10/85

GEAREX ENGINEERING
GEAREX MANAGEMENT LTD.

ASSESSMENT

GEOLOGICAL

REPORT

ON

AIRPHOTO FRACTURE DENSITY ANALYSIS

ON THE

VIC (1269) MINERAL CLAIM

Lower Taseko Lake Area

CLINTON MINING DIVISION

92O5E

FOR

MERVIN BOE & SUNMARK MINES LTD

13492

December 12, 1984

Gerhard von Rosen,

gerhard von rosen 33176 richards ave mission bc v2v 5x4

84-1198- 13492

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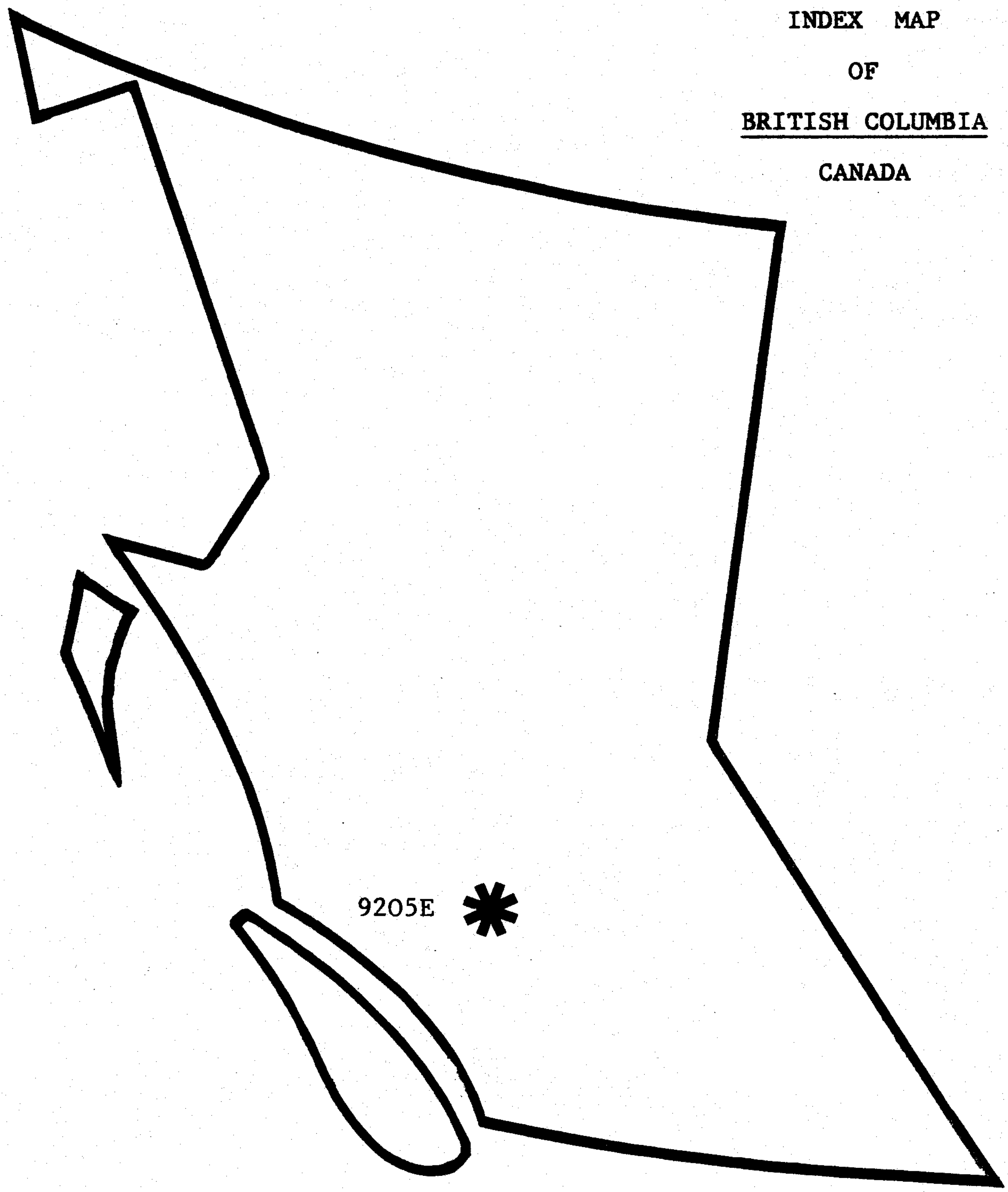
gerhard von rosen 33176 richards ave mission bc v2v 5x4 (604) 826-7851

FIGURE "A"

INDEX MAP OF BRITISH COLUMBIA CANADA



SUNMARK MINES LTD VIC GOLD PROPERTY

VIC MOUNTAIN-LOWER TASEKO LAKE CLINTON MINING DIVISION

TABLE OF CONTENTS

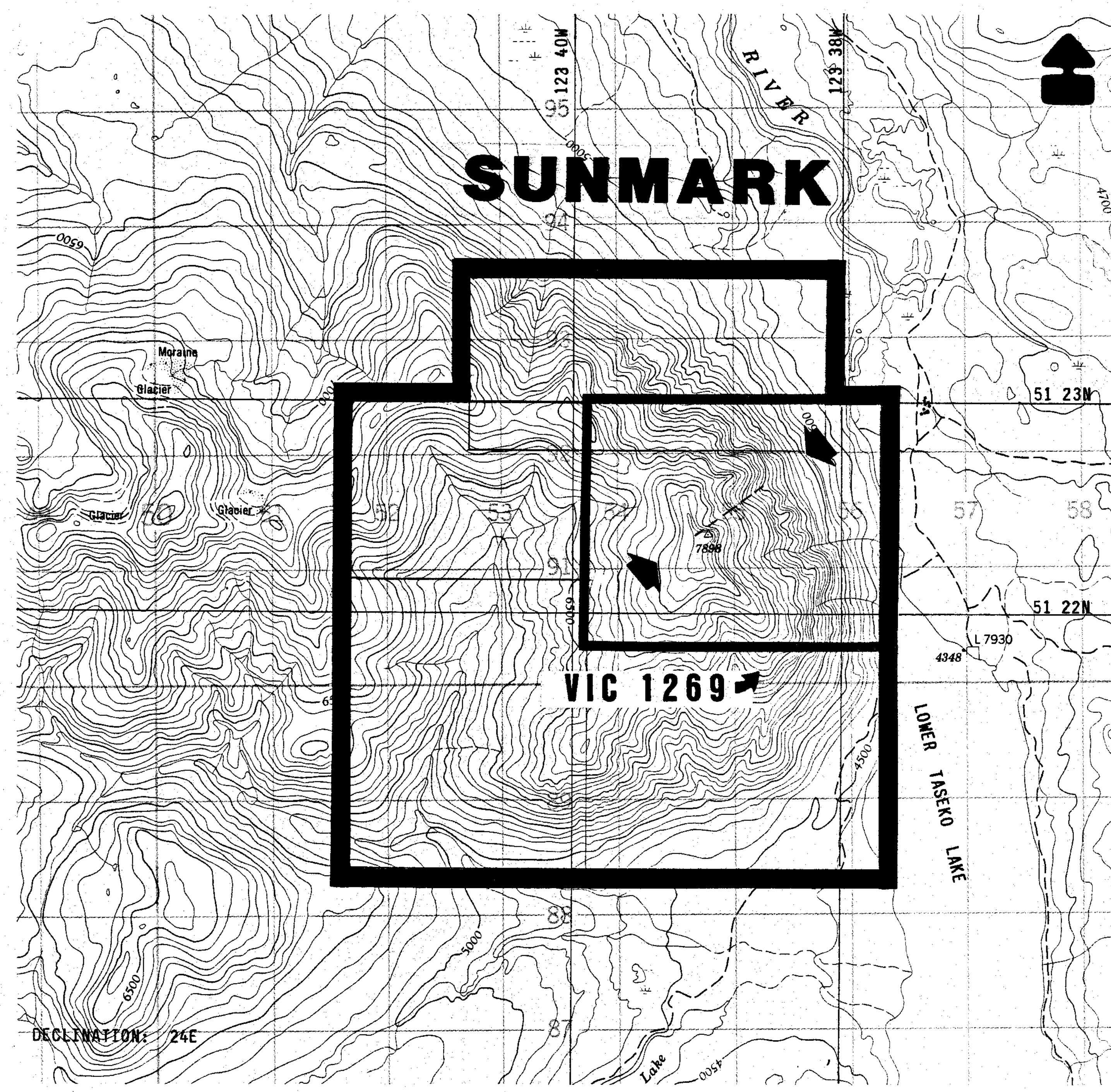
INTRODUCTION

The writer is familiar with the property, having supervised exploration programs on it, which are largely summarized in an assessment report dated June 07, 1984.
The airphoto annotation, as well as the data compilation, was performed by the author.

PROPERTY HOLDINGS

CLAIM NAME	RECORD NO.	UNITS	ANNIVERSARY
VIC	1269	20	October 14, 1985

The claims are recorded in the CLINTON MINING DIVISION and are plotted on map 92O5E. The anniversary dates shown have been up-dated to show one year assessment work filed, on the basis of the subject report.



LOCATION MAP

"VIC" GOLD PROPERTY

BERT KNB MIS LA VIC

Taseko Lake, B.C.

