800700

UTEM SURVEY

ON

BRONSON CREEK 1989 GRID

FOR

CATHEDRAL GOLD CORP.

BY

SJ GEOPHYSICS LTD. AND LAMONTAGNE GEOPHYSICS LTD.

LIARD M.D. N.T.S. 104B/15W

FEBRUARY 1990

Report By
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INTRODUCTION

A UTEM survey was conducted on the Bronson Creek 1989 Grid, by SJ Geophysics Ltd. and Lamontagne Geophysics Ltd., at the request of Mr. Dennis Gorc, for Cathedral Gold Corp., during the period of July 24, to August 11, 1989. The survey grid is located on Bronson Creek approximately 5Km, SE of the Bronson Creek air strip in the Iskut River area of northern B.C. (N.T.S. 104B/15W).

The purpose of the UTEM survey was to extend and detail anomalies found in the 1988 geological, geochemical and geophysical (magnetometer, HLEM and VLF-EM) field work and to search for massive sulfides which may contain gold at a depth deeper than attained by the previous HLEM and VLF-EM surveys.

DESCRIPTION OF UTEM SYSTEM

UTEM is an acronym for "University of Toronto ElectroMagnetometer". The system was developed by Dr. Y. Lamontagne (1975) while he was a graduate student of that University.

The field procedure consists of first laying out a large loop, which can vary in size from less than 100M X 100M to more than 2Km X 2Km, of single strand insulated wire and energizing it with current from a transmitter which is powered by a 2.2 kW motor generator. Survey lines are generally oriented perpendicular to one side of the loop and surveying can be performed both inside and outside the loop.

The transmitter loop is energized with a precise triangular current waveform at a carefully controlled frequency (54.409 Hz for this survey). The receiver system includes a sensor coil and backpack portable receiver module which has a digital recording facility on cassette magnetic tape. The time synchronization between transmitter and receiver is achieved through quartz crystal clocks in both

units which must be accurate to about one second in 50 years.

The receiver sensor coil measures the vertical or horizontal magnetic component of the electromagnetic field and responds to its time derivative. Since the transmitter current waveform is triangular, the receiver coil will sense a perfect square wave in the absence of geologic conductors. Deviations from a perfect square wave are caused by electrical conductors which may be geologic or cultural in origin. The receiver stacks any pre-set number of cycles in order to increase the signal to noise ratio.

The UTEM receiver gathers and records 10 channels of data at each station. The higher number channels (7-8-9-10) correspond to short time or high frequency while the lower number channels (1-2-3) correspond to long time or low frequency. Therefore, poor or weak conductors will respond on channels 10, 9, 8, 7 and 6. Progressively better conductors will give responses on progressively lower number channels as well. For example, massive, highly conducting sulfides or graphite will produce a response on all ten channels.

It was mentioned above that the UTEM receiver records data digitally on a cassette. This tape is played back into a computer at the base camp. The computer processes the data and controls the plotting on an 11" x 17" graphics printer. Data are portrayed on data sections as profiles of each of the first nine or ten channels, one section for each survey line.

FIELD WORK AND DISCUSSION OF FIELD PARAMETERS

Syd Visser (chief geophysicist), Rolf Krawinkel, (Geophysicist) and Neil Visser (helper), all with SJ Geophysics Ltd., and the equipment were mobilized from Vancouver through Smithers and the Bronson Creek air strip to the Cathedral Gold Corp. camp on July 24 1989. The Main

survey area was accessed by walking from the camp. A helicopter was employed to move the transmitter setups and to access the westerly part of the grid. The field parameters and local geology were discused in the Vancouver office and the field with Mr. Dennis Gorc, project geologist with Cathedral Gold Corp., before commencing the survey and during the survey period.

Approximately 27 Km (including overlap) using a station spacing of 25M were surveyed from 7 loops in a period of 15 production days and a detail survey of approximately 1.2Km from loop 8 and 9 was surveyed in one day. One production day was lost due to weather. The location of the survey loops are shown on Plate 89-1. The purpose of using a close station spacing in the search for deeper conductors is to better locate and separate the short wavelength near surface conductors from the deeper long wavelength conductors.

The survey loops were placed as shown on the compilation map mainly for logistical reasons while keeping in mind the coupling of the magnetic field with possible conductor locations and the line length. The steep terrain to the north of the grid would have required daily helicopter support, building landing pads, and difficulties in laying out the loops although the coupling of the magnetic field with the southerly dipping conductors would have been better.

Past experience with HLEM in the Iskut river area particularly at Johnny Mt. (Skyline Gold Corp.) and the Bronson Creek grid (1988), and UTEM throughout B.C., in general hes shown that the background resistivity is low (500-1500 ohm-m) and the conductors are generally weak (1 to 50 mhos). It is therefore advantageous to take advantage of current channeling effects, generated by the above type of environment, in the initial part of the survey. It was therefore felt that even if the coupling of the magnetic field with the conductors was poor, by placing the loops on the southern end of the grid, the current channeling effect

could still be easily seen (anomaly U2 on line 200W is an example of current channeling anomaly).

Because of the relatively poor (< 10 mhos) conductors expected in the survey area a high base frequency of 54.409 Hz was used (normal base frequency used is 30.974 Hz but the UTEM can adjust frequencies by less than .1 Hz). This has the advantage of narrowing the UTEM time windows (therefore a weak conducter appears on more time channels) and speeding up the survey.

Because the exact location of the survey stations were not known the approximate location, calculated from slope data collected with a inclinometer, was used for all the data reduction. It would be very unlikely to find a conductor strong enough, as the data indicates in this area, to have the same response on all channels and therefore it is appropriate to subtract channel 1 (late time) data from the higher channels so that the effects from topography is only seen on channel 1.

DATA PRESENTATION

The results of the 1989 UTEM survey are presented on 103 data sections representing 57 lines of data (Appendix III) and one compilation map. The magnetic data and the VLF-EM, Max-Min and Magnetic data from the base line, collected in the 1988 field season, along with the compilation are also presented.

The map is listed as follows:

Plate 88-1	Magnetic profiles (summer,1988)
Plate 88-2	HLEM,VLF-EM, mag base line stacked profiles (summer, 1988)
Plate 89-1	UTEM Compilation Map Scale 1:5,000

Legends for the UTEM data sections are also attached (Appendix II).

In order to reduce the field data, the theoretical primary field of the loop must be computed at each station. The normalization of the data is a follows:

a) For Channel 1:

$$\% \text{ Ch.1 anomaly} = \frac{\text{Ch.1} - \text{PC}}{\text{/PT/}} \times 100$$

Where:

PC is the calculated primary field in the direction of the component from the loop at the occupied station

Ch.1 is the observed amplitude of Channel 1

PT is the calculated total field

b) For remaining channels (n = 2 to 9)

$$\% \text{ Ch.n anomaly} = \frac{(\text{Ch.n} - \text{Ch.1})}{\text{Ni}} \times 100$$

where Ch.n is the observed amplitude of Channel n (2 to 9)

N = Ch.1 for Ch1 normalized

N = PT for primary field normalized

i is the data station for continuous normalized (each reading normalized by different primary field)

i is the station below the arrow on the data sections for point normalized (each reading normalized by the same primary field)

Subtracting channel 1 from the remaining channels eliminates the topographic errors from all the data except ch.1.

If there is a response in channel 1 from a conductor then this value must be added to do a proper conductivity determination from the decay curves. Therefore channel 1 should not be subtracted indiscriminately.

The data from each line is plotted on at least 2 separate sections consisting of a continues normalized

section to which interpretation was added and a point normalized section. Additional point normalized data sections were produced where more than one conductor is present on the same line. Point normalization data is the absolute secondary field at a "gain setting" related to the normalization point. The data is usually point normalize over the central part of the crossover anomaly to aid in interpretation.

INTERPRETATION

The UTEM crossover anomalies, conductor axis, conductivity contacts and possible cross structures interpreted from the 1989 UTEM, and part of the 1988 magnetic, VLF-EM, and HLEM surveys are shown on the compilation map Plate 89-1. The profiles and the compilation of the 1988 magnetic data is compiled on Plate 88-1. The profiles and compilation of the magnetic, VLF-EM and HLEM data collected on the base line is compiled on Plate 88-2.

The base grid used for the compilation is not corrected for error in horizontal distance due to topography (the correction was calculated and applied for the UTEM sections) and the lines were assumed to be at right angles to the base line (with the exception of line 250W) therefore grid coordinates will have to be used to locate the conductor axis on the ground.

The main anomalies marked U1 to U2, the magnetic data and the cross structures are discussed separately in following text.

Anomaly U1

Anomaly U1 is a conductor with a conductivity of approximately 1 mho that appears to be dipping slightly to the west and can be traced easily for a strike length of approximately 450M between lines 250W at 25N and 700W at

225N. This conductor may extend west to line 800W where it appears to be weaker or at a greater depth. The eastern end of the conductor can be extended to line 25W although it is much weaker in conductivity and appears to resemble a contact zone with the more conductive unit to the south. There is a change in the UTEM response between lines 25W and line 100E which may indicate a cross structure.

A much weaker and shorter strike length conductor is striking parallel to the above conductor across lines 400W and possibly 500W at approximately 40N. There is possibly a second weak conductor on lines 100W and 25W near the base line.

Anomaly U2

Anomaly U2 is the best conductor noted in the survey area. The conductivity of this conductor is difficult to estimate due to the variability along its strike length and because the response is mainly due to current channelling. It is also very difficult to get a dip estimate from a current channelling type anomaly but the weak inductive response (reverse crossover) noted on lines 200W and 250W, on the early time channels, indicate that the conductor must be dipping at least 30 to 40 degrees to the west making the inductive coupling very poor. The very short wavelength long decay anomaly, noted on line 250W on the central part of the anomaly is likely a very conductive part of the conductor, that is close to surface with very little depth extent, therefore the currents flow around in the top of the conductor.

The data from the small loops, 8 and 9, show a very strong response to the near surface part of the conductor both inside and outside the loops. This indicates that the conductors have some very massive sulfide areas in the main conductor but that these are likely limited in depth extent

since they appear mainly as top anomalies which is similar to the response of a narrow flat lying conductor.

The data from loop 4 indicates that the coupling of the magnetic field with the conductor is much better then from loop 1 and 2 and suggests that the conductivity, in the near surface part of the conductor, is higher than the data from loop 1 and 2 indicates.

This conductor has a strike length of approximately 700M. The western end, on lines 500W and 400W, and the eastern end, on lines 100E and 200E, of the conductor are not very well defined due to weakening of the conductor or increase in depth of the conductive zone. The apparent break in the zone between lines 300W and 200W and the apparent double conductors on line 250W and 300W may be due to a combination of topography, chainage and a possible cross structure in this area.

Anomaly U3

Anomaly U3 appears to have a very similar shape as the background response of anomaly U2 and may be an extension of this anomaly but is a much poorer conductor and is more likely a contact zone. This anomaly has the best response on line 700W where it appears to be at depth (>15m) as also suggested by the previous HLEM survey.

Anomaly U4

Anomaly U4 is the southern edge of what appears to be a conductive plate. The best part of this anomaly is on line 1100W where it appears as a fairly strong near surface conductor with little depth extent. The VLF-EM data from 1988 indicates that the anomaly does not extend west of 1100W. The UTEM survey was not extended into this area. The anomaly on line 1100W may be due to a possible cross structure inferred to cut through this area.

Anomaly U5

Anomaly U5 is very difficult to interpret because it appears to be at a contact zone with a more resistive rock unit to the north, it is very close to the break in slope from the valley floor to the steep side hill and therefore may be related to the overburden and it is also close to the northern edge of the long wavelength magnetic high in the southern part of the grid. There is definitely an anomaly in this area that appears to be a top anomaly (the currents are flowing in the top of the conductor and not moving down appreciably). This may be partially due to poor coupling of the conductor with the loop or there is a narrow flat lying conductor, possible overburden, at the foot of the hill. This conductor has a strong response on line 930W (marked line 1000W in the field) and appears more like a semi vertical structure.

Anomaly U6

Anomaly U6 is the northern edge of what appears to be a large conductive plate like feature that dips shallow to the east. The conductivity of the plate is estimated to be approximately 1 mho which is very similar to the main conductors U2 and U3 but more extensive and therefore is probably a conductive layer such as graphitic shales or possible a clay layer in the overburden. This anomaly should still be considered a good target to investigate.

The northern contact which may extend from line 1400W and west of 2400W appears to be the northern edge of an other conductive layer dipping under the southern layer. Not sufficient lines cross this contact to fully understand the extend and the dip of this conductor.

Anomaly U7

The main anomaly in area U7 is a conductive plate or block which has a shallow dip (relative to topography) to the south, with the northern edge close to the base line and the southern edge at approximately 250S, and possible plunging to the east. This anomaly appears to have a very similar conductivity as U6. The anomalous zone is open to the west and appears to stop between lines 2300W and 2200W although there is some indication that the anomalous zone may continue to the east but that it is getting much deeper. There appear to be a semi-vertical conductor to the south of the main anomaly. This anomaly is only seen on lines 2800W, 2700W, and 2600W because of the finite line length. It is suspected that this anomaly has a longer strike length and may be a structure such as a fault zone that terminates the main anomaly.

Magnetic

The magnetometer survey conducted in the summer of 1988 was not extended over the full grid therefore cannot be compared to most of the data. It is interesting to note however that the UTEM anomaly U2 closely follows a magnetic anomaly in the same area. The magnetic anomaly and the UTEM anomaly both appear to be offset or disappear west of line 700W.

The magnetic data does not cover the UTEM anomaly U2 therefore it is not known if there is a magnetic response associated with this anomaly. The magnetic anomaly shown between anomalies U5 and U3 may be part of the contact response seen in this area. The magnetic anomaly appears to be related to a low conductivity (high resistivity) zone in this area.

Most of the anomalies which are all weak, are likely due small changes in the magnetite content of the rocks and

therefore little can be said about the dip of these structures. The exception are; the anomalies on the northern end of line 1300W which dips to the north, the anomaly at approximately 200W on the base line which dips to the east, the anomaly at approximately 150S on line 300W which appears to dip slightly to the north and the anomaly at 150N on line 800W which appears to dip steeply to the south.

It is not clear where the contact for the long wavelength magnetic response, seen on most of the survey area south of the base line is located, because of the short wave length anomalies near the northern edge, but it is suspected to be close to the southern edge of the U5 anomaly, in that region of the grid. Some filtering and modelling of the data would aid in determining the contact.

Cross Structures

The cross structures shown on the compilation map are inferred from the discontinuities in the EM and magnetic anomalies and are not likely accurately located. There is no doubt more cross structures then shown on the compilation map. Difficulty in proper line and station control due to the extreme topography makes it difficult to judge the continuity of the anomalies from one line to the other therefore only the most obvious cross structures were marked. It may be possible to delineate these structures more accurately with airphoto interpretation or possible running VLF-EM (using Hawaii) on a few lines at right angles to the present grid lines. The croes structures appear to be conductive in a number of location although this may be an effect from a change in geology or an end effects from the known conductors.

RECOMMENDATIONS

The limited magnetic data recorded in 1988 suggest that the magnetic data may be useful in mapping structures and it is therefore recommended to resurvey the whole grid, if possible before the 1989 survey lines in the northern part of the grid disappear due to the local vegetation, using a field magnetometer along with a base station magnetometer. The resultant data should be filtered to discriminate between the long wavelength and short wavelength anomalies.

It is recommended to extend lines 2100W through 2800W if possible and survey this area with a inexpensive VLF-EM survey (the terrain is probable to steep to attempt a more sophisticated EM survey) to trace the anomalies at the southern end of the grid.

All of the UTEM anomalies U1 to U7 warrants further investigation by detail geological follow up and drilling. The experience gained from drilling in 1989 especially on anomalies U1 and U2 should be helpful in determining which anomalies are likely to be the best drill targets.

The remaining drill targets would be anomaly U3 on line 700W, anomaly U4 on line 1100W and anomaly U7 at approximately 25S on line 2400W, 2500W or 2600W and possibly the anomaly on the southern end of line 2500W, 2700W and 2800W.

Because of the overburden problem near the northern edge of anomaly U6 it is difficult to pick a drill location without field investigation to possibly determine the cause of the anomaly or attempt to locate an area further to the south where the overburden is thinner.

The property boundary prevents the survey area to be expanded to the east. Topography prevents the expansion of the survey area to the south and north on the majority of the property. The grid could be expanded to the north in selected area and surveyed using helicopter support.

CONCLUSION

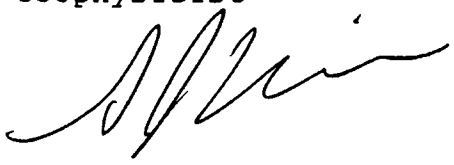
The UTEM survey located seven main anomalous zones, all of which warrant further geological investigation including drilling, and also located a number of weak anomalies and contact zones which may be of geological interest. All of the seven main anomalies have a shallow (<100m) depth to top and a conductivity of approximately .1 to 2 mhos with locally higher conductivity zones especially in anomaly U2. No deep (>100m) anomalies were encountered in the survey area.

The limited data from the 1988 magnetic survey suggests that at least one of the UTEM anomalies (U1) may be related to a weak magnetic anomaly, suggesting that a magnetic survey would be useful in tracing structures and possible conductors in the survey area.

Anomalies U7 and U6 are open to the west and U4 and U2 are possibly open to the northeast. Although with difficulty the grid could be expanded in selected areas to close these anomalies and possible locate additional conductors.

The cross structures may be conductive in some areas and should be investigated for possible mineralization.

Syd Visser F.G.A.C.
Geophysicist



SJ Geophysics LTD.

APPENDIX I

STATEMENT OF QUALIFICATIONS

I, Syd J. Visser, of 8081 - 112th Street, Delta, British Columbia, hereby certify that,

1) I am a graduate from the University of British Columbia, 1981, where I obtained a B.Sc. (Hon.) Degree in Geology and Geophysics.

2) I am a graduate from Haileybury School of Mines, 1971.

3) I have been engaged in mining exploration since 1968.

4) I am a Fellow of the Geological Association of Canada.

Syd J. Visser, B.Sc., F.G.A.C.
Geophysicist

APPENDIX II

LEGEND

Channel	Mean delay time Base Freq. 54.4 Hz	Plotting Symbol
1	6.9 ms	1
2	3.45	/
3	1.725	\
4	0.863	□
5	0.432	≤
6	0.216	◁
7	0.108	>
8	0.054	⧓
9	0.027	△
10	0.014	◇

UTEM TRANSMITTER LOOP

POSSIBLE CROSSTRUCTURES

CONDUCTIVITY CONTACT

POINTING IN THE DIRECTION

OF INCREASED CONDUCTIVITY

EDGE OF CONDUCTIVE PLATE

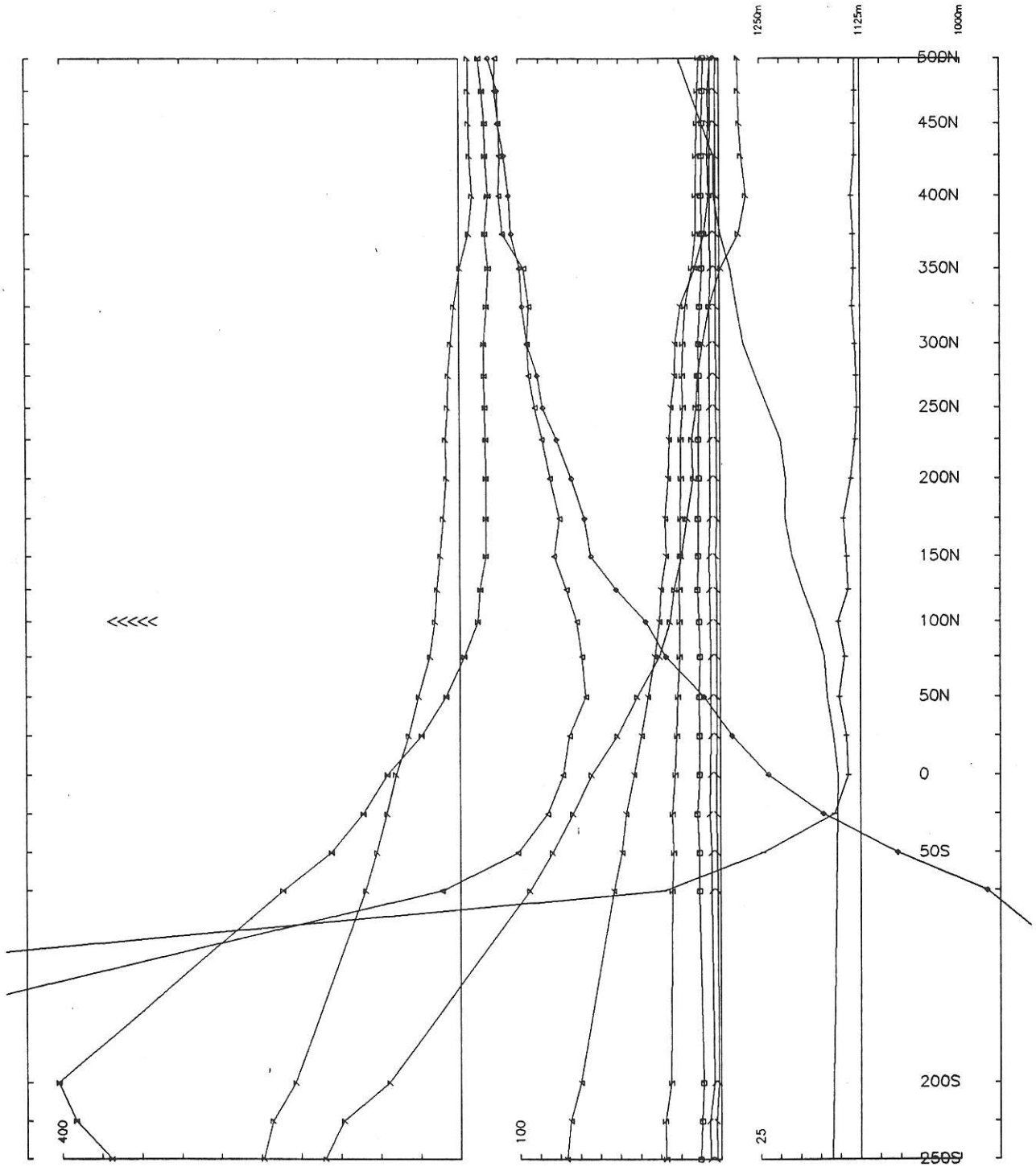
DIPPING IN THE DIRECTION OF X

UTEM CROSSOVER ANOMALIES

WELL DEFINED CONDUCTORS

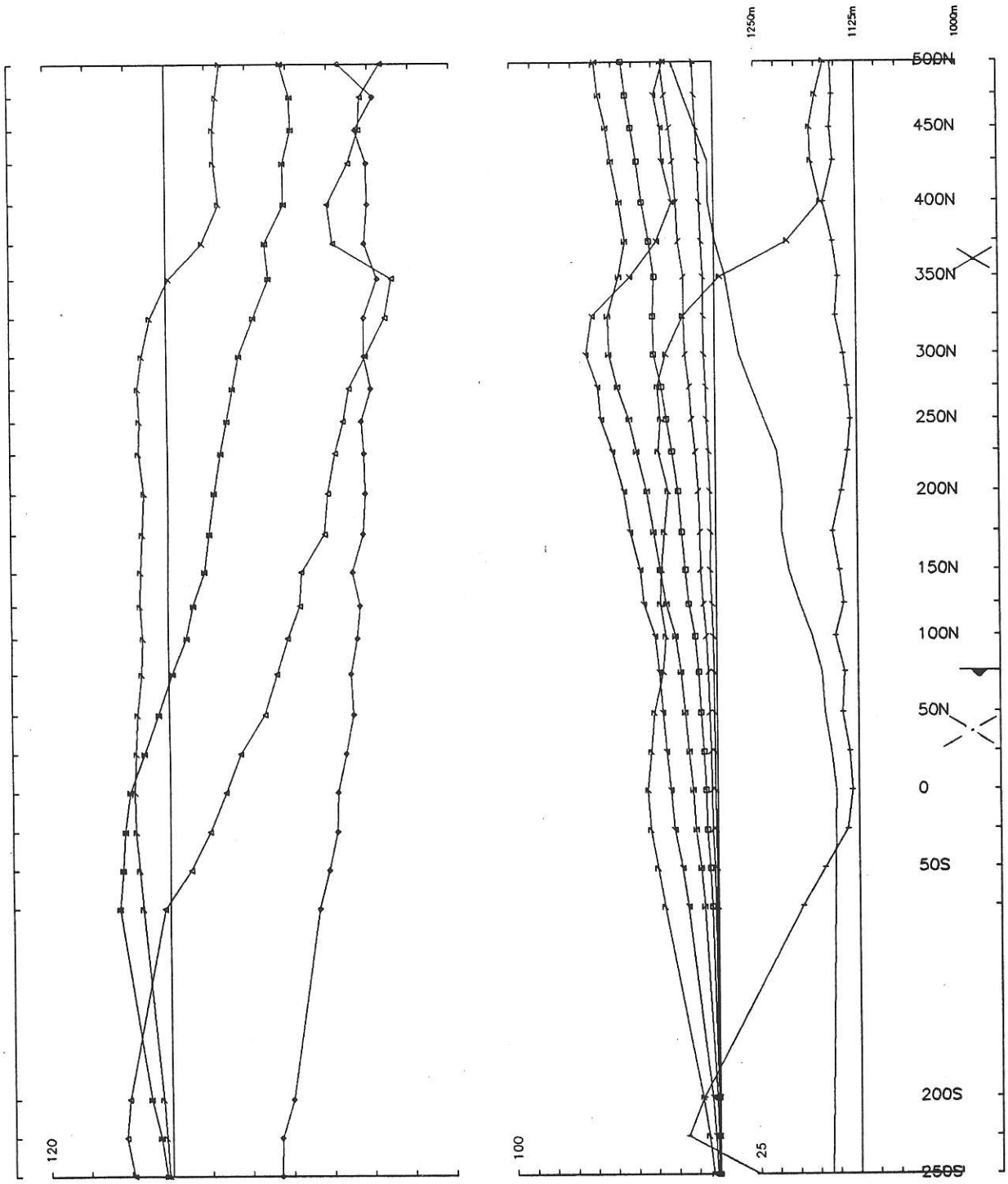
POORLY DEFINED CONDUCTORS

APPENDIX III



Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 1 Line 200W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

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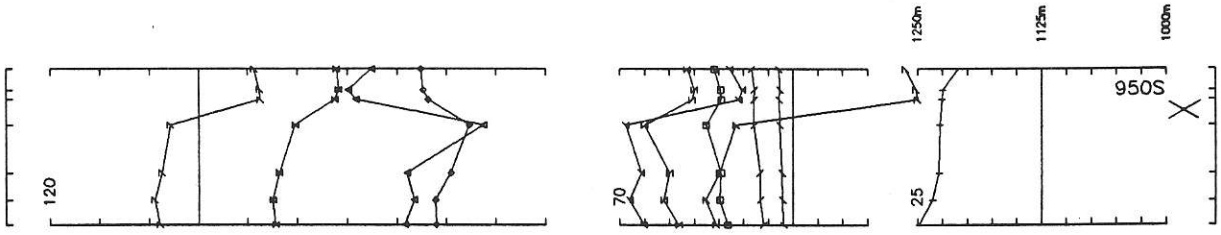

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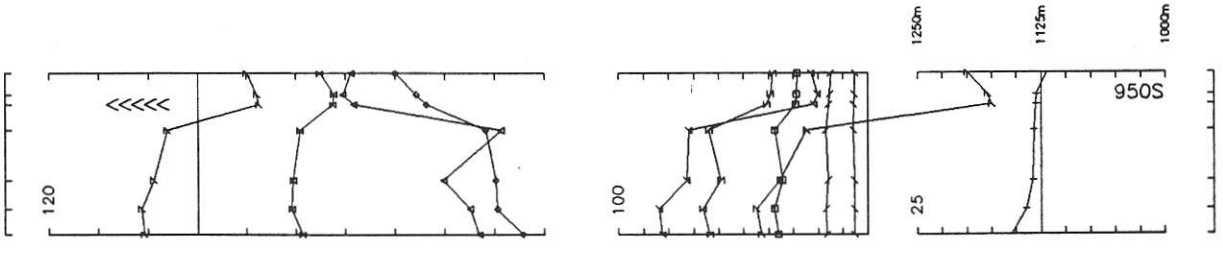

Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

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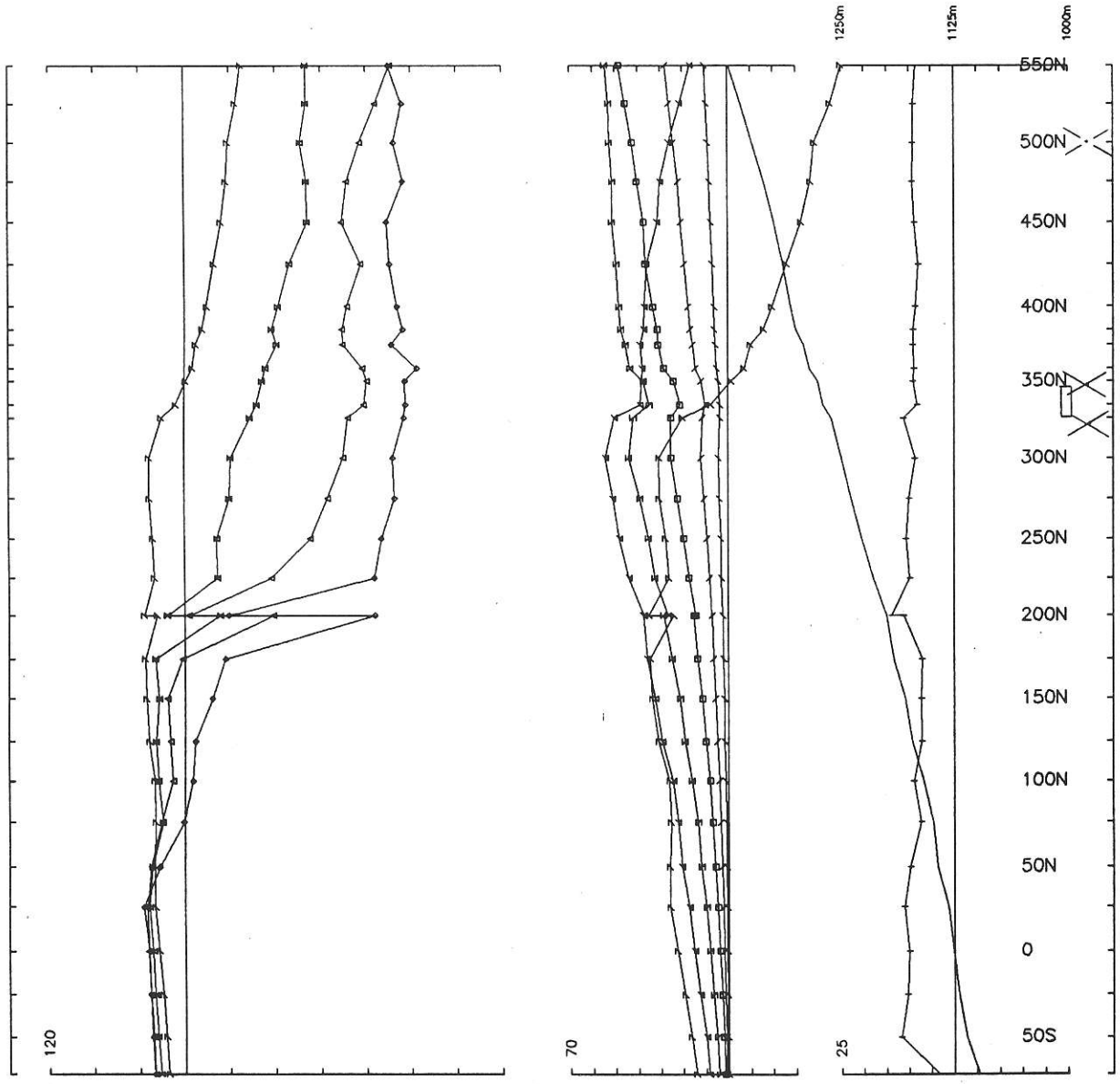

Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

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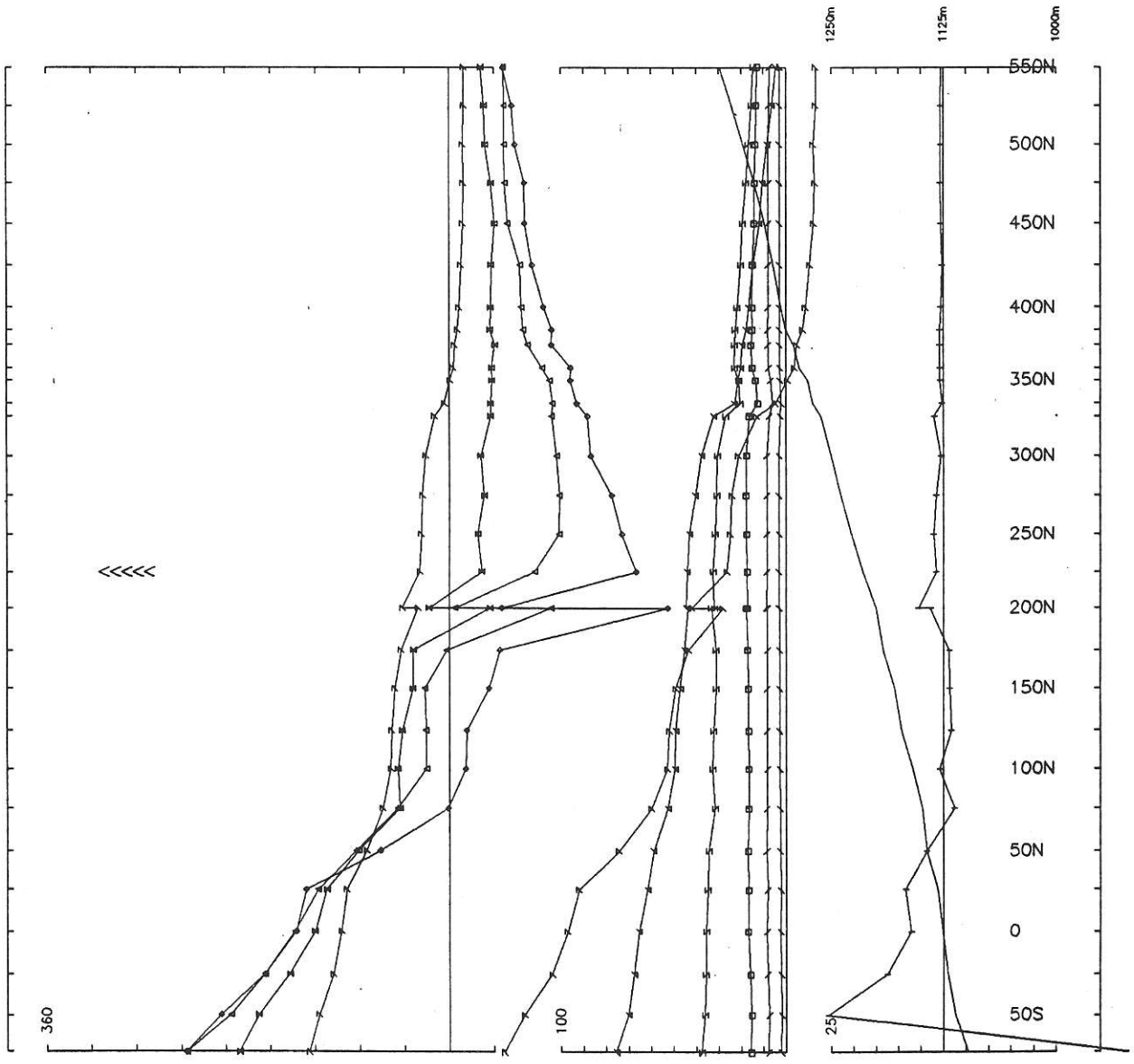

Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

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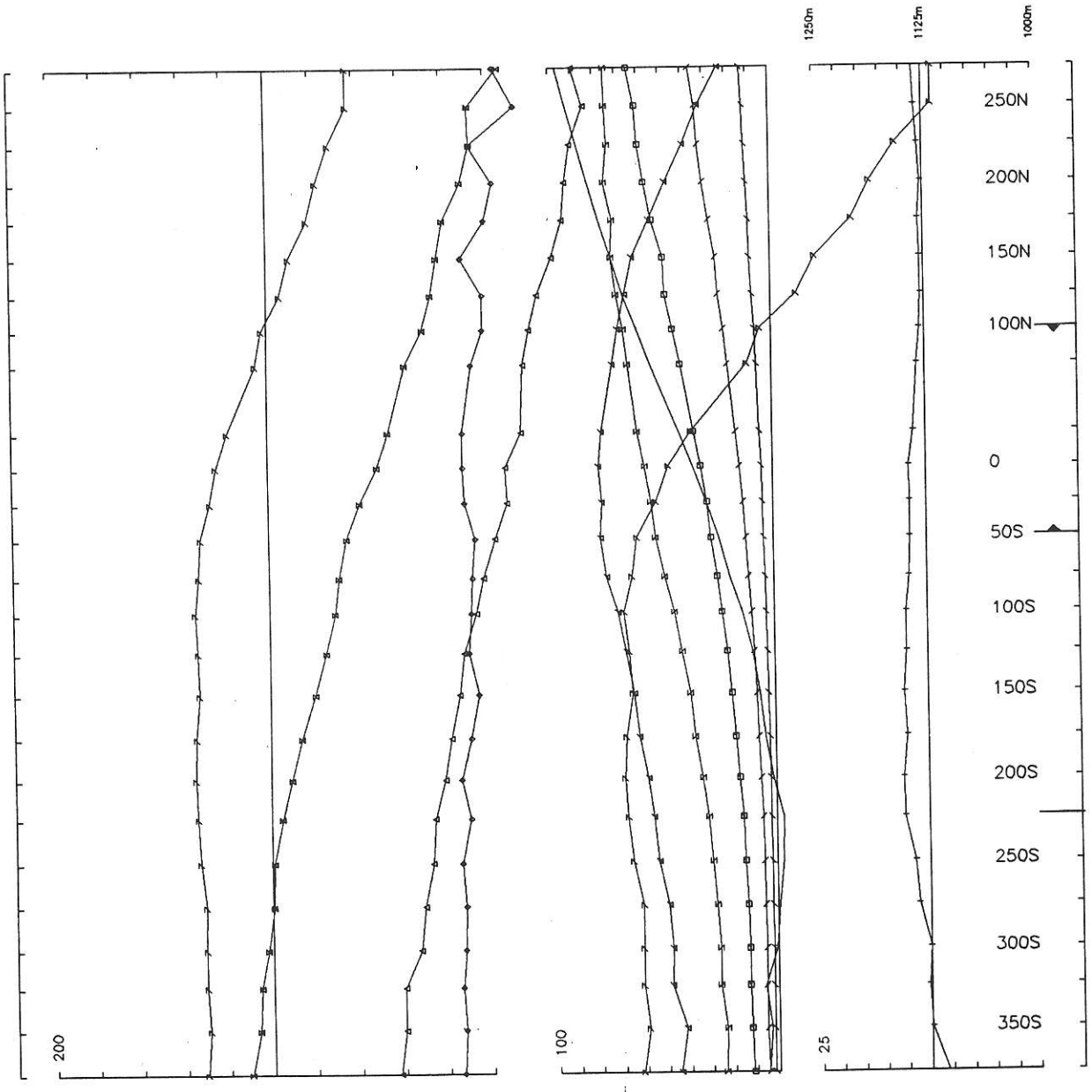

Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

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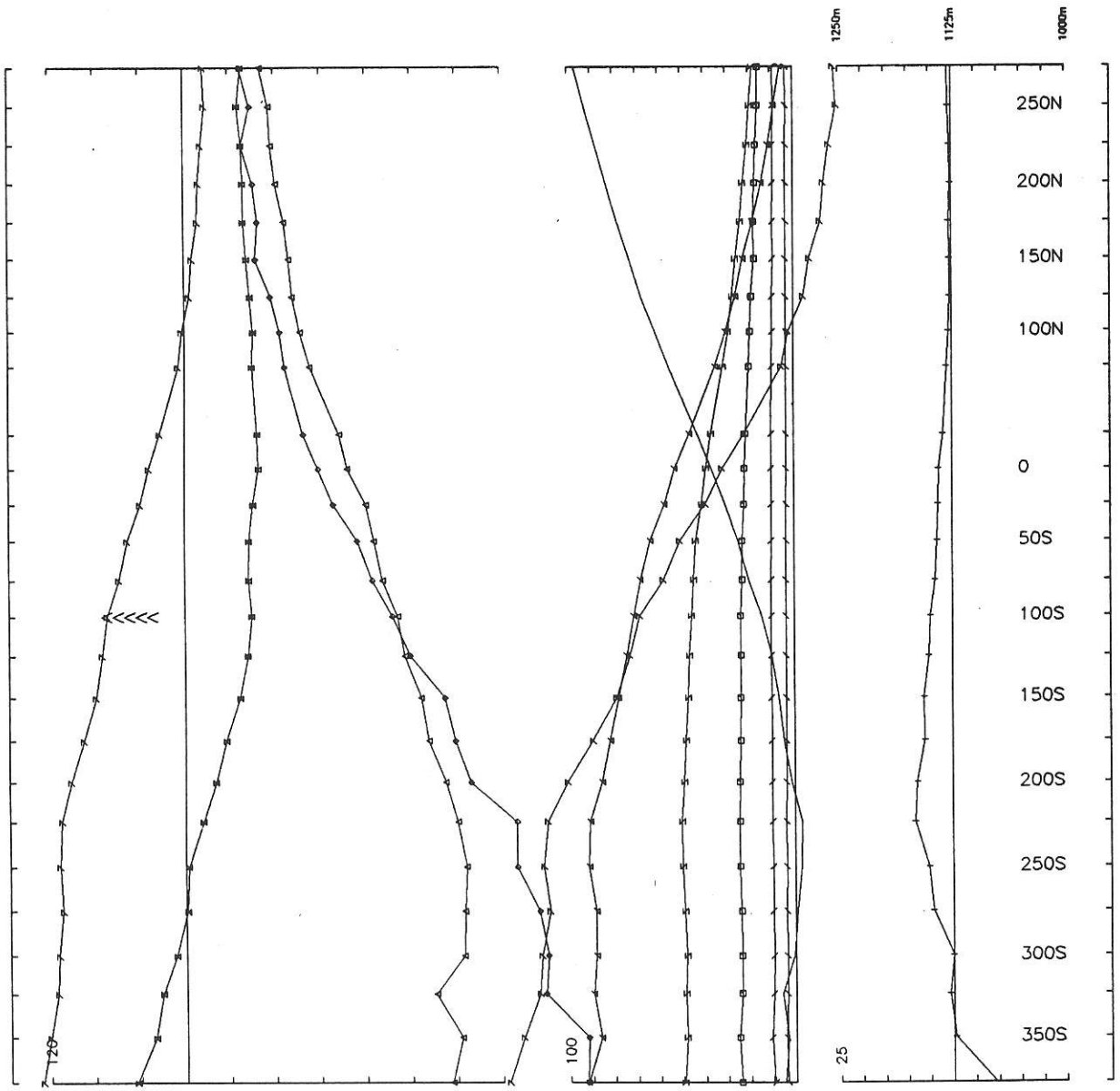

Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

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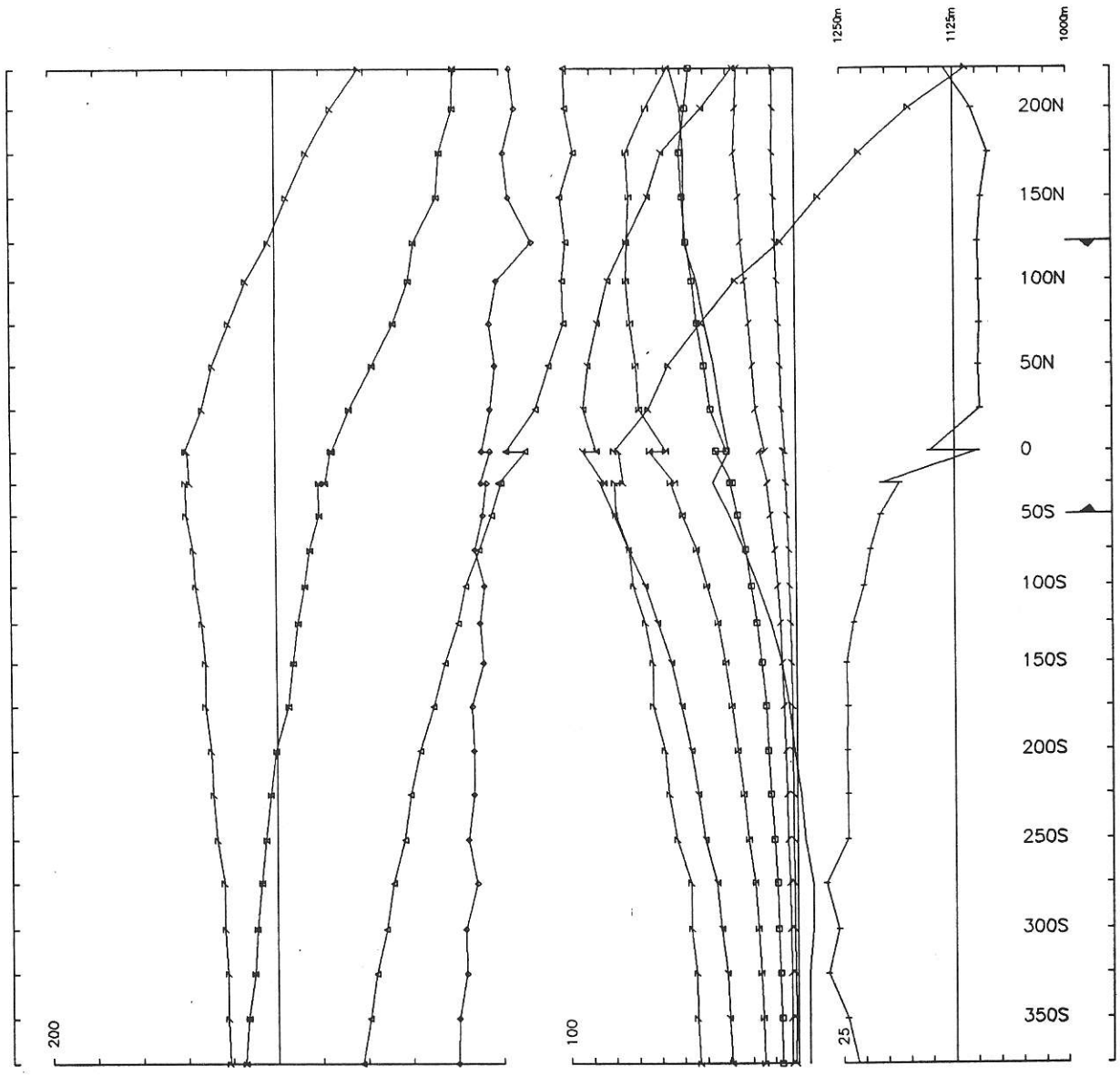

Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

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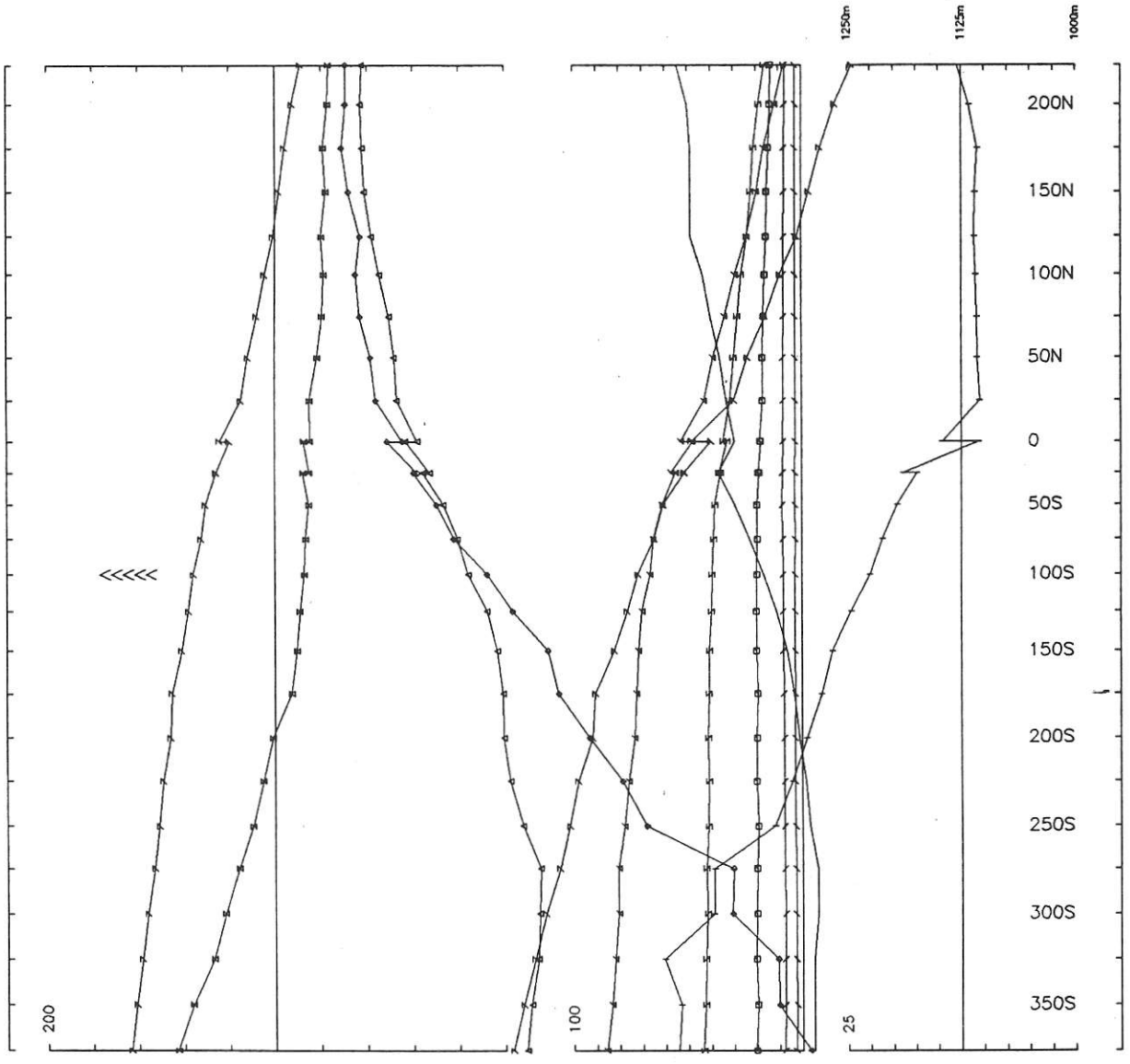

Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

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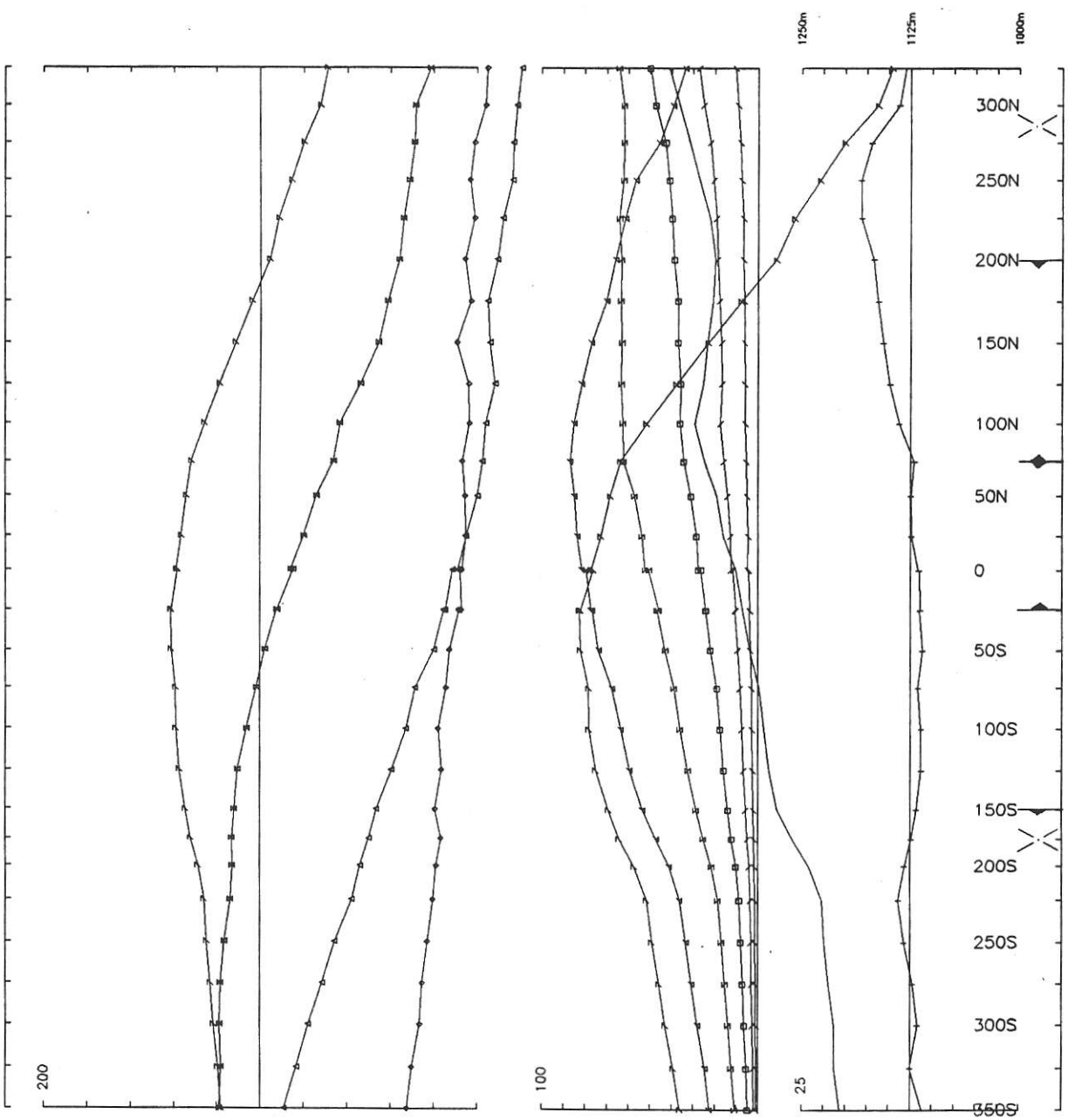

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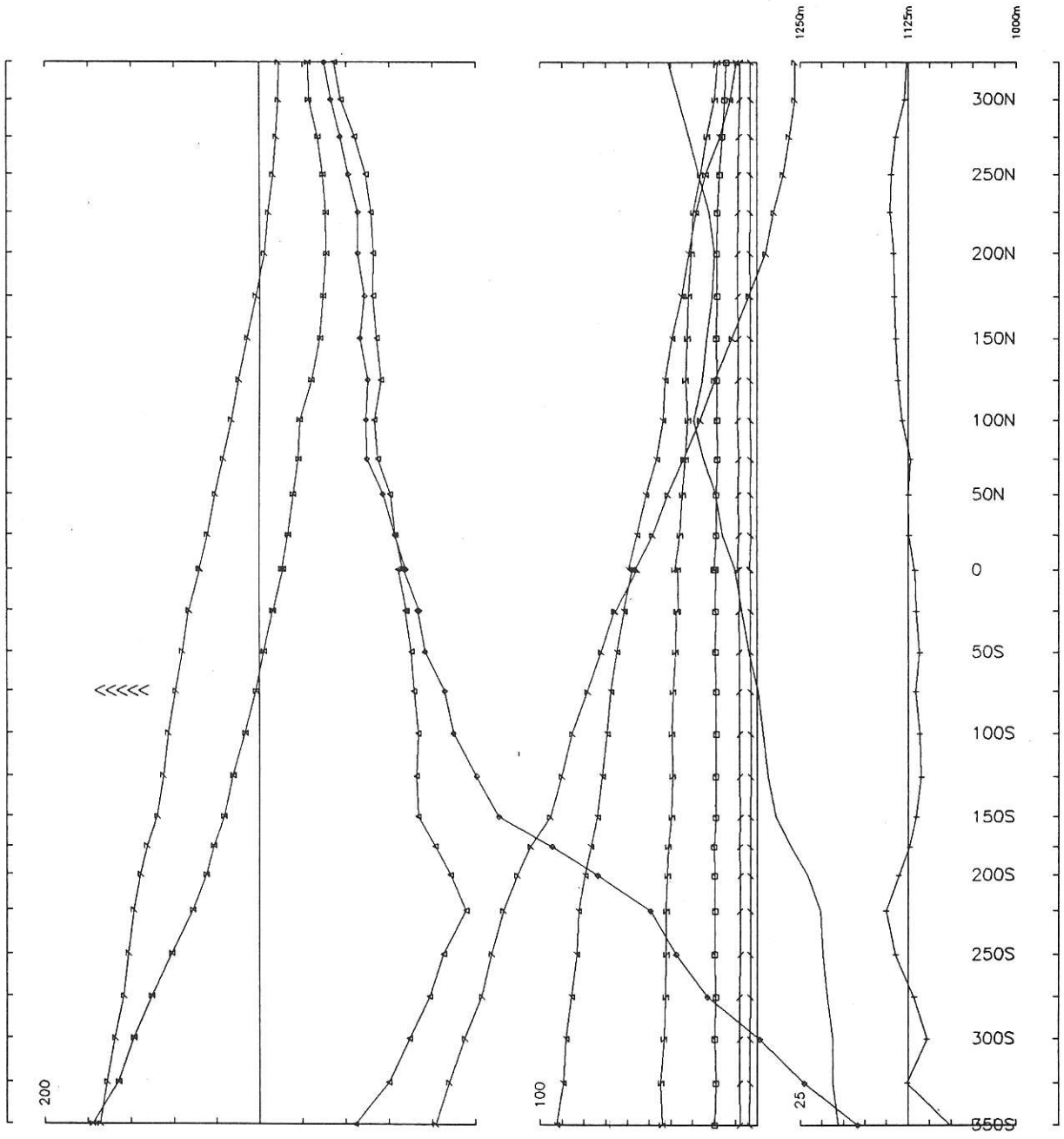

