WESTMIN

1993 ASSESSMENT REPORT

VOLUME II

BELL CREEK PROPERTY
(BELL, BELL 1 TO 12, ROCHE, PASAYTEN, STAR, STAR 1, TELL, TELL 1, AU CLAIMS)

GEOLOGICAL MAPPING, LITHOGEOCHEMICAL SAMPLING, SOIL SAMPLING, MAGNETOMETER AND HORIZONTAL LOOP EM SURVEYS

SIMILKAMEEN MINING DIVISION
NTS 92H/2
LATITUDE 49° 08' N, LONGITUDE 120° 38' W

CLAIM OWNERS
STEVE TODORUK, DOUG FULCHER AND MIKE STAMMERS
PAMICON DEVELOPMENTS LTD.

OPERATOR
WESTMIN RESOURCES LIMITED

REPORT BY
MURRAY I. JONES, M.Sc., P.Geo.
WESTMIN RESOURCES LIMITED

MARCH 28, 1994

VOLUME II

GEOPHYSICAL REPORT

RPT/94-004

GEOPHYSICAL REPORT

BELL CREEK PROJECT
EASTGATE, S.W. BRITISH COLUMBIA

NTS. 92H 2E

FOR

WESTMIN RESOURCES LIMITED

BY

DELTA GEOSCIENCE LTD.

DECEMBER 8, 1993.

GRANT A. HENDRICKSON, P.GEO.

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INTRODUCTION

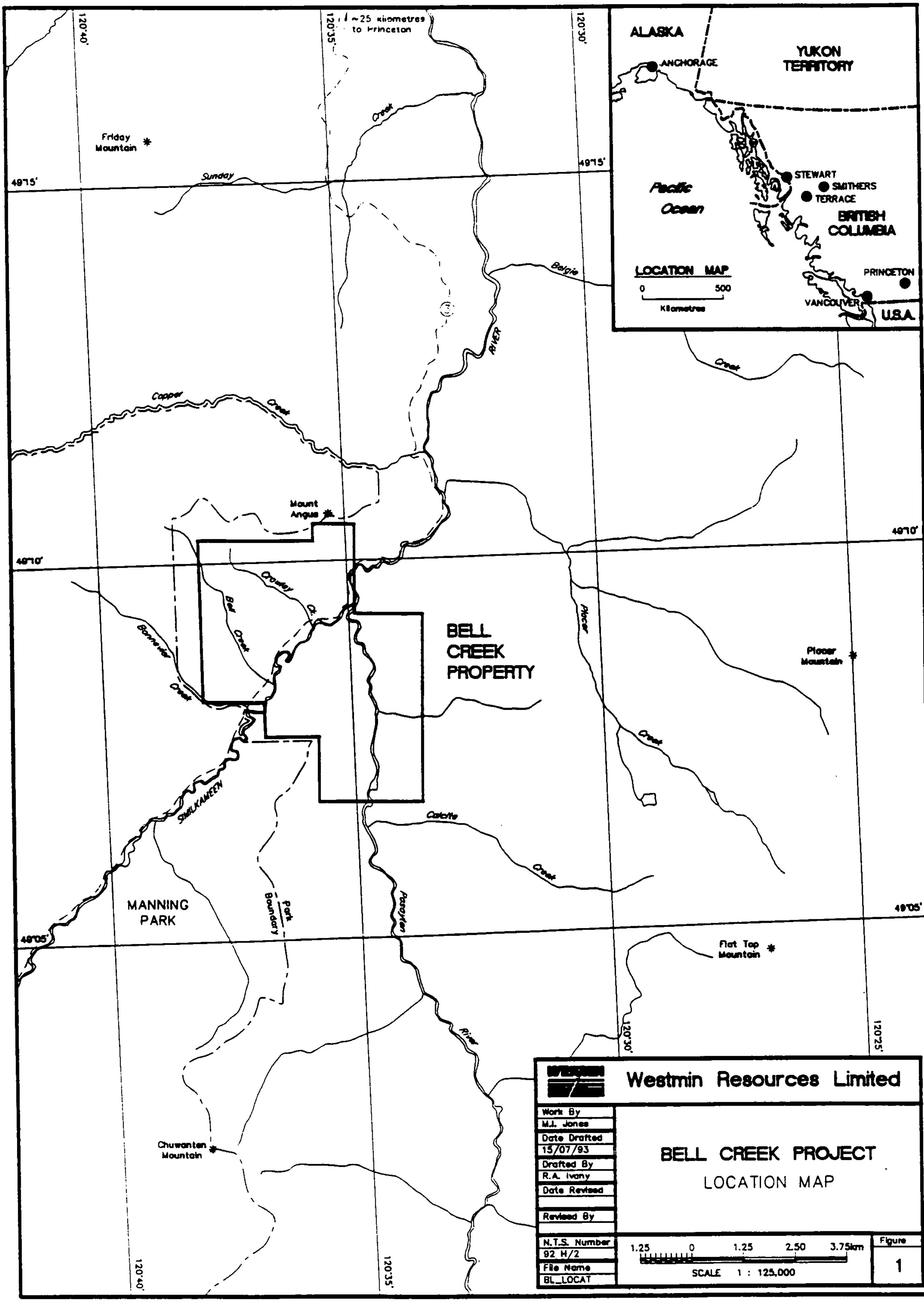
At the request of Westmin Resources Limited, Delta Geoscience has conducted Horizontal Loop EM (Maxmin), VLF-EM and Magnetic surveys of the Bell Creek area. The survey area is located just east of Manning Park, B.C.

The exploration target is volcanogenic massive sulphide style mineralization hosted in Nicola group rocks.

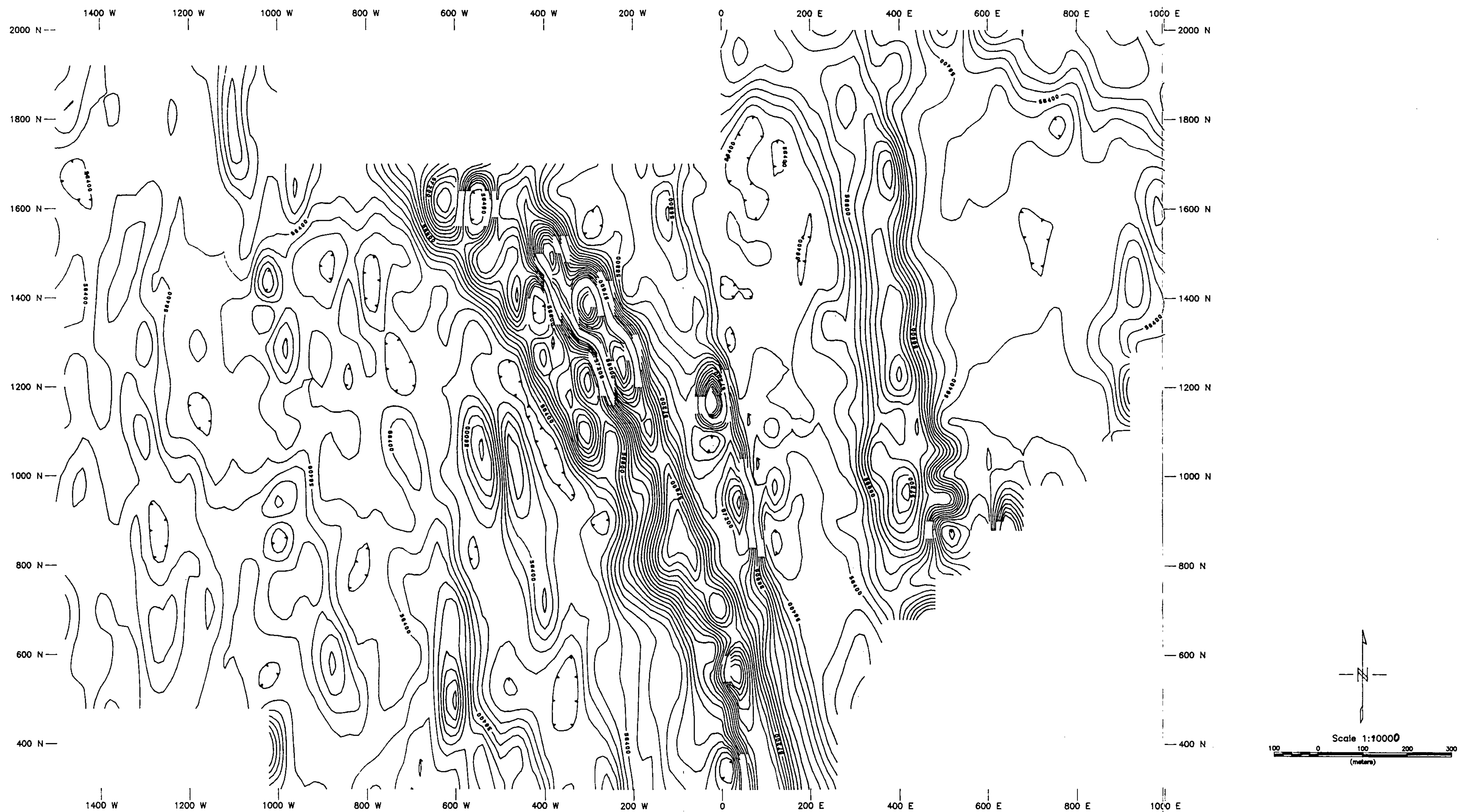
The geophysical work described in this brief report was conducted during the period September 26 to October 5, 1993.

In all, 41 kms of VLF-MAG surveying and 15 km of Horizontal Loop EM surveying were completed.

The survey area can be described as rolling sub-mountainous terrain, with extensive forest cover. Overburden thickness is generally minimal, likely averaging less than 10 meters.



~25 kilometres to Princeton
120°40'
120°35'
120°30'
120°25'
49°15'
49°10'
49°05'
Friday Mountain
Sunday
Creek
Belgie
RIVER
Copper
Creek
Mount Angus
Crowley Ck
Bell Creek
Bonnevier Creek
BELL CREEK PROPERTY
Placer
Creek
Placer Mountain
SIMILKAMEEN
Calcite
Creek
MANNING PARK
Park Boundary
Pasayten
River
Flat Top Mountain
Chuwanten Mountain
ALASKA
ANCHORAGE
YUKON TERRITORY
Pacific Ocean
STEWART
SMITHERS
TERRACE
BRITISH COLUMBIA
PRINCETON
VANCOUVER
U.S.A.
LOCATION MAP
0
500
Kilometres
Westmin Resources Limited
Work By
M.J. Jones
Date Drafted
15/07/93
Drafted By
R.A. Ivany
Date Revised
Revised By
N.T.S. Number
92 H/2
File Name
BL_LOCAT
BELL CREEK PROJECT
LOCATION MAP
1.25
0
1.25
2.50
3.75km
SCALE 1 : 125,000
Figure
1



WESTMIN RESOURCES LTD

RED STAR & KNOB HILL GRIDS
BELL CREEK PROJECT, MAG. PLAN

EASTGATE, BRITISH COLUMBIA
contour interval 80 nt
Sept. 1993

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FIG. 2

PERSONNEL

Craig Raynes - Geophysicist.
Martin Zahorec - Geologist.

