# Induced Polarization Survey of the Cairo Township Property Matachewan Area Comstate Resources Option Larder Lake Mining Division

for

GRAND SAGUENAY MINES AND MINERALS LTD.

by

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May 7, 1984

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## INTRODUCTION

Induced polarization profiles were run on the Cairo Township property in late April, 1984 to test for disseminated sulphides which could be a host for gold mineralization within an area of syenite at Moyneur Lake or along a carbonated zone near Highway 66.

### Location and Access

The property is located in southern Cairo Twp. Access is excellent, as the property is traversed by Highway 66 connecting Matachewan to the Trans Canada Highway No. 11, approximately 20 miles to the east.

Property

The property consists of the following 14 unpatented claims.

Property Name : Cairo Property
Property Number :

| Claim Number | Date Recorded | Assessment Credits Approved | Assessment Credits Applied for | Work Done | Next Assessment Credits Due |
|---|---|---|---|---|---|
| L561730 | 01/06/81 | 75 | 80 | geophysic, geology, geochem | 01/06/85 |
| L650115 | 14/06/82 | | 80 | geophysic, geochem | 14/06/85 |
| L650116 | 14/06/82 | | 80 | " | 14/06/85 |
| L650117 | 14/06/82 | | 80 | " | 14/06/85 |
| L650118 | 14/06/82 | | 80 | " | 14/06/85 |
| L650130 | 14/06/82 | | 80 | " | 14/06/85 |
| L650131 | 14/06/82 | | 80 | " | 14/06/85 |
| L650132 | 14/06/82 | | 80 | " | 14/06/85 |
| L650133 | 14/06/82 | | 80 | " | 14/06/85 |
| L650134 | 14/06/82 | | 80 | " | 14/06/85 |
| L725180 | 15/07/83 | 26.67 | 26.67 | geol | 15/07/85 |
| L757832 | 13/04/83 | | 80 | geophysic, geochem | 13/04/86 |
| L757833 | 13/04/83 | | 80 | " | 13/07/86 |
| L757834 | 13/04/83 | 26.67 | 26.67 | geol | 12/07/85 |

Previous Work

Following the discovery of gold in 1916, the Matachewan area was mapped by Burrows (1918, 1920), Cooke (1919) and subsequently by Dyer (1935) and Lovell (1967).

There are no current assessment records available to the writer concerning the nature or extent of any exploration work undertaken prior to Comstate acquiring the property in 1981 to 1983. However, Lovell (1967), indicates that most of the property was formerly held by the Matachewan Hub Pioneer Syndicate, who reportedly excavated a trench 110 feet long near the south central boundary of the claim group. The trench traversed a volcanic-diabase dike contact bearing white pyrite and minor magnetite contained within a quartz-carbonate matrix.

In May, 1981, Comstate Resources Ltd. conducted a geochemical (humus) survey on one of the claims located in the north central part of the claim group. A total of 114 samples were taken at 100 foot centres over the claim, and subsequently analyzed by neutron activation methods for gold and arsenic. Two areas containing 16 samples and 8 samples respectively contained gold values ranging from 6 to 11 parts per billion. At best these are extremely weak anomalies, being at the threshold of background concentrations. One sample site on the west boundary of the claim yielded 200 parts per billion gold.

In June, 1983, Comstate Resources conducted proton magnetic,

electromagnetic (VLF) and geological surveys over twelve of the claims. In September, 1983, a geological survey was completed over the northern two claims. The VLF survey outlined a number of EME trending anomalies, three of which are interpreted to be of a bedrock source. The magnetic survey largely aided in delineating the extent of an ultramafic-mafic intrusive body near the east margin of the property.

Survey Dates and Personnel

The I.P. survey was done on April 19, 1984 to April 27, 1984 using a crew consisting of Chris Jones, Dave Hurst, John Scott, Jim Bald and back up by Ian Coster, Nadia Caira and R. Bald.

A total of 1211 readings were taken in the detailed survey that was done with a 50 foot "a" spacing.

REGIONAL GEOLOGY

The Matachewan area borders the northwest margin of the Round Lake Batholith, and is on the south limb of a major synclinorium, the axis of which trends westerly approximately 7 miles north of the area (Pyke et al, 1973). A large pluton of syenite, the Cairo stock, underlies the northeast portion of Cairo Township. Volcanic rocks of komatiitic, tholeiitic and calc-alkaline affinities trend westward across Cairo and Powell Townships, but have not as yet been mapped in sufficient detail to be accurately delineated. Intercalcated with the volcanic

rocks are thick sequences of sedimentary rocks. It is the contact zones of the more southerly sedimentary sequence with the underlying volcanics, in association with syenitic intrusions, which has formed the focal point for the known gold mines in the area. The Moyneur Lake claims cover this contact.

The north trending Matachewan diabase dike swarm intrudes the Early Precambrian (Archean) rocks, and has been dated at 2485 million years (Fahrig and Wanless, 1963).

Flat-lying Proterozoic sediments of the Cobalt Group unconformably overlie the Archean rocks.

A number of major faults traverse the Matachewan area (Figure 2), notably the Larder Lake Fault zone and the Montreal River Fault. The easterly trending Larder Lake break is in proximity to numerous gold camps throughout its strike length - notably those of Kirkland Lake, Larder Lake, Noranda, Cadillac, Malartic and Val D'Or. The exact positioning of the fault through the Matachewan area is uncertain, but is believed to be as depicted in Figure 2. Furthermore, the Montreal River Fault, which traverses the Matachewan area, shows a spatial relationship to a number of mines or camps - for example: Kidd Creek, Timmins, Elk Lake. Numerous other northerly trending faults are known in the Matachewan area, many of which are filled by diabase dikes.

PROPERTY GEOLOGY

About half the property is covered by Proterozoic sediments of the Cobalt Group, consisting largely of moderately well sorted polymitic conglomerates. Dips of 60 to 80 degrees are common and this together with the general linear distribution of the sediments (Figure 2) suggests the Cobalt was deposited within a fault structure which has later been reactivated. A north facing assemblage of Archean metavolcanic rocks and associated intrusive equivalents underlie the southern portion of the property. This consists of a lower sequence of calc-alkaline rhyolitic flows and breccia and lesser andesite containing minor interflow cherty iron formation. This is overlain by massive and pillowed variolitic basalt containing numerous (15 per cent) narrow quartz veins with minor (5-10 percent) pyrite. A narrow zone of sheared komatiitic volcanics is enclosed by and in fault contact with the variolitic basalts. Within this fault zone the basalts are extensively bleached, silicified and highly fractured. Massive to pillowed tholeiitic basalt forms the upper part of the exposed stratigraphy. A narrow lense of serpentinite with minor associated gabbro extends into the east margin of the claim group.

The faulted komatiitic-variolitic basalt zone is interpreted to form part of the Larder Lake Break. In terms of the regional

stratigraphy, this fault zone is proximal to the contact between the Lower and Upper Supergroup volcanic rocks (in this case the calc-alkaline and tholeiitic volcanics) which can be demonstrated to be favorably located as regards economic mineralization in the general Timmins-Matachewan-Kirkland Lake area. To the east of the property the fault largely separates Archean and Proterozoic rocks. Here the volcanic rocks are intensely sheared near the Proterozoic-Archean contact; a drill hole in the Cobalt sediments immediately south of the proposed Larder Lake fault zone (Figure 5) did not encounter the Archean basement till a depth of 1100 feet (Lovell, 1967).

The volcanic-sedimentary contact on the east side of Knott Lake appears to be the same contact zone along which the Young Davidson and Matachewan Consolidated mine occurred. If so, this contact may extend under the Cobalt sediments along the north margin of the claim group.

## SURVEY PROCEDURE AND INSTRUMENTATION

### Induced Polarization

The IP survey was done using a Scintrex IPR 11 receiver and a TSQ3 transmitter (3.0 k watt). An "a" spacing of 50 feet was used with "n" = 1, 2, and 3 in a dipole-dipole array configuration. This gave theoretical survey depths up to 100 feet which should have been sufficient to explore to bedrock in

all areas of the property.

A 2 second "on" 2 second "off" square wave pulse was transmitted into the ground via stainless steel stake electrodes and the voltage was also read using stainless steel electrodes. This allowed contact below the frozen layer.

With the IPR 11 a series of 10 time windows were recorded after the shut off of the pulse and the 7th time window was plotted on the sections which are attached to the back of this report. This time interval is the 690 - 1050 millisecond duration after the shut off of the pulse. In the case of the IPR8, three time windows were read and the M232 middle window was recorded which corresponds to the 7th window on the IPR-11. Specification sheets are given in the appendix. A total of 1211 readings were taken with the 50 foot "a" spacing.

Lines were run at various line spacings with readings at 50 and 100 foot intervals.

## INTERPRETATION

Strong chargeability values associated with low resistivity were noted on Line 0+00 in the 150S to 600S section. This zone corresponds in part to a known sulphide chert zone but extends northward beneath an overburden covered area. It is possible that a second sulphide zone occurs beneath the overburden cover along with an extension of the carbonate alteration seen on line

10W and 12W along the Highway. This I.P. anomaly strikes N30 - 40°E. On Line 10W - 12W of the carbonate and sulphide zone exposed along the highway gives a strong chargeability response.

On line 14E at 6N-8N a broad high chargeability zone corresponds to a resistivity high as well as a magnetic anomaly. This zone may reflect a syenite or gabbro that is mineralized with sulphides and with its location next to the "Break" beneath the Cobalt sediments, the possibility exists that this zone could contain gold values.

## CONCLUSIONS and RECOMMENDATIONS

The I.P. survey outlined a number of chargeable zones which reflect disseminated sulphides in volcanics and intrusive bodies such as gabbro or syenite. Three drill holes are recommended to test 3 different settings on the property for gold mineralization. Hole 1 will test sulphides and carbonated volcanics on the south side of the lineament marked by the Cobalt sediments. This lineament marked by the Cobalt sediments. This lineament is interpreted to be a major break possible the Larder Lake Break and exhalitive units such as the chert sulphides near this lineament should be tested.

A magnetic anomaly area with corresponding I.P. chargeability occurs on Line 14E and a short hole is planned to test the possibility of a mineralized syenite.

On the Moyneur Lake grid the previously reported anomalous gold values appeared to be larger boulders of recrystallized sediments containing pyrite. These rocks may have been transported a short distance from the north contact of the syenite where a weak I.P. anomaly occurs. A short hole is planned to test this contact which is also the regional extension of the sediments from the Young Davidson Mine area situated to the west.

Recommended Holes

| | Coordinates | Az | Dip | Depth |
|---|---|---|---|---|
| 1. | L 0/6+00S | 330° | -45°N | 600 feet |
| 2. | L14E/5+50N | 0° | -45°N | 200 feet |
| 3. | L4E/675N | 315° | -45°NW | 200 feet |

Respectfully Submitted,

R. Middleton

R.S. Middleton, P.Eng.

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## CERTIFICATION

I, Robert S. Middleton, P.Eng., of 136 Cedar Avenue South, in the City of Timmins, Province of Ontario, certify as follows concerning the Grand Saguenay Mines and Minerals Ltd. property and dated May 7, 1984.

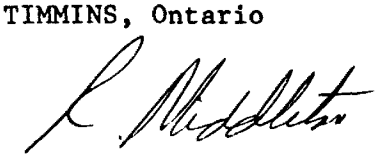
1) I am a member in good standing of:

   a) Geological Association of Canada (FGAC)
   b) The Association of Professional Engineers of Ontario
   c) European Association of Exploration Geophysicists
   d) Society of Exploration Geophysicists
   e) Canadian Institute of Mining and Metallurgy

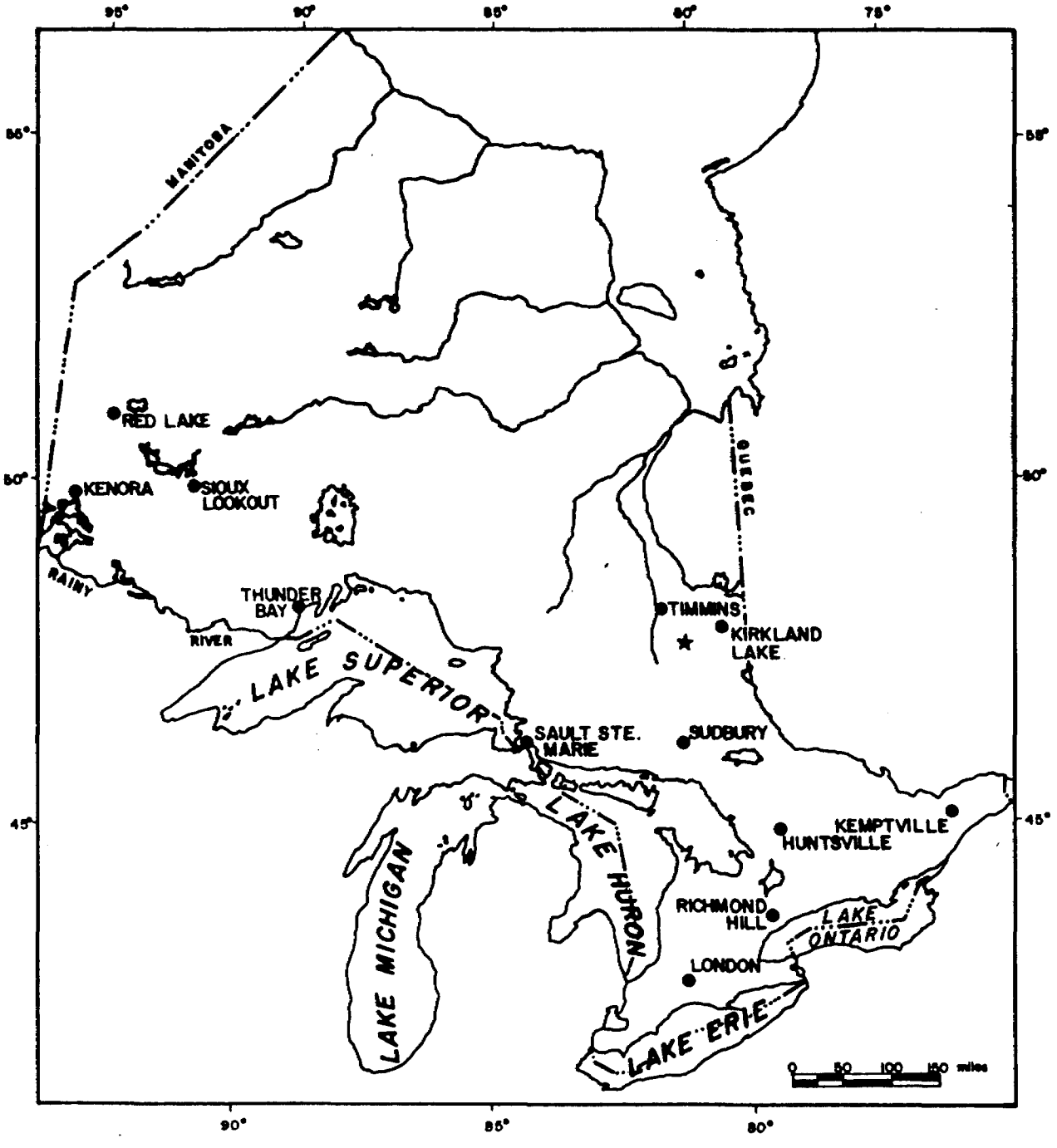
2) I am a graduate of the Michigan Technological University, Houghton, Michigan, U.S.A. with a B.S. degree in Applied Geophysics obtained in 1968, and an M.S. degree in Geophysics in 1969.

3) I have been practising my profession in Canada, occasionally in the United States, Central America, Europe and South Africa for the past 14 years.

Dated this May 7, 1984
TIMMINS, Ontario



Robert S. Middleton, P.Eng.