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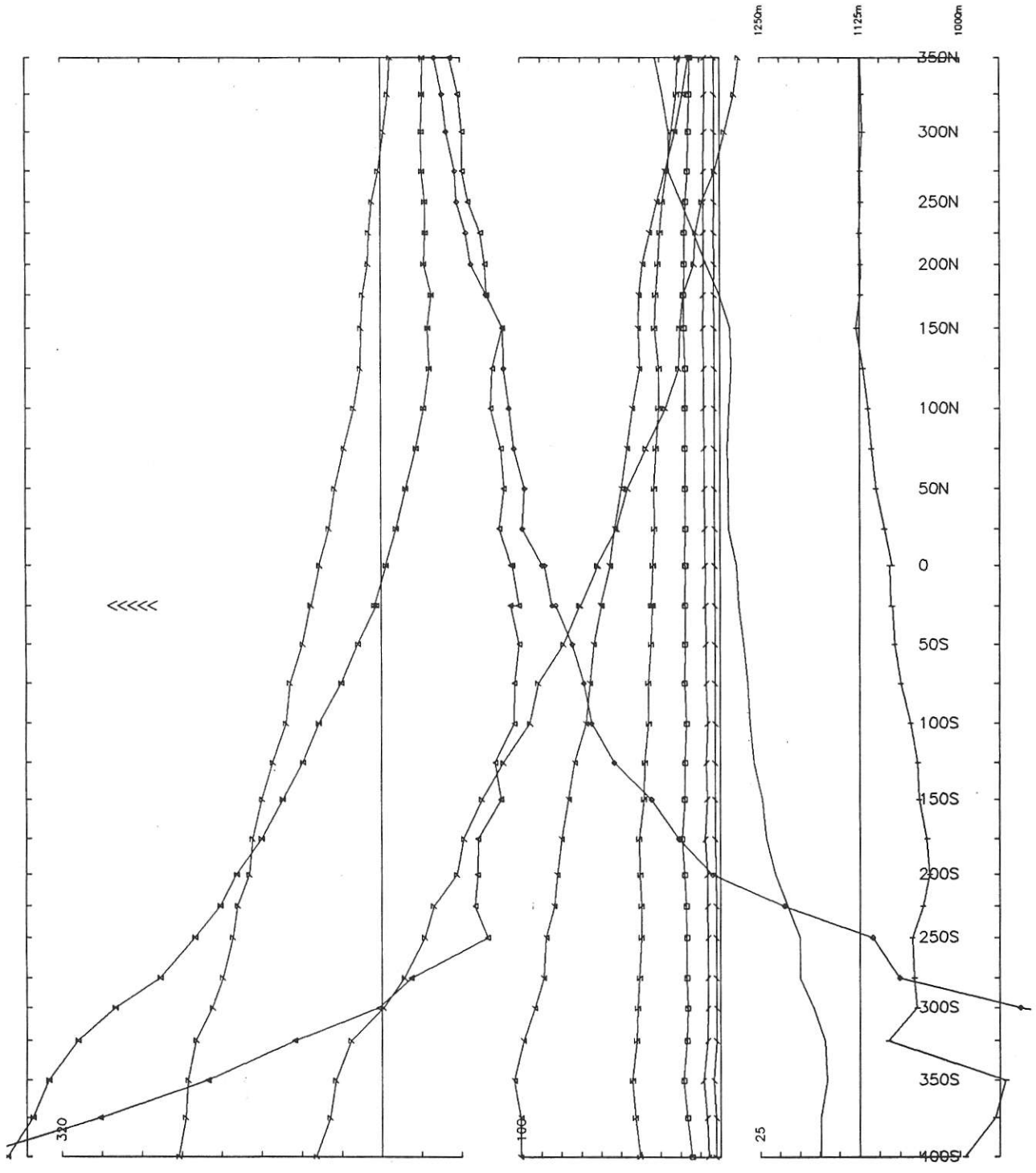
Loopno 2 Line 200E component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

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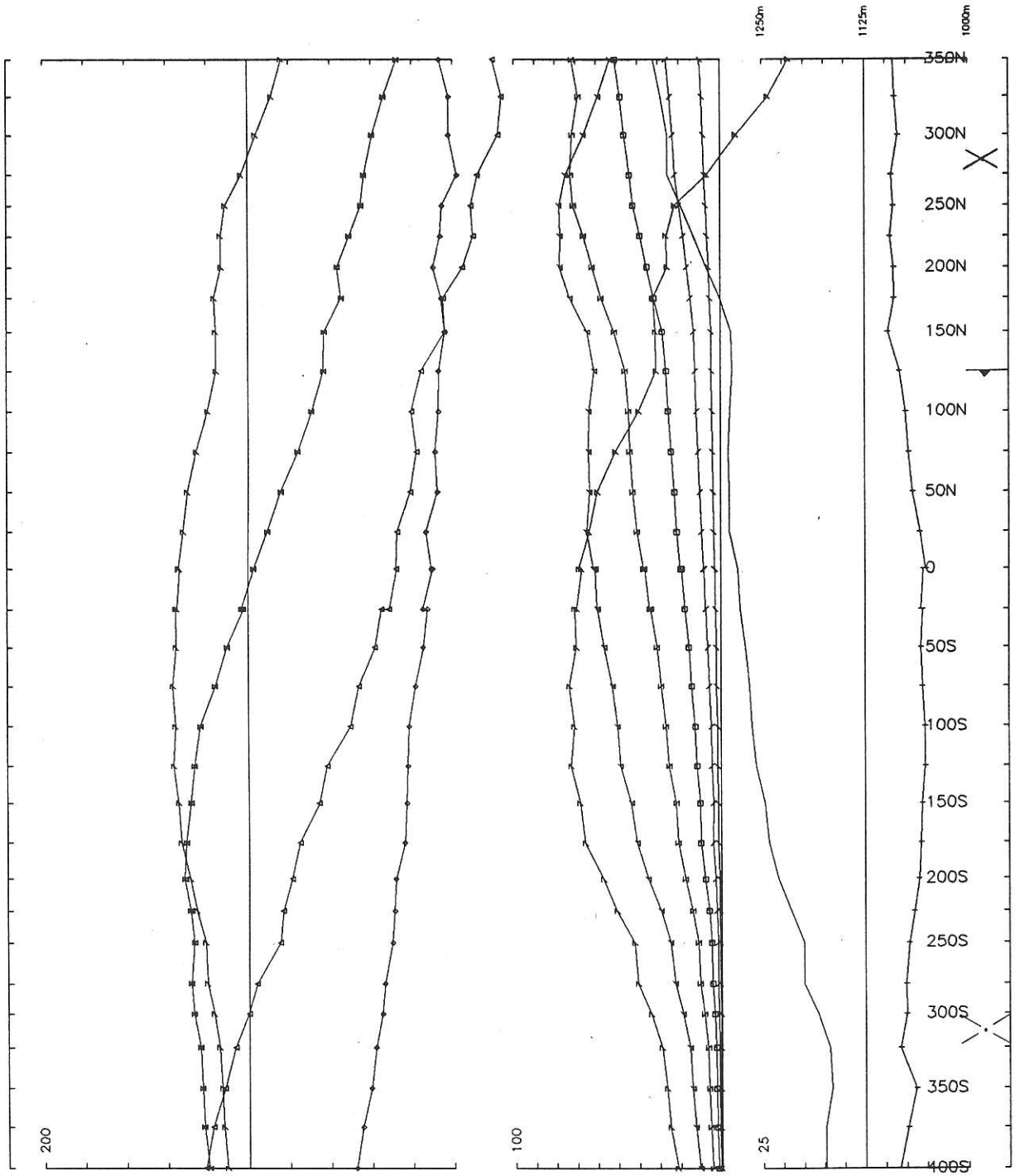
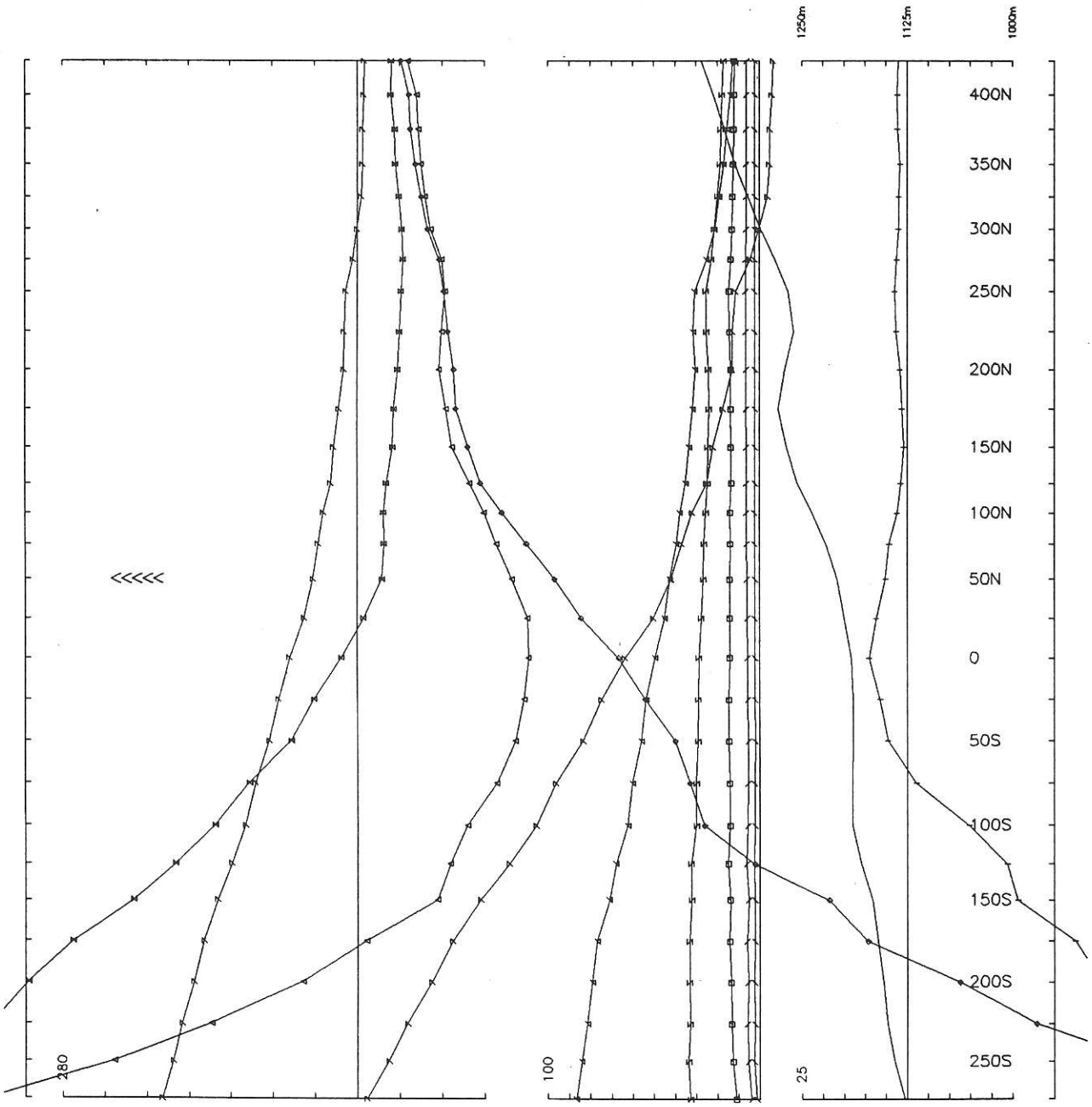


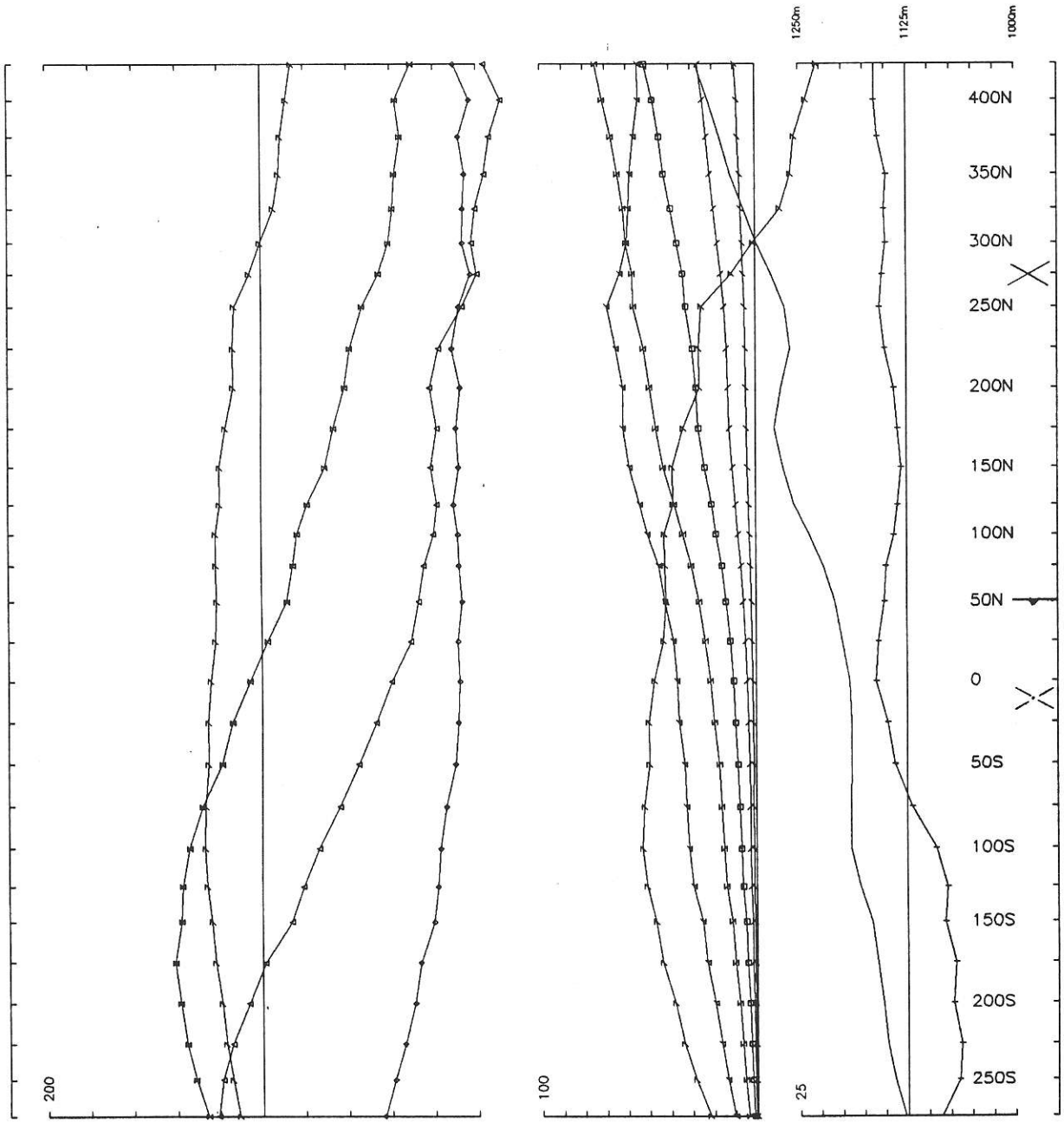
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 2 Line 100E component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.



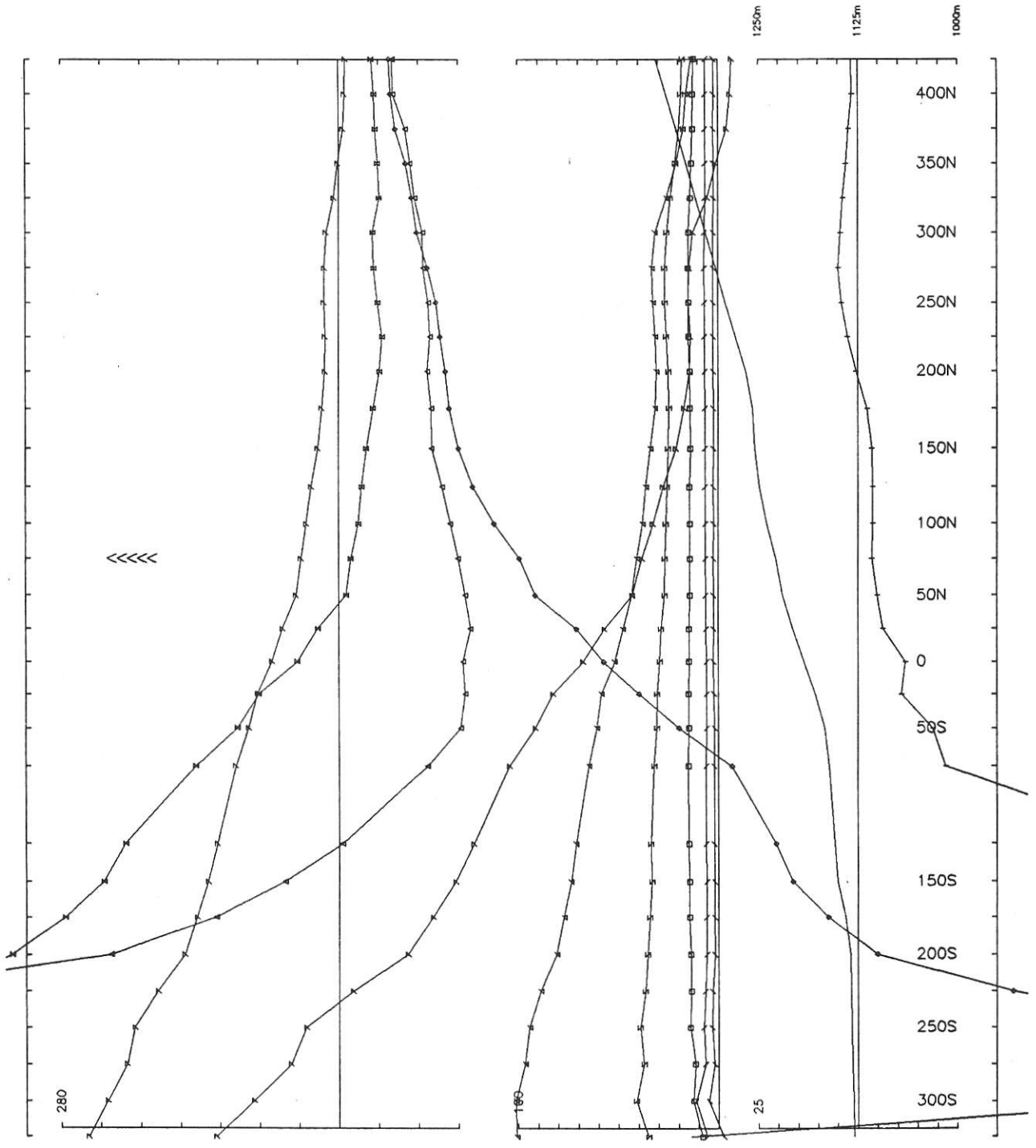
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 2 Line 25W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



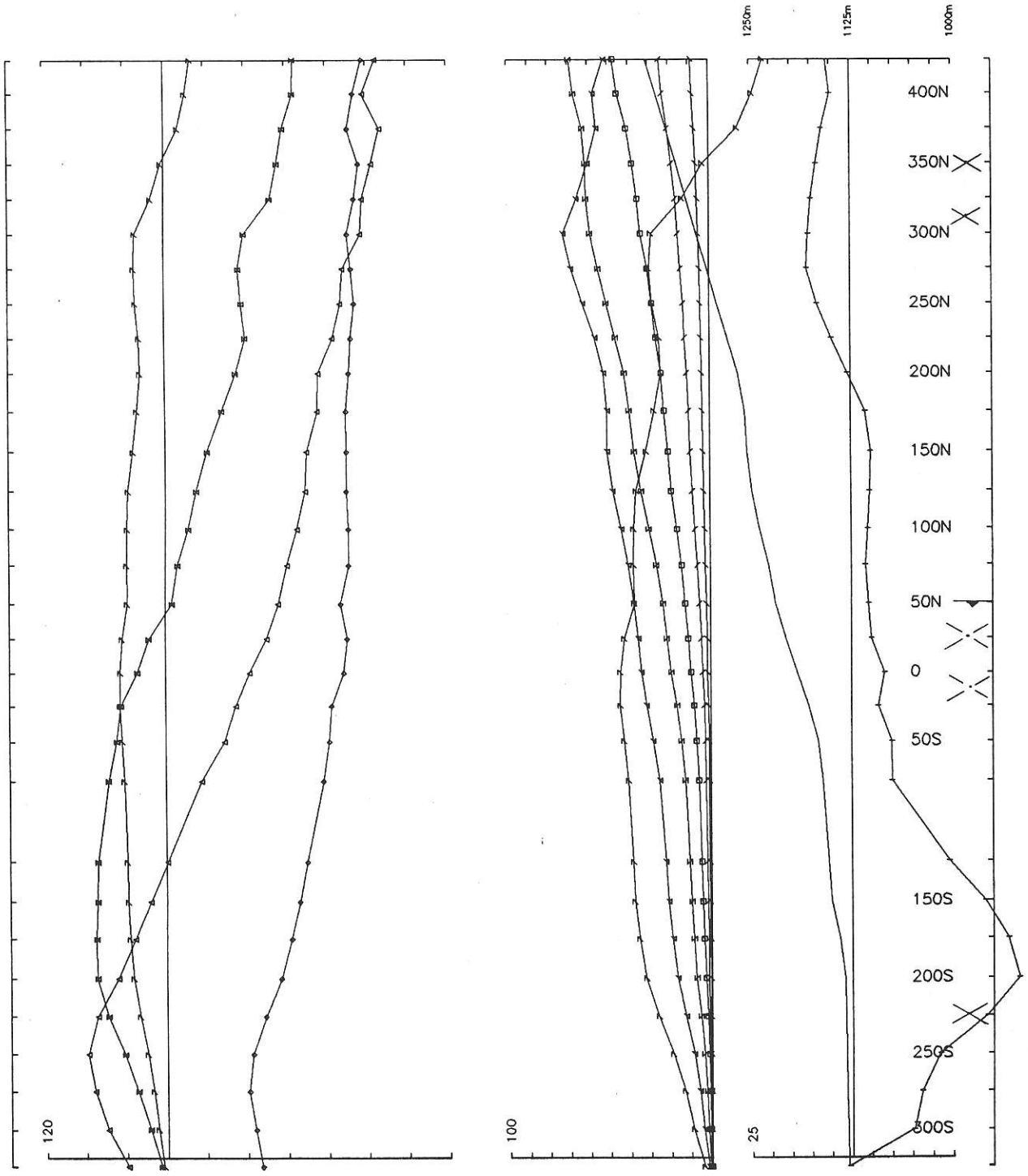
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 2 Line 25W component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.



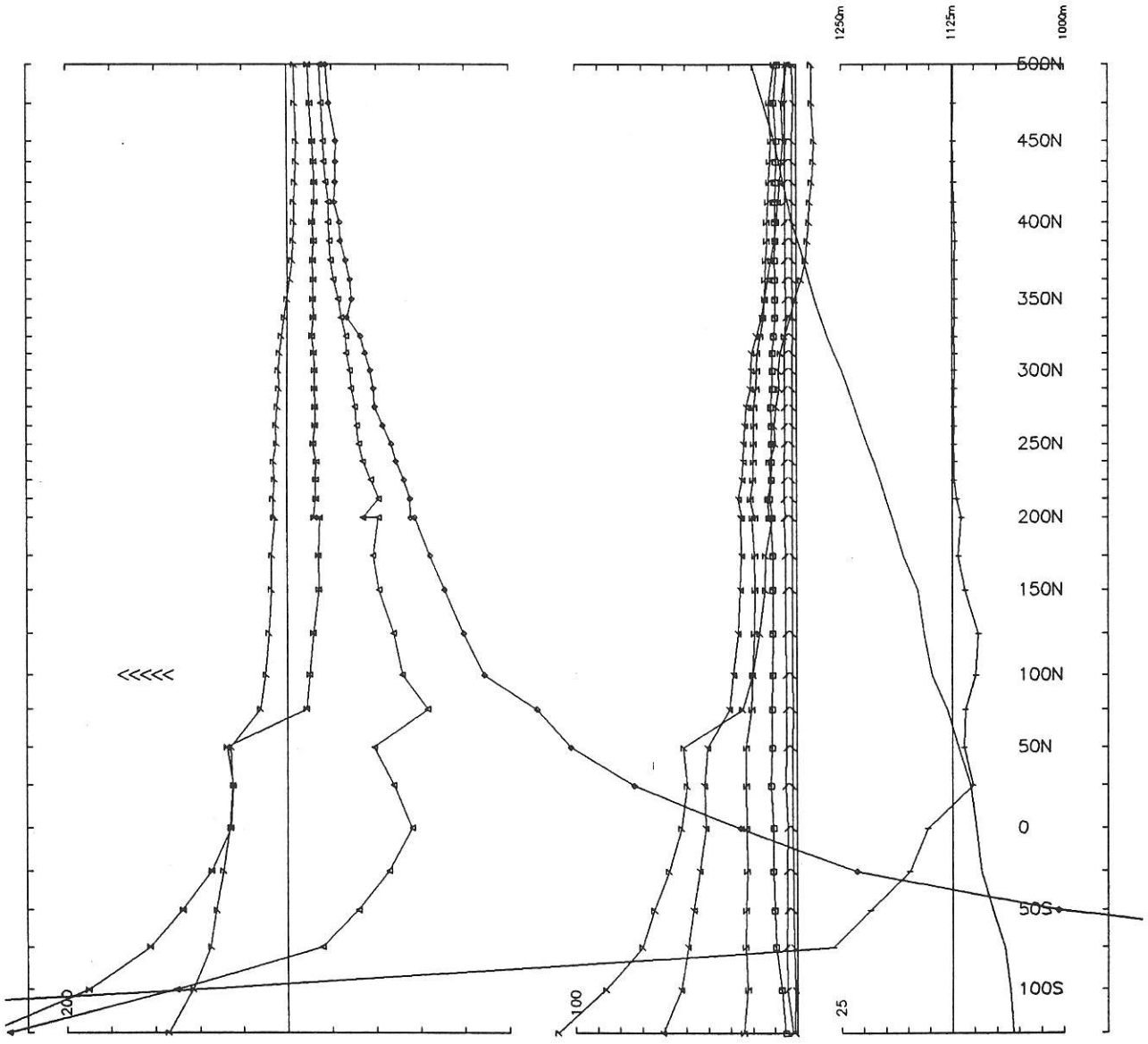
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 2 Line 100W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



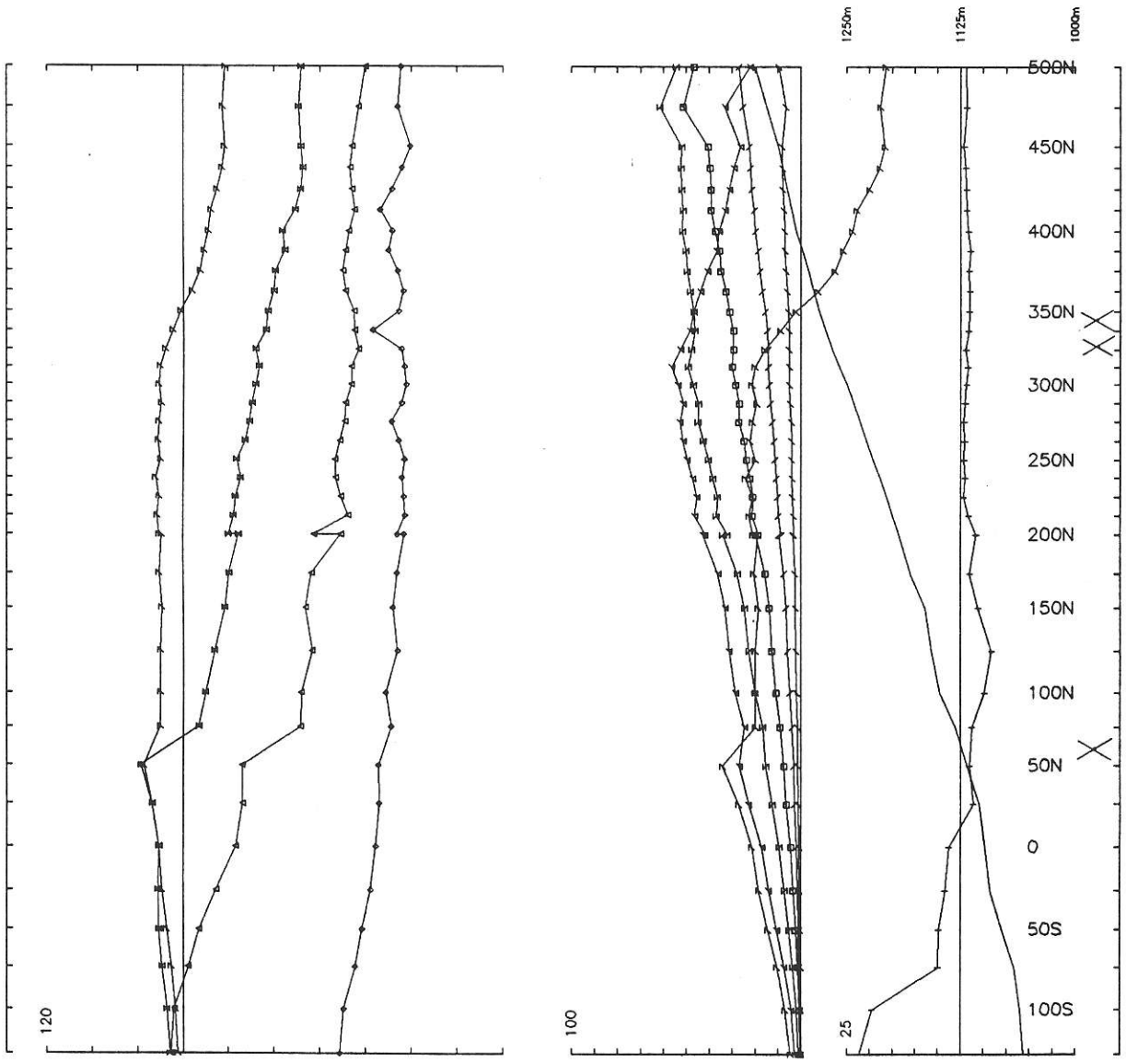
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 2 Line 100W component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.



