

RESULTS OF GEOPHYSICAL SURVEYS

DUSTY MAC MINES  
NTS 82-E-5  
July 19, 1976

825190

R.A.Rivera

# CANEX PLACER LIMITED

MEMO TO: File NTS 82-E-5  
Dusty Mac Mines

DATE: July 19, 1976

FROM: R.A. Rivera

c.c.: A.D. Drummond

RE: Results of Geophysical Surveys

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## General

Induced polarization and ground magnetic surveys were run on the Dusty Mac Mines Property 2 miles east of Okanagan Falls, B.C. during June 8 and 9, 1976. This work was done under an agreement whereby Canex Placer would perform the surveys on the Dusty Mac Property at no cost to Dusty Mac and all resulting data would be available to both parties.

A total of three lines (1.5 line miles) of induced polarization was run using the McPhar P660 frequency domain equipment operated at 0.3 and 5.0 Hz on a dipole-dipole electrode array with a 200 ft. electrode spread and separations of N=1 to 5. Electrical currents of 1 amp were easily obtained and no unusual problems were encountered in this work. The electrode geometry is such that the upper 400 ft. of ground was effectively explored for sulfide bearing targets having minimum width of 100 feet.

A total of 7 lines (4.2 line miles) were covered with ground magnetics using the Scintrex MF-2 fluxgate magnetometer. A 500 ft. line spacing and 50 ft. station spacing was employed to cover the entire property in the two days available. The control used for both these surveys was based on that established for geochemical and mapping purposes by Lucky Mac Mines. This control consists of a 100 x 100 ft. flagged grid in the central part of the property, oriented N50W and N40E. Traverses were made on the N40E bearing. Where the geophysical lines extended beyond the established control, wire and compass control for I.P. and sight and pace control for magnetics was used. Minimal markings were left in the field so as to avoid future confusion.

## Objectives

The induced polarization survey was designed to evaluate a pyritic zone which was believed to lie along a trend roughly 1,000 feet to the west of the grid base line. Substantial amounts of pyrite found

by several drill holes in this trend indicated that a fairly strong I.P. target would be present. It was desired to study the relationship of this pyrite zone with the original Dusty Mac orebody and thus define a guide to further exploration. Because of the volcanic assemblage on this property it was reasoned that magnetic surveys might be a valuable tool for geologic mapping, particularly if we were lucky enough to find a magnetic marker unit in the volcanic sequence.

### Presentation of Results

Three pseudo-sections have been prepared at 1:2,400 scale showing the I.P. results along with a geologic and drill hole section and the magnetic profiles on lines 3N, 14N and 33N. The magnetic results from lines 3N, 8N, 14N, 18N, 23N, 28N and 33N are plotted on a 1:2,400 scale stacked profile format along with certain data pertinent to the location of known gold bearing areas. Finally, a 1:4,800 scale geologic map on a topographic base is presented showing the line locations. The geologic information is basically that presented in Church, 1973 (B.C. Dept. of Mines, Bull. 61) modified slightly using information provided by Jim Glass on behalf of Dusty Mac Mines.

### Results and Discussion

The I.P. results are mostly negative. An increase in the frequency effect response is barely significant in the vicinity of the pyrite zone defined by drilling at 13W, line 3N and 8W, line 14N. In both cases the anomaly indicates a surficial source of only slightly mineralized rock. Taking the 2-5% pyrite content estimates of drill cuttings at face value we are forced to conclude that the tonnage represented by this material is very small. The best explanation, in this writer's opinion, is that the overall pyrite content in the "pyrite zone" is quite low, say ½% by volume with perhaps much smaller subzones of higher pyrite content.

A very subtle trend is present in both the line 3N and line 14N data which is best seen in the metal factor pseudo-section. A thick low resistivity member of the White Lake formation, most likely a pyroclastic or perhaps the lahar unit, dips 25°-30°E steeper than the topography from around 3-9W, line 3N and from around 5-10W, line 14N. This unit is just slightly more reactive to I.P. than its neighbouring strata which suggests either a slightly higher pyrite or clay mineral content.

Note on the data from line 3N that a resistivity high disturbance caused by the Dusty Mac Pit partly obscures the picture as described above. Other than this geometrical artifact there does not appear to be any significant response from the mined out orebody's environment.

The same is true at the north gold mineralized zone crossed at 5W, line 33N. There is no encouraging I.P. response from this zone. The line 33N pseudo-section is much different in character from the southern two tending to confirm the notion of a major cross structure around 20N as proposed by Jim Glass (Pers. Comm.).

The magnetic results present a more interesting picture. While the primary objective of the survey (i.e. mapping of a magnetic marker bed) appears to have been thwarted by structural complexities and rapid facies changes, a fair correlation is present between magnetic highs and known gold mineralized areas as defined by intense drilling patterns. This is true at the north zone, the A zone and the two zones just south of Line 3N (13W and 8W). Perhaps magnetite accompanies the quartz in these silicified and veined areas. The Lucky Mac Mine itself is a notable exception to this correlation. If the correlation proves not to be fortuitous then ultra detailed magnetic measurements in the vicinity of the following anomalies would be in order at a high priority. Readings every 25 ft. along lines 100 ft. apart would not be too fine a scale for this work in view of the small size of the target.

| <u>Line</u> | <u>Station</u> | <u>Known Associated Au</u>                  |
|-------------|----------------|---|
| 3N          | 11W            | No  |
| 3N          | 14W            | Drilling 100' to south,<br>silver anemously |
| 8N          | 5½W            | No  |
| 23N         | 6½W            | A zone                                      |
| 23N         | 2W             | No  |
| 28N         | 15W area       | No  |
| 28N         | 9W             | Copper stain, ADITS                         |
| 28N         | 1E area        | No, in flats                                |
| 33N         | 4½W            | North zone                                  |
| 33N         | 1W             | No  |

As stated above the line to line correlation of the magnetic profiles is not good. While two line correlations are common only one signature appears to extend over 3 or more lines. This is the broad high at co-ordinate 7E on each traverse.