EQUIPMENT

2 - EDA Omni-Plus VLF-EM/Magnetometer Systems.
1 - EDA Omni-IV Base Station Magnetometer.
1 - Maxmin 1-9-MMC Horizontal Loop System.
1 - Toshiba T.3100SX Field Computer.
1 - Fujitsu Printer/Plotter.
1 - 4x4 Toyota Truck.

DATA PRESENTATION

Maps of the Magnetic field strength and Fraser filtered VLF-EM are presented as contour plans. The H.L.E.M., VLF-EM and Magnetics are also presented as stacked profile plans.

Horizontal Loop EM (H.L.E.M) is presented as stacked profile plans of the inphase and quadrature components for each frequency. Conductor axes are shown by bold black lines.

Contour plans give a good view of the spatial intensity and line-to-line correlation of the data, whereas profile plans aid in interpretation, since the profile shape (the wavelength) is directly related to the depth, attitude and width of an anomalous area. In addition, profile plans give an overall view of the data's correlation prior to the introduction of a possible contouring bias. Profile data is presented increasing to the top of the maps (north) from a base level (value at the line position).

A nine point Hanning filter (smoothing) was applied to the grid files prior to producing any of the contoured plans.

SURVEY PROCEDURE

Westmin personnel ensured a grid was established on the property prior to the arrival of the Delta Geoscience crew. Line spacing was generally 100 meters, with station separations slope corrected to 25 meters. In the central area of interest, the line separation was reduced to 50 meters, with a 12.5 meter station separation.

VLF-EM and Magnetic readings were taken at 12.5 meter intervals. The VLF-EM transmitter NLK @ 24.8 khz was chosen as the prime station, since signal strength was excellent and the station location (northwest Washington State) was approximately on strike (35 degrees to the west), with the expected strike of the geological features of interest.

Note that for optimum electromagnetic coupling (detection ability), the conductive features of interest should strike directly towards the VLF-EM transmitter. The selection of the transmitter is generally a compromise between signal strength and station orientation to the grid.

Three components of the VLF-EM field were measured: the horizontal field strength, vertical in-phase and vertical quadrature. The vertical in-phase data was Fraser filtered to produce a conductor plan. Details of the Fraser filter and the newer Hjelt filter are referenced at the back of this report. These filtering techniques accurately define the spatial position of conductive zones and help to reduce topographical effects in the data.

Skin depth is an important parameter of VLF-EM surveying, which must be considered. It is a useful term used to describe the depth of penetration of electromagnetic waves. A good conductor buried at one skin depth will only yield a signal at the surface with an amplitude equal to approximately 10% of the incident signal. Accurate detection of this weak a signal is difficult. Skin depth decreases with an increase in the EM frequency or a decrease in the resistivity of the bedrock and/or overburden. The background horizontal loop EM responses suggest the host rocks of the survey area are moderately resistive, thus the VLF-EM skin depth is likely around 100 meters.

The horizontal co-planar loop EM surveying (H.L.E.M) was done at five frequencies: 7040Hz, 3520Hz, 1760Hz, 440Hz and 220Hz. The main survey coverage was with a 100 meter coil separation, although some detail work was done at a coil separation of 50 meters. The maximum depth of investigation for an H.L.E.M. system is generally considered to be 50% of the coil separation for vertical conductors and 100% of the coil separation for flat lying conductors.

Despite the fact that the grid chaining was slope corrected, some in-phase noise was noticed due to coil separation errors. To some extent, this is unavoidable in mountainous areas. To eliminate this noise, the in-phase response at 220Hz was used as a reference, i.e. the 220Hz in-phase signal was subtracted from the higher frequency in-phase responses. This procedure works well when the conductors of interest are weak to moderate conductors, i.e. no response at 220Hz, which is certainly the case for this survey area. Coil separation errors are essentially the same amplitude for each frequency, therefore the subtraction process largely eliminates the low amplitude coil separation errors from the higher frequency data, without effecting the anomalous responses.

Magnetic field measurements were corrected for any diurnal variation and to a common datum, through the use of the Omni-IV base station magnetometer, which sampled the field every minute for the duration of the magnetic survey. The magnetic field base station was located at co-ordinate 775north/475east. A reference base field of 56000nt was selected.

The H.L.E.M. survey was expected to detect near surface conductivity, possibly related to the known sulphide mineralization outcropping on the grid.

The VLF-EM survey was also expected to respond primarily to shallow sulphide mineralization and moderately to geologic contacts.

The magnetic survey was expected to respond primarily to magnetite mineralization, a common constituent of volcanic rocks. Mafic extrusive and intrusive rocks and their derived sediments normally will have a stronger magnetic response than their felsic counterparts.

The hydrothermal alteration processes that accompany mineralizing events can destroy magnetite mineralization, thus a localized magnetic low can be a significant exploration lead.

DISCUSSION OF THE DATA

Magnetics:

The magnetic field maps are dominated by two relatively strong magnetic zones trending north to northwest. These magnetic horizons appear to be composed of multiple thin discontinuous lenses of high magnetic susceptibility, which may reflect a poorly developed banded iron formation. The similarity of the two main steeply west dipping magnetic horizons suggest they may have the same origin and are repeated through faulting and/or folding. Significant horizontal loop EM and VLF-EM conductors closely follow the eastern edge of these two main magnetic horizons.

The broadening and east-west orientation of the magnetic contours at the extreme north edge of the grid is likely related to the Princeton group rocks, which are starting to unconformably overlay the Nicola rocks.

VLF-EM:

The Fraser filtered contour map shows a strong north trend to the VLF-EM conductors. Significant VLF conductors should have a filter value in excess of 10%. The stronger VLF responses correlate very well with the limited H.L.E.M. survey. There is a noticeable, although discontinuous correlation of the strongest VLF responses to a roughly north-east direction, which may indicate a significant underlying structure orientated in that direction. The east-west orientation of the VLF-EM contours at the extreme north central edge of the grid is likely outlining the southern edge of the unconformably overlying Princeton group rocks.

In general, the VLF-EM data suggests a very steep west or vertical dip to the conductors.

Horizontal Co-Planar Loop E.M (H.L.E.M):

Significant bedrock conductors of moderate to weak conductivity have been accurately outlined by this survey. These conductors, which are outlined by bold black lines on the accompanying maps, are near surface and have good depth extent relative to the coil separation used. The conductor axes are not outlined on the 7040Hz plan. At this frequency, there is some response from the the host rock and overburden, which makes it more difficult to accurately outline the edges of the anomalous bedrock response.

The conductivity thickness product of the two main conductors is generally in the 2 siemens area and the depth less than five meters. Considering the average width of the better conductors, this indicates the conductors have a resistivity in the 5 to 10 ohm-m range - a figure that is quite typical of pyrite and/or graphitic conductors.

The fact that the two main conductors have very similar physical properties and correlate so closely with the east side of the two main magnetic horizons, is significant. This feature does suggest a faulted repeat of the same horizon. Pre-existing sulphide mineralization could have been remobilized and sheared along these postulated fault planes.

The apparent localized thickening of the H.L.E.M. conductors could be a significant exploration lead to possible economic sulphide occurrences. The areas of apparent conductor thickening appear to occur preferentially where there is some north-east deformation (folding) of the northwest trending conductors. The thickening of the H.L.E.M. conductor at 1000N, 125E correlates directly with a minor magnetic anomaly. This correlation may signify magnetic sulphide mineralization pyrrhotite and/or a thin mafic dike imbedded in the conductive horizon.

The H.L.E.M. conductors appear generally to dip steeply to the west, although locally the dip can vary to very steeply east.

The single conductor noted at 1700N, 630E, while unusual, appears to be a shallow, very conductive feature of limited size, possibly a small pipe shaped body. This particular response looks suspiciously like coil separation error, however a comparison of the response at different frequencies in conjunction with the procedure used to remove coil separation errors mentioned earlier, leaves one to suspect that the anomaly has a bedrock source. In addition, a strong circular shaped VLF-EM response closely flanks the east side of this apparent conductor. There is also some evidence for a minor localized magnetic low in this area. Careful ground evaluation is required of this unusual response prior to any drilling.

CONCLUSION AND RECOMMENDATIONS

The near surface nature of the thicker H.L.E.M. conductors suggest a surface trenching program will reveal the source of the conductivity. Depth extent of the main H.L.E.M. anomalies appears good relative to the coil separation, thus good trenching results should encourage a drilling program.

Significant zones of non-conductive zinc mineralization could flank the main conductors, thus trenching and drilling programs should be designed to also cover the areas immediately adjacent to the main conductors.

The stronger isolated VLF-EM responses on the west side of the grid should be evaluated with an additional H.L.E.M. survey, prior to any drilling.

The combined MAG/VLF/H.L.E.M. survey of this area has been a cost effective exploration procedure.

Grant A. Hendrickson, P.Geo.

REFERENCES

Fraser, D.C., 1969: Contouring of VLF-EM Data: Geophysics 34, 958-967.

Karous. M., and Hjelt, S.E., 1983: Linear Filtering of V.L.F. Dip-Angle Measurements: Geophysical Prospecting.

Ogilvy, R.D., and Lee, A.C., 1991: Interpretation of VLF-EM In-Phase Data using Current Density Pseudosections: Geophysical Prospecting 39, 567-580.

