061717

REPORT ON THE MAXMIN II EM SURVEY

ON THE

PETE CLAIM GROUP

RECEIVED
MINING RECORDER
100 MILE
WATSON LAKE, Y.T.
I.A. & N.D.

CLAIMS: Pete 1 - 56 inclusive

Watson Lake Mining District, Yukon Territory
Macmillan Pass Area, N.T.S. 105-O-1, J-16, I-13
Lat. 63°00'N Long. 130° 04'W

WORK PERIOD: August 1 - September 24, 1977

Office Of The Supervising Mining Recorder
DEC 15 1977
WHITEHORSE
Yukon Territory

FOR

OGILVIE JOINT VENTURE

CLAIMS HELD IN TRUST BY

BRITISH NEWFOUNDLAND EXPLORATION LIMITED
704 - 602 West Hastings Street
Vancouver, B.C.

BY

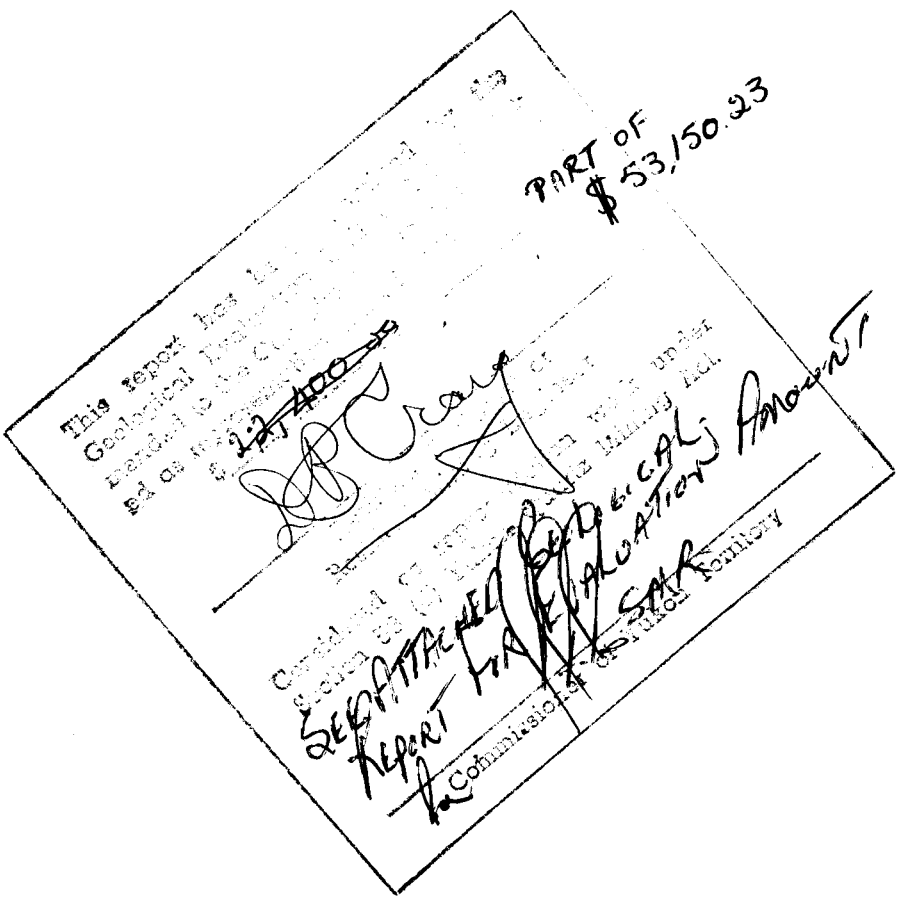
John E. Betz, John Betz Limited
Toronto, Ontario

Supervised by: O. S. Hairsine, P.Eng.
CORDILLERAN ENGINEERING LIMITED
1418 - 355 Burrard Street
Vancouver, B.C. V6C 2G8

NOVEMBER, 1977

MINING RECORDERS OFFICE
WHITEHORSE, YUKON

[redacted]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$ 23,400.00
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Commissioner
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Amount

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- EM Profile Sheets with Interpreted Conductive Zones
- Plan #1 - Conductivity Map 1" = 500 feet

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~~*Appendix "F" Supervisor's Certificate~~

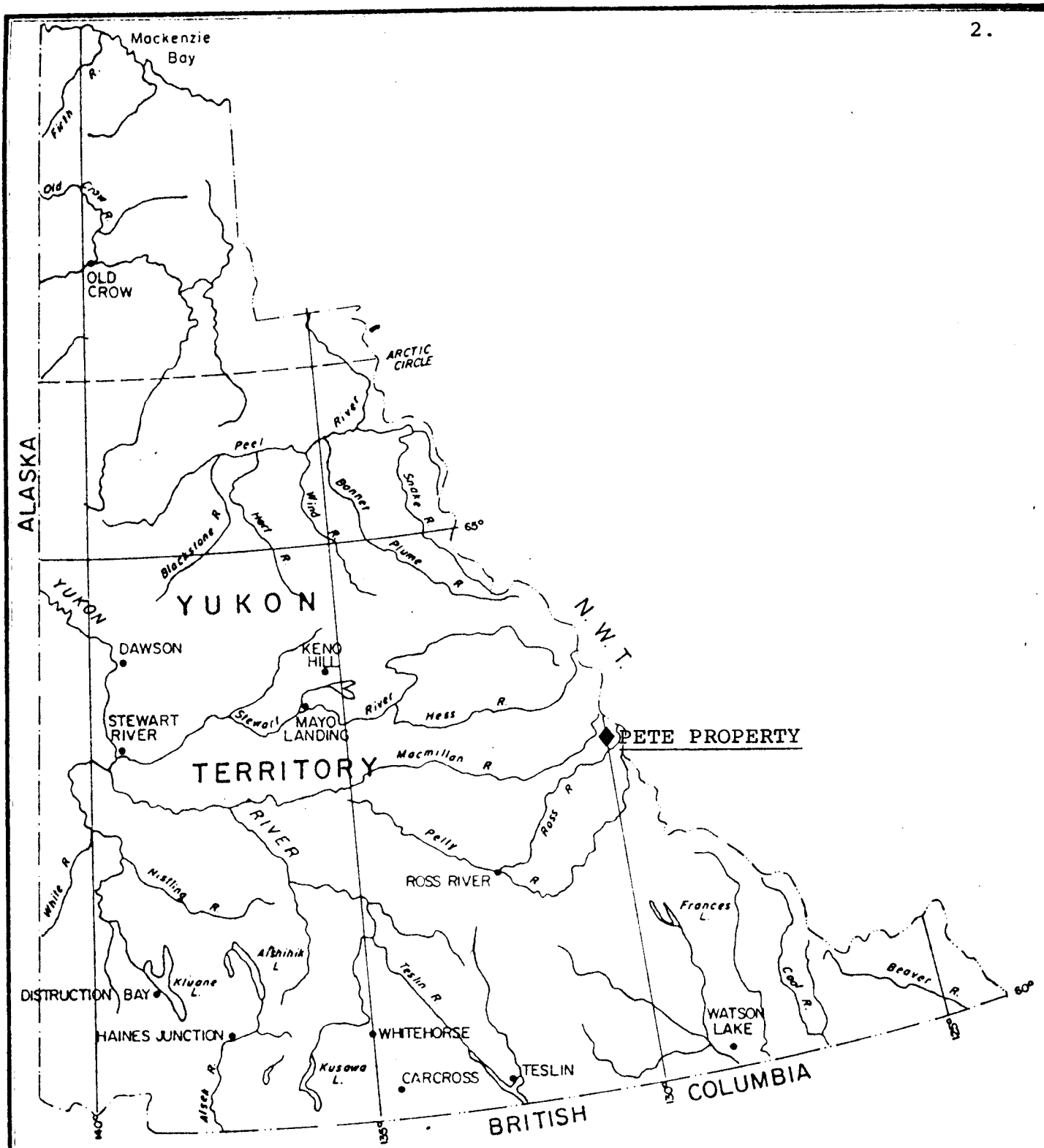
*For Government Assessment Reports only.

SUMMARY

An electromagnetic survey using the Maxmin II system was conducted on the Pete property by Cordilleran Engineering Limited, under the direction of J. Betz and supervision of O. S. Hairsine, P.Eng. The work was carried out between August 1 to September 24, 1977 for the Ogilvie Joint Venture whose claims are held in trust by British Newfoundland Exploration Limited

A grid (8.4 miles) previously established on the property was secant chained to facilitate the EM survey. This grid was extended to the southeast requiring 13 miles of line to be cut and secant chained. Cross lines were located at 1,000 foot intervals and picketted at 100 foot stations.

This survey was conducted to determine if barite or shale hosted lead-zinc mineralization could be traced by its association with conductive graphitic strata.



LOCATION MAP

PETE PROPERTY

SCALE 0 20 40 60 80 100 MILES

BY

CORDILLERAN ENGINEERING LTD.
1418 - 355 BURRARD STREET
VANCOUVER 1, B.C.

FIGURE 1

REPORT ON THE MAXMIN II EM SURVEY,
OGILVIE JOINT VENTURE,
PETE GRID, CLAIMS 1-56,
WATSON LAKE MINING DISTRICT, YUKON TERRITORY
LAT 63°00'N LONG 130°04'W N.T.S. 105 0/1,J/16,I/13

INTRODUCTION

The MaxMin II ground EM system was used successfully in the autumn of 1976 for detecting and tracing out conductive graphite horizons associated with the nearby West Jason orebody of Ogilvie Joint Venture and the Tom orebody of Hudson Bay Mining and Smelting.

The geological setting in the area of the Pete grid is very similar to that on the West Jason and Tom grids; so, the use of the MaxMin II system on this grid was a logical step.

The MaxMin II EM system is made by Apex Parametrics Ltd of Markham, Ontario. The complete specifications for, and methods of operating, this system are amply described in the operating manual and other literature provided by this company. They will not be repeated here.

As with the previous work in the area, the MaxMin II was used in the coplanar mode with the turns of the transmitting and receiving coils held parallel to the mean slope of the terrain (along the traverse line) between the coils. Knowing the mean slope of the terrain and the coil spacing at all reading points was insured by secant chaining the grids prior to the MaxMin II coverage.

The secant method of chaining and the use of the subsequent data are amply described in the MaxMin II manual. They will not be repeated here. However, it is worthy of mention here that the end result of secant chaining the lines is to have "noise-free" EM results. Two bonus features of secant chaining are: a) equal station spacings on the horizontal plane, and b) accurate topographic profiles along the line. In fact, the topographic profiles shown on the profile sheets in this report are computed from the secant chaining notes.

Based on previous experience, a reconnaissance coil spacing of 400 ft (122 meters) and frequencies of 222 and 1777 Hz were used throughout the survey. The reasons for this choice are dealt with at some length in the report on the Jason and Tom surveys. In brief they are:

a) a coil spacing of 400 ft gives about the best combination of conductor resolution and search-depth capability for this area,

b) two widely spaced frequencies lead to a fairly accurate σ.t (conductivity-thickness) estimate for the conductive zones detected, as well as helping to interpret the shape and attitude of non-simplistic conductive zones,

c) the results at one frequency serve to monitor the inevitable reading and/or recording errors at the other frequency.

The writer trained operator Brian Goodacre of Cordilleran Engineering Ltd to conduct a proper MaxMin II survey. Goodacre and an assistant did the actual field work on the Pete grid.

PRESENTATION OF RESULTS

The MaxMin II profiles, topographic profiles, and the interpreted conductor picture for each line were plotted on special profile sheets. Reduced-scale copies of these sheets are bound with an index and conductor legend in Appendix "A" of this report. Contrary to the writer's convention, B. Goodacre faced east while plotting the MaxMin II results.

Plan #1-showing the grid lines, topographic countours, interpreted conductive zones, prominent landmarks, and a geological section--is included in Appendix "A".

INTERPRETATION OF RESULTS

The conductor picture is quite complex on the Pete grid. This complexity prohibits a unique interpretation. It is always helpful in cases like this to have some preliminary geological information. With this information, the conductor interpretation can be "fitted" to the known geological picture, then subsequently used to extend the latter.

Of course, the conductor interpretation cannot be made to "fit" all geological pictures. The location of the upper part of the more strongly conductive units will always remain constant. It is not subject to interpretational whims. However, with these very complex conductive pictures, the interpretation for the dip, width, and internal changes of many of the component parts lends itself to considerable "bending".

Specific conductivity-thickness figures were not worked out for these conductive zones, because they are time consuming to obtain and have no known relationship to the occurence and

grade of the ore-bearing zones in the area. However, a rough conductor classification has been used in the sections and plans, because there has been a relationship to date (West Jason and Tom) between the ore occurences and the "better" conductive zones. The conductor classification is arbitrary and it consists of three groups--"fair to good", "poor to fair", and "poor". The criterion for the dividing line between the "fair to good" and "poor to fair" conductive zones is the ratio of the in-phase to out-of-phase anomaly amplitudes at 222 Hz. A conductive zone is classified as "fair to good", when the "in-phase/out-of-phase" ratio is greater than unity, i.e. the σ.t value of the zone is greater than 25 mhos. The very poorly conductive units generally have σ.t's of less than 0.5 mhos.

A geological section at the west end of the grid provided the basis for the conductor interpretation shown on the plan and profile sheets. This geological section and its location are shown on the plan.

A superposition of the geological section onto the conductor interpretation shows a) that the "fair to good" conductive zone between 1+50N and 4+50N on L-0 falls within the black shale unit (which unit contains barite occurrences), and b) that the "fair to good" conductive zone around 17+00S on L-0 coincides with the gossan. There are other moderately highly conductive zones on L-0 which fall within the wide siltstone and shale unit, which have not been mapped due to the extensive overburden throughout the area. The course of these "fair to good" conductive zones is well marked on the plan.

The conductor picture is spotty and incomplete to the west of L-90E, due to inadequate line lengths and to lines interrupted by bodies of water. It would require MaxMin II work in the early spring to get a complete conductor picture to the east of L-140E, where there is much water cover. However, the complete conductor picture from 110E to 140E could be had in the summertime simply by extending the lines to the north of the base line.

CONCLUDING REMARKS AND RECOMMENDATIONS

Assuming the same association of barite and "fair to good" conductive graphite zones exists on the Pete property as on Tom and West Jason properties, the "fair to good" conductive zone crossing L-0 between 1+50N and 4+50N is worthy of further

investigation. Assuming that the gossanized showing on the geological section is due to massive pyrite such as found in the West Jason deposit, the "fair to good" conductive zone, which crosses L-0 around 17+00S on L-0, is worthy of further investigation.

The geochemical anomalies should be correlated to the conductive zones. Any of the "fair to good" conductive zones to which geochem "highs" are traceable would be worthy of early investigation.

