

5738

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GEOPHYSICAL REPORT
OF THE

GROUND VLF ELECTROMAGNETIC SURVEY
ON THE

SF 1-20 MINERAL CLAIMS

Harrison Lake Area, B.C.
New Westminster Mining District

Lat. 49° 25'
Long. 121° 53'
N.T.S. 92H/5W

on behalf of

SWIM LAKE MINES LTD. (N.P.L.)

by

Department of	
Mines and Petroleum Resources	
ASSESSMENT REPORT	
NO. 5738	MAP

Stanley B. Reamsbottom Ph. D

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(IN POCKET)

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INTRODUCTION:

A VLF - EM Survey was carried out on the SF property of Swim Lake Mines Ltd. near Harrison Lake B.C. between October 30 and November 26, 1975.

The property was geologically mapped and geochemically soil sampled in 1975 (Fitzerald, 1974). Several zinc and copper geochemical anomalies were defined within a sequence of Middle Jurassic altered, acid to intermediate tuffs and pyroclastics of the Harrison Lake Formation. The geological environment is considered to be favourable for discovery of Kuroko-type volcanogenic massive sulphide deposits.

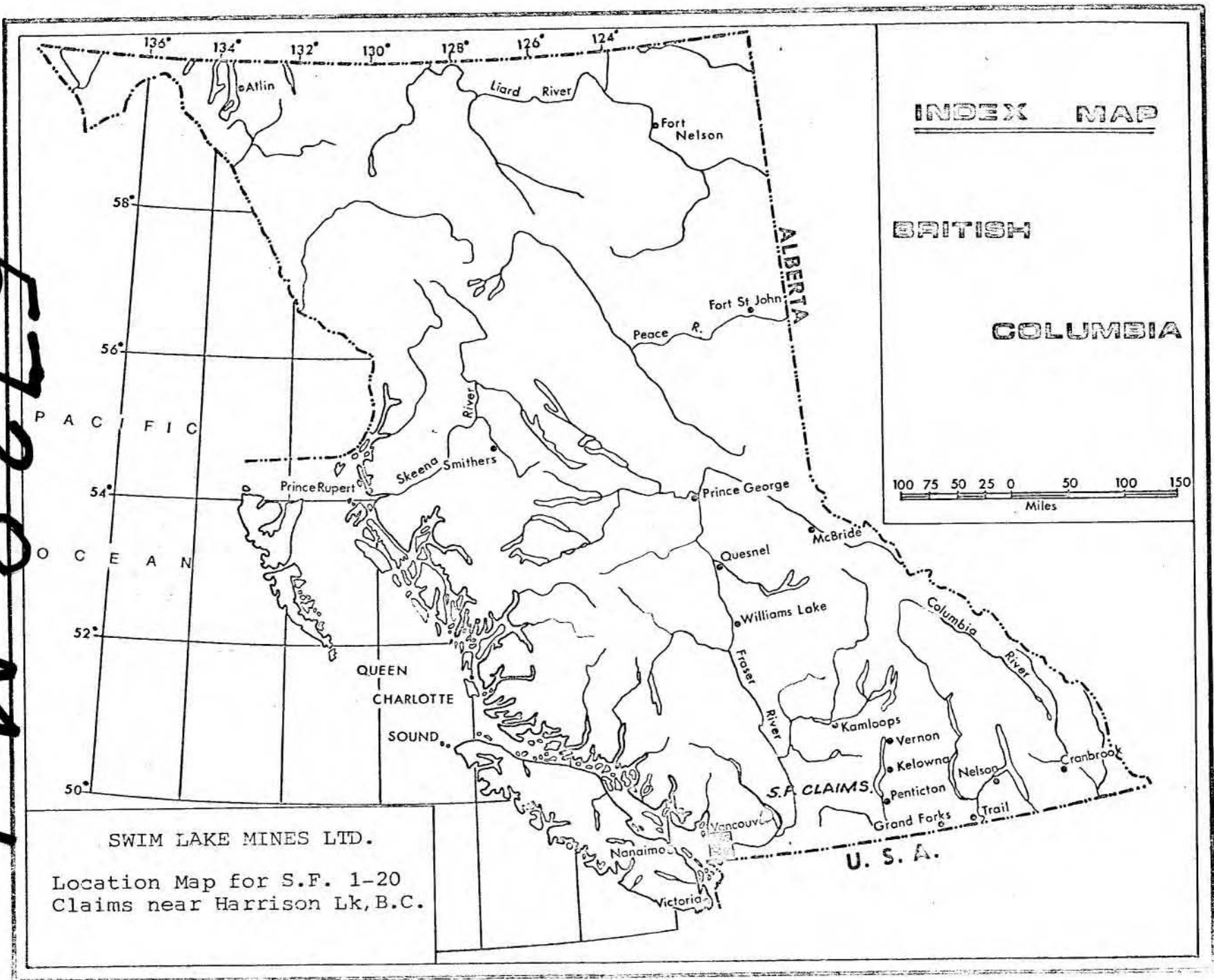
The VLF - EM survey was executed to define conductive zones, which may be related to massive sulphide deposits, within the rock sequence.

The survey was carried out by the author in six days in November 1975.

