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GEOPHYSICAL INVESTIGATION OF THE CLARE CLAIMS

(Electromagnetic, Magnetometer and Gravity Surveys)

SELWYN PROJECT, EARN LAKE AREA, WHITEHORSE MINING DIVISION, Y.T.

Lat: 62° 54'N Long: 134° 50'W NTS: 105 L15

Field Work performed within the period March 1 - April 4, 1982

Claims: CLARE 1-42, 49-54, 65, 67-72

May 12, 1982

Alan R. Scott

091037

This report has been examined by the Geological Evaluation Unit under Section 53 (4) Yukon Quartz Mining Act and is allowed as representation work in the amount of $ 7,700.

P. Watson

Regional Manager, Exploration and Geological Services for Commissioner of Yukon Territory.

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Introduction

During the period March 1 to April 4, 1982, a linecutting and geophysical survey program was completed over portions of Anaconda's Selwyn Project claims. This report is concerned with the portion of that work done on the CLARE claims.

The purpose of the Geophysical work was to define the location, and further investigate electromagnetic conductors detected on an airborne survey completed in the spring of 1981 (flown by Geoterrex and previously submitted by Carlson, 1981).

This report describes the methodology of the geophysical surveys conducted on the CLARE claims, presents the data, and discusses the results.

Location and Access

Anaconda's Selwyn Project is located about midway between the towns of Mayo and Faro, Yukon Territory (Drawing 1). This winter's work was conducted out of a central base camp located on the north shore of Earn Lake, utilizing helicopter support for local access. Access to the base camp was by fixed wing aircraft from Whitehorse.

Ground Control

The location of the grids/traverses was chosen by reference to the helicopter EM survey flight path recovery and topographic maps. All base lines or traverses were turned off by compass, and cross lines by a nail board. Linecutting was accomplished by back sighting along pickets, and the quality of the lines is very good. Chaining of stations was by taut chain along the slope, with pickets placed at 25 meter intervals. The angle of slope was measured by inclinometer. The lines were tied in to topographic features wherever possible, for transfer to the location map (Drawing 2).

LOCATION MAP

SELWYN PROJECT

SCALE : 1 = 250.000

BUM GROUP

KAL GROUP

BUSH GROUP

CLARE GROUP

ACE GROUP

CAMP

RABBIT GROUP

WAD GROUP

MT. MENZIE

WILKINSON RANGE

MACMILLAN RIVER

Earn Lake

Lona Mtn

Clarke Peak

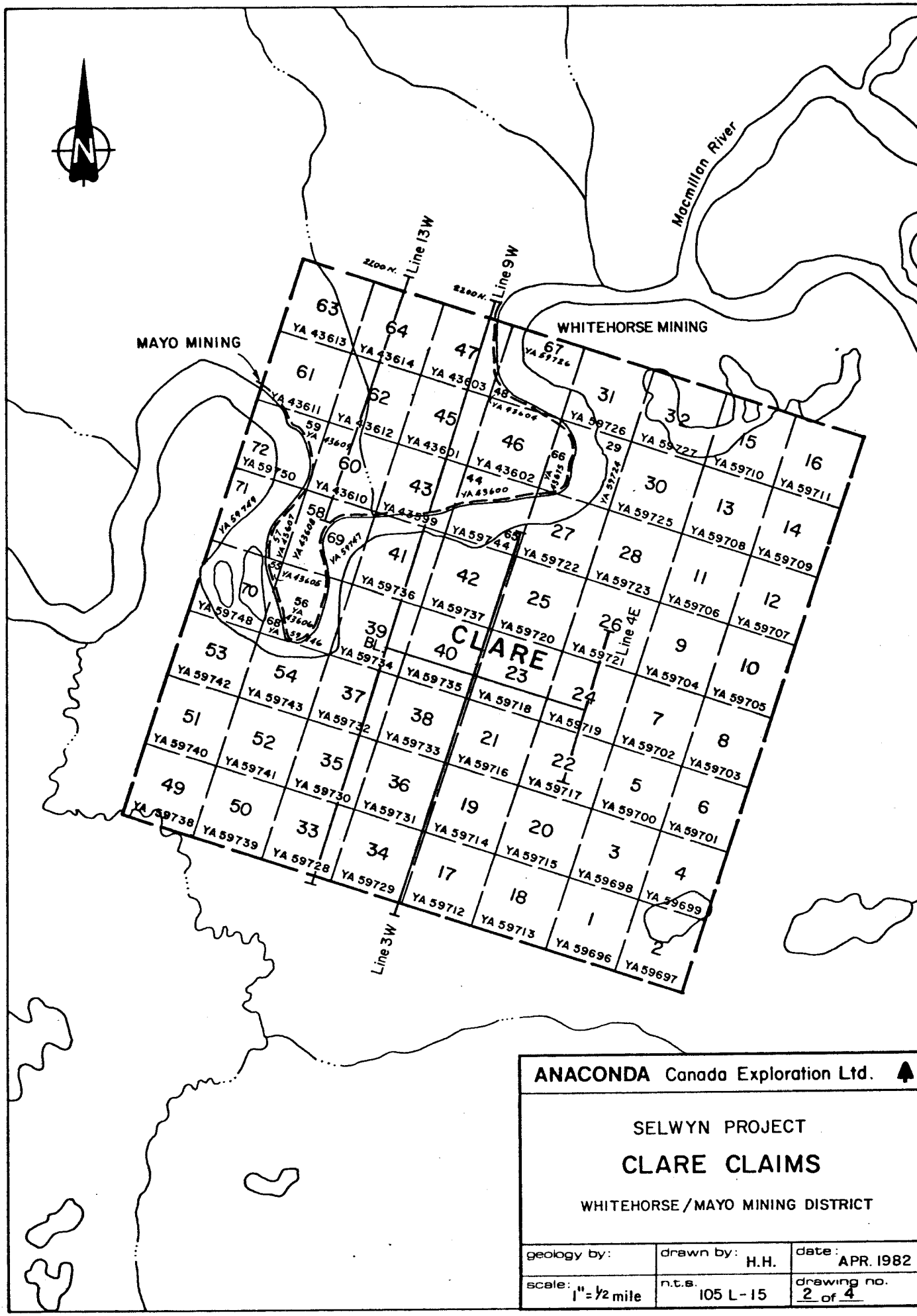
Rugged Lake

Tatuur Lakes

63°00'

62°45'

134°00'



ANACONDA Canada Exploration Ltd.