9205E

Miles 1 0 1 2 3 Milles

Metres 1000 0 1000 2000 3000 4000 Mètres

GEAREX ENGINEERING mission bc

LOCATION & ACCESS

51°22'N 123°39'W 9205E

The group of claims comprising the property holdings is located on the west side of the area where the north-flowing Taseko river empties out of the north end of Lower Taseko lake.
The claims cover a gold-bearing zone up the steep cliffs of **"VIC MOUNTAIN"** through a relief of 1000 meters between 1400 meters ASL and the summit at about 2400 meters ASL, on the front, or east side of the mountain, and down a moderate slope to about 2000 meters ASL on the back, or west side.
The claim holdings cover an area which measures about 4.5 x 5.5 kilometers.
The property is reached from Williams Lake, British Columbia via around 200 kilometers of road of which the first portion is paved, the remainder is gravel surfaced.
Access to the property has been greatly enhanced due to the construction, with financial aid of the Department of Mines, of a road up the west side of the Taseko river. This road passes directly below the **VIC** workings, and also provides access to the higher levels of the property via the southern cat trail.
The **VIC** property has formerly been poorly explored over the years because of the necessity of fording Taseko river from Murdoch's ranch, and because of the mountainous terrain. It is now possible to establish road accessible operations on the proper side of the river.

PHYSIOGRAPHY, VEGETATION & CLIMATE

VIC MOUNTAIN is the main peak of a massif which forms the eastern edge of the Chilcotin Ranges of the Coast Mountains. The eastern aspect of this mountain formation is a steep scarp which drops into Taseko valley.
Most of the massif is bare of vegetation. The lower slopes generally are covered with poor stands of timber growing on slide rock.

HISTORY

1932 - discovery by C.M. Vick

1935 - BC Minister of Mines Report, B.T. O'Grady F26

1939 - C.C. Cartwright, Michael Gold Mines Company bought property from Vick. Drove lower adit using rails and one rail car. Metal air pipe was used for ventilation. Ten year's assessment work was filed, and Cartwright vanished during the war.

1966 - the property was staked again, and held by different parties during the ensuing years.

1972 - gold price rose to $65 per ounce

1974 - November 6; report by Gerhard von Rosen, P.Eng., of L.J. Manning and Associates

1975 - November 15; report by Gerhard von Rosen, P.Eng

1976 - July 23; report by R.D. Westervelt

1976 - August; three BQWL holes drilled at summit

1977 - November; report by Gerhard von Rosen, P.Eng.

1980 - December; report by Gerhard von Rosen, P.Eng.

1983 - June; report by M.K. Lorimer, P.Eng.

1983 - four underground AQWL holes drilled at end of lower adit, which are the subject of the following report

1984 - June; assessment report by Gerhard von Rosen, P.Eng. summarizing underground diamond drill program.

1984 - December; assessment report by Gerhard von Rosen, P.Eng. reporting on an airphoto fracture-density study.

REGIONAL GEOLOGY

The regional geology is shown on GSC map 29-1963, with an open-file update by H.W. Tipper (O.F. 534). A more detailed property map by Victor Dolmage is published in the 1935 Minister of Mines Annual Report.

The property is entirely underlain by a thick sequence of Cretaceous volcanics. In the immediate vicinity of the workings, these consist of andesites, tuffs, and massive flow-breccias striking northerly and dipping shallowly to the west into the mountain side. Through the area of the main showing, a branching series of diorite dikes are present trending northwesterly up the mountain. These dip steeply (75°SE to 80°NW) and vary in width from 7 to 30 meters.

Transecting the dike swarm at a shallow angle, the fault zone of immediate interest strikes southwesterly up the mountain, from the scree-covered slopes at the base of the mountain, to the summit. This structure, with widths up to 8 meters, cuts both the volcanics and the diorites and dips vertically to 75° to the southeast. Several sub-parallel faults have been recognized but these appear to be less continuous and less well defined.

The eastern face of Vic mountain appears to be related to the northwesterly-trending "Taseko fault", which has been mapped as a through-going right-handed strike-slip structure. It seems likely that the fissure systems, which are filled with imbricate quartz veins, and contain the gold values, are related to this major structure. Further similar systems could be expected in a zone along the strike of this fault. Similarly one could expect the vein system to continue at depth.