Conclusions and Recommendations

1. No major pyrite zone appears to be present along the east side of the property. The gossans mapped in this area are not likely to represent a zone with a characteristic width of over 50-100 ft.
2. There is some evidence in the I.P. results suggesting a mappable response from a portion of the stratigraphic section on the southern half of the property. This signature is so weak, however, that the use of additional I.P. surveys for geologic mapping purposes cannot be recommended.



3. The lack of an I.P. anomaly at both the north zone and the Dusty Mac mine indicates that the method will not be useful in the direct search for similar gold occurrences. Apparently the pyrite content of the Dusty Mac type of deposit is not high enough to affect the I.P. picture.
4. There appears to be a good direct correlation between known areas of interest and magnetic highs. If this relationship can be substantiated by a field examination of the anomaly locations then ultra detailed magnetic mapping would be warranted. Because of the small size of the property and the presence of good control only one man-week would be required to effect this work.

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Robert A. Rivera

RAR/co

cc: A.D. Drummond

Attached: 3 Pseudo-sections  
1 Stacked profile sheet  
1 Geologic Map



STATIONS

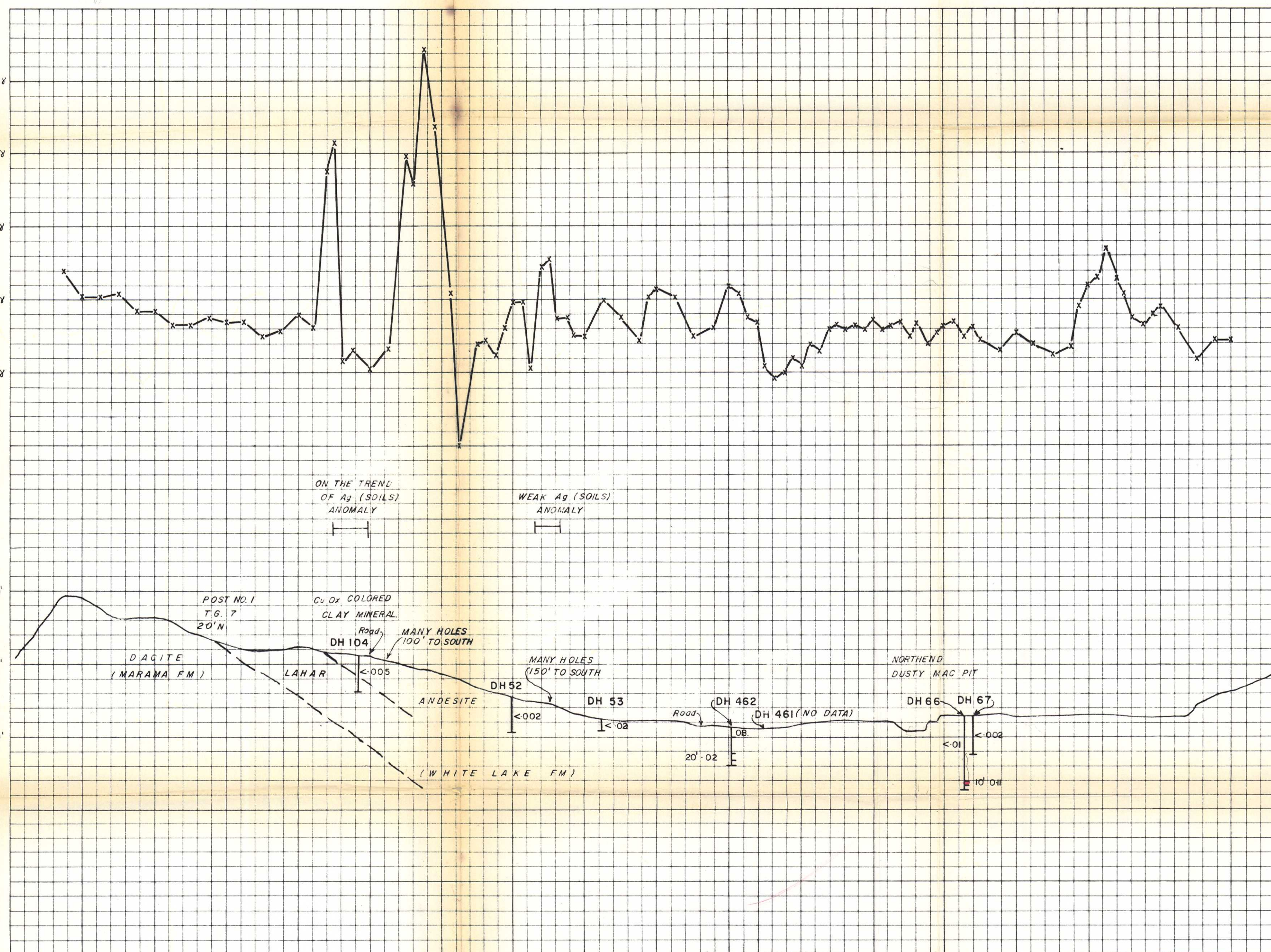
GEOPHYSICAL AND GEOCHEMICAL PROFILES

GROUND MAGNETICS (VERTICAL COMPONENT)