The water-covered parts of this grid should be MaxMin II'd in the early spring to help complete the conductor picture in those areas. Some of the lines should be lengthened to cross the granite contact in order to get a complete conductor picture on other parts of the grid. A glance at the plan will reveal the areas requiring further coverage.

WRITER's DECLARATION

Neither I, nor John Betz Limited, have any financial interest in any of the properties of the Ogilvie Joint Venture Group.

I hold BA (1952) and MA (1953) degrees in geophysics from the University of Toronto. I have worked full time in mining exploration geophysics since 1953, and two summer seasons prior to 1953.

All statements made in this report are correct to the best of my knowledge.

John E. Betz, M.A.,P.Eng.,Ont.
John Betz Limited

November, 1977
Toronto, Ontario

APPENDIX "A"

- EM Profile Index and Conductor Legend

- EM Profile Sheets
  with Interpreted Conductive Zones.

- Plan #1 - Conductivity Map
  1" = 500'

PROFILE INDEX

Listed in order bound:

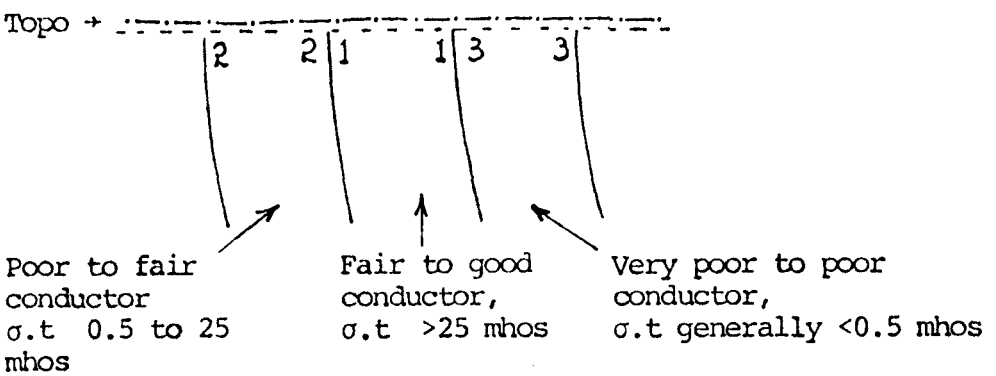
L-220E & 210E
L-200E & 190E
L-180E & 170E
L-160E & 150E
L-140E & 130E
L-120E & 110E
L-100E & 90E
L- 80E & 70E
L- 60E & 50E
L- 40E & 30E
L- 20E & 10E
L- 00

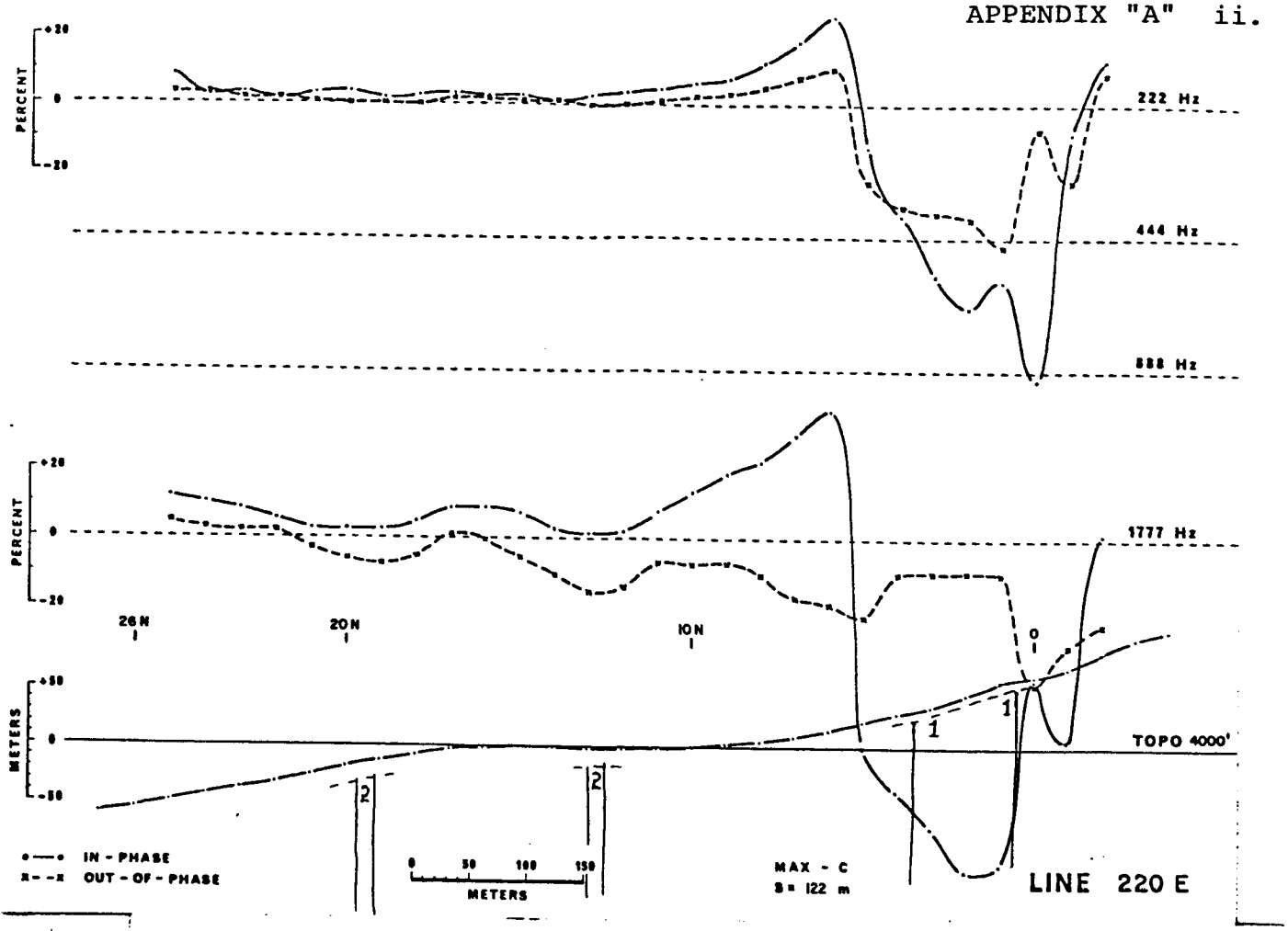
Additional Notes:

The background in-phase and out-of-phase values are +2, 0 at 222 Hz and +1, 0 at 1777 Hz.

"S" on the profile sheet is the abbreviation for the coil spacing, which was 122 meters or 400 ft throughout the survey.

CONDUCTOR LEGEND

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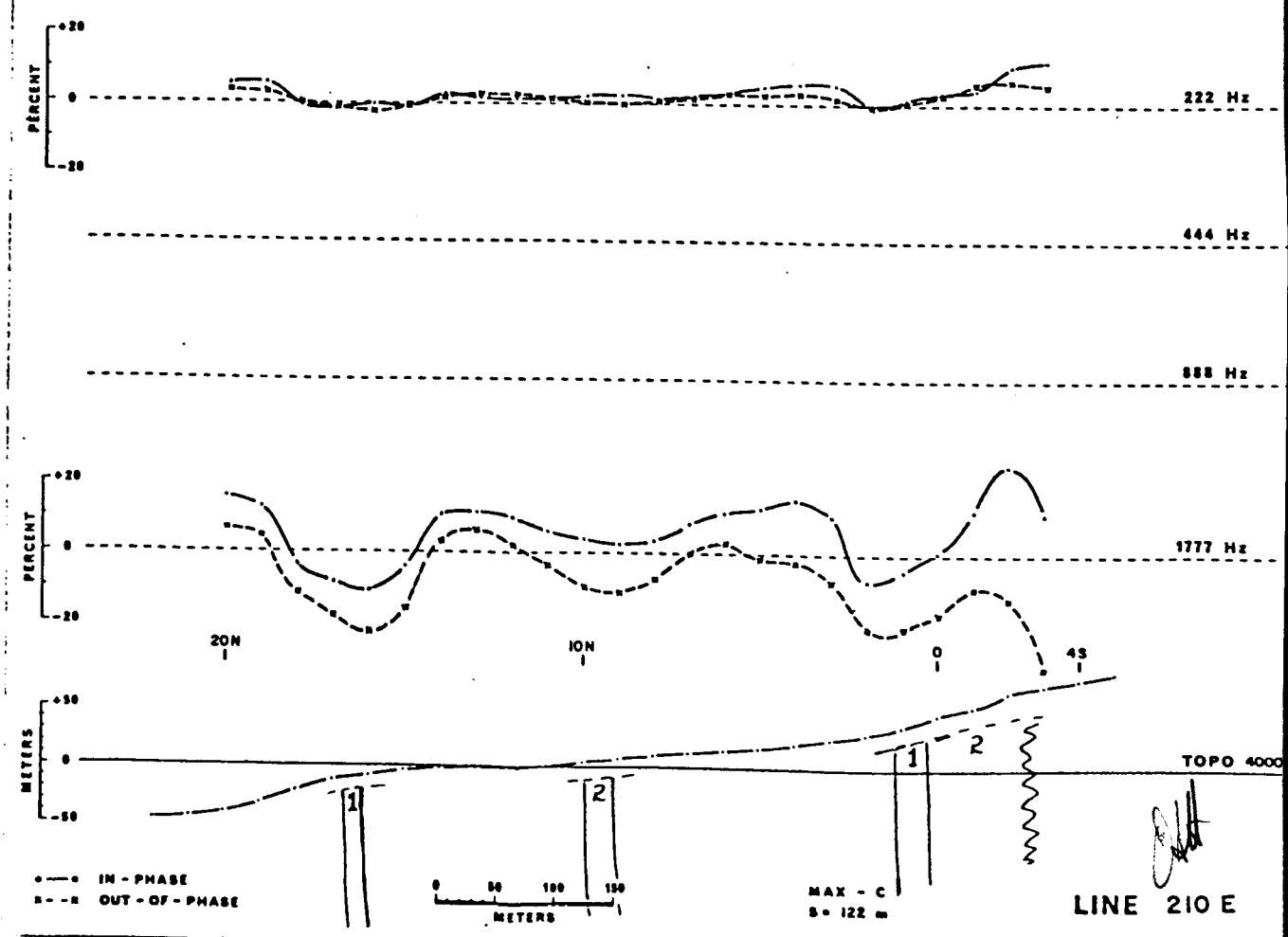
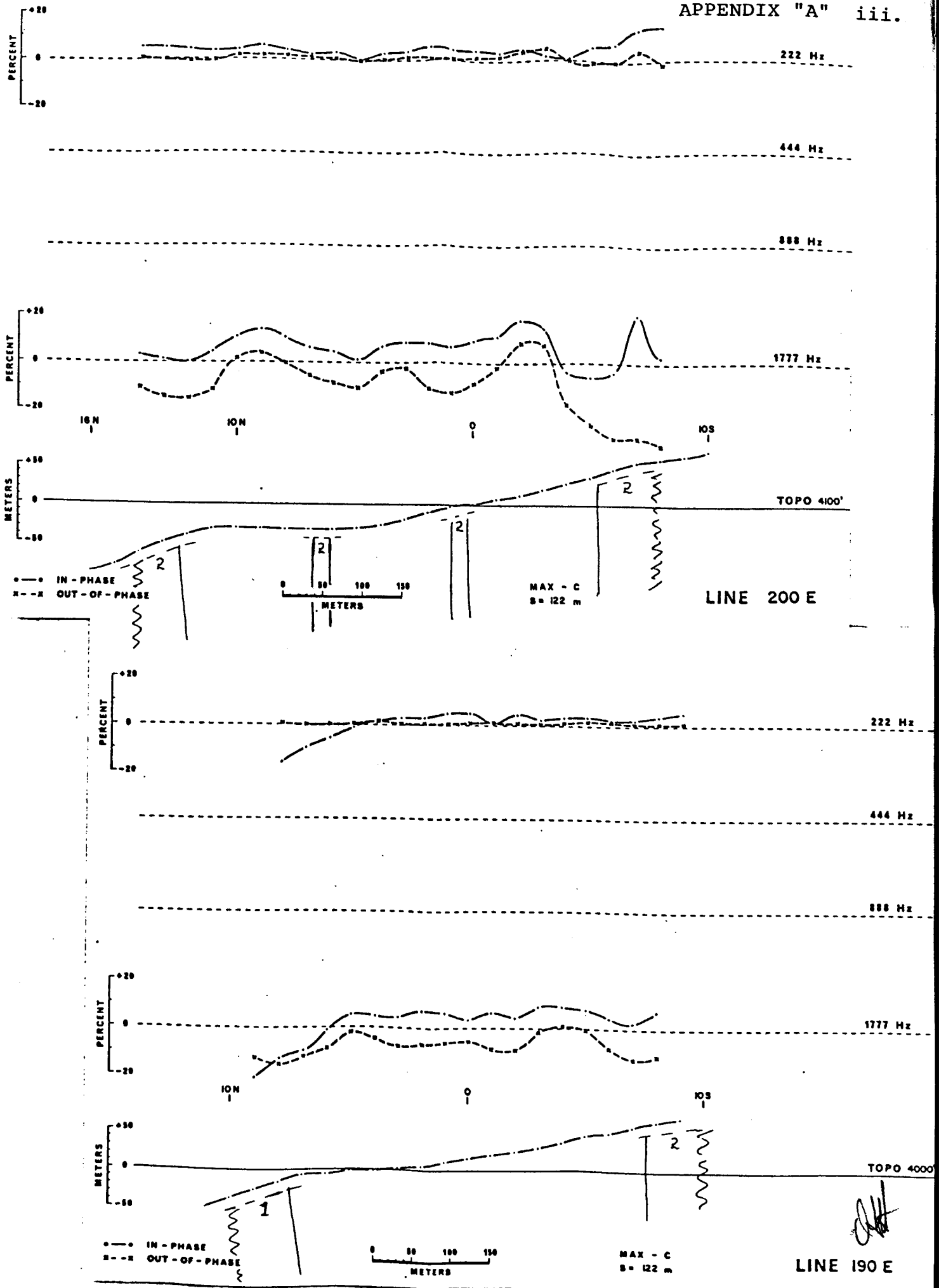
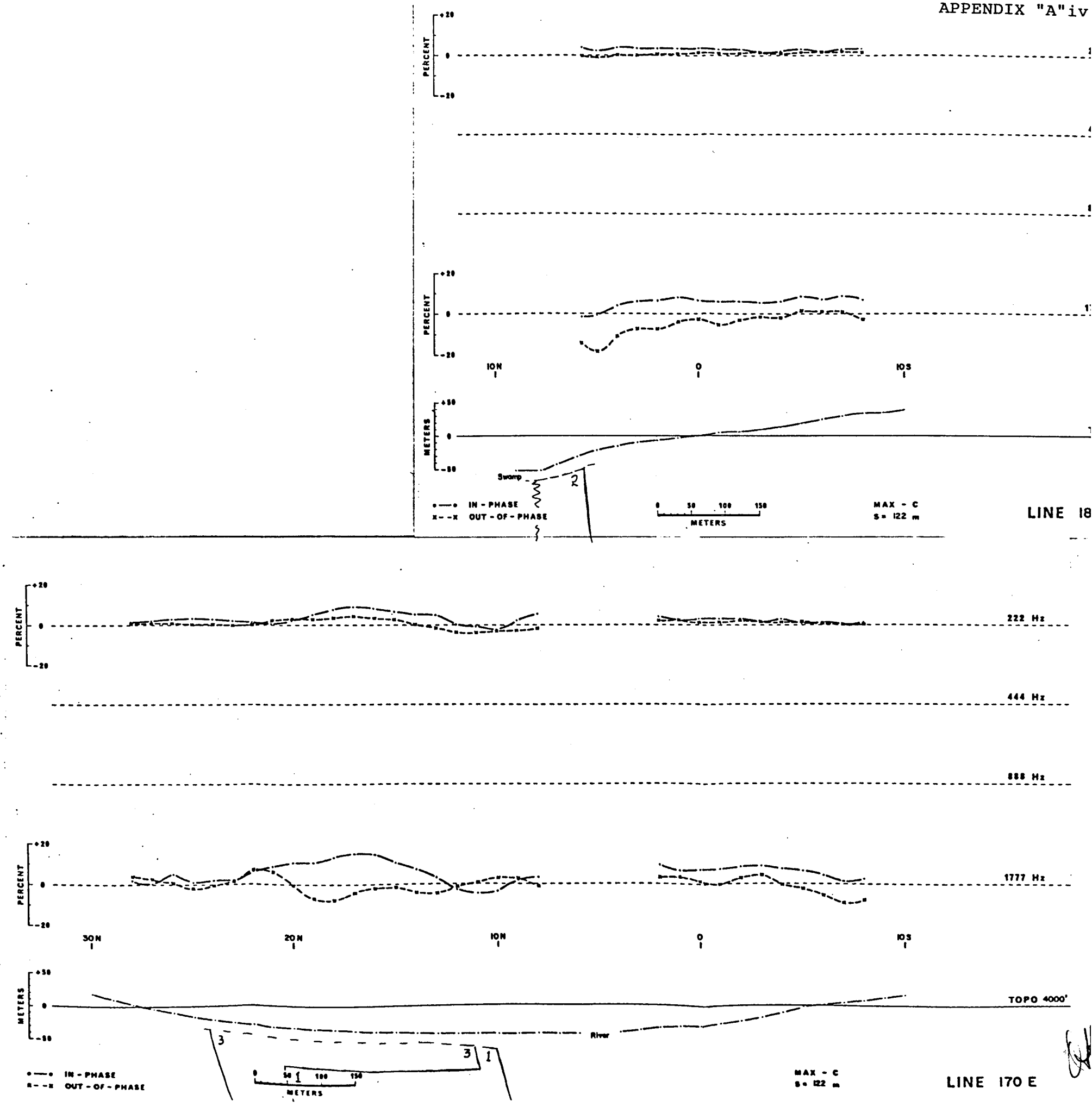
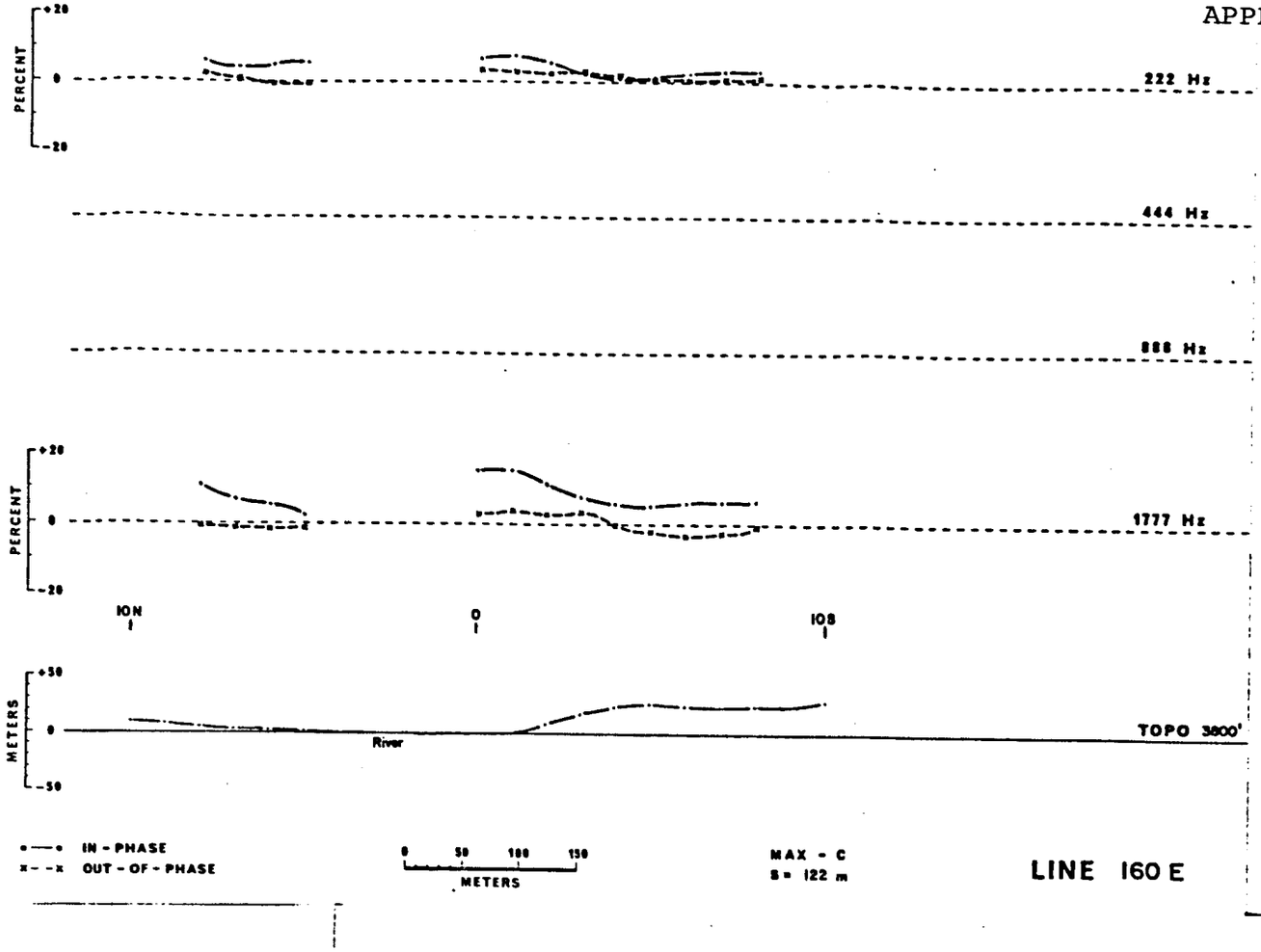
+20
0
-20
222 Hz
444 Hz
888 Hz
1777 Hz
26N
20N
10N
0
METERS
+50
0
-50
TOPO 4000'
1
2
IN - PHASE
OUT - OF - PHASE
0 50 100 150
METERS
MAX - C
S = 122 m
LINE 220 E