SELWYN PROJECT

CLARE CLAIMS

WHITEHORSE / MAYO MINING DISTRICT

geology by:	drawn by: H.H.	date: APR. 1982
scale: 1" = ½ mile	n.t.s. 105 L-15	drawing no. 2 of 4

Claims

The CLARE claims are located 10 kms west of Dromedary Mountain. The NTS sheet for the area is 105 L15. Grant numbers and claim names are listed below:

YA 59696-YA 59750	CLARE 1-42, 49-54, 65, 67-72

Geology

The Selwyn project area lies within the Paleozoic aged Selwyn Basin of the Yukon Territory. Units consist of chert, shale and coarser grained clastic sedimentary rocks. Minor Tertiary high level intrusives and cretaceous biotite quartz monzonites occur. The property geology has been described in more detail by Carlson (1982).

Geophysical Surveys

Electromagnetic Surveys - HLEM

An Apex Parametrics Max Min II electromagnetometer was used for the horizontal loop (HLEM) survey. A back up unit was also available in the event of malfunction. All survey lines were previously slope chained and inclinometer surveyed to maintain close tolerances on the coil spacing and coplanarity of the HLEM survey. Corrections were applied to the HLEM data for the normally small changes from the selected coil spacings of 100 meters and 200 meters for the CLARE claims.

Electromagnetic Surveys - VLF-EM

A Phoenix unit was used for the VLF survey. Station NAA (Cutler) was used as the transmitter station for the CLARE grid.

The Phoenix unit measures both the in phase tilt angle and the field strength of the horizontal component. Corrections were applied to the measured field strength by reference to base readings at the Earn Lake camp at approximately hourly intervals.

Magnetometer Survey

A Geometrics Unimag I was used for the magnetometer survey, and a Unimag II as a base station for correction of diurnal variation. Base station readings were obtained at least hourly at the Earn Lake camp, and maximum observed drift from base reading to reading during the time of the survey, was normally less than 20 gammas.

Gravity Survey

A SODIN CG-2 gravity meter was used for the gravity survey. This is a non thermisted meter and base station/sub base station loops at approximately hourly intervals were necessary to ensure adequate control on temperature caused meter drift. Corrections for instrument height and bouguer reduction were effected using standard published formulas (Telford, 1976).

Station elevations were established with a TOPCON EDM/WILD T-16 theodolite. Closures, where possible, indicated an elevation accuracy of $\pm$ 2 cm over 500 meters for this unit.

Overall accuracy of the bouquer gravity values, based on station repeats, is better than $\pm$.05 milligals.

Discussion of Results

Three lines were cut, chained, and surveyed with HLEM and magnetics on the CLARE claims. Lines 400 E and 300 W were HLEM surveyed with both a 100 and 200 m coil spacing, while 900 W was surveyed with only a 200 m coil spacing. Additionally, line 900 W was surveyed with VLF, and a portion of 300 W was gravity surveyed. Results of this work are plotted in profile form on accompanying Drawings 3 to 7.

Line 400 E (Drawings 3 and 4)

No conductors were detected with the 100 m coil spacing on line 400 E (Drawing 3). The 1777 Hz out of phase data indicates relatively poorly defined conductors at 50 S and 300 S with the 200 m coil spacing (Drawing 4). The magnetic field is relatively flat over line 400 E.

Line 300 W (Drawings 5 and 6)

Thin conductors have been picked from the in phase 444 Hz results at a 200 m coil spacing (Drawing 6) at 1075 and 1250 south. These conductors are not apparent on the 444 Hz results with a 100 m coil spacing (Drawing 5), and are in an area of flat magnetic field strength.

A very broad HLEM conductor has been picked from the 444 Hz; 200 m coil spacing results from about 200 N to 450 N. With the 100 m coil spacing, this zone appears as a thin conductor at 200 N plus a broad conductor from 305 to 340 N. A broad magnetic high (500 gammas) flanks this conductive zone to the south, and lower amplitude magnetic highs centered at 350 N and 420 N lie within the zone.

The gravity profile shows a 1.0 mgal (at 2.45 g/cc) "step" over the steep slope from 175 N to 300 N. Terrain corrections are necessary to determine if this response is entirely due to that topographic feature.

Line 900 W

A thin HLEM conductor from the in phase 444 Hz results has been picked at 50 S on line 900 west; a thin conductor at 1330 S; and a broad conductor from 1140 to 1195 south. None of these conductors correlate directly with magnetic highs.

The VLF tilt angle results appear to be rather noisy, and the field strength quite flat. (Cutler, Maine was used as the transmitter station, as Seattle was off the air on the survey day. Cutler gives a relatively weak signal in this area, so that nulls are not well defined). The response from 200 to 300 south is believed to be primarily topographical.

Conclusions

The geophysical work on the CLARE claims defined the ground location of an EM conductor (originally detected on the 1981 airborne survey)

along and to the north of the hillside on line 900 W. It is flanked to the south by a 500 gamma magnetic high, and encompasses two weak magnetic highs. The gravity profile shows a strong terrain effect from that hillside, which must be removed before any judgement can be made about those gravity results. Fill in work is required to determine if the conductor at 50 S on line 300 W is a continuation of this conductive zone.