ELEVATION

TOPOGRAPHY CULTURE GEOLOGY AND DRILL HOLES

VERTICAL EXAGGERATION NONE



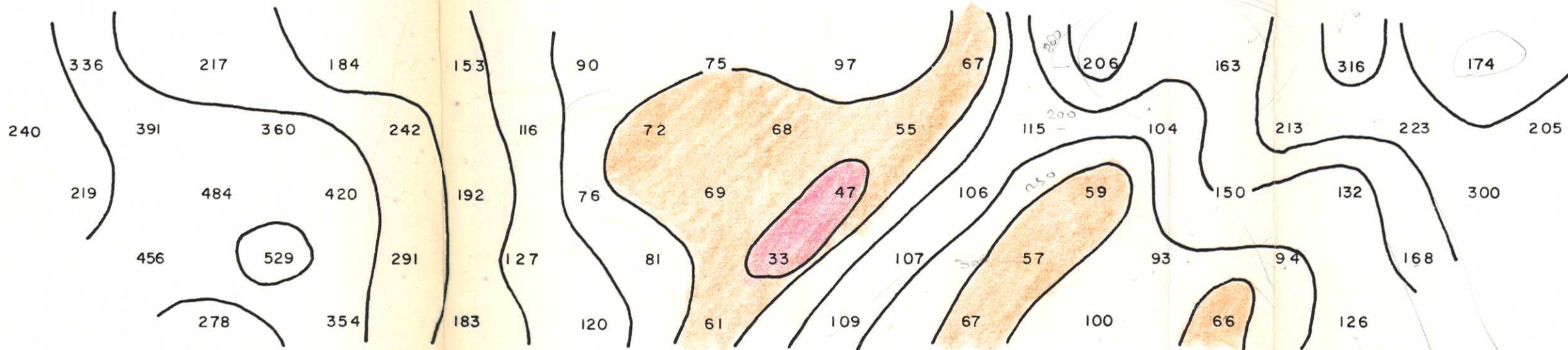
I.P. ANOMALY

DEFINITE PROBABLE POSSIBLE VERY WEAK

ASSAYS IN OZ./S. TON Au GEOLOGY FROM CHURCH, 1973, B.C. DEPT. OF MINES, BULL. 61.

RESISTIVITY (Ohm-Ft)  $\frac{\rho_{AC}}{2\pi N}$

LOGARITHMIC CONTOUR INTERVAL: 6 PER DECADE



⊗ INDICATES TRANSMITTER SETUP  
× INDICATES TRANSMITTER ELECTRODE  
○ INDICATES RECEIVER ELECTRODE ONLY

I.P. STATIONS

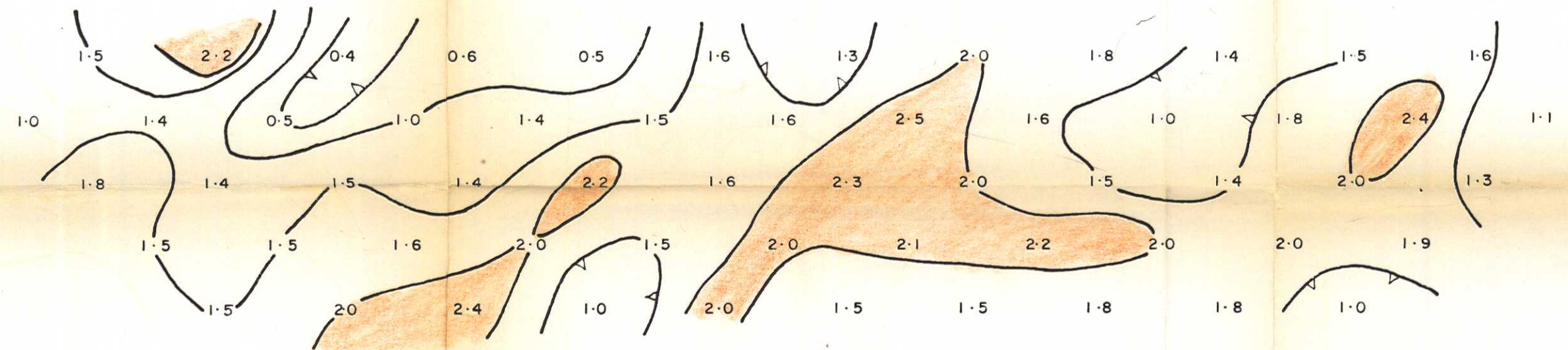
FREQUENCIES USED:

PFE (%)  $\frac{\rho_{DC} - \rho_{AC} \times 10^2}{\rho_{AC}}$

AC 5 Hz  
DC 0.3 Hz

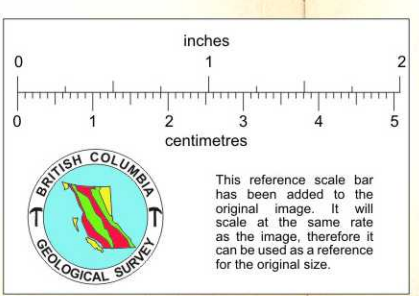
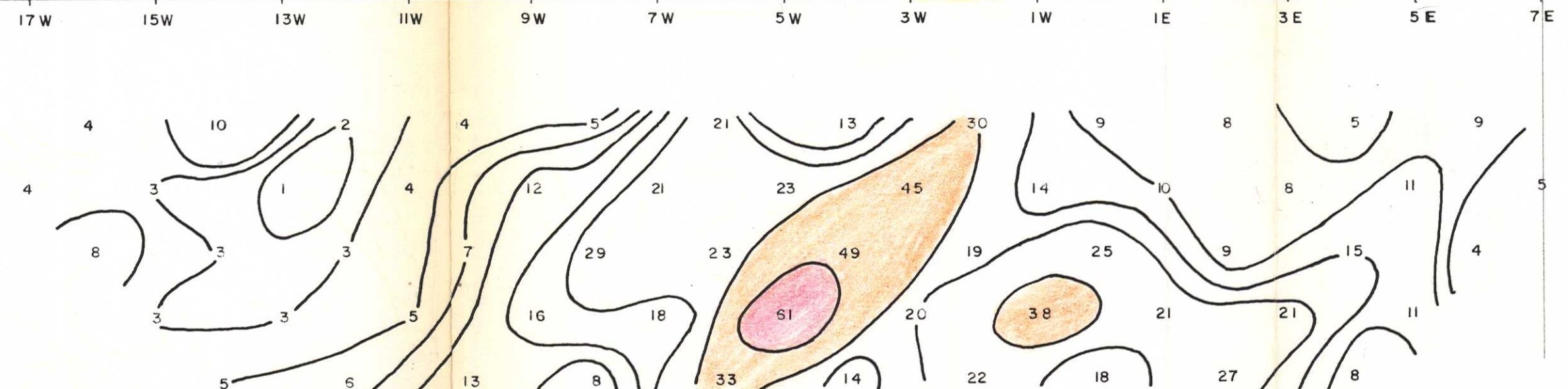
CONTOUR INTERVAL 0.5 %