PERCENT
+20
0
-20
222 Hz
444 Hz
888 Hz
1777 Hz
20N
10N
0
4S
METERS
+50
0
-50
TOPO 4000
1
2
IN - PHASE
OUT - OF - PHASE
0 50 100 150
METERS
MAX - C
S = 122 m
LINE 210 E


PERCENT
+20
0
-20
222 Hz
444 Hz
888 Hz
1777 Hz
16N
10N
0
10S
METERS
+50
-50
TOPO 4100'
IN - PHASE
OUT - OF - PHASE
0
50
100
150
METERS
MAX - C
S = 122 m
LINE 200 E
TOPO 4000'
LINE 190 E


+20
0
-20
PERCENT
444 Hz
888 Hz
1777 Hz
10N
0
10S
+50
0
-50
METERS
Swamp
2
IN - PHASE
OUT - OF - PHASE
0 50 100 150
METERS
MAX - C
S = 122 m
LINE 18
222 Hz
30N
20N
10N
0
10S
TOPO 4000'
River
3
1
LINE 170 E



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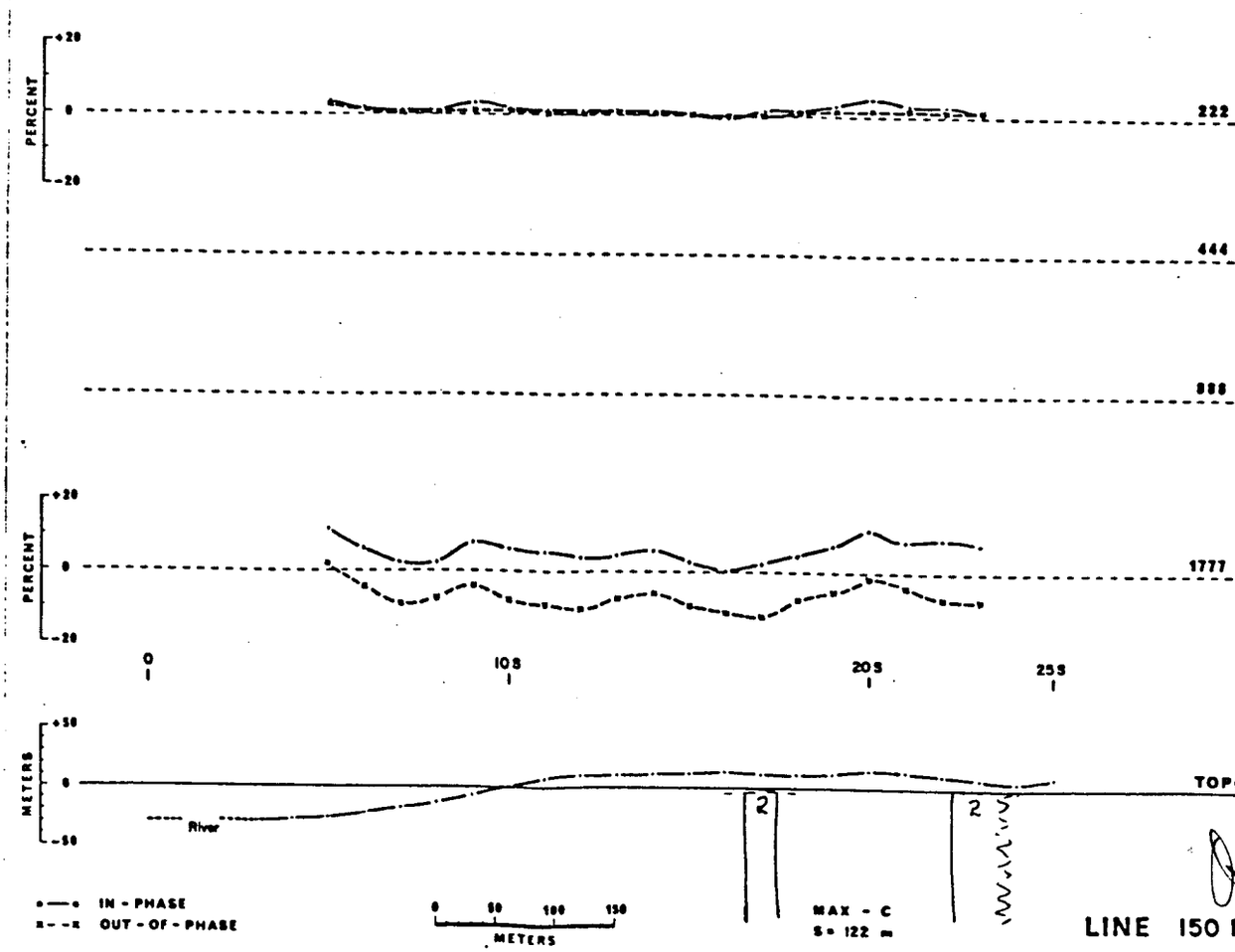