Weaker HLEM responses, with no magnetic association, were detected with the 200 m coil spacing survey, at the south end of lines 300 and 900 W.

Respectfully submitted

Alan Scott
Geophysicist

Distribution:

(2) Mining Recorder
(1) IME Van.
(1) J. Corbett, Chief Geophysicist
(1) R. D. Hall - Project Geologist

APPENDIX I

STATEMENT OF EXPENDITURES - CLARE CLAIMS
(linecutting, magnetometer, gravity, and electromagnetic surveys)

1.	Salaries and contract linecutting		
	Eastern Assoc., contract linecutting, Mar. 3-6, 2 men, 4 days @ 240/man =	1920	
	Alan Scott, geophysicist, Mar. 4-7, 4 days @ 190 =	760	
	Chris Hrabek, helper, Mar. 4-7, 4 days @ 80	320	
	Marthe Archambault, geologist, Mar. 11, 1 day @ 125 =	125	
	Flemming Thrane, tech., Mar. 11, 1 day @ 100 =	100	
	Bernie Marini, " , Apr. 1, 1 day @ 100 =	100	
	Doug Washburn, helper, Apr. 1, 1 day @ 80 =	80	
			3405
2.	Expenses		
	Meals, accommodations, travel expenses =	511	
	Camp charges: 20 man days @ 45/man day =	900	
			1411
3.	Charter Aircraft		
	Fixed wing (ALCAN) supply and personnel flights =	1158	
	Helicopter (TNTA) 12.8 hrs. @ 450 =	5760	
			6918
4.	Equipment Rentals		
	MaxMin II + backup: 2 x 4 days @ 50/day =	400	
	Phoenix VLF + backup: 2 x 4 days @ 15/day =	120	
	Unimag I + Unimag II: 2 x 4 days @ 15/day =	120	
	EDM + T16 theodolite (per rental from Norman Wade):	303	
	Sodin gravity meter (per rental from Sodin):	300	
			1243
5.	Charges per survey day (towards drafting, report, supervision)		
	5 days geophysical survey @ 200 =	1000	
			1000
	TOTAL EXPENDITURES		13977

Appendix II

Certification

I, Alan R. Scott, of 4013 W. 14th Avenue, Vancouver, B.C., am employed as a professional geophysicist by Anaconda Canada Exploration Ltd. and have knowledge of the work performed and costs incurred per this report. I further attest that:

1. I graduated with a B.Sc. (geophysics) from the University of B.C. in 1970.

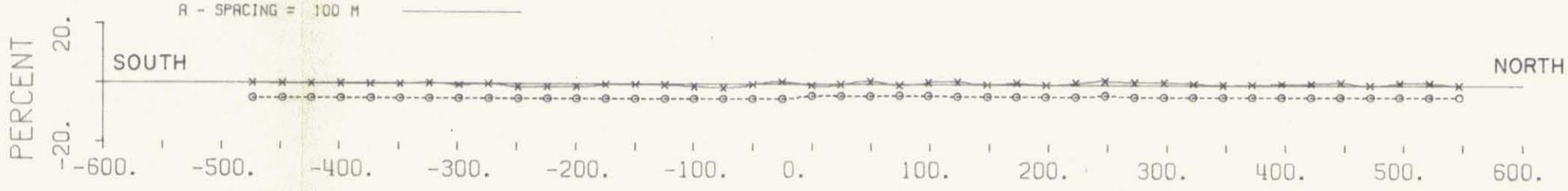
2. That I am a member of the Society of Exploration Geophysicists, and of the Association of Professional Engineers, Geologists, and Geophysicists of the Province of Saskatchewan.

3. That I have been practicing my profession for the past twelve years.

Alan R. Scott
P. Geophysicist

HORIZONTAL LOOP - EM

FREQUENCY: 444 HERTZ
I/P: SOLID LINE
O/P: DASHED LINE
A - SPACING = 100 M



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O/P: DASHED LINE
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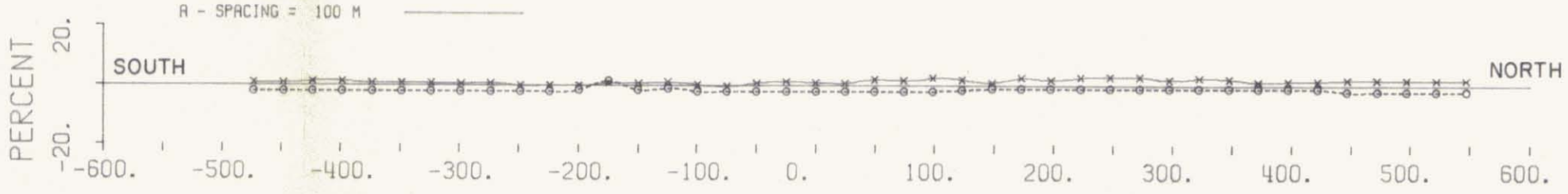