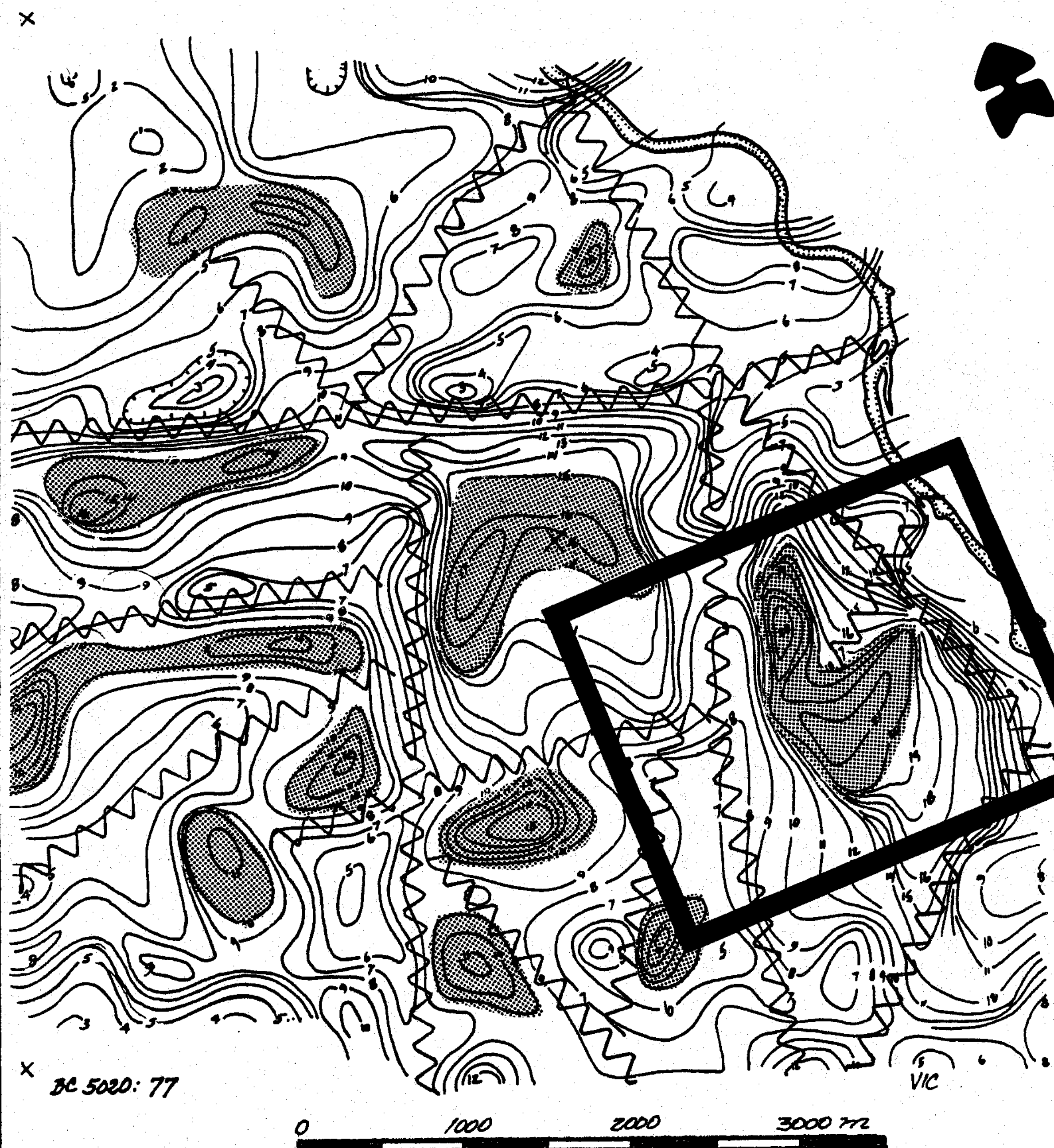


FIGURE C

COMPILATION PLAN

AIRPHOTO BC 5020:77

VIC 1269 MINERAL CLAIM

Clinton Mining Division

9205E

GEAREX ENGINEERING mission bc 10/12/84

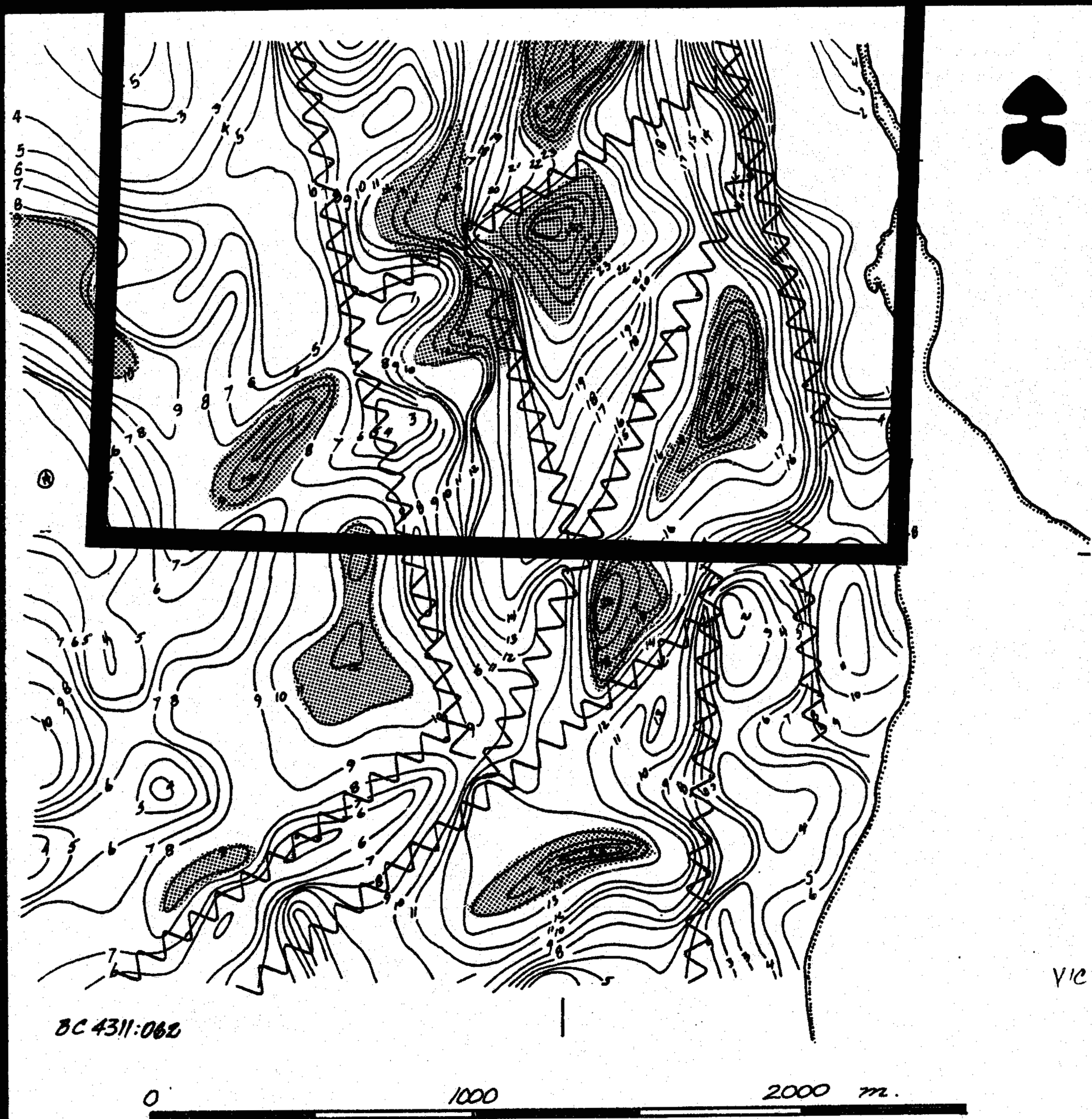


FIGURE D

COMPILATION PLAN

AIRPHOTO BC 4311:062

VIC 1269 MINERAL CLAIM

Clinton Mining Division

92O5E

GEAREX ENGINEERING mission bc 10/12/84

AIRPHOTO FRACTURE DENSITY ANALYSIS

PURPOSE

Black and white, vertical airphotos provide valuable information in many ways, one of which derives from the stereoscopic study of straight, and/or arcuate lineations, caused by breaks in the rocks visible at the surface of the earth. It has been postulated that the relative density per unit area, of these signs of rupturing (airphoto lineations) is an expression of the relief of vertical, and horizontal stresses acting at the Earth's surface. Generally speaking, the higher the vertical forces that have been relieved at the Earth's surface, the higher the fracture density. Similarly it can be postulated that relief of forces beneath the surface of the Earth has probably resulted in rupturing of the rocks, thus creating an enhanced plumbing system for upward percolating mineralizing solutions. What remains to be ascertained is where, in relation to areas of higher fracture incidence, the vertically continuous plumbing zones are likely to exist. It is probable that 'high' fracture density does not translate into a high priority exploration target, but rather that such would be the case near-by. It is understood that certain rock types are known to be much better mineralizing hosts, than others, and that therefore the information gathered via airphoto fracture density studies needs to be incorporated into on-the-ground geological studies.

Hence, the premise that the study of fracture density may give the explorationist another tool to be used in pinpointing exploration targets.

POSSIBILITIES OF METHOD

Large-volume "porphyry copper" type deposits tend to include ore mineral disseminations in stockwork fractures within granitic, volcanic, or other metamorphosed rocks at or near intrusive contacts of granitic bodies. Because ore metallization appears to be related to rock type contacts and to changes in fracture density, this study was undertaken to attempt outlining of rock types, and pinpointing anomalously fractured zones.
This method, when used in conjunction with other information, such as geophysics or geology, can be utilized to outline areas of interest with minor unit-area expense.

LIMITATIONS OF METHOD

Heavy snow cover and overburden tend to obscure the finer fracture details, although major trends will show through most surficial deposits. The finer details may also be lost when utilizing higher level photography, although the through-going features may become more evident.
Rock types fracture in different patterns, and each has a special signature. When lithologic boundaries are unknown to the interpreter then there may be difficulty in differentiating between fracture density increases caused by anomalous tectonic action within a homogeneous lithologic unit, or by simply changes in rock type. In the first case, additional fracturing may be of interest, while in the second instance, a non-mineralized rock body may exhibit more bedding, schistosity, and joints, without enhancement of the ore-hosting potential.
Although fracture density anomalies (or the immediately surrounding area thereof) could be assumed to always indicate zones more worthy of interest to the explorationist, it must be realized that metallization of favourable host rocks has been known to occur in moderately-fractured rocks.
For this reason it may be worthwhile to investigate those areas on the density isogradient plot which represent the 'inflection point' between the high and low values.
In the present study neither arcuate lineaments, nor changes in attitude of structures, have been given special consideration.

METHOD OF ANALYSIS

The following airphotos obtainable from the Map Division, Parliament Buildings, Victoria, B.C., were chosen to provide stereoscopic coverage:

BC5020: **077**-078 and BC4311: **062**-063

Photos **077** & **062** with attached overlays were used for the annotation of the visible fractures. The photo center and salient geographic features were also traced to allow indexing of overlays, as well as field reorientation.

Using a stereoscope, all observable lineations were traced on the overlay, without judgement of their origin, or inherent value to the analysis. (Figures **F** & **L**)

POINT COUNT

In order to facilitate quantifying this information, a method has been devised (Tait Blanchet, D.A. Chapman) whereby the airphoto overlay (annotated with the traced lineaments) are divided by an orthogonal grid, - with 0.5" dimensions in this case. The grid is carried on a separate overlay. A moveable circle template, with a 0.5" diameter, is then centered on each of the grid points, and the quantizing of the fracture information commences.

The annotated information is then converted into an empiric form by the following valuation:

All traced fracture segments within the circle are counted:

a) fractures that cross the circumference of the circle once are given one point.

b) fractures that cross the circumference of the circle twice are given two points.

c) fractures not crossing the circumference of the circle are given 1/3 points.

Thus the "sum" of quantized fracture information is noted on an overlay at the grid intersections. (Figures **G** & **M**)

DENSITY ISOGRADIENTS

The quantized fracture information, in the form of the point count plot, are contoured in the normal fashion with a resulting plot of the maxima/minima of fracture density. (Figures H & N)

DATA FILTER

A mathematical manipulation is used to 'filter' the data. This process, in effect, averages-out small undulations, leaving the major patterns more discernible.
The method utilized for this analysis consists of obtaining the arithmetical sum of four 'point count' values, found at the four corners of a grid square, dividing by 4, and recording the resulting 'filtered' value in the center of the square. (Figures I & O)

RELATIVE DENSITY ISOGRADIENT

The filtered data, obtained as described above, is contoured in the normal manner. The maxima/minima which emerge as result basically mimic the point count isogradient, suppressing the isolated high/low patterns. However the overall trends are more evident, due to the filter process. (Figures J & P)

COMPILATION PLAN

The compilation plan depicts fracture density patterns, with "high" areas outlined by stippling, in addition to interpreted fault trends, as derived from the relative isogradient plan, shown as undulating lines. (These lineations do not necessarily correlate with mapped faults). The geographic information is displayed in order to allow orientation relative to the approximate outline of the VIC mineral claim. (Figures C & D)