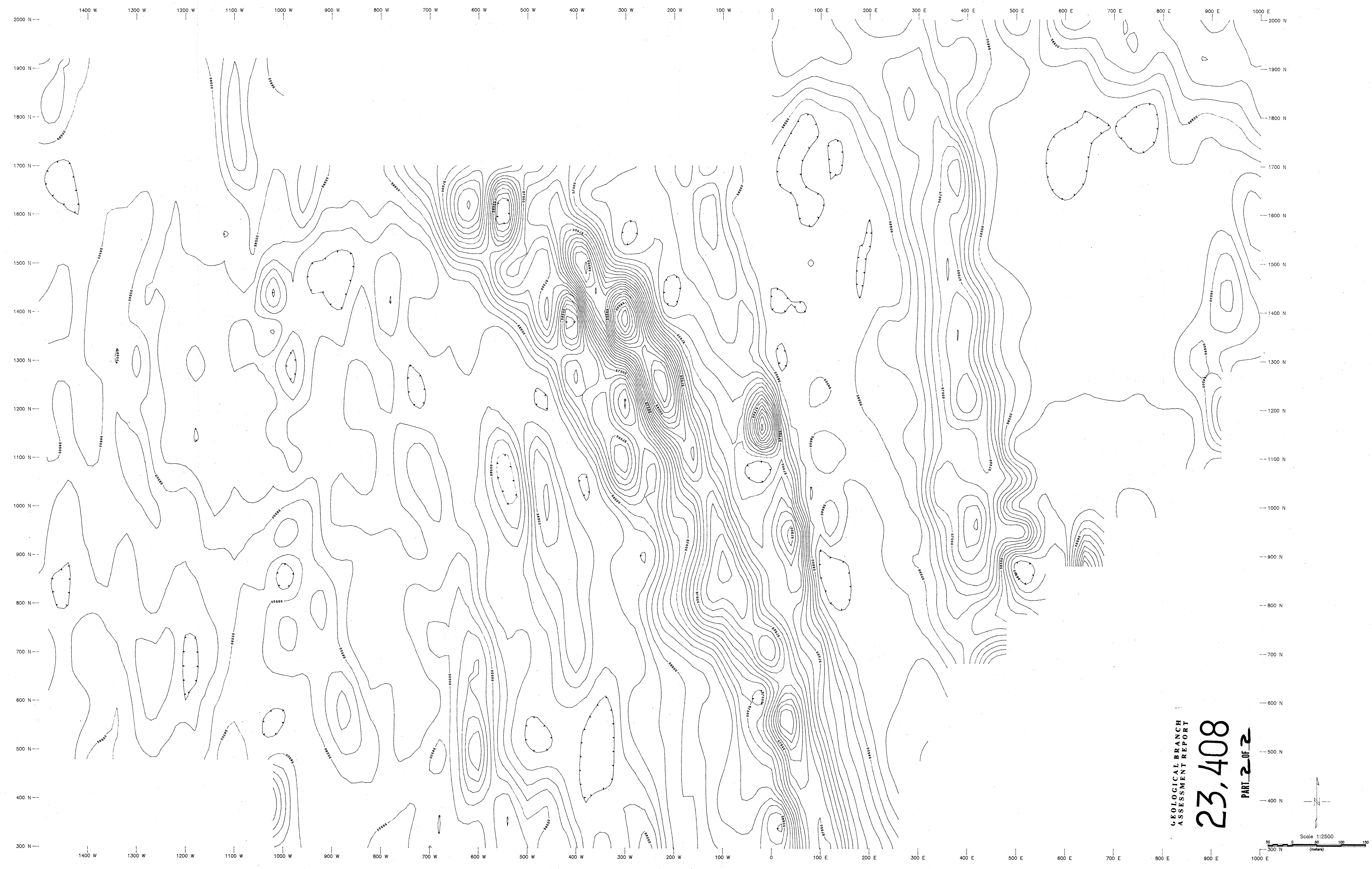
STATEMENT OF QUALIFICATIONS

Grant A. Hendrickson.

- B.Science, University of British Columbia, Canada, 1971, Geophysics option.
- For the past 22 years, I have been actively involved in mineral exploration projects throughout Canada, the United States, Europe and Central and South America.
- Registered as a Professional Geoscientist with the Association of Professional Engineers and Geoscientists of the Province of British Columbia, Canada.
- Registered as a Professional Geophysicist with the Association of Professional Engineers, Geologists and Geophysicsts of Alberta, Canada.
- Active member of the Society of Exploration Geophysicsts, European Association of Exploration Geophysicists and the British Columbia Geophysical Society.

Dated at Delta, British Columbia, Canada, this 8 day of Dec, 1993.

Grant A. Hendrickson, P.Geo.



GEOLOGICAL BRANCH
ASSESSMENT REPORT

23,408

PART 2 OF 2

WESTMIN RESOURCES LTD

RED STAR & KNOB HILL MAG. PLAN
BELL CREEK PROJECT

EASTGATE, BRITISH COLUMBIA
Contour interval 100 nt
Sept. 1993

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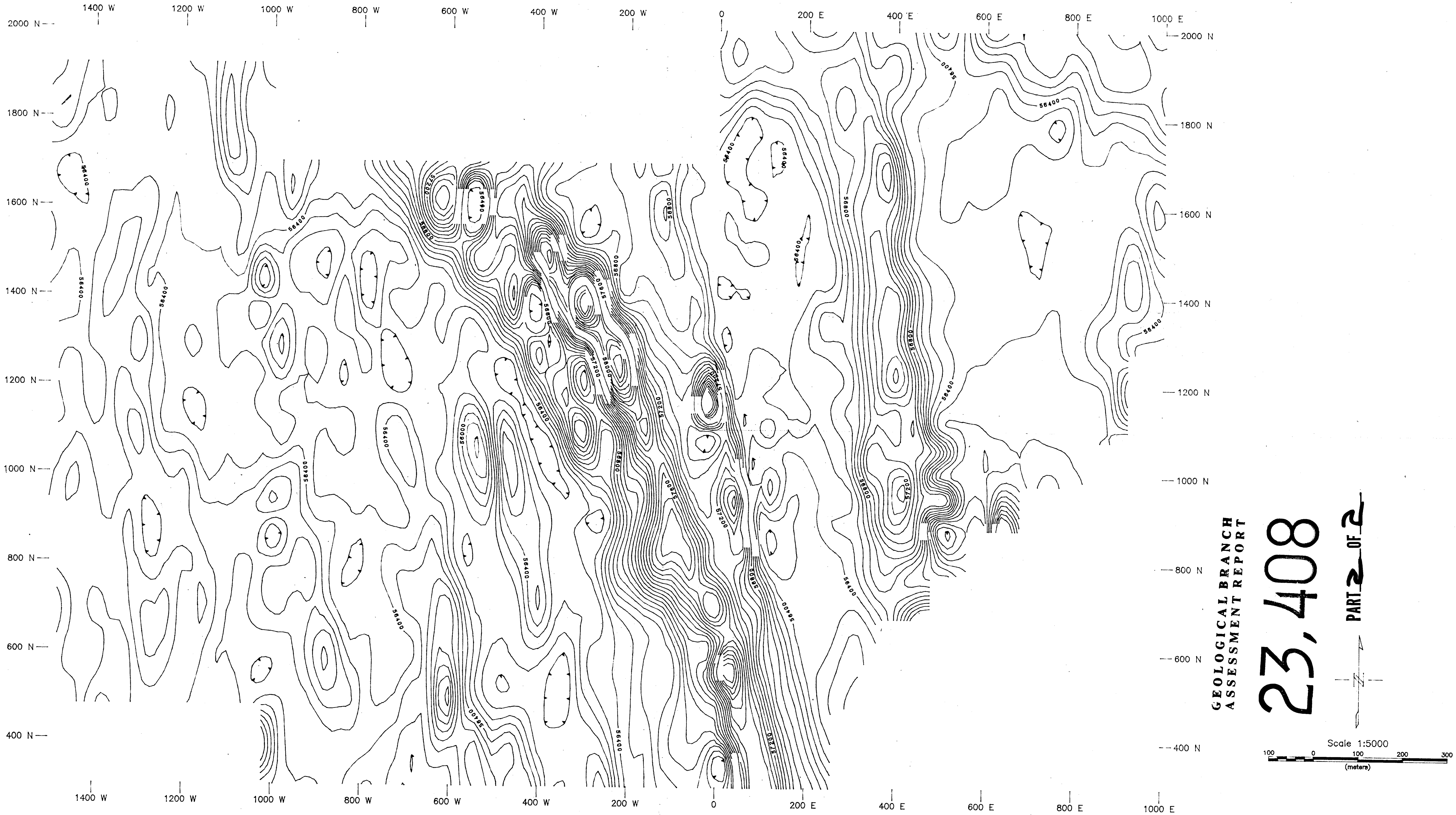
FIG 3.