PROVINCE OF ONTARIO

Fig. 1

| REVISIONS | ROBERT S. MIDDLETON EXPLORATION SERVICES INC. | | |
|---|---|---|---|
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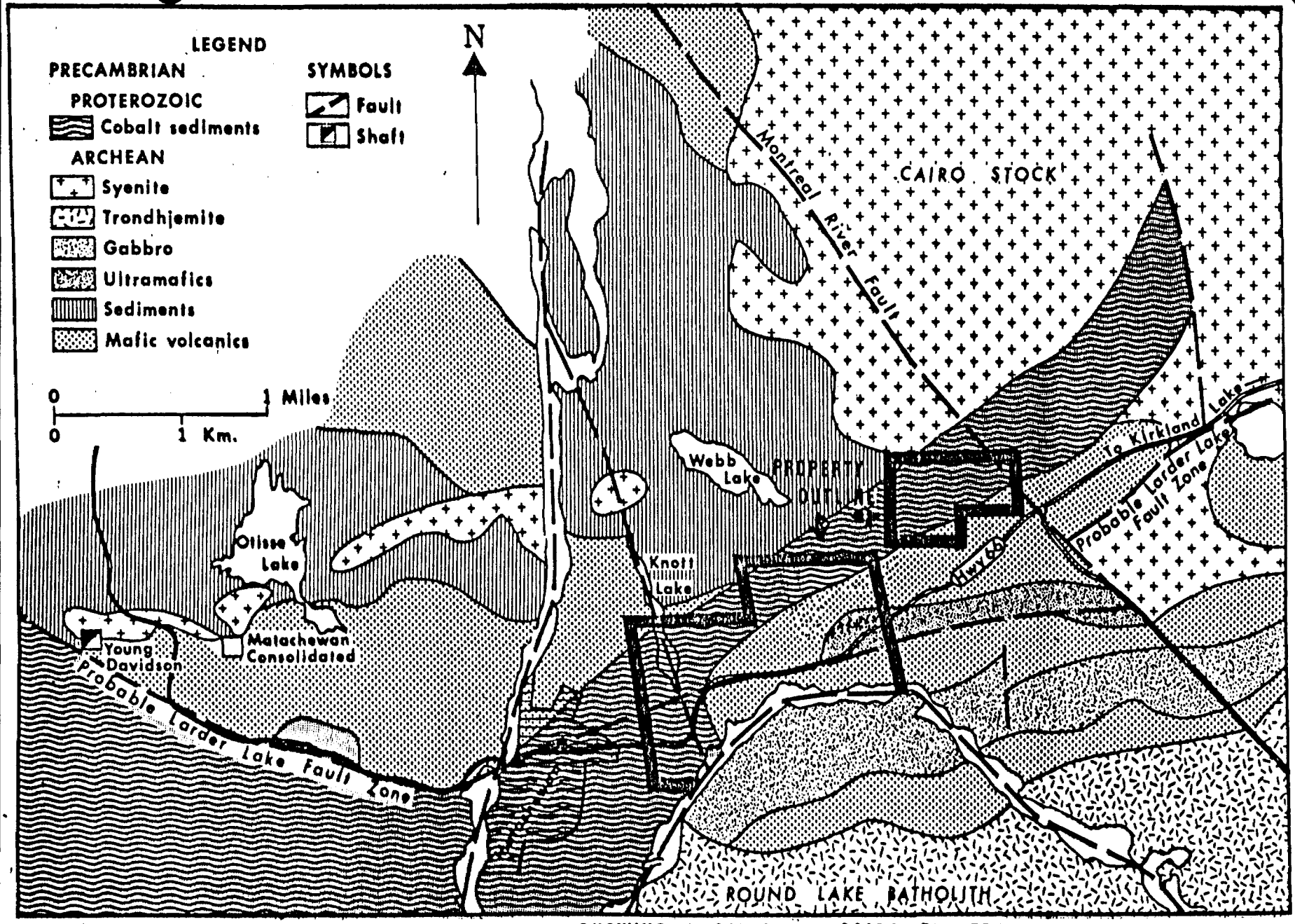


Figure 1 - General geology in the vicinity of Matachewan. SHOWING LOCATION OF CAIRO PROPERTY

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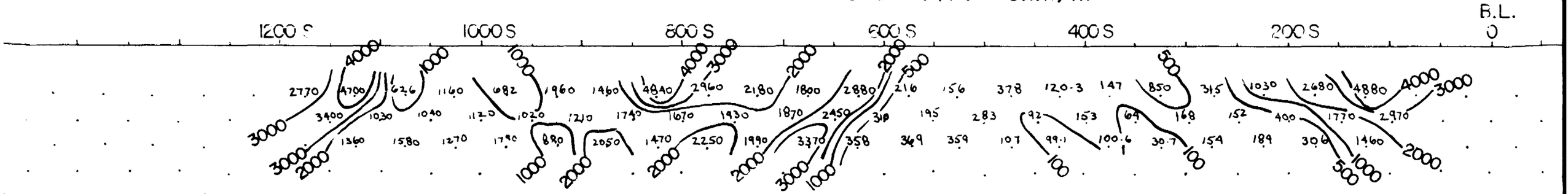


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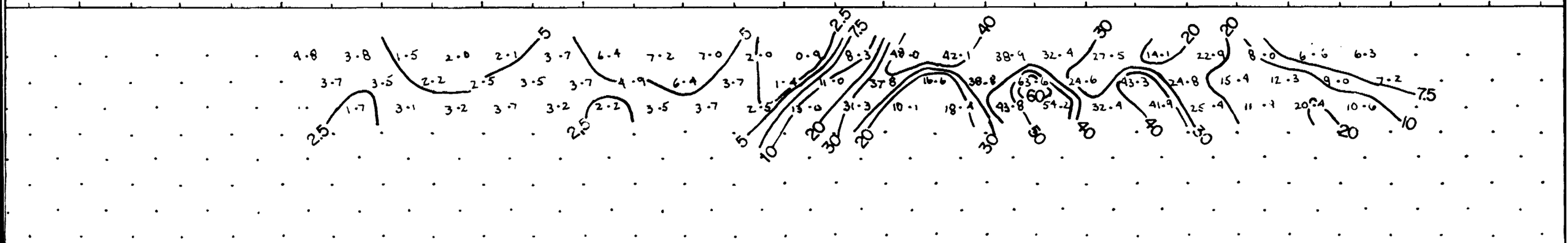

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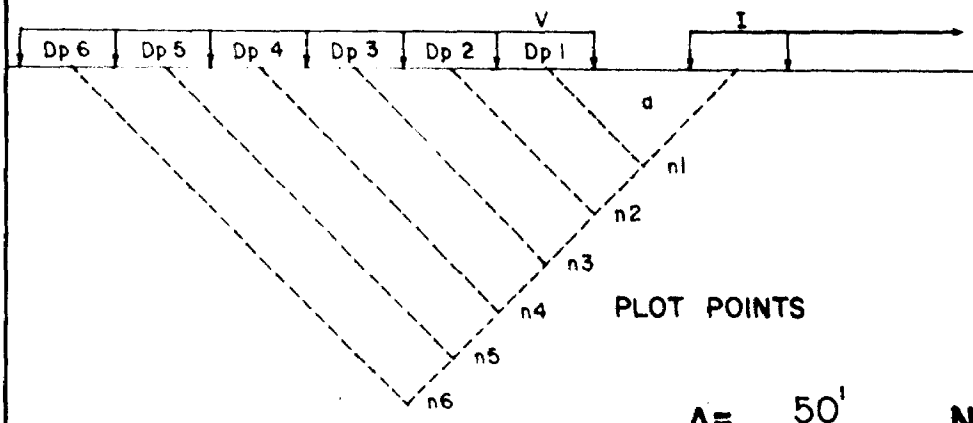


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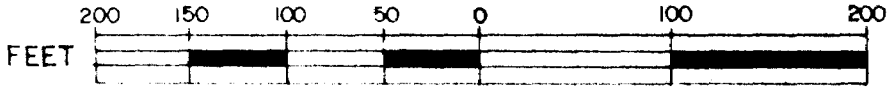


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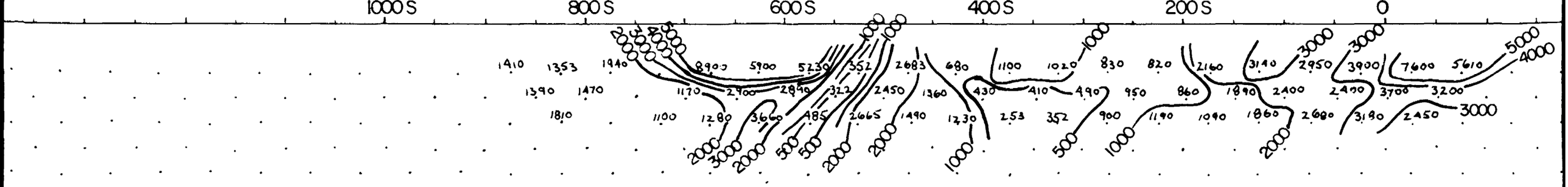


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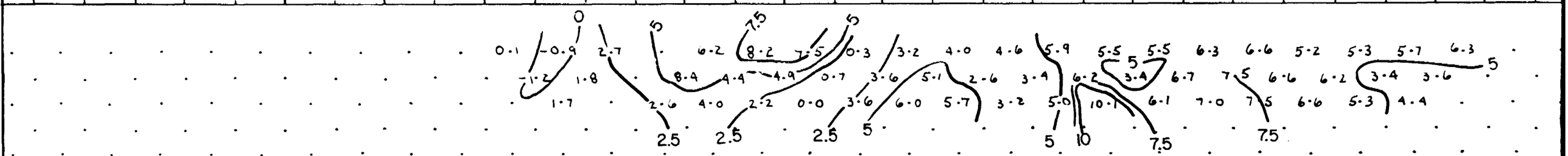

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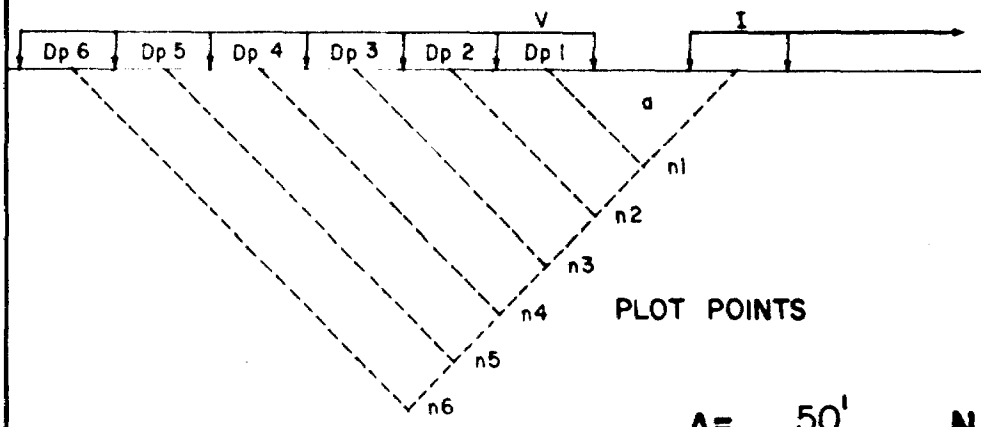


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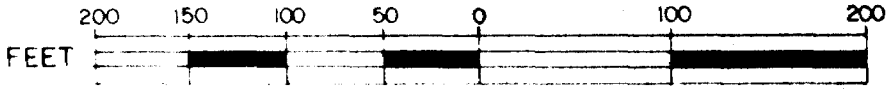


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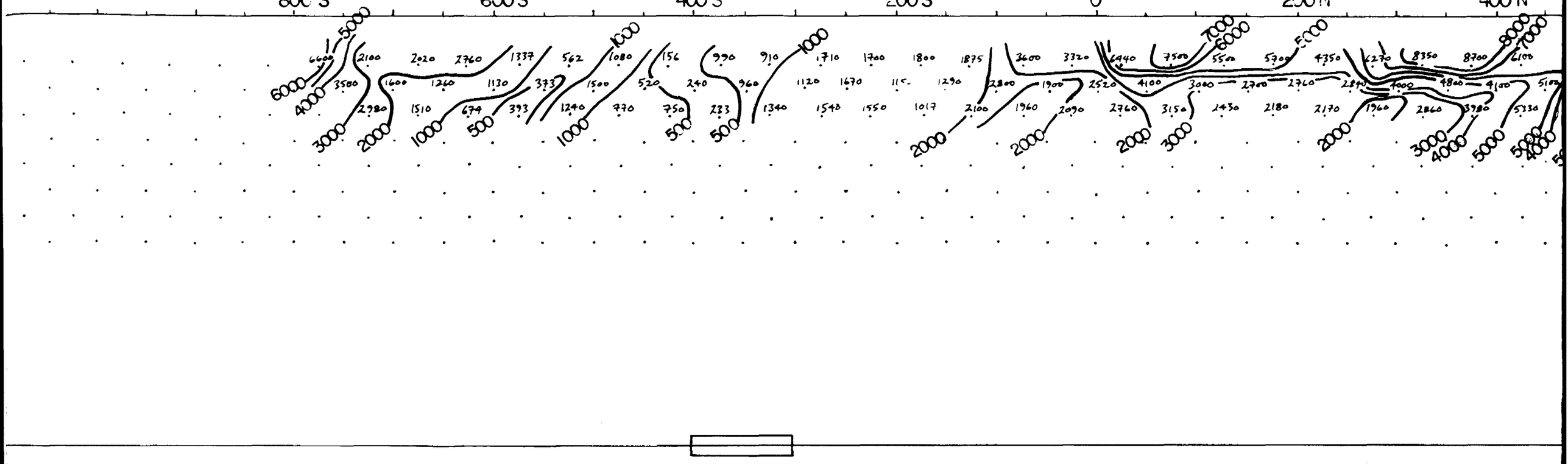


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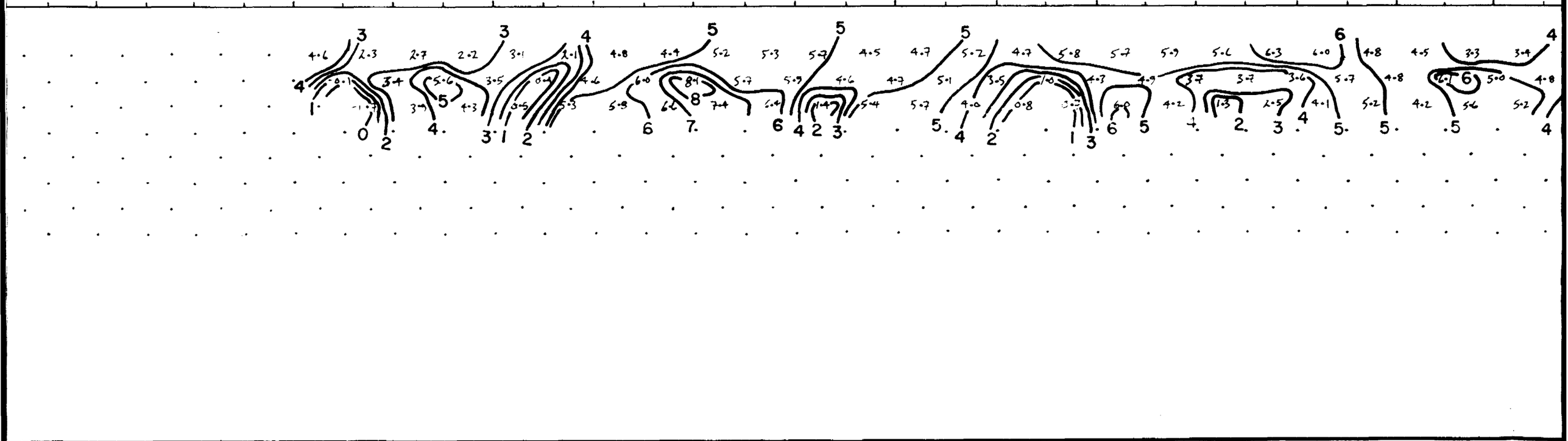

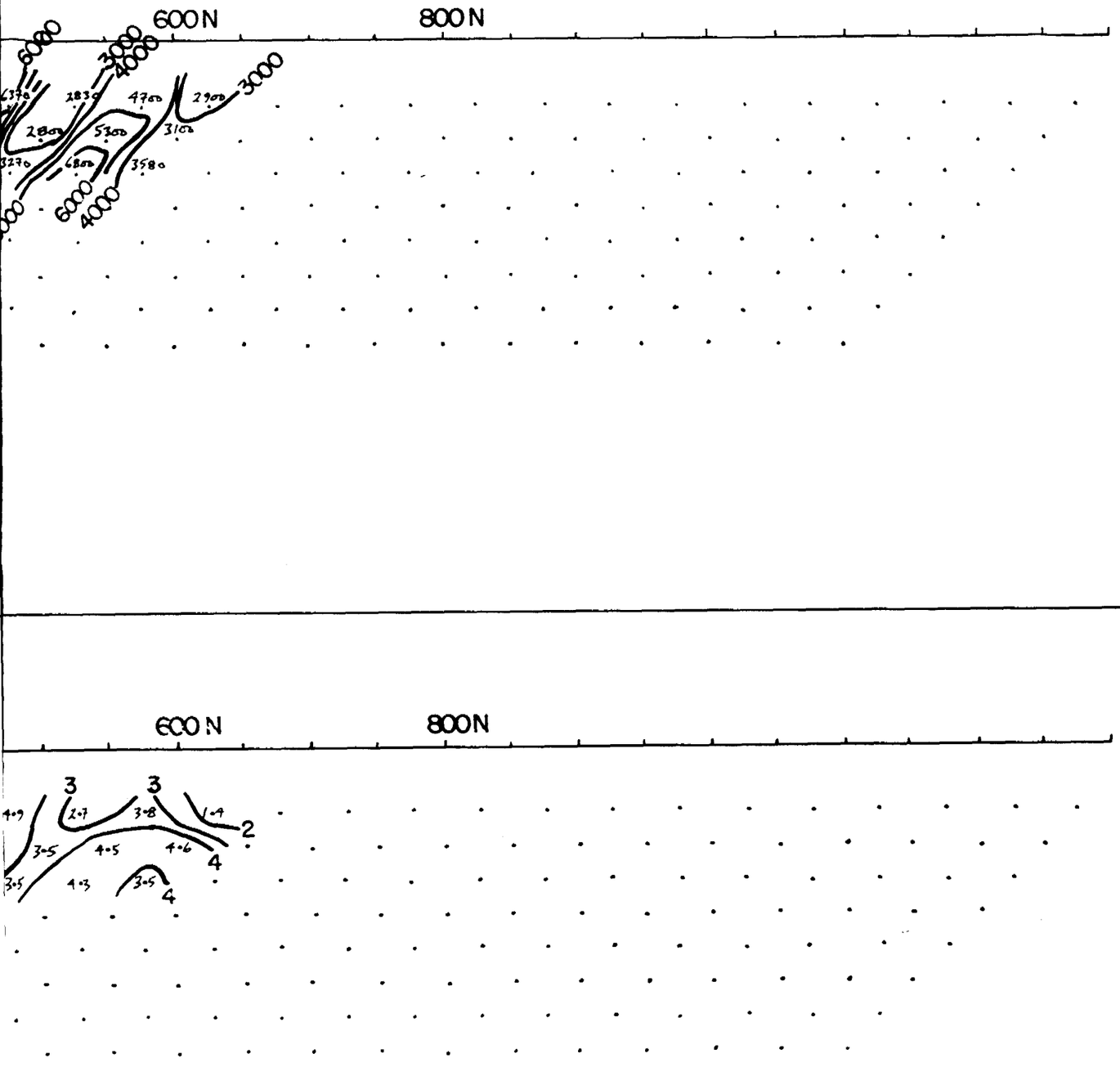


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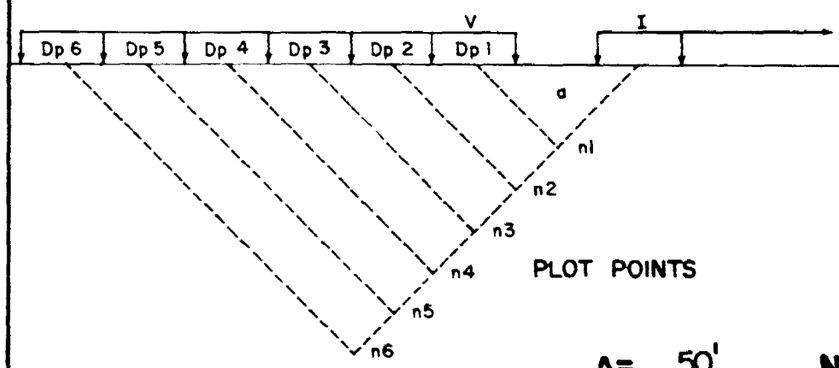