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O/P: DASHED LINE
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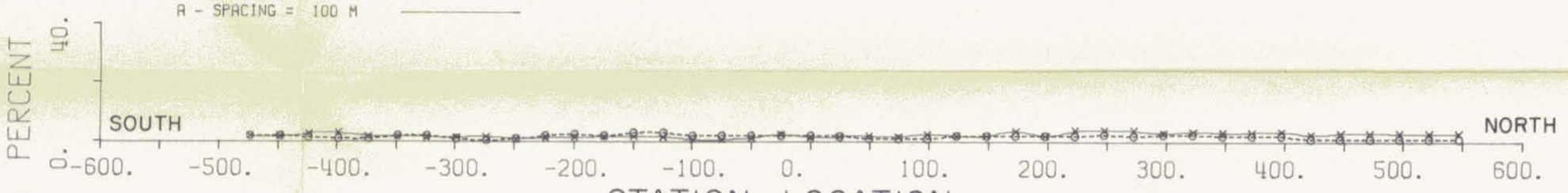
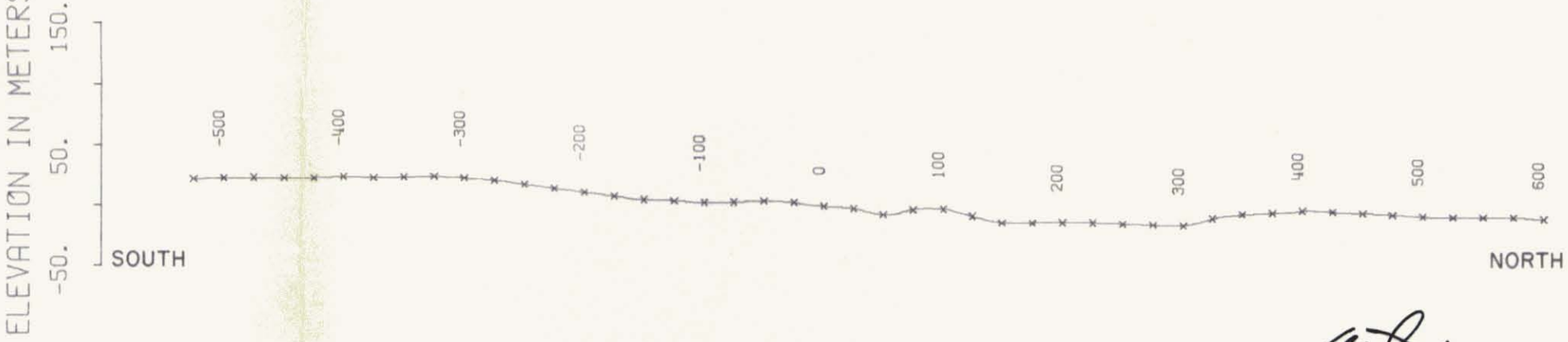


STATION LOCATION

SELWYN PROJECT -- CLARE LINE 400 EAST

TOPOGRAPHY



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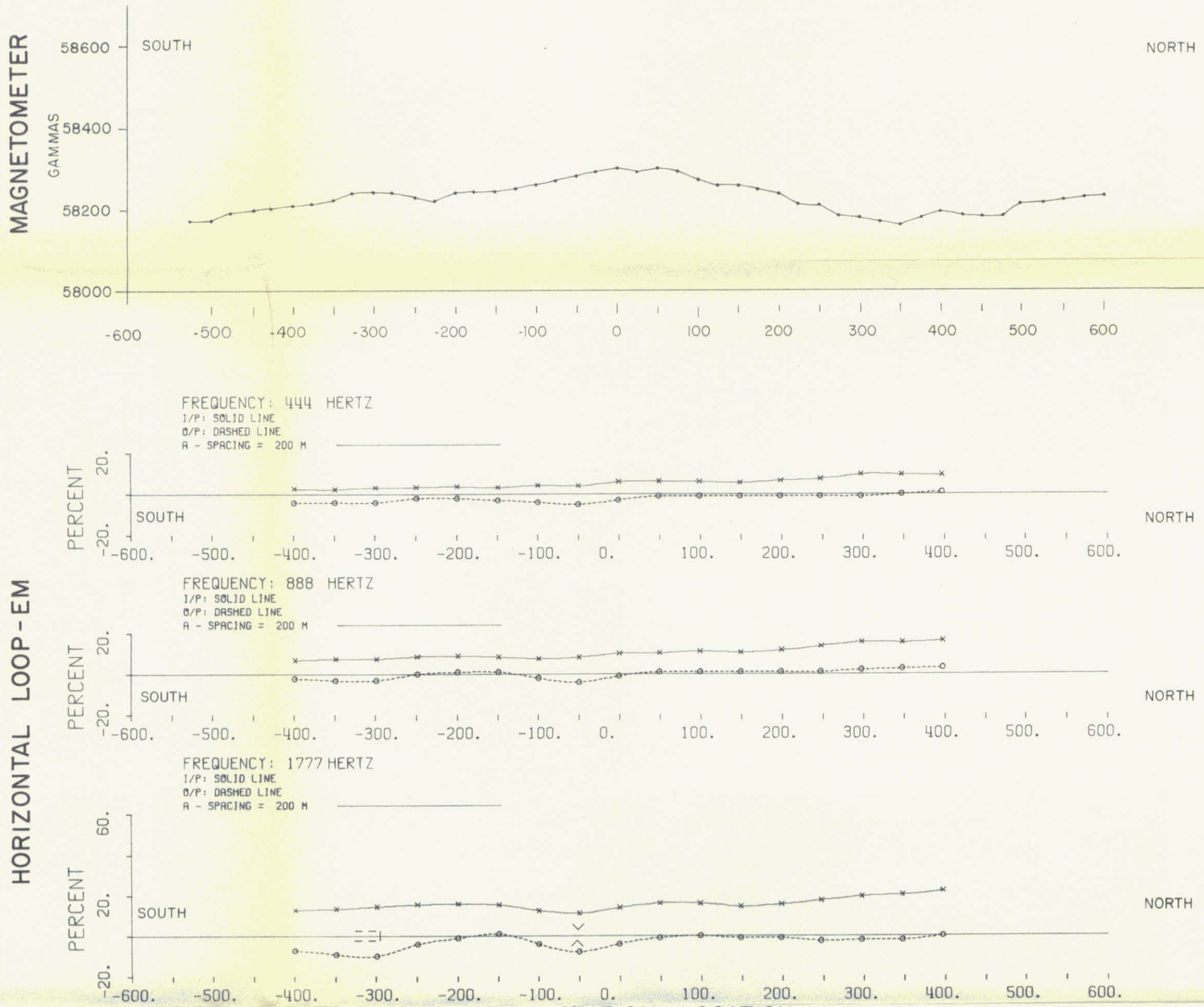
SELWYN PROJECT