GEOLOGICAL BRANCH
ASSESSMENT REPORT

23,408

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WESTMIN RESOURCES LTD

RED STAR & KNOB HILL GRIDS
BELL CREEK PROJECT, MAG. PLAN

EASTGATE, BRITISH COLUMBIA
contour interval 80 nt
Sept. 1993

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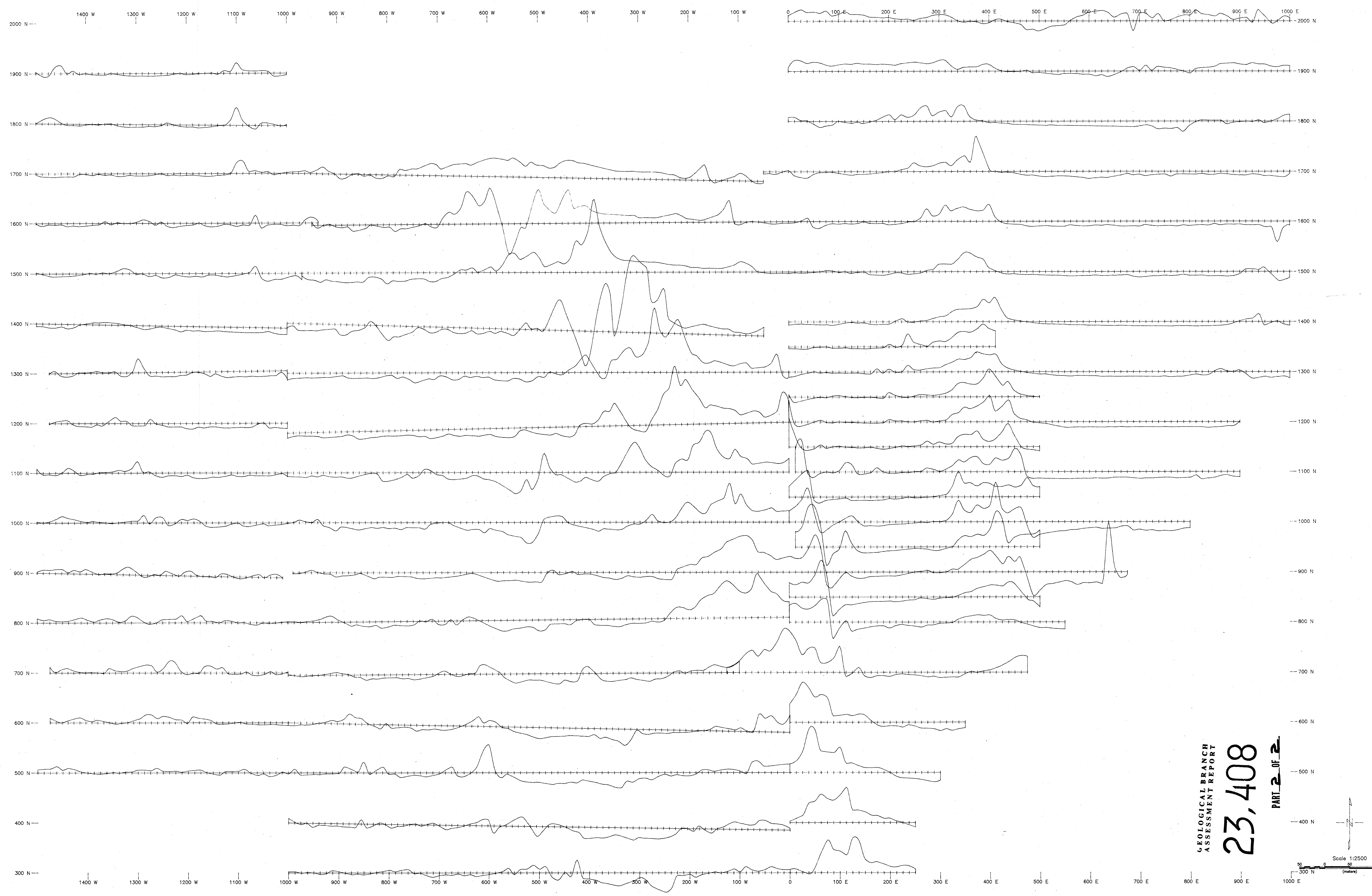
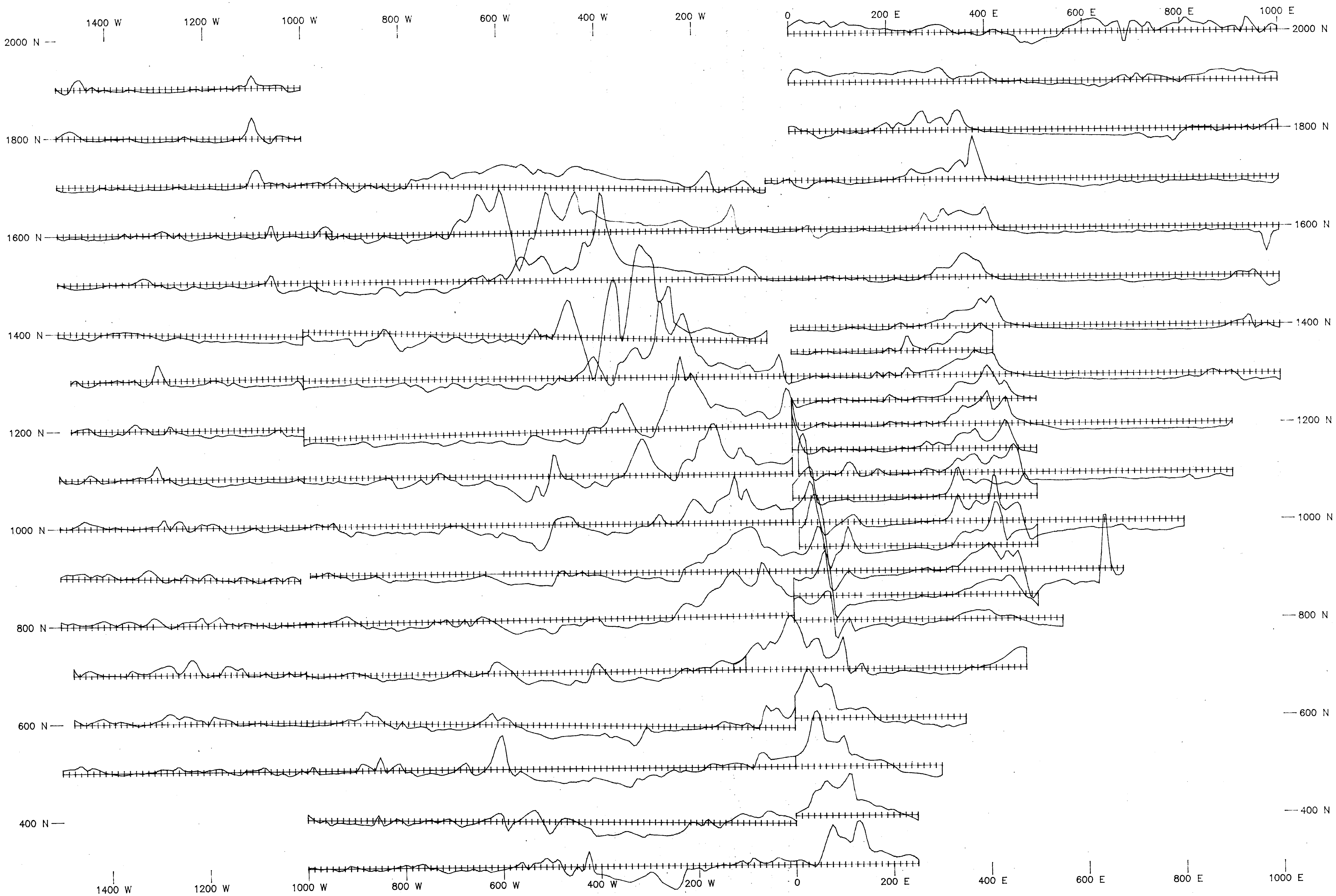
FIG. 4



WESTMIN RESOURCES LTD
RED STAR & KNOB HILL GRIDS BELL CREEK PROJECT, MAG. PROFILES
EASTGATE, BRITISH COLUMBIA 1 cm = 500 nt, base 56500 nt Sept. 1993
DELTA GEOSCIENCE LTD

FIG. 5



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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Scale 1:5000

100 0 100 200 300
(meters)

WESTMIN RESOURCES LTD

RED STAR & KNOB HILL GRIDS
BELL CREEK PROJECT, MAG. PROFILES

EASTGATE, BRITISH COLUMBIA
1 cm = 800 nt, base 56500 nt
Sept. 1993

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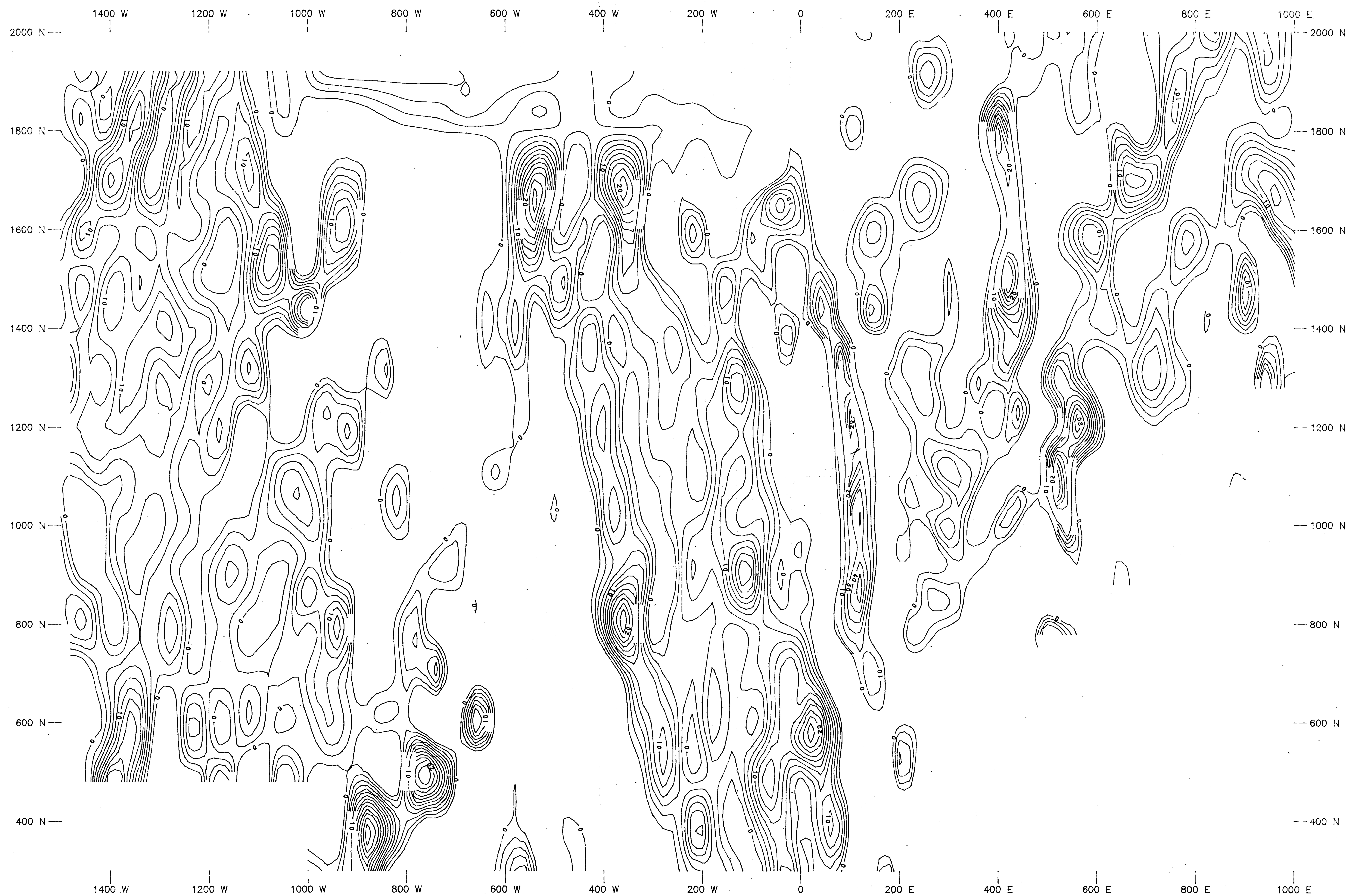
FIG. 6



GEOLOGICAL BRANCH
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Scale 1:5000

100 0 100 200 300
(meters)