LOCATION AND ACCESS

The property is located 21 km north of Harrison Mills on Highway #7. A partially paved highway runs north from Harrison Mills over the Chehalis River and then

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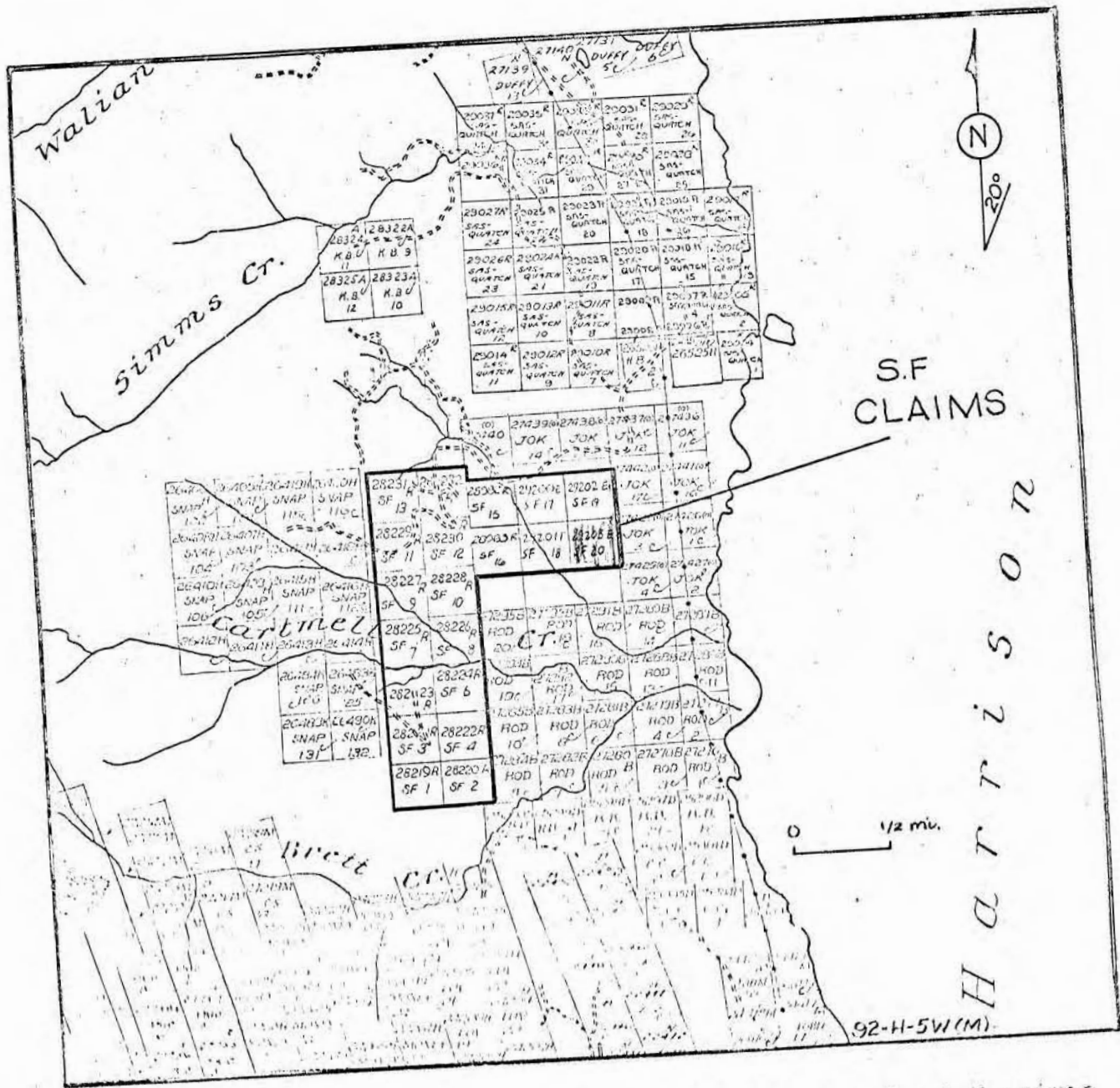


FIGURE 2. Sketch of S.F. 1-20 claims, 18 miles north of Harrison Mills, B.C. (New Westminster Mining District).

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parallels the B.C. Hydro Power line on the Western side of Harrison Lake. The SF property is traversed by the Weldwood South haul road which intersects the power line road at Lineham Logging Camp on Harrison Lake Shore. (Fig. 1 and 2)

TOPOGRAPHY

The property straddles Cartmell Creek which drains eastward to Harrison Lake. Maximum elevations on the claim group are 600 metres. Topography is moderately rugged with several cliffs and rock-bluffs. (Plate 1)

Vegetation varies from mature stands of conifers to clear-cut, slash-burned areas with abundant second growth timber.

GRID

A total of 14.25 line-km of grid was cut on the property. Where possible N.30E cross-lines were spaced 240 m (800 ft.). Tie-lines on 0, 5, 10, 25, and 55 N were chained and picketed.

CLAIMS

The property consists of 20 contiguous mineral claims which are owned by SWIM LAKE MINES LTD. (N.P.L.)

<u>CLAIM</u>	<u>RECORD NUMBER</u>	<u>ANNIVERSARY</u>
SF 1-14	28219-28232 incl.	Dec. 4, 1975
SF 15-16	28982-28983	Dec. 3, 1975
Sf 17-20	29200-29203	May 22, 1976

GEOLOGY:

REGIONAL

The Southwest portion of Harrison Lake is underlain by volcanic and volcanic epiclastic rocks of the Harrison Lake formation of probable Middle Jurassic Age. This formation is part of a eugeoclinal assemblage of marine and volcanic rocks which evolved from Middle Devonian to mid Cretaceous. The depositional regime ended with the widespread and intense orogenic activity which culminated in the intrusion of the Coast Plutonic Complex in mid Cretaceous time.