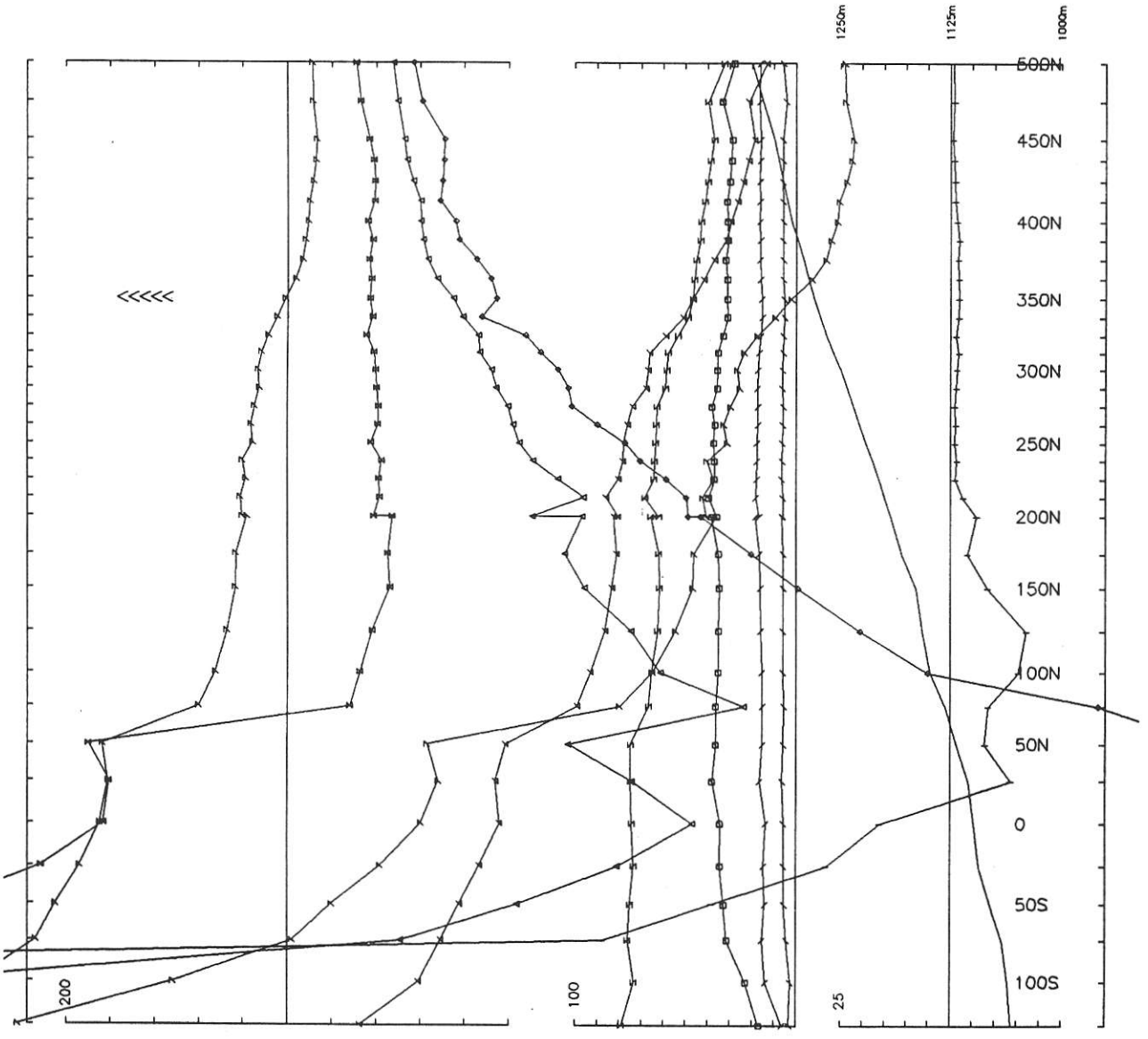
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 2 Line 300W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



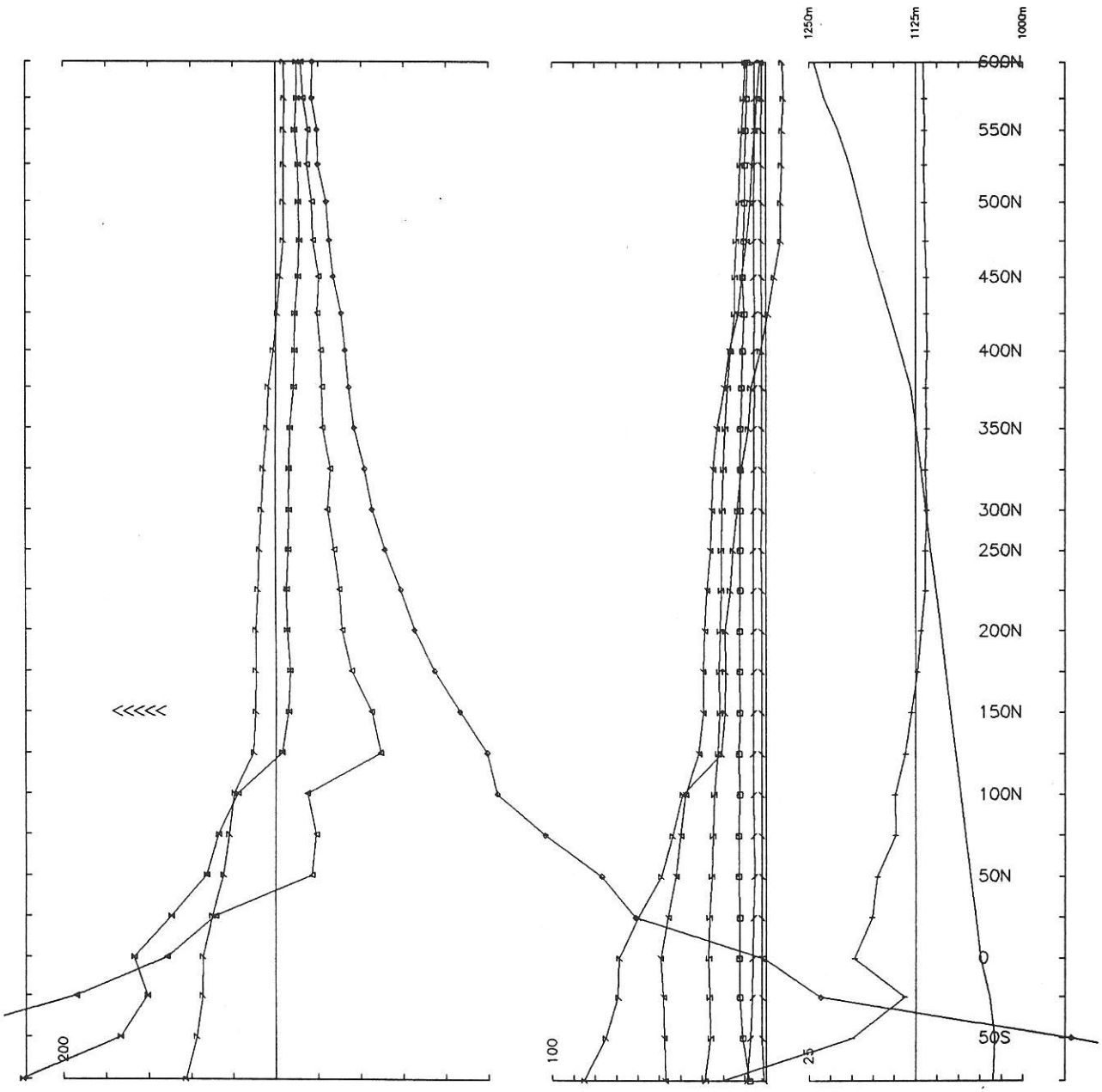
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 2 Line 300W component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.



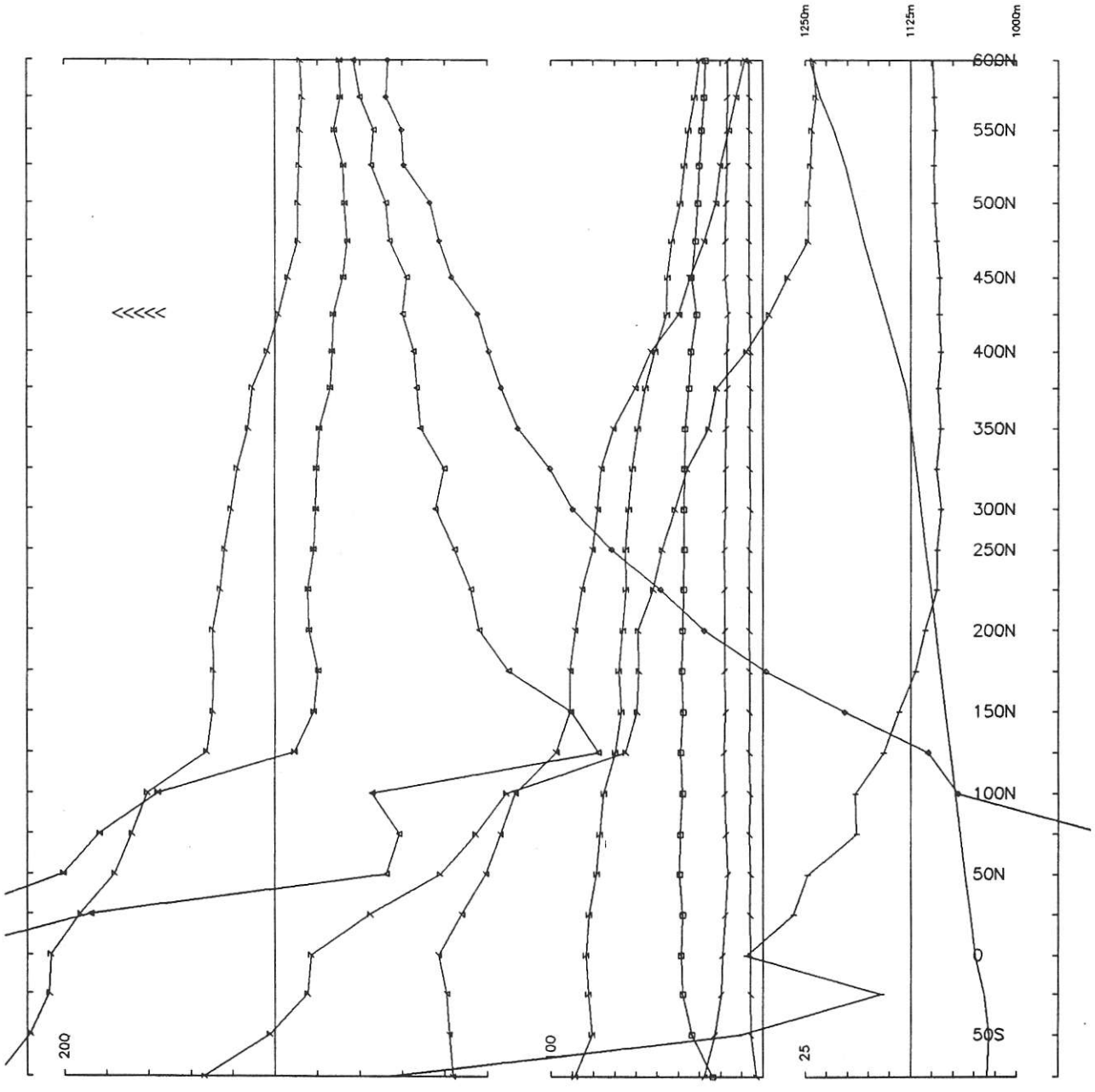
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 2 Line 300W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



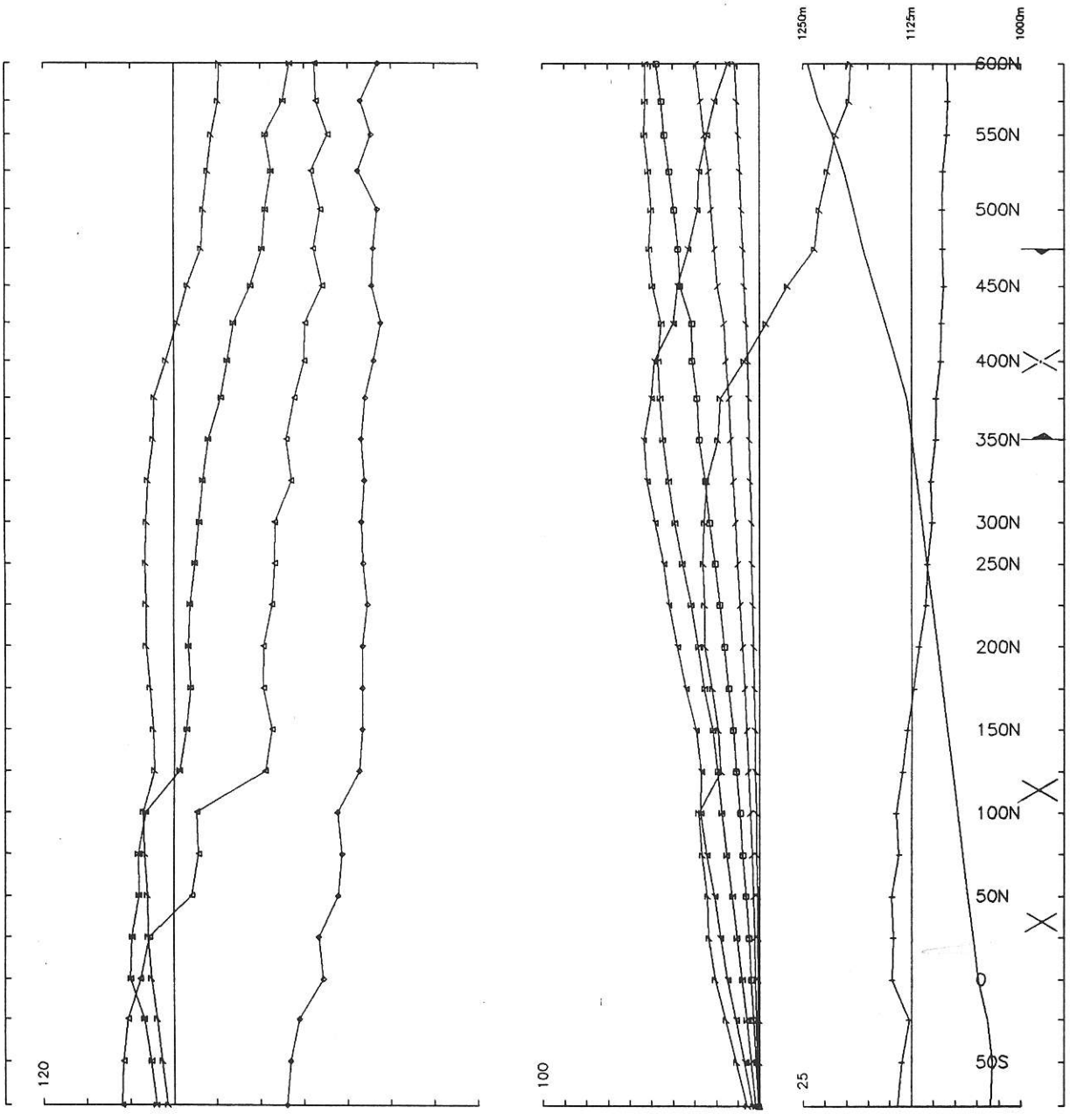
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 2 Line 400W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



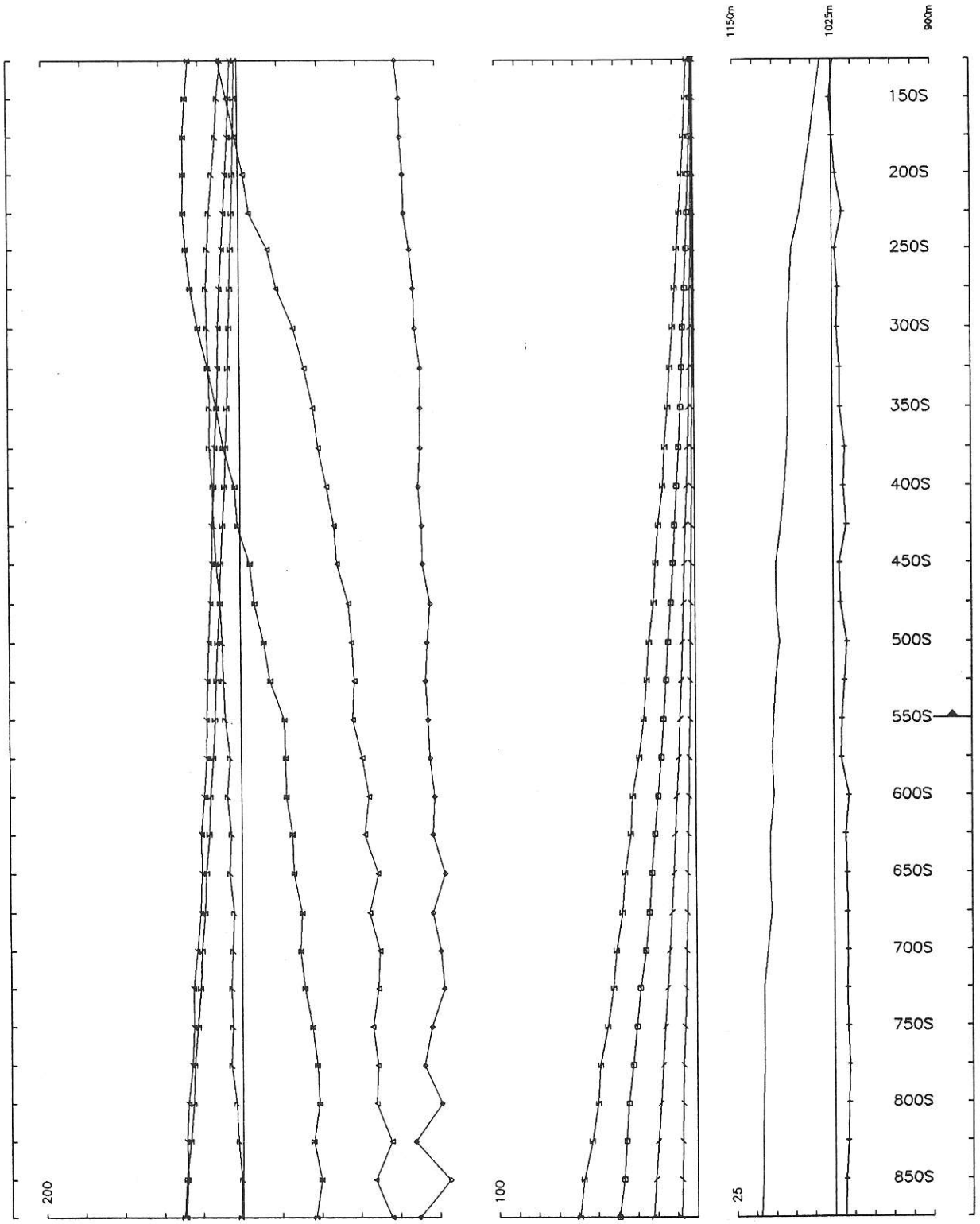
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 2 Line 400W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



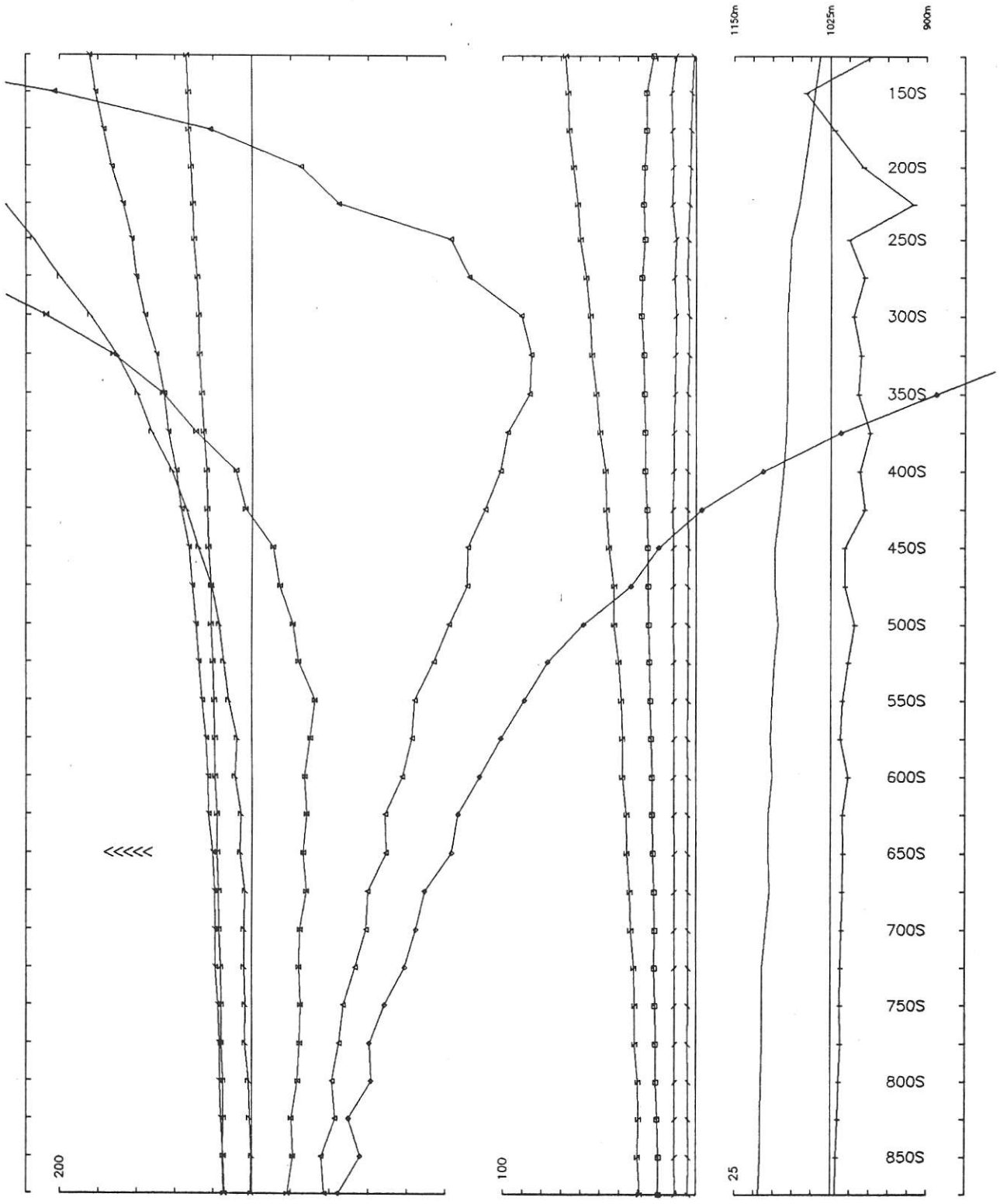
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 2 Line 400W component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.



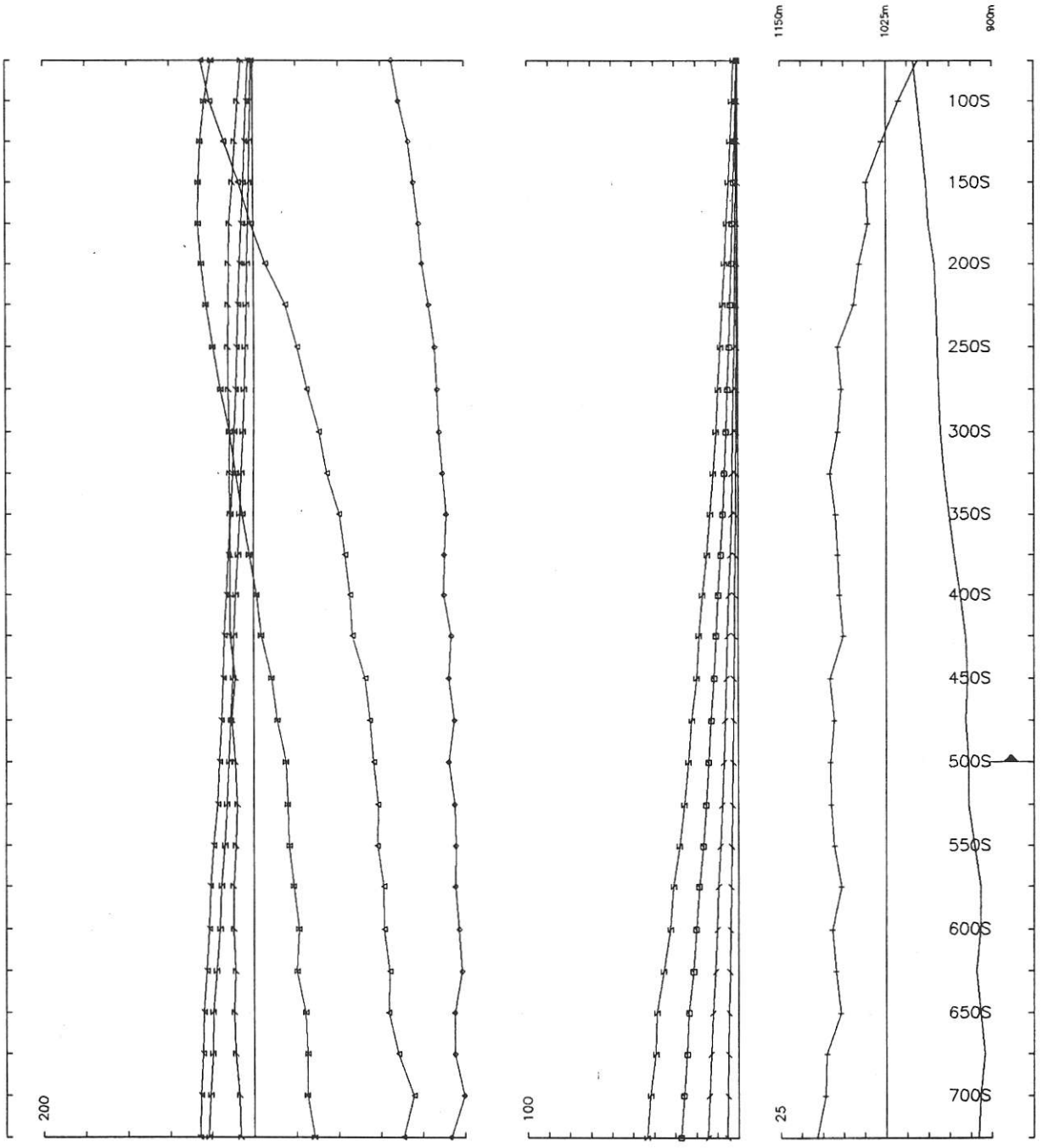
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 3 Line 700W component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.



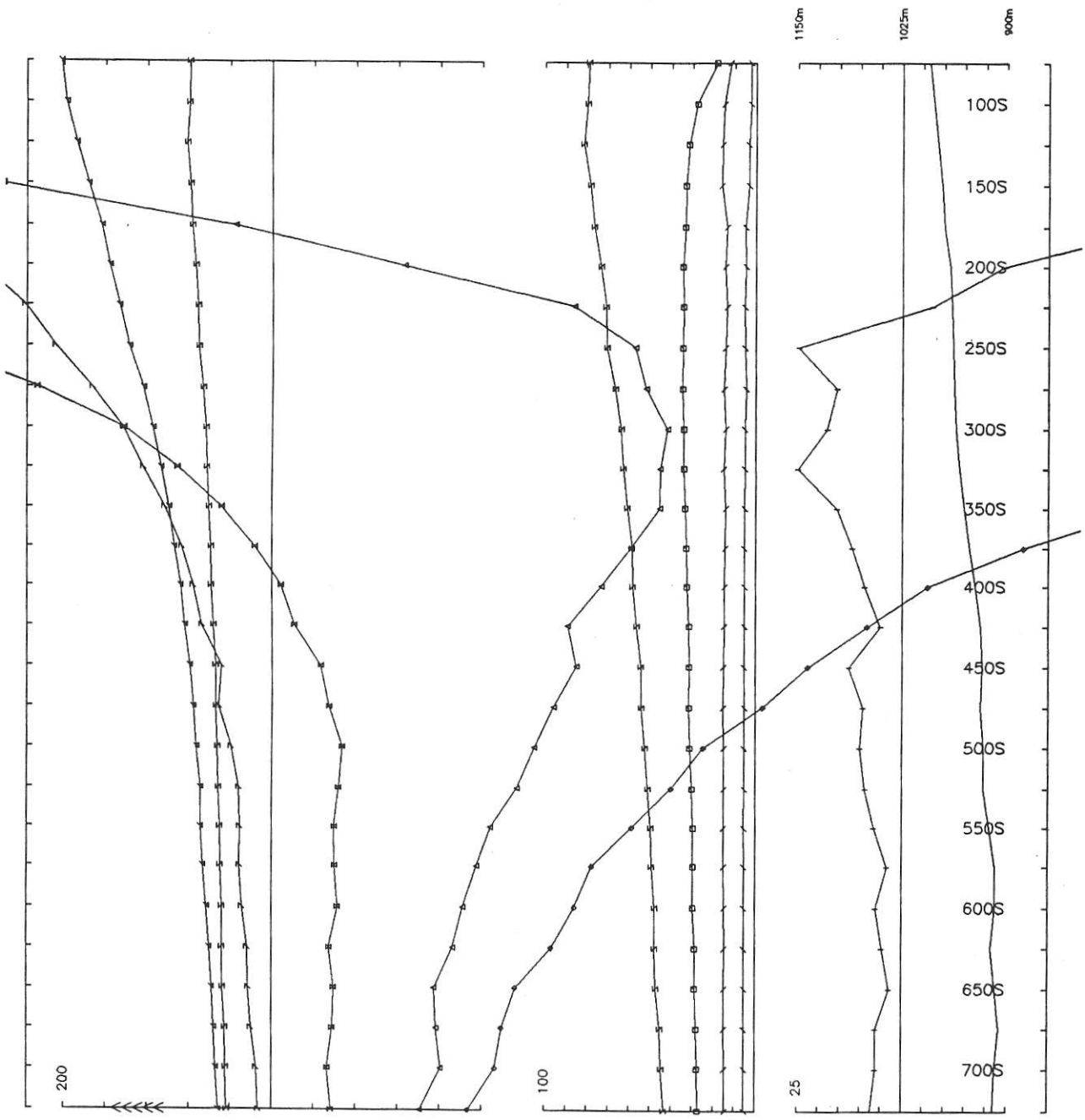
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 3 Line 700W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



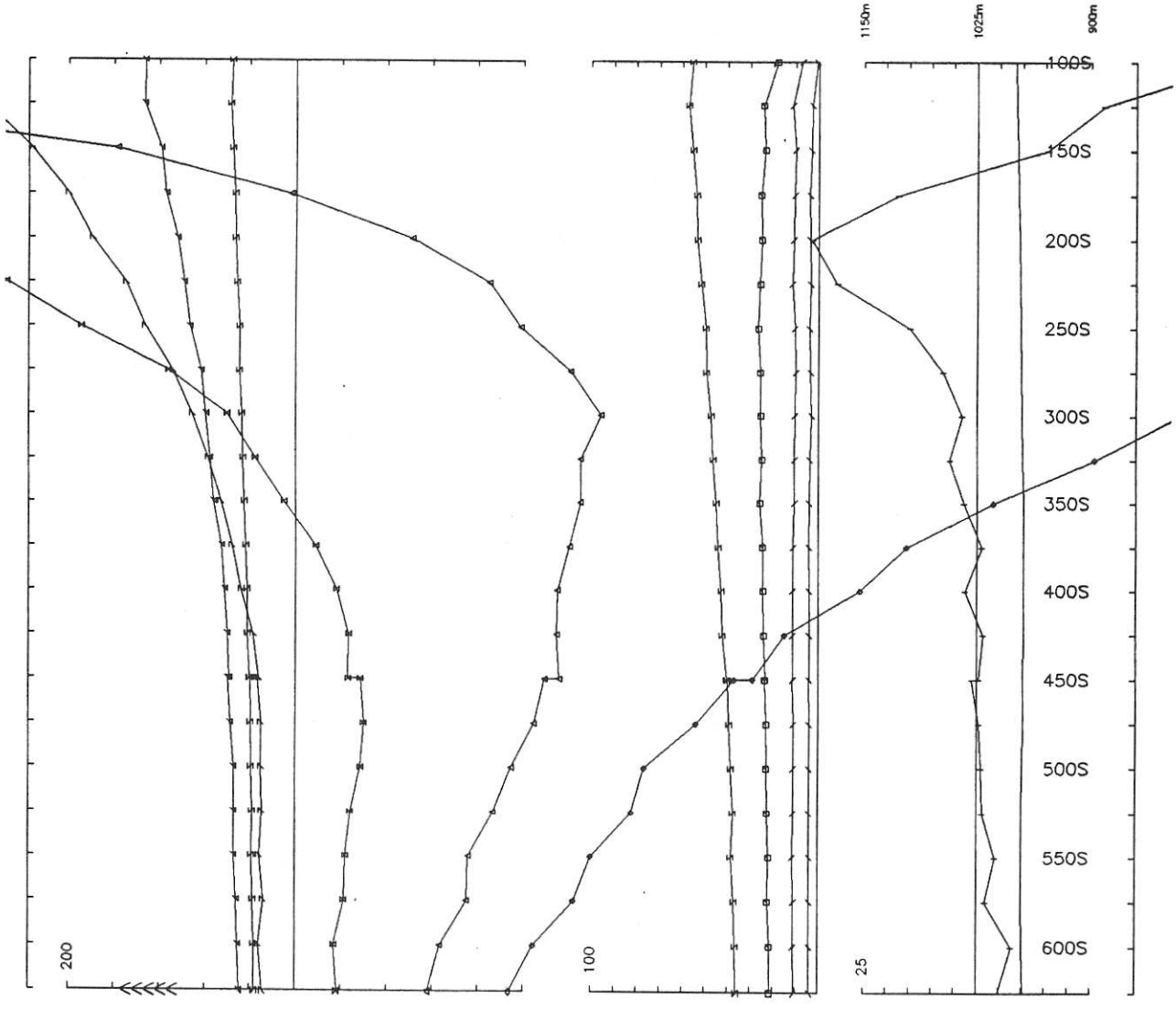
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 3 Line 800W component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.