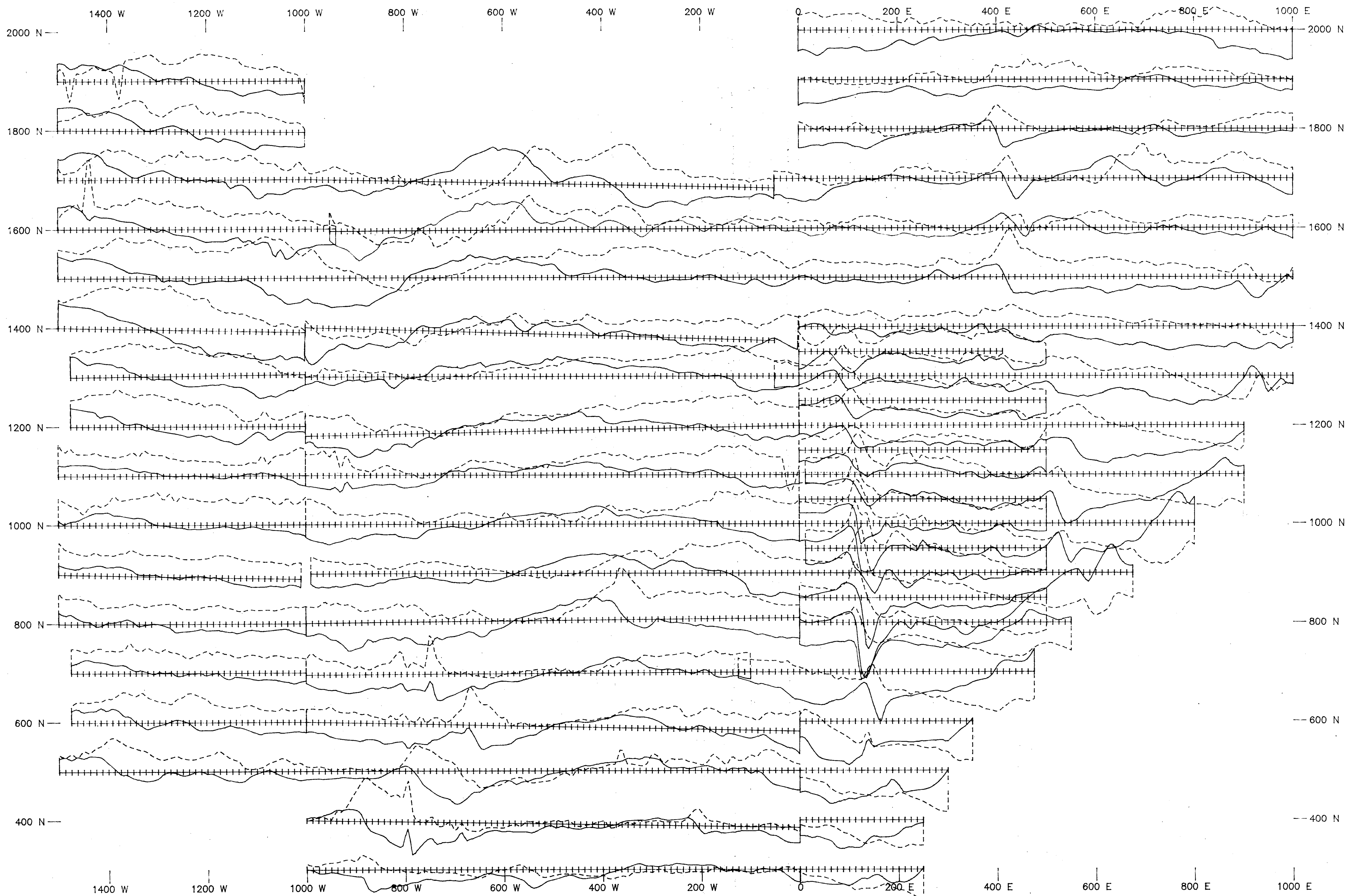
WESTMIN RESOURCES LTD

RED STAR & KNOB HILL GRIDS
BELL CREEK PROJECT, VLF (24.8khz)

EASTGATE, BRITISH COLUMBIA
FRASER FILTERED PLAN, contour interval 2%
Sept, 1993

DELTA GEOSCIENCE LTD

FIG. 7



GEOLOGICAL BRANCH
ASSESSMENT REPORT

23,408

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Scale 1:5000

100 0 100 200 300

(meters)

WESTMIN RESOURCES LTD

RED STAR & KNOB HILL GRIDS
BELL CREEK PROJECT, VLF (24.8khz)

EASTGATE, BRITISH COLUMBIA
vert. inphase solid line @ 1cm=30%, base −10
horiz. field strength @ 1cm=100, base=350

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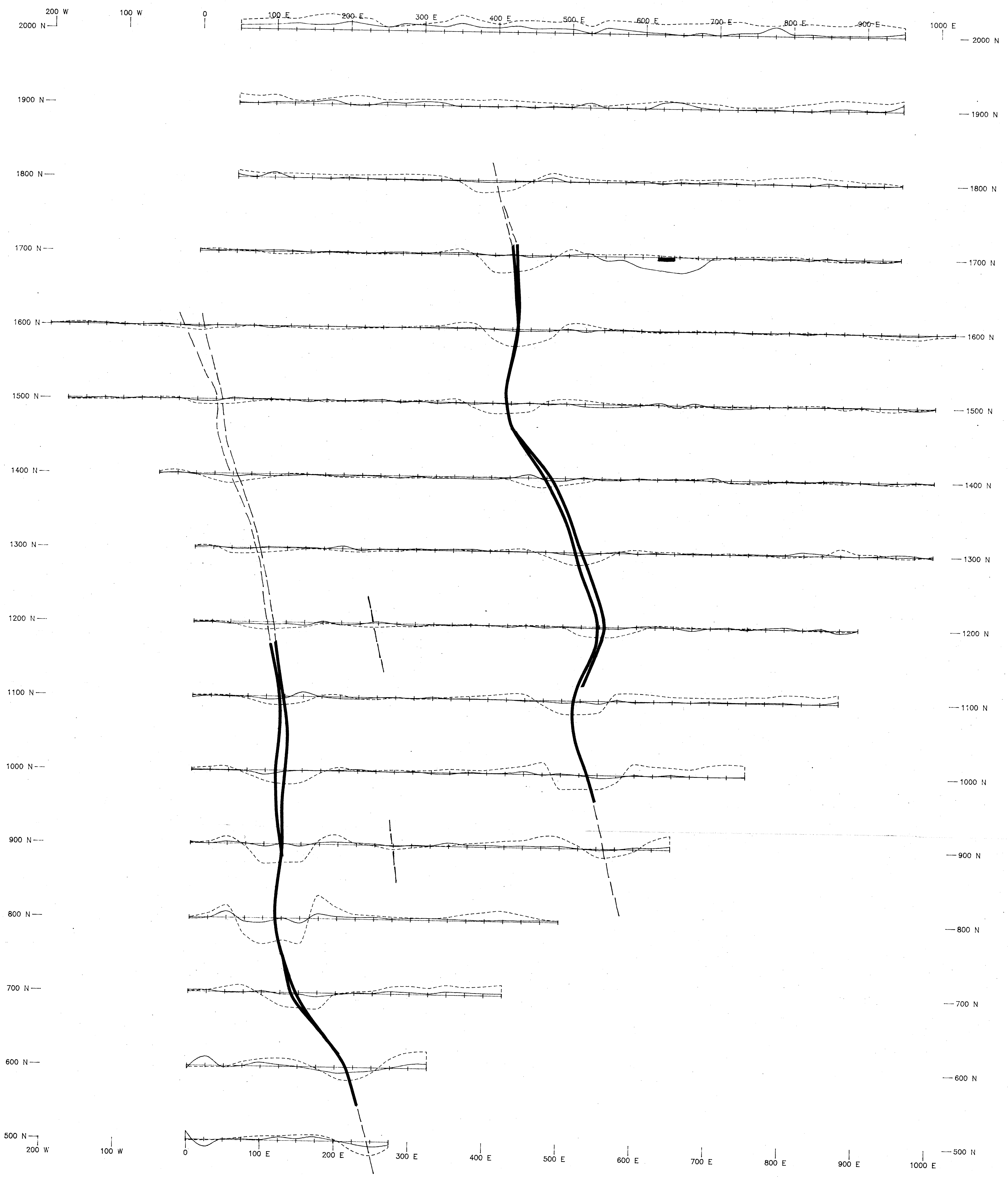
FIG. 8



GEOLOGICAL BRANCH
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Scale 1:2500

50 0 50 100 150

(meters)

