5933

Report on

Induced Polarization and Resistivity and Magnetic Surveys

for

SOVEREIGN METALS CORP. (N.P.L.)

Wallender Lake Property

92I/9W

Kamloops M.D., B.C. 92I/9-E W

KAM, RODA RED HEAD

50° 38' N Latitude 120° 26' W Longitude

April 22, 1976

by

G. Shore

Deep Grid Analysis, Ltd.

North Vancouver, B.C.

Claims: RODA (109-9)

REDHEAD (110-9)

KAM

Engineering Supervision: C. K. Ikona, P. Eng.

SUMMARY

Reconnaissance and detailed induced polarization and resistivity surveys have located on the claim group a large area of anomalous chargeability and resistivity response such as may be caused by sulphide mineralization.

A program of diamond core drilling is recommended to test the anomaly for economic mineralization.

C O N T E N T S

Introduction:

From March 18, 1976 to April 9, 1976, Deep Grid Analysis Ltd. carried out a program of geophysical surveys on behalf of Sovereign Metals Corp. (N.P.L.), including induced polarization, magnetics and accessory seismic, on the Wallender Lake claim group near Kamloops, B.C. Purpose of the investigations was the location and geophysical description of anomalously chargeable media, potentially indicative of economic sulphide mineralization.

The program was carried out by G. Shore of Deep Grid Analysis, under the supervision of C. K. Ikona, P.Eng., acting for Sovereign Metals Corp.

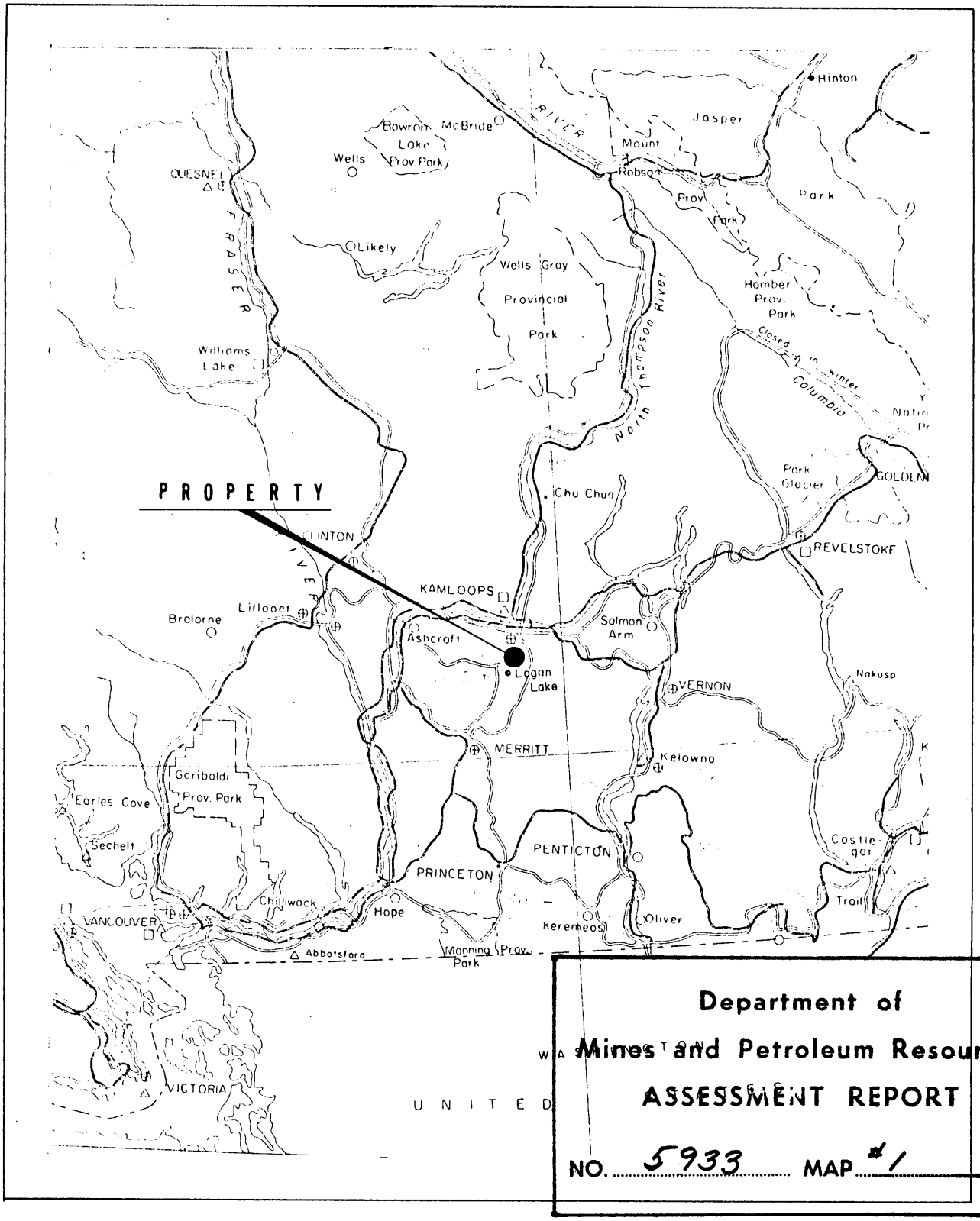
Claims:	Recorded:	Record no.	Date:
RODA (109-9)	Kamloops	109	Sept 29, 1975
RED HEAD (110-9)	Kamloops	110	Sept 29, 1975
KAM	Kamloops	199	January 26, 1976

Location and Access:

The property is cut at its southwest corner by the paved Lac Le Jeune highway approximately 3 miles south of that road's origin at the Trans-Canada Highway, 6 miles west of Kamlcops, B.C. The former main road runs through the property, joining the Lac Le Jeune highway on the property, south of Wallender Lake.

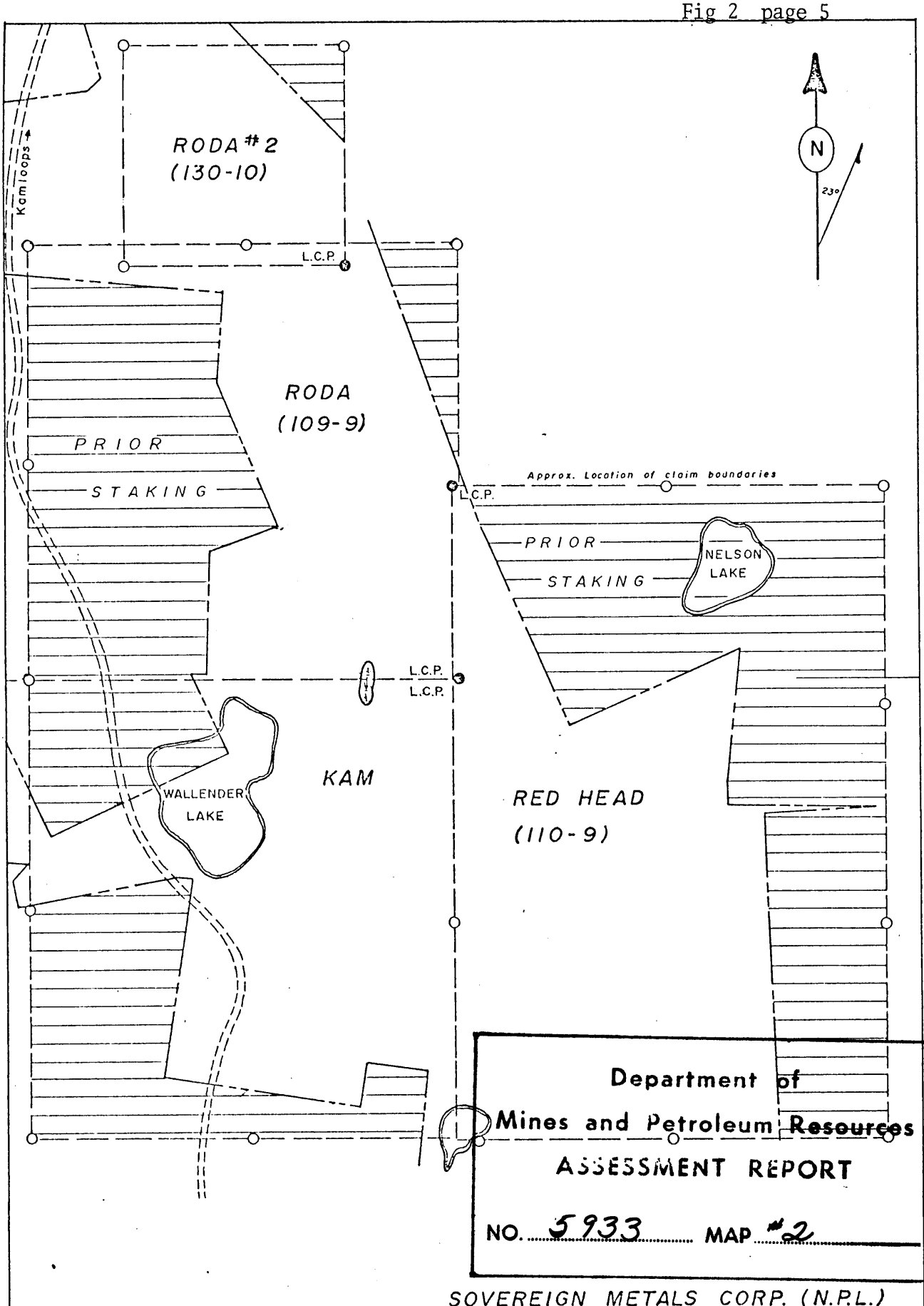
Topography:

Gently rolling hills, 90% open rangeland, 10% pine or spruce woodland. Few outcrops; extensive overburden of apparently shallow depth.