GEOPHYSICAL SURVEY PROFILES

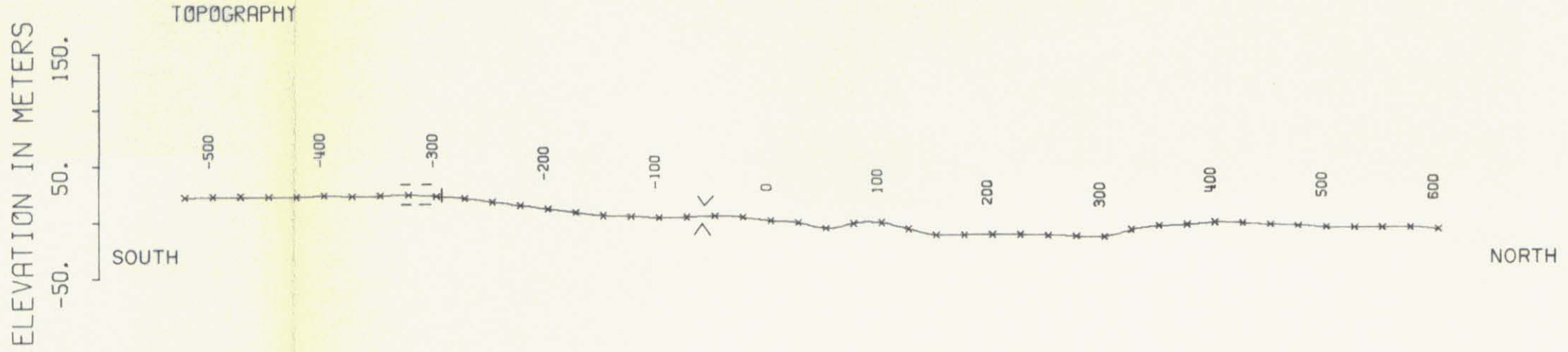
CLARE CLAIMS

LINE CLARE-400 E

Compilation by :	Drawn by : C.D.	Date : APRIL 1982
Scale : 1 : 5000	N.T.S. 105 L-15	Drawing No. 3 of 7



SELWYN PROJECT -- CLARE LINE 400 EAST



LEGEND

HLEM Conductor (O/P - 1777 Hz)

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SELWYN PROJECT

GEOPHYSICAL SURVEY PROFILES

CLARE CLAIMS

LINE CLARE-400 E

Compilation by :	Drawn by : C.D.	Date : APRIL 1982
Scale : 1 = 5000	N.T.S. 105 L-15	Drawing No. 4 of 7

HORIZONTAL LOOP-EM

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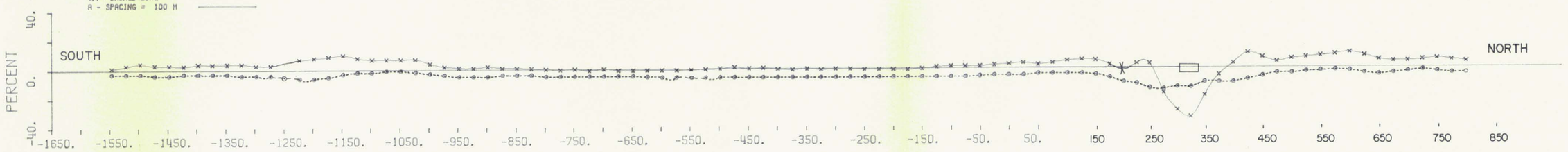
O/P: DASHED LINE
A - SPACING = 100 M



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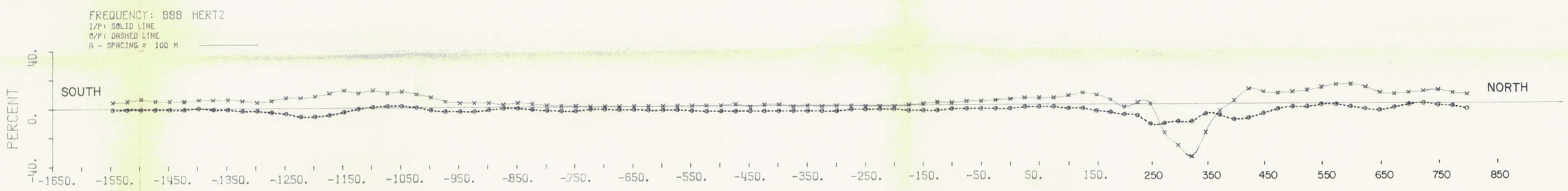
A - SPACING = 100 M