WESTMIN RESOURCES LTD

RED STAR GRID

BELL CREEK PROJECT, MAXMIN SURVEY, 440 hz

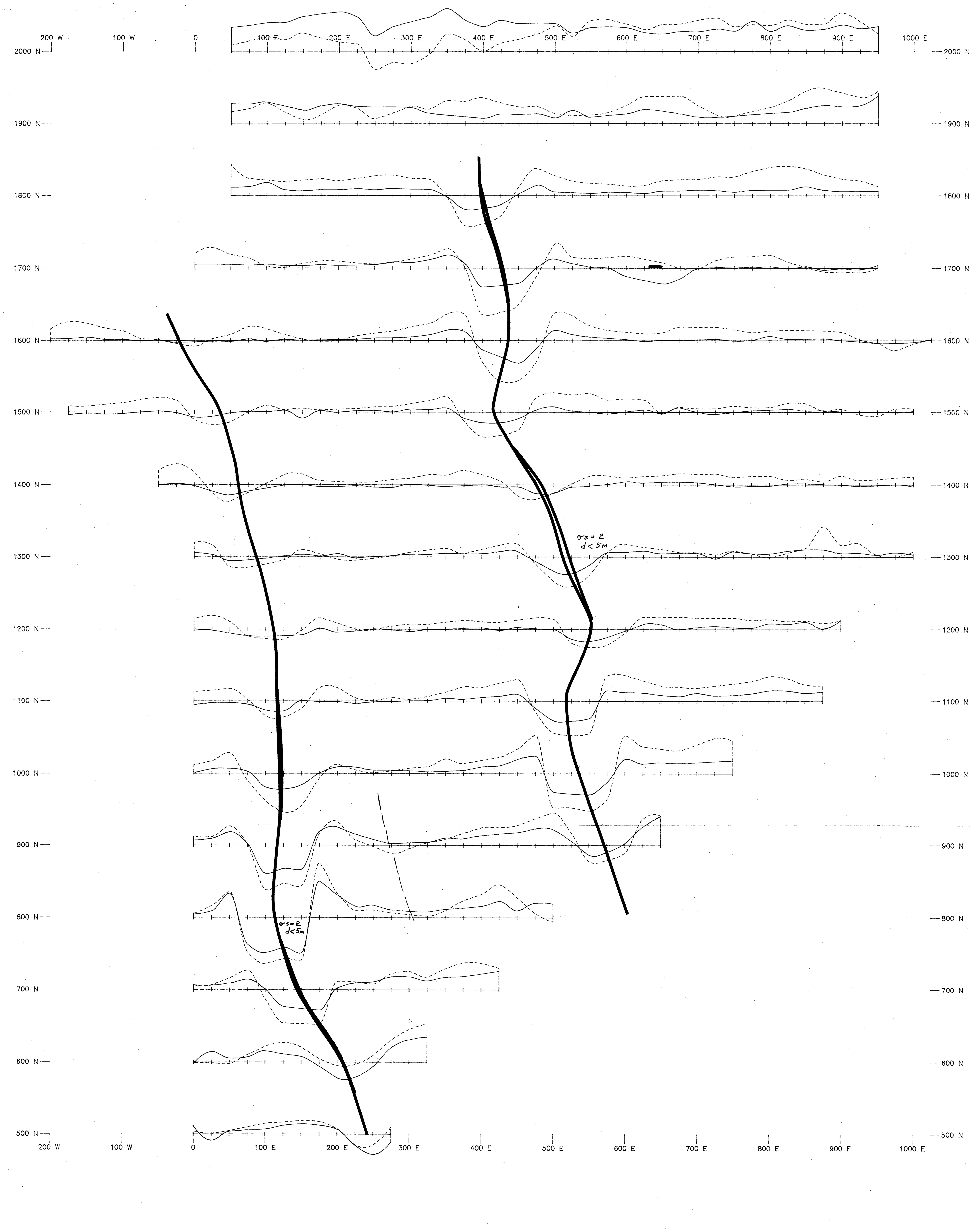
EASTGATE, BRITISH COLUMBIA

Inphase solid line, quadrature dashed, 1cm=20%

100m coil separation, Sept, 1993

DELTA GEOSCIENCE LTD

FIG. 9



GEOLOGICAL BRANCH
ASSESSMENT REPORT

23,408

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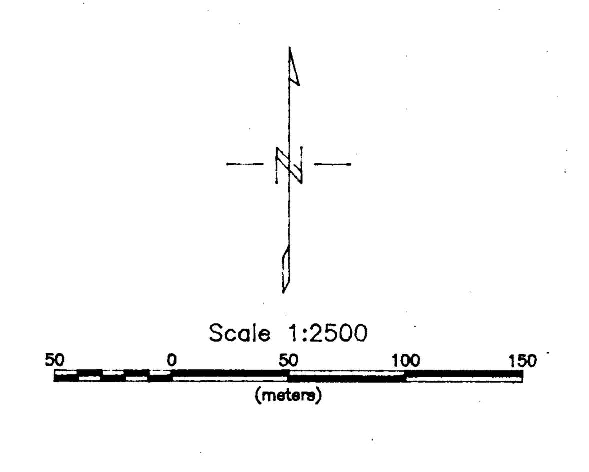


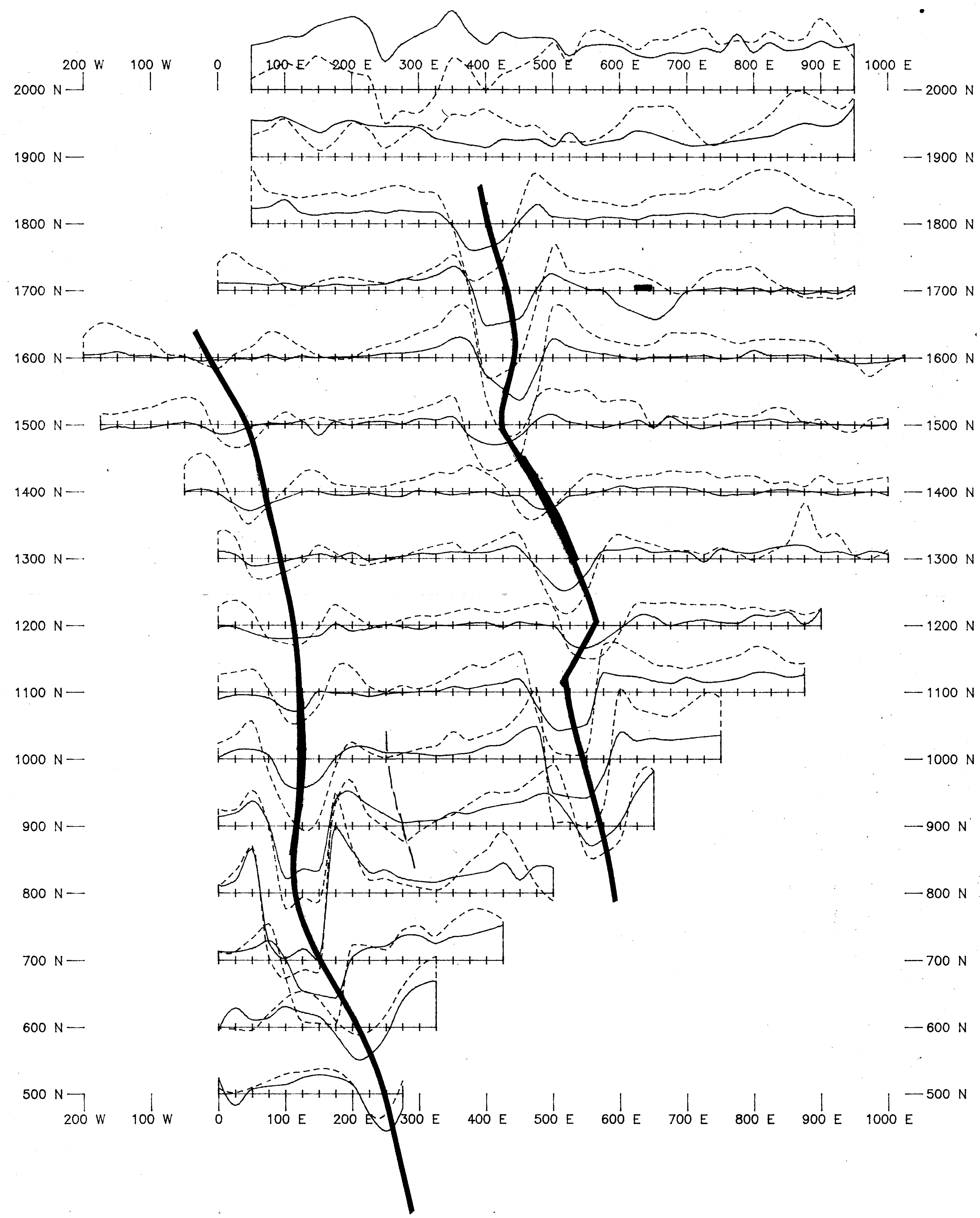
WESTMIN RESOURCES LTD

RED STAR GRID
BELL CREEK PROJECT, MAXMIN SURVEY, 1760 hz

EASTGATE, BRITISH COLUMBIA
inphase solid line, quadrature dashed, 1cm=20%
100m coil separation, Sept, 1993

DELTA GEOSCIENCE LTD

FIG 16



GEOLOGICAL BRANCH
ASSESSMENT REPORT

23,408

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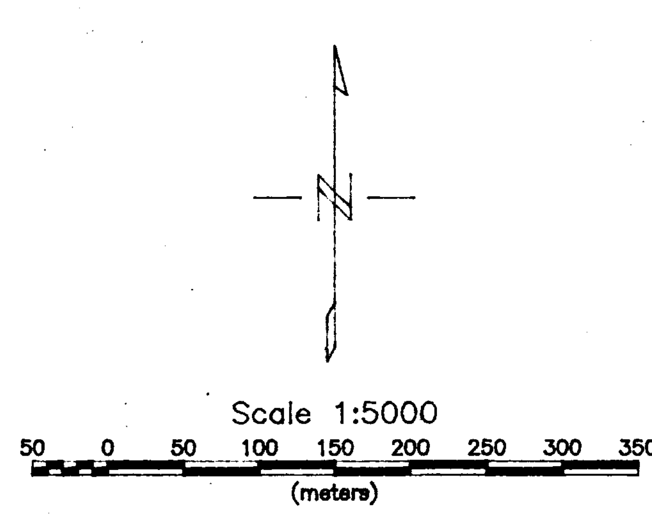

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RED STAR GRID
BELL CREEK PROJECT, MAXMIN SURVEY, 1760 hz

EASTGATE, BRITISH COLUMBIA
inphase solid line, quadrature dashed, 1cm=20%
100m coil separation, Sept, 1993

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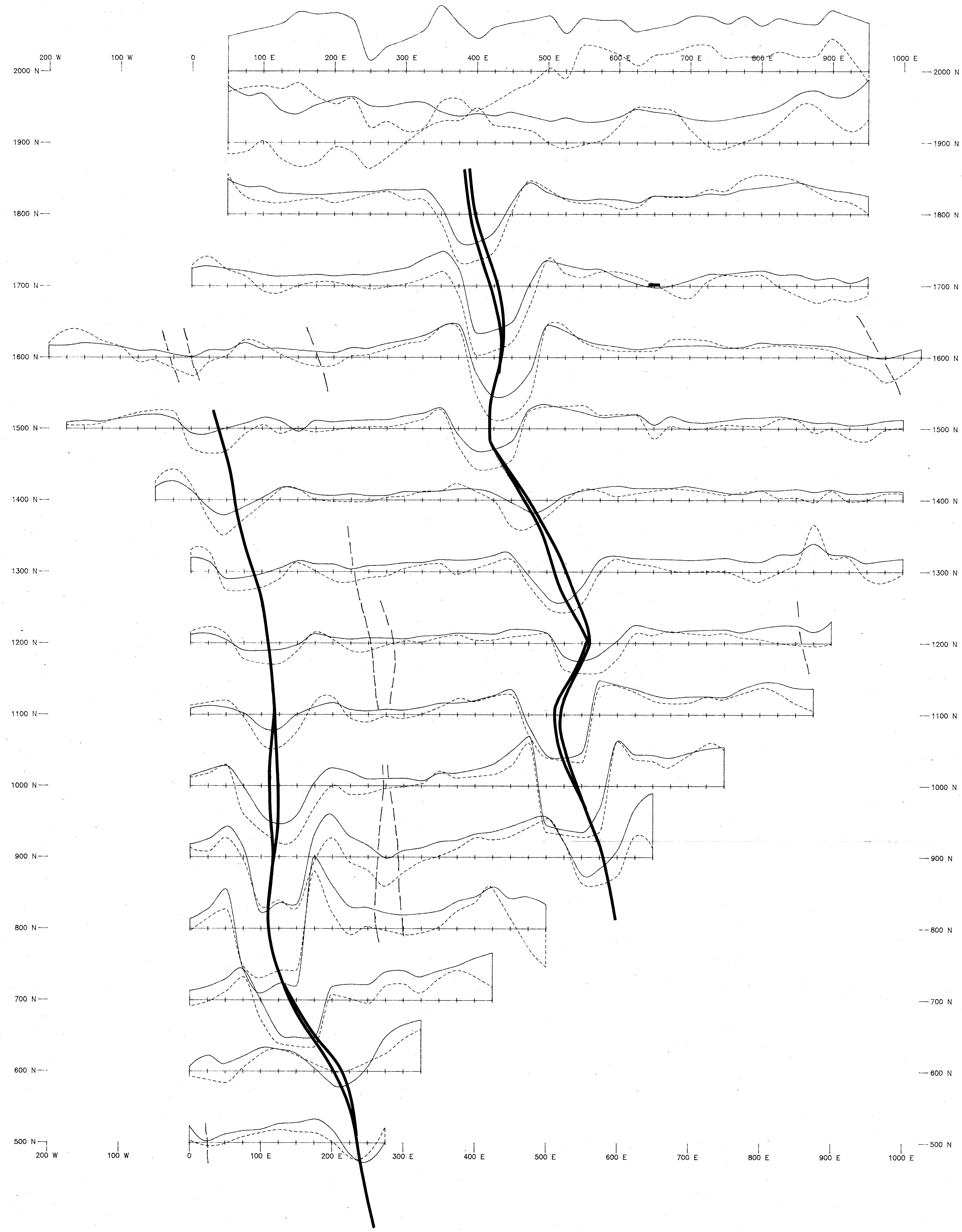
FIG. 11