Property Location Map
Wallender lake group

Sovereign Metals Corporation (n.p.l.)



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5933 MAP #2

SOVEREIGN METALS CORP. (N.P.L.)

Claim Map

WALLENDER LAKE GROUP

Kamloops M.D., B.C. Map Sheet 92 I/9W

Scale : 0 500 1000 1500 Feet
0 200 400 Metres

Geology:

From a report by E. O. Chisholm, P. Eng., February 2, 1976:

"With the exception of minor weak pyritization no sulphide minerals have been located in the limited number of outcrops which occur within the claim group. Medium to fine grained diorite and microdiorite identified as the SugarLoaf phase of the batholith comprise the only rocks observed in outcrop. Local alteration was noted with epidote, chlorite and clay minerals present. Feldspars are generally saussoritized and mafic minerals are often altered to chlorite.

"Significant concentrations of copper minerals are known to occur elsewhere within this setting as deposits of disseminated chalcopyrite and as individual local lenses of more massive sulphide. Common accessory minerals are pyrite, magnetite and haematite. Phase boundaries and intersecting structural zones appear to serve as ore controls on adjacent properties."

C. K. Ikona, P. Eng. notes in a progress report to Sovereign on April 2, 1976:

"Although no cutcrops occur in the immediate area of the anomaly, float from sub-outcrop shows a mild but pervasive chloritic alteration. Finely disseminated pyrite and/or magnetite is common and locally may exceed 1% of total content. Near the south-eastern end of the anomaly a float train of altered micro diorite containing numerour pieces of highly altered material high in quartz and calcite was located. In these pieces malachite and minor bornite is common. Traces of chalcopyrite were noted in outcrop and float as a minor constituent where pyrite is present."

Survey Coverage:

The grid was surveyed in its entirety with a gradient array IP and resistivity survey as a means of locating the lateral boundaries of any chargeable material. The gradient array provides extremely deep penetration, and excellent resolution of bodies at large depth-to-size ratios. A major anomaly was located, and additional lines of survey were installed and read between the original lines for additional detail. On the basis of the gradient results, a detailed survey with the dipole-dipole array was specified tc resolve details

of vertical positioning of the chargeable medium.

The complete grid and detail lines were surveyed with total intensity magnetics as well, and limited seismic survey was applied in assessing potential drill hole location characteristics.

Discussion of results:

A small anomalous response peaking at 0+50W, line 10+50N (Dwg.1) is observed in the gradient data. Further local observation and mapping should be undertaken on the ground enclosed by the 8 millisecond contour before any follow-up survey is contemplated.

The main anomaly as defined by the gradient survey occupies most of the southwest quadrant of the property, and may be considered as that area enclosed by the 8 millisecond contour.(Dwg. 1). Dipole-dipole detailing of this anomaly was undertaken on lines 1+50N, 0+75N, 0+00, 0+75S, 1+50S, 2+25S, 3+00S, with an array A = 50 metres, N = 1, 2, 3, 4. Additionally, a line was established parallel to the baseline at 2+25W, in order to detail the area on the east side of Wallender Lake.

Figure 3 (in text) shows interpreted dipole-dipole results plotted in position to show chargeability anomaly near surface (thick line) and at greater depth ($\geqslant$50 metres, thin line). The dipole-dipole results confirm the boundaries at the north, west and east sides as described by the gradient survey. To the south the dipole-dipole pseudosections of lines 2+25S and 3+00S (Dwgs. &) indicate two possibilities, 1. the termination of the anomalous unit at 2+50S, or 2. the possible downward displacement of the unit. The continuation of gradient array anomalous values to the south suggests that the unit has plunged deeper, beyond the sampling depth of the array used on

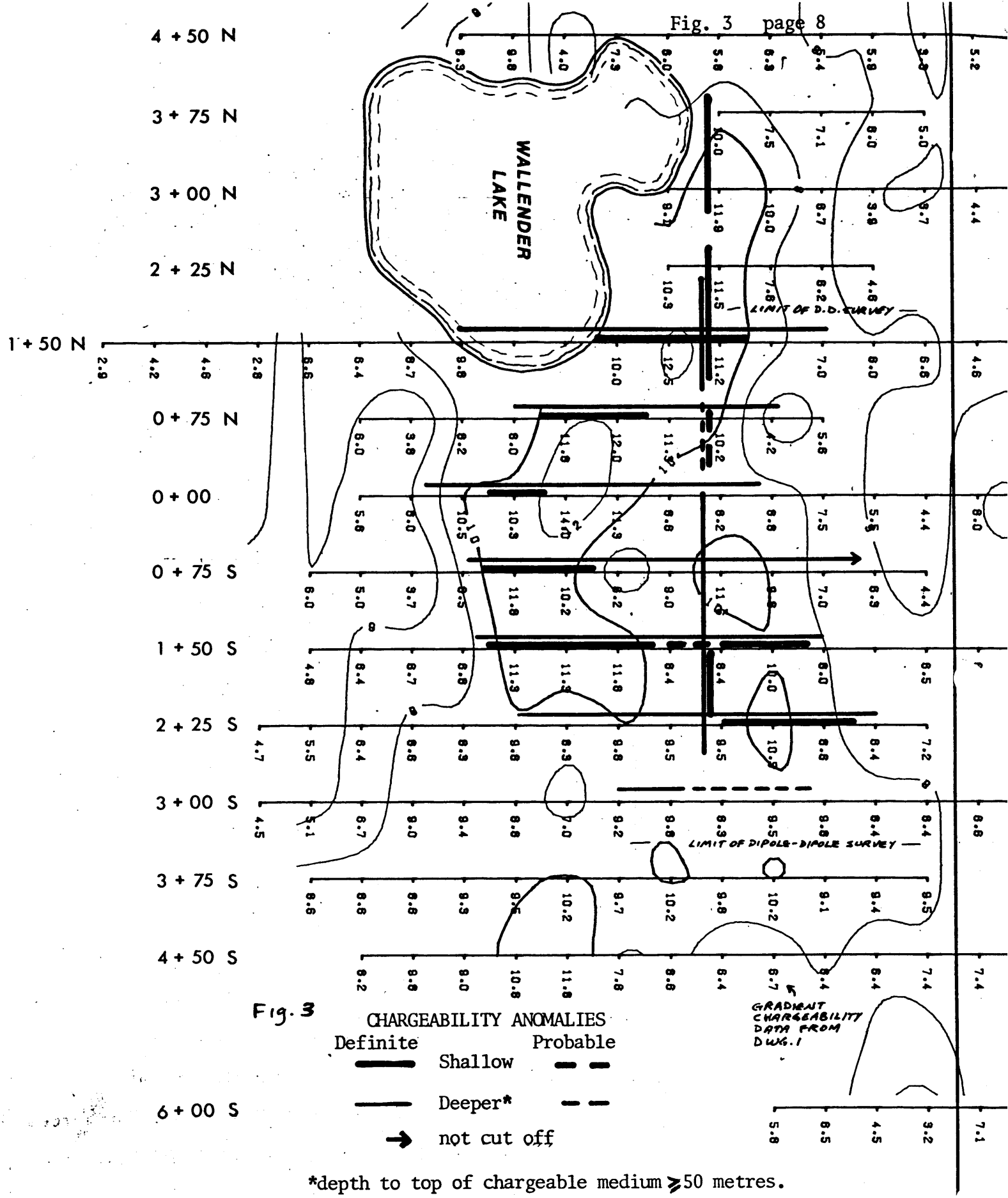


Fig. 3

CHARGEABILITY ANOMALIES

Definite	Probable
Shallow	
Deeper*	
not cut off	

*depth to top of chargeable medium ≥ 50 metres.

line 3+00S. (Gradient resistivity results support the proposition.) A capping of non-polarizing rock, possibly the volcanic unit observed in outcrop near the south end of the property, may be inferred.

Near-surface anomaly continuity is broken in an area between 2+00W and 3+50W on lines 0+75N, 0+00, 0+75S. A thin (50 M.) layer of non-polarizing rock may overlie this area, though observed esker-like glacial material in the area may represent a large part of the non-polarizing medium.

The chargeability ranges in magnitude from 2 to 3 times background within the anomaly.

The resistivity as detailed by the dipole-dipole survey shows a moderate low in the area of the chargeability anomaly, coincidence of which with the chargeability highs is reflected in the static capacity values. While chargeability values range from 2 to 3 times background, static capacity values, a product of chargeability and conductivity, show a range of 5 to 6 through to 20 to 25 times the background as represented at the extreme east end of the lines. Lines 2+25S and 3+00S were extended east well into background to establish typical values.