PROPERTY

The SF claims are underlain mainly by acid to intermediate tuffs and breccias. Some flows of andesite and bedded water-lain tuffs and conglomerates occur within the sequence.

Tuffs are locally pervasively altered to quartz-pyrite rock which weathers rusty brown in the field. During the present survey veins of black sphalerite with minor pyrite were found within altered acid tuff close to the contact with overlying black pyritic shale on line 48E 32N.

VLF - ELECTROMAGNETIC SURVEY

The survey was carried out on the prepared grid using a Sabre Model 27 VLF- EM receiver. Considering the probable east-west trend of any potential conductors it would have been ideal to have received signals from the transmitter at Cutler, Maine, U.S.A. However, as no signal could be detected from Maine the transmitter at Arlington, near Seattle, Washington, U.S.A., was used throughout the survey. This station transmits VLF radio waves at a frequency of 86 KHZ.

The grid was traversed and dip angles and field strength ratios were measured every 100 feet. Field strength ratios were corrected for diurnal variation by completing loops on the grid and noting any variation in the readings at the initial station. Variation proved negligible in most cases.

Profiles of dip-angles are presented on Plate 2. The erratic nature of the profiles may be the result of interference by the live B.C. Hydro Power line 1 mile to the east. In the profiles conductors are defined by "cross-over" points, or marked decrease in dip-angles as one moves from south to north.

The dip-angles were filtered in the manner described by Fraser(1969) and also plotted on Plate 2. Positive peaks correspond to conductor axes. "Fraser filtered" dip-angles were plotted and contoured in Plate 3.

Field strength ratios were plotted and contoured and the results given in Plate 4.

DISCUSSION OF EM RESULTS

Several, parallel, northwest-trending conductors of various intensities were defined by the survey. These are best seen in Plate 3.

Significant anomalies include:

- 1) Strong conductor at 14N on lines 8 and 16E. This may pick up again at 15N on line 5W.
- 2) Several moderate parallel conductors within a northwest trending zone between 25N and 40N.
- 3) Moderate conductor which may extend from 3N L 16E to 10N, L 10W.
- 4) Lesser sub parallel northwest-trending conductors between 40 and 55N.

Conductors which are coincident with Zn-Cu geochemical anomalies are located as follows.

- 1) L 56E, 38N to L 48E 32N.
- 2) L 24E 34N
- 3) L 16E 37N
- 4) L 8E 41N (on western margins)
- 5) L 5W 10N and 15N and
- 6) L 10W, 11N

The strong anomaly on L 8E and 16E at 14N has apparently no coincident geochemistry.

CONCLUSIONS:

Several northwest-trending sub-parallel conductors of varying intensities were defined by the survey.

The belt of conductors between 25N and 40N are related to highly altered pyritized acid tuffs, or to zinc veins

within these tuffs. Several of these have coincident Zn-Cu geochemical anomalies.

The strongest anomaly (14N on L 8 and 16E) has no coincident geochemical expression but is in line with an anomaly at 14N on L 5W which has coincident Zn and Cu geochem.

RECOMMENDATIONS

On the basis of the VLF-EM Survey and the geochemical data on the SF Property the most interesting zones for follow up, either by diamond drilling or trenching are on claims SF 9, SF16 and SF 20. The conductive zone between L 48E, 32N and L 56E 38N has associated zinc bearing veins.

If these are in any way related to stringer zones which are commonly found on the footwall of Kuroko-type massive sulphide deposits this zone is a priority target for drilling.

Similarly, the conductor at L 24E 34N in altered pyritic acid tuffs which have associated Zn-Cu geochem is a possible drill target.

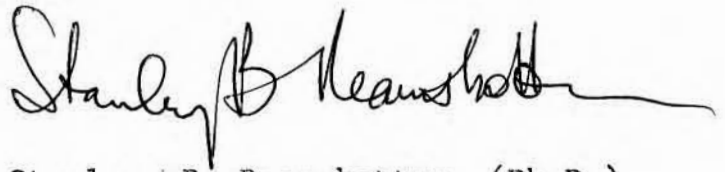
The strong conductor defined at 14N on L 8E and 16E may be related to a fault or shear-zone as it has no related geochemical expression.

In conclusion test drill-holes should be located as follows:

- 1) L 56E 35N. Drill $N45^{\circ}$ for 300'
- 2) L 24E 32N. Drill $N45^{\circ}$ for 300'

Results of a gravity survey on the claims are being compiled at time of writing so that the targets suggested above are subject to modification on the basis of the Gravity Survey.

Respectfully submitted,

A handwritten signature in cursive script, reading "Stanley B. Reamsbottom". The signature is written in dark ink and includes a long horizontal flourish at the end.

Stanley B. Reamsbottom (Ph.D.)

REFERENCES CITED

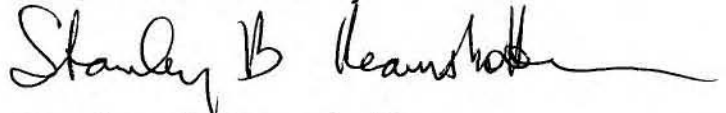
FITZGERALD M.J. 1974. "Report on Geology and Geochemistry
of the SF 1-20 Mineral claims"

FRASER D.C. "Contouring of VLF-EM Data" Geophysics,
vol. 34, no. 6.

