWG NO:



**LEGEND**

- I. R. INDIAN RESERVE
- CREEK
- ROAD
- TRAIL
- MARGIN OF LOGGED AREA

- CLAIM POST
- CLAIM BOUNDARY
- GRID LINE
- OUTCROP AREA
- TRENCH
- ADIT
- SHAFT

- SOIL SAMPLE with Cu in ppm
- △ SILT SAMPLE
- ROCK SAMPLE
- , △ Anomalous
- , ▲ Very Anomalous

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 4177 MAP #6



*Larry McCullough*

TO ACCOMPANY A REPORT BY P.T. McCULLOUGH, B.Sc., M.S., AND J. DELEEN, BA Sc., P. Eng.

TEXADA MINES LTD Vancouver, British Columbia	PLATE 2 Cu GEOCHEMISTRY and ROCK SAMPLE LOCATIONS
	CYPRESS PROPERTY
SCALE: 1"=400' BY: T.M. DATE: FEB. 14, 1973 DWG NO:	