1 - INDICATES THAT INDUCTIVE COUPLING HAS PROBABLY AFFECTED THIS DATA POINT SIGNIFICANTLY.  
NR - INDICATES NO READING OBTAINED  
N - INDICATES NOISY READING



MCF - (Mho/Ft)  $(\sigma_{AC} - \sigma_{DC}) \times 10^5 \times 2\pi$

LOGARITHMIC CONTOUR INTERVAL: 6 PER DECADE



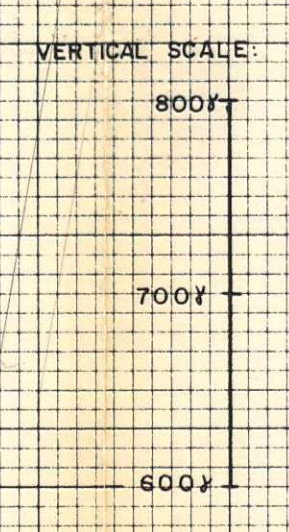
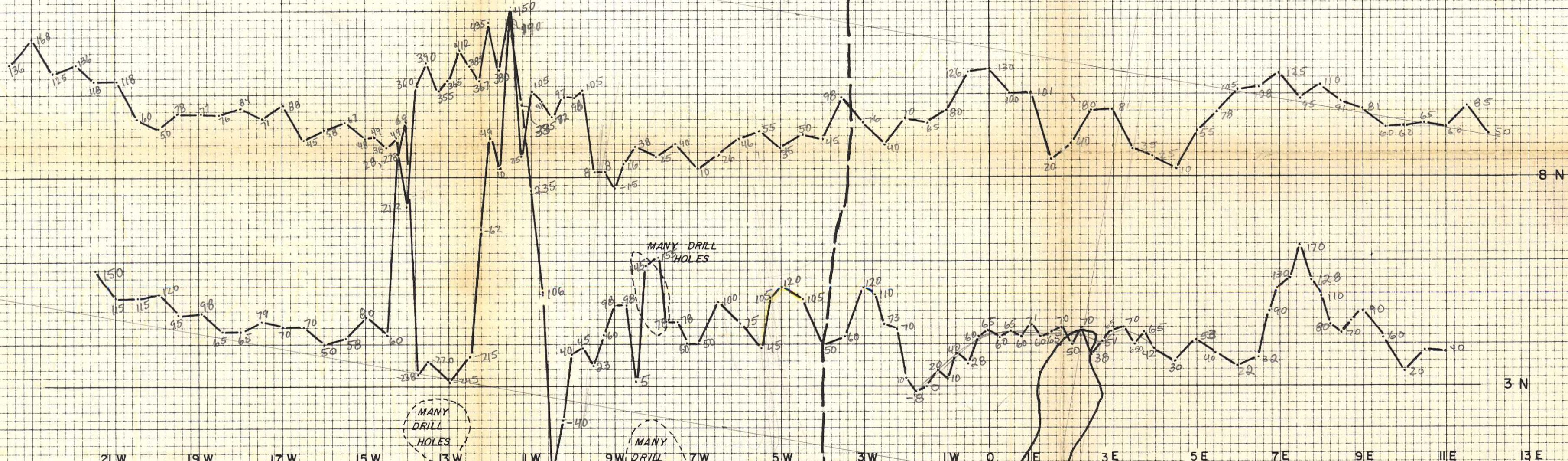
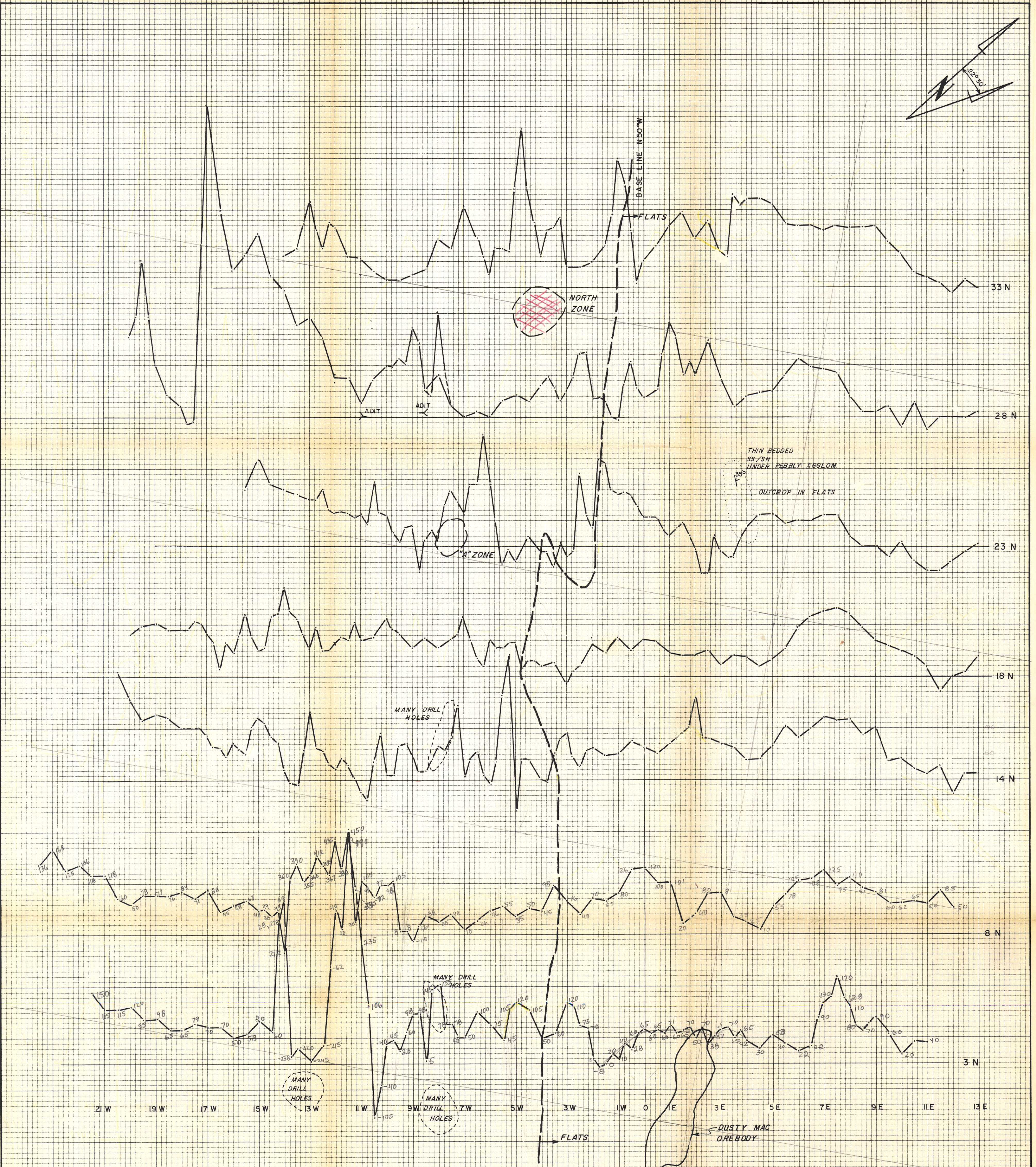
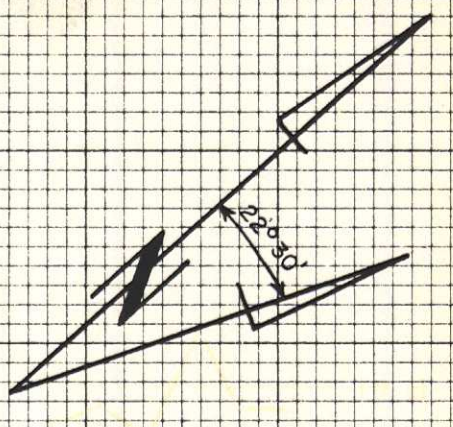
TEST SURVEYS JUNE, 1976.  
LINE 3 N