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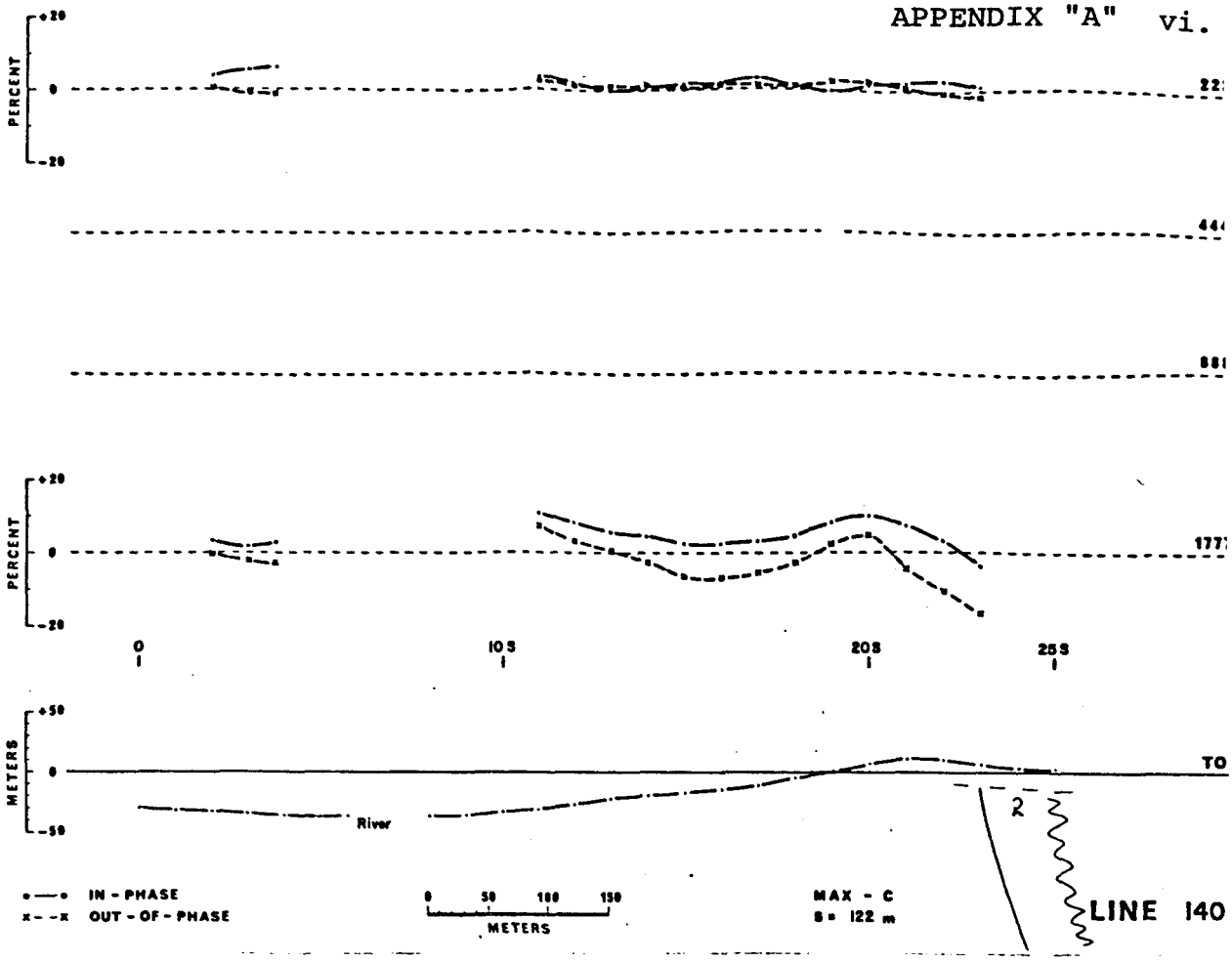
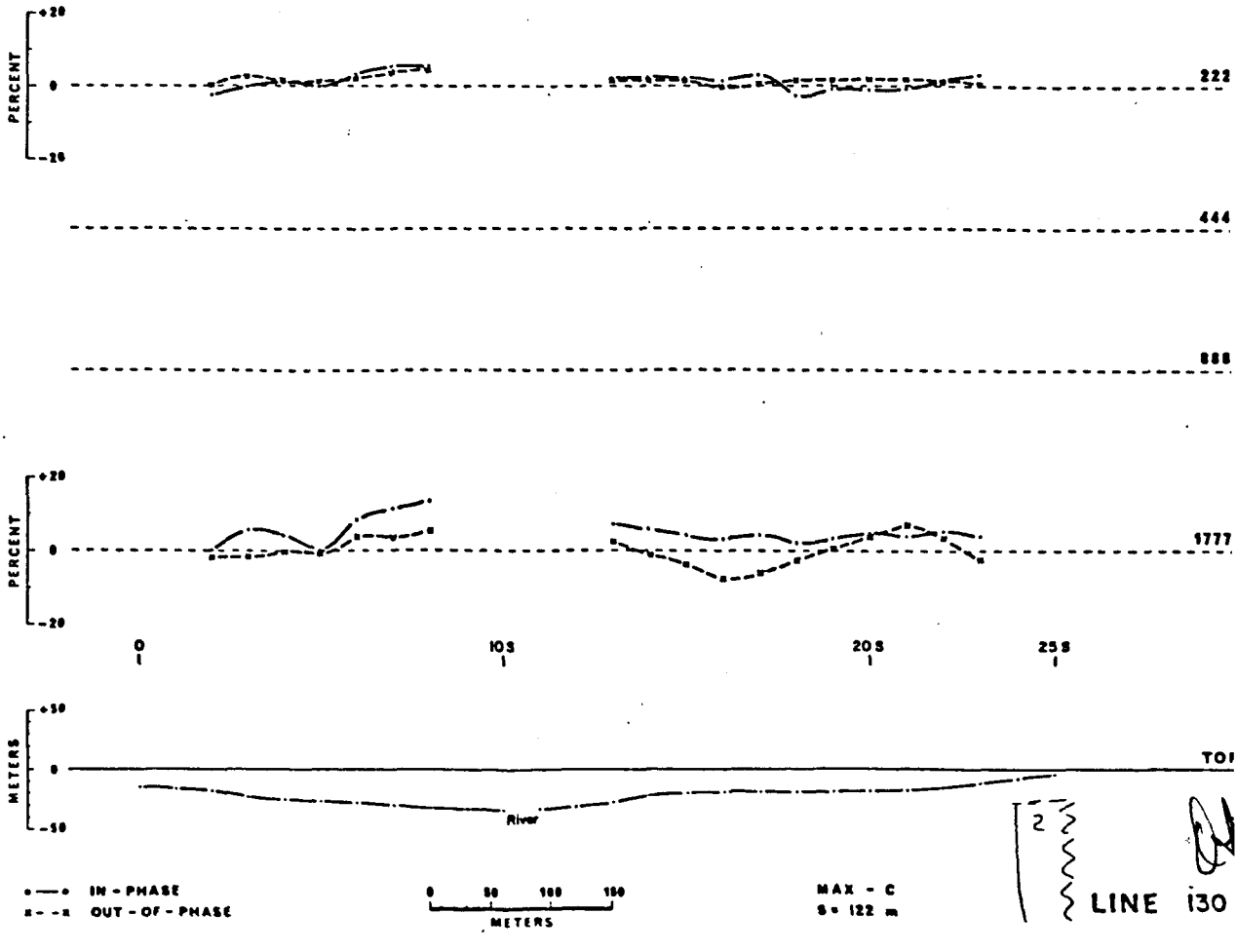

PERCENT
+20
0
-20
0
10S
20S
25S
METERS
+50
0
-50
River
IN - PHASE
OUT - OF - PHASE
0 50 100 150
METERS
MAX - C
S = 122 m
LINE 140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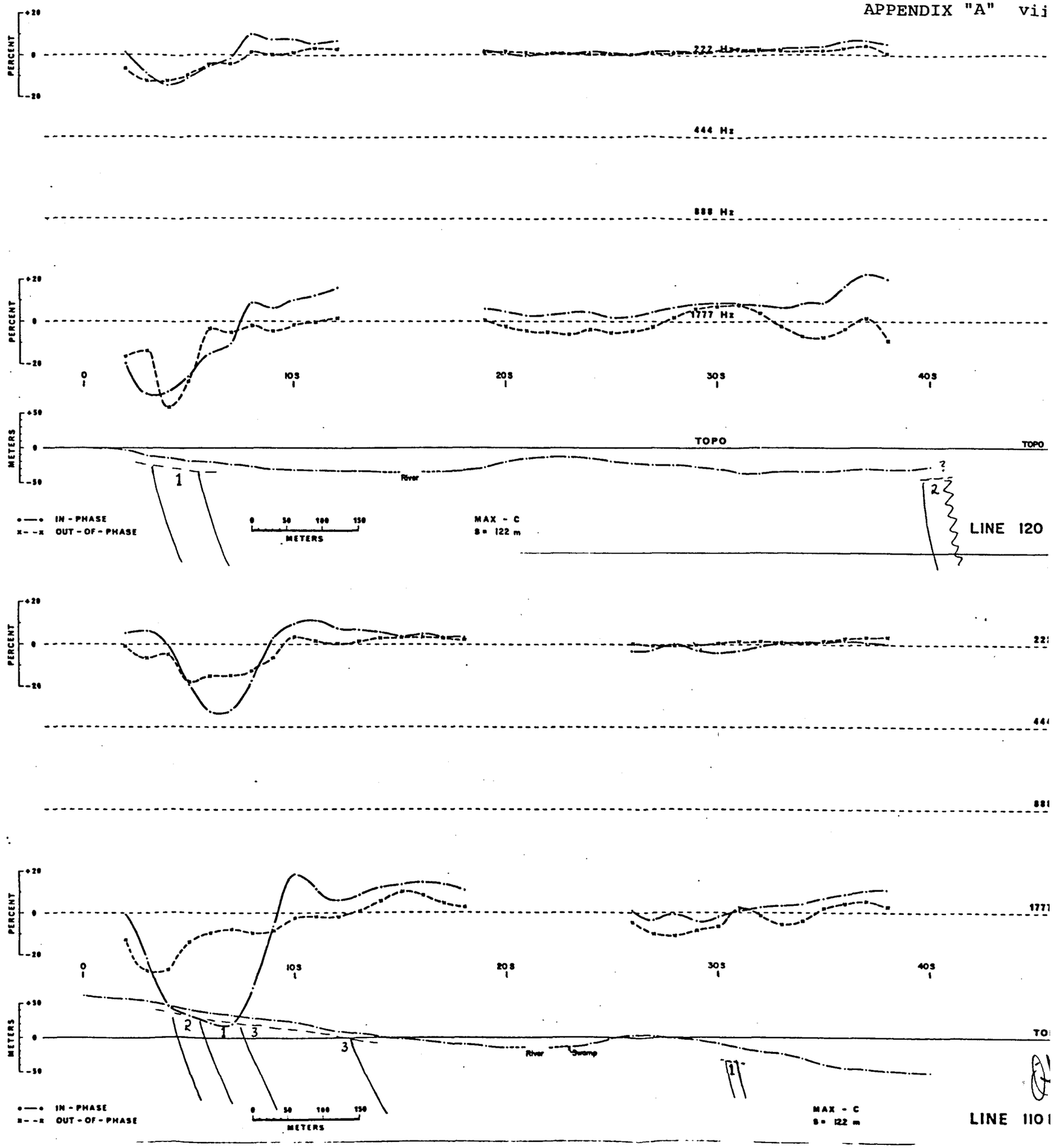
0
-20
0
10S
20S
25S
METERS
+50
0
-50
River
IN - PHASE
OUT - OF - PHASE
0 50 100 150
METERS
MAX - C
S = 122 m
LINE 130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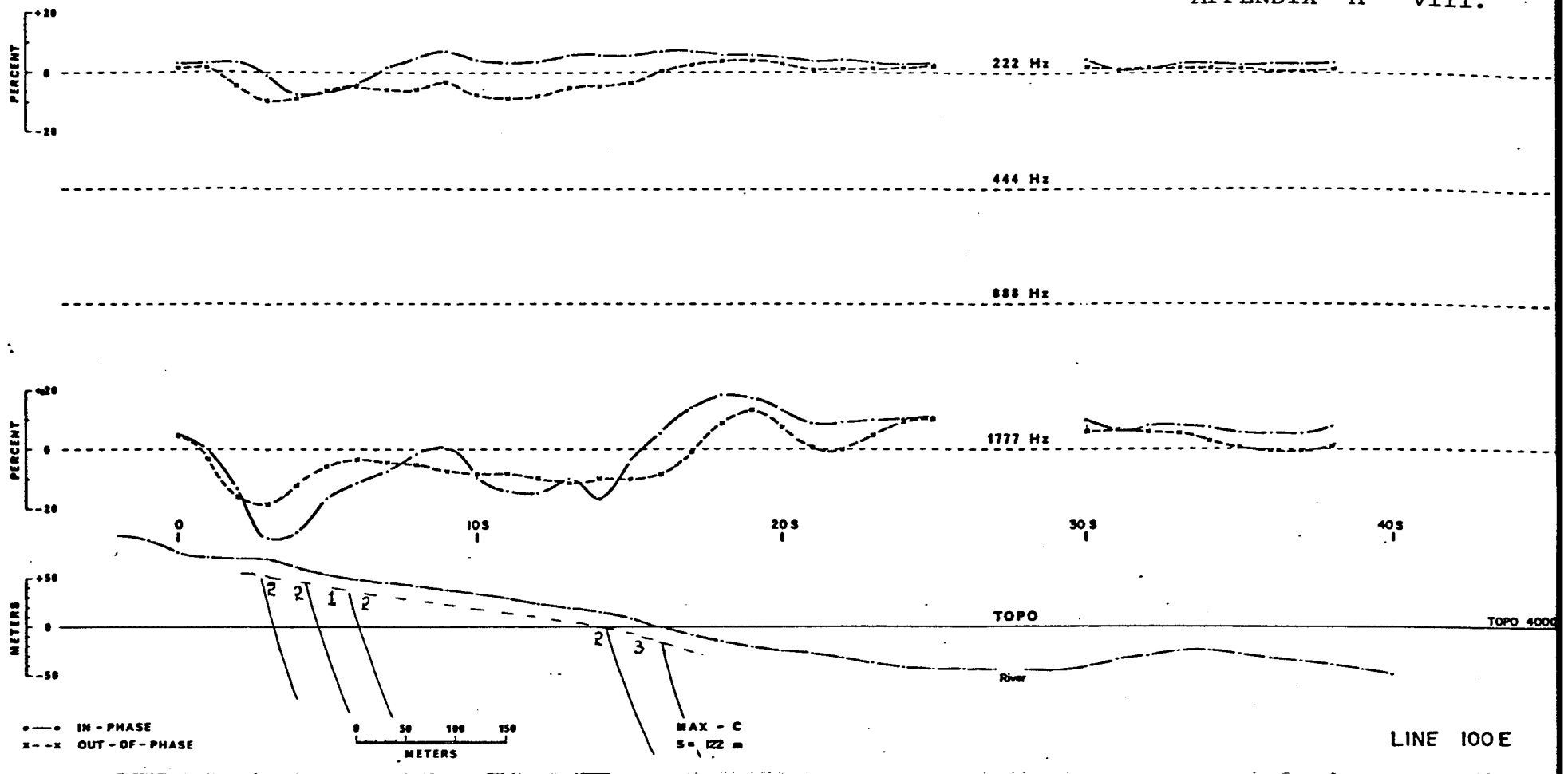
0
-20
222 Hz
444 Hz
888 Hz
1777 Hz
0
10S
20S
30S
40S
METERS
+50
-50
TOPO
River
1
2
?
IN - PHASE
OUT - OF - PHASE
0 50 100 150
METERS
MAX - C
S = 122 m
LINE 120
3
Swamp
LINE 110