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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Scale 1:2500

50 0 50 100 150

(meters)

WESTMIN RESOURCES LTD

RED STAR GRID

BELL CREEK PROJECT, MAXMIN SURVEY, 3520 hz

EASTGATE, BRITISH COLUMBIA

inphase solid line, quadrature dashed, 1cm=20%

100m coil separation, Sept, 1993

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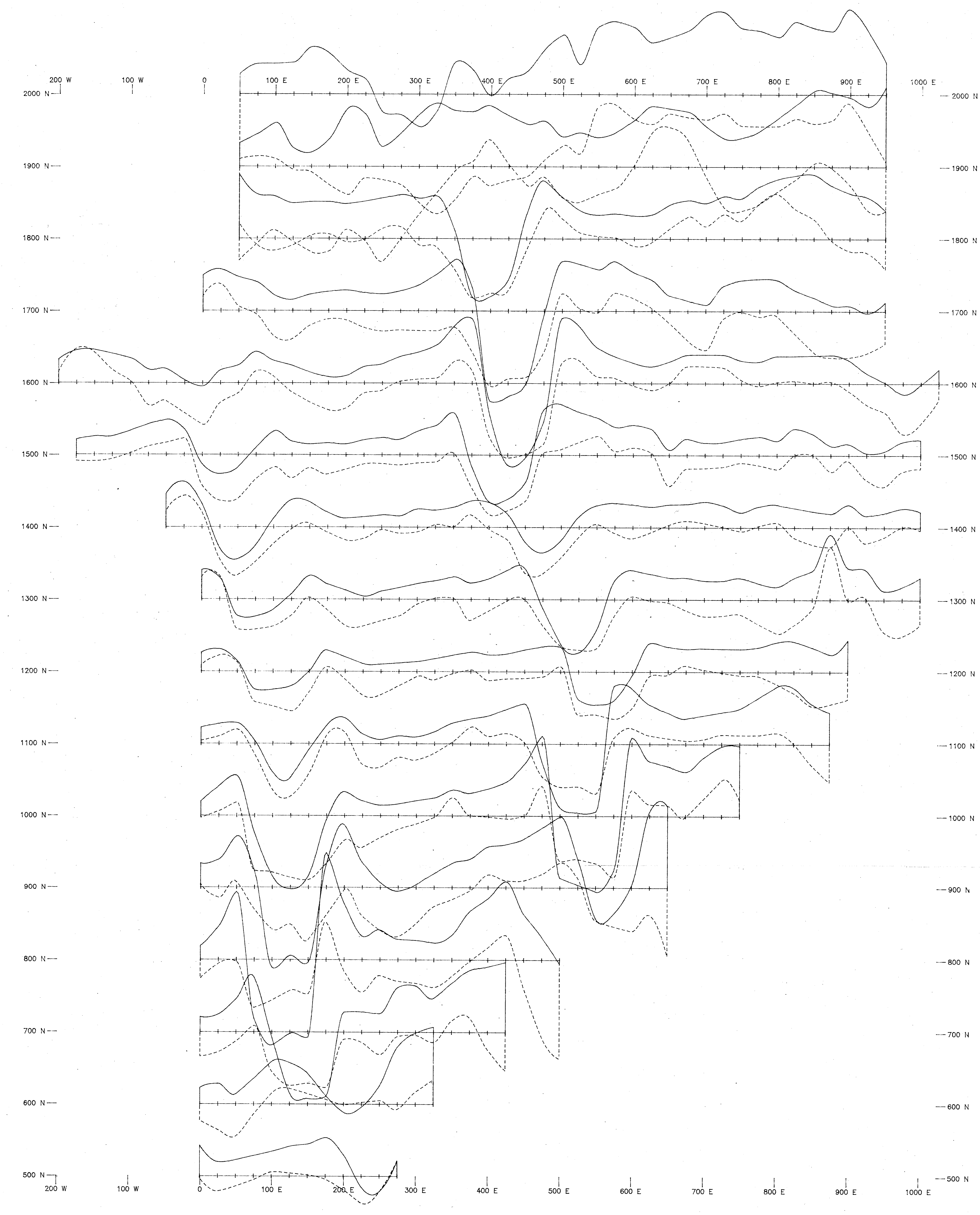
FIG 12



GEOLOGICAL BRANCH
ASSESSMENT REPORT

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N

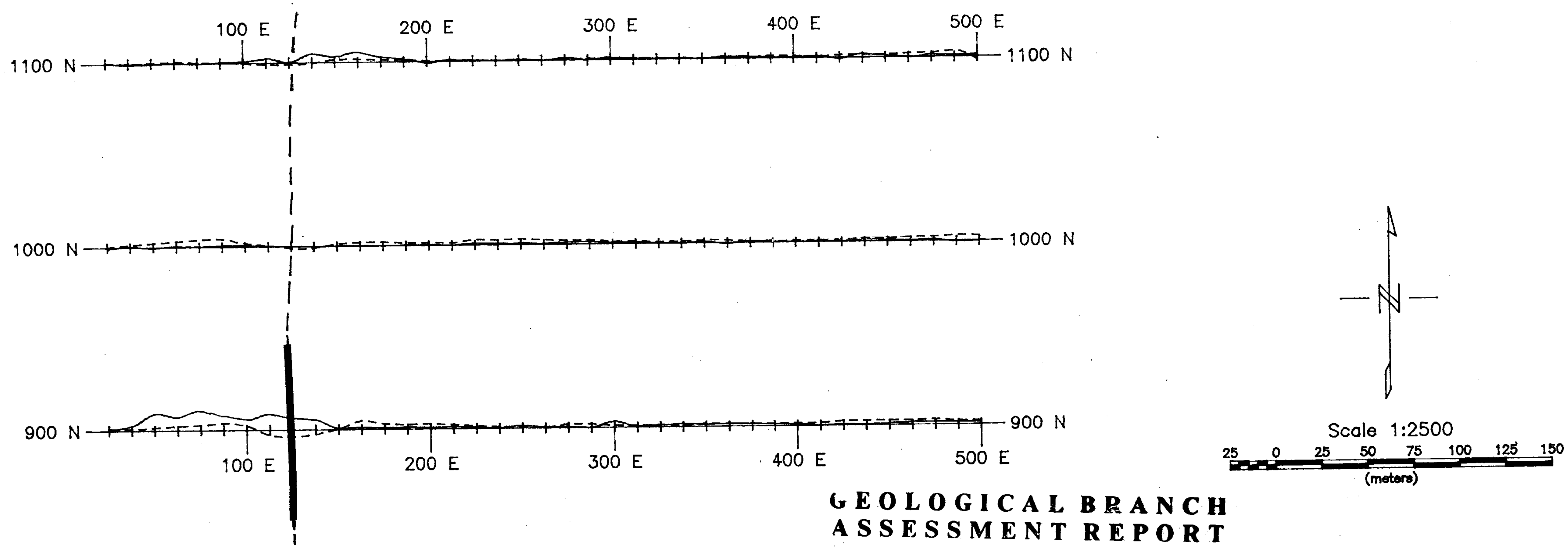
Scale 1:2500

50 0 50 100 150

(meters)

WESTMIN RESOURCES LTD
RED STAR GRID BELL CREEK PROJECT, MAXMIN SURVEY, 7040 hz
EASTGATE, BRITISH COLUMBIA inphase solid line, quadrature dashed, 1cm=20% 100m coil separation, Sept, 1993
DELTA GEOSCIENCE LTD