CANEX PLACER LIMITED  
DUSTY MAC MINE, B.C.

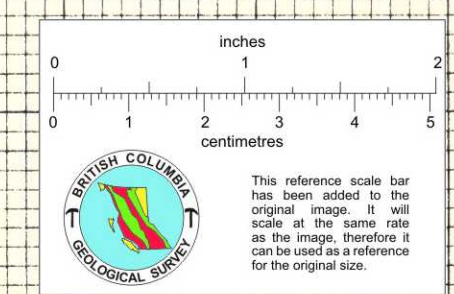
DATE: JUNE, 1976.  
REVISED:

SCALE: 1" = 2400'  
DRAWN: J.L.





CANEX PLACER LIMITED  
 DUSTY MAC GOLD MINE  
 OKANAGAN FALLS, B.C.  
 STACKED PROFILES OF  
 GROUND MAGNETIC SURVEY  
 JUNE, 1976. R.A. RIVERA.



DATUM LINE





STATIONS

GEOPHYSICAL AND GEOCHEMICAL PROFILES

TOPOGRAPHY CULTURE GEOLOGY AND DRILL HOLES

VERTICAL EXAGGERATION NONE

I.P. ANOMALY

RESISTIVITY (Ohm-Ft)  $\frac{\rho_{AC}}{2\pi}$  N=1

I.P. STATIONS

PFE (%)  $\frac{\rho_{DC} - \rho_{AC} \times 10^2}{\rho_{AC}}$  N=1

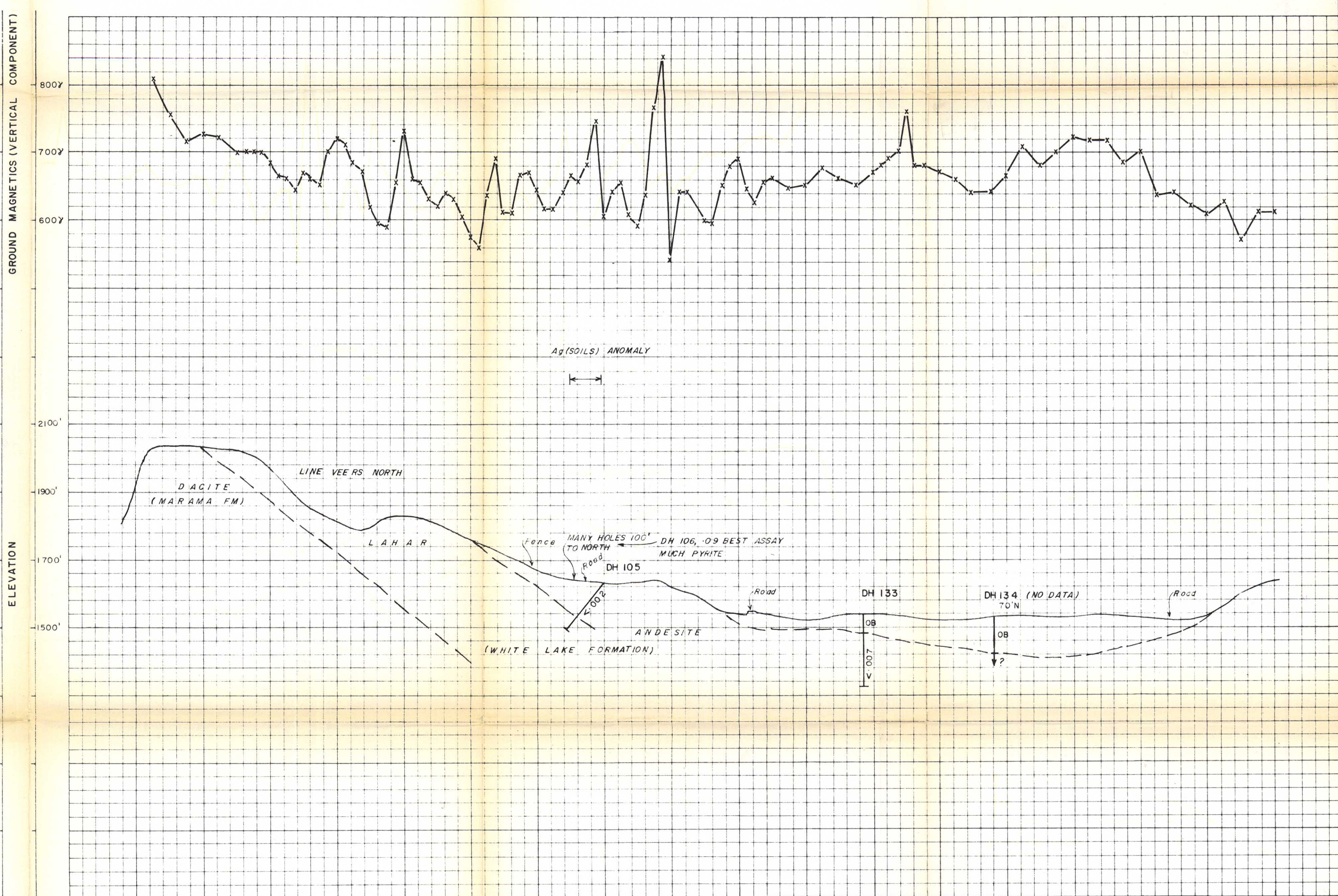
CONTOUR INTERVAL 0.5 %

1 - INDICATES THAT INDUCTIVE COUPLING HAS PROBABLY AFFECTED THIS DATA POINT SIGNIFICANTLY.