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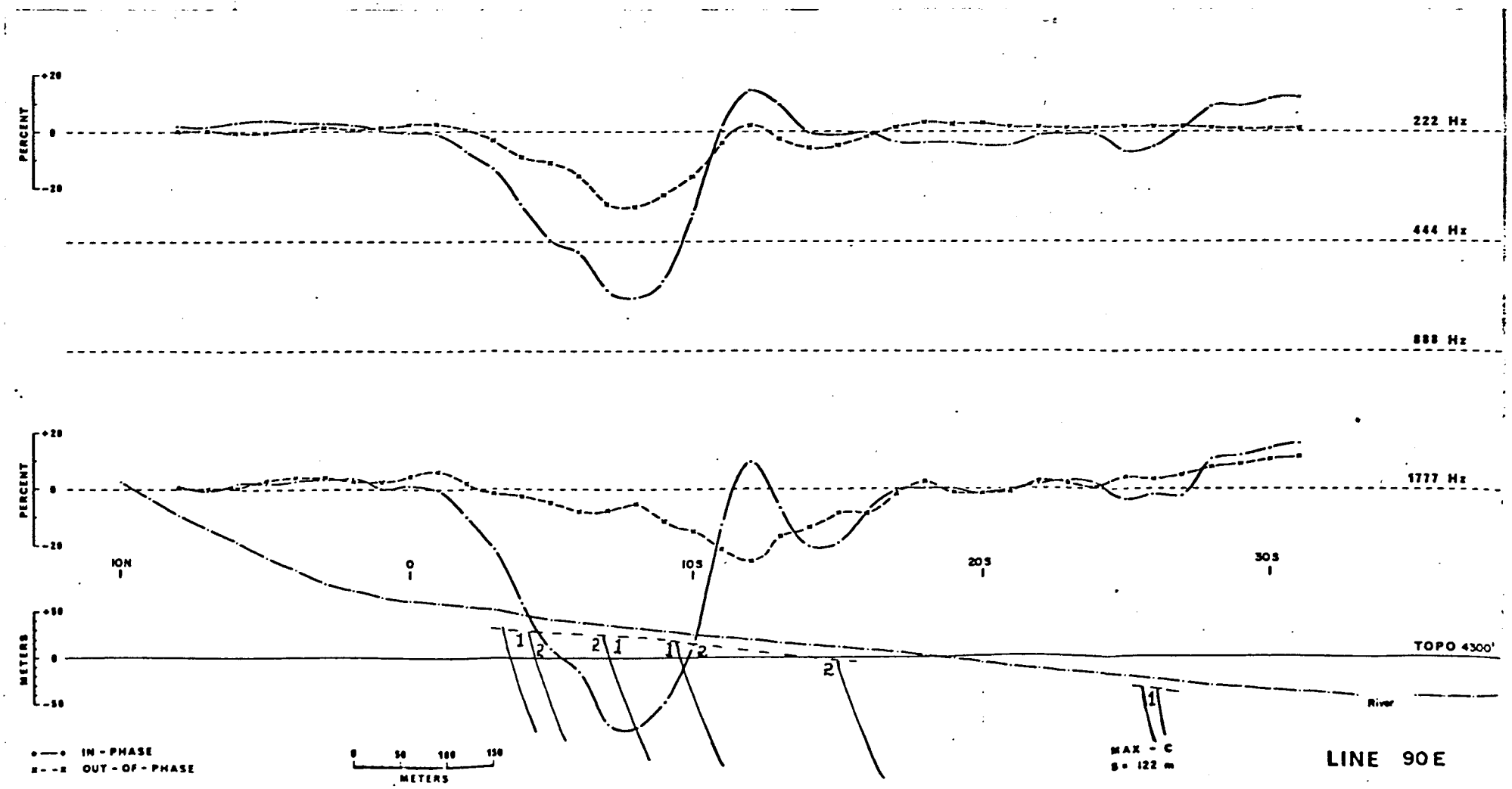

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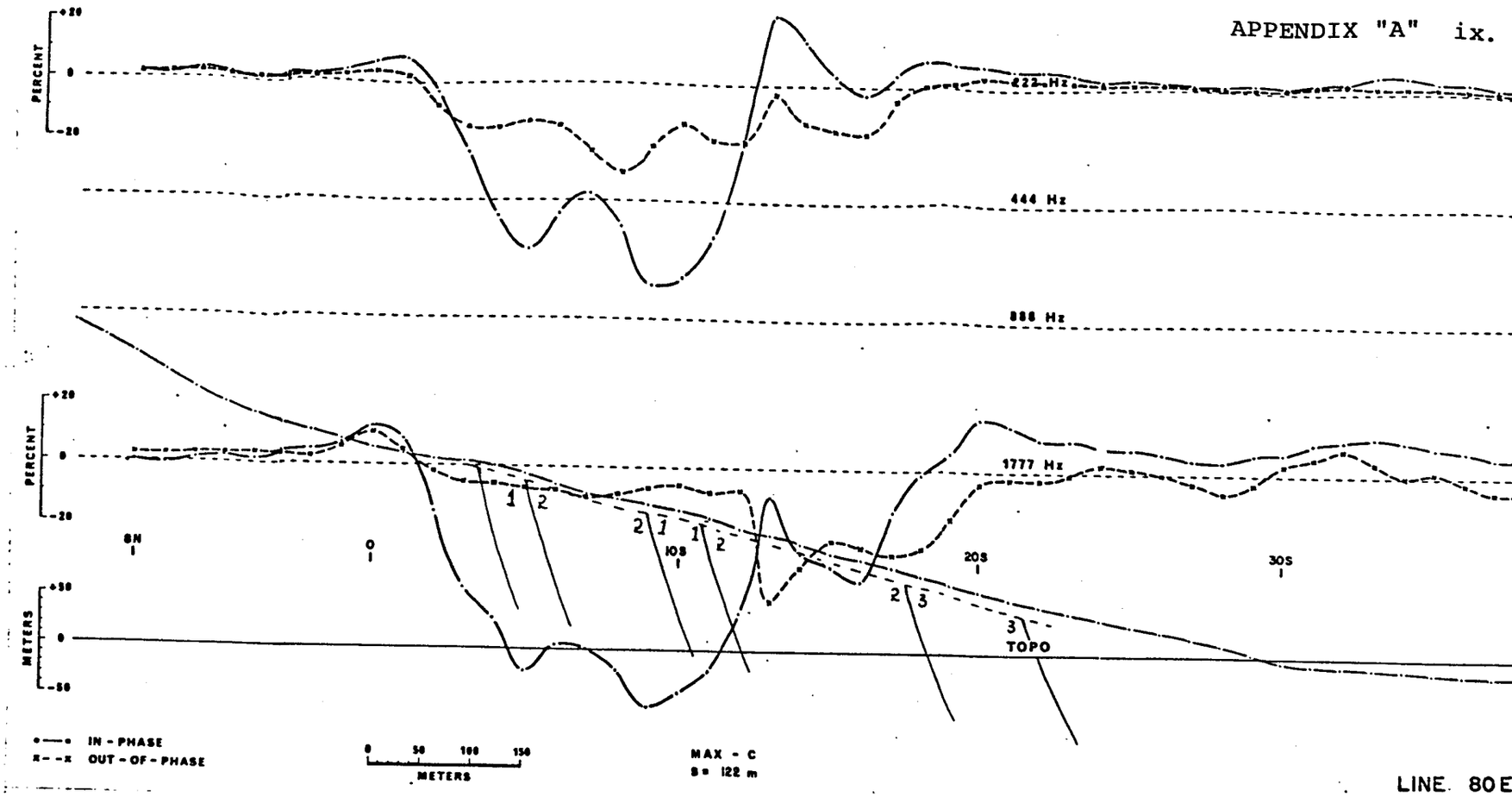

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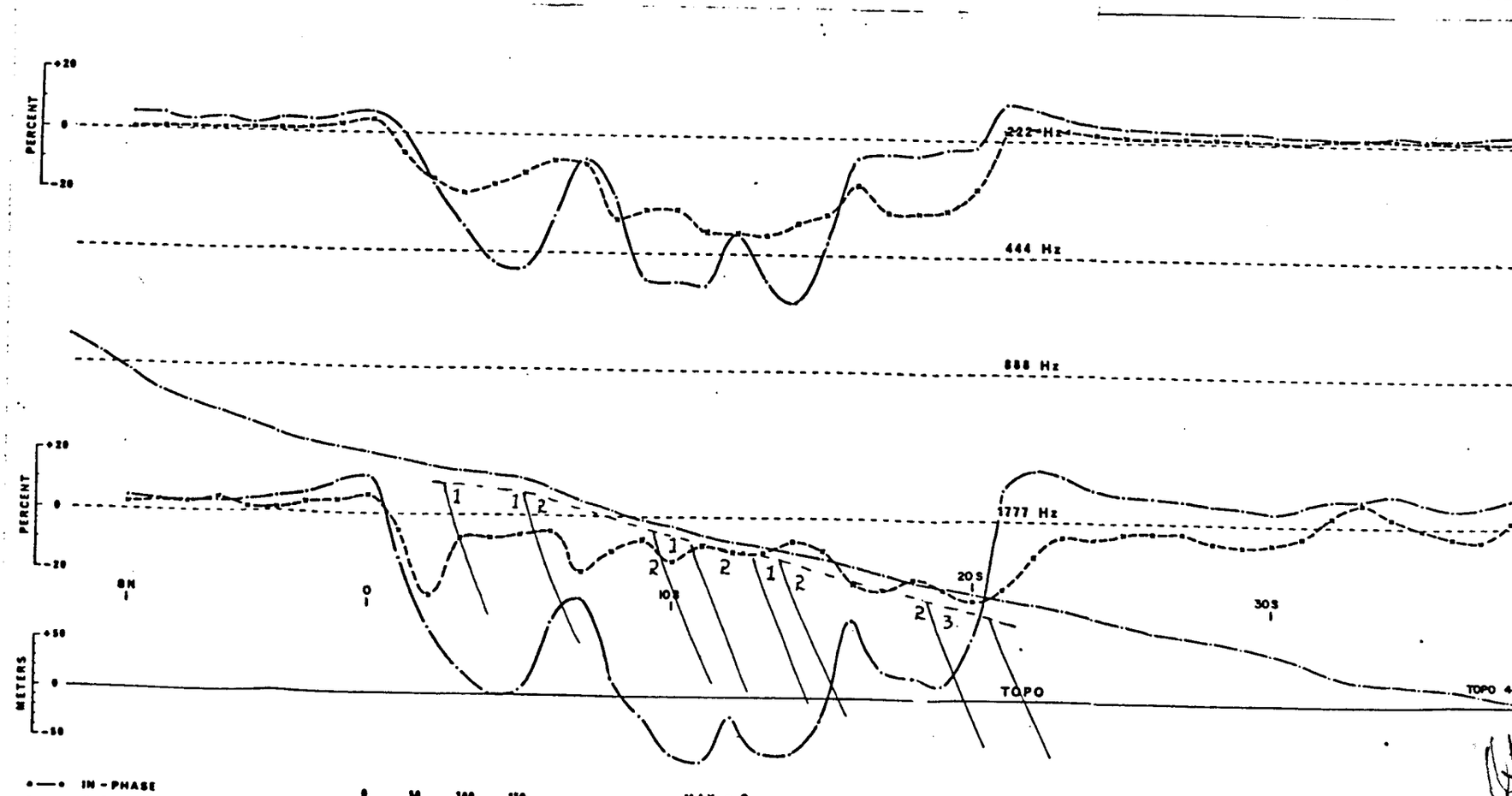