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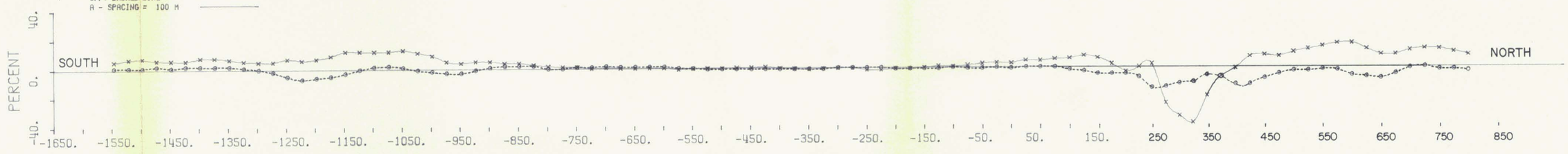
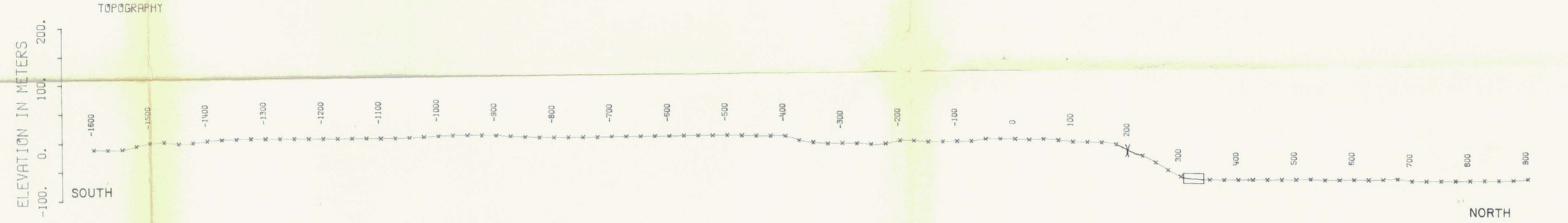
O/P: DASHED LINE
A - SPACING = 100 M



STATION LOCATION

SELWYN PROJECT -- CLARE LINE 300 WEST

TOPOGRAPHY



LEGEND

HLEM Conductor (I/P - 444 Hz)

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ANACONDA Canada Exploration Ltd.

SELWYN PROJECT
GEOPHYSICAL SURVEY PROFILES
CLARE CLAIMS
LINE CLARE-300 W

Compilation by :	Drawn by : C.D.	Date : APR. 1982
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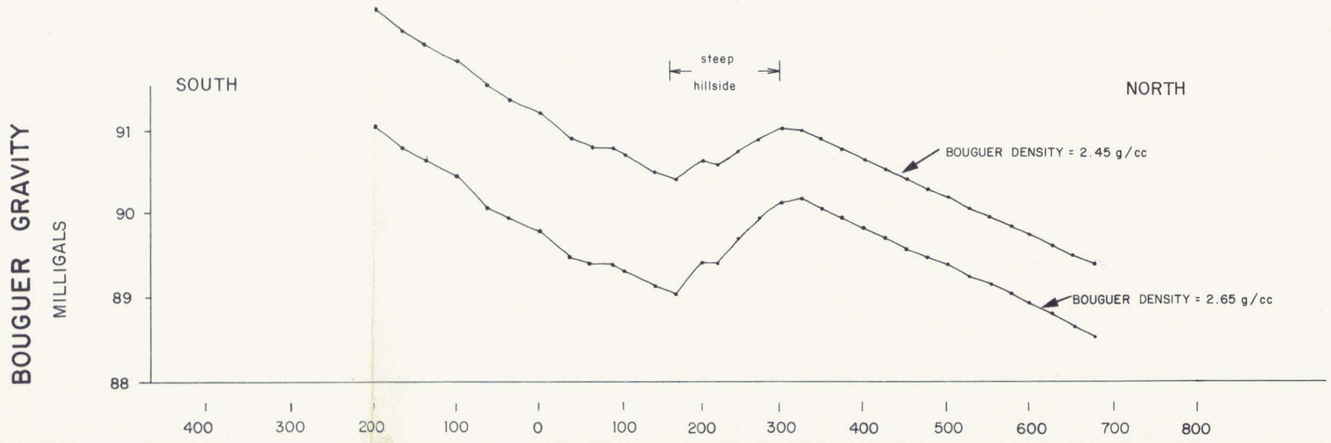
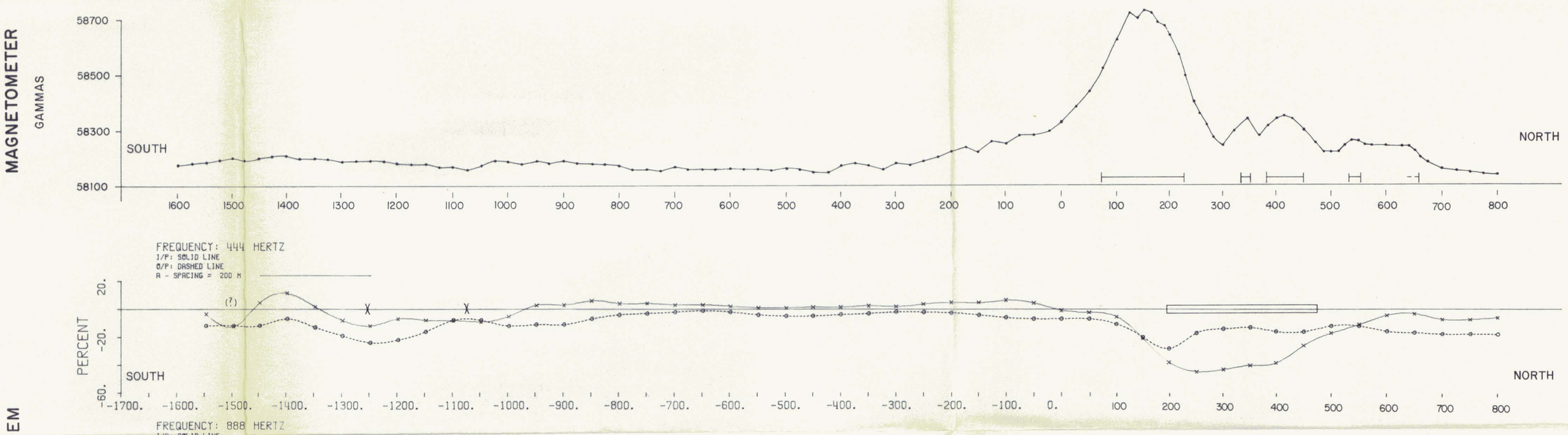
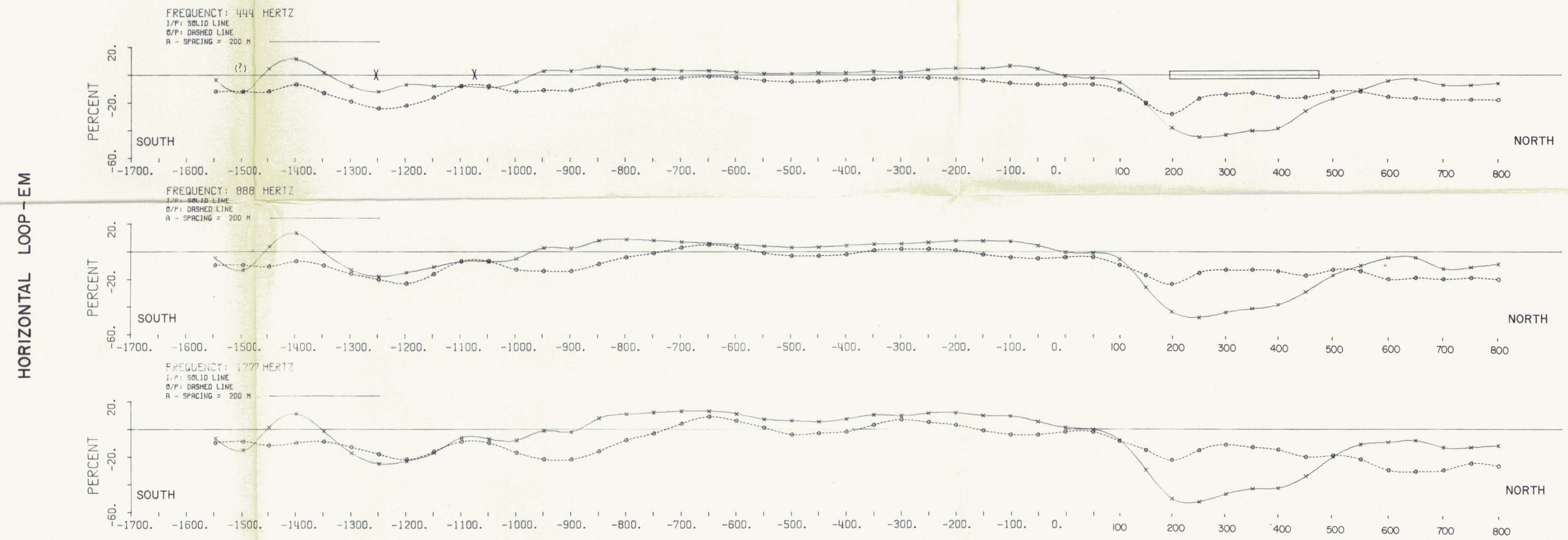
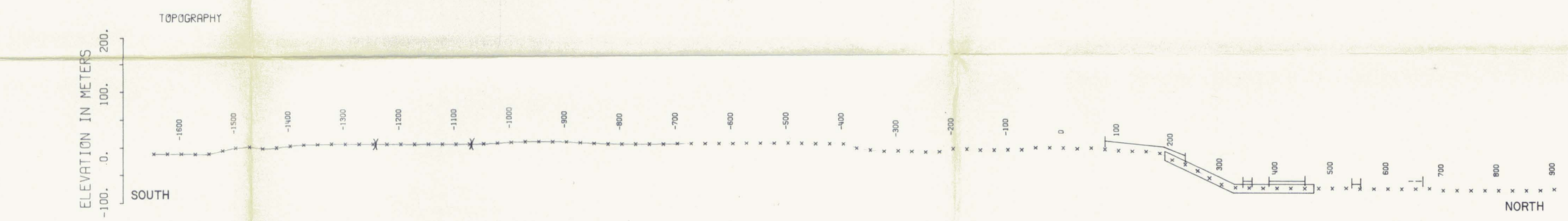