NR - INDICATES NO READING OBTAINED

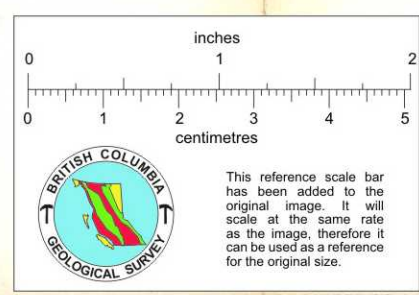
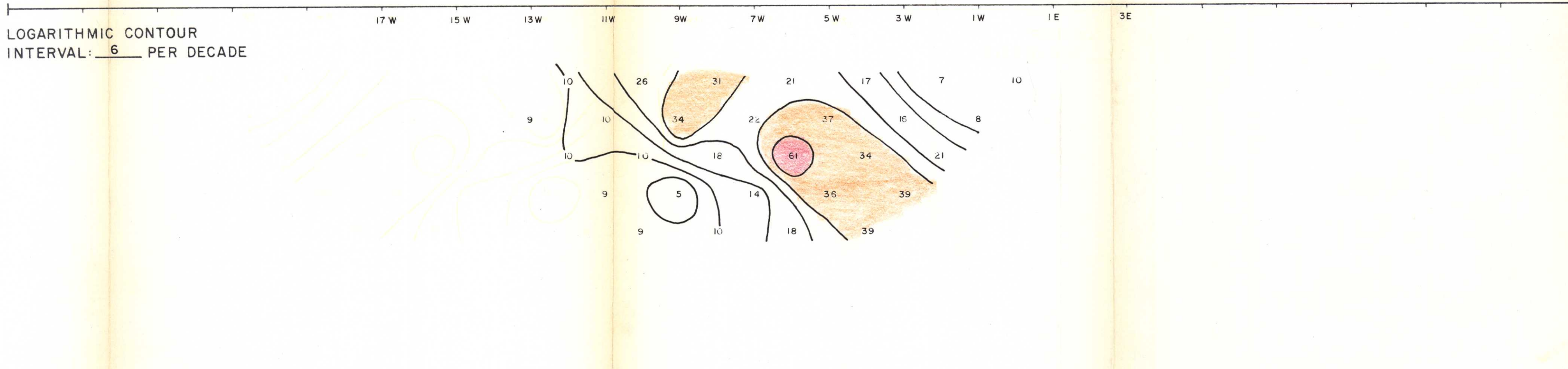
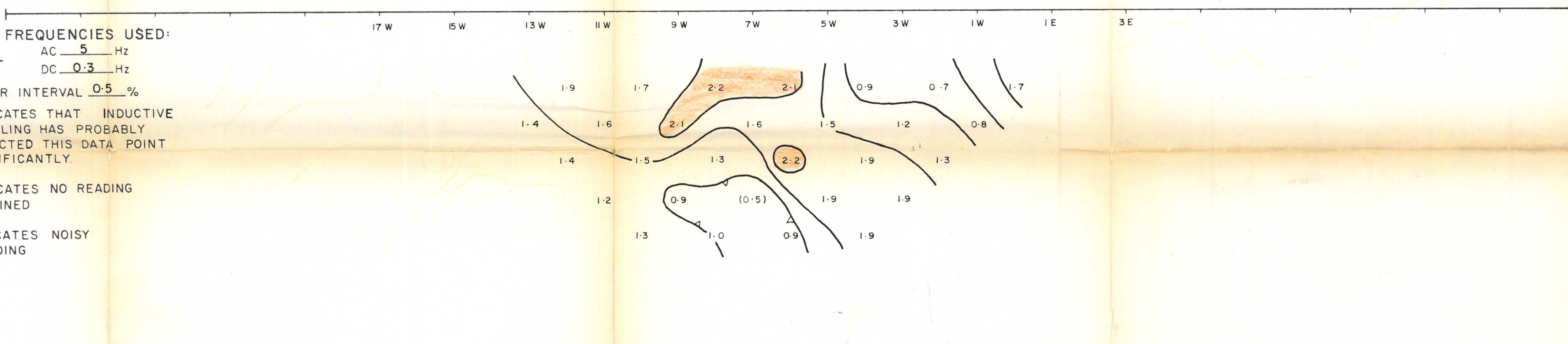
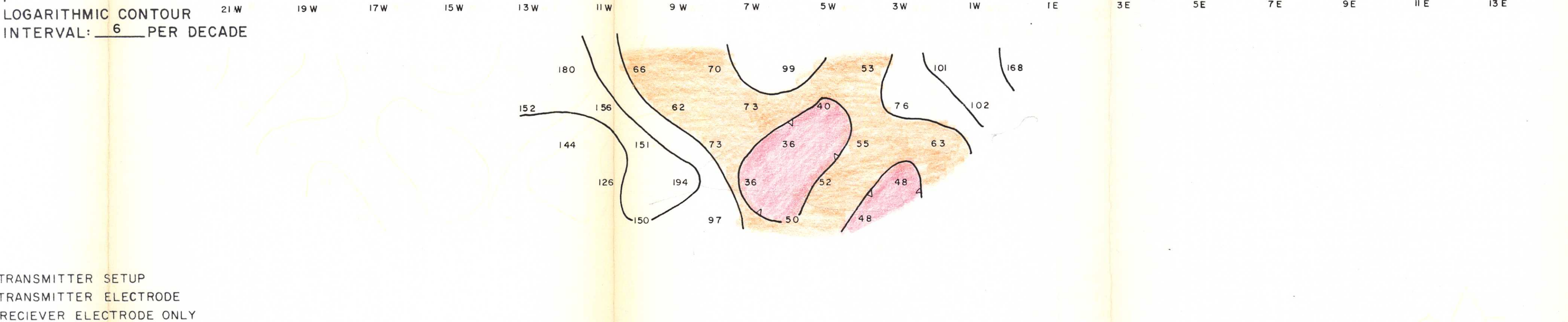
N - INDICATES NOISY READING

MCF - (Mho/Ft)  $\frac{\sigma_{AC} - \sigma_{DC} \times 10^2}{2\pi}$  N=1