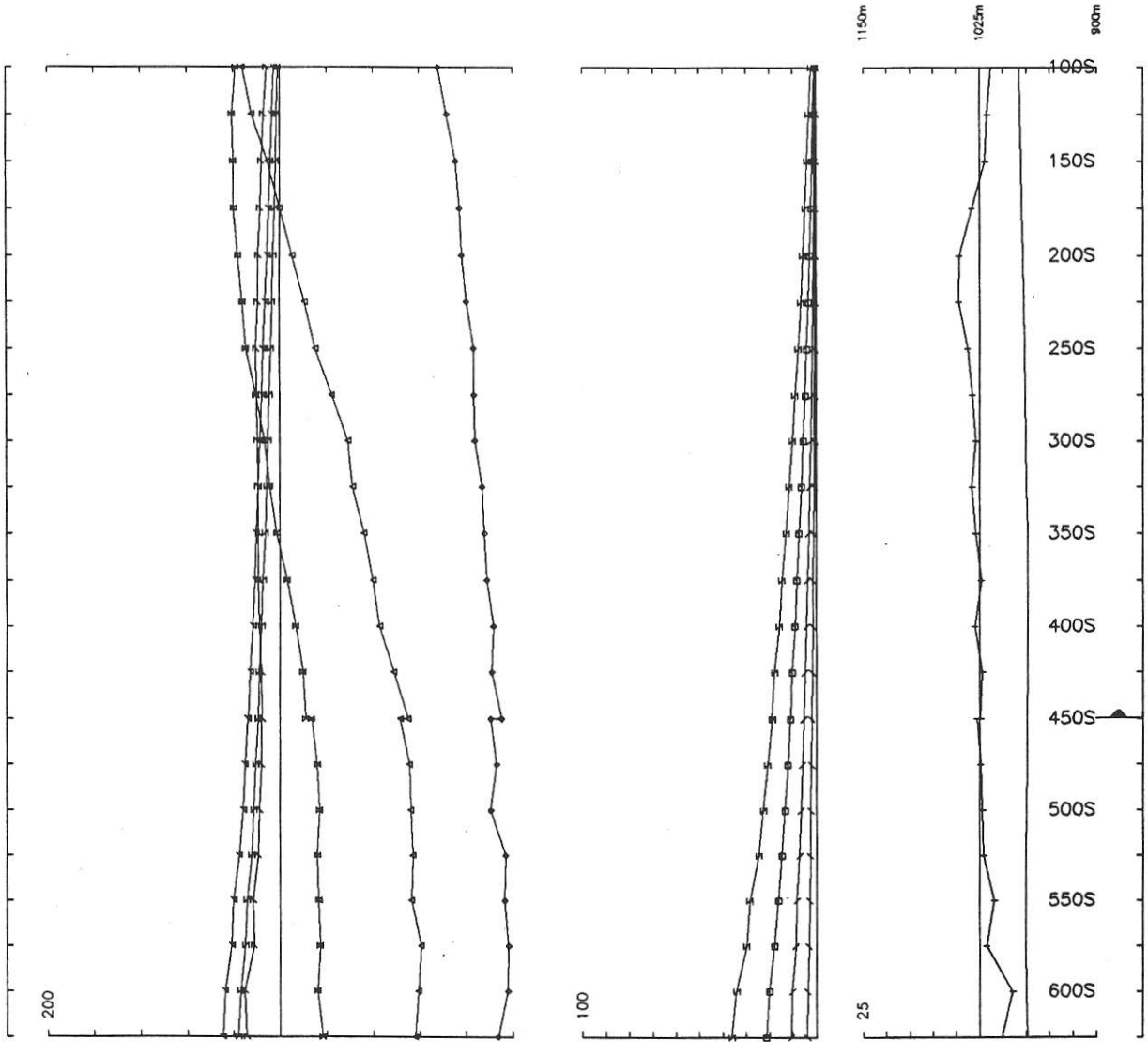
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 3 Line 800W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



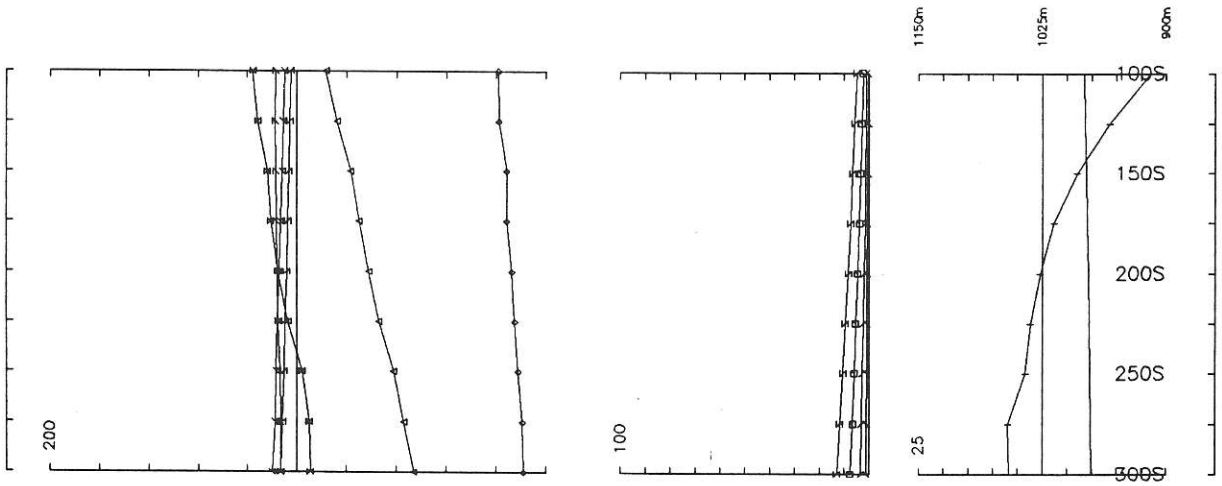
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 3 Line 900W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



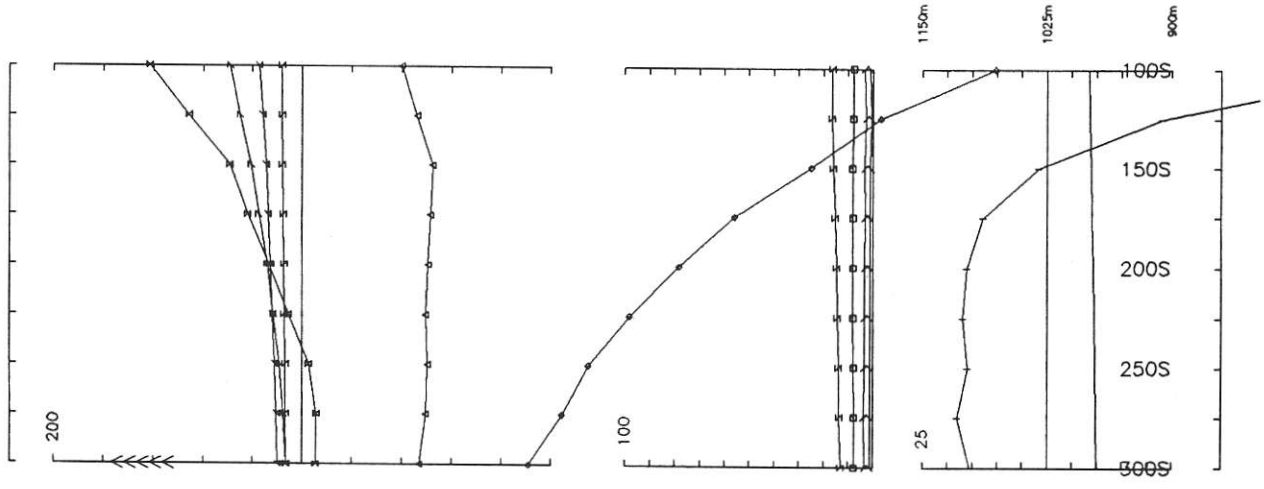
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 3 Line 900W component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.



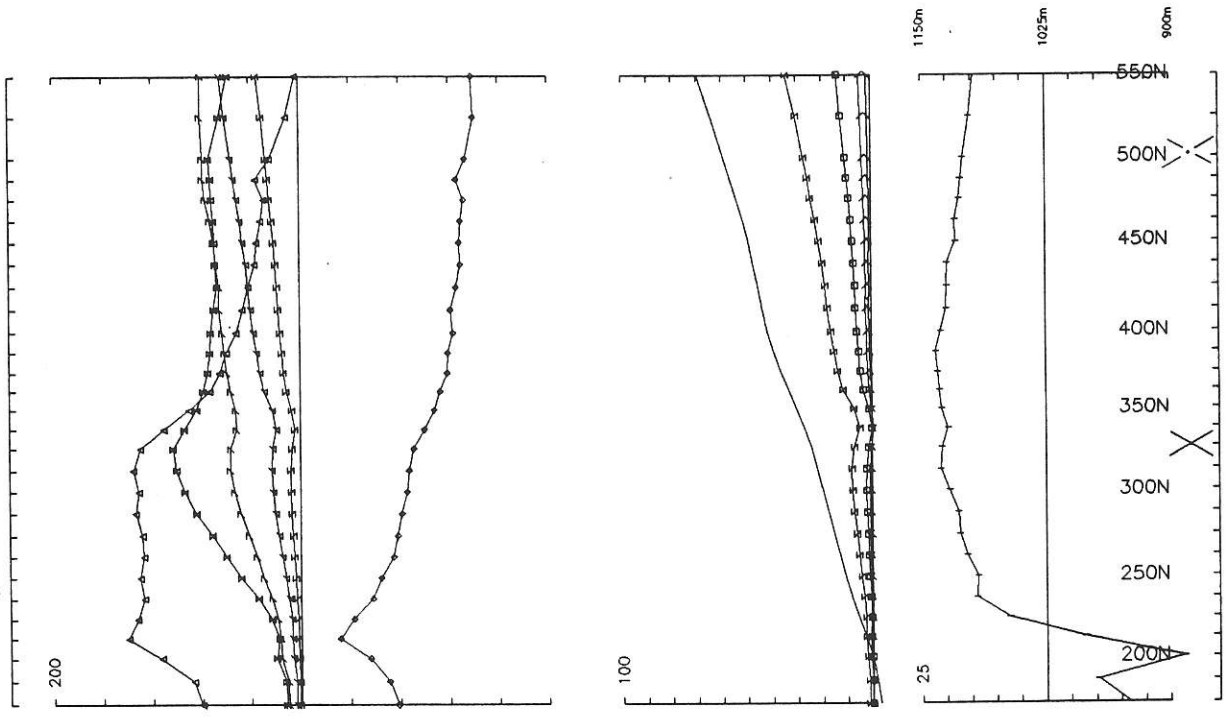
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 3 Line 1000W component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.



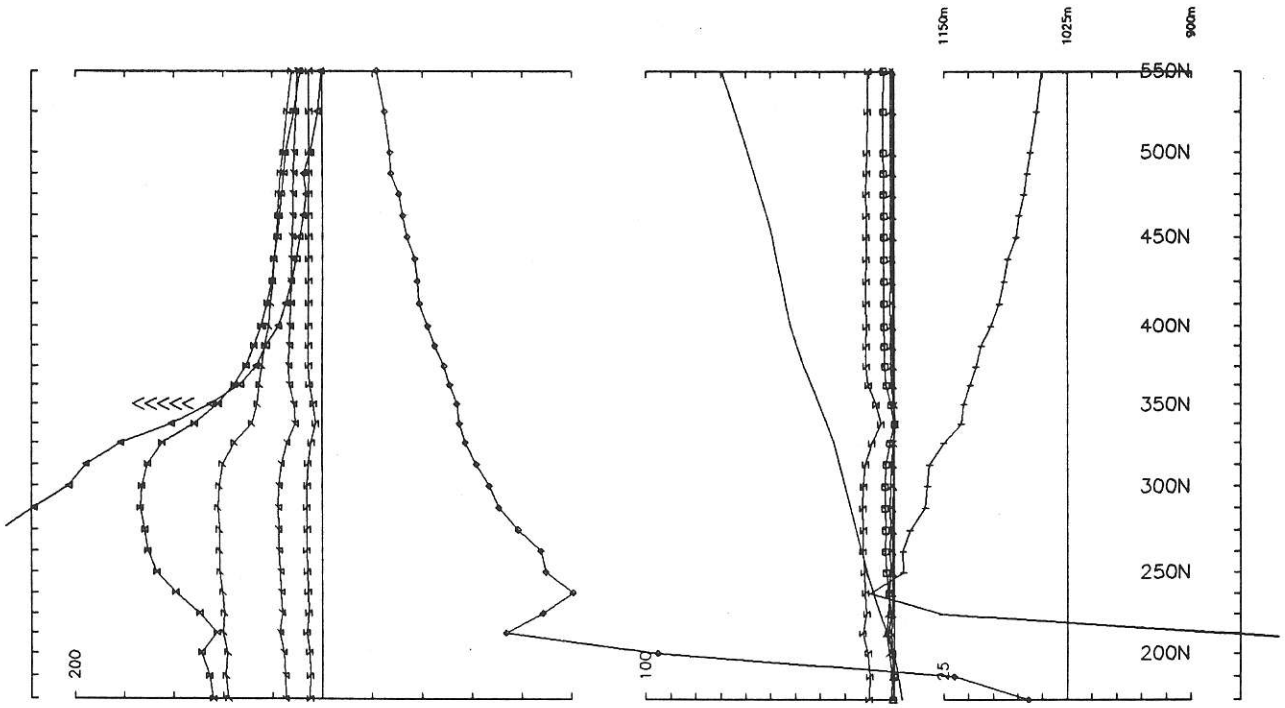
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 3 Line 1000W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



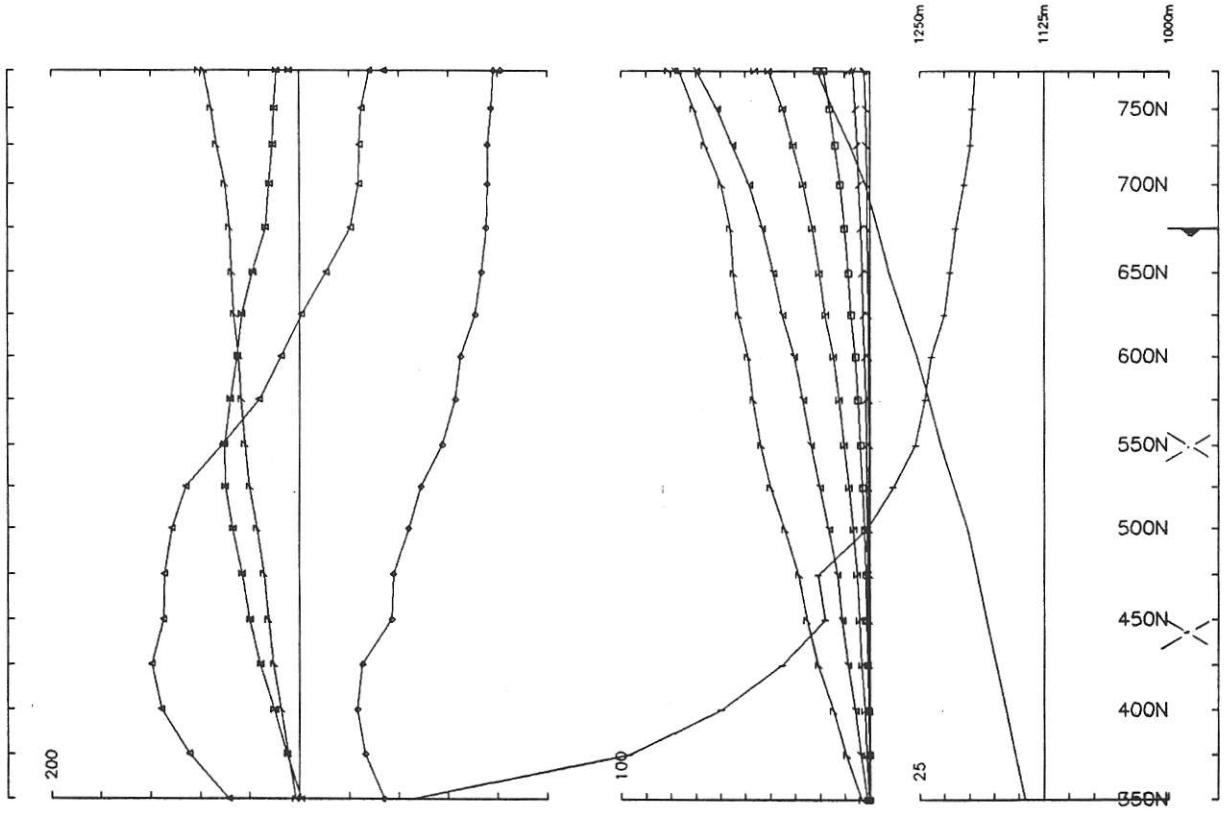
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 4 Line 250W component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.



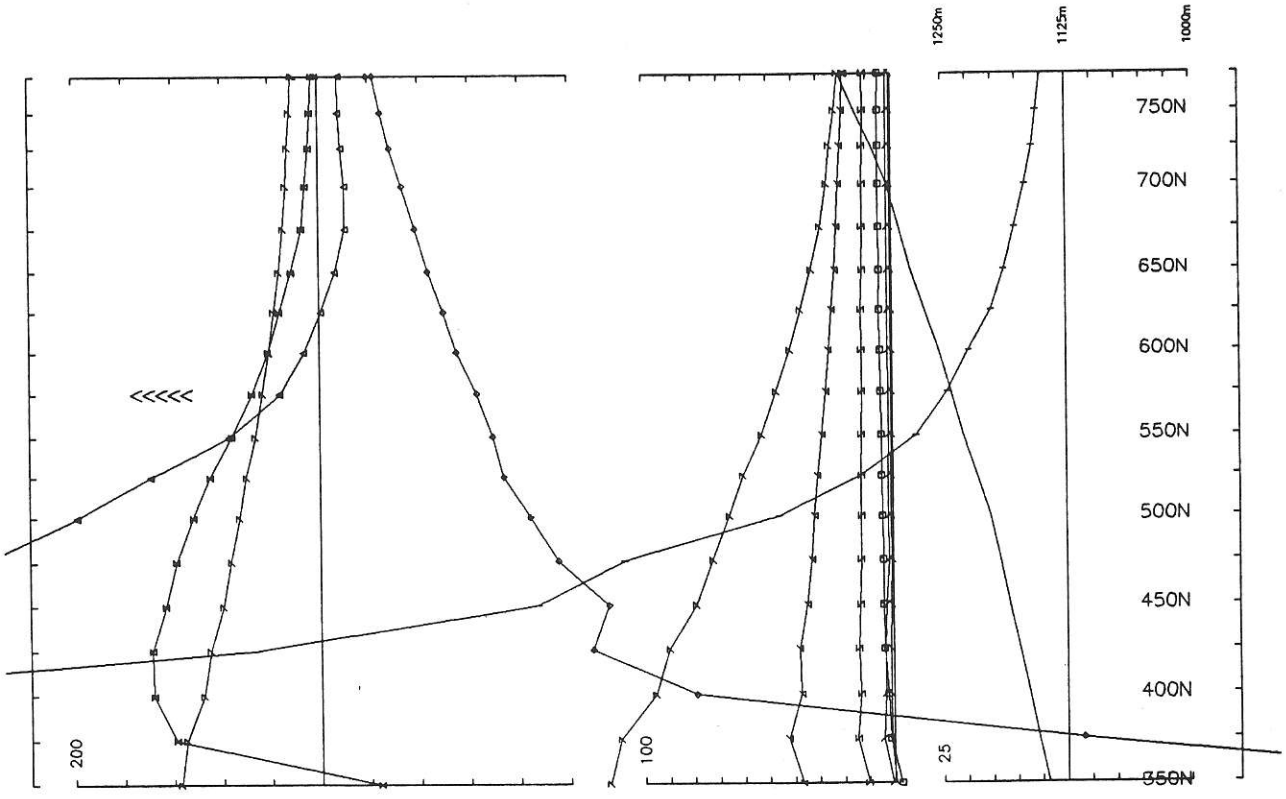
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 4 Line 250W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



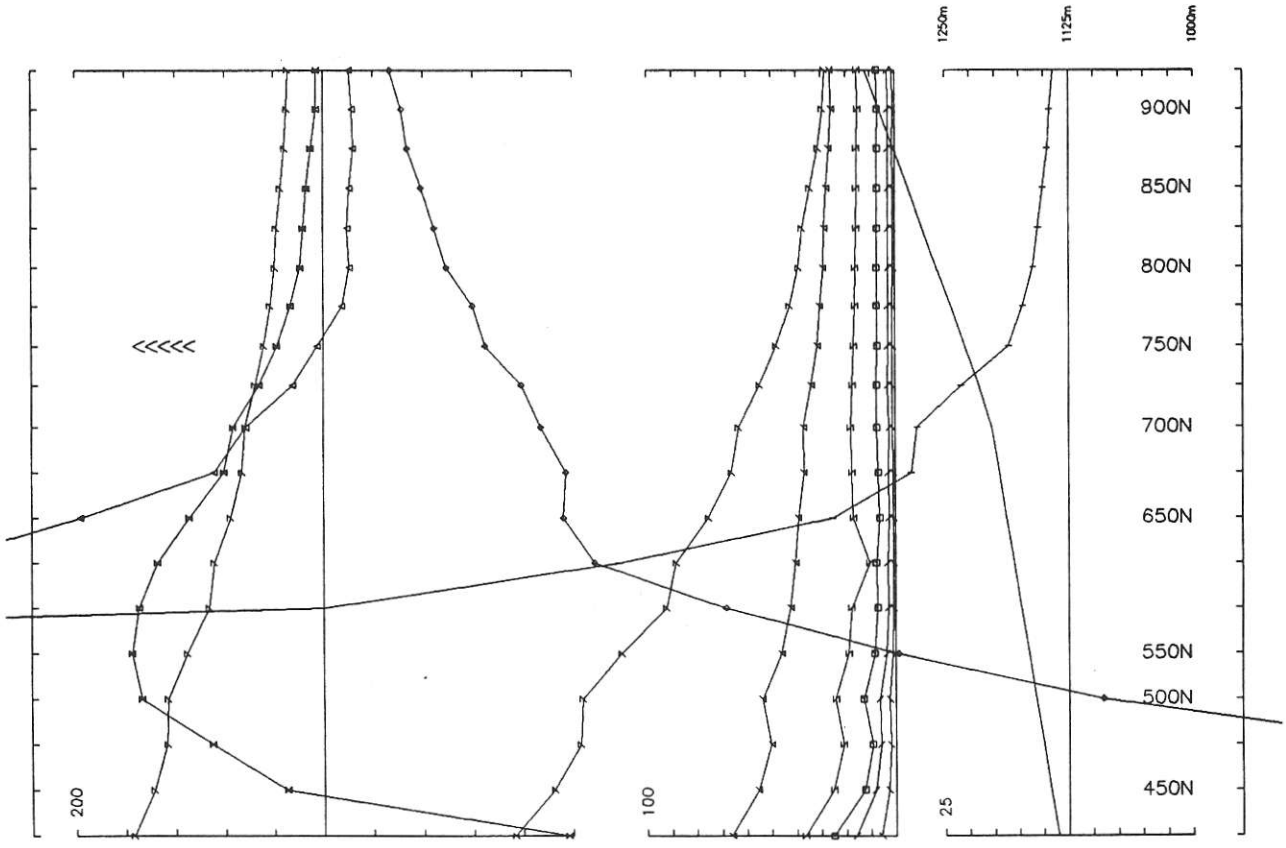
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 4 Line 500W component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.