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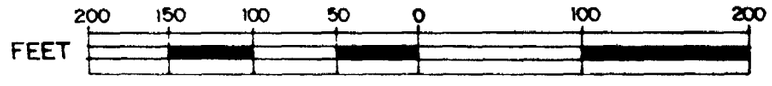


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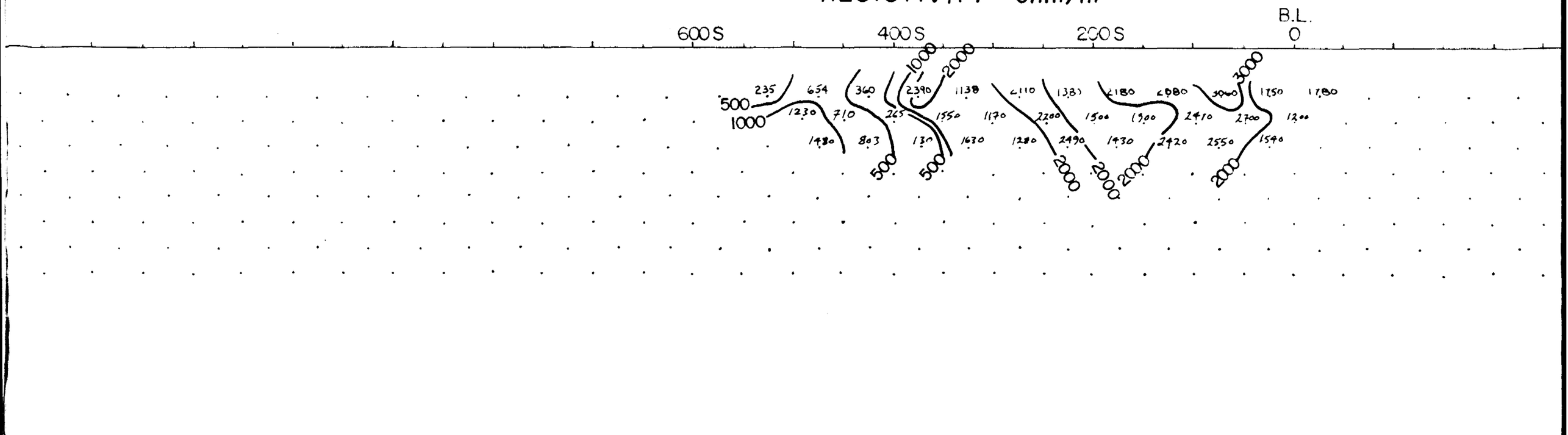


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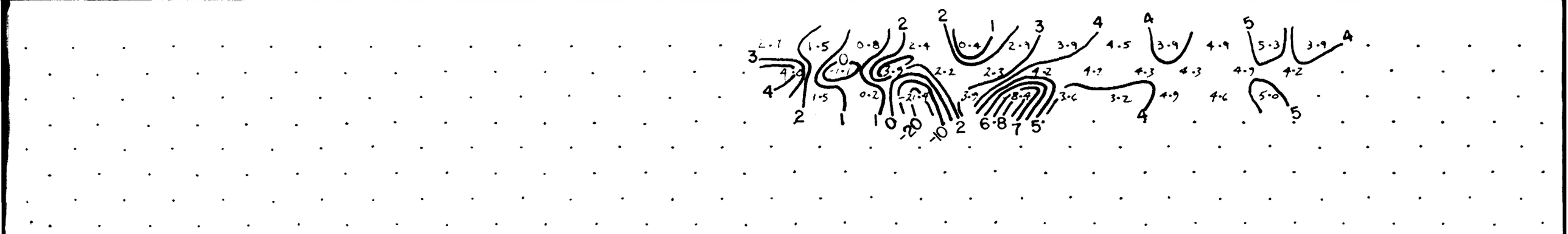

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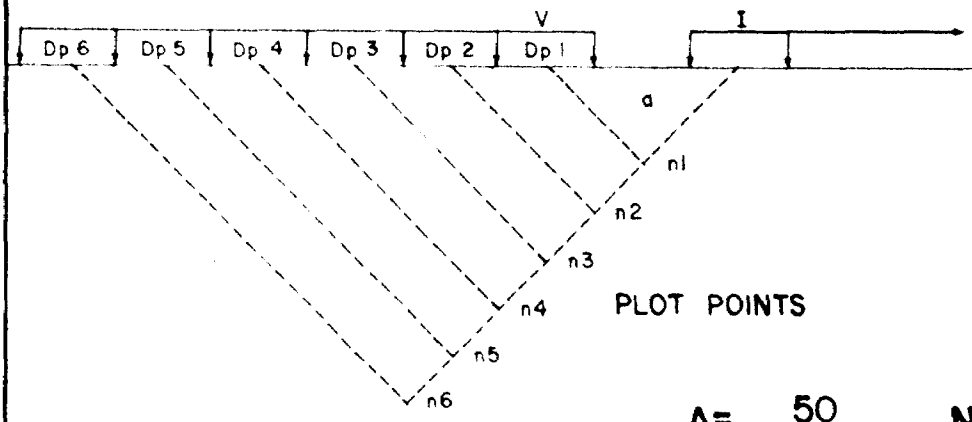


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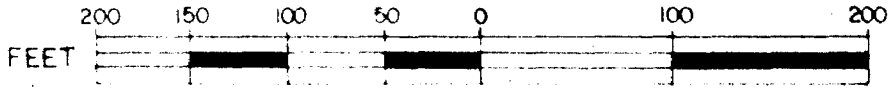


| REVISIONS | ROBERT S. MIDDLETON EXPLORATION SERVICES INC. | | |
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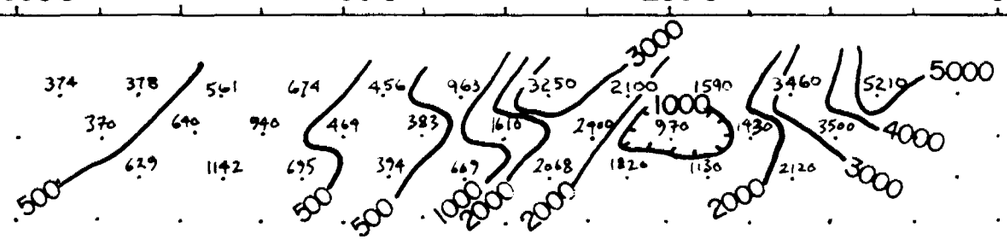


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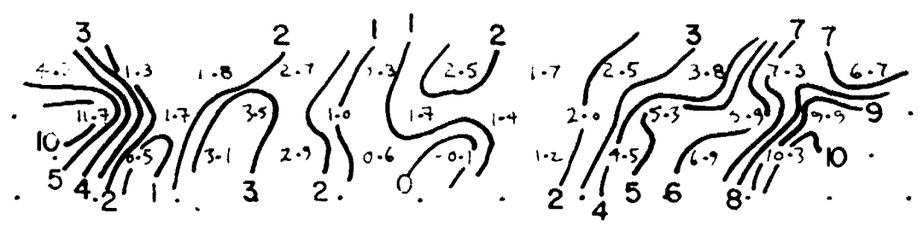

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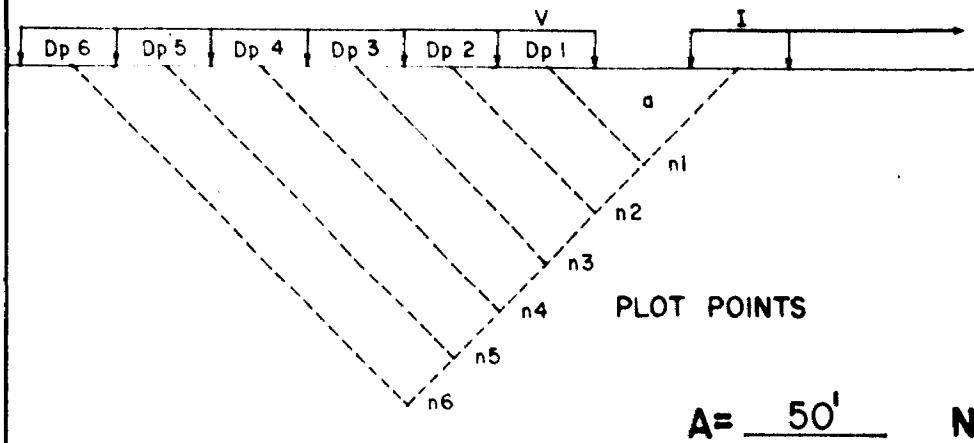
## time domain mode

## DIPOLE DIPOLE ARRAY

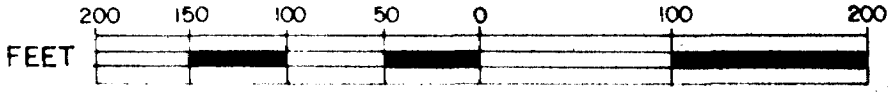



A= 50' N= 1,2,3

Tx. SCINTREX model, IPC-8 250W
2 sec. on, 2 sec. off

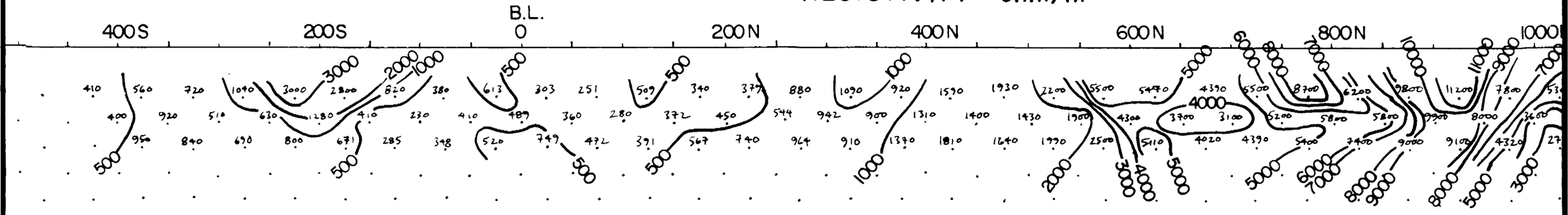
Rx SCINTREX model, IPR-11

Total line 550' Total Readings 30

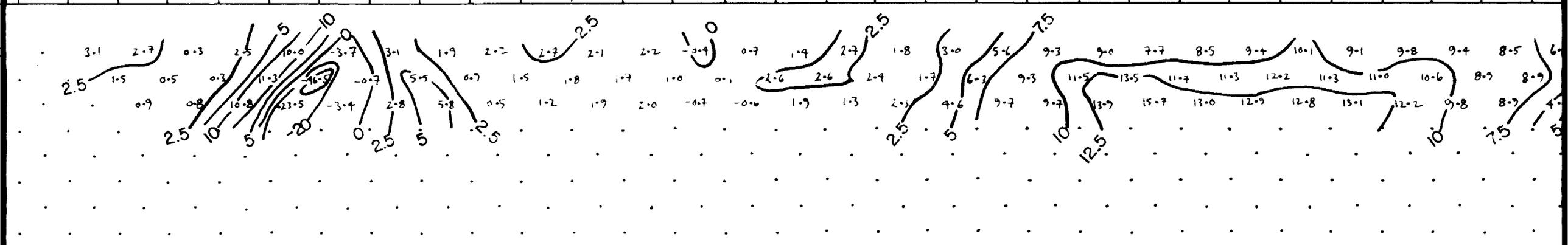


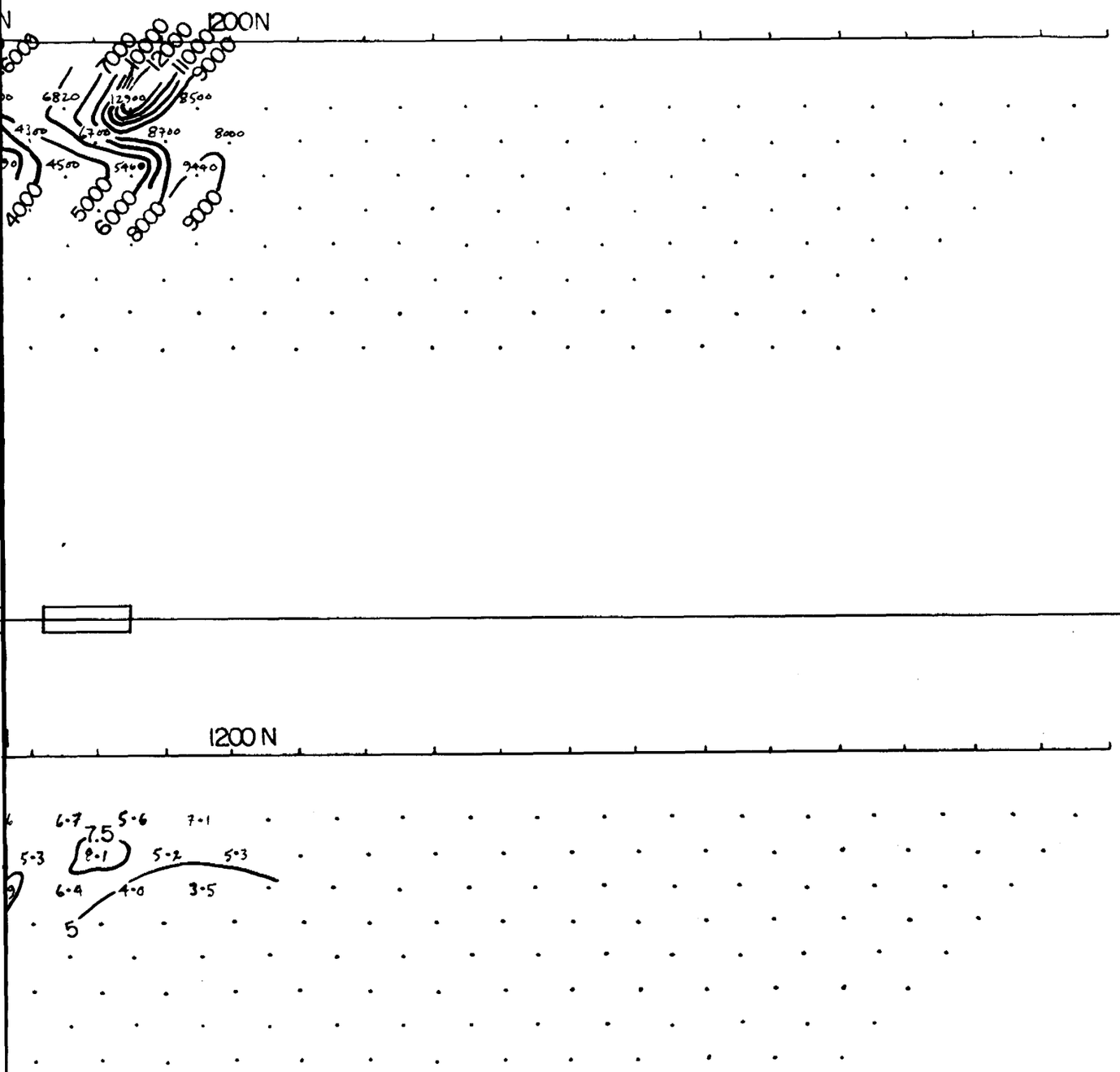

| REVISIONS | ROBERT S. MIDDLETON EXPLORATION SERVICES INC. | | |
|---|---|---|---|
| | for GRAND SAGUENAY | | |
| | Title CAIRO TWP.<br>L 10 E HWY GRID<br>550S - 50S | | |
| | Date: MAY 1984 | Scale: 1"=100' | N.T.S.: |
| | Drawn: CG | Approved: | File: M-18 |