STATEMENT OF COSTS

1. Rental of VLF-EM.....	\$275.00
2. Field work: S.B. Reamsbottom 6 days \$50.00.....	300.00
3. Travel.....	50.00
4. Report.....	<u>100.00</u>
TOTAL	\$725.00

Certified correct,



Stanley B. Reamsbottom

APPENDIX

LINECUTTING REPORT

In the period November 17 to 24, 14.25 line km of grid was cut and chained on the SF 7-20 claims, Cartmell Creek, Harrison Lake by Manex Mining Ltd.

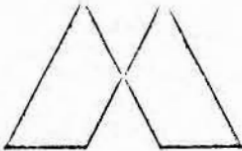
Attached is a copy of the cost to Swim Lake Mines Ltd. (N.P.L.)

This amount is hereby submitted for assessment purposes on the SF 1-20 Mineral claims.

Respectfully submitted

A handwritten signature in cursive script that reads "Stanley B. Reamsbottom". The signature is written in black ink and extends across the width of the page.

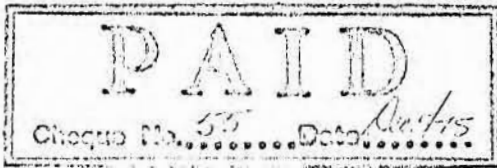
Stanley B. Reamsbottom



#237

MANEX MINING LTD.

227 - 470 GRANVILLE STREET, VANCOUVER 2, B.C. • 681-4411



November 27th, 1975

Swim Lake Mines Ltd.,
789 West Pender Street,
VANCOUVER, B.C.Re: Harrison - LinecuttingWAGES

G. Arden	7½ days at \$45.00 per day	\$ 337.50
B. Nesbitt	7½ days at \$40.00 per day	300.00
R. Barclay	6½ days at \$50.00 per day	325.00
B. Schultz	4½ days at \$50.00 per day	225.00
M.J. Beley	6½ days at \$60.00 per day	390.00
B. Price	7½ days at \$60.00 per day	450.00
		<u>\$2,027.50</u>
	11.55% Payroll overhead	234.18
		<u>\$2,261.68</u>

DISBURSEMENTS

Sasquatch Inn	\$280.00	
Shell Oil	46.78	
Gulf Oil	23.00	
M.J. Beley	472.80	
B. Price	170.74	
Flagging	20.40	
R. Barclay	5.00	<u>1,018.72</u>
		\$3,280.40
	10% overhead	328.04
B. Price	1 day at \$95.00 per day	95.00

EQUIPMENT SUPPLIED

Powersaws (3)	5 days at \$4.00 per day	60.00
Vehicle	7 days at \$25.00 per day	175.00
Misc. & topofils	¼ month at \$200.00 per month	50.00
		<u>\$3,988.44</u>

This is our Account,

MANEX MINING LTD.

Per: *[Signature]*

MINING EXPLORATION & MANAGEMENT • CONTRACTING



HARRISON LAKE

LINEHAM LOGGING

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SWIM LAKE MINES LTD.
S.F. CLAIMS, HARRISON LAKE, B.C.

Sketch of Grid Lines, Topography.

■ Claim post.
--- Claim line.

PLATE 1

SCALE:

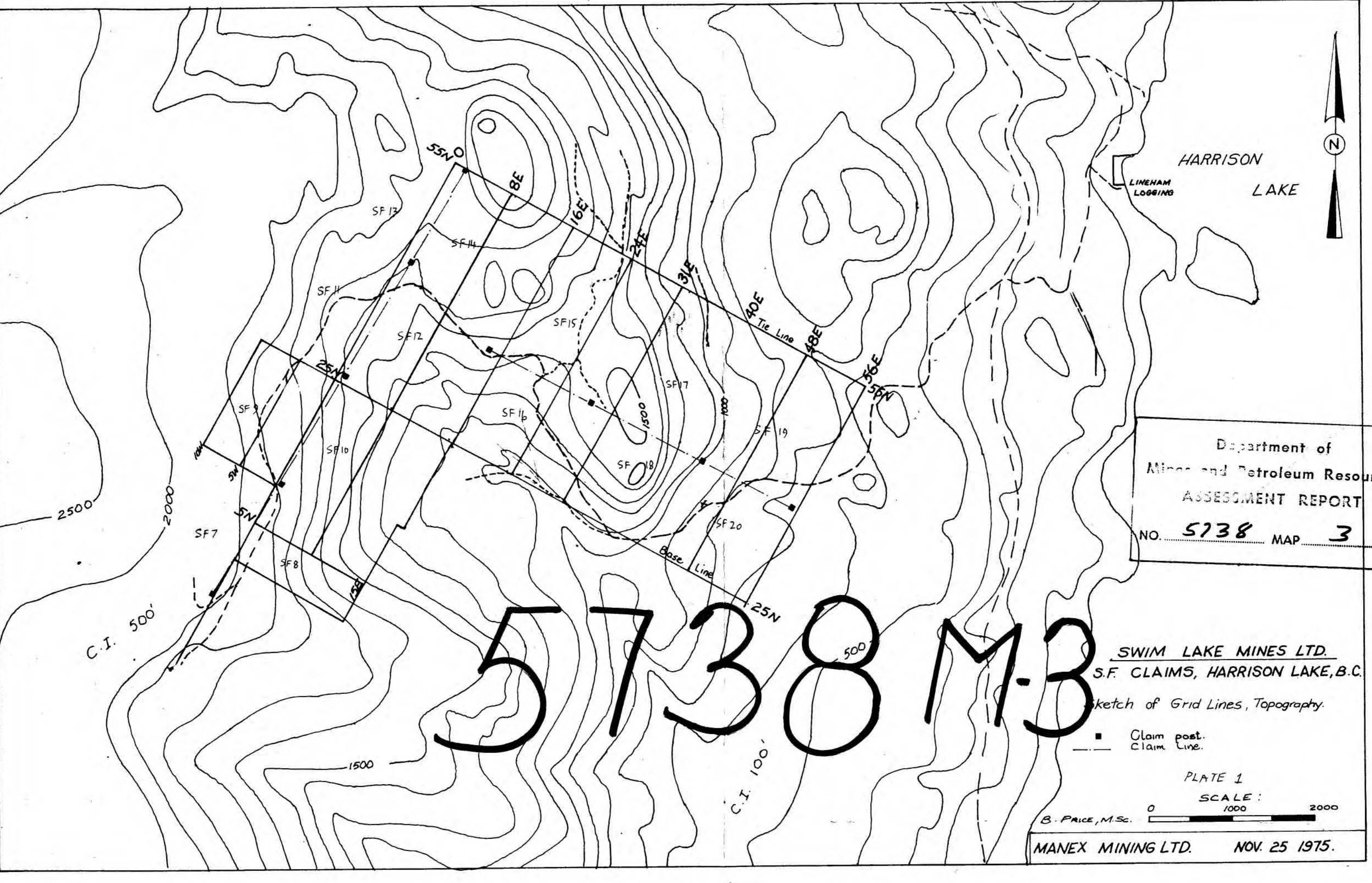
0 1000 2000

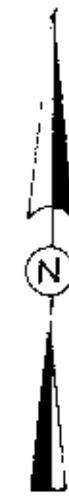
B. PRICE, M.Sc.

MANEX MINING LTD.

NOV. 25 1975.

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HARRISON LAKE

LINEHAM LOGGING

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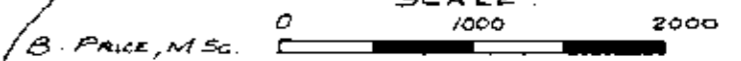
SWIM LAKE MINES LTD.
S.F. CLAIMS, HARRISON LAKE, B.C.

Sketch of Grid Lines, Topography.