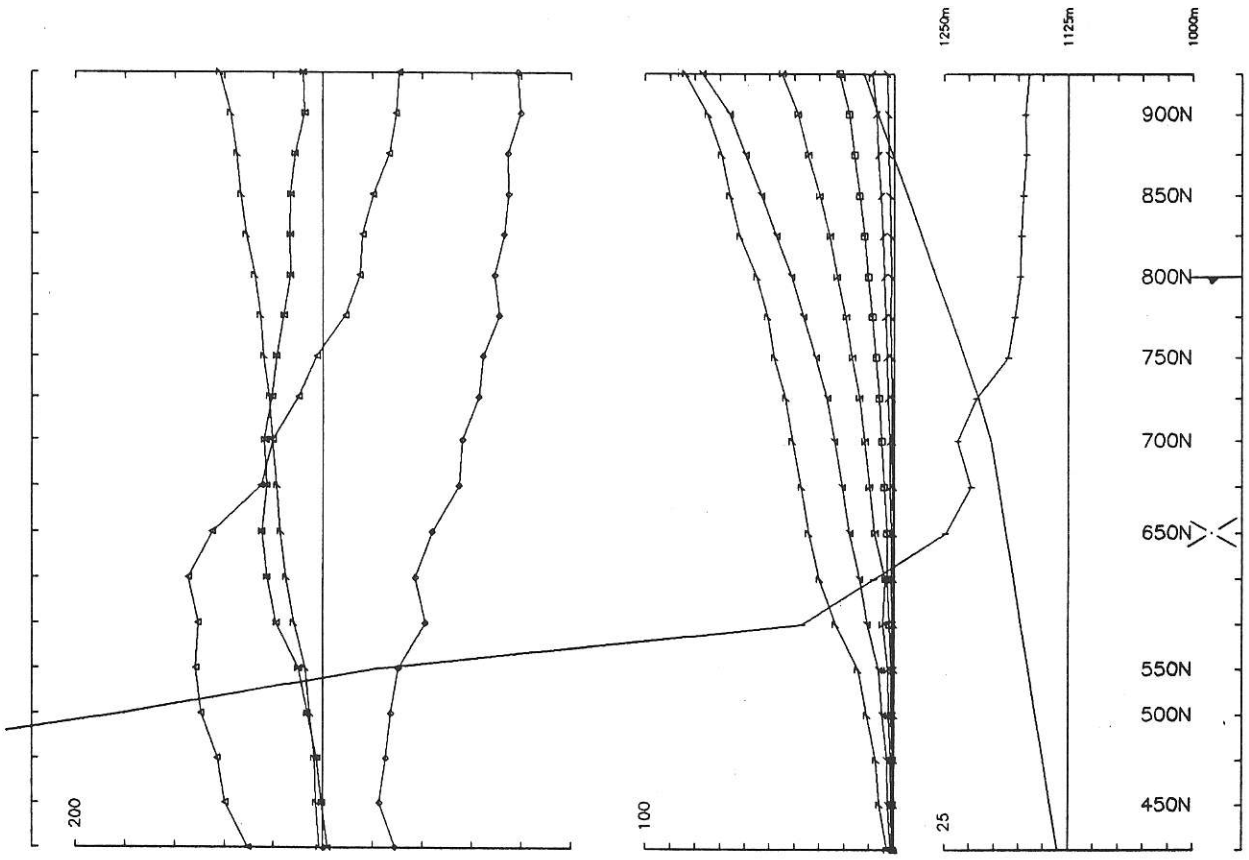
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 4 Line 500W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



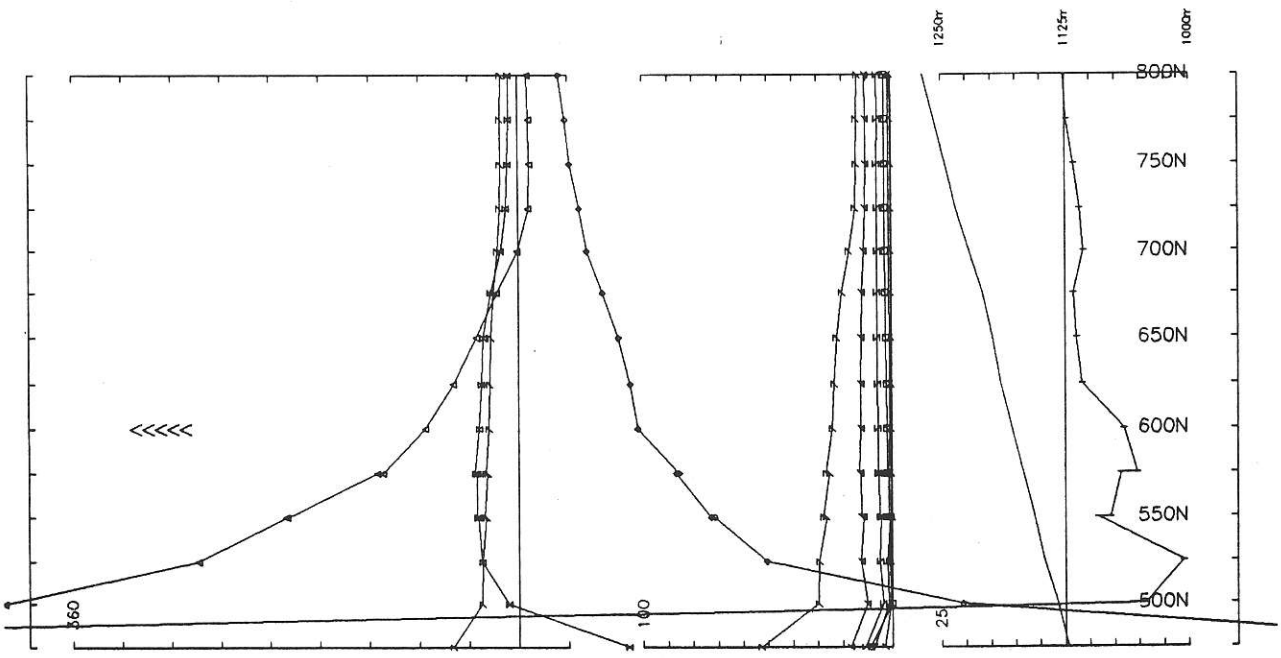
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 4 Line 600W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



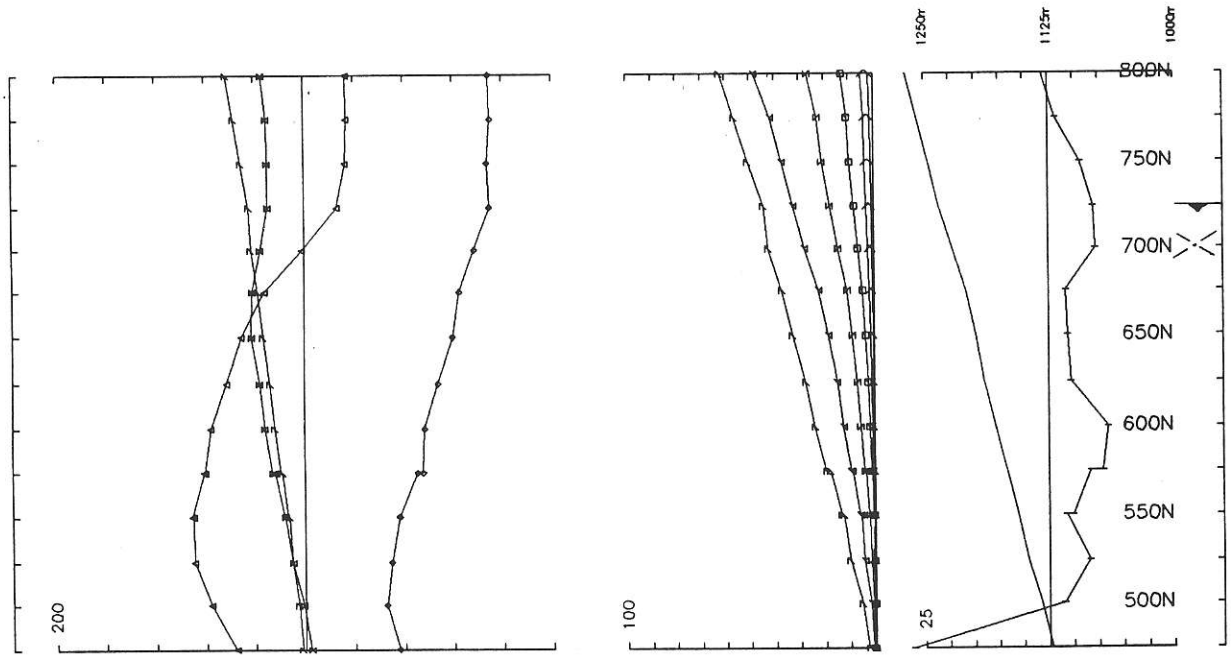
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 4 Line 600W component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.



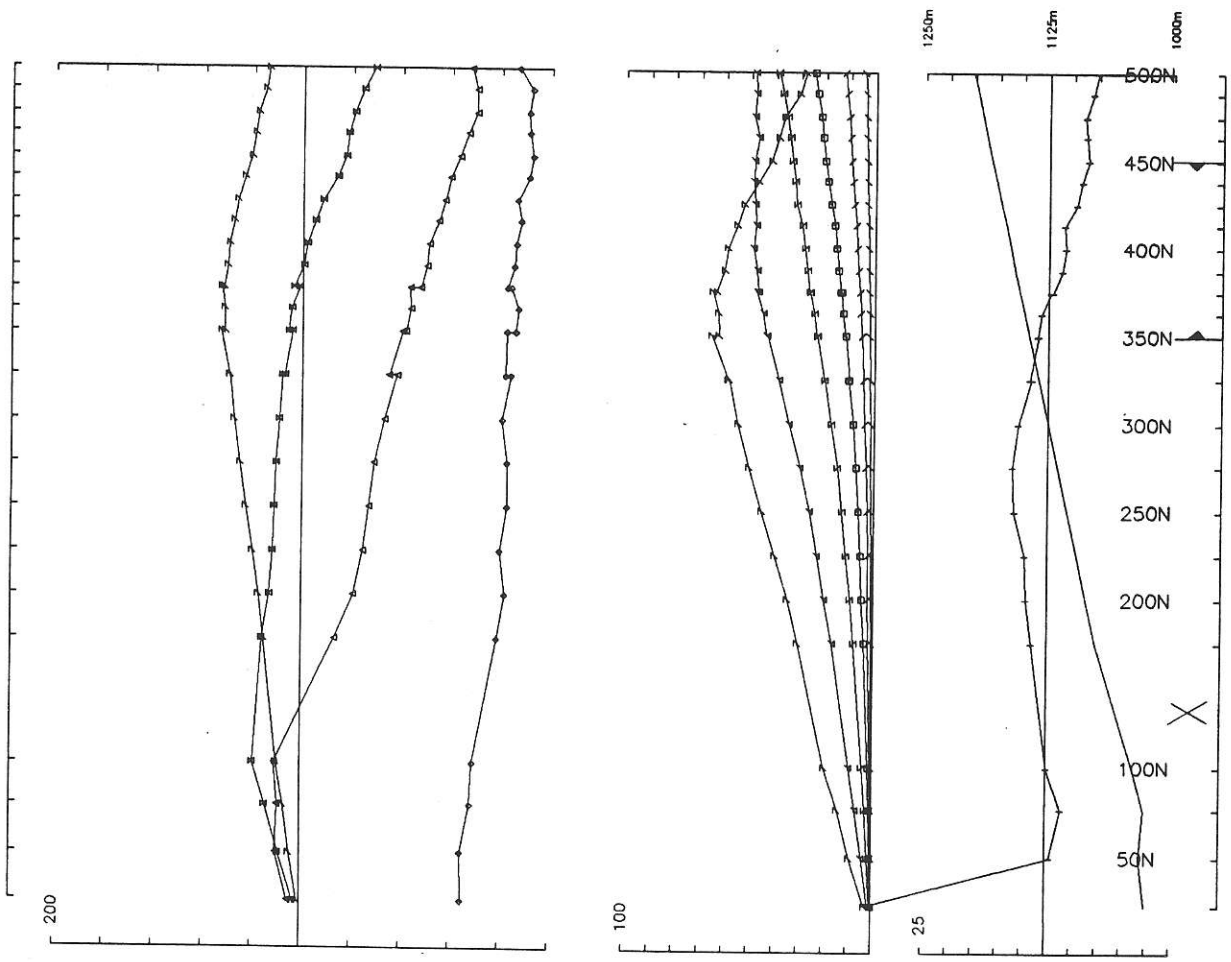
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 4 Line 700W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



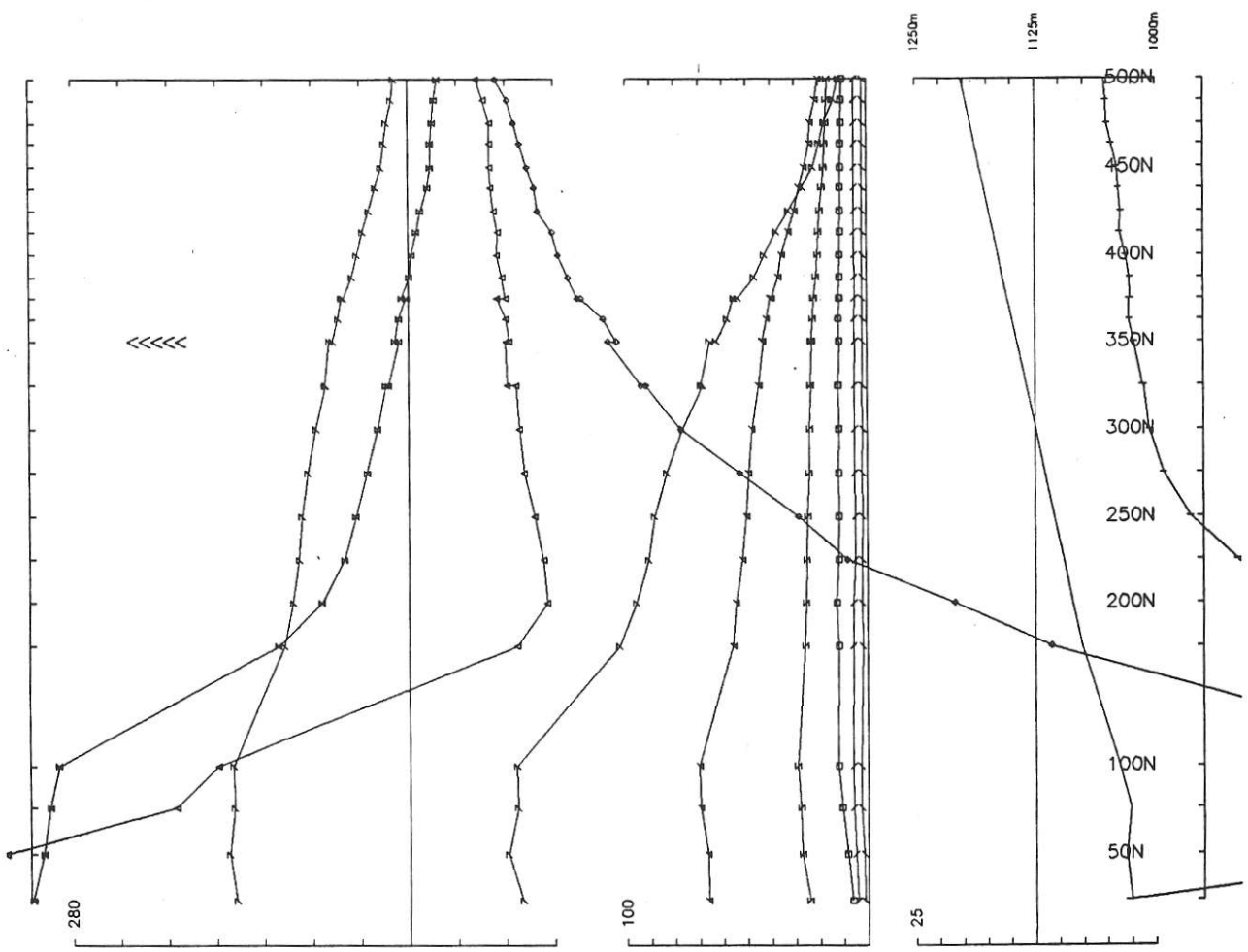
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 4 Line 700W component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.



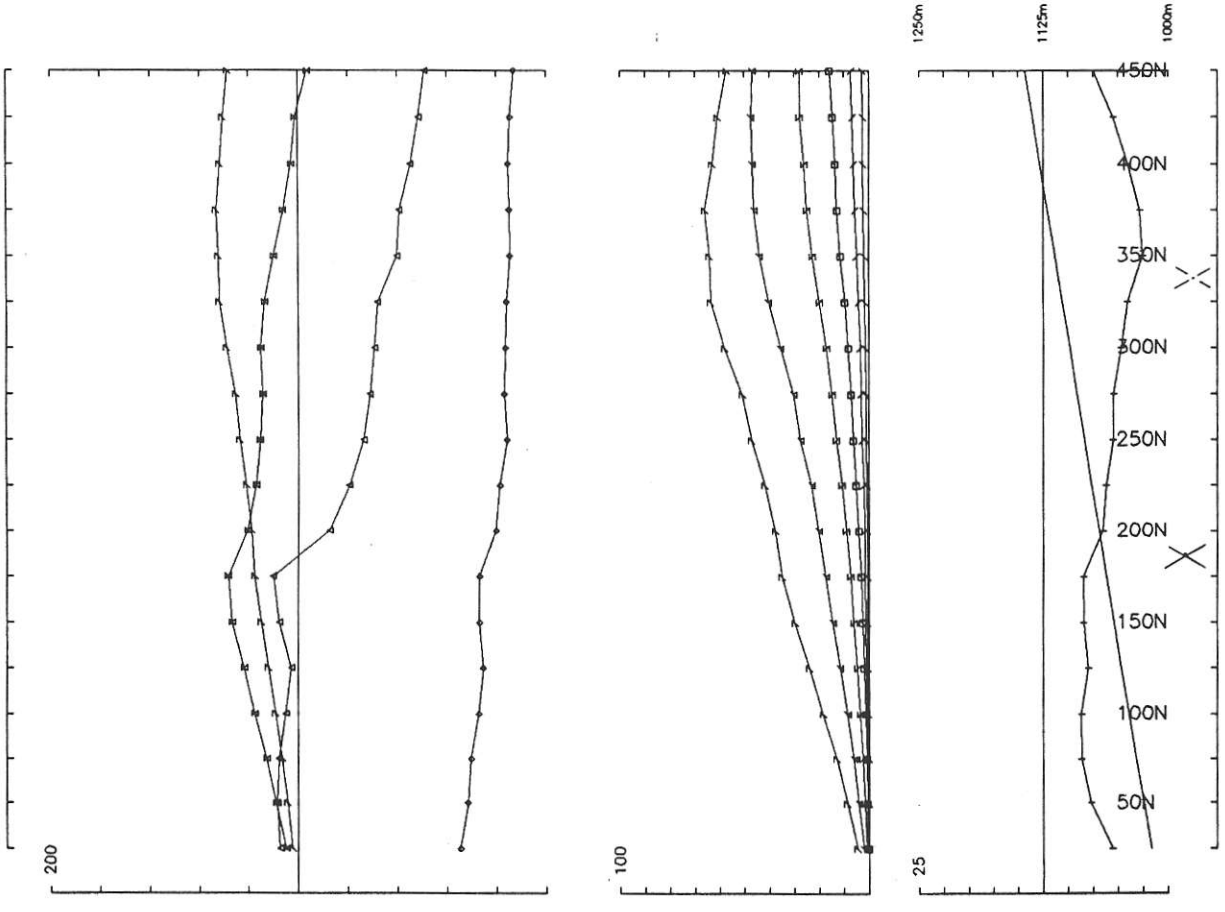
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 5 Line 500W component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.



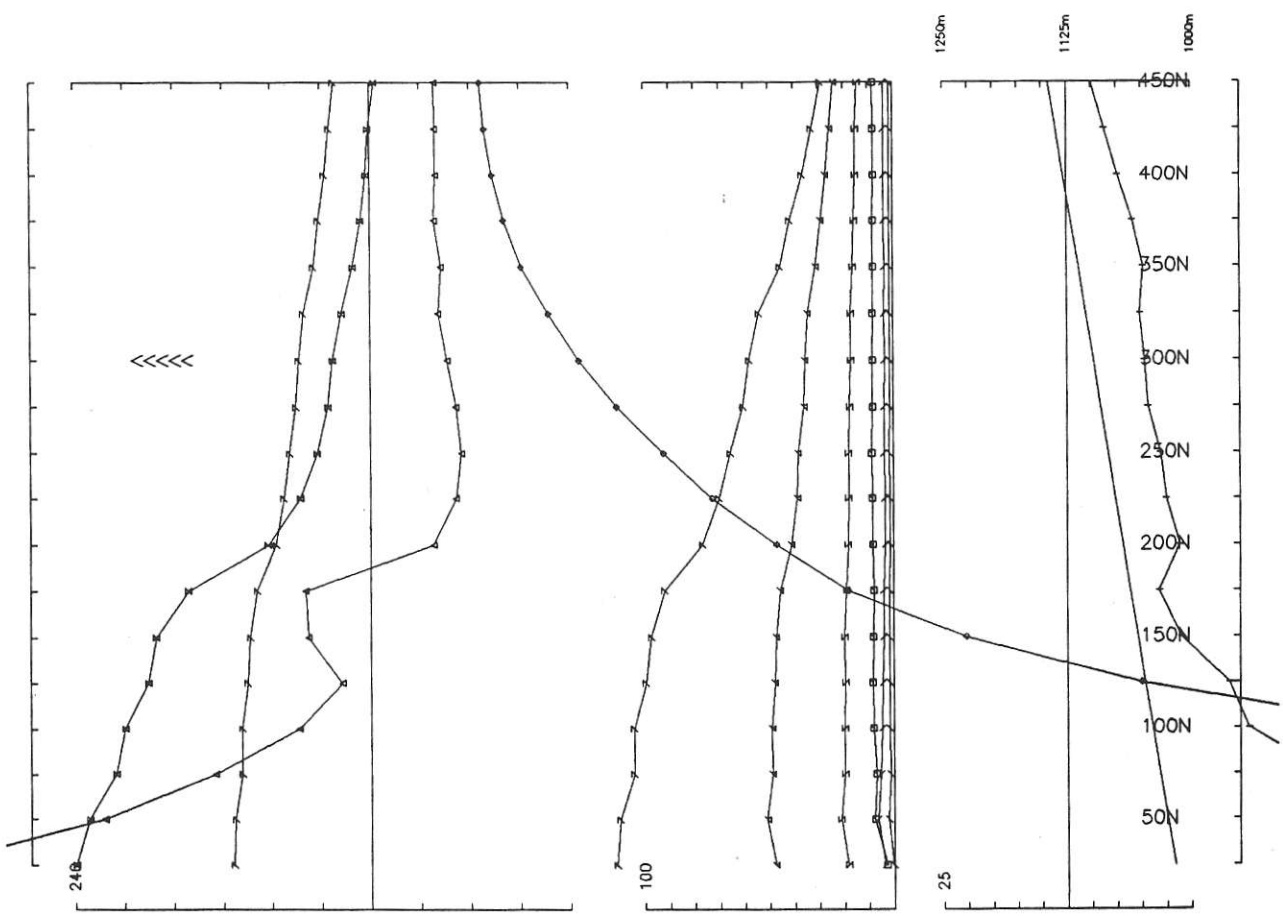
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 5 Line 500W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



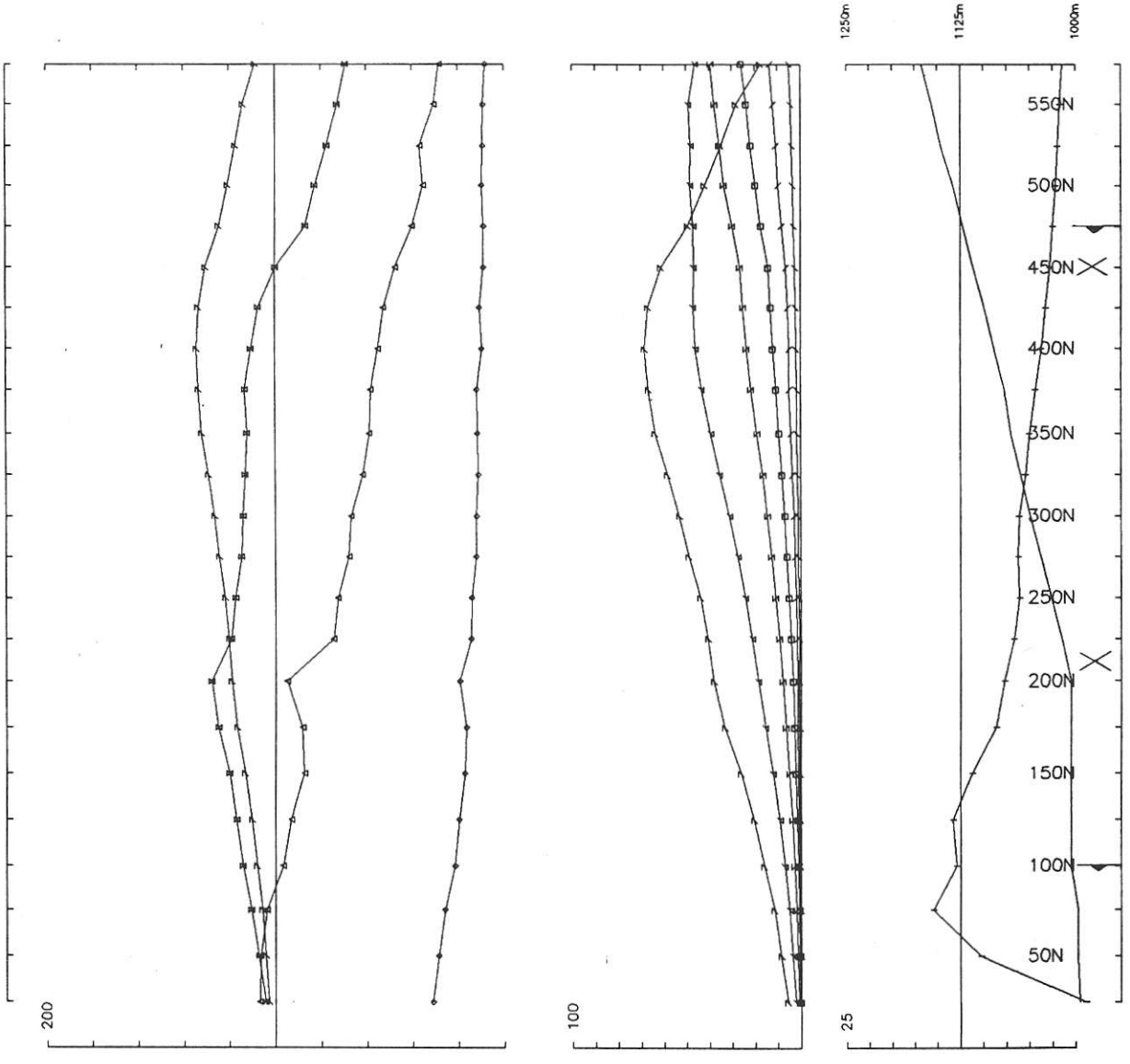
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 5 Line 600W component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.



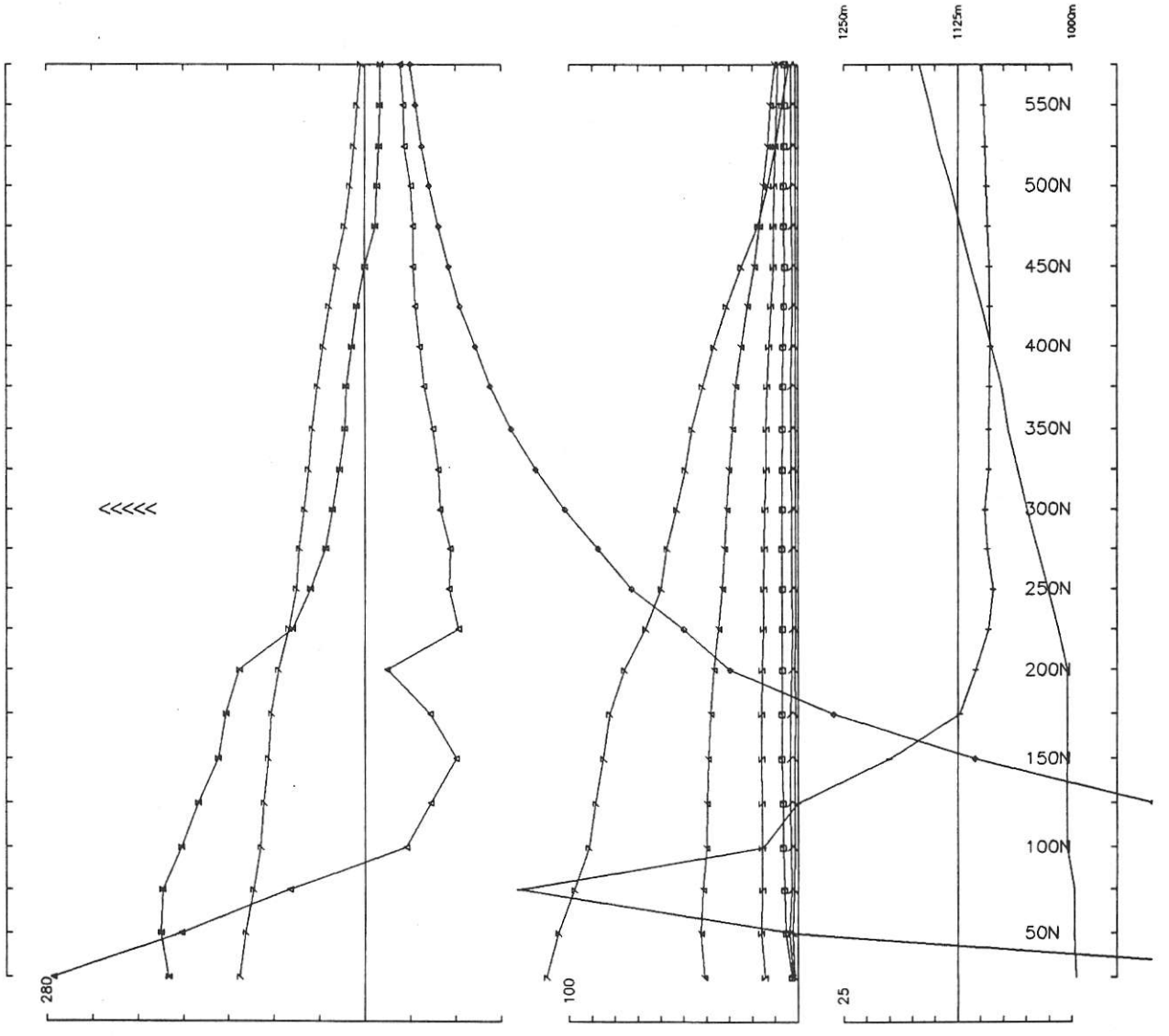
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 5 Line 600W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



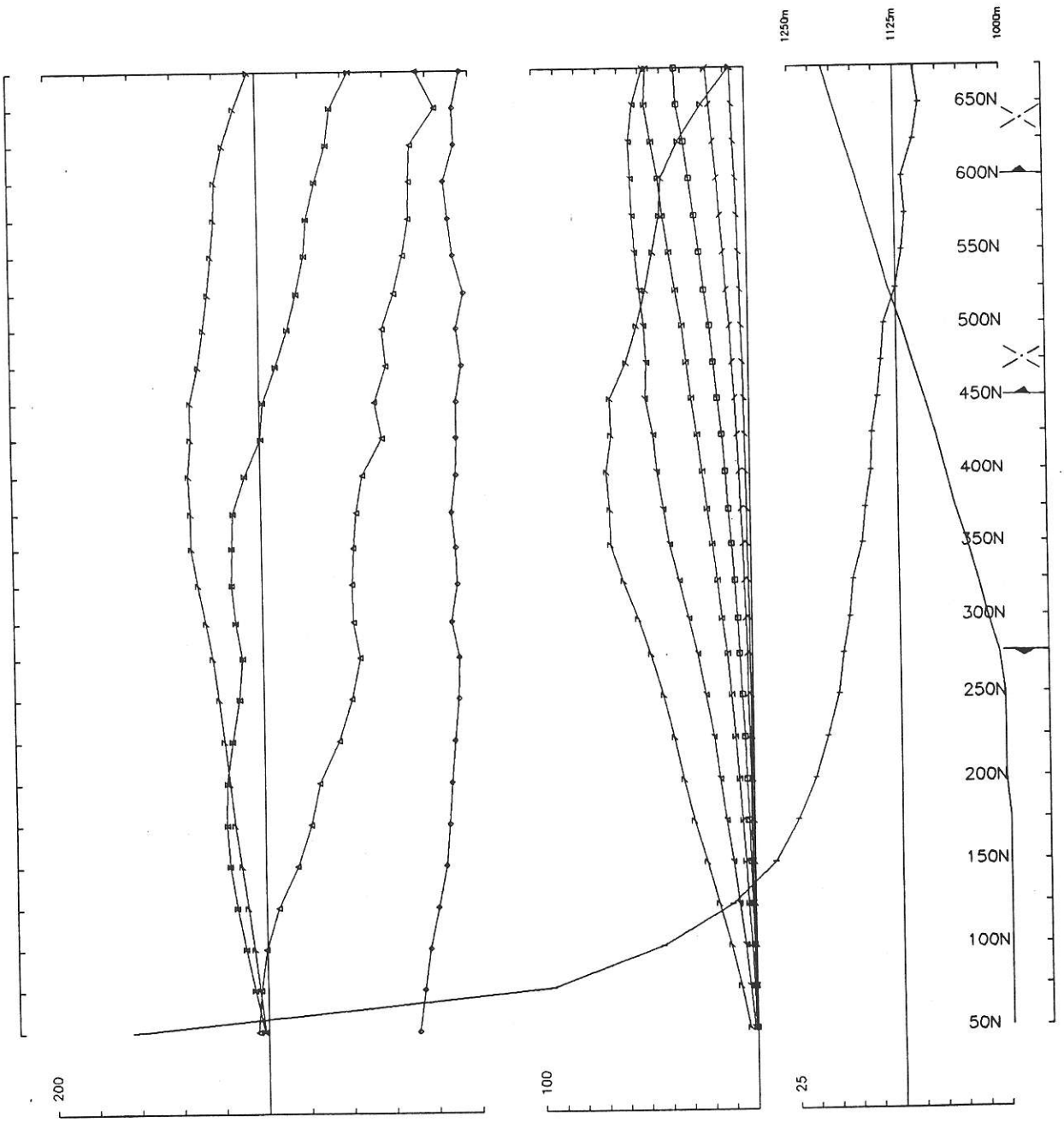
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 5 Line 700W component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.