## RESISTIVITY ohm/m




## CHARGEABILITY mv/v

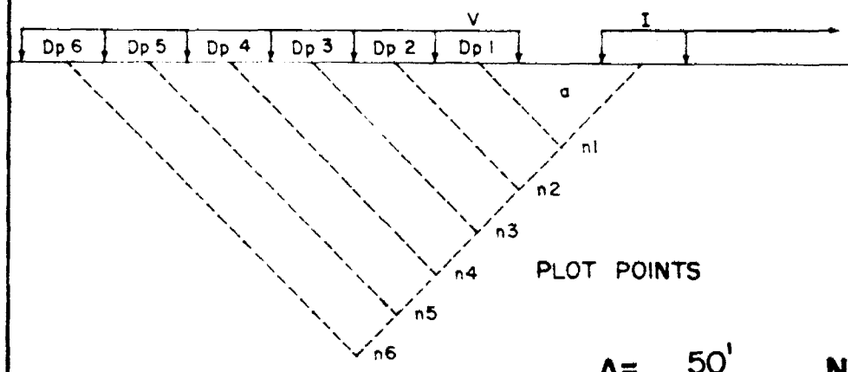





# INDUCED POLARIZATION

## time domain mode

## DIPOLE DIPOLE ARRAY




A= 50' N= 1,2,3

Tx. SCINTREX model, IPC-8 250W
2 sec. on, 2 sec. off

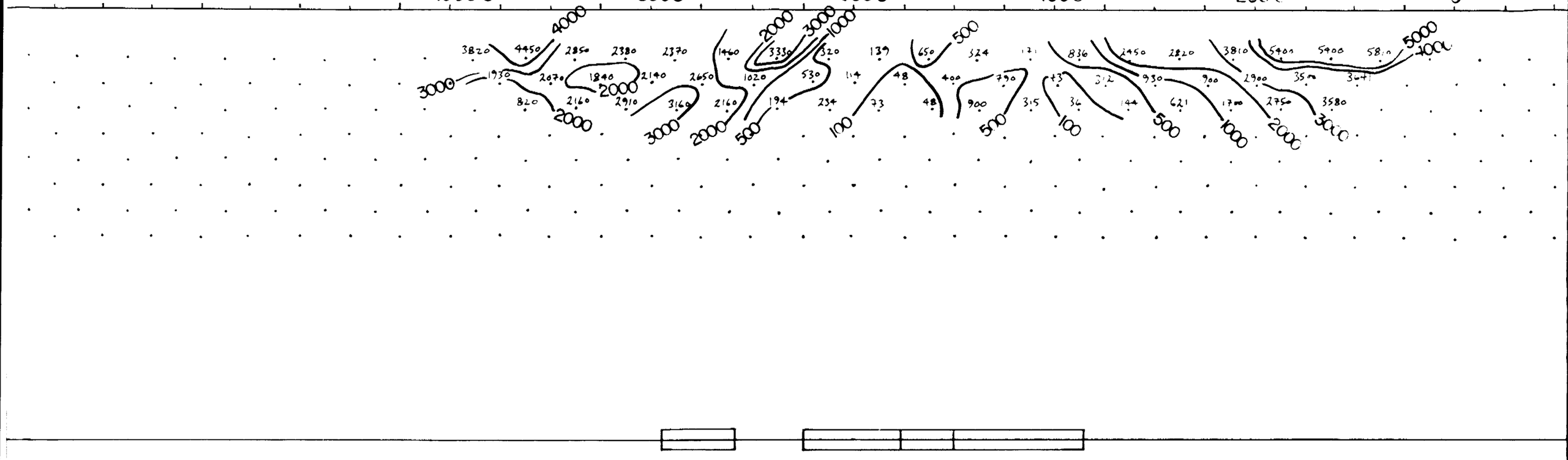
Rx SCINTREX model, IPR-11

Total line 1600' Total Readings 98

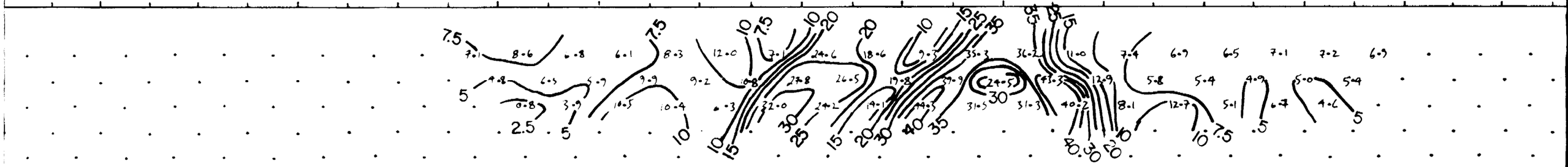
200 150 100 50 0 100 200
FEET

| REVISIONS | ROBERT S. MIDDLETON EXPLORATION SERVICES INC. | | |
|---|---|---|---|
| | for GRAND SAGUENAY | | |
| | Title CAIRO TWP<br>L 14 E HWY GRID<br>400S - 1200N | | |
| | Date: MAY 1984 | Scale: 1"=100' | N.T.S.: |
| | Drawn: CG | Approved: | File: M-18 |

## RESISTIVITY ohm/m



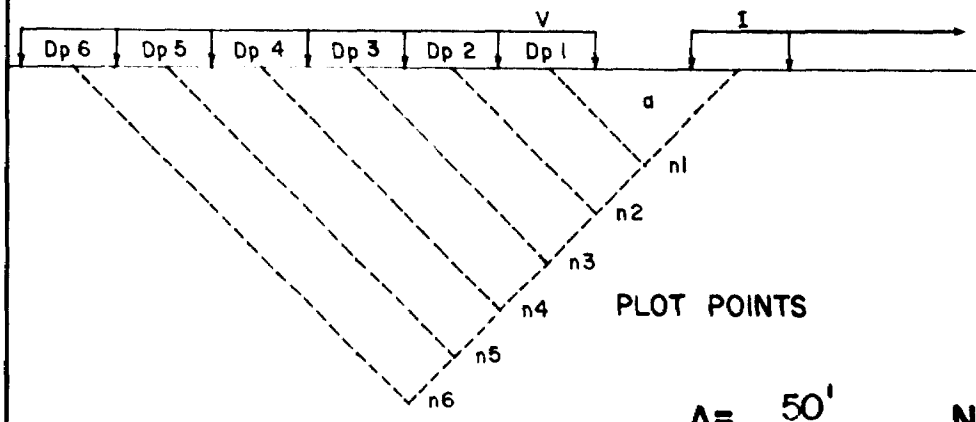

## CHARGEABILITY mv/v



# INDUCED POLARIZATION

## time domain mode

## DIPOLE DIPOLE ARRAY

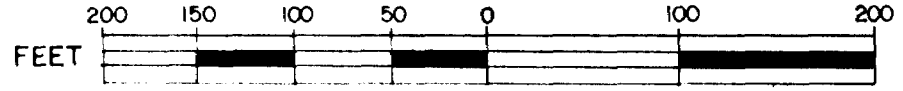



A= 50' N= 1, 2, 3

Tx. SCINTREX model, IPC-8 250 W
2 sec. on, 2 sec. off

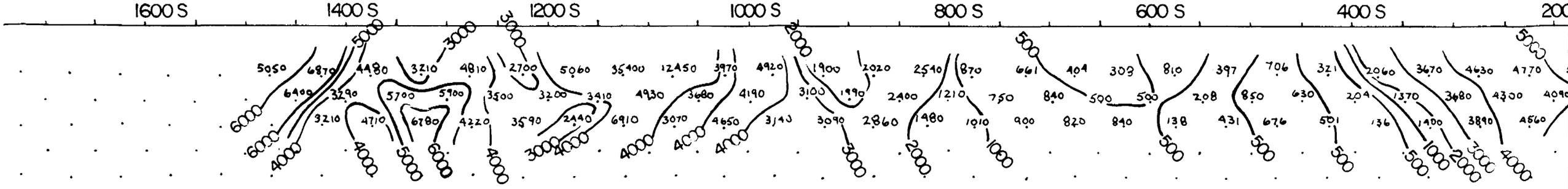
Rx SCINTREX model, IPR-11

**Total line** 900' **Total Readings** 54

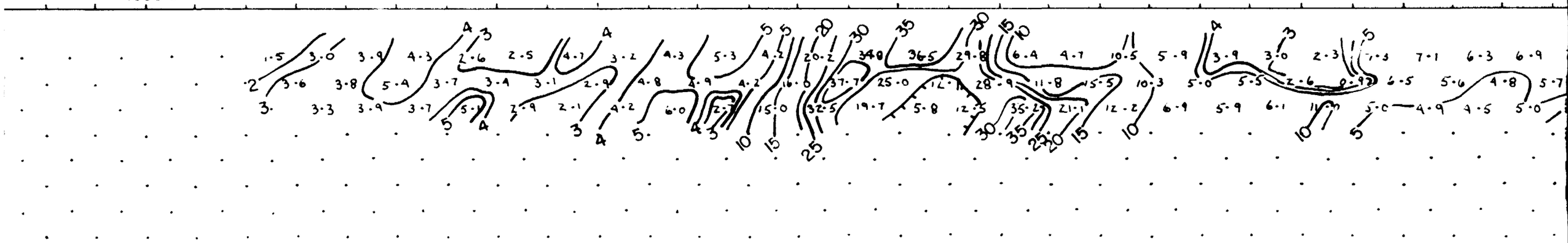


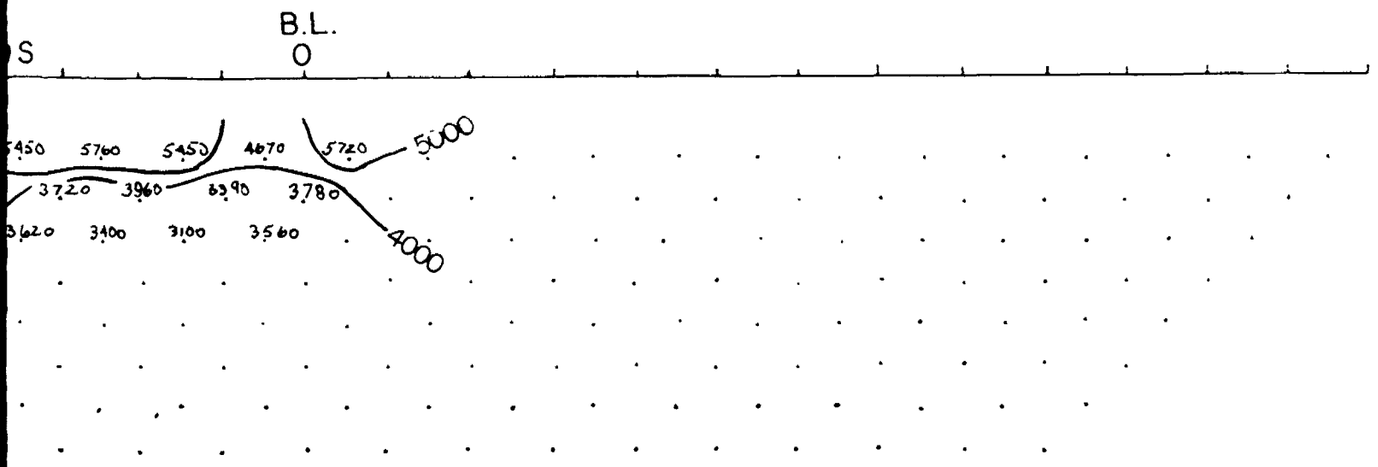

| REVISIONS | ROBERT S. MIDDLETON EXPLORATION SERVICES INC. | | |
|---|---|---|---|
| | for GRAND SAGUENAY | | |
| | Title CAIRO TWP<br>L 2 W HWY GRID<br>950 S - B.L.O | | |
| | Date: MAY 1984 | Scale: 1"=100' | N.T.S.: |
| | Drawn: CG | Approved: | File: M-18 |

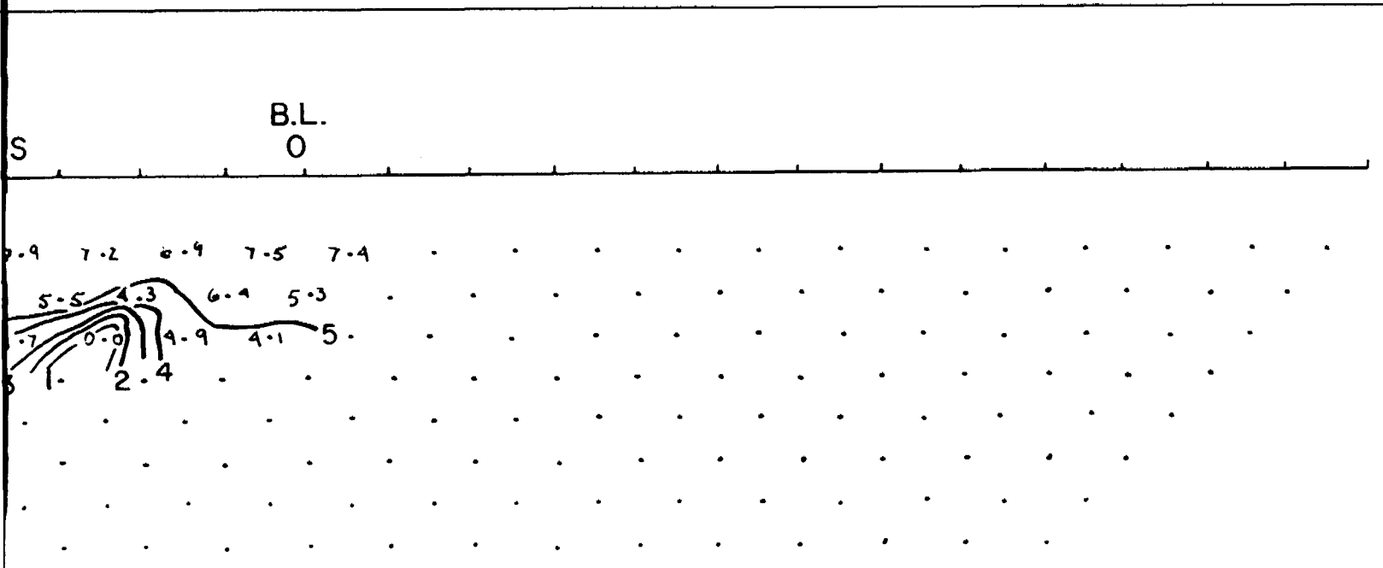
## RESISTIVITY ohm/m




## CHARGEABILITY mv/v



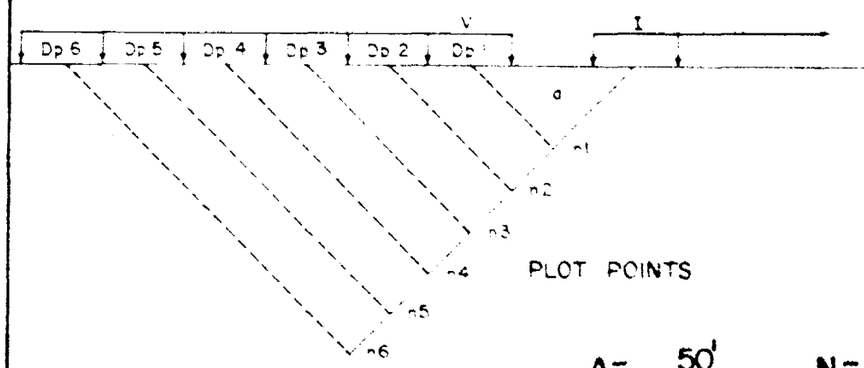



# INDUCED POLARIZATION

## time domain mode

## DIPOLE DIPOLE ARRAY




PLOT POINTS

A= 50' N= 1,2,3

Tx. SCINTREX model , IPC-8 250W
2 sec. on, 2 sec. off

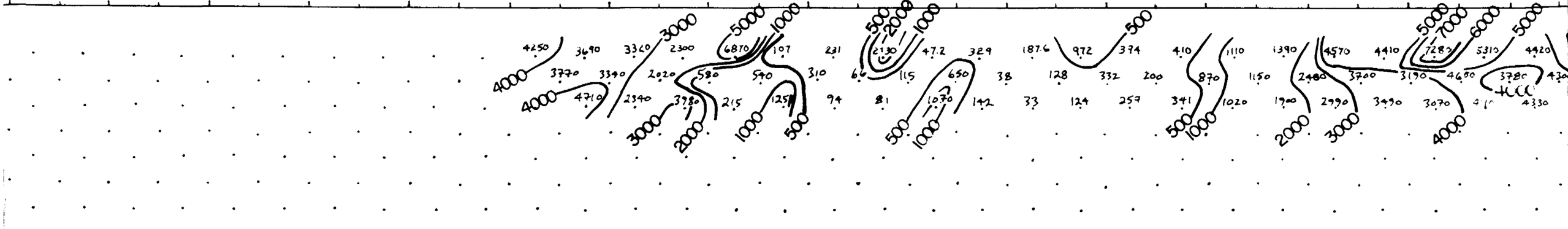
Rx SCINTREX model , IPR-11

Total line 1500' Total Readings 90

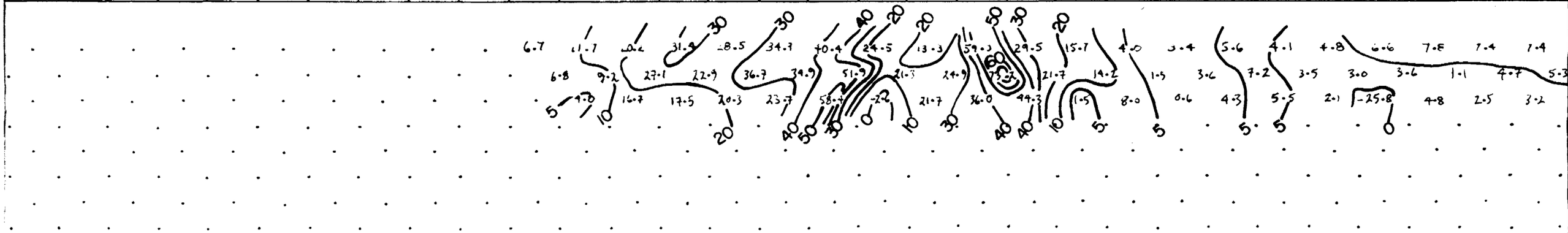
200 150 100 50 0 100 200
FEET

| REVISIONS | ROBERT S. MIDDLETON EXPLORATION SERVICES INC. | | |
|---|---|---|---|
| | for GRAND SAGUENAY | | |
| | Title CAIRO TWP<br>L 4 W HWY GRID<br>1500S - B.L.0 | | |
| | Date: MAY - 1984 | Scale: 1"=100' | N.T.S.: |
| | Drawn: CG | Approved: | File: M-18 |