SELWYN PROJECT -- CLARE LINE 300 WEST



LEGEND

Magnetic Anomaly

HLEM Conductor (I/P - 444 Hz)

091037

ANACONDA Canada Exploration Ltd.

SELWYN PROJECT

GEOPHYSICAL SURVEY PROFILES

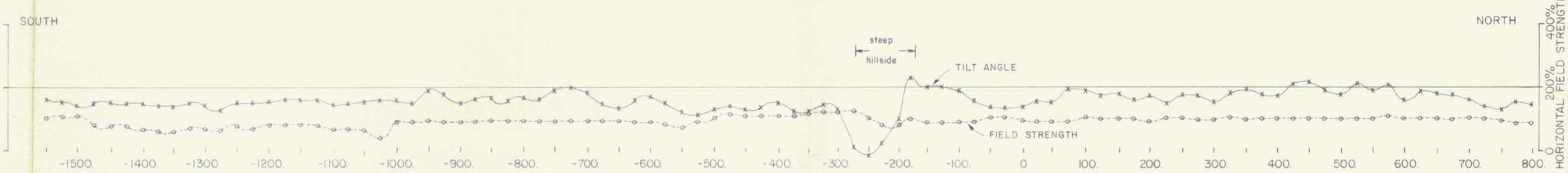
CLARE CLAIMS

LINE CLARE-300 W

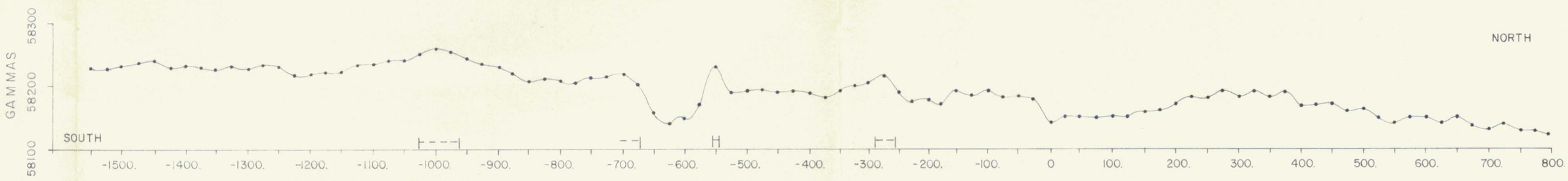
Compilation by :	Drawn by : C.D.	Date : APR. 1982
Scale : 1:5000	N.T.S. 105 L-15	Drawing No. 6 of 7