DEFINITE PROBABLE POSSIBLE VERY WEAK

ASSAY IN OZ./S. TON Au  
GEOLOGY FROM CHURCH, 1973,  
B.C. DEPT. OF MINES, BULL. 61.



TEST SURVEYS JUNE, 1976.  
LINE 14 N

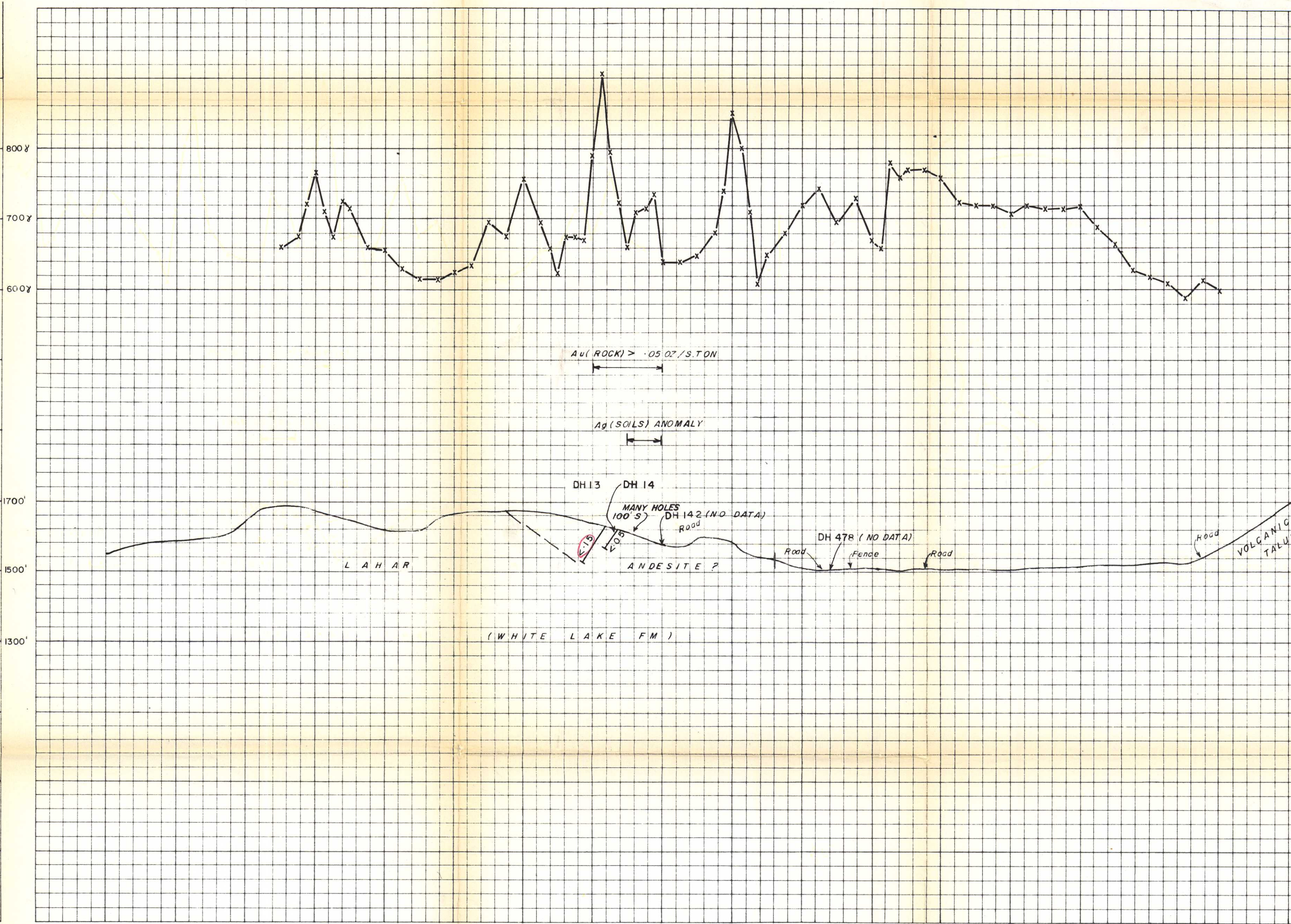
CANEX PLACER LIMITED  
DUSTY MAC MINE, B.C.  
DATE: JUNE, 1976  
REVISED:  
SCALE: 1: 2 400  
DRAWN: J.L.