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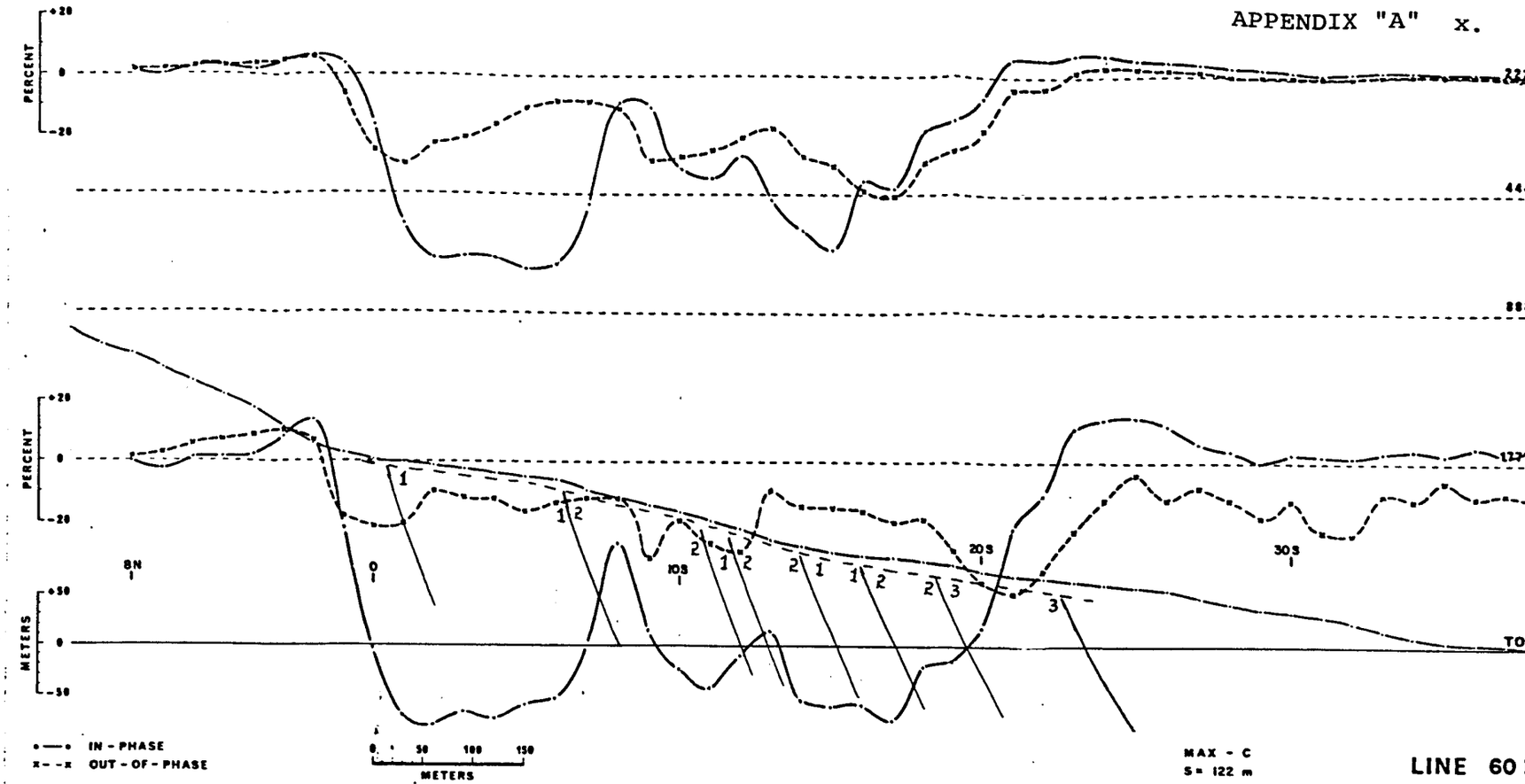
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+20
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0
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8N
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10S
20S
30S
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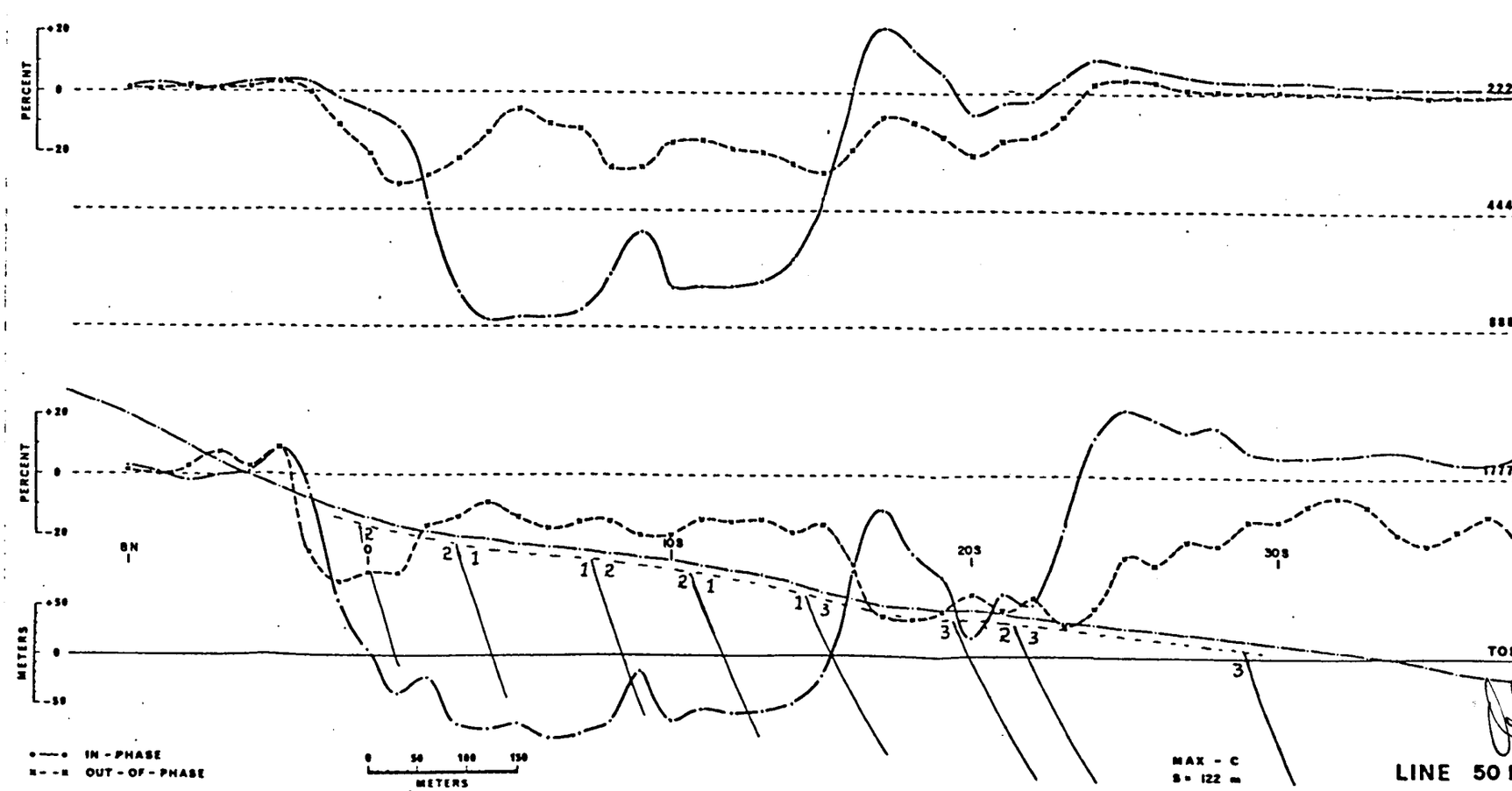
OUT - OF - PHASE
0 50 100 150
METERS
MAX - C
S = 122 m
LINE 60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30S
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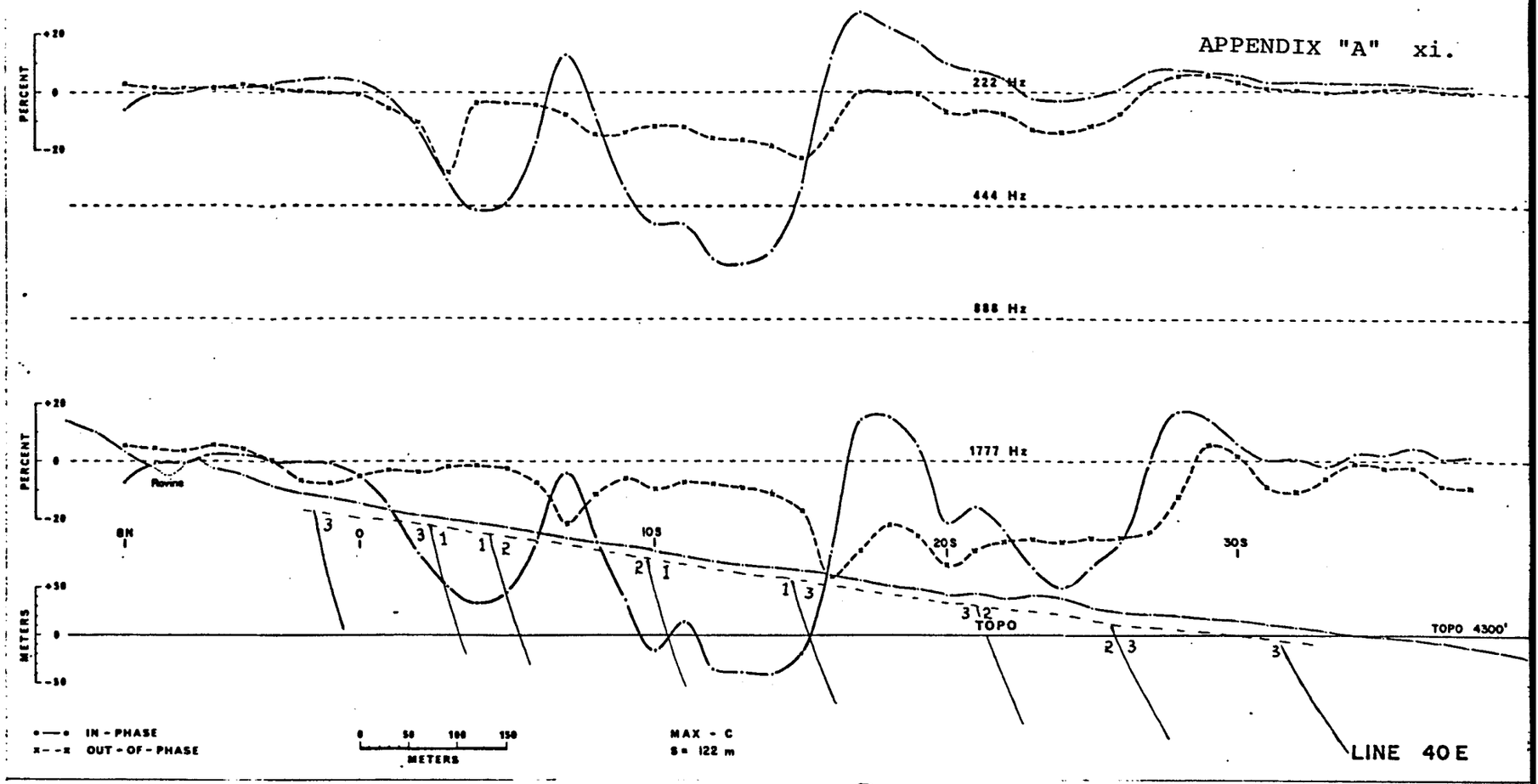
METERS
MAX - C
S = 122 m
LINE 50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+20
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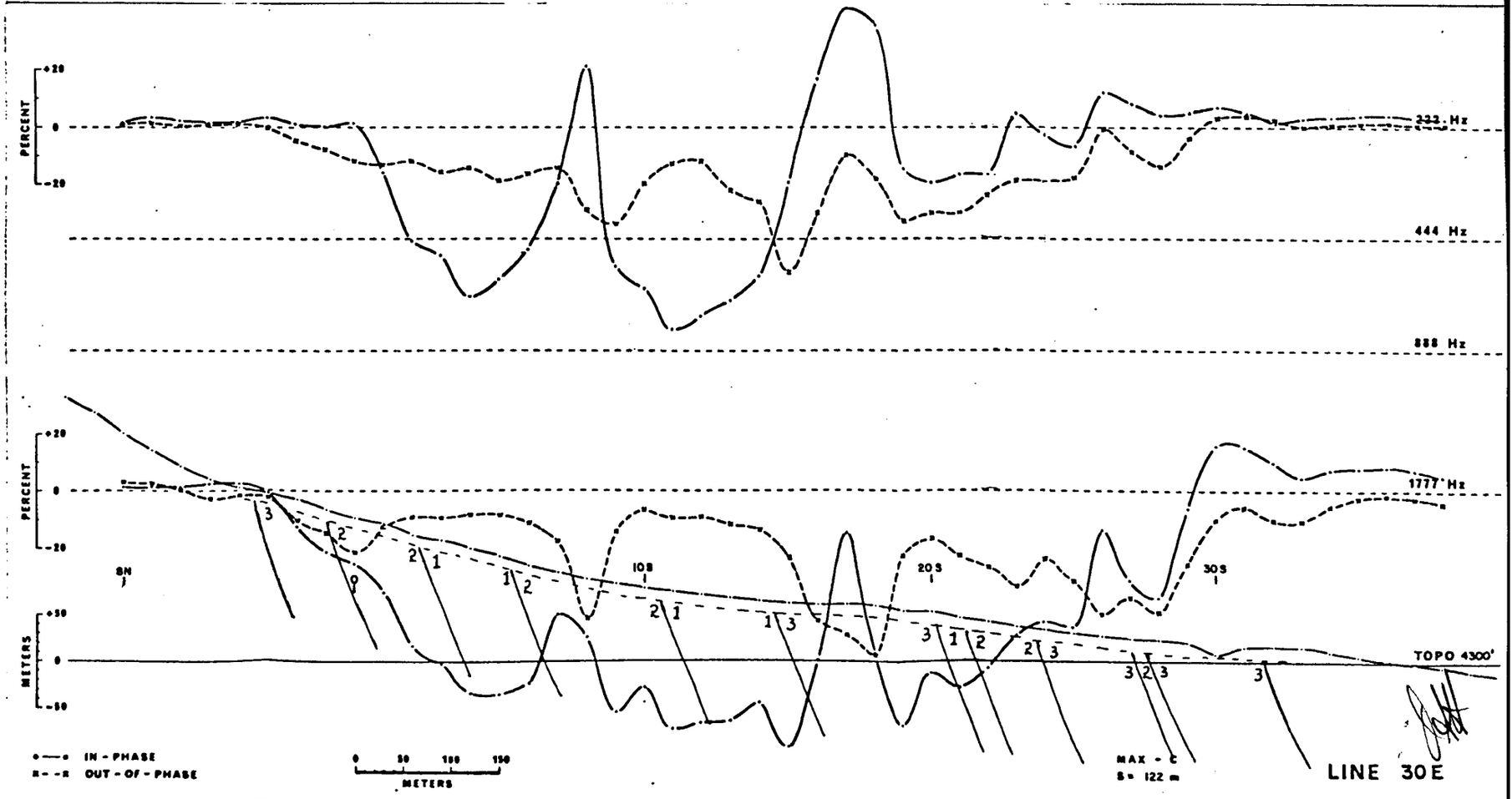
-20
222 Hz
444 Hz
888 Hz
1777 Hz
Ravine
8N
0
10S
20S
30S
TOPO
TOPO 4300'
METERS
+50
0
-50
IN - PHASE
OUT - OF - PHASE
0 50 100 150
METERS
MAX - C
S = 122 m
LINE 40 E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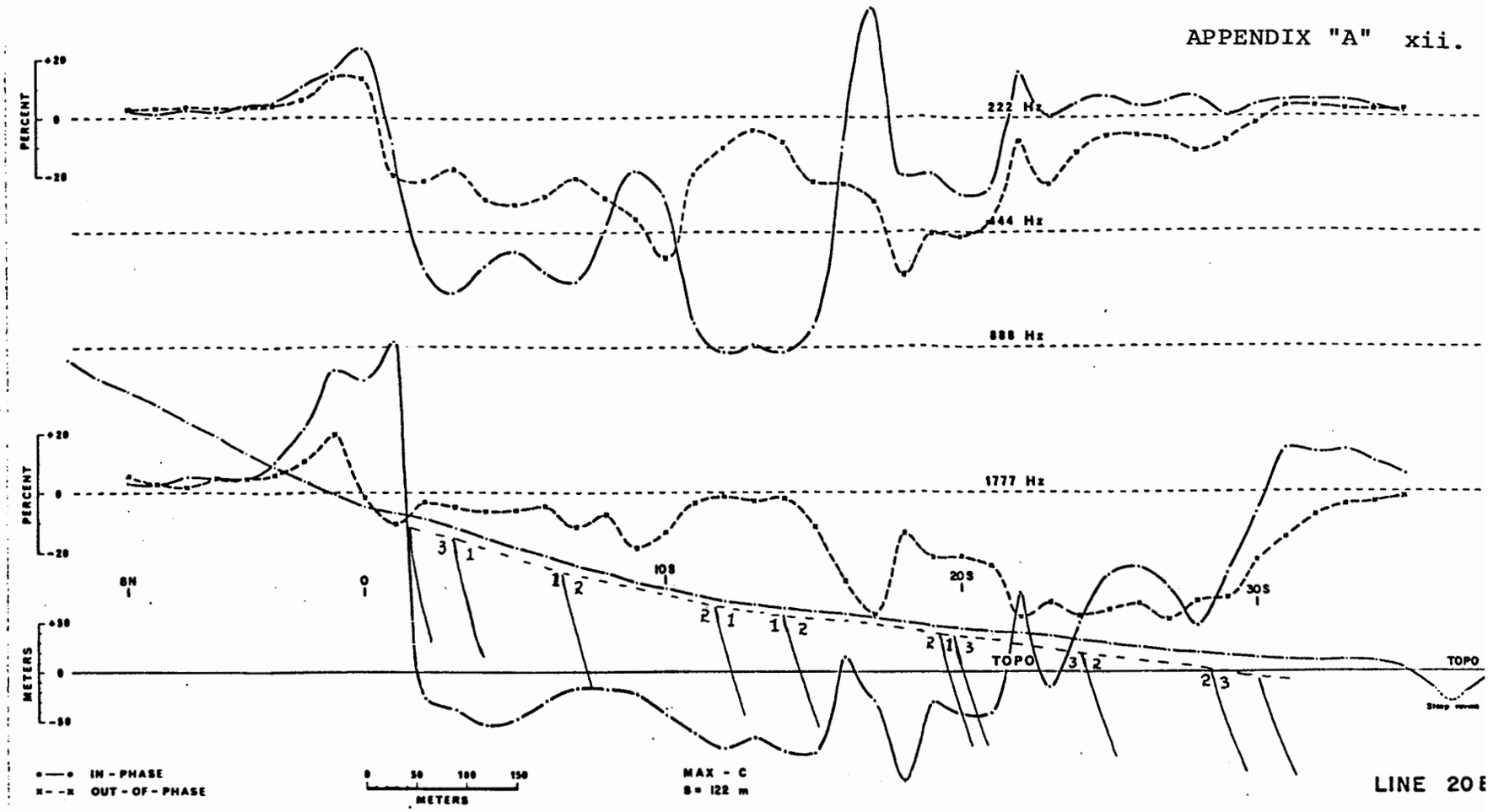
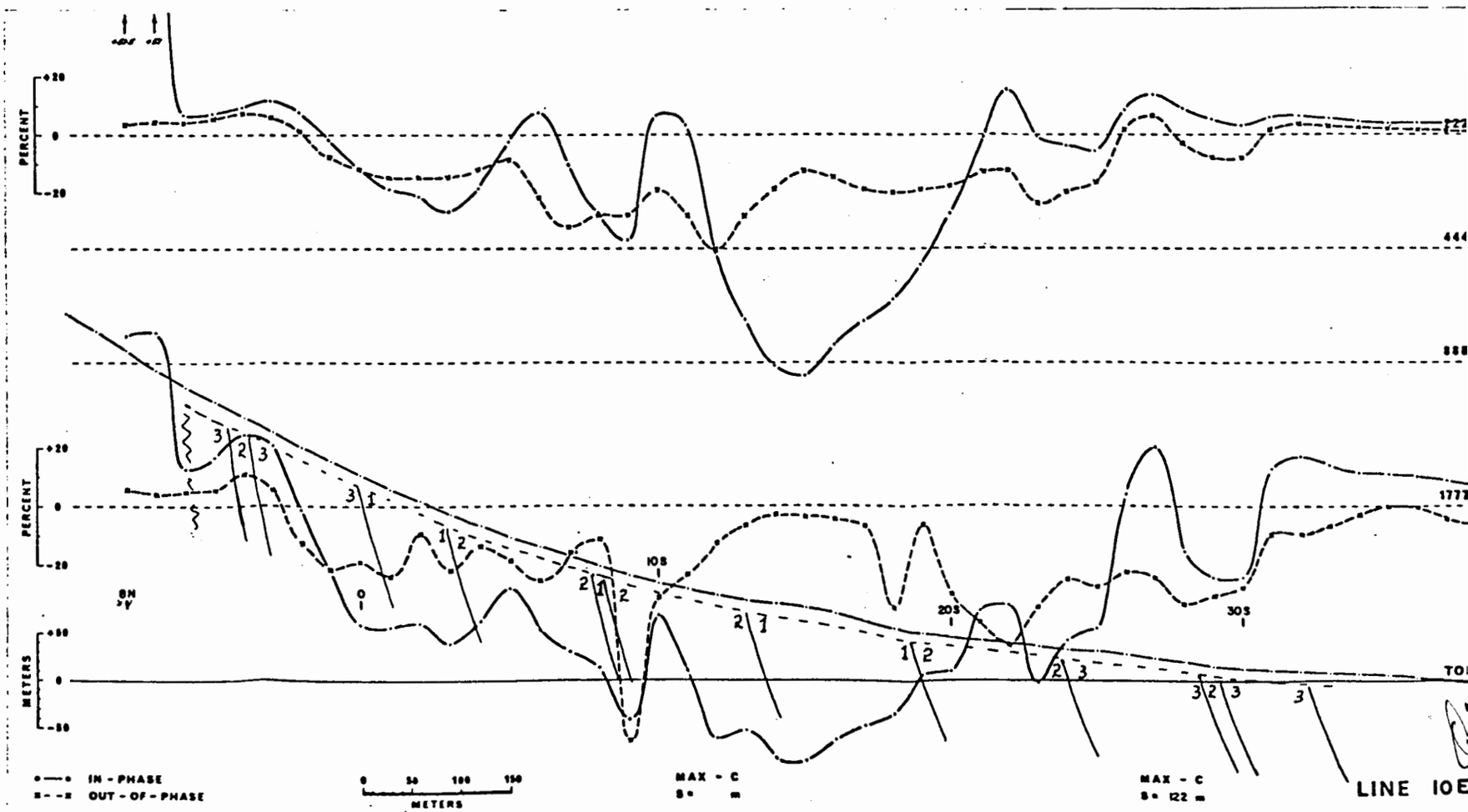
444 Hz
888 Hz
1777 Hz
8N
0
10S
20S
30S
TOPO 4300'
METERS
+50
0
-50
IN - PHASE
OUT - OF - PHASE
0 50 100 150
METERS
MAX - C
S = 122 m
LINE 30E