## RESISTIVITY ohm/m




## CHARGEABILITY mv/v



B.L.
0

1500 10000
5000

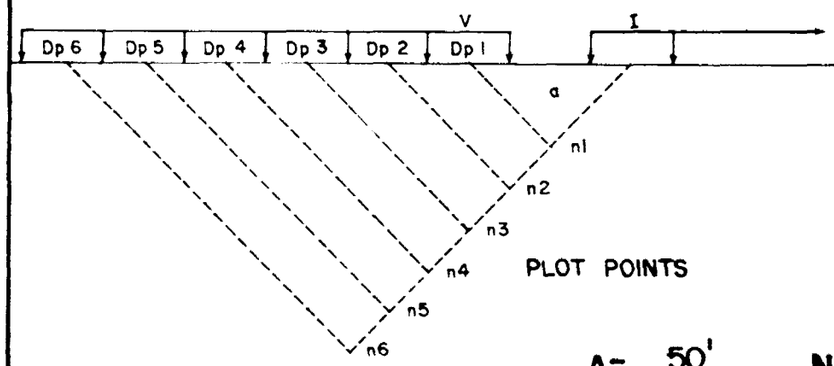
B.L.
0

900
500

# INDUCED POLARIZATION

## time domain mode

## DIPOLE DIPOLE ARRAY




A= 50' N= 1,2,3

Tx. SCINTREX model , IPC-8 250W
2 sec. on, 2 sec. off

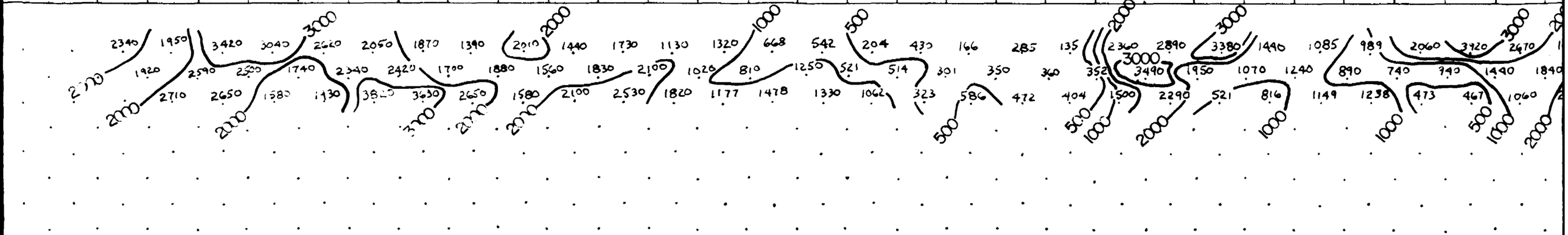
Rx SCINTREX model , IPR-11

Total line 1050' Total Readings 63

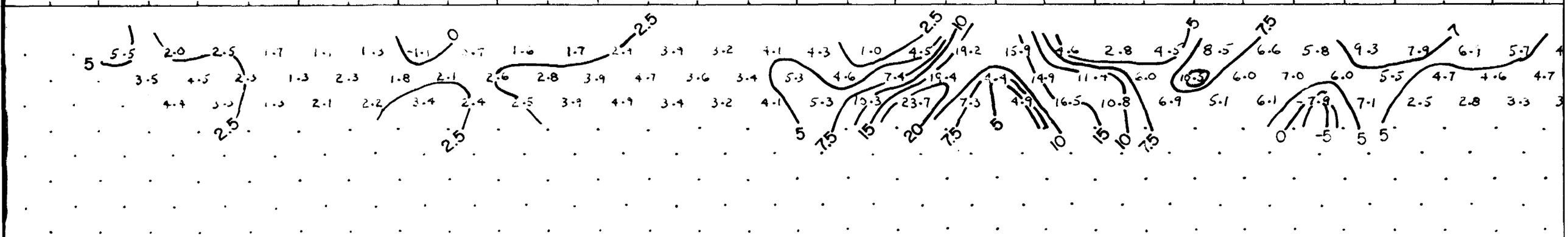
200 150 100 50 0 100 200
FEET

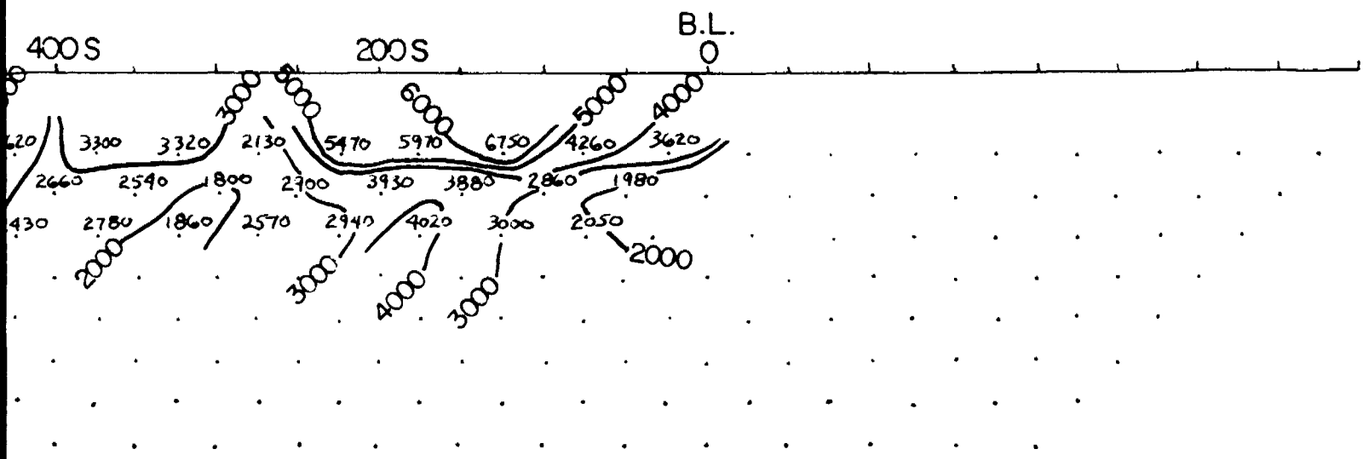
| REVISIONS | ROBERT S. MIDDLETON EXPLORATION SERVICES INC. | | |
|---|---|---|---|
| | for GRAND SAGUENAY | | |
| | Title CAIRO TWP<br>L 10W HWY GRID<br>1100S-50S | | |
| | Date: MAY 1984 | Scale: 1"=100' | N.T.S.: |
| | Drawn: CG | Approved: | File: M-18 |

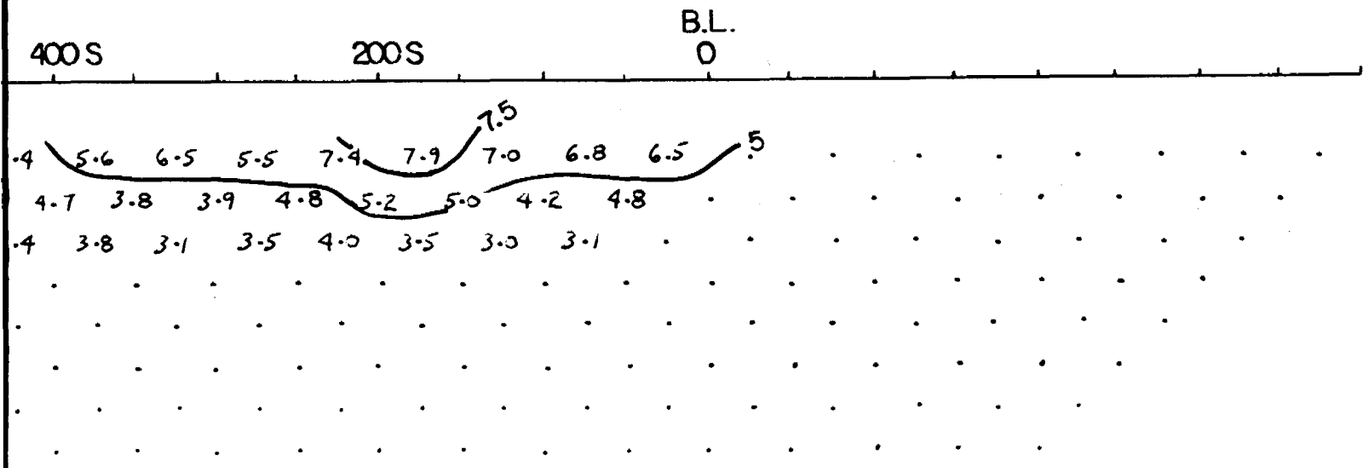
## RESISTIVITY ohm/m




## CHARGEABILITY mv/v



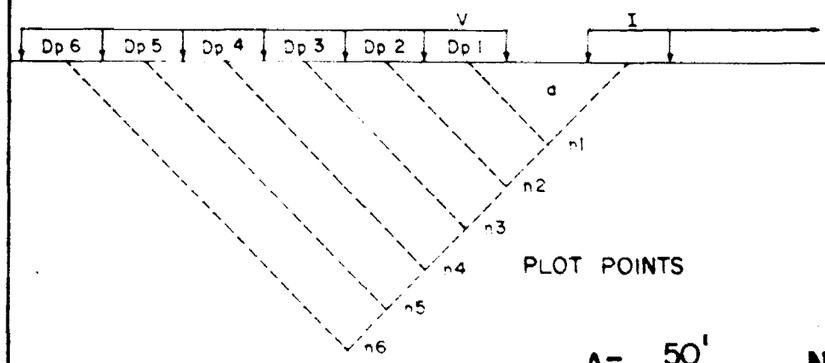



# INDUCED POLARIZATION

## time domain mode

## DIPOLE DIPOLE ARRAY

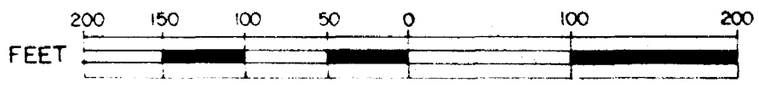



A= 50' N= 1,2,3

Tx. SCINTREX model , IPC-8 250W
2 sec. on , 2 sec. off

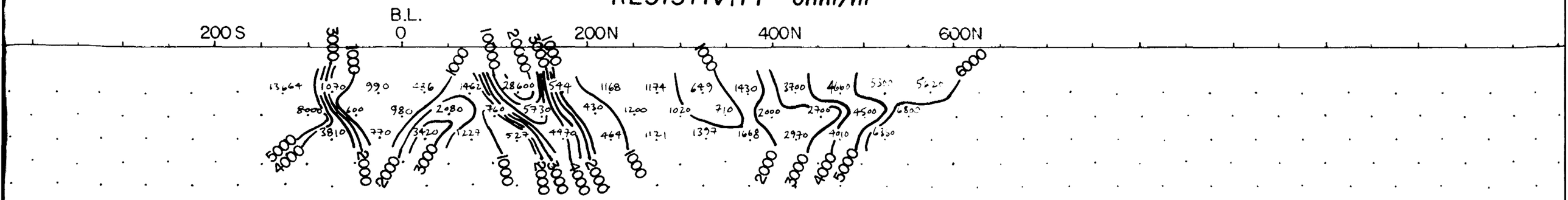
Rx SCINTREX model , IPR- II

Total line 1850 Total Readings 111

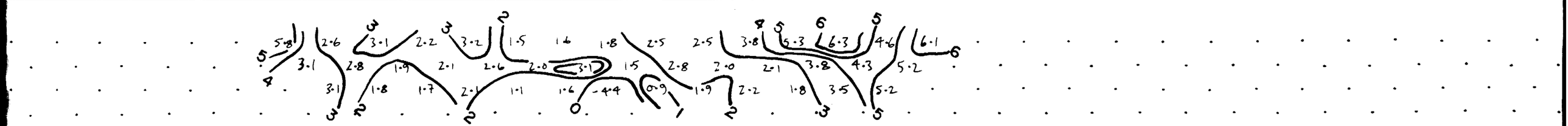



| REVISIONS | ROBERT S. MIDDLETON EXPLORATION SERVICES INC. | | |
|---|---|---|---|
| | for GRAND SAGUENAY | | |
| | Title CAIRO TWP<br>L 12 W HWY GRID<br>1900S-50S | | |
| | Date: MAY 1984 | Scale: 1"=100' | N.T.S.: |
| | Drawn: CG | Approved: | File: M-18 |

## RESISTIVITY ohm/m



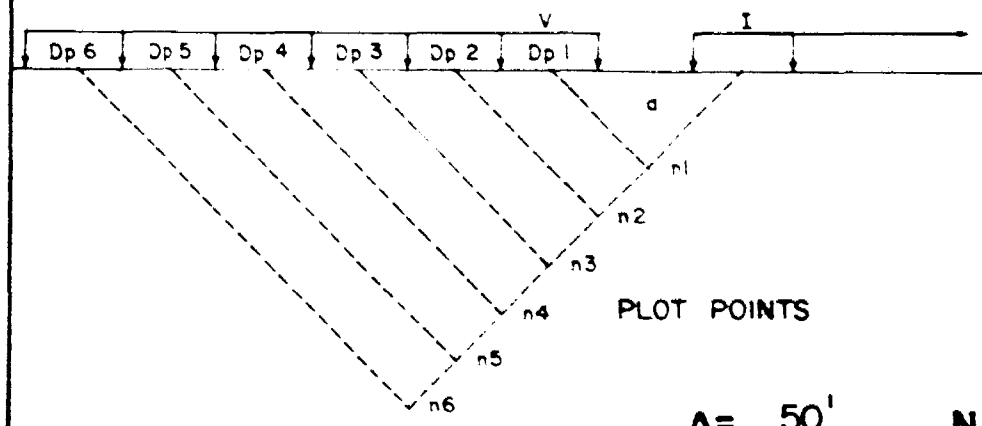

## CHARGEABILITY mv/v



# INDUCED POLARIZATION

## time domain mode

## DIPOLE DIPOLE ARRAY

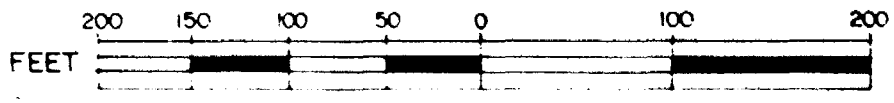



A= 50' N= 1,2,3

Tx. SCINTREX model, IPC-8 250W
2 sec. on, 2 sec. off

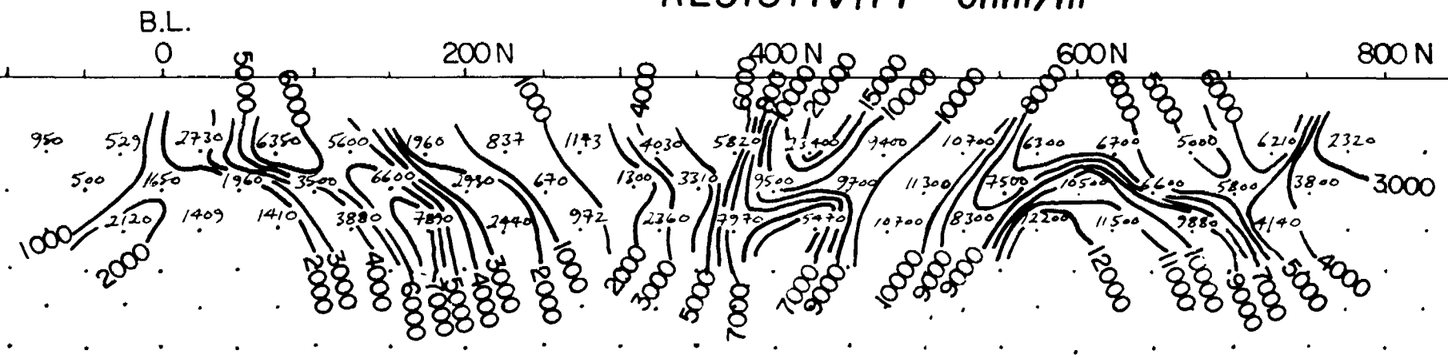
Rx SCINTREX model, IPR-11

Total line 700 Total Readings 42

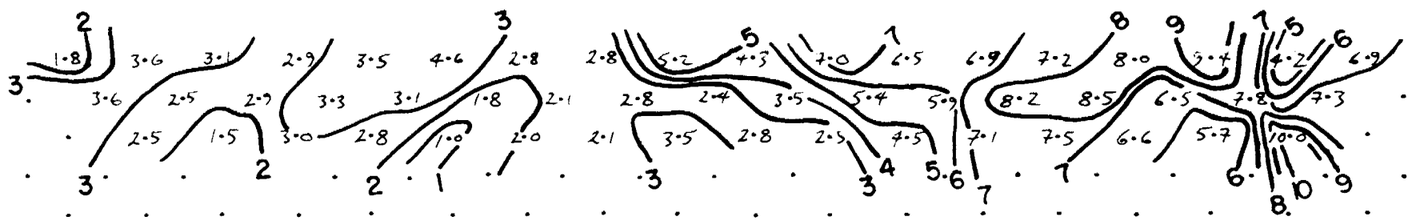



| REVISIONS | ROBERT S. MIDDLETON EXPLORATION SERVICES INC. | | |
|---|---|---|---|
| | for GRAND SAGUENAY | | |
| | Title CAIRO TWP<br>L 2 W MOYNEUR LAKE GRID<br>100S-600N | | |
| | Date: MAY 1984 | Scale: 1"=100' | N.T.S.: |
| | Drawn: CJ/CG | Approved: | File: M-18 |