West of the anomaly, indication in made of a resistivity contact running N-S across the ends of the lines, marking the boundary of a low chargeability, low resistivity unit extending west beyond the scope of the current measurement program.

Extremely low resistivities on lines near Wallender Lake are caused by very conductive muds surrounding the lake, and represent a very shallow effect. Very high static capacity values may be developed from these and the low resistivities at the western extremities of the lines, but these values carry no interpretive significance.

Vertical Section at 4+00W, Line 0+75S

Surface

Overburden

- 15½ feet

Layer 1

Velocity: 14,000 - 15,000 fps.

Chargeability: 6 milliseconds

Resistivity: 100 ohm-metres

- 80 to 86 feet

change of rock characteristics

Layer 2

Chargeability: ⩾16 milliseconds

Resistivity: 600 ohm-metres

Vertical Section:

At 4+00W, line 0+75S, a teststation was established to develop a vertical section of a portion of the main anomaly. An eight-station expanding pole-dipole vertical profile (described in the appendix) was run, and two hammer seismic determinations were made from a geophone position at station 4+00W.

The computed results are shown in figure 4. Shallow overburden is apparent, and a reasonable two-layer case interpretation of the expanding array shows a change in rock characteristics at 80 to 86 feet from a mode of 6 milliseconds, 100 ohm-metres to one of $\geq$16 milliseconds, 600 ohm-metres.

The seismic determination shows a bedrock velocity of 14,000 to 15,000 fps, suggesting an intrusive with some alteration or fracturing.

Magnetics:

The dominant, relevant feature of the magnetic survey is the area of high intensity in the south and southwest portions of the grid. Observed, in-situ magnetite can be considered the major cause of the high values, and the magnetite may in part contribute to the IP high observed on lines 1+50S and 2+25S. Magnetite is not strongly polarizable, as is pyrite, but it will contribute some polarization effect. The magnetic low on the IP anomaly, north of line 1+50S, implies a reduced magnetite content, and either a different rock type or simply a low magnetite phase of the same rock as occurs south of line 0+75S.

Conclusions and Recommendations:

The small IP anomaly centered at 0+50W on line 10+50N should be examined by surface prospecting prior to a decision for further action.

The major anomaly in the SW quadrant exhibits the characteristic signature of a large, disseminated sulphide deposit, both in terms of coincident high chargeability/low resistivity and of absolute values of those two parameters, which fall well within the known range for porphyry ores.

Clearly the anomaly requires testing by diamond drilling, there being no outcrop available for sampling, and detail profiling suggesting some depth to the top of the highly chargeable unit. At least three holes should be drilled, to test the center and edge of the anomaly as it sits in the magnetic low, and perhaps a hole in the high magnetic environment at the southern end of the anomaly. The insights gained from each successive hole will to a large extent determine the positioning of the next hole; the first hole would be well-placed at 4+00W, line 0+75S where substantial vertical geophysical profiling has been completed and a favourable target defined.

Respectfully submitted,

DEEP GRID ANALYSIS, LIMITED

April 22, 1976.

Technical Specifications: IP SURVEY

Receiver: Scintrex IPR-7 Time Domain receiver (Newmont Type).

Cycle time: 2 seconds on/2 seconds off.

Integration time: 650 milliseconds after 450 millisecond delay.

Gradient survey transmitter:

DGA Geophysics 40 kilowatt time domain transmitter.

Maximum current used: 10 amperes DC

Maximum power used: 30,000 watts

Cycle time: 2 seconds on/2 seconds off, polarity reverse.

Waveform: less than 6% ripple at 1.5 KHz

Gradient electrode position:

Setup A, for lines 15N, 13+50N, 12N, 10+50N, 9N, 7+50N, 6N, - C_1 on line 10+50N at 8+00E, C_2 on line 10+50N at 10+50W.

Setup B, for lines 5+25N through 6+00S - C_1 on line 0+00 at 12+00E, C_2 on line 0+00 at 11+00W.

Dipole-Dipole Transmitter:

Huntec M-3 LOPO time domain transmitter, battery operated.

Cycle time: 2 seconds on/2 seconds off, polarity reverse

Constant current control

Maximum current used: 1.5 amperes DC

Potential electrodes: Porous pots, with $CuSO_4$ saturated solution electrolyte.

Technical Specifications: MAGNETIC SURVEY

Measurement system: Proton precession, total field measurement.

Instrument: Geometrics G-816 magnetometer

Sensitivity: ±1 gamma

Accuracy: ±1 gamma

Measurement interval: Main grid, every 50 metres.

Detail lines, every 25 metres.

Diurnal control: Continuous diurnal monitoring by Geometrics G-806 automatic cycling proton precession magnetometer, accuracy and sensitivity ±1 gamma, recording from analog output on TOA EPR-2T polyrecorder. Field readings time-sync'd, adjusted to prevailing diurnal drift ± 1 minute synchronization with base chart recording.

Corrected data computer plotted and contoured by Dataplotting Ltd., Toronto, Canada, to 100 gamma interval, zero datum +58,000 gammas.

Technical Specifications: FACSIMILE SEISMIC

Instrument: Huntec FS-3 Facsimile Seismograph.

Geophones: Hall-Sears HS-J Model L1 Velocity Sensitive.

Survey type: Compression refraction.

Hammer stations: 10 foot intervals to 100 feet, 20 foot intervals to 300 feet.

Hammer & plate: 14 pound hammer to 1" by 10" diameter steel plate dug into firm contact with B or C horizon, levelled and center-struck. 2 to 5 shots per position.

Geophone at 4+00W, line 0+75S, line A extending due south, line B extending south 24^{o} west.

Pole-dipole Expanding Array.

Center position: 4+00W, line 0+75S

Array orientation: North 30° East, current north.

Data:	App. Chargeability	App. Resistivity
A = 15'	5.2 milliseconds	93 ohm-metres
A = 30'	6.3 milliseconds	115 ohm-metres
A = 60'	6.4 milliseconds	115 ohm-metres
A = 100'	7.8 milliseconds	139 ohm-metres
A = 150'	10.0 milliseconds	168 ohm-metres
A = 200'	11.8 milliseconds	225 ohm-metres
A = 250'	13.2 milliseconds	270 ohm-metres
A = 300'	14.5 milliseconds	315 ohm-metres

Data was computed and curve matched to develop true resistivity and true chargeability estimates for a two-layer case (results described in Fig. 4 of text) according to methods described by Siegel, "Mathematical Formulation and Type Curves for Induced Polarization," GEOPHYSICS, Vol. XXIV, No. 3, July 1959.

Certificate of Qualification

I, G. A. Shore, of 1975 McNicoll Avenue, Vancouver, B.C. do hereby state that:

1. I am a graduate at technologist level of the Radio College of Canada, Toronto, Ontario, in General Electronics; of the RCA Institute, Montreal, P.Q., in Automation Electronics and Industrial Electronics; and of the Provincial Institute of Automotive and Allied Trades, Toronto, Ontario, in Industrial Engines and Power Transmission Systems.

2. I have been employed continuously and full time in geophysical exploration survey work as senior operator and/or project geophysical manager on varied programs in Europe, Africa and North America for the past ten years, and have been directly involved in design, development and field testing of various geophysical instrumentation systems during this period.

G. A. Shore

April 22, 1976.

ENGINEER'S CERTIFICATE

I, Charles K. Ikona, of 2614 St. John's Street, Port Moody, in the Province of British Columbia, do hereby certify that:

1. I am a consulting Mining Engineer with offices at 609-850 West Hastings Street, Vancouver, B.C.

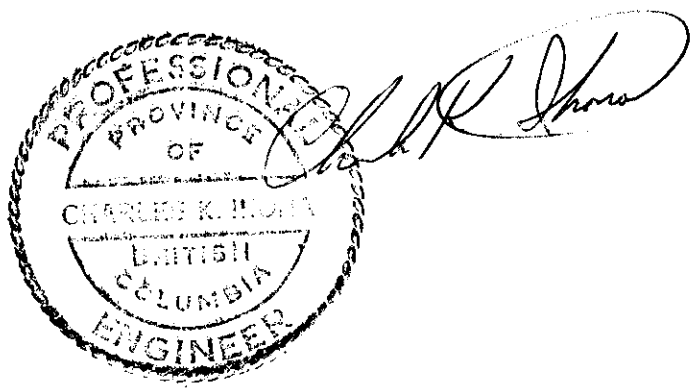
2. I am a graduate of the University of British Columbia with a degree in mining engineering, and have been engaged in the mining industry for a period of 14 years.

3. I am a member in good standing of the Association of Professional Engineers of the Province of British Columbia.

4. I have personally supervised the conduct of the work and endorse the conclusions and recommendations contained herein.

13 May, 1976

Charles K. Ikona, P. Eng.



Engineer's Summary and Endorsement.

I was present on several occasions during the course of the surveys described in the preceding report. Upon conclusion of the gradient array IP and Resistivity survey, and after thorough discussion with Mr. Shore, I recommended the additional dipole-dipole detailed survey over an area of high chargeability indicated by the gradient array survey.