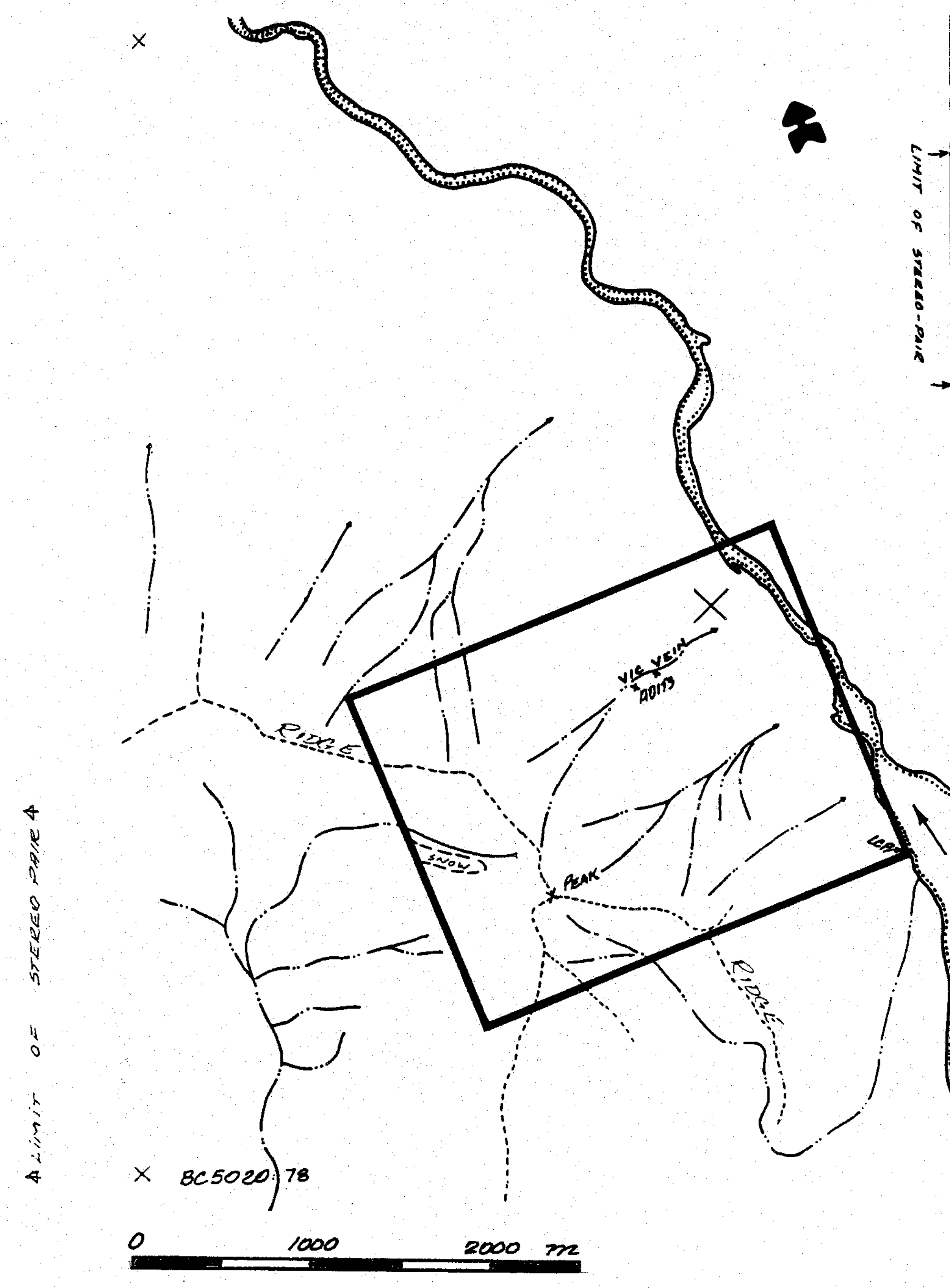


FIGURE E

GEOGRAPHY

AIRPHOTO BC 5020:78

VIC 1269 MINERAL CLAIM

Clinton Mining Division

9205E

GEAREX ENGINEERING mission bc 10/12/84

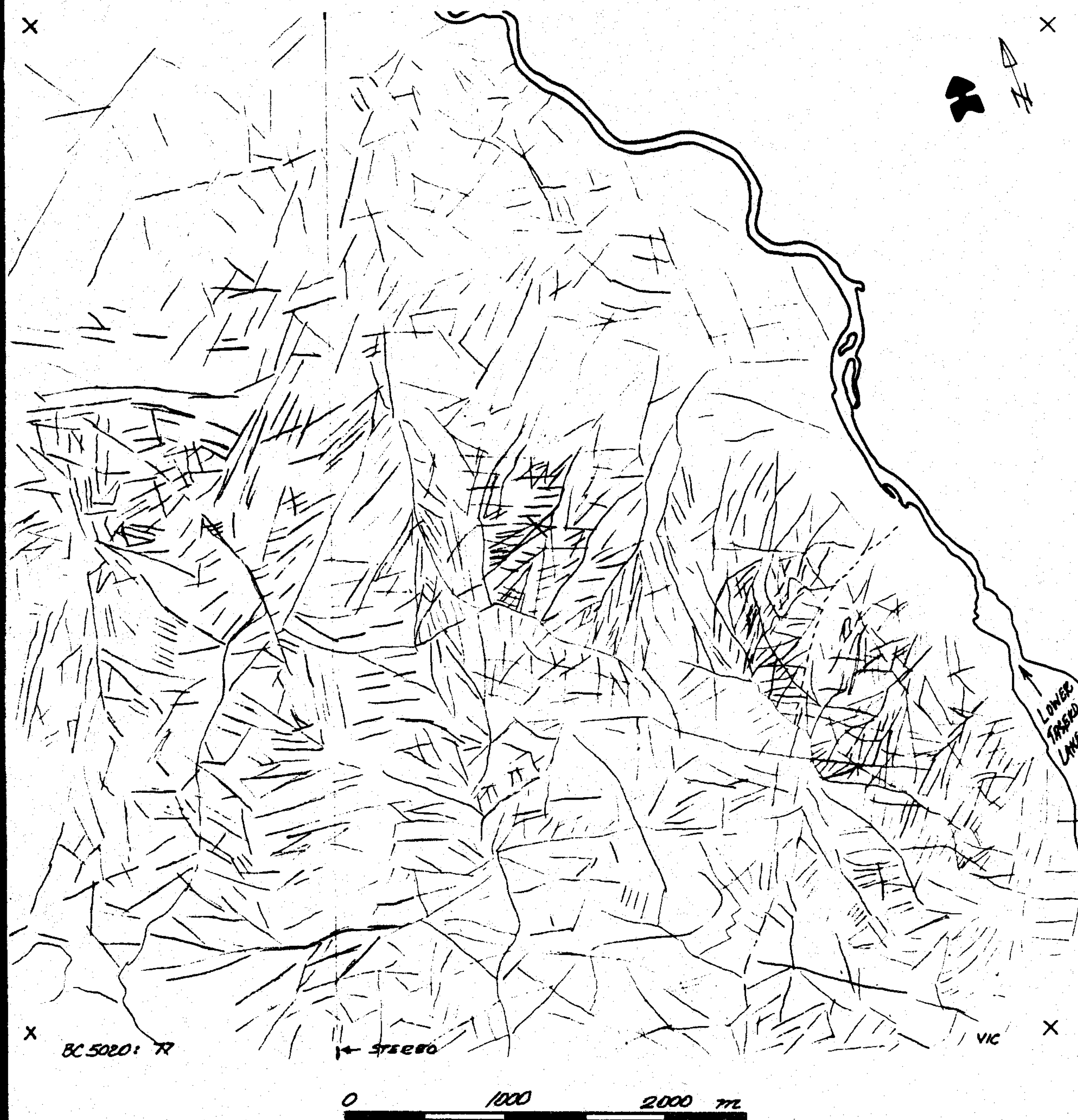


FIGURE F

ANNOTATED FRACTURES

AIRPHOTO BC 5020:77

VIC 1269 MINERAL CLAIM

Clinton Mining Division

9205E

GEAREX ENGINEERING mission bc 10/12/84