## RESISTIVITY ohm/m



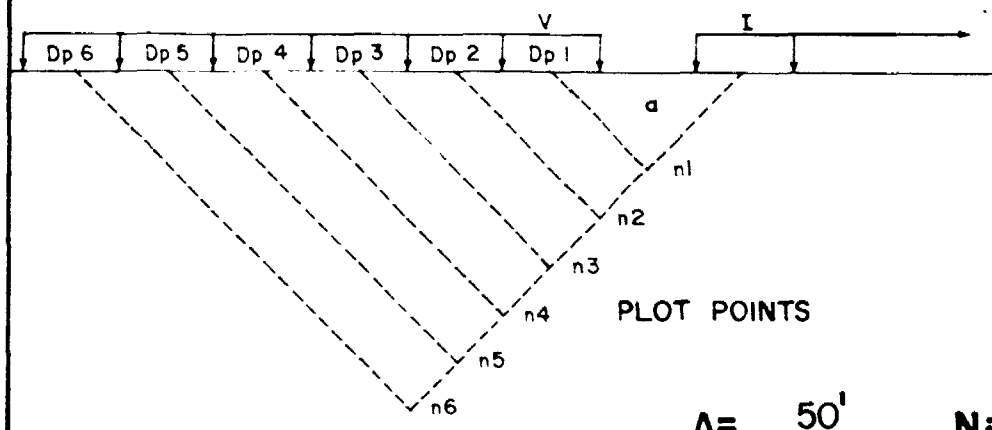

## CHARGEABILITY mv/v



# INDUCED POLARIZATION

## time domain mode

## DIPOLE DIPOLE ARRAY

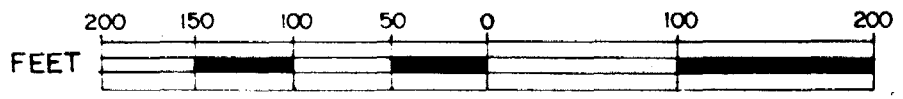



A= 50' N= 1,2,3

Tx. SCINTREX model , IPC-8 250W
2 sec. on, 2 sec. off

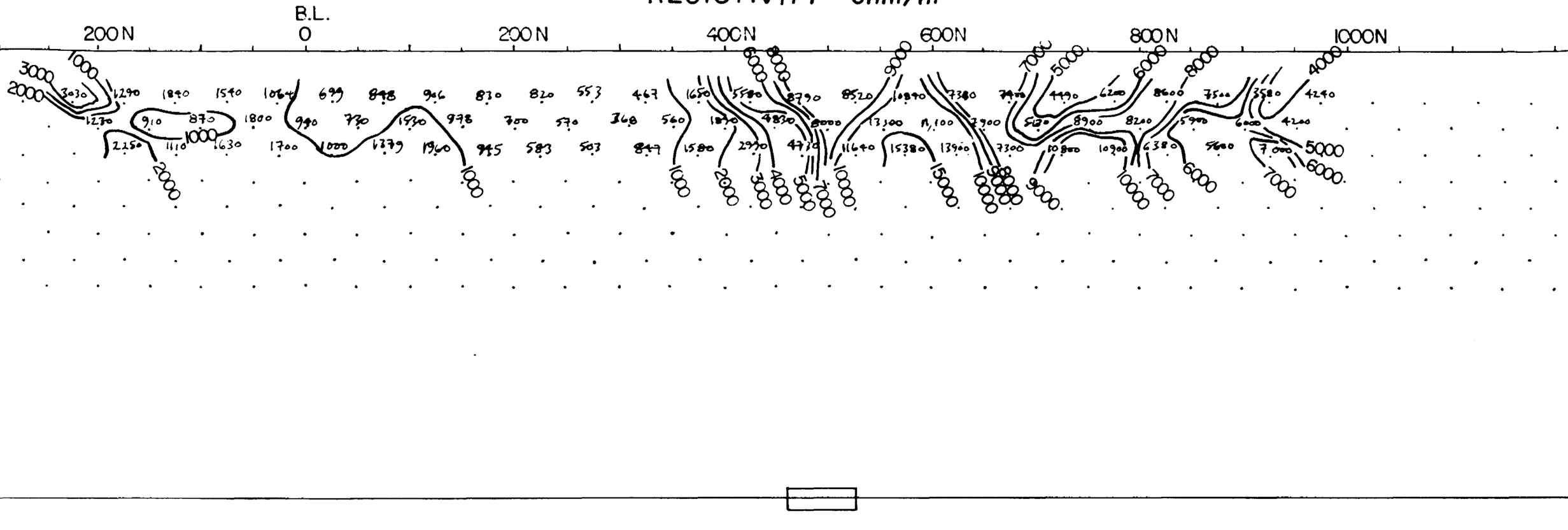
Rx SCINTREX model , IPR-11

Total line 850' Total Readings 51

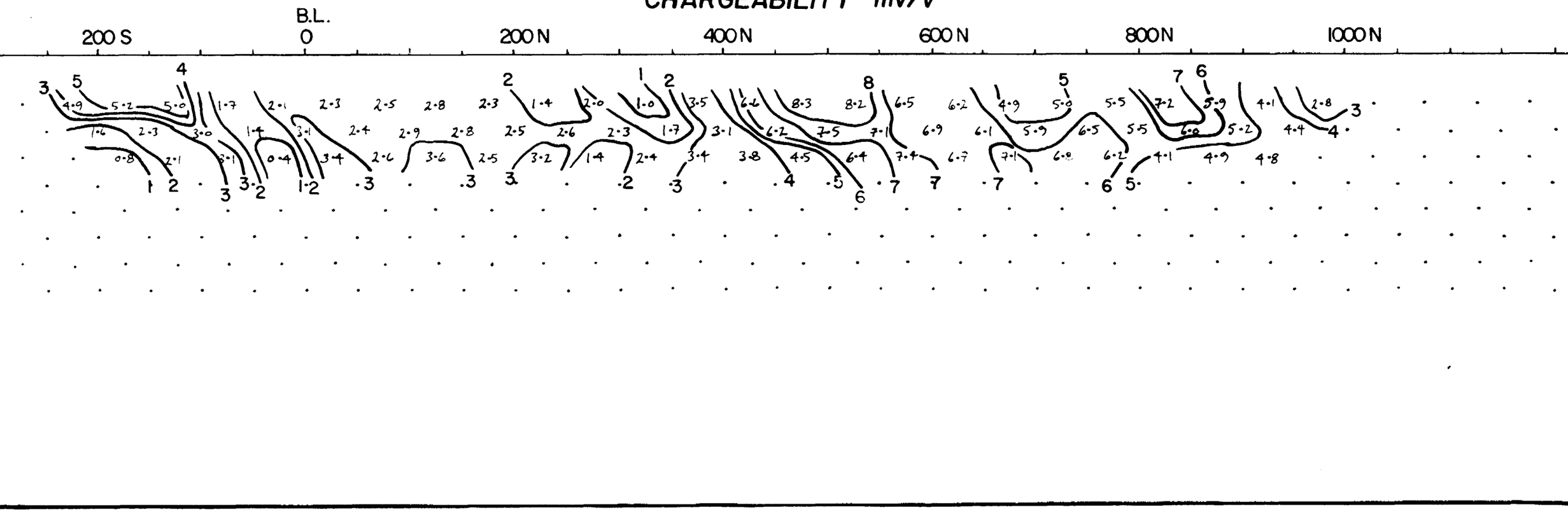



| REVISIONS | ROBERT S. MIDDLETON EXPLORATION SERVICES INC. | | |
|---|---|---|---|
| | for GRAND SAGUENAY | | |
| | Title CAIRO TWP<br>L 0+00 MOYNEUR LAKE GRID<br>100S-800N | | |
| | Date: MAY 1984 | Scale: 1"=100' | N.T.S.: |
| | Drawn: CJ/CG | Approved: | File: M-18 |

## RESISTIVITY ohm/m



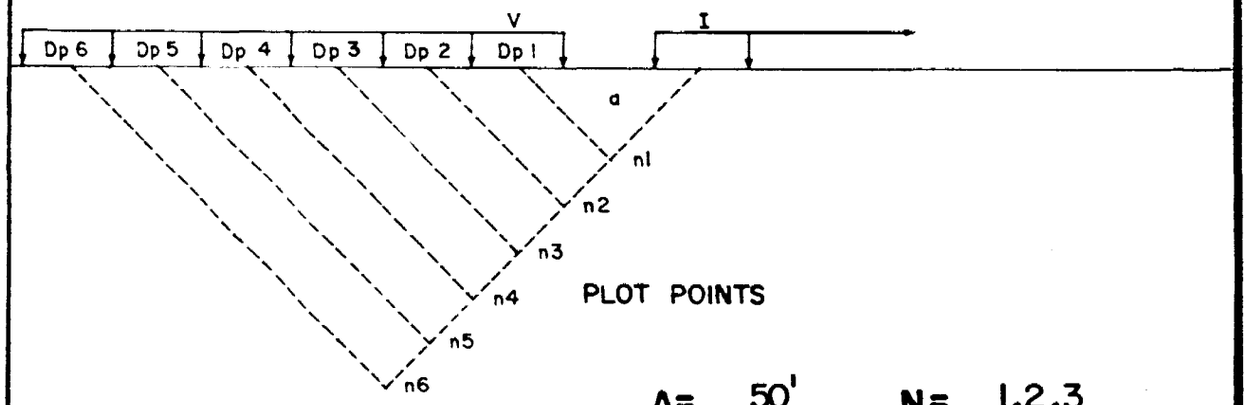

## CHARGEABILITY mv/v



# INDUCED POLARIZATION

## time domain mode

## DIPOLE DIPOLE ARRAY

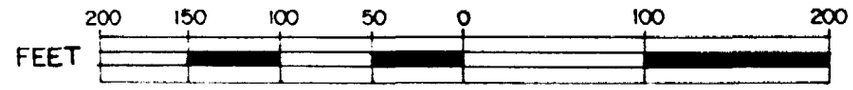



A= 50' N= 1,2,3

Tx. SCINTREX model, IPC-8 250W
2 sec. on, 2 sec. off

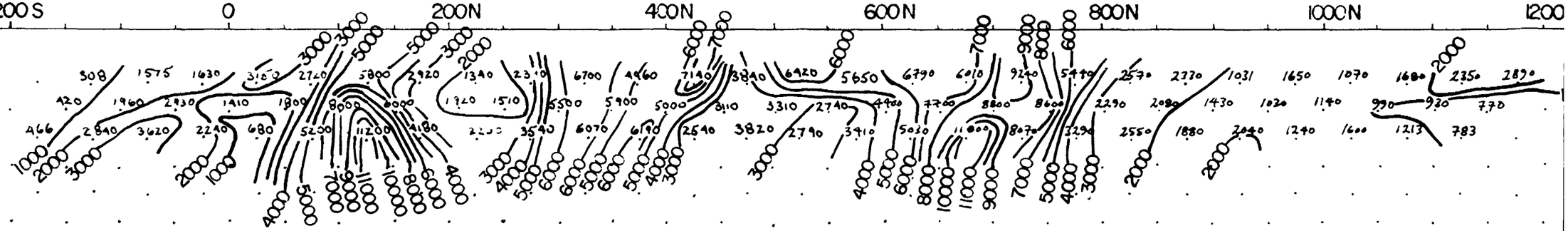
Rx SCINTREX model, IPR-11

Total line 1200' Total Readings 72

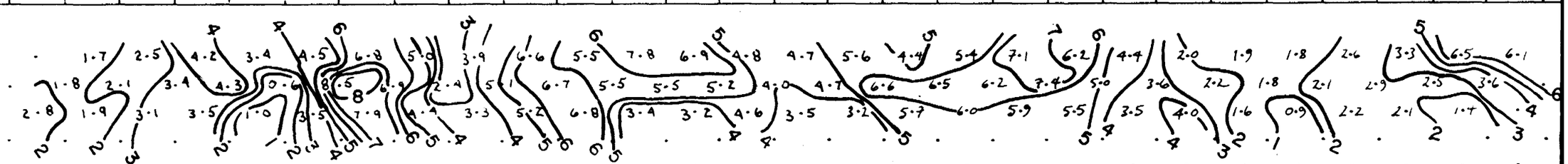



| REVISIONS | ROBERT S. MIDDLETON EXPLORATION SERVICES INC. | | |
|---|---|---|---|
| | for GRAND SAGUENAY | | |
| | Title CAIRO TWP<br>L 2 E MOYNEUR LAKE GRID<br>200S - 1000N | | |
| | Date: MAY 1984 | Scale: 1"=100' | N.T.S.: |
| | Drawn: CJ/CG | Approved: | File: M-18 |