VLF-EM

IN PHASE TILT ANGLE
RIGHT WAVE CROSSOVER



MAGNETOMETER



HORIZONTAL LOOP-EM

FREQUENCY: 444 HERTZ
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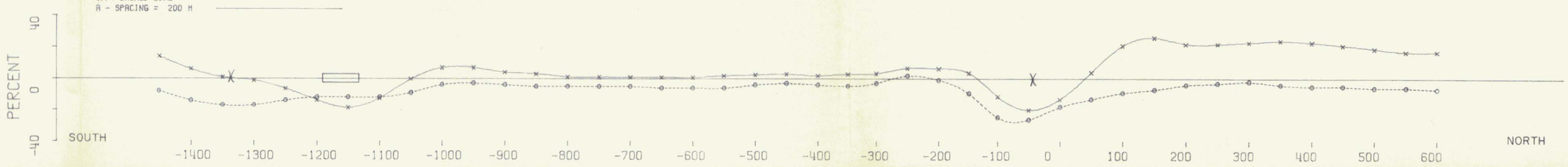
O/P: DASHED LINE
A - SPACING = 200 M



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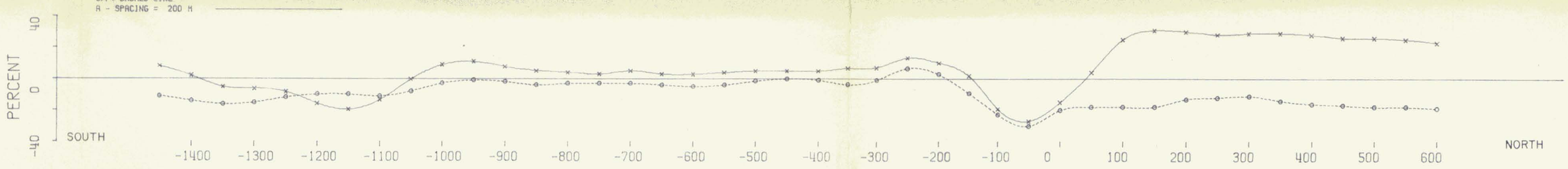

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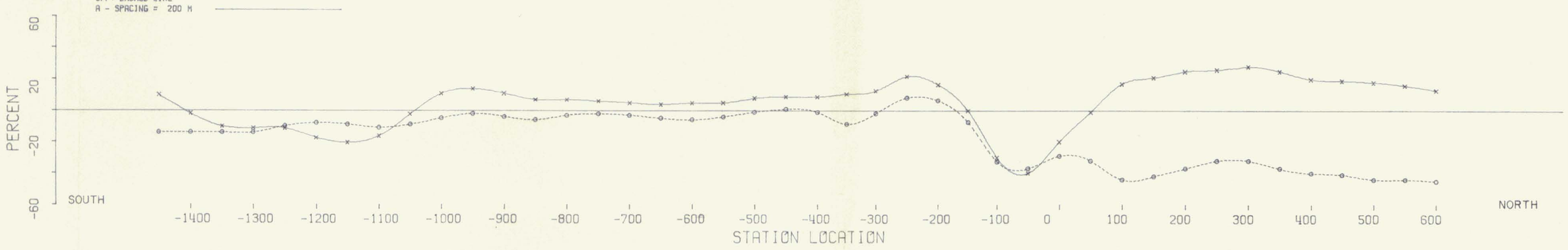
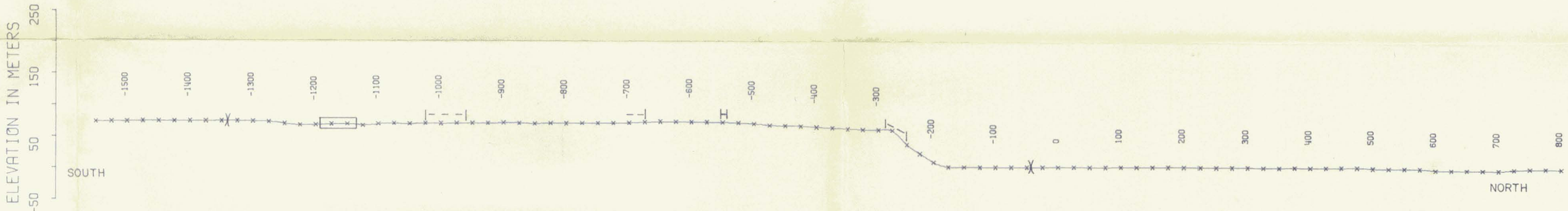


SELWYN PROJECT -- LINE CLARE 900 WEST

TOPOGRAPHY



LEGEND

- Magnetic Anomaly
- HLEM Conductor (I/P - 444 Hz)

091037

ANACONDA Canada Exploration Ltd.

SELWYN PROJECT
GEOPHYSICAL SURVEY PROFILES
CLARE CLAIMS
LINE CLARE-900 W

geology by:	drawn by: C.D.	date: APRIL 1982
scale: 1 : 5000	n.t.s. 105 L-15	drawing no. 7 of 7