■ Claim post.
--- Claim line

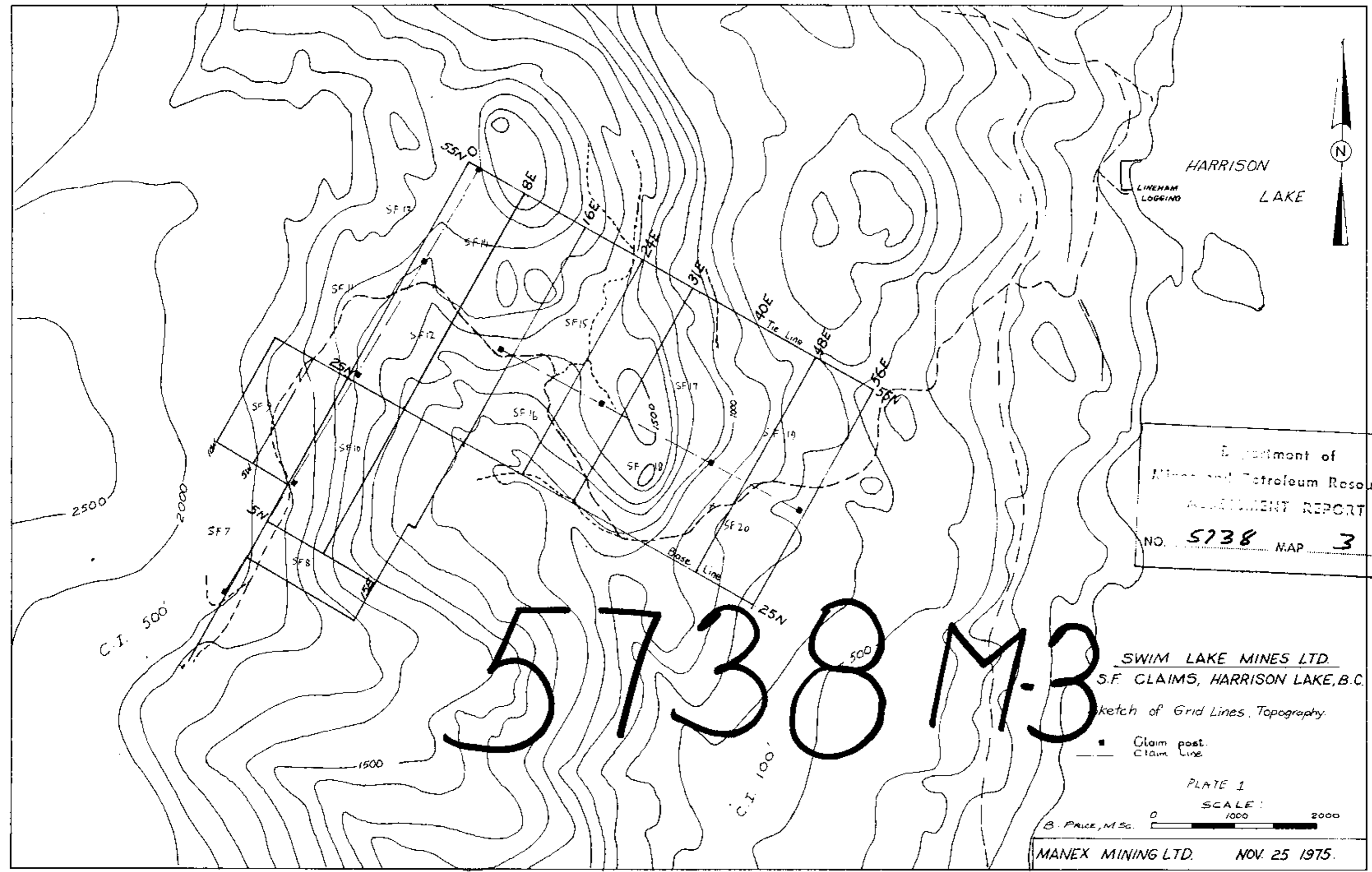
PLATE 1

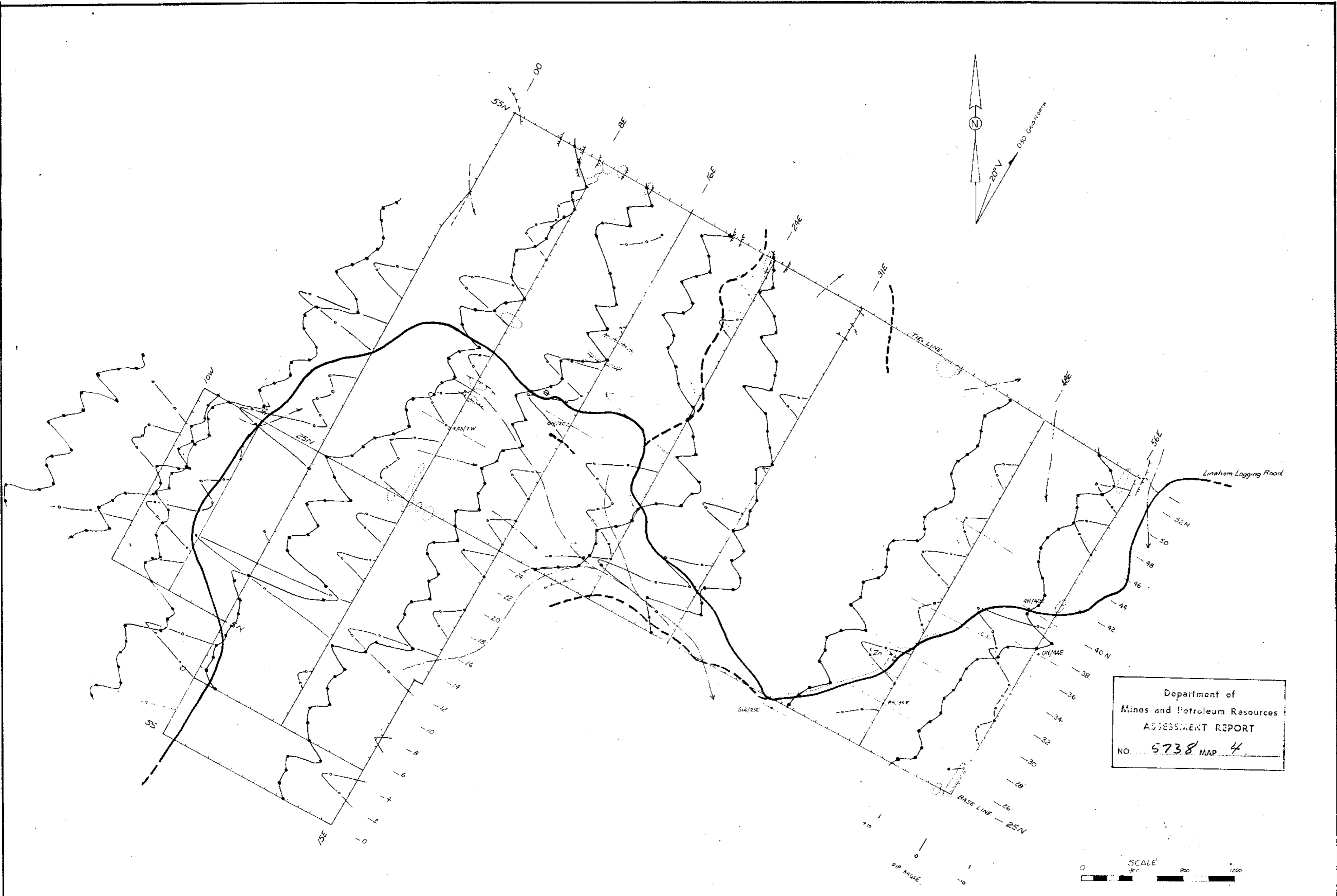
SCALE:



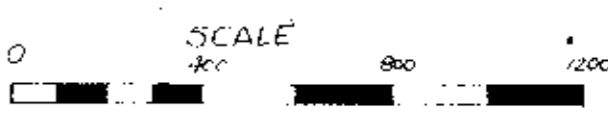
MANEX MINING LTD. NOV. 25 1975.