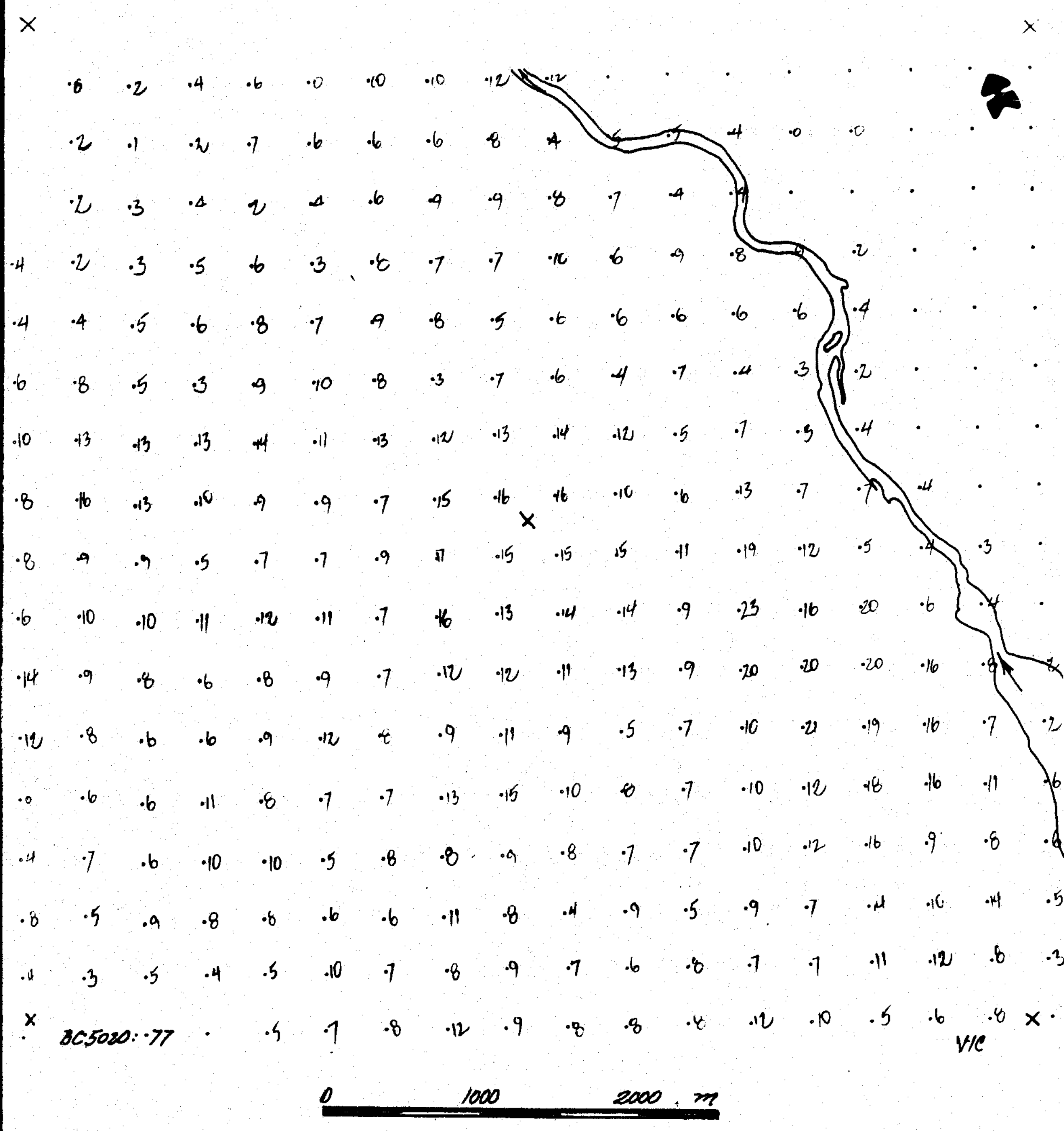


FIGURE G

FRACTURE DENSITY POINT COUNT

AIRPHOTO BC 5020:77

VIC 1269 MINERAL CLAIM

Clinton Mining Division

GEAREX ENGINEERING mission bc 10/12/84

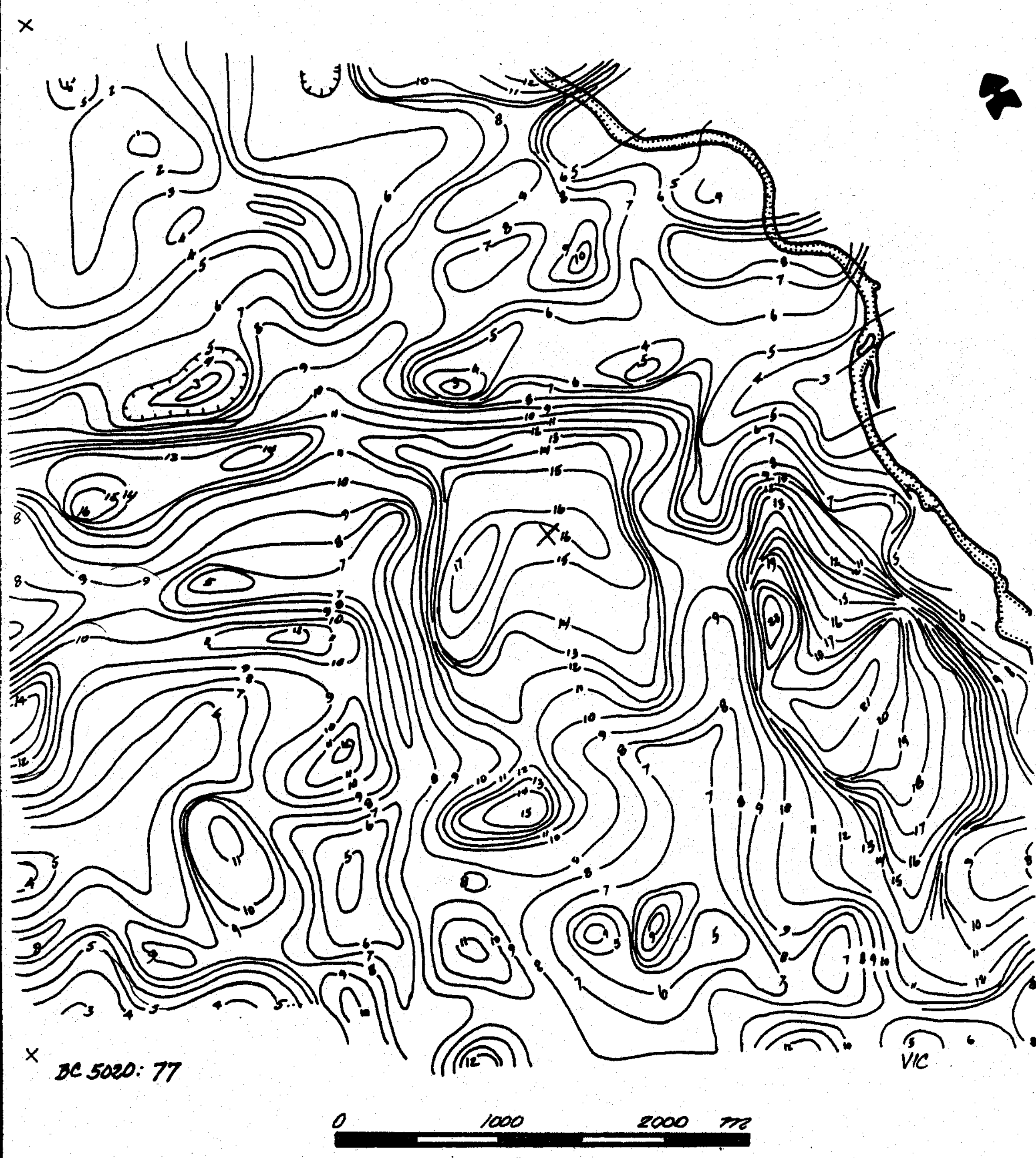


FIGURE H

FRACTURE DENSITY CONTOUR

AIRPHOTO BC 5020:77

VIC 1269 MINERAL CLAIM

Clinton Mining Division

GEAREX ENGINEERING mission bc 10/12/84

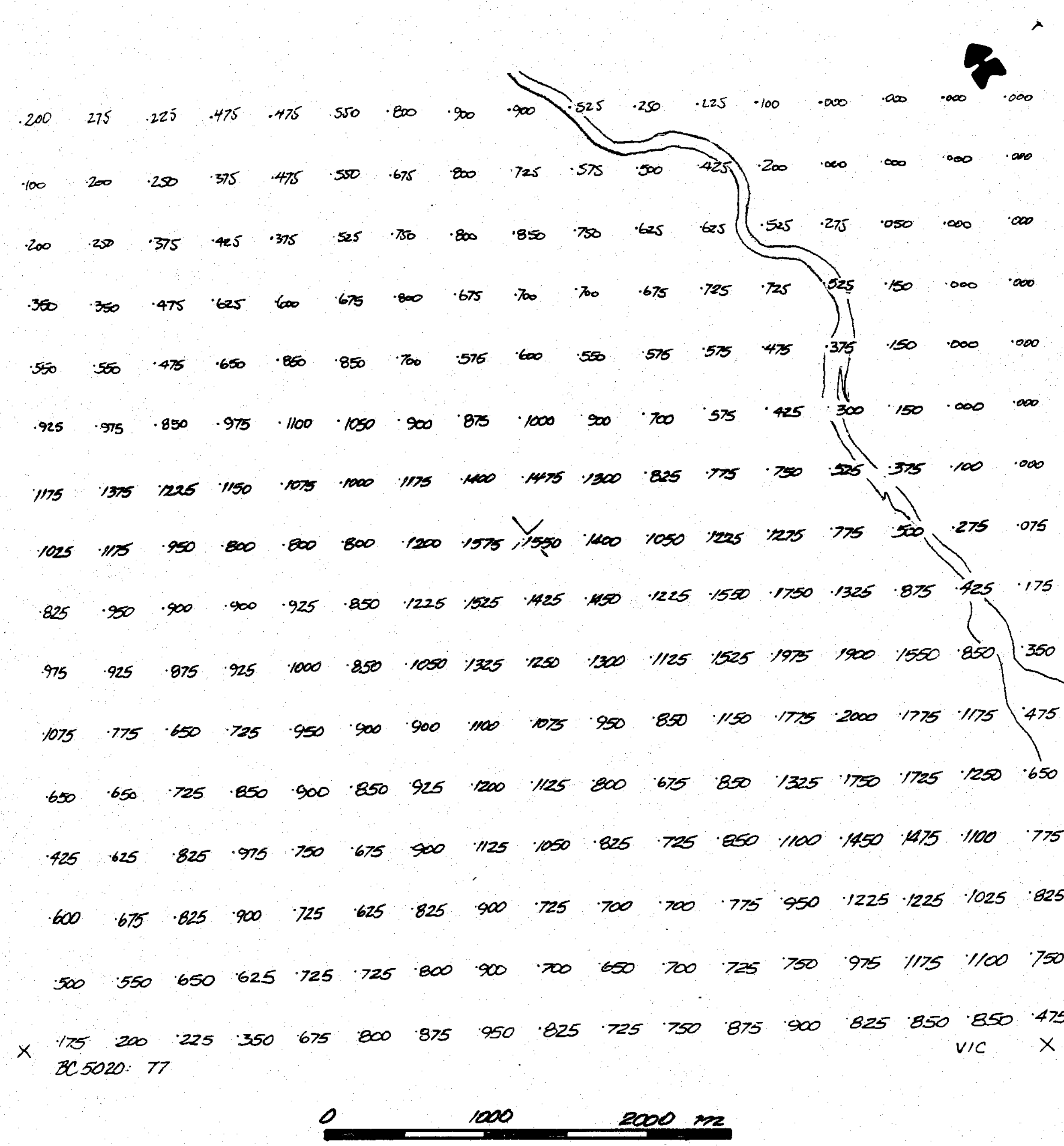