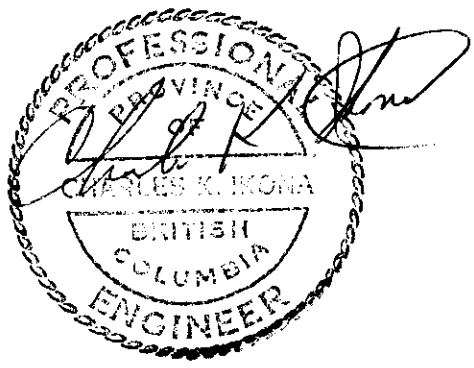
After completion of the detailing survey and following preliminary interpretation of the results, the first diamond drill hole was positioned at 4+00W, 0+75S.

Results of this hole indicate the presence of sulphides (up to 3%) in the anomalous area, with some contained chalcopyrite.

In other aspects, I concur with the recommendations and conclusions as contained on page 12 of this report.

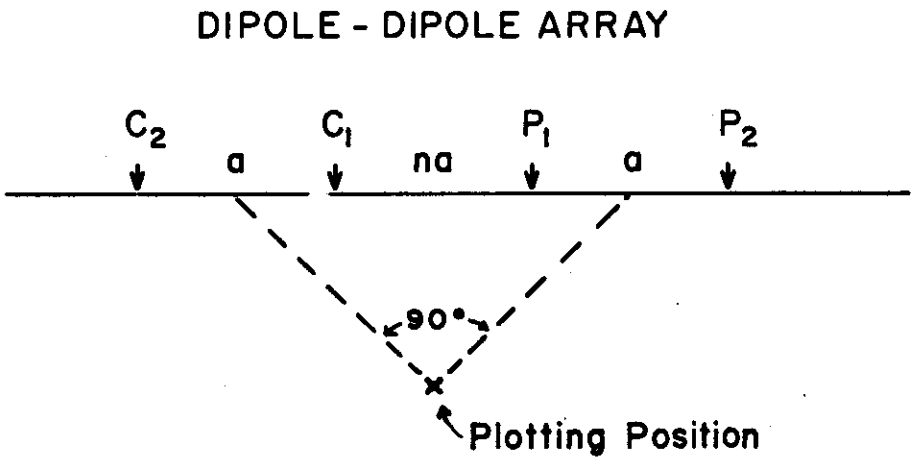
13 May, 1976

Charles K. Ikona, P. Eng.



Method of plotting data in pseudosection

The convention for plotting resistivity data in pseudosection is:



C_1 - C_2 represents current dipole, length "a"; P_1 - P_2 represents potential (measurement) dipole, length "a". Inter-dipole distance "na" is increased to provide larger volumetric sampling of the measured media.

Interpretation of anomalous IP conditions, brought to surface:

Definite anomaly

Probable, or possible anomaly

Appendix "A" to Report of
April 22, 1976

Field Personnel

Name	Dates	Days
Greg Shore, crew chief 101-1139 Lonsdale Avenue, North Vancouver, BC.	Mar 18 to Apr 9 1976	23
D. W. Wood, operator 552 Tony Road Prince George B.C.	Mar 18 to Apr 9 1976	23
M. L. Patterson, labour General Delivery, Ganges, B.C.	Mar 19 to Apr 8 1976	21
	Total	67 days

Equivalent man-days (@8 hrs.): 83.7

Report Writing and data processing:

Greg Shore, 8 man-days.

Computer plotting by Dataplotting Ltd., Toronto, Ontario, Wilf Parker. operator. Equivalent of 6 man-days.

Total overall man-day expenditure, Deep Grid Analysis Ltd.: 97.7

Payment for the above services was made in accordance with a contractual arrangement outlined in the attached letter.

Progress payments were tendered as follows:-

Mar. 12th - Bank of Nova Scotia	cheque # 224	$ 1,500.00
Apr. 1st - Bank of Montreal	cheque # 5	1,500.00
Apr. 12th - Bank of Montreal	cheque #16	2,500.00
May 03rd - Bank of Montreal	cheque #30	665.00
	Total	$ 6,165.00

Note: Linecutting, supervision and Engineers Fees and expenses are not included in the above account.

Certified correct: H S Aikins

H.S. Aikins, Director
Sovereign Metals Corp.

DEEP GRID ANALYSIS, LIMITED

P.O. BOX 417, RICHMOND HILL, ONTARIO, CANADA

MINING, GEOTHERMAL AND PETROLEUM EXPLORATION GEOPHYSICS

Western: 101-1139 Lonsdale Avenue,
North Vancouver, B.C.

Mr. H. S. Aikins,
Sovereign Metals Corporation,
5, 134 Abbott Street,
Vancouver, B.C.

Dear Sam:

I am pleased to provide you with this informal report of proposed survey characteristics for geophysical investigation of the Wallender Lake Group, near Kamloops, B.C.

Magnetic, and induced polarization and resistivity surveys have been recommended for the property. The following recommendations are based on a proposed grid comprising 12.7 kilometres of line laid from a 2.5 kilometre base line.

Magnetic Survey Standard total field proton precession magnetic survey, ±1 gamma resolution, ±2 gamma maximum deviation from zero datum (diurnal correction). Maximum station interval 50 metres; close interval detail as required.

Requirements: grid lines inclusive of base line: 15.2 kilometres.

probable additional detail lines: 4.5 kilometres

Cost: Magnetic survey $60.00/kilometre, all field costs included.

Product: Raw and transcribed, corrected magnetic data; plan contour map of data and full technical/operational report and general interpretation by G. Shore, to be included in bound report with IP and resistivity data.

Induced Polarization and Resistivity Survey A gradient array coverage is recommended to provide rapid and complete coverage of the entire property. The gradient array provides the best resolution for small or irregular concentrations of sulphides, particularly when the target material is in a high depth/volume ratio position, while remaining fully responsive to the lower grade, high volume mineralization also typical of the region.

Gradient array anomalies are plotted in plan with responses contoured. Details of depth to top of anomaly source, and three dimension resolution of anomaly geometry must be obtained with another array; in this case dipole-dipole with four N spacings should be adequate.

In/

.../2

In some areas of the property, particularly around Wallender Lake, lack of outcrop may limit knowledge of depth of overburden. Interpretation of anomalous conditions in these areas may be assisted by limited shallow seismic refraction depth determinations if necessary.

Requirements: Gradient array: 12.7 km. grid coverage.

4.5 km. estimated additional detail lines.

Dipole-Dipole: 8.0 km. estimated detail coverage.

Cost: Gradient array, $150.00/line kilometre.
Dipole Dipole: 340.00/line kilometre.
All field costs included.

Product: Raw and transcribed data and calculated values; full technical/operational report and general interpretation by G. Shore, with 2 plan maps of gradient IP and gradient resistivity data, pseudo-section representations of dipole-dipole data.

It is understood that Sovereign will be responsible for the installation of a suitable grid at its expense.

Estimated Cost Summary:

Magnetics:	Standard coverage:	15.2 km.	@$60.00	912.00	
	Detail lines:	4.5 km.	"	270.00	
				1,182.00	1,182.00
IP/Resistivity:					
	Gradient standard survey:	12.7 km.	@150.00	1,905.00	
	Probable detail coverage:	4.5 km.	"	675.00	
				2,580.00	2,580.00
	Dipole-dipole detail:	8.0 km.	@340.00	2,720.00	2,720.00
					$6,482.00

Quoted costs include all mobilization and demobilization costs when subscribed survey work exceeds a value of $5,000.00; otherwise a charge of $400.00 will apply.

I hope this information will assist your planning.

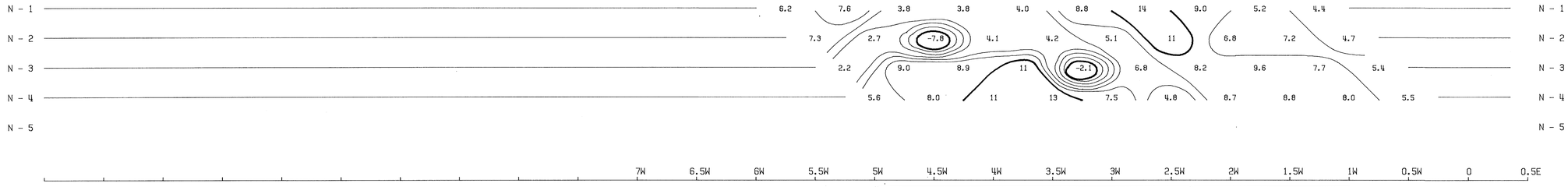
Yours truly,
DEEP GRID ANALYSIS, LIMITED

Greg Shore.

GS/rs

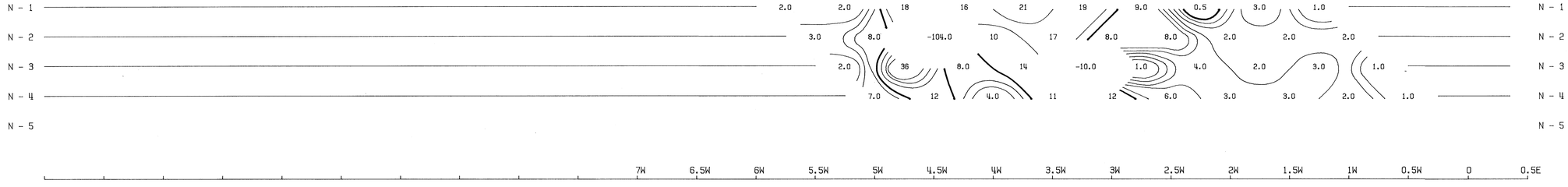
Dwg 4

CHARGEABILITY (APP.)