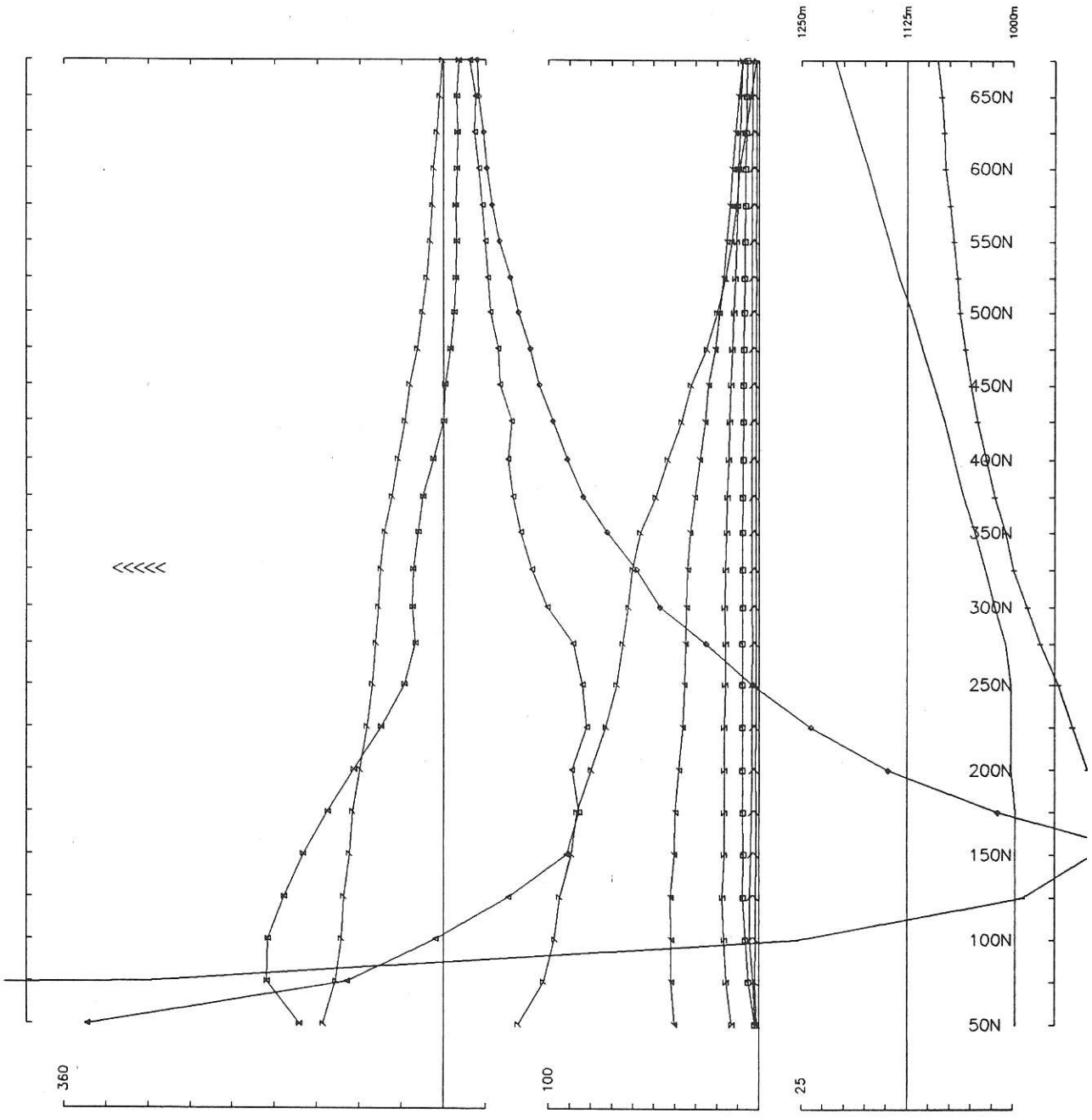
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 5 Line 700W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



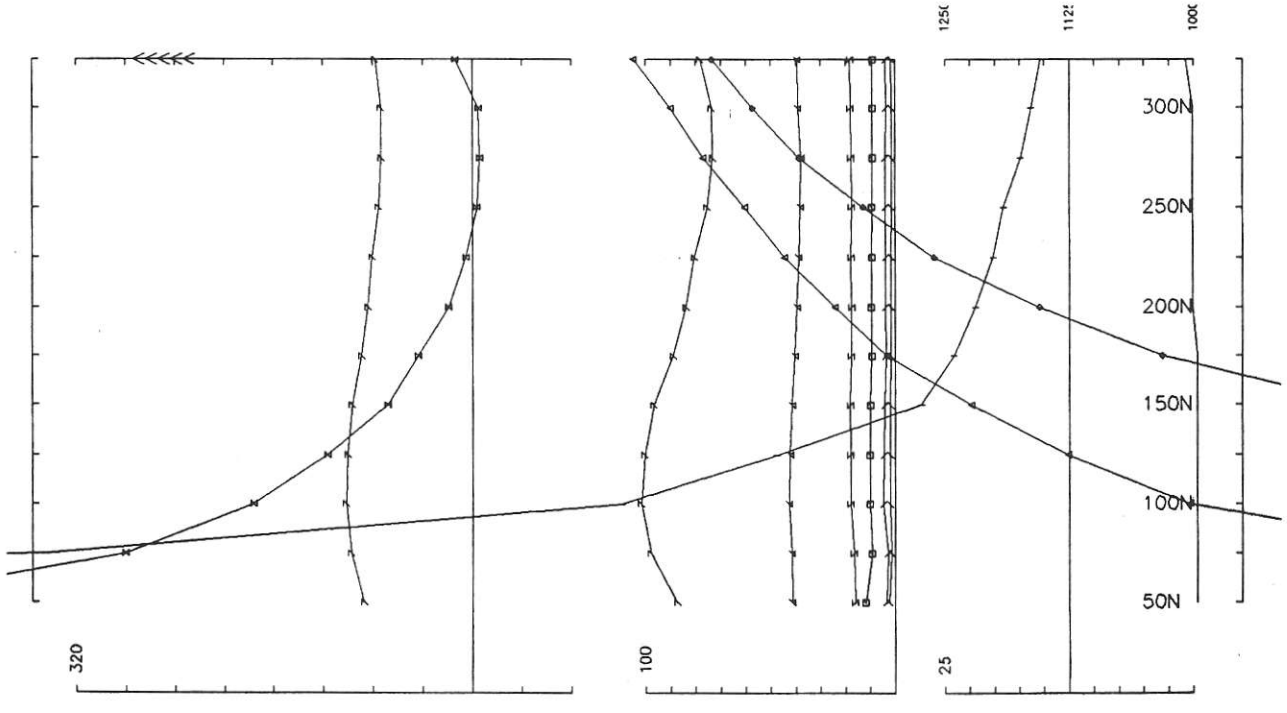
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 5 Line 800W component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.



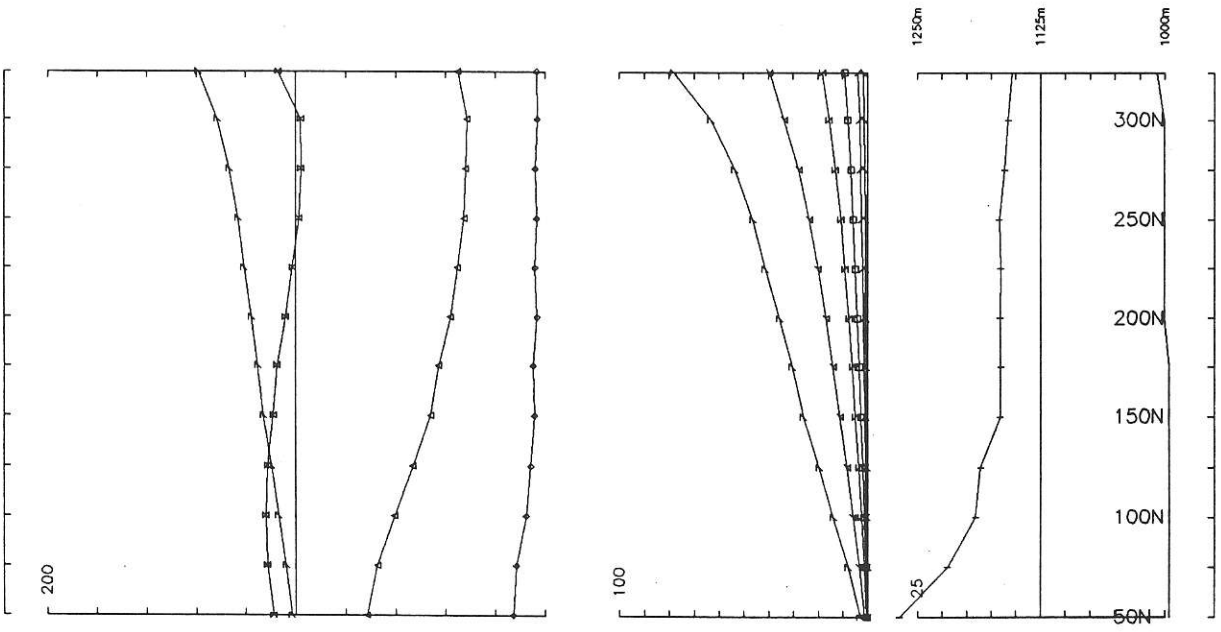
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 5 Line 800W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



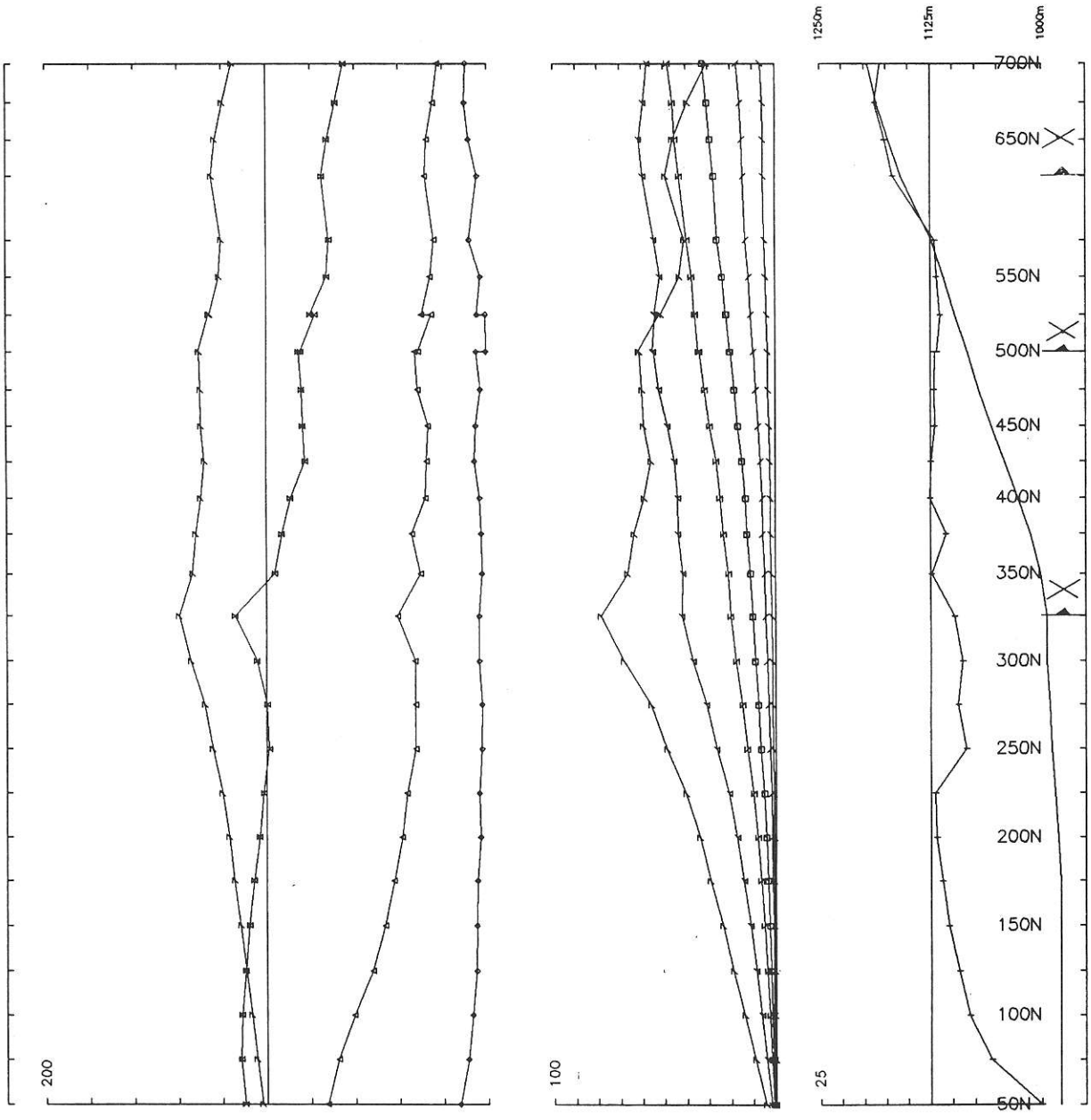
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 5 Line 900W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



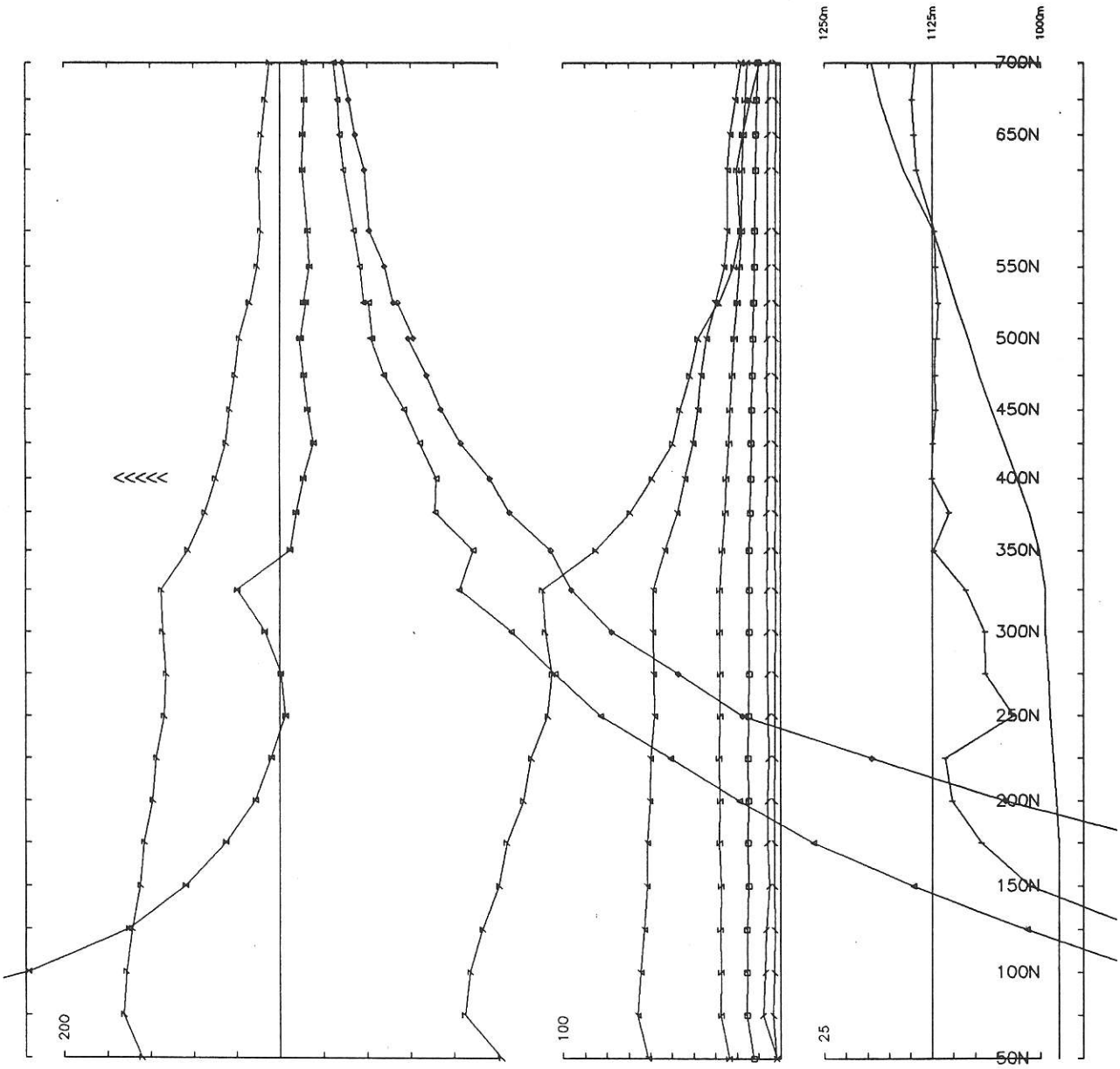
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 5 Line 900W component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.



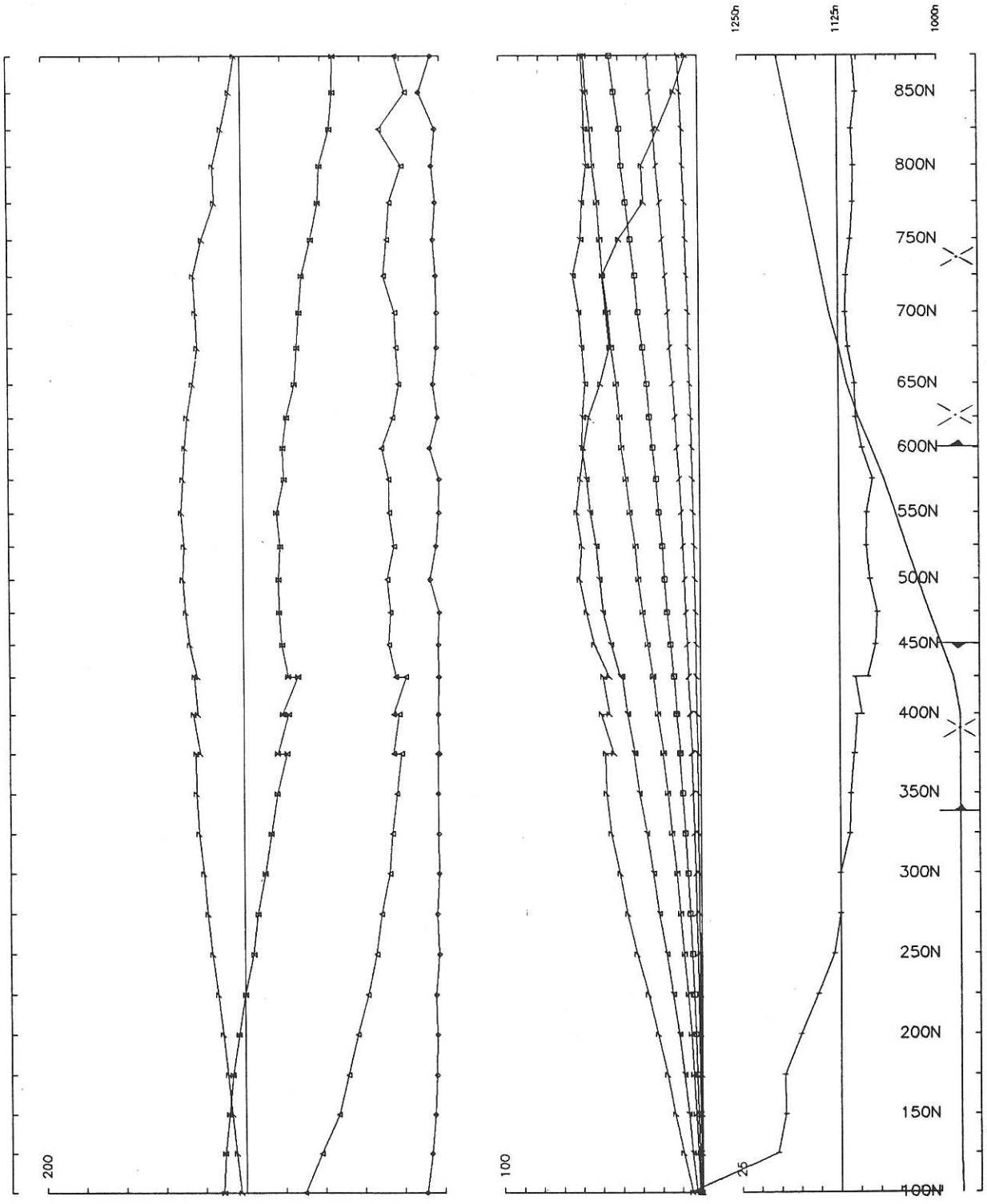
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 5 Line 930W component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.



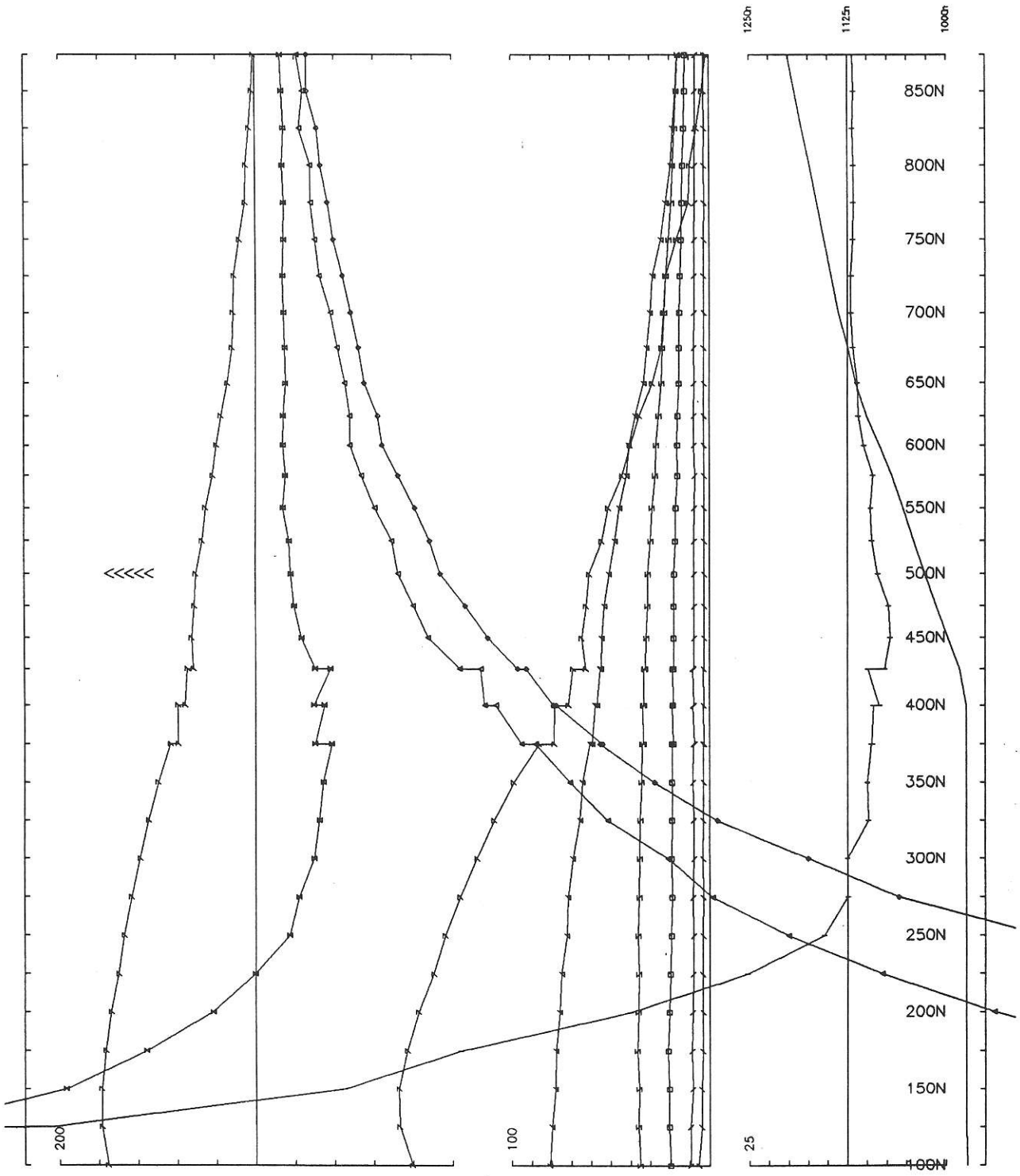
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 5 Line 930W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



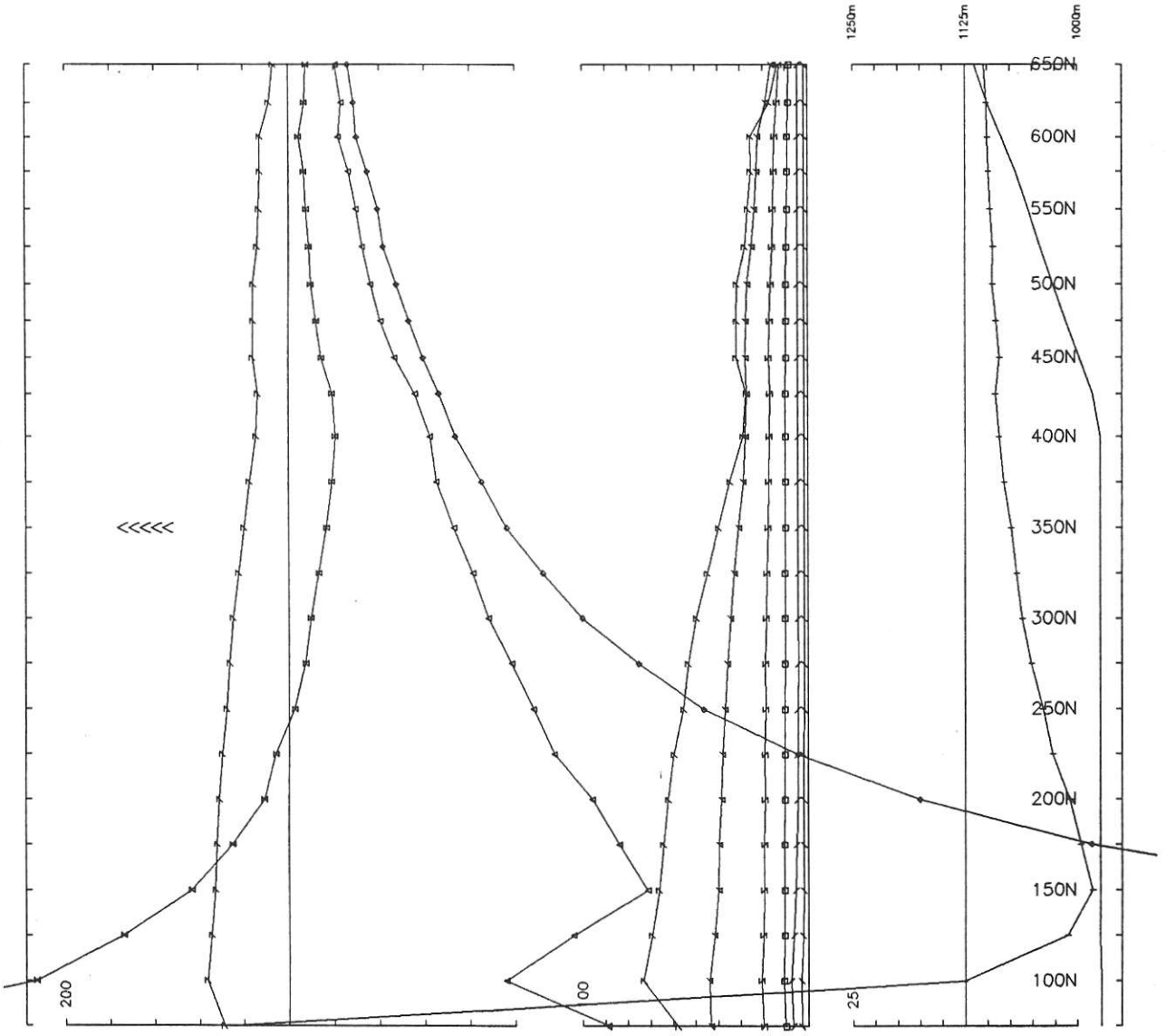
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 5 Line 1000W component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.