FIGURE I

FILTERED DATA

AIRPHOTO BC 5020:77

VIC 1269 MINERAL CLAIM

Clinton Mining Division

9205E

GEAREX ENGINEERING mission bc 10/12/84

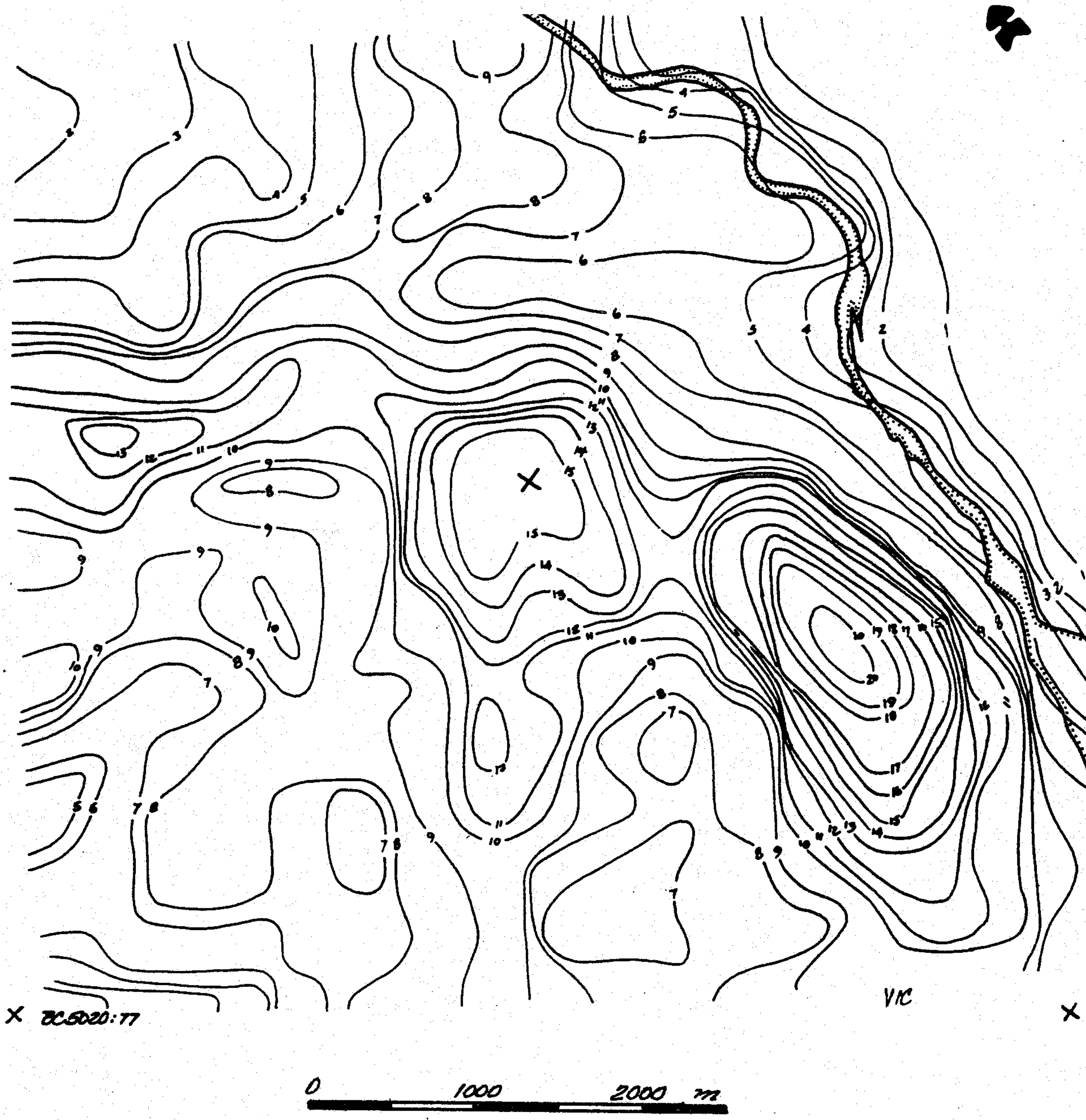


FIGURE J

ISOGRADIENT CONTOURS

AIRPHOTO BC 5020:77

VIC 1269 MINERAL CLAIM

Clinton Mining Division
92O5E

GEAREX ENGINEERING mission bc 10/12/84

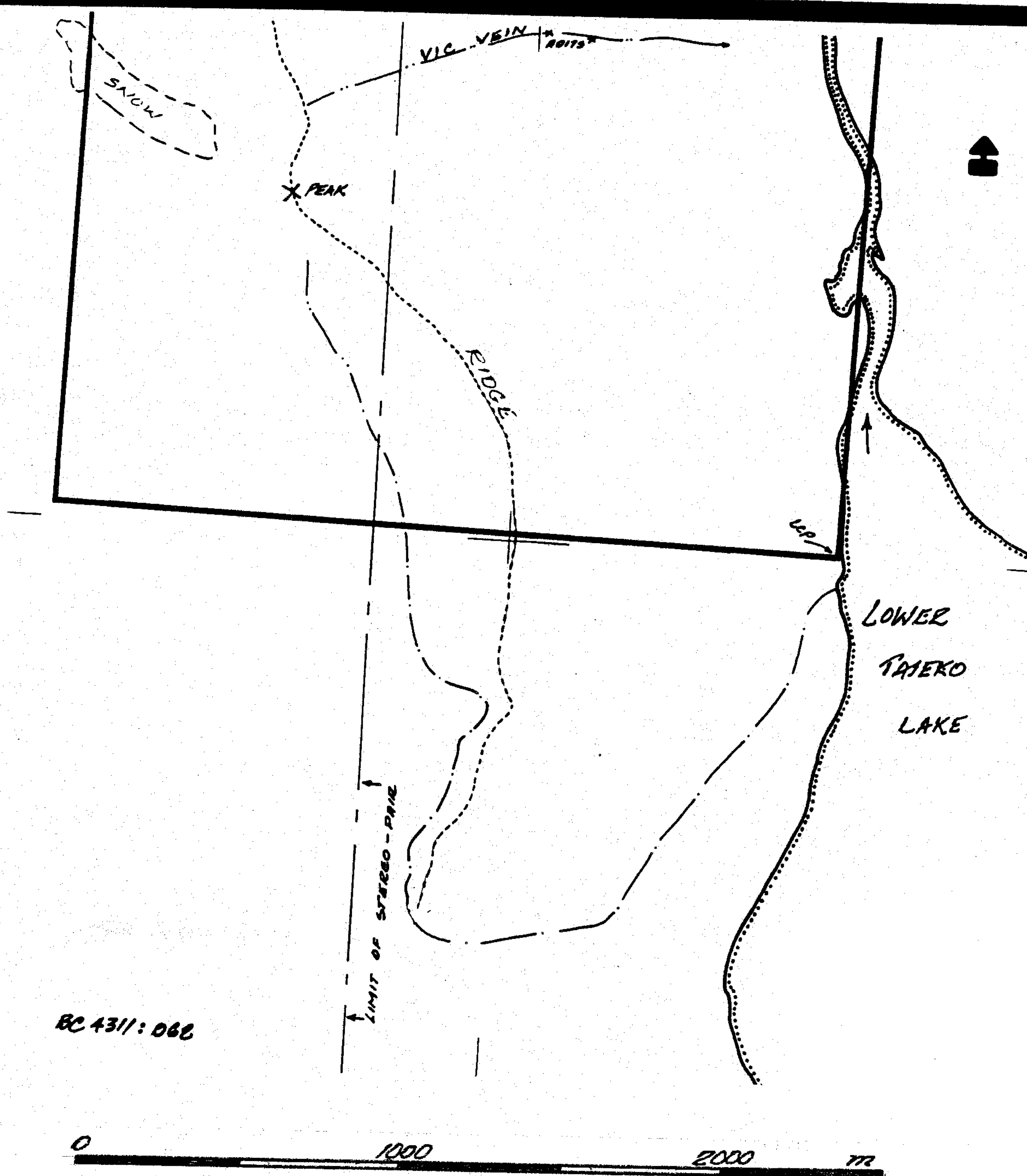