## RESISTIVITY ohm/m




## CHARGEABILITY mv/v



N

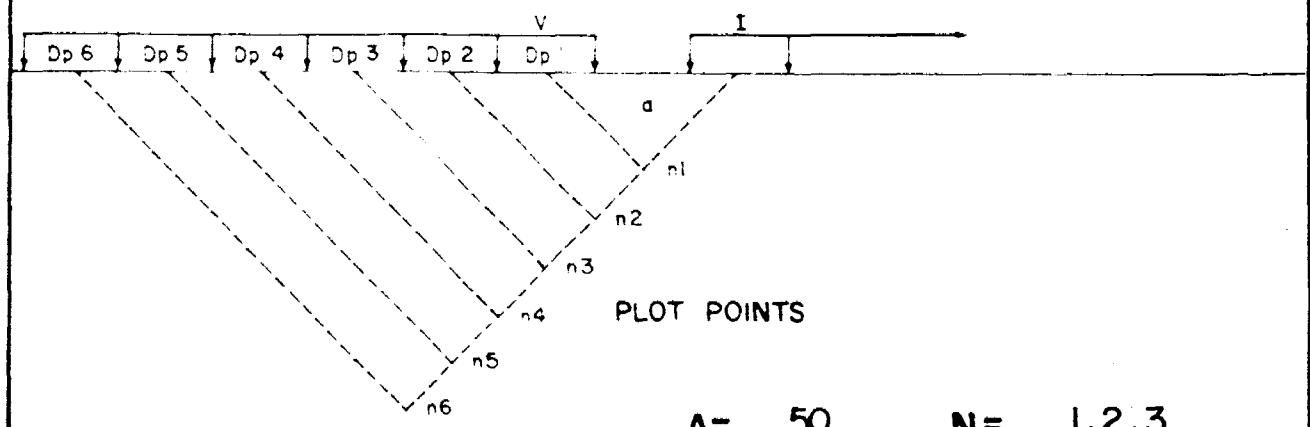
000

N

# INDUCED POLARIZATION

## time domain mode

## DIPOLE DIPOLE ARRAY

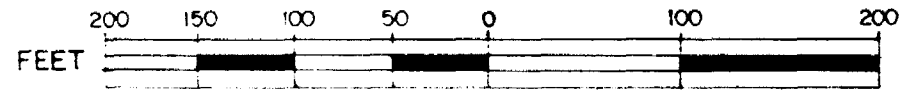



A= 50 N= 1,2,3

Tx. SCINTREX model, IPC-8 250W
2 sec. on, 2 sec. off

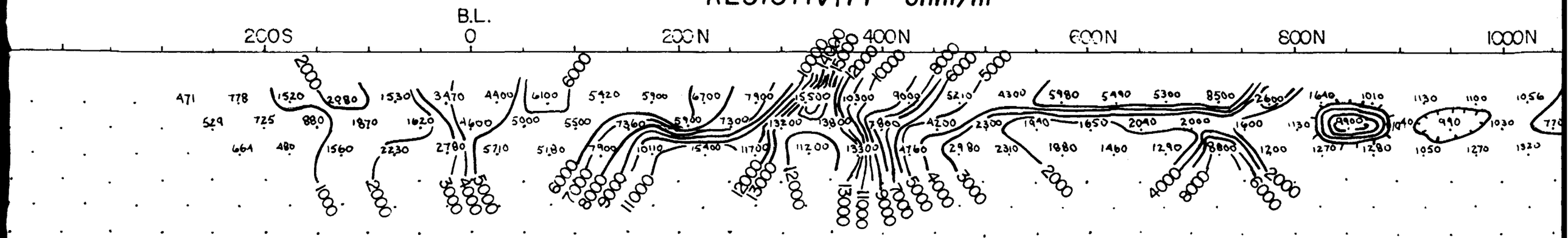
Rx SCINTREX model, IPR-11

Total line 1300' Total Readings 81

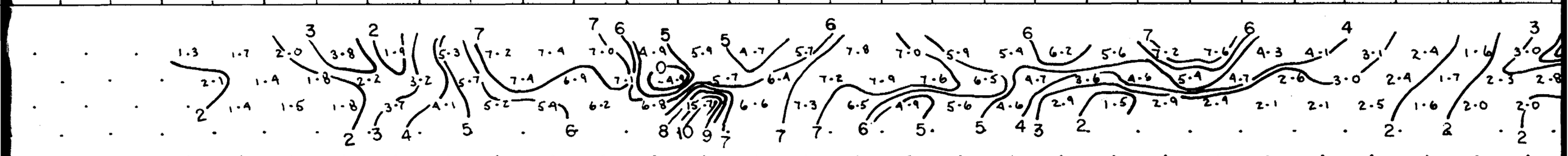


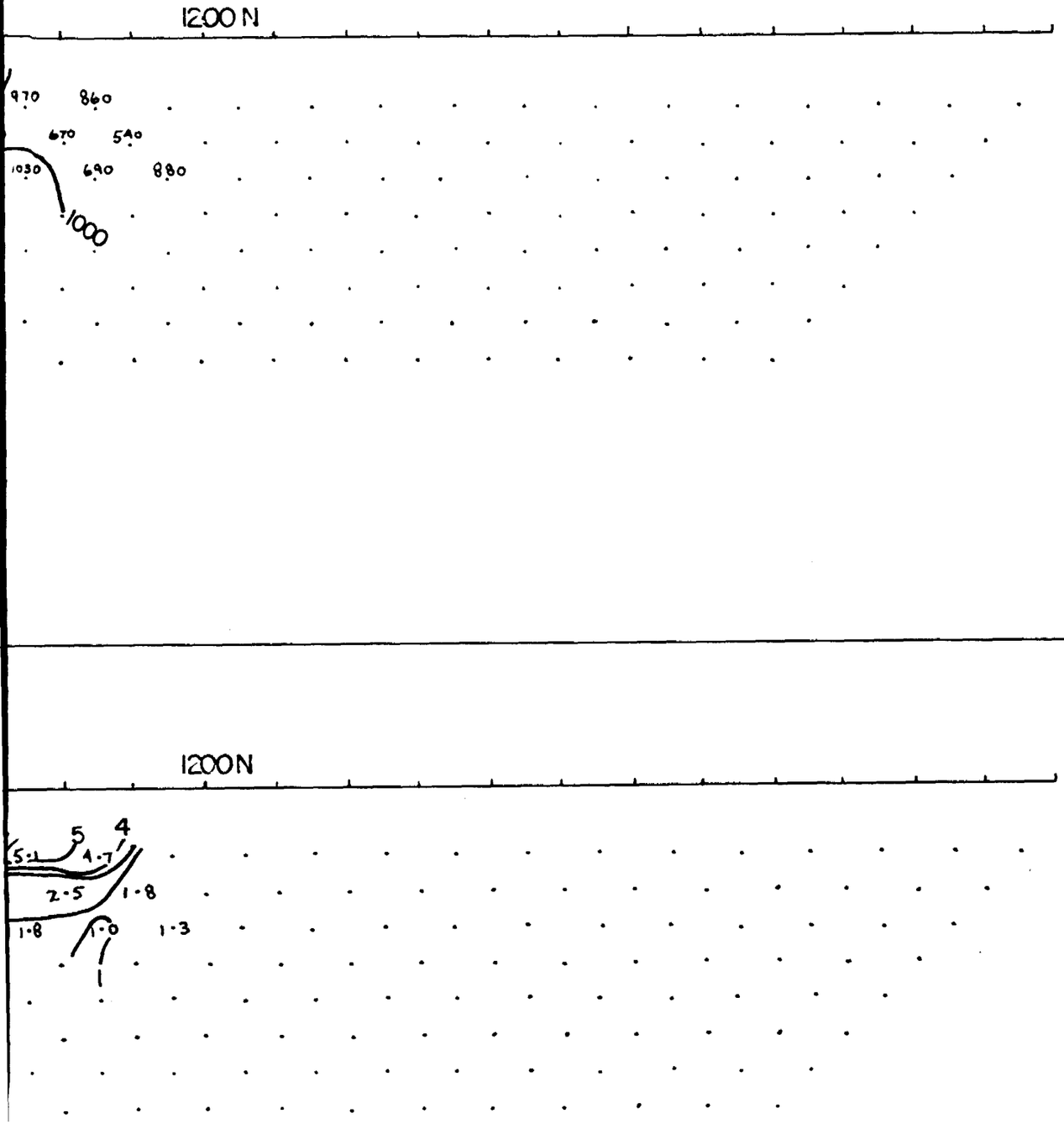

| REVISIONS | ROBERT S. MIDDLETON EXPLORATION SERVICES INC. | | |
|---|---|---|---|
| | for GRAND SAGUENAY | | |
| | Title CAIRO TWP<br>L 4 E MOYNEUR LAKE GRID<br>150S-550N | | |
| | Date: MAY 1984 | Scale: 1"=100' | N.T.S.: |
| | Drawn: CJ/JS/CG | Approved: | File: M-18 |

## RESISTIVITY ohm/m




## CHARGEABILITY mv/v





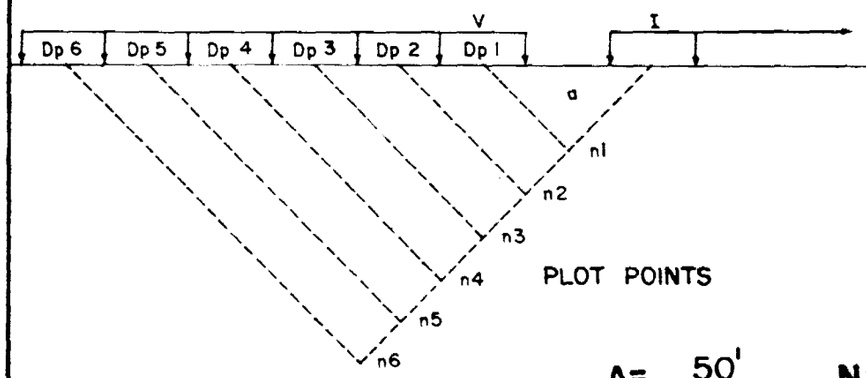




# INDUCED POLARIZATION

## time domain mode

## DIPOLE DIPOLE ARRAY

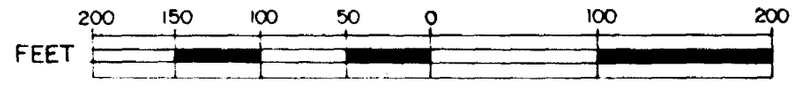



A= 50' N= 1,2,3

Tx. SCINTREX model , IPC-8 250 W
2 sec. on, 2 sec. off

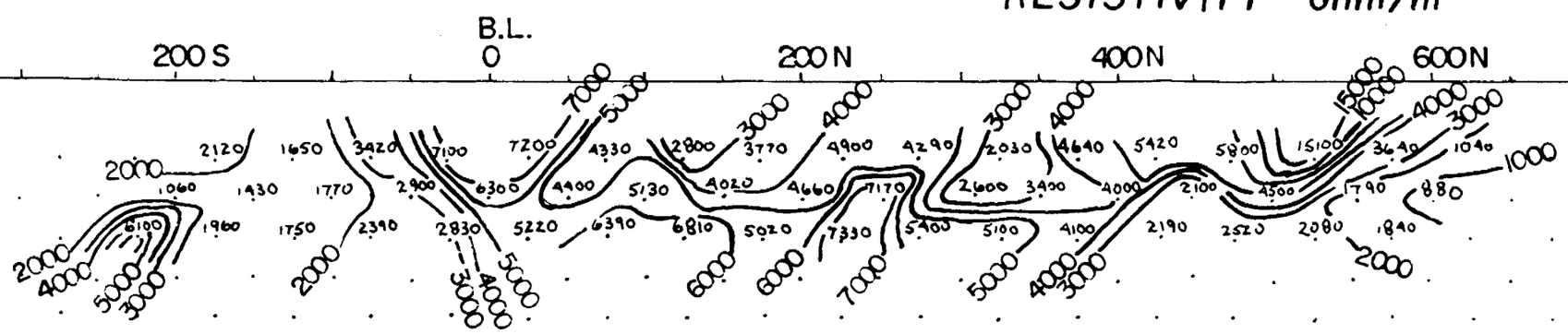
Rx SCINTREX model , IPR-11

**Total line** 1400' **Total Readings** 87

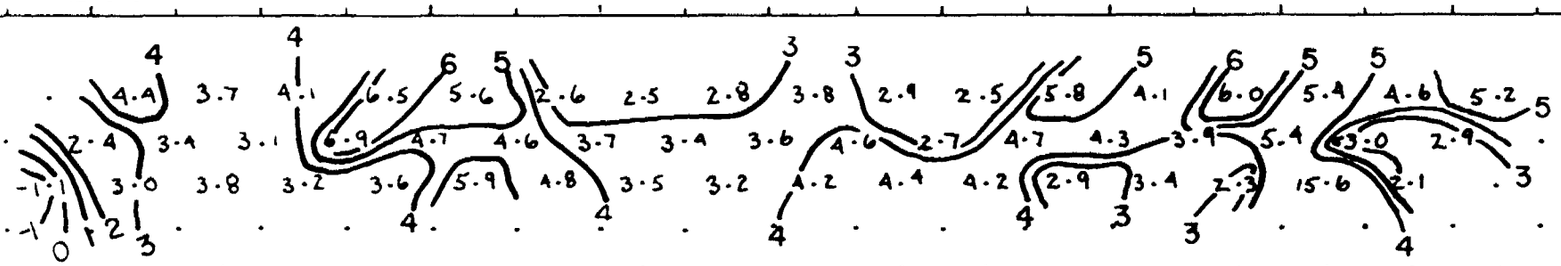



| REVISIONS | ROBERT S. MIDDLETON EXPLORATION SERVICES INC. | | |
|---|---|---|---|
| | for GRAND SAGUENAY | | |
| | Title<br>CAIRO TWP<br>L6E MOYNEUR LAKE GRID<br>1150N - 250S | | |
| | Date: MAY 1984 | Scale: 1"=100' | N.T.S.: |
| | Drawn: CG | Approved: | File: M-18 |

## RESISTIVITY ohm/m



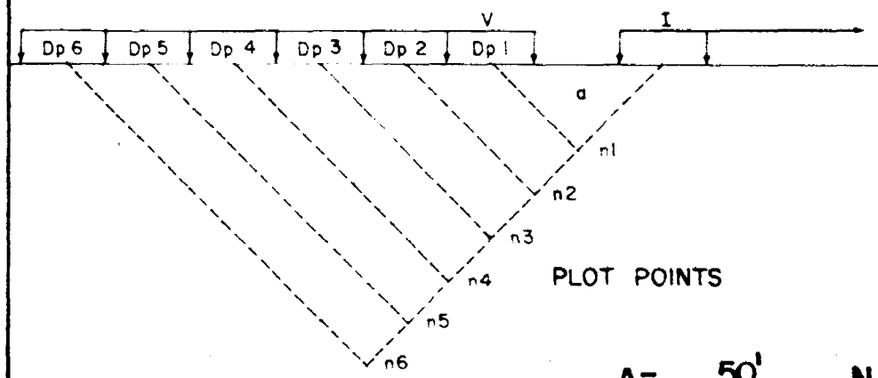

## CHARGEABILITY mv/v



# INDUCED POLARIZATION

## time domain mode

## DIPOLE DIPOLE ARRAY

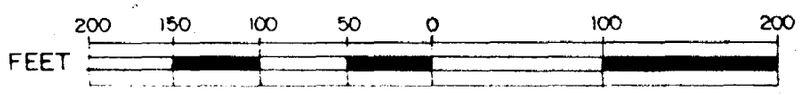



A= 50' N= 1,2,3

Tx. SCINTREX model, IPC-8 250W
2 sec. on, 2 sec. off

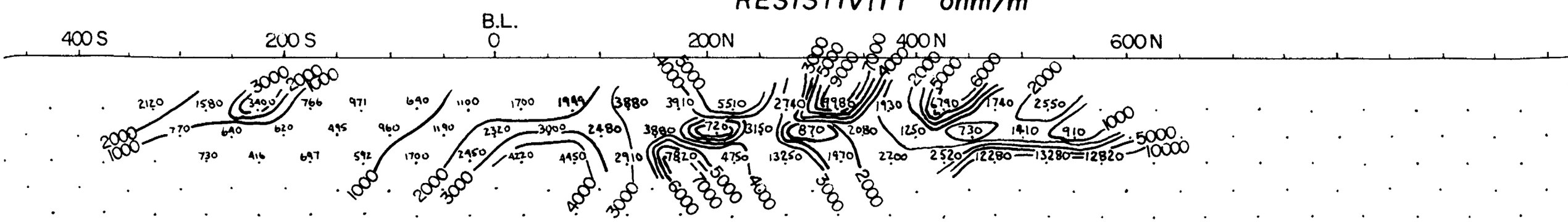
Rx SCINTREX model, IPR-11

Total line 800' Total Readings 51

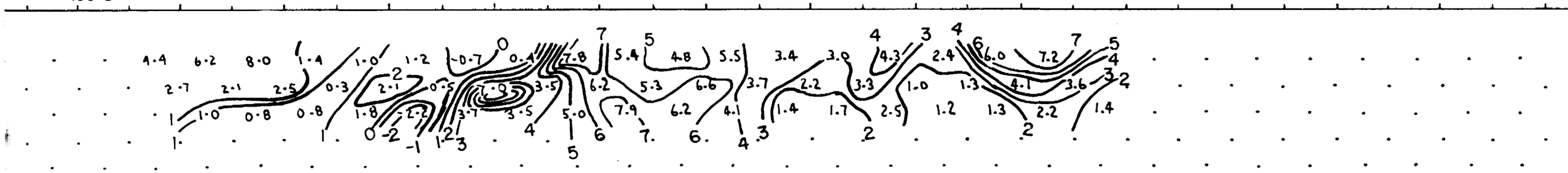



| REVISIONS | ROBERT S. MIDDLETON EXPLORATION SERVICES INC. | | |
|---|---|---|---|
| | for GRAND SAGUENAY | | |
| | Title CAIRO TWP<br>L 8 E MOYNEUR LAKE GRID<br>200S - 600N | | |
| | Date: MAY 1984 | Scale: 1"=100' | N.T.S.: |
| | Drawn: CJ / CG | Approved: | File: M-18 |