FIG. 13



GEOLOGICAL BRANCH
ASSESSMENT REPORT

23,408

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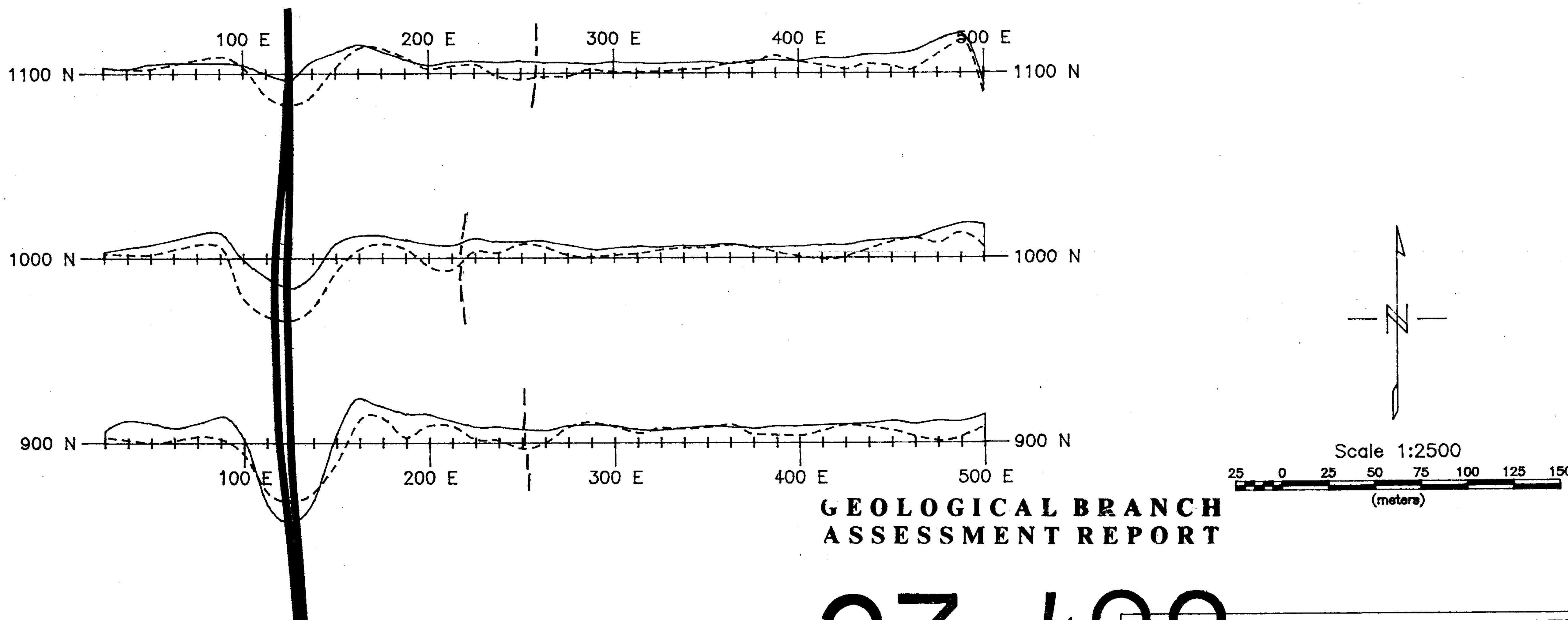
RED STAR GRID

BELL CREEK PROJECT, MAXMIN SURVEY, 440 hz

EASTGATE, BRITISH COLUMBIA
inphase solid line, quadrature dashed, 1cm=20%
detail, 50m coil separation, Sept, 1993

DELTA GEOSCIENCE LTD

FIG. 14



GEOLOGICAL BRANCH
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RED STAR GRID

BELL CREEK PROJECT, MAXMIN SURVEY, 7040 hz

EASTGATE, BRITISH COLUMBIA
inphase solid line, quadrature dashed, 1cm=20%
detail, 50m coil separation, Sept, 1993

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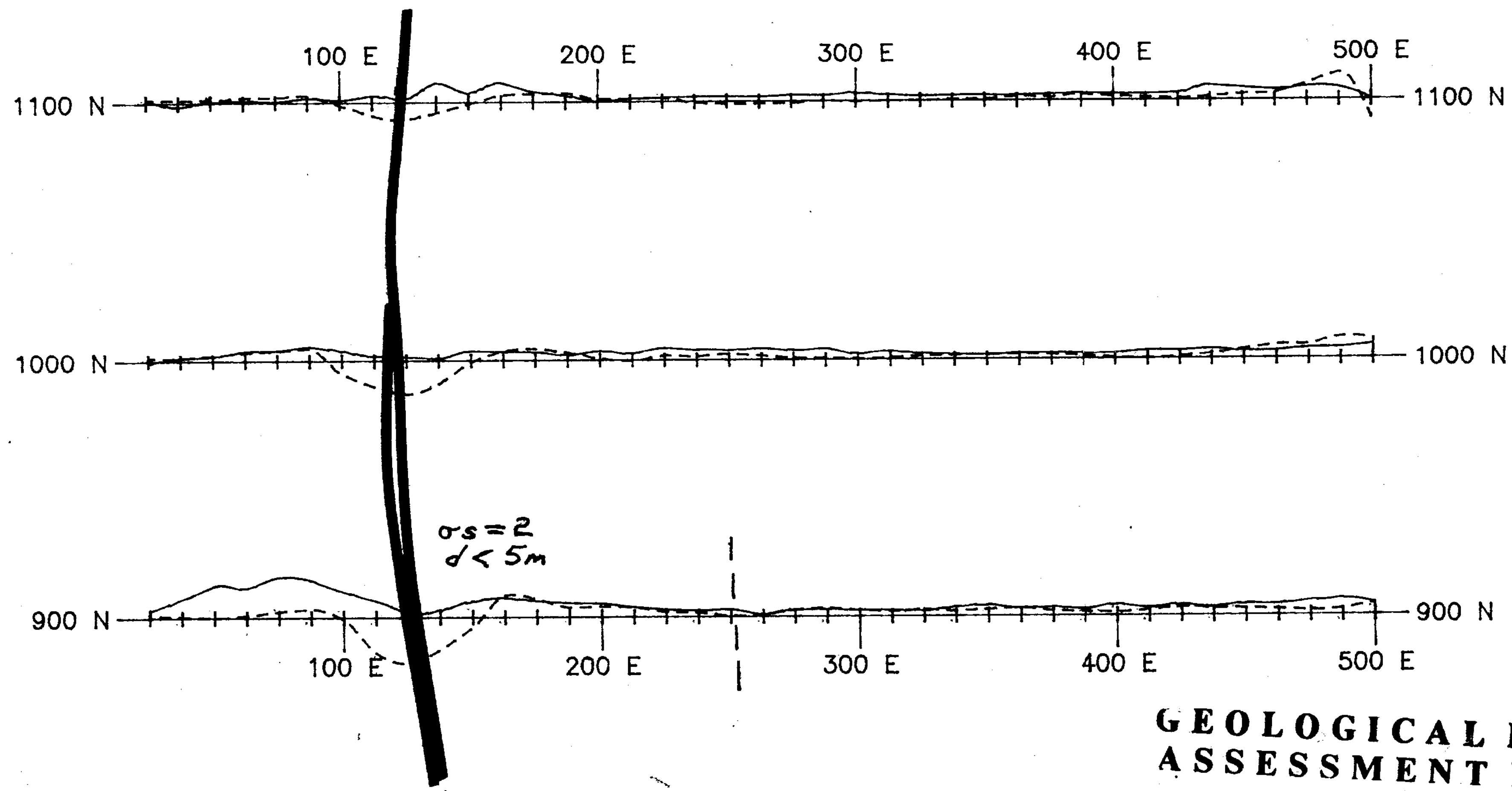
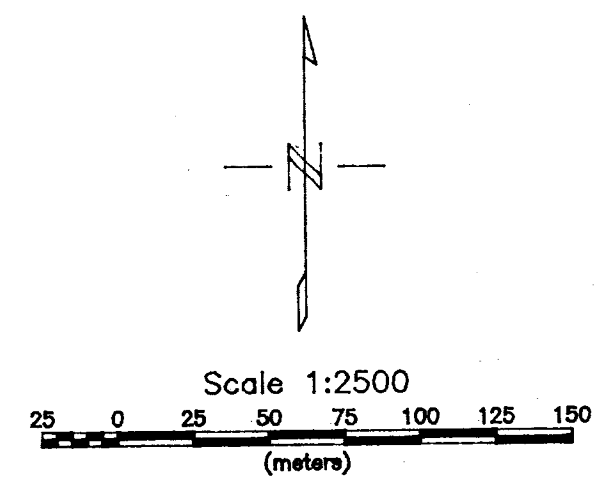
FIG. 17





WESTMIN RESOURCES LTD

RED STAR GRID

BELL CREEK PROJECT, MAXMIN SURVEY, 1760 hz

EASTGATE, BRITISH COLUMBIA

inphase solid line, quadrature dashed, 1cm=20%

detail, 50m coil separation, Sept, 1993

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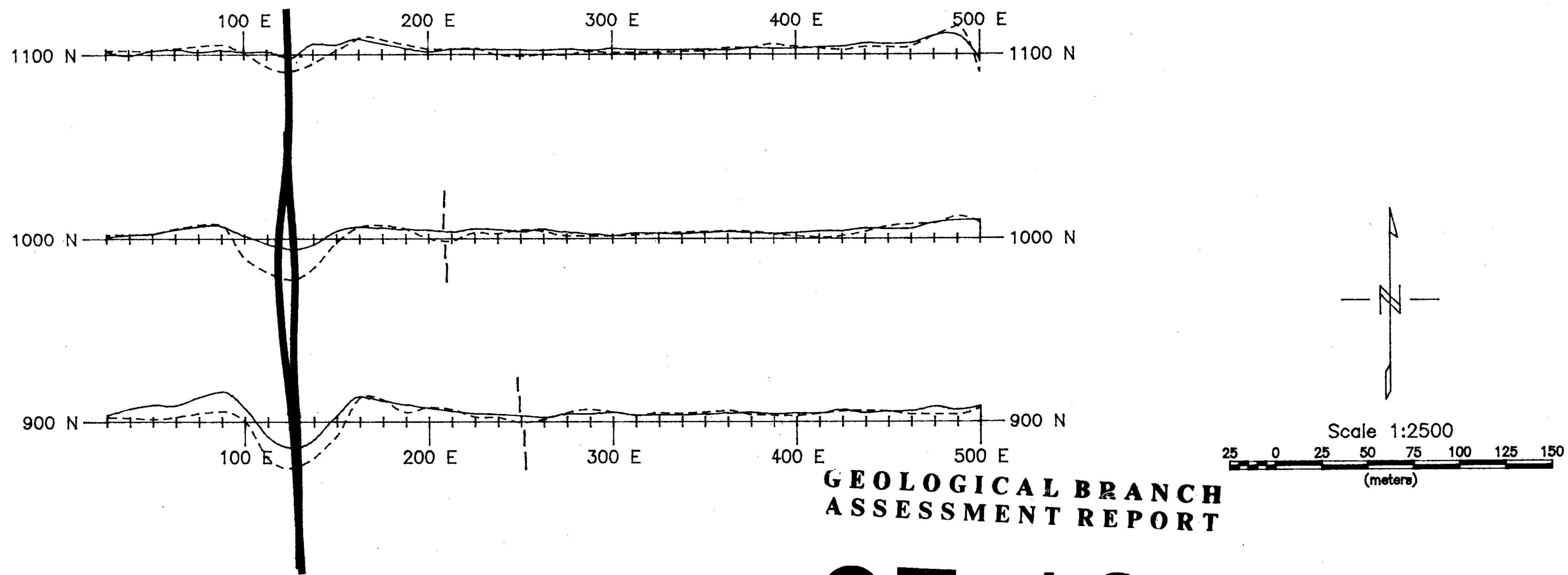
FIG. 15



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RED STAR GRID
BELL CREEK PROJECT, MAXMIN SURVEY, 3520 hz

EASTGATE, BRITISH COLUMBIA
inphase solid line, quadrature dashed, 1cm=20%
detail, 50m coil separation, Sept, 1993

DELTA GEOSCIENCE LTD

FIG. 16