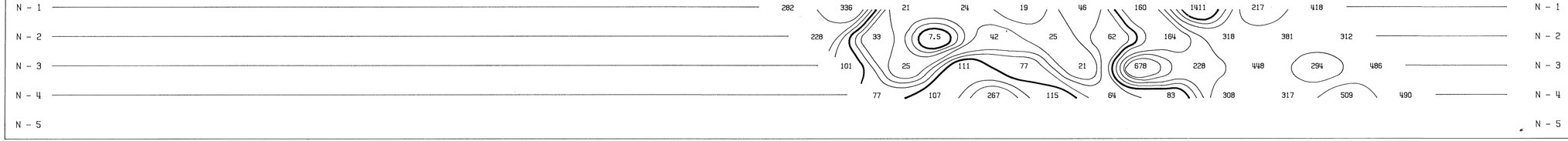
CHARGEABILITY (APP.)

STATIC CAPACITY



STATIC CAPACITY

RESISTIVITY (APP.) IN ØHM METERS



RESISTIVITY (APP.) IN ØHM METERS

SØVEREIGN METALS CØRPØRATIØN

WALLENDER LAKE CLAIM GRØUP

KAMLØØPS M.D., B.C.

LINE NØ.- 1+50N

5933

NØTE: CØNTØURS AT LØGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10

DATE SURVEYED: MAR 1976

SCALE: 1:2000

DIPØLE-DIPØLE ARRAY
A = 50M

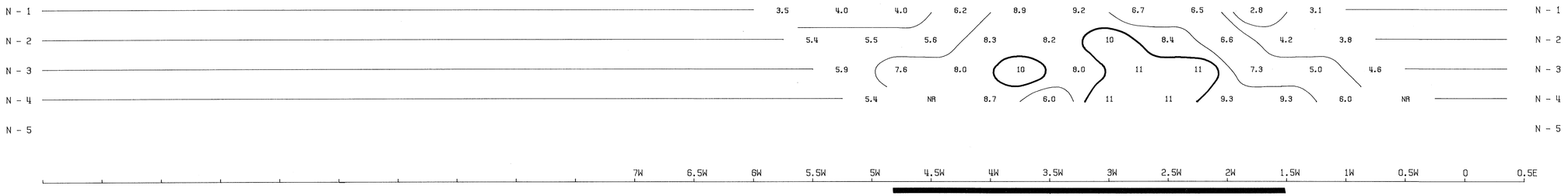
DEEP GRID ANALYSIS, LTD.

VANCØUVER, B.C.

INDUCED PØLARIZATIØN AND RESISTIVITY SURVEY

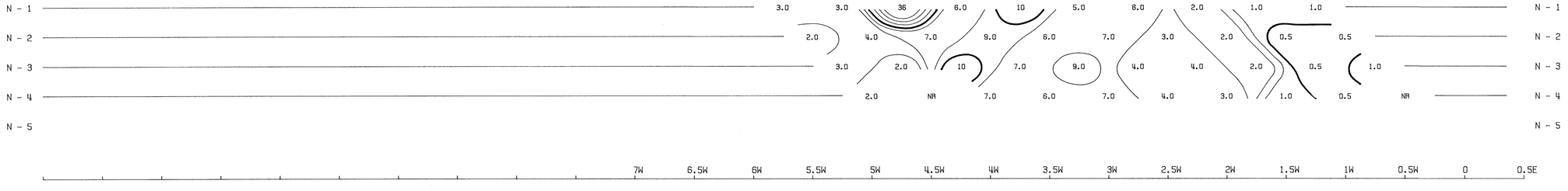
Dwg 5

CHARGEABILITY (APP.)



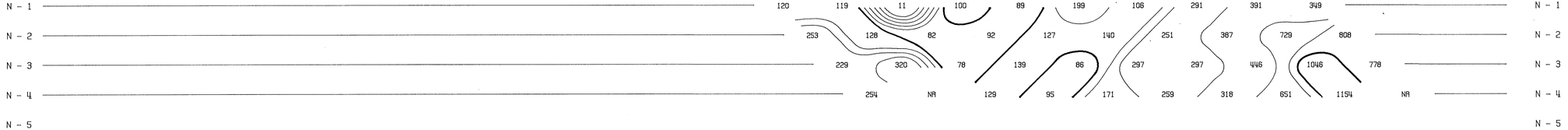
CHARGEABILITY (APP.)

STATIC CAPACITY



STATIC CAPACITY

RESISTIVITY (APP.) IN ØHM METERS



RESISTIVITY (APP.) IN ØHM METERS

SØVEREIGN METALS CØRPØRATIØN

WALLENDER LAKE CLAIM GRØUP

KAMLØØPS M.D., B.C.

LINE NØ.- 0+75N

NØTE: CØNTØURS AT LØGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10

DATE SURVEYED: MAR 1976

SCALE: 1:2000

DIPØLE-DIPØLE ARRAY
A = 50M

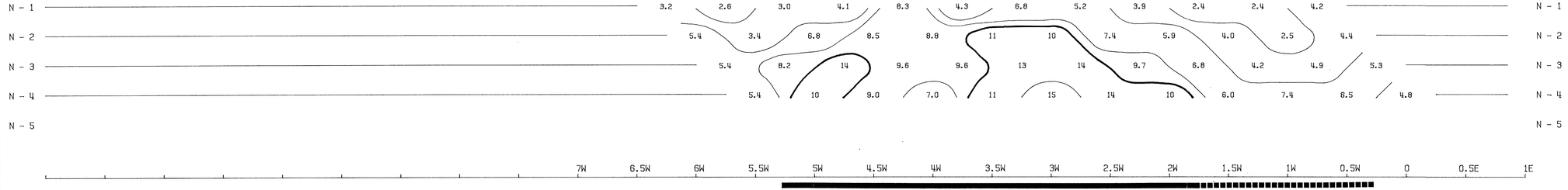
DEEP GRID ANALYSIS, LTD.

VANCØUVER, B.C.

INDUCED PØLARIZATIØN AND RESISTIVITY SURVEY

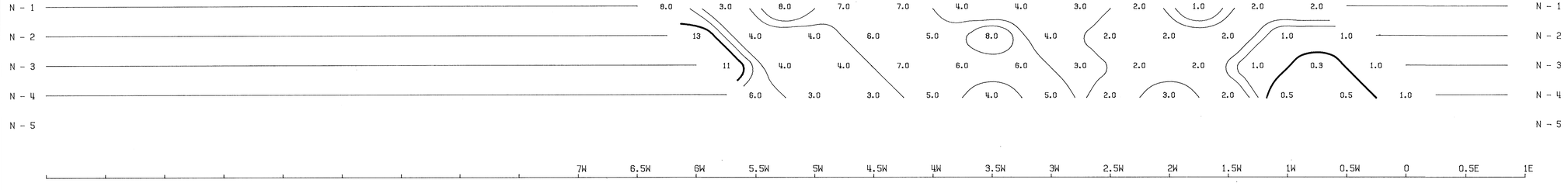
Dwg 6

CHARGEABILITY (APP.)



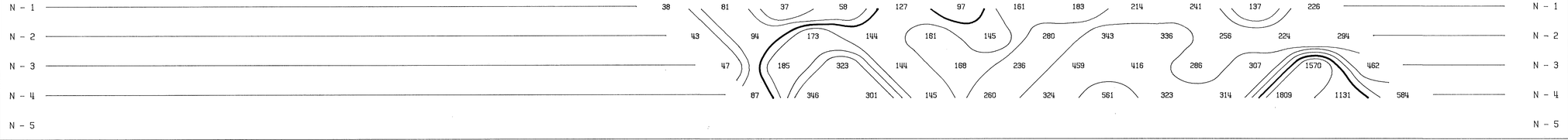
CHARGEABILITY (APP.)

STATIC CAPACITY



STATIC CAPACITY

RESISTIVITY (APP.) IN OHM METERS



RESISTIVITY (APP.) IN OHM METERS

SOVEREIGN METALS CORPORATION

WALLENDER LAKE CLAIM GROUP

KAMLOOPS M.D., B.C.