FIGURE K

GEOGRAPHY

AIRPHOTO BC 4311:062

VIC 1269 MINERAL CLAIM

Clinton Mining Division

9205E

GEAREX ENGINEERING mission bc 10/12/84

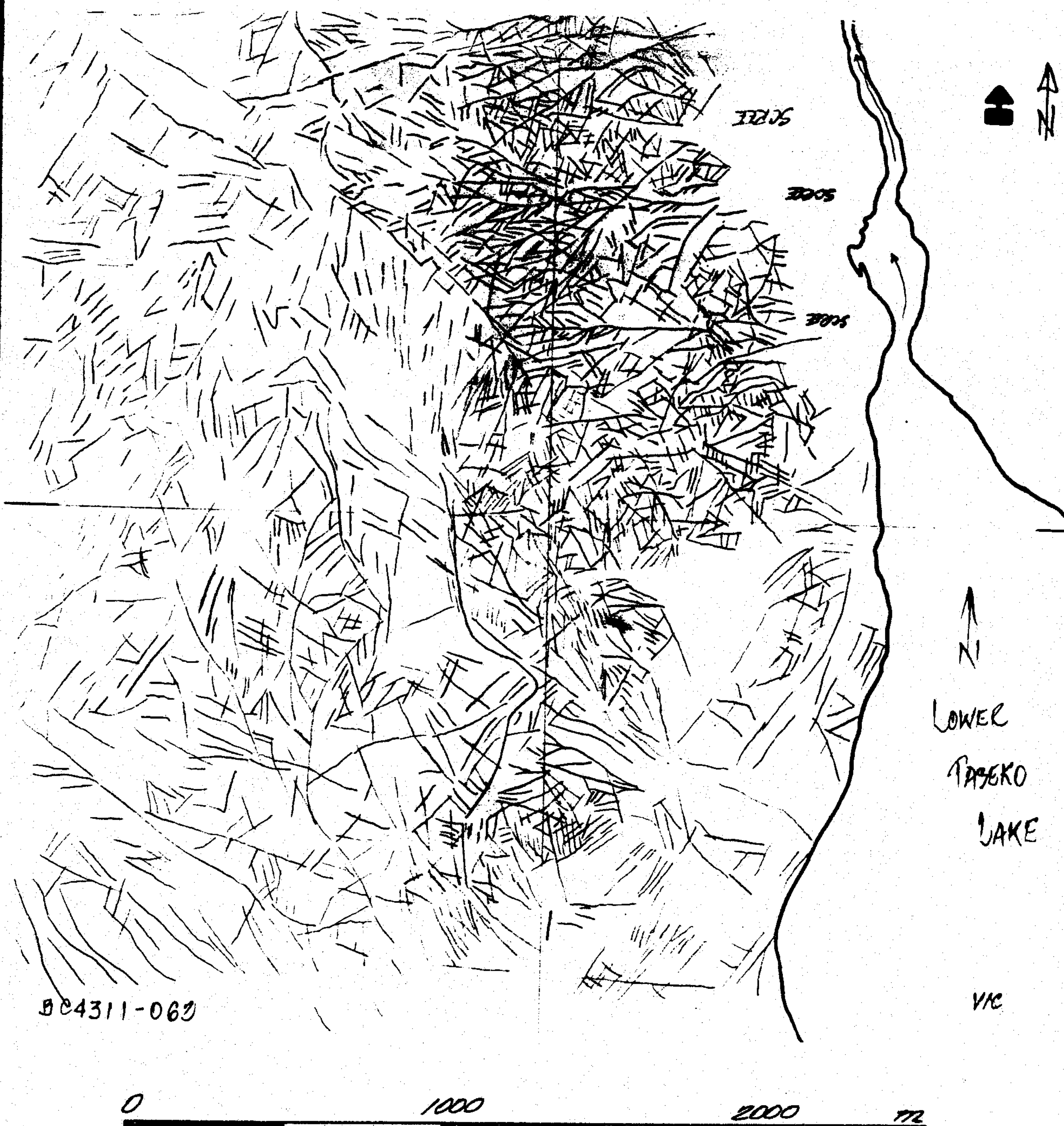


FIGURE L

ANNOTATED FRACTURES

AIRPHOTO BC 4311:062

VIC 1269 MINERAL CLAIM

Clinton Mining Division

9205E

GEAREX ENGINEERING mission bc 10/12/84

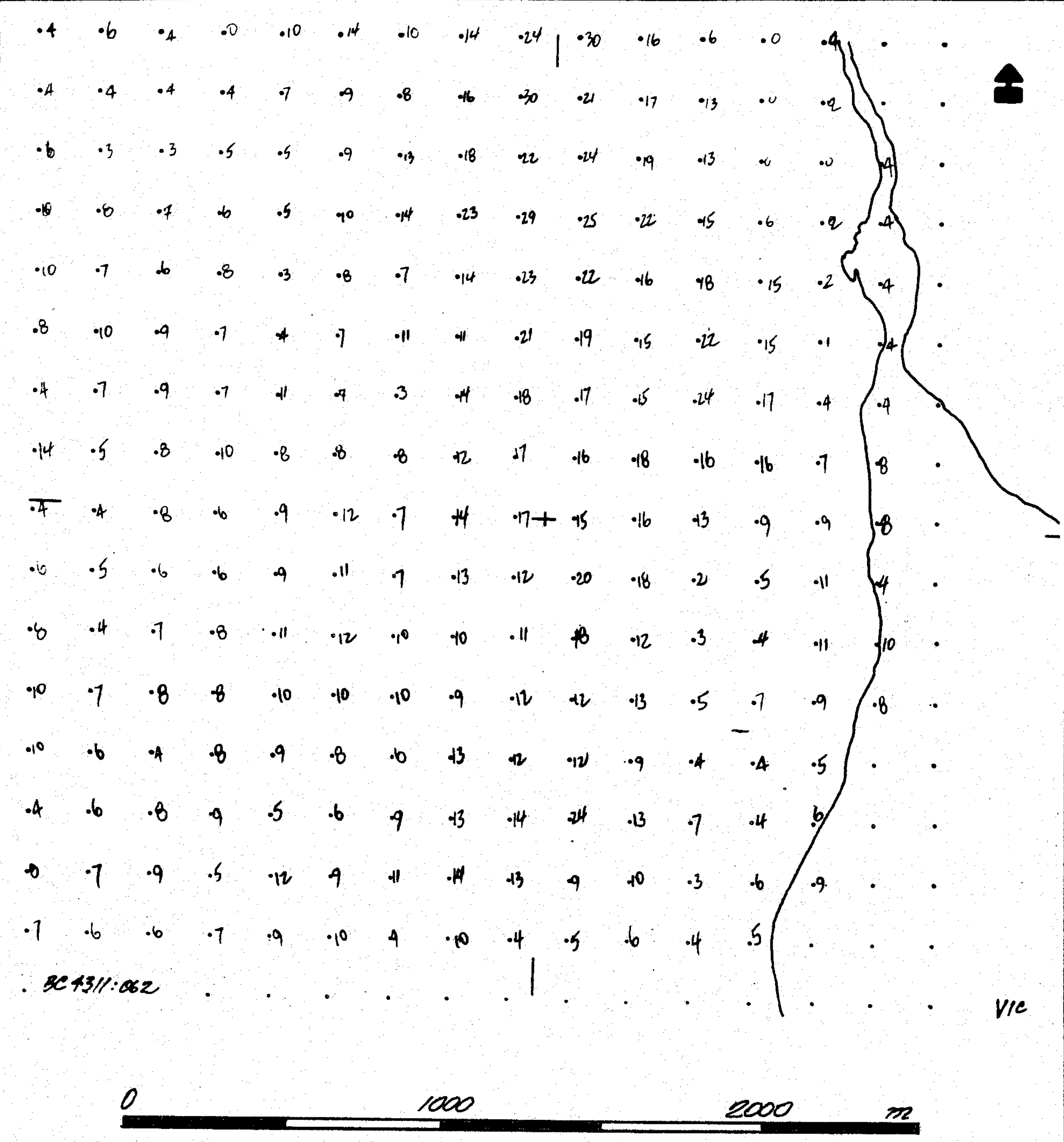


FIGURE [illegible]