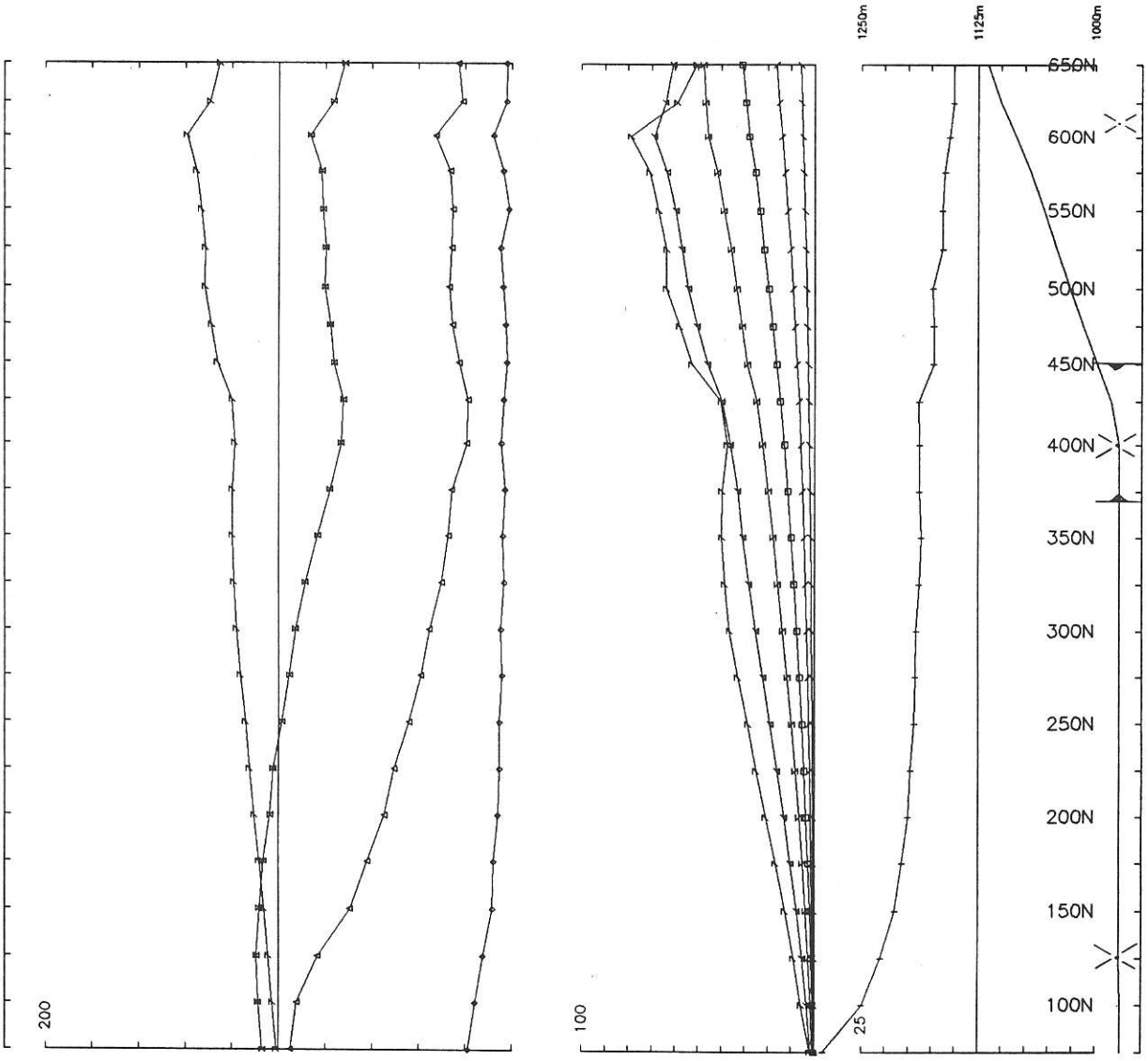
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 5 Line 1000W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



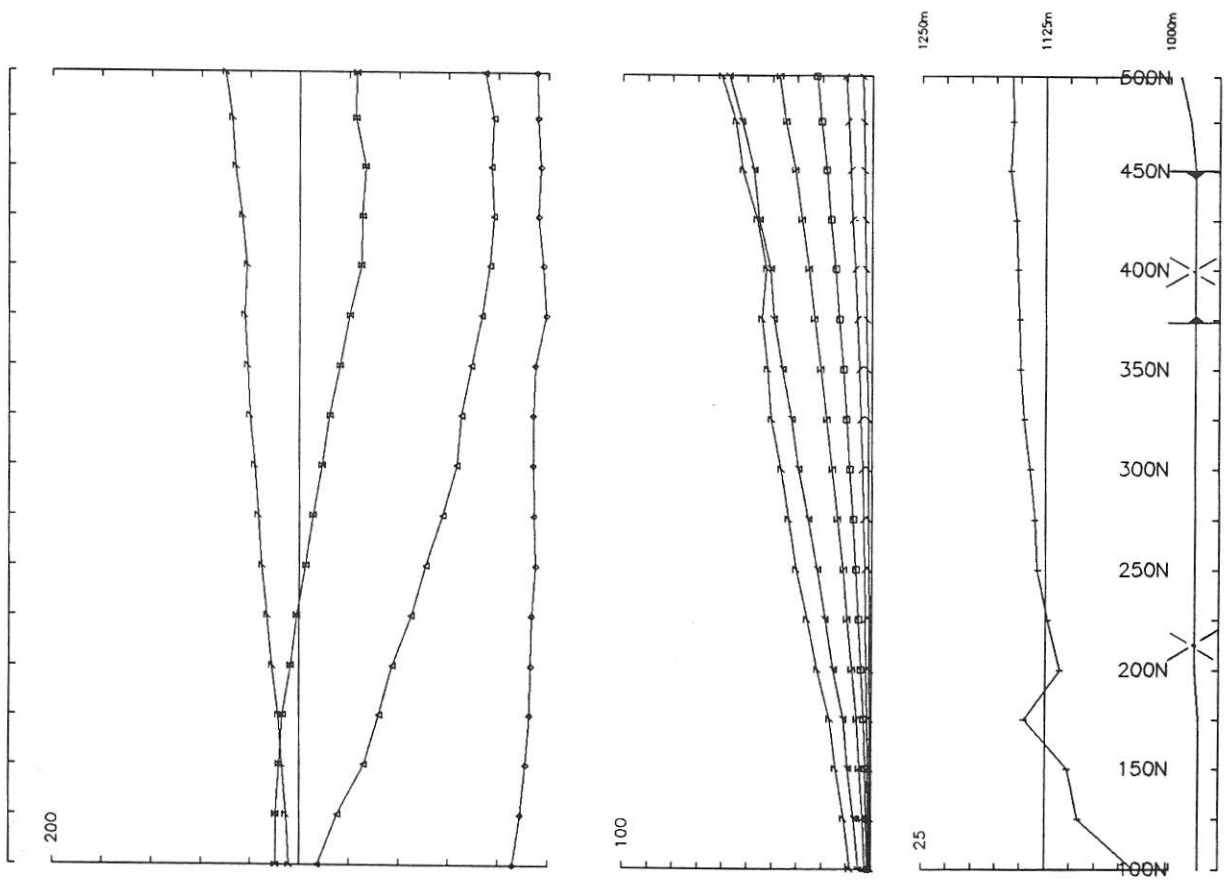
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 5 Line 1100W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



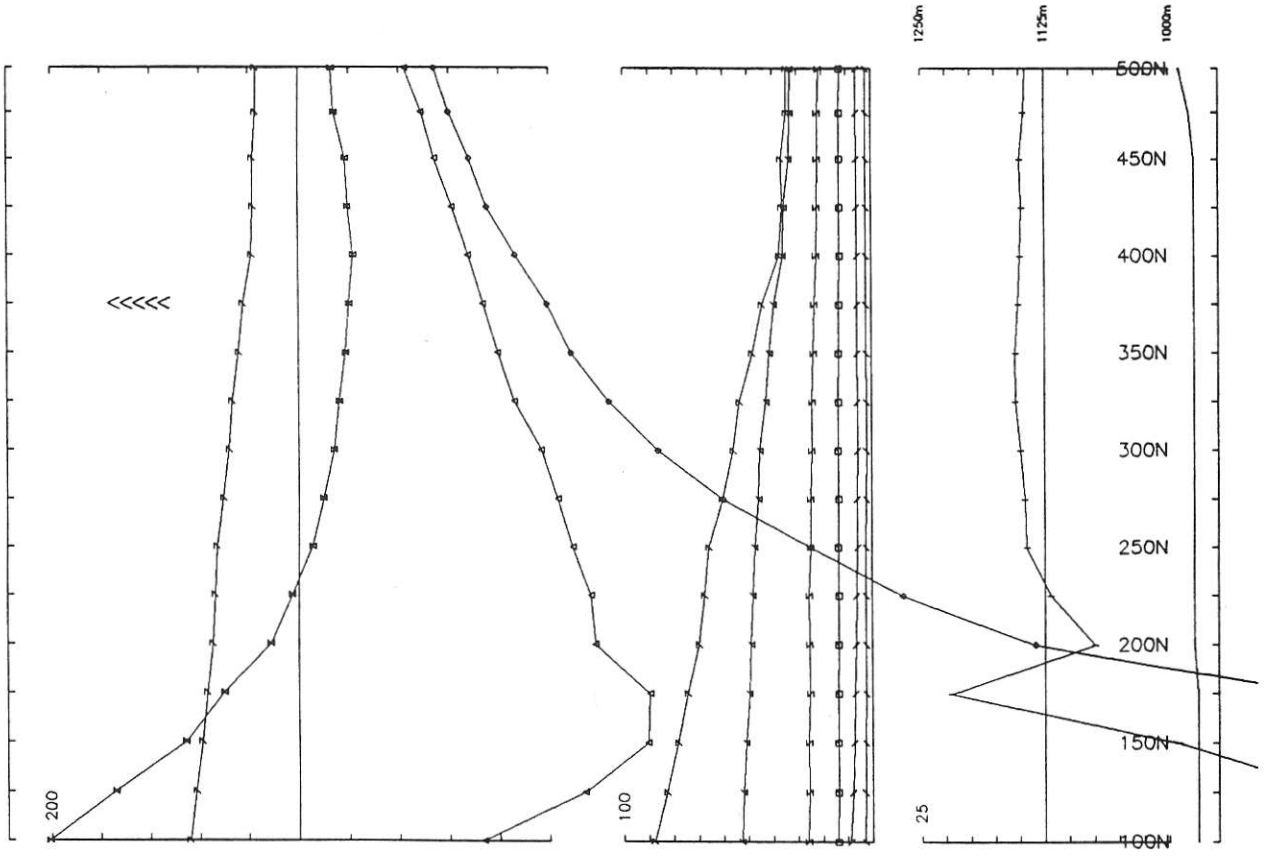
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 5 Line 1100W component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.



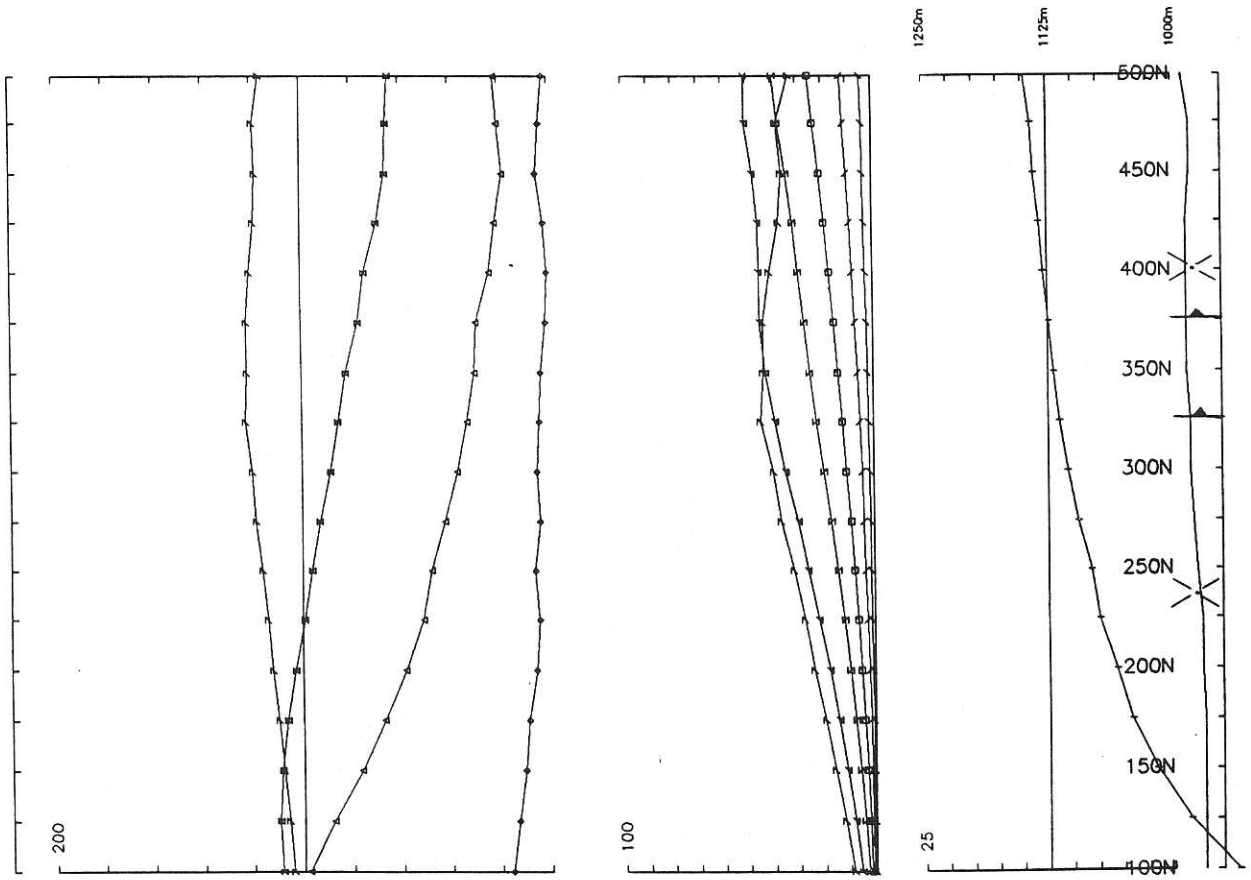
Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 5 Line 1200W component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.



Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 5 Line 1200W component Hz secondary Ch 1 normalized Ch 1 reduced point norm.



Area BRONSON CREEK client CATHEDRAL GOLD CORP. operator SJ GEOPHYSICS LTD. freq(hz) 54.409

Loopno 5 Line 1300W component Hz secondary Ch 1 normalized Ch 1 reduced contin. norm.

CATHEDRAL GOLD CORPORATION

BRONSON CREEK PROJECT

GOSSAN 14 - 17, 23 & 30 CLAIMS

NTS: 104 B/10W & 11E LIARD M.D., B.C.

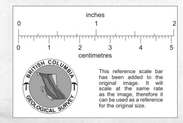
MAGNETICS CONTOURS

SCALE: 1:2500

50 0 50 100 150

SUMMER, 1988

FIGURE 19



This reference scale bar has been added to the original figure. It was not to scale at the same size as the image, therefore it can be used as a reference for the original size.

LEGEND

CONTOUR INTERVAL: DASHED LINES - 50 NT (GAMMAS)
SOLID LINES - 100 NT
DARK LINES - 500 NT

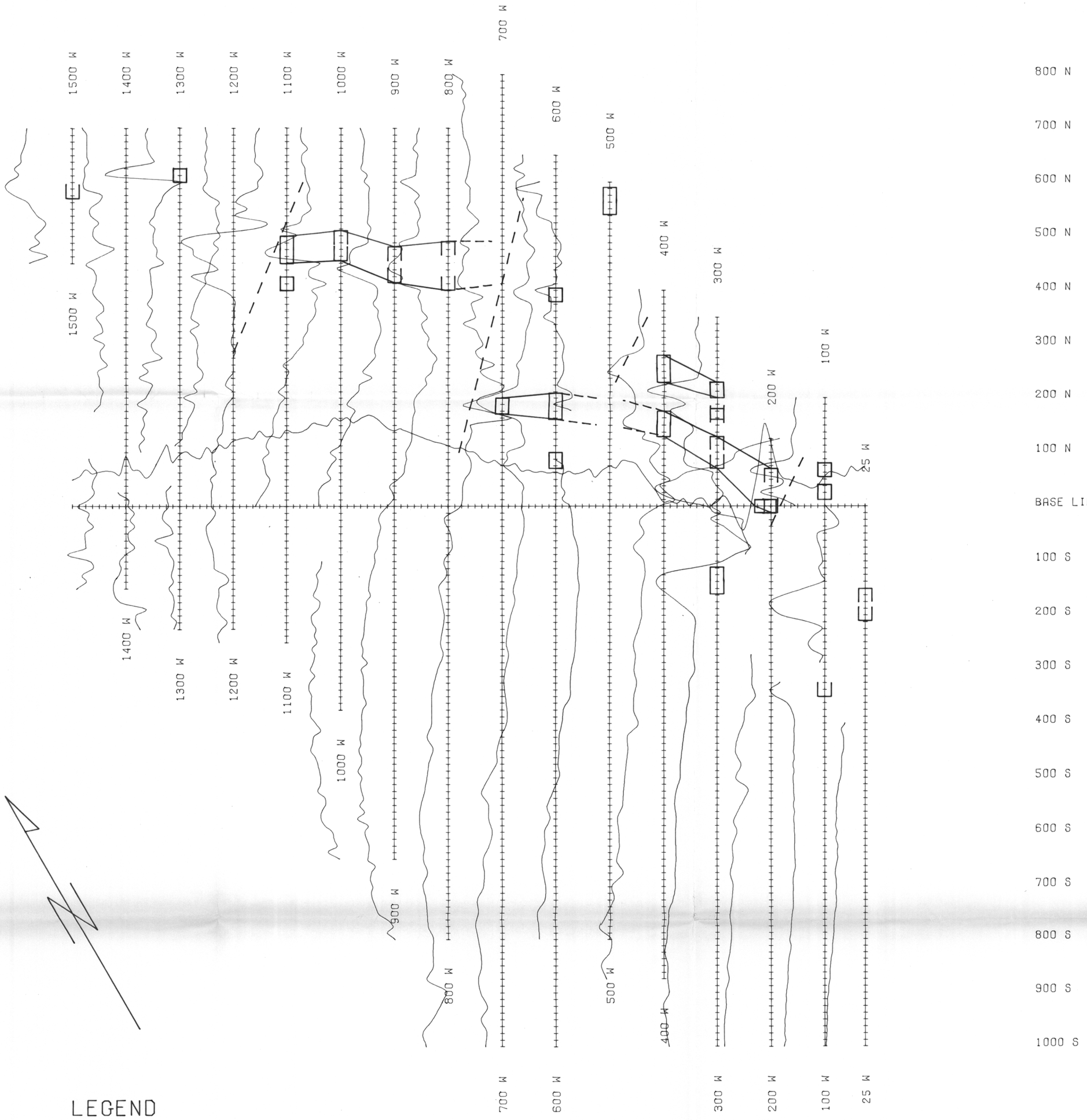
RANGE: HIGH - 57,860
LOW - 56,749

SENSOR FOR ALL READINGS FACING APPROXIMATELY MAGNETIC NORTH

INSTRUMENTATION:
GEM SYSTEMS LTD.
MODEL GSM - 8

SURVEYED STATIONS ALL LOOP CORRECTED

S.J.V. CONSULTANTS LTD.



LEGEND

PROFILE SCALE: 1 CM = 200 NT (GAMMAS)
BASE VALUE: 57,000 NT
(POSITIVE UP AND TO LEFT)
ALL READINGS WITH SENSOR FACING
APPROXIMATELY MAGNETIC NORTH

INSTRUMENTATION:
GEM SYSTEMS LTD.
MODEL GSM - 8

SURVEYED STATIONS ALL LOOP CORRECTED

⊏ ⊐ MAGNETIC ANOMALIES SHOWING WIDTH

– – – – CROSS STRUCTURES

S.J.V. CONSULTANTS LTD.

CATHEDRAL GOLD CORPORATION

BRONSON CREEK PROJECT

GOSSAN 13 - 17, 22 & 24 CLAIMS

NTS: 104 B/10W & 11E LIARD M.D., B.C.

MAGNETICS PROFILES & COMPILATION

SCALE: 1:5000

100 0 100 200 300

SUMMER, 1988

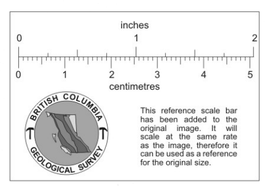
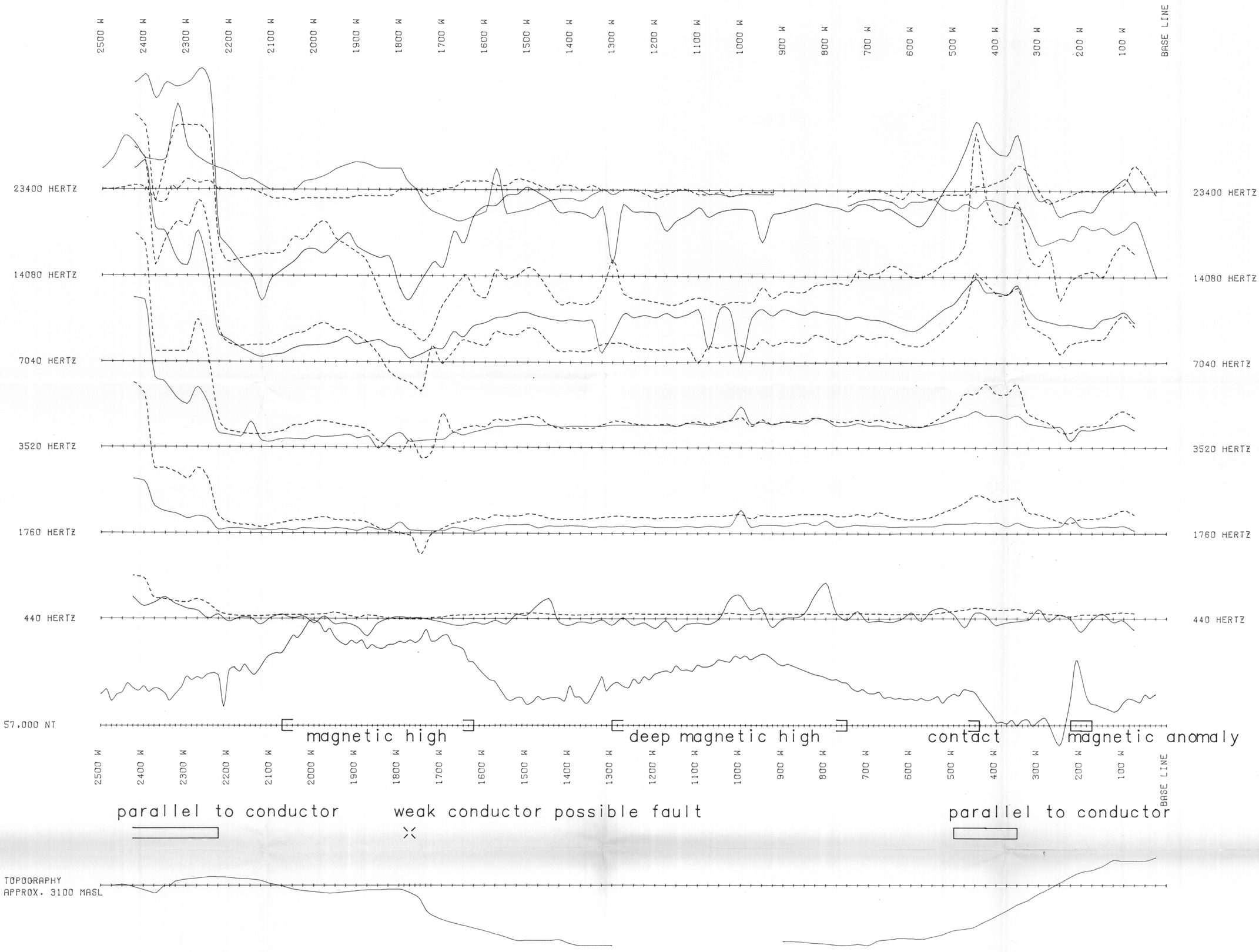


PLATE 88-1



LEGEND

HLEM PROFILES:
- PROFILE SCALE: 1 CM = 10 %
- IN-PHASE - SOLID LINE
- OUT-OF-PHASE - DASHED LINE
- (POSITIVE UP)

INSTRUMENTATION:
- APEX PARAMETRICS LTD.
- MAX-MIN MODEL I-9
- COIL SEPARATION: 150 METRES

VLF EM PROFILES:
- PROFILE SCALE: 1CM = 10 %
- IN-PHASE - SOLID LINE
- QUADRATURE - DASHED LINE

INSTRUMENTATION:
- GEONICS LTD. MODEL EM - 16

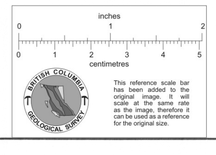
TRANSMITTER:
- NPM - 23.4 KHZ
- LUALUALAI, HAWAII

MAGNETICS PROFILE:
- PROFILE SCALE: 1 CM = 200 NT (GAMMAS)
- BASE VALUE: 57,000 NT

INSTRUMENTATION:
- GEM SYSTEMS LTD.
- MODEL GSM - 8

ELEVATION PROFILE: (BOTTOM)
- PROFILE SCALE: 1 CM = 50 METRES
- APPROXIMATE BASE VALUE = 3,100 MASL

S.J.V. CONSULTANTS LTD.



CATHEDRAL GOLD CORPORATION

BRONSON CREEK PROJECT

GOSSAN 14 - 17, 23 & 30 CLAIMS

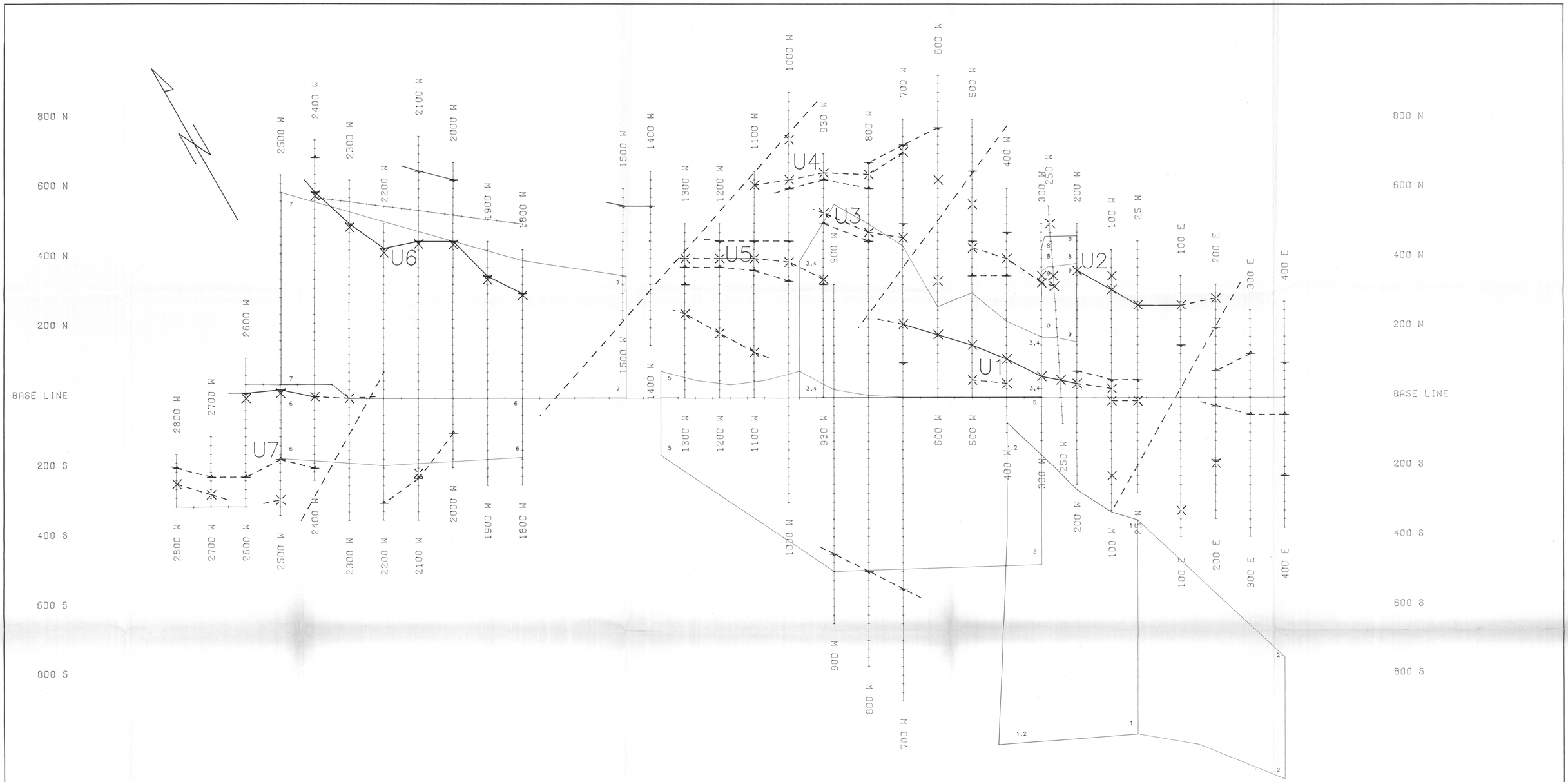
N.T.S: 104 B/10W & 11E LIARD M.D., B.C.

HLEM,VLF,MAG BASE LINE STACKED PROFILES

SCALE: 1:5000

100 0 100 200 300

SUMMER 1988 PLATE 88-2



L5 — UTEM TRANSMITTER LOOP

POSSIBLE CROSS STRUCTURES

CONDUCTIVITY CONTACT
POINTING IN DIRECTION OF INCREASED CONDUCTIVITY

EDGE OF CONDUCTIVE PLATE DIPPING IN DIRECTION OF X

UTEM CROSSOVER ANOMALIES
WELL DEFINED CONDUCTORS
POORLY DEFINED CONDUCTORS

EQUIPMENT USED:
LAMONTAGNE GEOPHYSICS LTD.
UTEM - 3, TIME DOMAIN EM

SJ GEOPHYSICS LTD.

CATHEDRAL GOLD CORP.

BRONSON CREEK 1989 GRID

UTEM SURVEY

COMPILATION MAP

LIARD M.D. N.T.S. 104B/15W

SCALE 1:5000

METRES

100 0 100 200 300

JANUARY 1990 PLATE 89-1