LINE NO.- 0

NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10

DATE SURVEYED: MAR 1976

SCALE: 1:2000

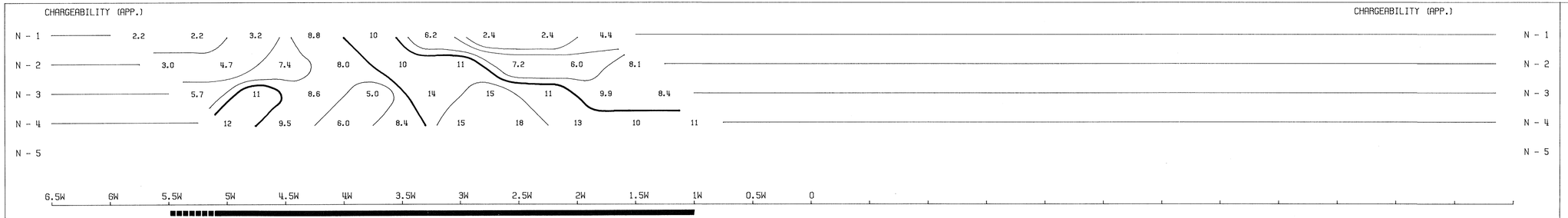
DIPOLE-DIPOLE ARRAY
A = 50M

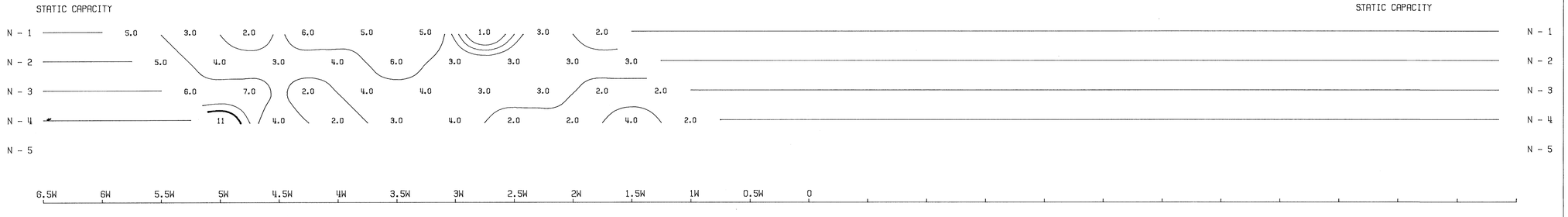
DEEP GRID ANALYSIS, LTD.

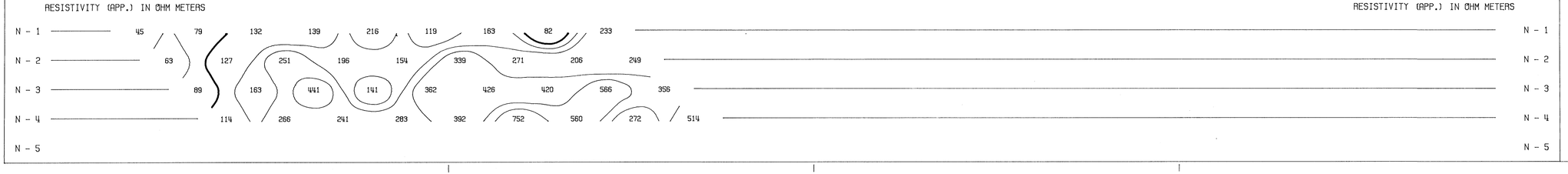
VANCOUVER, B.C.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

Dwg 7







SØVEREIGN METALS CØRPØRATION

WALLENDER LAKE CLAIM GRØUP

KAMLØØPS M.D., B.C.

LINE NØ.- 0+75S

NØTE: CØNTØURS AT LØGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10

DATE SURVEYED: MAR 1976

SCALE: 1:2000

DIPØLE-DIPØLE ARRAY
A = 50M

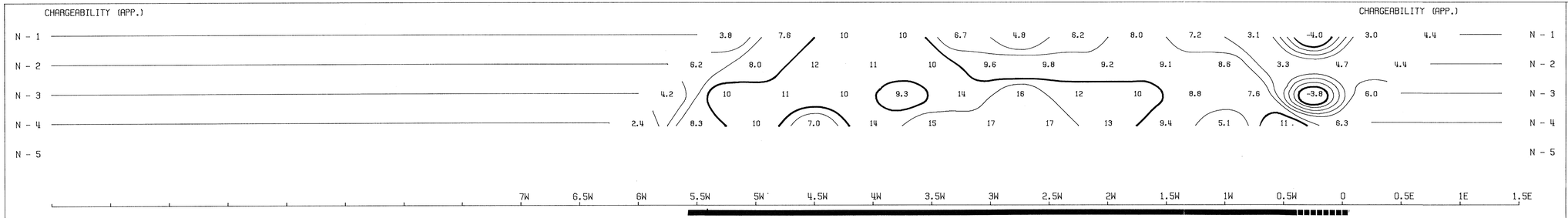
DEEP GRID ANALYSIS, LTD.

VANCØUVER, B.C.

INDUCED PØLARIZATIØN AND RESISTIVITY SURVEY

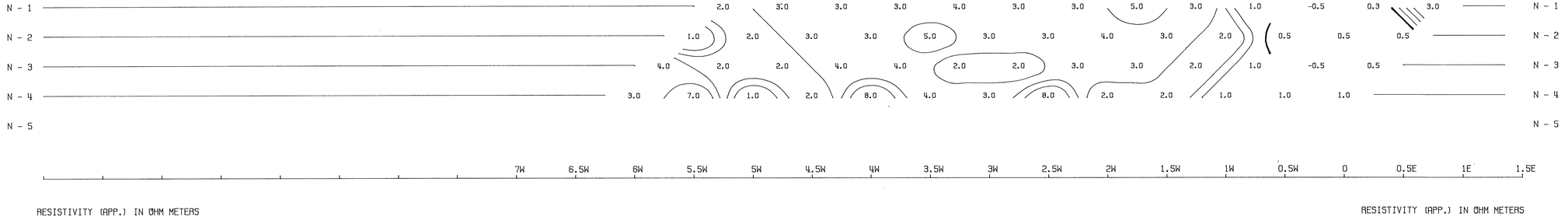
Dwg 8

CHARGEABILITY (APP.)



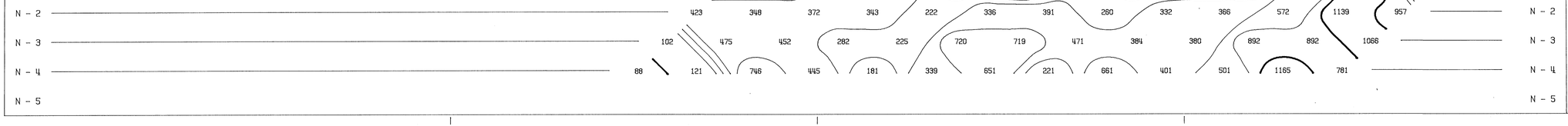
CHARGEABILITY (APP.)

STATIC CAPACITY



STATIC CAPACITY

RESISTIVITY (APP.) IN ØHM METERS



RESISTIVITY (APP.) IN ØHM METERS

SØVEREIGN METALS CØRPØRATION

WALLENDER LAKE CLAIM GRØUP

KAMLØØPS M.D., B.C.

LINE NØ.- 1+50S

NØTE: CØNTØURS AT LØGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10

DATE SURVEYED: MAR 1976

SCALE: 1:2000

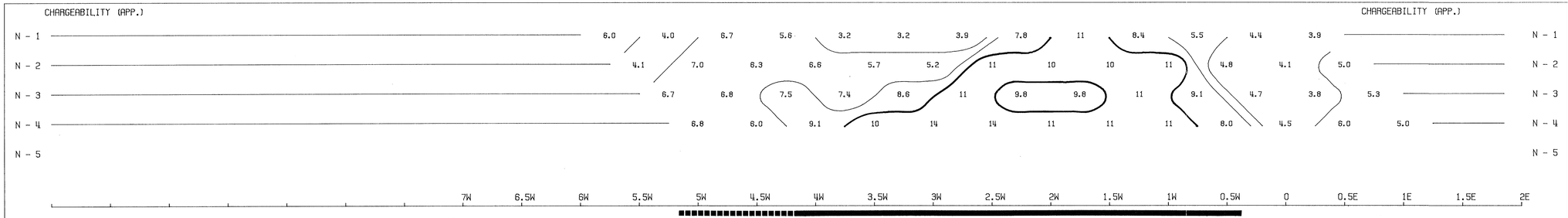
DIPØLE-DIPØLE ARRAY
A = 50M

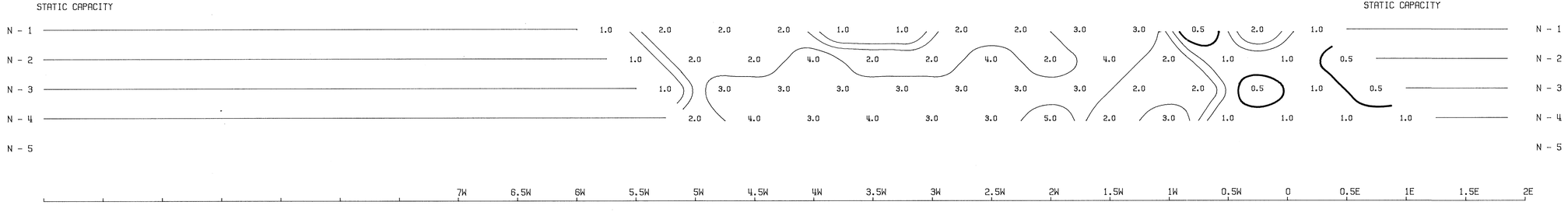
DEEP GRID ANALYSIS, LTD.