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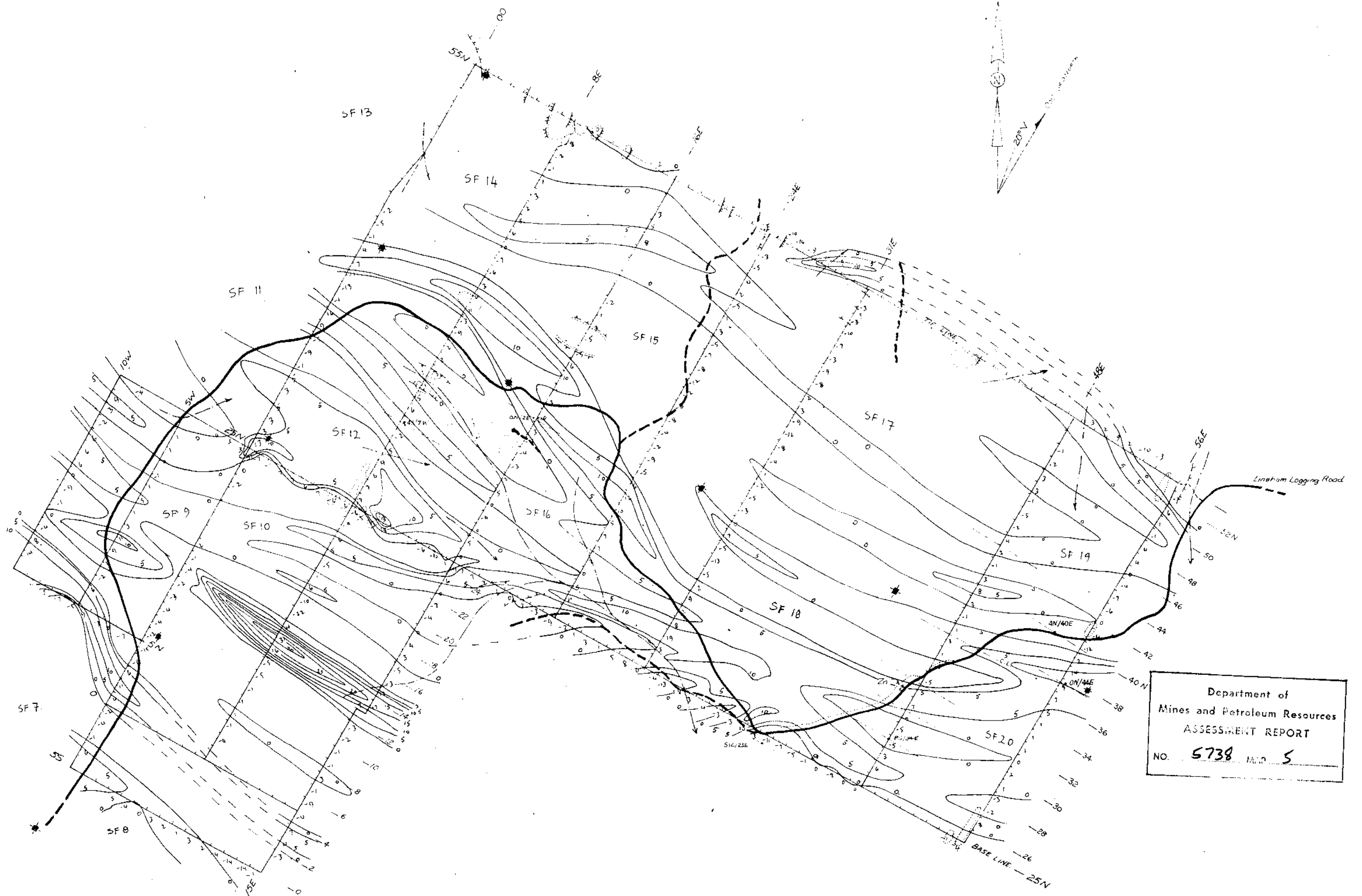
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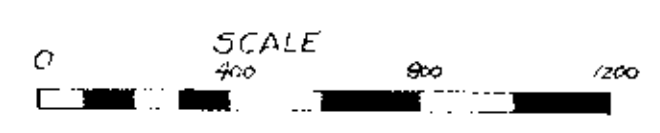
LEGEND

- Outcrop Area
- Creek
- Old grid line
- Cliff
- Showing
- Dip angle profiles.
- "Fraser" filtered dip angles.
Maxima correspond to conductors.