FRACTURE DENSITY POINT COUNT

AIRPHOTO BC 4311:062

VIC 1269 MINERAL CLAIM

Clinton Mining Division

9205E

GEAREX ENGINEERING mission bc 10/12/84

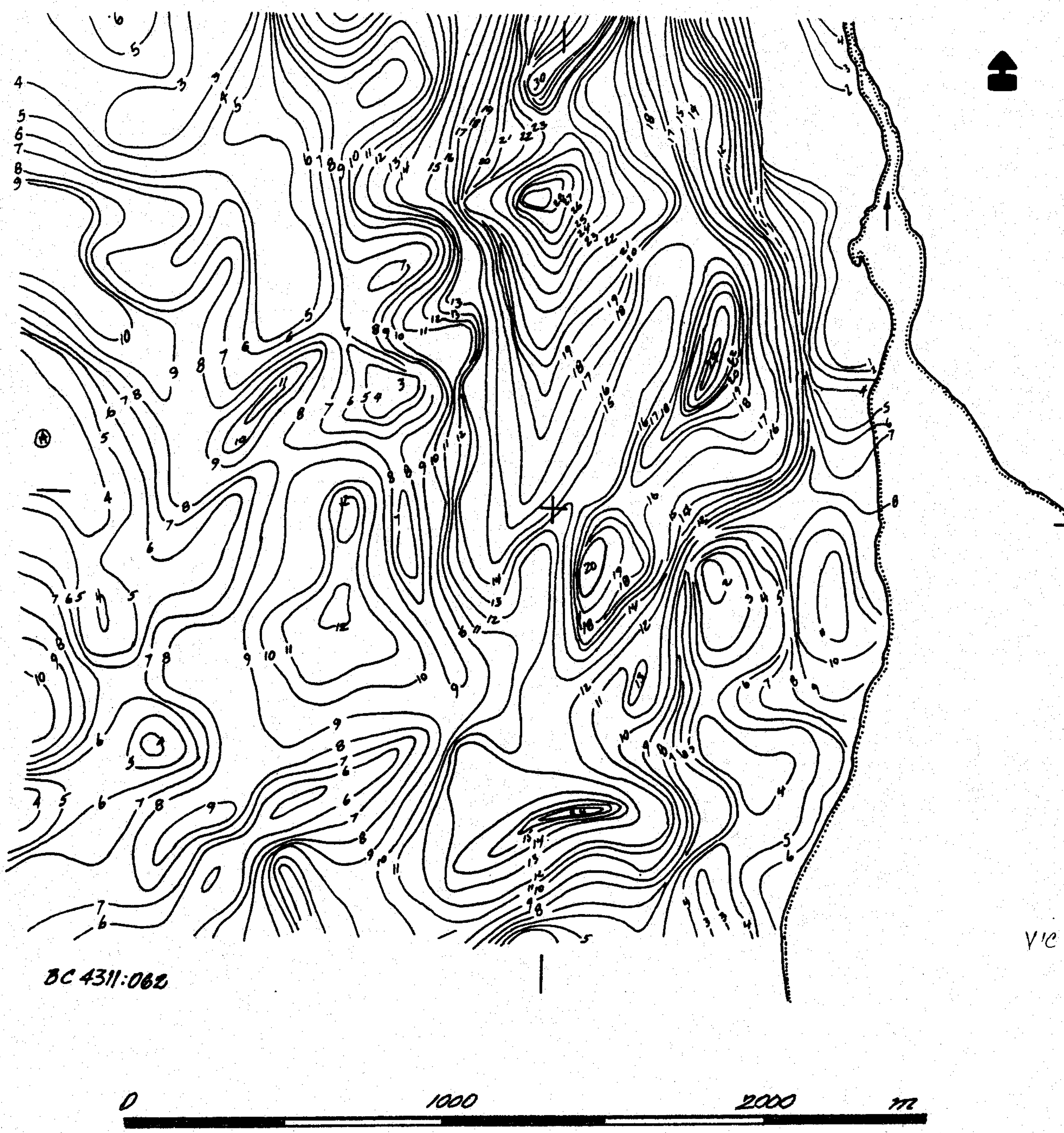


FIGURE N

FRACTURE DENSITY CONTOUR

AIRPHOTO BC 4311:062

VIC 1269 MINERAL CLAIM

Clinton Mining Division

9205E

GEAREX ENGINEERING mission bc 10/12/84

450	450	300	525	1000	1025	1200	2100	2625	2100	1300	475	150	150	000	000
425	350	400	525	750	975	1375	2150	2425	2025	1550	650	050	150	100	000
675	525	525	525	725	1150	1700	2300	2500	2250	1725	850	200	250	200	000
875	700	675	550	650	975	1450	2225	2475	2125	1775	1350	625	300	200	000
875	800	750	550	550	825	1075	1725	2125	1800	1775	1750	825	275	200	000
725	875	800	725	725	700	975	1600	1875	1650	1900	1950	925	325	200	000
750	725	850	900	850	650	925	1525	1700	1650	1825	1825	1100	575	300	000
675	625	800	825	925	875	1025	1500	1625	1625	1575	1350	1025	800	400	000
475	575	650	750	1025	925	1025	1400	1600	1725	1225	725	850	800	300	000
575	550	675	850	1075	1000	1000	1150	1525	1700	875	350	775	900	350	000
725	650	775	925	1075	1050	975	1050	1325	1375	825	475	775	950	450	000
825	625	700	875	925	850	950	1150	1200	1150	775	500	625	550	200	000
650	600	725	775	700	725	1025	1300	1550	1450	825	475	475	275	000	000
625	750	775	775	800	875	1175	1350	1500	1400	825	500	625	375	000	000
700	700	675	825	1000	975	1100	1025	775	750	575	450	500	225	000	000
325	300	325	400	475	475	475	350	225	275	250	225	125	000	000	000

BC4311:062

0 1000 2000 m

FIGURE [redacted]

FILTERED DATA

AIRPHOTO BC 4311:062

VIC 1269 MINERAL CLAIM

Clinton Mining Division

9205E

[redacted]EAREX ENGINEERING mission bc 10/12/84

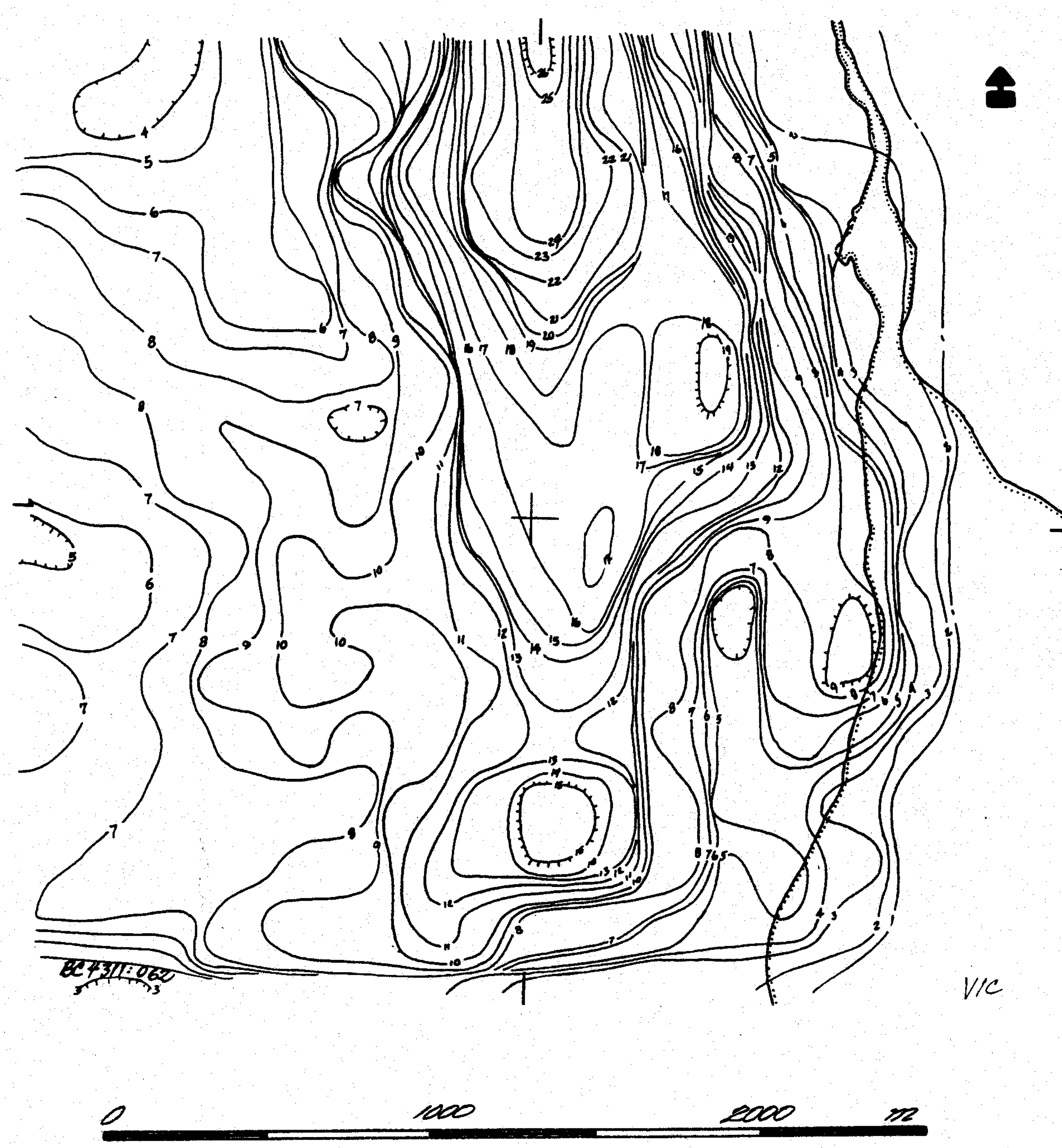


FIGURE P

ISOGRADIENT CONTOURS

AIRPHOTO BC 4311:062

VIC 1269 MINERAL CLAIM

Clinton Mining Division

920SE

GEAREX ENGINEERING mission bc 10/12/84

RESULTS

The compilation plan, Figure **C**, shows the entirety of **VIC** mineral claim, outlined in black. Within the bounds of the claim exists one U-shaped "high", which is centrally located. Lineaments, possibly faults, are shown on the east and west sides of this "high". The inside of the u-shape is shown to coincide with an interpreted fault, which trends north-easterly. Referring to Figure **E**, one can notice a spatial correlation between the center of the "U", and the structure known as the "Vic vein system".

The compilation plan, Figure **D**, shows only the southern portion of the **VIC** mineral claim, outlined in black; this is a larger scale.

Within the bounds of the claim exist several "high" areas of visible airphoto fracture density. The "U-shaped" pattern is sub-divided into more discrete outlines. A cluster of three of these occurs near the center of the surveyed portion of the claim. Interpreted breaks are shown passing in several directions.

The "Vic vein system" is shown near the northern border of the survey. It is not clear whether there is a correlation between this structure, and information gained from the present study.

It should be noted that the western portion, as marked, of the airphotos were annotated without the benefit of stereo-coverage; hence there is a level shift in relative intensity.

CONCLUSIONS

Several patterns of "high" fracture density have been outlined as a result of this study. A few linear breaks have been interpreted.
Some correlation appears to exist between the known "Vic vein structure", and an interpreted fault system, as found on small scale photography.
The northerly portion of the claim outline is missing on the larger scale photography, used in this study. However, detail is better, and several steep-sloped gradients are discernible trending off the "highs". The area around the adits of the "Vic vein structure" appears to coincide with a "high". But fall-off at the edge of the picture prevents a distinct correlation.

RECOMMENDATIONS

Judging from prior knowledge of the property, further explorations in the area of the **VIC** mineral claim, and the surrounding terrain is definitely warranted, and information gained from the present study may be useful in designing a field program.
The flanks of the "high" zones should receive special attention during such a field program.

CERTIFICATE OF QUALIFICATIONS

I, Gerhard von Rosen, reside in Mission, British Columbia, at 33176 Richards Avenue.

I have been practicing my profession of consulting geologist since my graduation from the University of British Columbia in 1962 with a Bachelor of Science, and in 1966, with a Master of Science degree in Honours Geology.

I annotated the overlays, performed the point counts, carried out the calculations, prepared the pictorial presentations, and compiled the body of the report.

I have been involved with this kind of work many times before and I am qualified to compile, and interpret this information.

Respectfully submitted,

Gerhard von Rosen, P.Eng.
December 12, 1984

ITEMIZED COST STATEMENT

Airphoto Fracture Density annotation, etc.	500
Assessment Report: Summary	1300
Report Preparation	200
TOTAL COSTS	$2000

AREA COVERED

Total area of survey, two photos	45. km^2
	4500. ha
Area covered by VIC mineral claim	500. ha