STATIONS

GEOPHYSICAL AND GEOCHEMICAL PROFILES

GROUND MAGNETICS (VERTICAL COMPONENT)

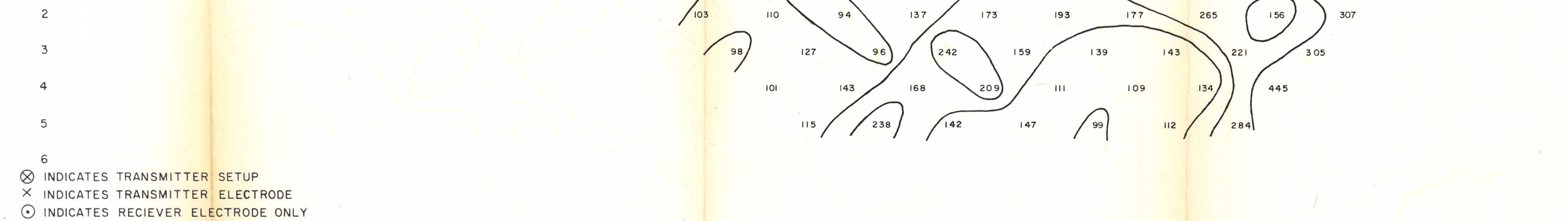


TOPOGRAPHY CULTURE GEOLOGY AND DRILL HOLES

VERTICAL EXAGGERATION NONE

I.P. ANOMALY DEFINITE PROBABLE POSSIBLE VERY WEAK

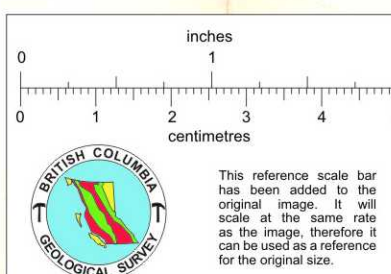
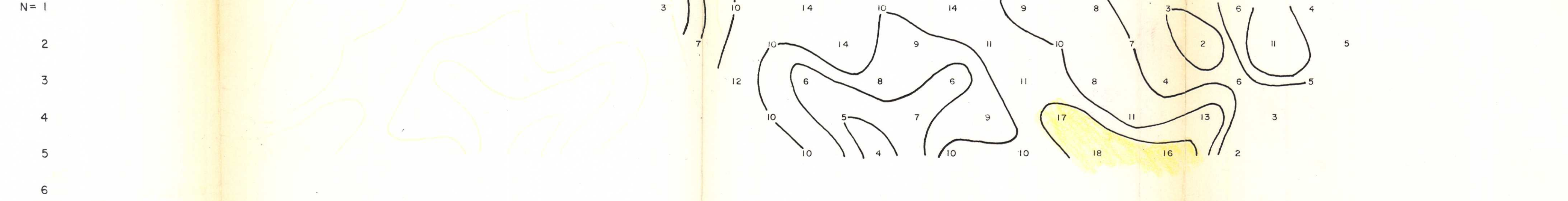
RESISTIVITY (Ohm-Ft)  $\rho_{AC}/2\pi N=1$  LOGARITHMIC CONTOUR INTERVAL: 6 PER DECADE



I.P. STATIONS PFE (%) FREQUENCIES USED: AC 5 Hz DC 0.3 Hz

CONTOUR INTERVAL 0.5% 1-INDICATES THAT INDUCTIVE COUPLING HAS PROBABLY AFFECTED THIS DATA POINT SIGNIFICANTLY. NR-INDICATES NO READING OBTAINED N-INDICATES NOISY READING

MCF-(Mho/Ft)  $(\sigma_{AC} - \sigma_{DC}) \times 10^5 \times 2\pi$  LOGARITHMIC CONTOUR INTERVAL: 6 PER DECADE



TEST SURVEYS JUNE, 1976. LINE 33 N

CANEX PLACER LIMITED DUSTY MAC MINE, B.C.

DATE: JUNE, 1976. REVISIONS: SCALE: 1:2400 DRAWN: J. L.