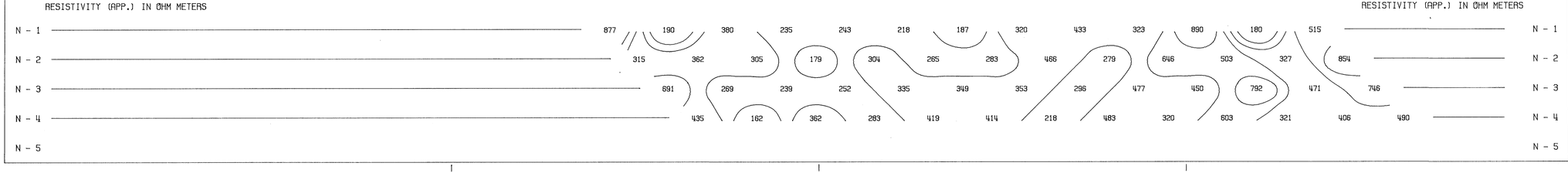
VANCØUVER, B.C.

INDUCED PØLARIZATIØN AND RESISTIVITY SURVEY

Dwg 9







SOVEREIGN METALS CORPORATION

WALLENDER LAKE CLAIM GROUP

KAMLOOPS M.D., B.C.

LINE NO.- 2+25S

NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10

DATE SURVEYED: MAR 1976

SCALE: 1:2000

DIPOLE-DIPOLE ARRAY
A = 50M

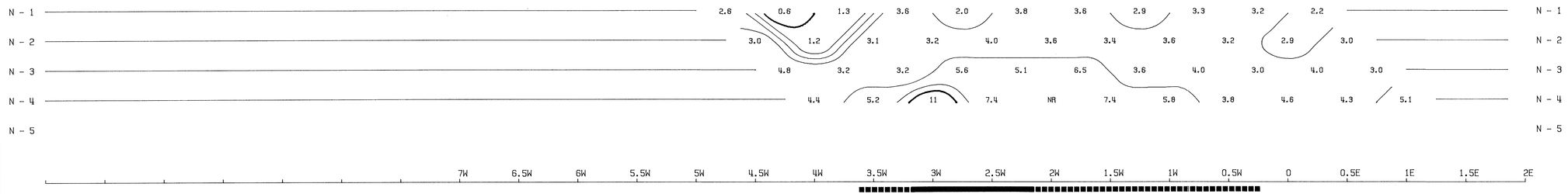
DEEP GRID ANALYSIS, LTD.

VANCOUVER, B.C.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

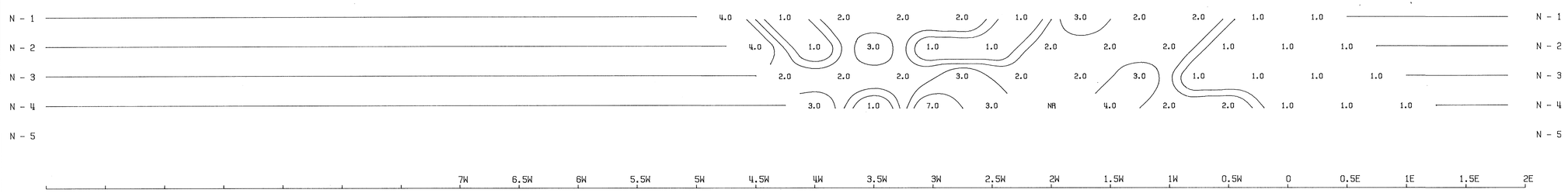
Dwg 10

CHARGEABILITY (APP.)



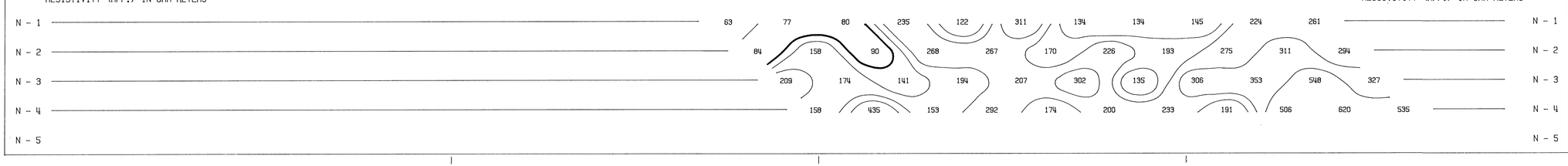
CHARGEABILITY (APP.)

STATIC CAPACITY



STATIC CAPACITY

RESISTIVITY (APP.) IN ØHM METERS



RESISTIVITY (APP.) IN ØHM METERS

SØVEREIGN METALS CØRPØRATIØN

WALLENDER LAKE CLAIM GRØUP

KAMLØØPS M.D., B.C.

LINE NØ.- 3S

NØTE: CONTØURS AT LØGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10

DATE SURVEYED: MAR 1976

SCALE: 1:2000

DIPØLE-DIPØLE ARRAY
A = 50M

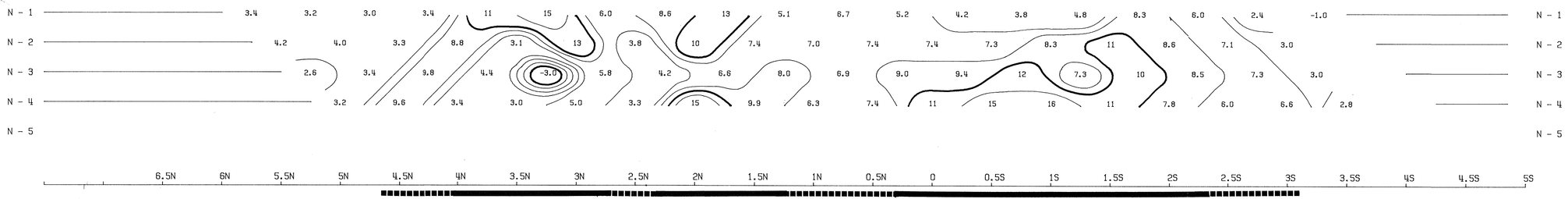
DEEP GRID ANALYSIS, LTD.

VANCØUVER, B.C.

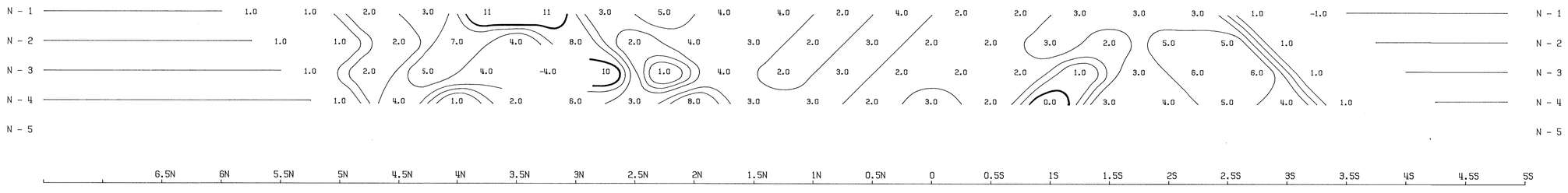
INDUCED PØLARIZATIØN AND RESISTIVITY SURVEY

Dwg 11

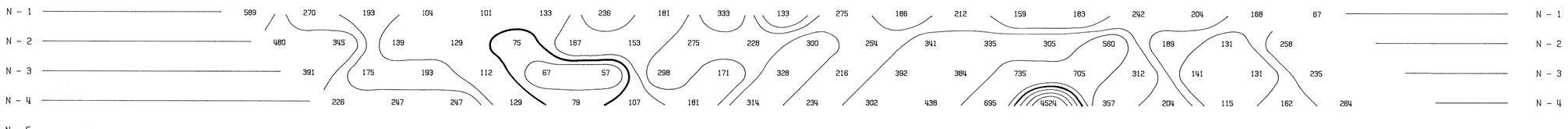
CHARGEABILITY (APP.)



STATIC CAPACITY



RESISTIVITY (APP.) IN OHM METERS



SOVEREIGN METALS CORPORATION

WALLENDER LAKE CLAIM GROUP

KAMLOOPS M.D., B.C.

LINE NO.- 2+25W

NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10

DATE SURVEYED: MAR 1976

SCALE: 1:2000

DIPOLE-DIPOLE ARRAY
A = 50M

DEEP GRID ANALYSIS, LTD.

VANCOUVER, B.C.

INDUCED POLARIZATION AND RESISTIVITY SURVEY

GRADIENT ARRAY SURVEY,
A = 50 METRES

DATA: MILLISECONDS (NEWMONT).
CONTOUR INTERVAL: 2 MILLISECONDS

N.B.: Grid designation in Metres

5933 M-4

SOVEREIGN METALS CORP. (N.P.L.)