PERCENT
+20
0
-20
222 Hz
444 Hz
888 Hz
1777 Hz
METERS
+50
0
-50
8N
0
10S
20S
30S
TOPO
IN - PHASE
OUT - OF - PHASE
0 50 100 150
METERS
MAX - C
S= 122 m
LINE 20E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+20
0
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444
888
1777
METERS
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0
-50
8N
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OUT - OF - PHASE
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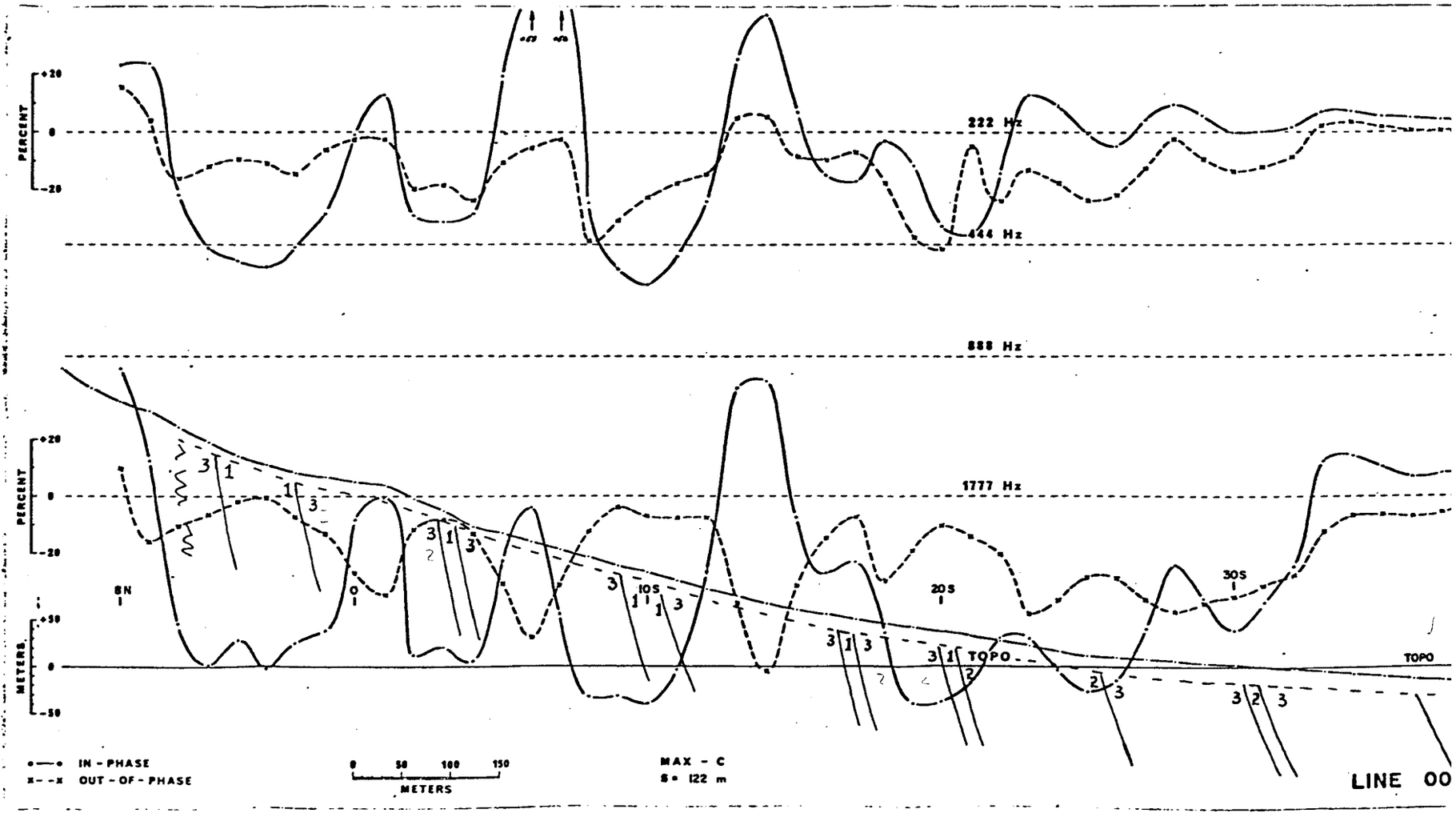
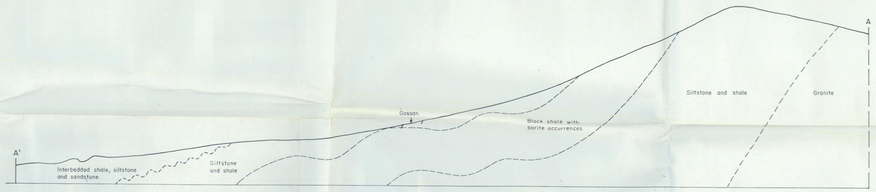
METERS
MAX - C
S= m
MAX - C
S= 122 m
LINE 10E


+20
0
-20
PERCENT
222 Hz
444 Hz
888 Hz
1777 Hz
+20
0
-20
PERCENT
+50
0
-50
METERS
BN
0
10S
20S
30S
TOPO
TOPO
IN - PHASE
OUT - OF - PHASE
0 50 100 150
METERS
MAX - C
S = 122 m
LINE 00



GEOLOGICAL CROSS SECTION

GRANITE

APPROXIMATE LIMIT OF GRANITE

NO DATA

NO DATA

CLAIM BOUNDARY

RIVER

GEOLOGICAL CROSS SECTION

LEGEND

- Fair to good conductor ≥ 2.5 mhos
- Poor to fair conductor 0.5 to 2.5 mhos
- Very poor conductor ≤ 0.5 mhos
- 4000 — Topo contour, feet above sea level
- Claim corners
- 24 Pete claims identified by number
- Swamp

OGILVIE JOINT VENTURE

MACMILLAN PASS AREA
WATSON LAKE MINING DISTRICT
YUKON TERRITORY
63°00'N, 130°04'W
N.T.S. 105-D-11, 105-J-16, 105-I-13

CONDUCTIVITY MAP

PETE PROPERTY

0 500 1000 FEET
VERTICAL and HORIZONTAL SCALE

TO ACCOMPANY REPORT

JOHN BETZ LTD.
NOV., 1977

PLAN 1

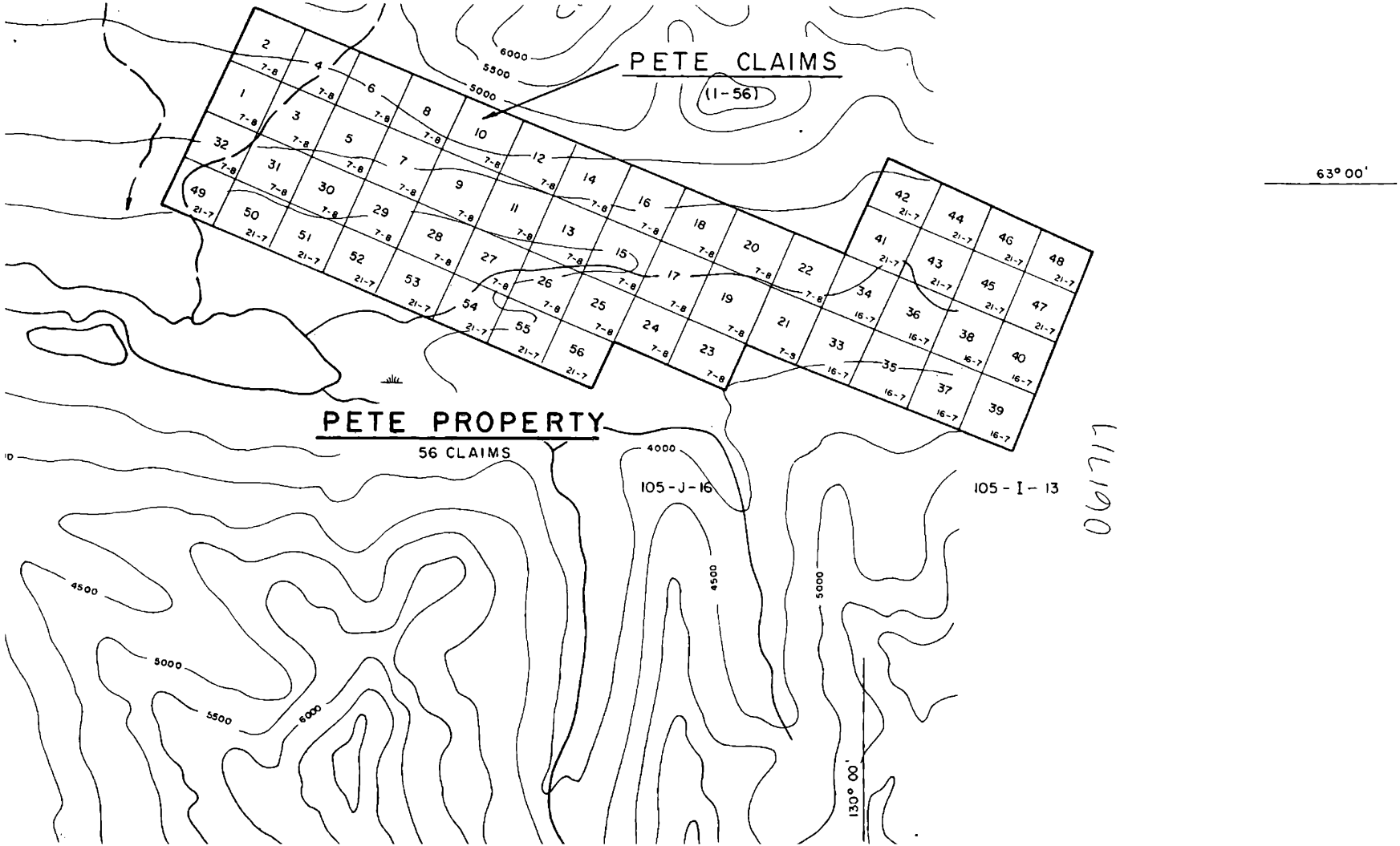
REFERENCES

BETZ, J.E., 1976: Maxmin II EM Survey on the Jason and Tom Properties, Assessment Report.