SWIM LAKE MINES LTD
 "SF" PROPERTY HARRISON LK. BC.
 PLATE 2
 GEOPHYSICAL GRID
 E.M. SURVEY: SABRE MODEL 27 VLF-EM RECEIVER.
 BASELINE, TIE LINES: Cross-point control
 CROSS LINKS: T.Y.L. - Empire control
 TRANSMITTER LOCATION: SEATTLE, WASH. U.S.A.
 DIP ANGLE PROFILES
 "FRASER FILTERED" DIP ANGLE PROFILES
 M.J. Bailey, B.J. Price.
 MANEX MINING LTD NOV 28, 1975



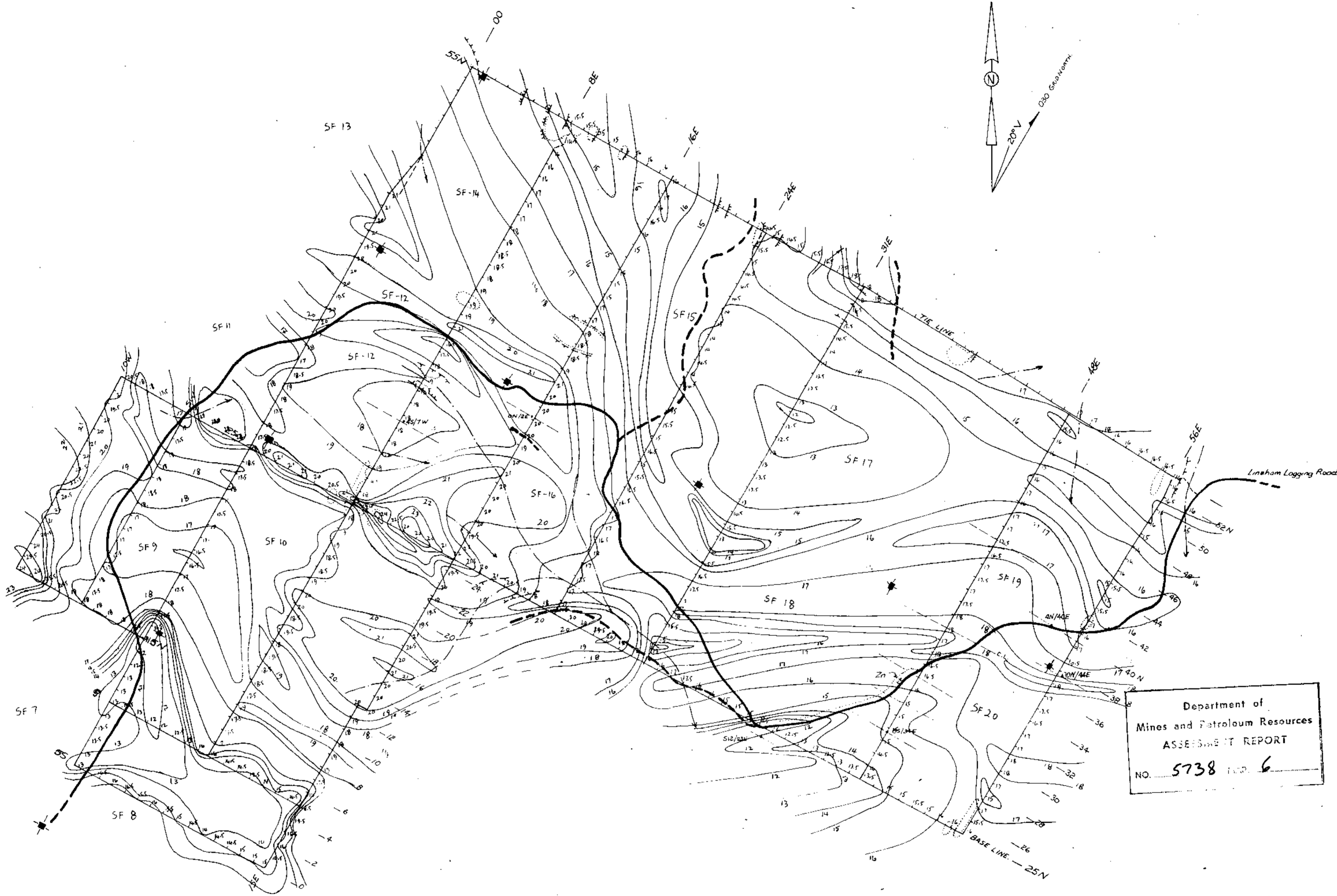
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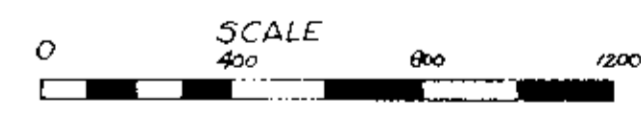
LEGEND

- Outcrop Area
- Creek
- Old grid Line
- Cliff
- Zn x Showing
- Fraser filtered dip angles. CI 5°
- CLAIM POST

SWIM LAKE MINES LTD.
"SF" PROPERTY HARRISON LK. B.C.
PLATE 3
GEOPHYSICAL GRID
E.M. SURVEY SABRE MODEL 27 VLF-EM RECEIVER.
BASELINE, I.R. LINES Chain-point control
GROSS LINES Dip-compass control
TRANSMITTER SEATTLE, WASH., U.S.A.
CONTOURED FRASER FILTERED DIP ANGLES.
M.J. Beley, B.I. Inc.
MANEX MINING LTD. NOV 28 1975



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LEGEND

- Outcrop Area
- Creek
- Old grid Line
- Cliff
- Showing
- Field strength ratio.
- Contour interval: 1 unit.
- CLAIM POST.

SWIM LAKE MINES LTD.
"SF" PROPERTY HARRISON LK. B.C.
PLATE A
GEOPHYSICAL GRID.

E.M. SURVEY: SABRE MODEL 27 VLF-EM RECEIVER.
BASELINE, TIE LINES: Chain-picket control.
CROSS LINES: Topofil-compass control.
CONTOURED FIELD STRENGTH RATIOS.

M.J. Beleg, B.J. Price
MANEX MINING LTD NOV 28, 1975