WALLENDER LAKE PROJECT

KAMLOOPS M.D., B.C. 92 I/9W

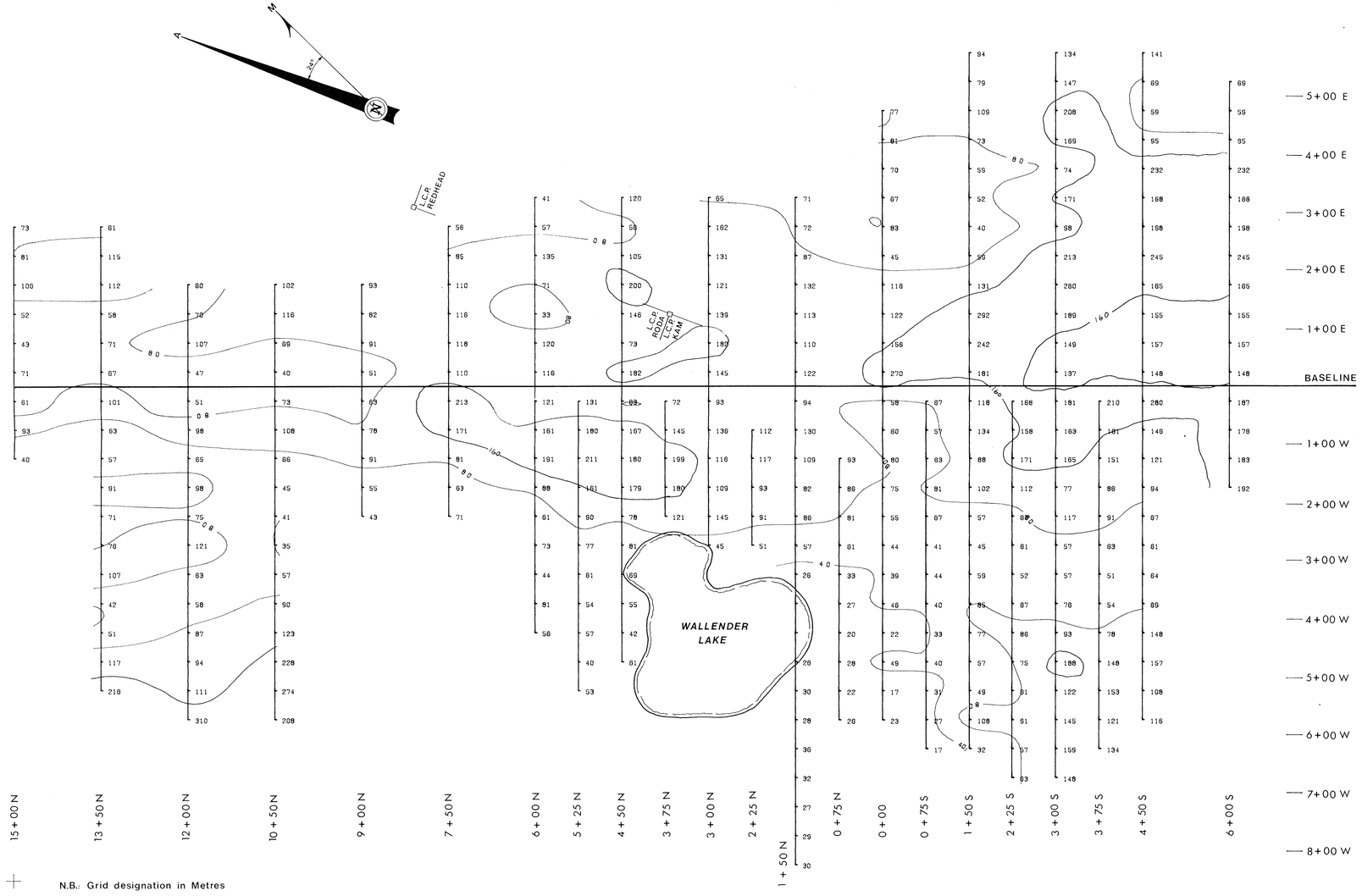
SURVEY BY
DEEP GRID ANALYSIS, LTD., NORTH VANCOUVER, B.C.

APPARENT CHARGEABILITY CONTOURS

Scale: 0 50 100 150 200 250 METRES
0 400 800 FEET

Date: APRIL 22 1976

Dwg: 1



N.B.: Grid designation in Metres

GRADIENT ARRAY SURVEY,
A = 50 METRES

DATA: OHM-METRES
CONTOUR INTERVAL: 40, 80, 160 OHM-METRES

5933 M-5

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5933 MAP #5

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
CHARLES K. IKONA

SOVEREIGN METALS CORP. (N.P.L.)

WALLENDER LAKE PROJECT

KAMLOOPS M.D., B.C. 92 I/9W

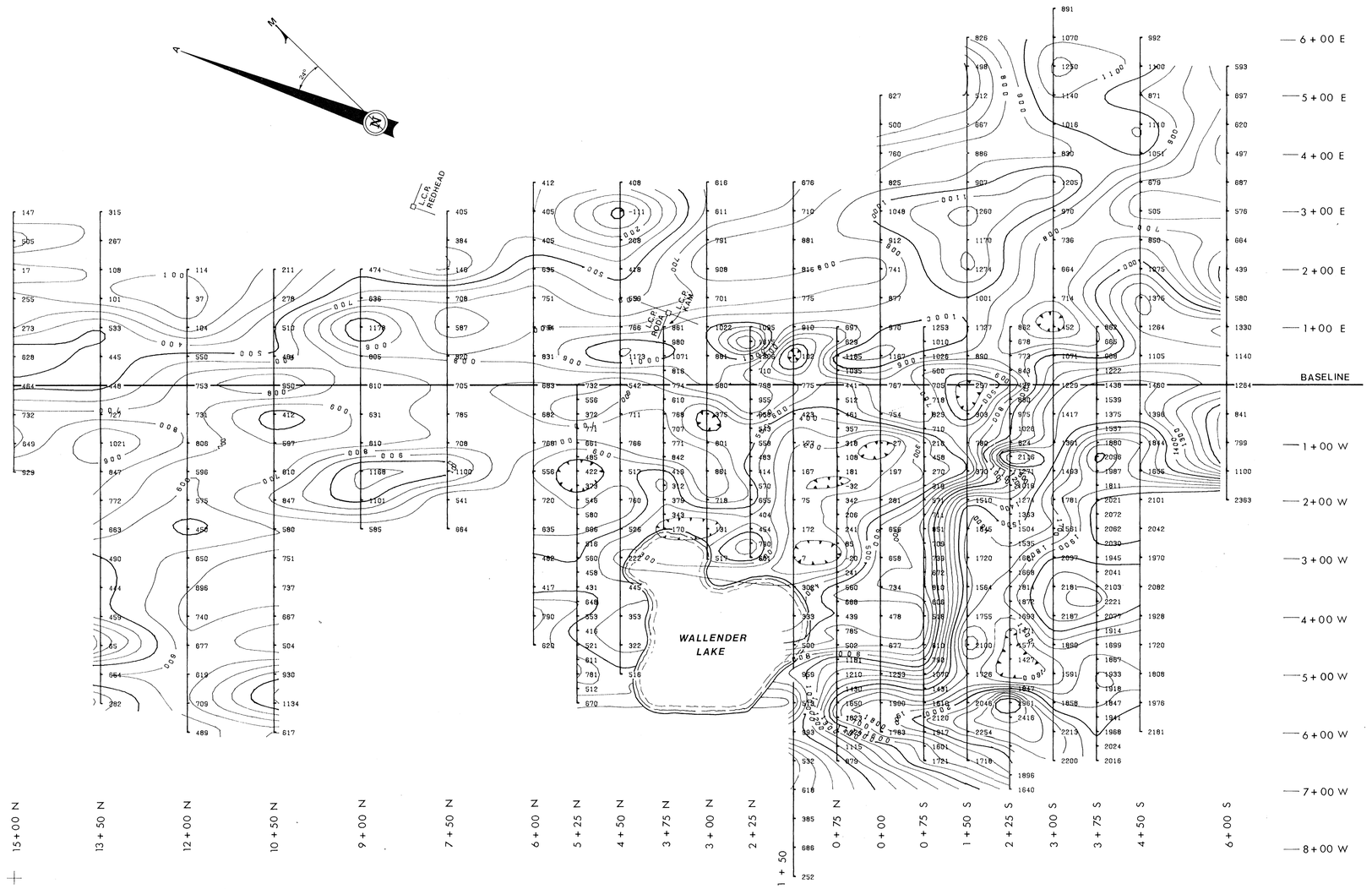
SURVEY BY
DEEP GRID ANALYSIS, LTD., NORTH VANCOUVER, B.C.

APPARENT RESISTIVITY CONTOURS

Scale: 0 50 100 150 200 250 METRES
0 400 800 FEET

Date: APRIL 22 1976

Dwg: 2



N.B.: Grid designation in Metres

CONTOUR INTERVAL: 100 GAMMAS

TOTAL FIELD MAGNETICS
ZERO DATUM = 58,000 GAMMAS

5933 M-6

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5933 MAP # 6

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
CHARLES K. IKONA

SOVEREIGN METALS CORP. (N.P.L.)

WALLENDER LAKE PROJECT

KAMLOOPS M.D., B.C. 92 I/9W

SURVEY BY
DEEP GRID ANALYSIS, LTD., NORTH VANCOUVER, B.C.

MAGNETIC SURVEY

Scale: 0 50 100 150 200 250 METRES
0 400 800 FEET

Date: APRIL 22 1976

Dwg: 3