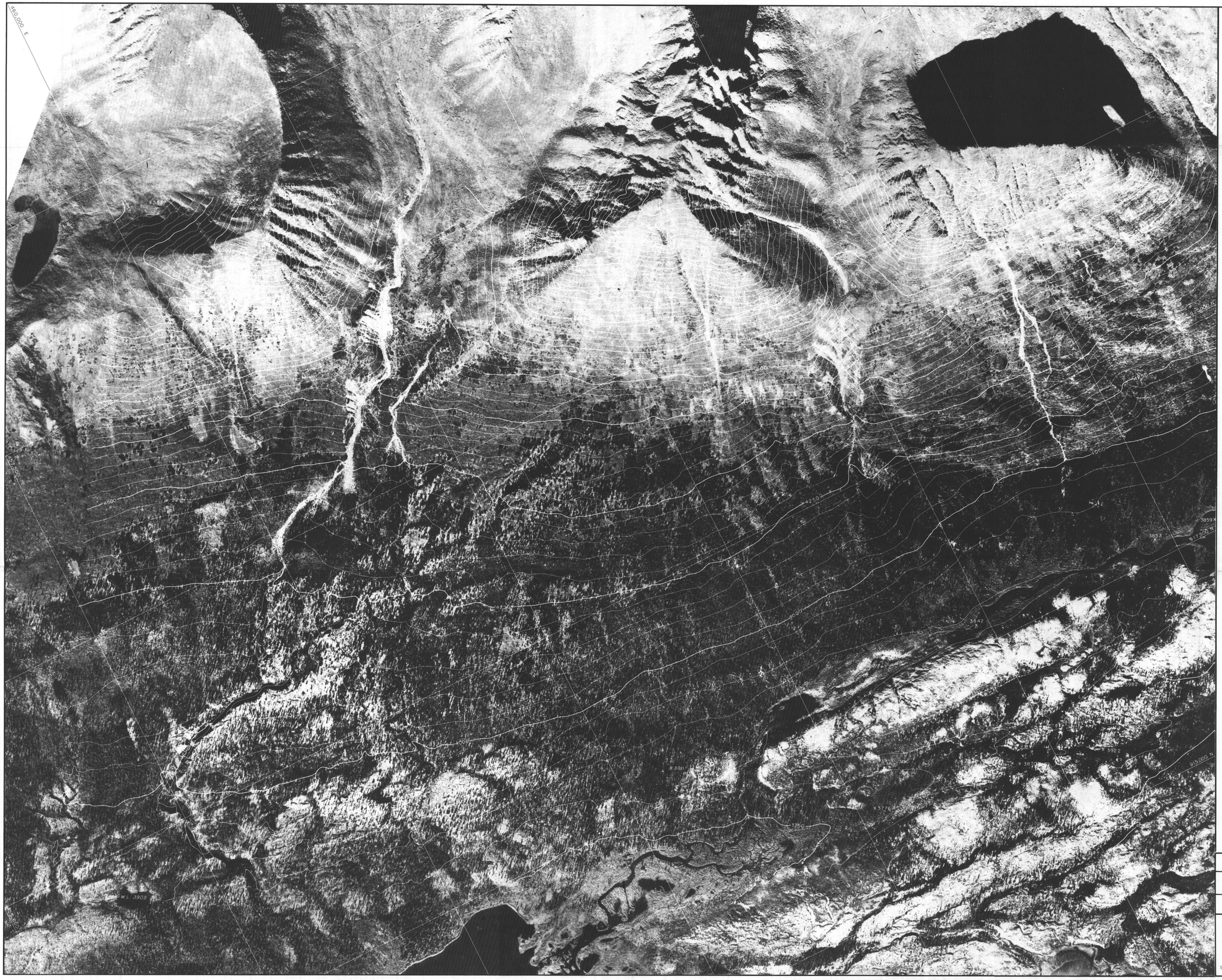
BETZ, J.E.: Maxmin II Manual.

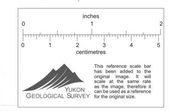
CLAIM RECORD SUMMARY

CLAIM NAME	CLAIM NUMBER	RENEWAL DATE
Pete 1 - 32	Y84475-Y84506	October 16
Pete 33 - 40	YA 172-YA 179	October 16
Pete 41 - 56	YA 323-YA 338	October 16


PETE CLAIMS
(1-56)
PETE PROPERTY
56 CLAIMS
105-J-16
105-I-13
63° 00'
130° 00'
6000
5500
5000
4500
4000
7-8
16-7
21-7

061711





OGILVIE JOINT VENTURE

PETE PROPERTY

105-J-16, 105-P-4, 105-I-13, 105-O-1

Watson Lake Mining District

2

Compiled from aerial photography at an approximate scale of 1 inch equals 2640 feet flown in 1973

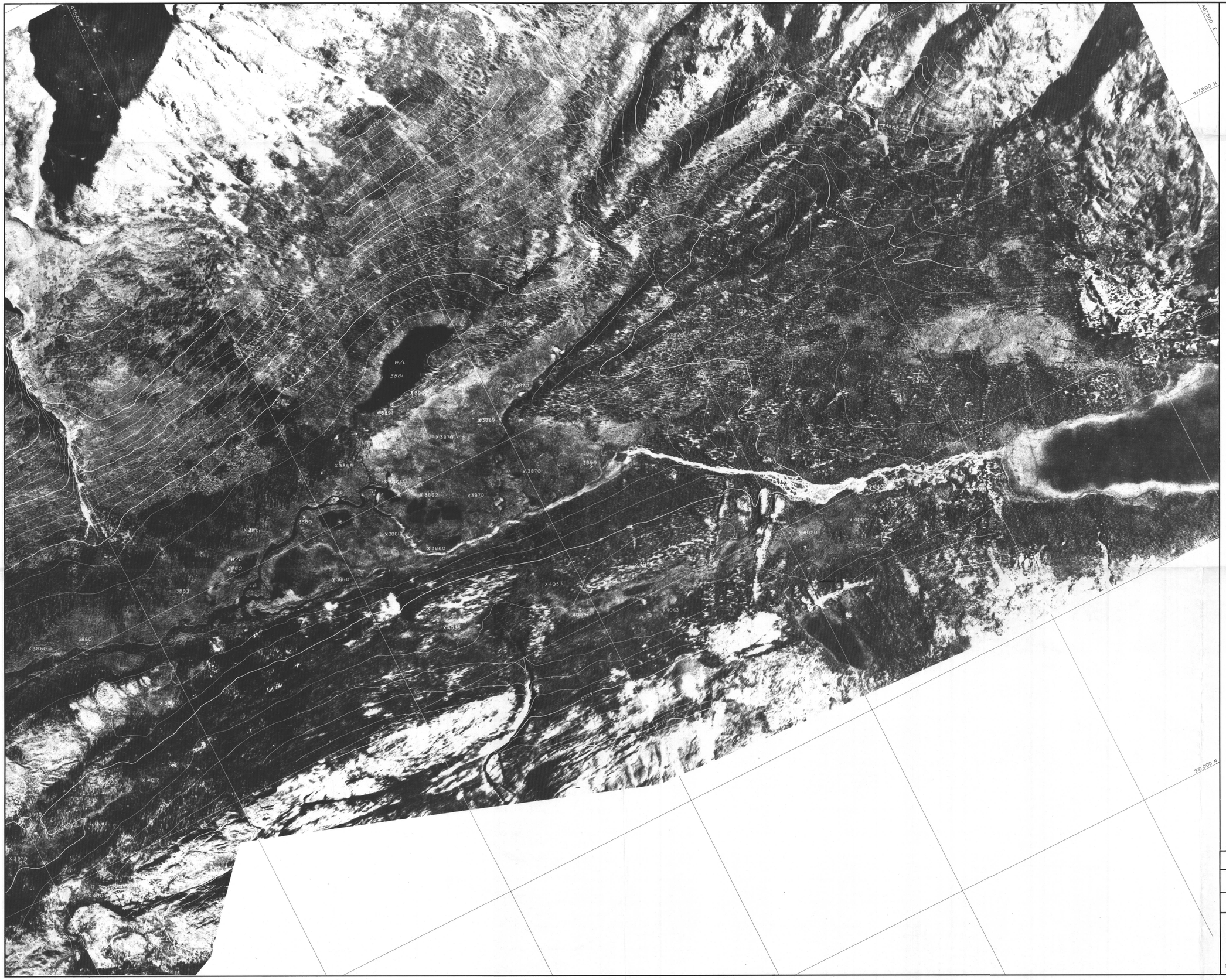
McElhanney

McElhanney Surveying & Engineering Ltd.

1200 West Pender Street, Vancouver B.C., Canada

Scale -	1" = 500'
Contour Interval -	50'
Date -	MAY 1977
Job No.-	06358 - 2
Sheet No.-	1 OF 2

061717



inches
0 1 2
0 1 2 3 4 5
centimetres

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

YUKON GEOLOGICAL SURVEY

OGILVIE JOINT VENTURE

PETE PROPERTY

105-J-16, 105-P-4, 105-I-13, 105-O-1

Watson Lake Mining District

1

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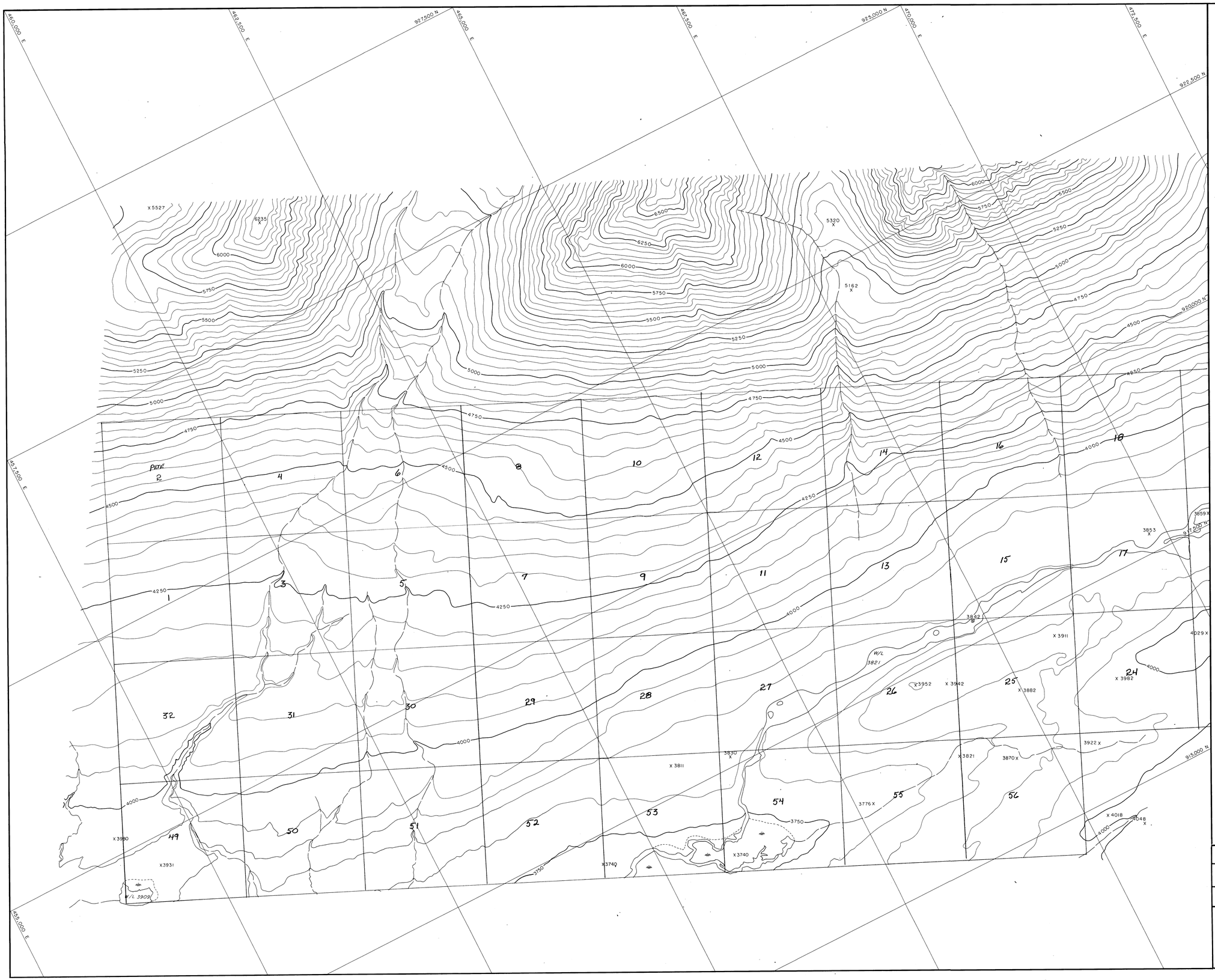
Job No. -	06358 - 2
Sheet No. -	2 OF 2

061717



inches
0 1 2
0 1 2 3 4 5
centimetres

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

YUKON GEOLOGICAL SURVEY

OGILVIE JOINT VENTURE

PETE PROPERTY

105-J-16, 105-P-4, 105-I-13, 105-O-1

Watson Lake Mining District

1 2

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Scale -	1" = 500'
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Date -	MAY, 1977
Job No. -	06358-2
Sheet No. -	1 OF 2

061717

475,000 E
477,500 E
480,000 E
482,500 E
485,000 E
487,500 E
922,500 N
920000 N
917,500 N
915,000 N
912,500 N
910,000 N
450,000 E

PETE
42
41
43
44
45
46
47
48
W/L 3881
W/L 3860
4085 X
4099 X
4079 X
4522 X
3863 X
3860 X
3869 X
3990 X
4374 X
4750
4500
4250
4000
4230
4050
4200
4150
X 3902
X 3870
X 3891
X 3869
X 3861
X 3862
X 3860
X 4148
X 4030
X 4071
X 4022
X 4020
X 4080
X 4088
X 4033
X 4054
X 4063
X 4036
X 3911
X 3997
X 4017
X 3979
X 4110

20
22
34
36
38
40
19
21
33
35
37
39
25

inches
0 1 2
0 1 2 3 4 5
centimetres

This reference scale bar was plotted from the original image. It will scale at the same rate as the original and can be used as a reference for the original size.

YUKON GEOLOGICAL SURVEY

OGILVIE JOINT VENTURE

PETE PROPERTY

105-J-16, 105-P-4, 105-I-13, 105-O-1
Watson Lake Mining District

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