## RESISTIVITY ohm/m



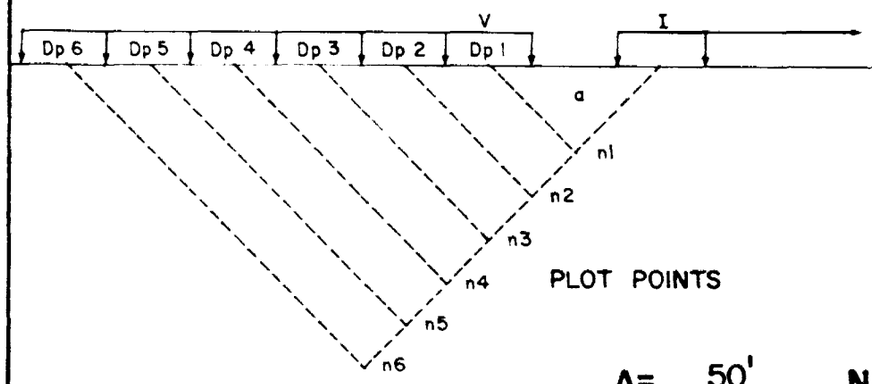

## CHARGEABILITY mv/v



# INDUCED POLARIZATION

## time domain mode

## DIPOLE DIPOLE ARRAY

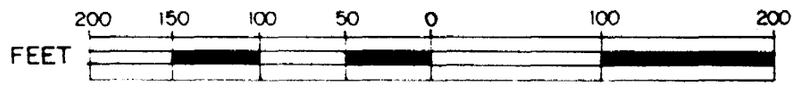



A= 50' N= 1,2,3

Tx. SCINTREX model , IPC-8 250W
2 sec. on, 2 sec. off

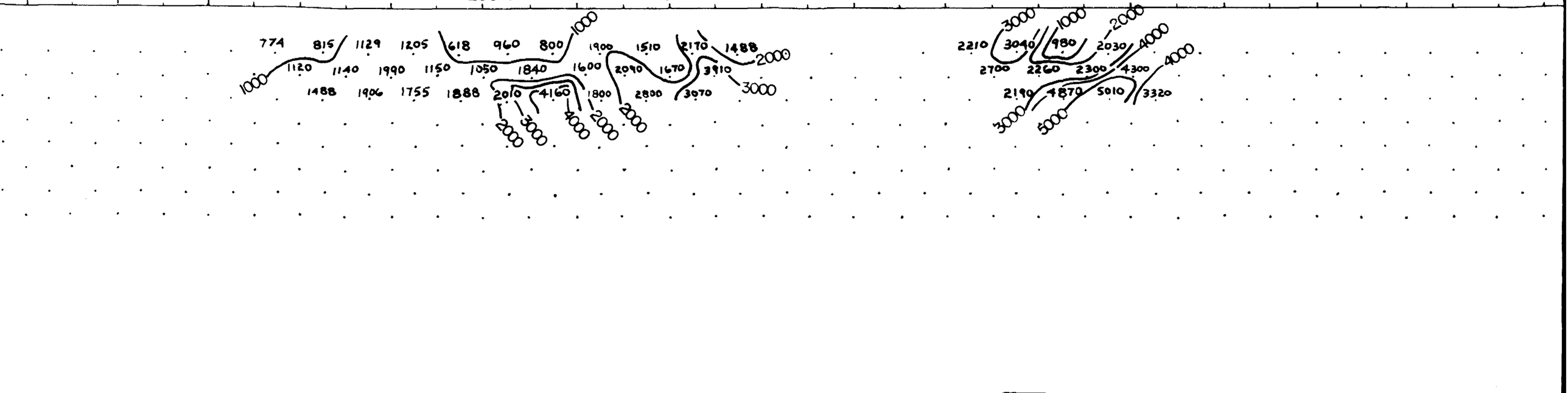
Rx SCINTREX model , IPR-11

Total line 850' Total Readings 54




| REVISIONS | ROBERT S. MIDDLETON EXPLORATION SERVICES INC. | | |
|---|---|---|---|
| | for GRAND SAGUENAY | | |
| | Title CAIRO TWP<br>L10 E MOYNEUR LAKE GRID<br>300 S - 550 N | | |
| | Date: MAY 1984 | Scale: 1"=100' | N.T.S.: |
| | Drawn: JS/CJ/CG | Approved: | File: M-18 |

## RESISTIVITY ohm/m

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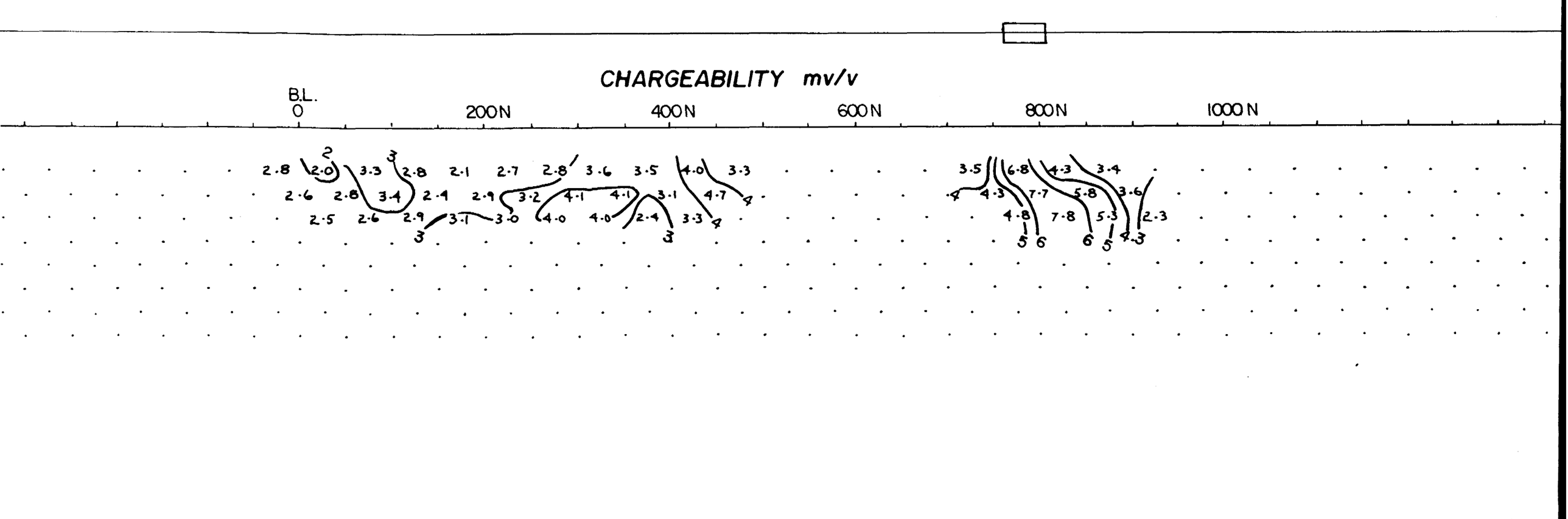
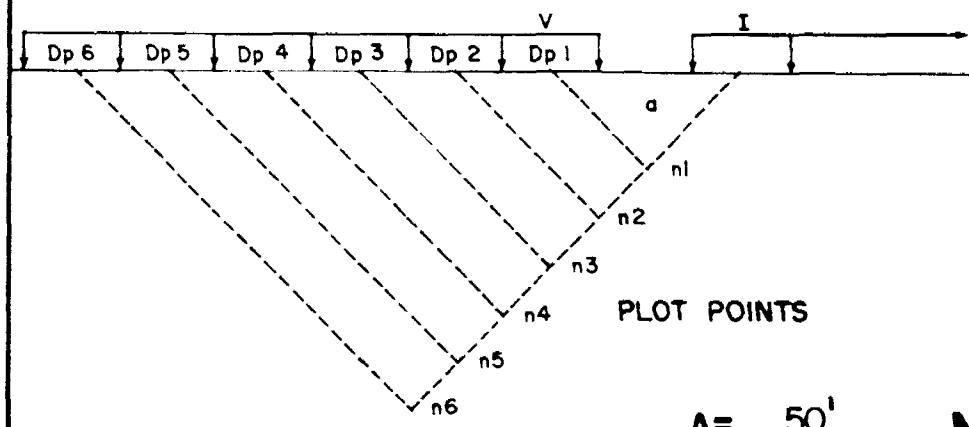


# INDUCED POLARIZATION

## time domain mode

## DIPOLE DIPOLE ARRAY




A= 50' N= 1,2,3

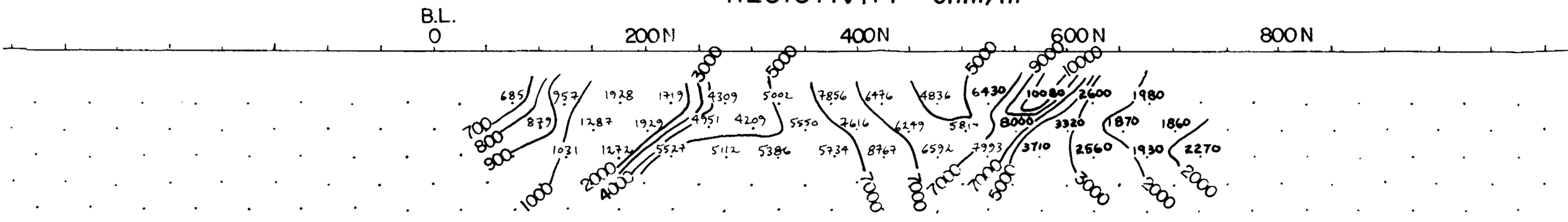
Tx. SCINTREX model, IPC-8 250 W
2 sec. on, 2 sec. off

Rx SCINTREX model, IPR-11

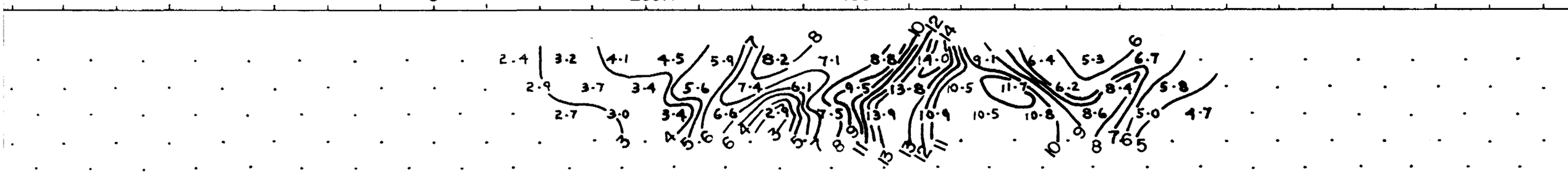
Total line 900' Total Readings 42


| REVISIONS | ROBERT S. MIDDLETON EXPLORATION SERVICES INC. | | |
|---|---|---|---|
| | for GRAND SAGUENAY | | |
| | Title CAIRO TWP<br>L12E MOYNEUR LAKE GRID<br>B.L.0-900N | | |
| | Date: MAY 1984 | Scale: 1"=100' | N.T.S.: |
| | Drawn: JB/CJ/CG | Approved: | File: M-18 |

## RESISTIVITY ohm/m



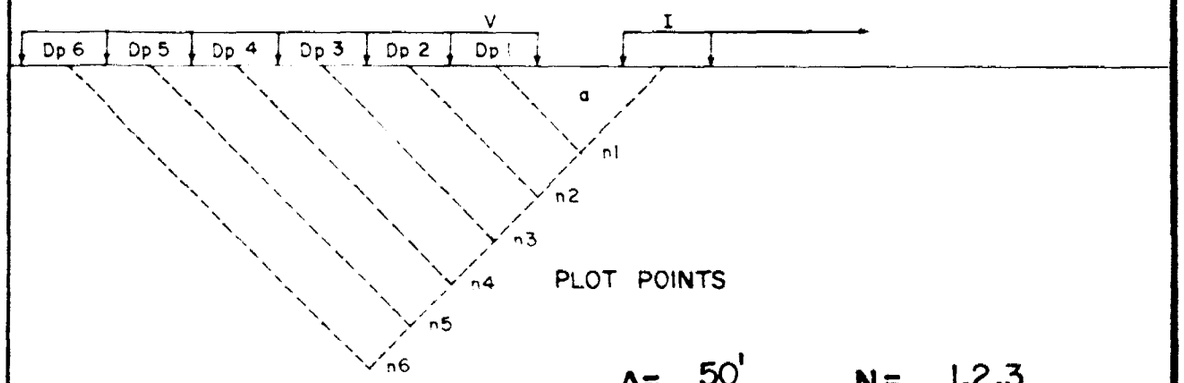

## CHARGEABILITY mv/v



# INDUCED POLARIZATION

## time domain mode

## DIPOLE DIPOLE ARRAY




A= 50' N= 1,2,3

Tx. SCINTREX model , IPC-8 250W
2 sec. on , 2 sec. off

Rx SCINTREX model , IPR- II

Total line 600' Total Readings 49

200 150 100 50 0 100 200
FEET

| REVISIONS | ROBERT S. MIDDLETON EXPLORATION SERVICES INC. | | |
|---|---|---|---|
| | for GRAND SAGUENAY | | |
| | Title CAIRO TWP<br>L14 E MOYNEUR LAKE GRID<br>100 N - 700N | | |
| | Date: MAY 1984 | Scale: 1"=100' | N.T.S.: |
| | Drawn: CJ/CG | Approved: | File: M-18 |

# Report on Power Stripping
# Cairo Township Property

for

GRAND SAGUENAY MINES AND MINERALS LTD.

by

Roberta Bald

---

R.S. Middleton Exploration Service Inc.
P.O. Box 1637 Timmins, Ontario P4N 7W8
May 1, 1984

# TABLE OF CONTENTS

## INTRODUCTION

From April 23rd to 30th, 1984, two areas on the Cairo Township property were power stripped, washed, mapped and sampled. Stripping on claim L757834, near Moyneur Lake, was done in an outcrop area from which a sample collected during a previous survey from an old trench assayed 200 ppb gold. The stripping revealed the sample had been taken from a large boulder of metasediments, possibly glacially transported from the north. Mafic syenite cut by diabase dikes crops out in the stripped area. A total of four samples were taken, including one channel sample. The highest assay was 23 ppb Au from a grab sample of the syenite. The second area stripped is on a rock cut on Highway 66 on claim L650116. During a previous mapping program, the rock cut face revealed carbonatized iron tholeiite volcanic rocks with up to 3% pyrite. The top of the rock cut was power stripped for a length of about 155' but the outcrop dropped off within less than 15' of the rock face. A total of eight samples were taken, including 5 channel samples, all assaying less than 6 ppb Au.

## FIELD METHOD

The stripping on claim L757834, just west of Moyneur Lake, was done by walking a John Deere 550 Tractor about 2,000 feet into the stripped area from a small road connecting the garbage

dump to the southwest shore of Moyneur Lake. The work was performed on April 24, 1984.

The stripping on Highway 66 on claim L650116 was done using both a John Deere 550 Tractor and a John Deere 410 Backhoe. The owner and operator of the machines is Mr. Normand Dubé, P.O. Box 147, Matachewan, Ontario. The backhoe operator was Mr. Dubé's son, Bruneau, of the same address. The work was started on April 23, 1984 but was halted soon after because an encroachment permit from the Ministry of Transportation and Communications was needed to do the work. The permit was obtained on April 25, 1984. The stripping then resumed on April 26, 1984 and was completed that day. As required by the M.T.C., the stripped area was filled in on April 30, 1984 using the tractor. Grass seed was then sown.

Both stripped areas were washed using a Homelite water pump, mapped at a scale of one inch to 10 feet (1:120) and sampled. Grab samples and channel samples using a Stihl rock saw were collected from both stripped areas.

ACKNOWLEDGEMENTS:

The capable assistance of Nadia Caira and Ian Coster during this stripping program is gratefully acknowledged. Nadia Caira helped map the Moyneur Lake area while Ian Coster helped map the Highway area.

PREVIOUS WORK

Following the discovery of gold in 1916, the Matachewan area was mapped by Burrows (1918, 1920), Cooke (1919) and subsequently by Dyer (1935) and Lovell (1967). Claim L650116 was staked for Comstate Resources in June, 1981 when the ground came open for non-payment of taxes on the patented claim. Old trenching was located on the claim but no assessment work filed. The claim is part of a group of claims mapped by the author for Comstate Resources Ltd. in June, 1983. The geological report was filed for assessment. Magnetometer and VLF - EM surveys were also performed on the claim group and were filed for assessment credits. The geophysical surveys proved to be of limited success because of interference by the powerline and telephone line running along Highway 66. Geological mapping revealed rhyolitic metavolcanic rocks in the south portion of the claim group overlain to the north by iron tholeiites with interflow sulphide facies iron formation units. The metavolanic rocks were intruded in the southeast by an ultramafic to mafic body. Abundant Matachewan diabase dikes cut the Archean rocks in a generally northwesterly direction. Cobalt metasediments were deposited in the west and northern portions of the property. Where exposed on the property, the southern margin of the Cobalt metasedimentary unit appears to be sheared. An outcrop of iron tholeiite near this sheared contact was exposed along a rock cut on Highway 66.

It was carbonatized and locally contained smokey quartz veinlets and up to about 3% pyrite. Several samples were taken along the rock cut, the highest assay being 41 ppb gold. Better exposure was sought by uncovering the top of the outcrop during the present stripping program.

Claim L757834 was mapped by the author for Comstate Resources Ltd. in September, 1983 as part of a two claim property. The geological report was filed for assessment credits. Geological mapping revealed the property was underlain to the southeast by Cobalt metasedimentary rocks and by metasedimentary rocks intruded by syenite in the northwest. Although several old trenches were located in the field, the work had not been filed for assessment credits. A grab sample from a piece of loose rock from one of these trenches was collected during the geological mapping program and assayed 200 ppb gold. This trench was the site of the present stripping program.

## STRIPPING PROGRAM

### Highway Area: Claim L650116

The stripping done on claim L650116 was done in order to expose the top of a rock cut outcrop of carbonatized and locally silicified iron tholeiite. The stripping revealed the bedrock was only up to about 15 feet wide before sloping down under thick overburden. The southwest end of the outcrop is locally slightly

variolitic mafic metavolcanic flows cut by a diabase dike, at least 3 feet wide. The dark greenish grey to light grey metavolcanic rocks are variably carbonatized and slightly silicified, locally cut by white sugary textured calcite veins and dark grey cherty-looking to smokey grey quartz veinlets, locally associated with up to 3% fine-grained disseminated pyrite. The metavolcanic rocks are locally sheared, with small-scale slickensides locally developed. On the northwest end of the outcrop, well developed variolitic pillows were exposed. The pillows range from 3 inches in diameter to greater than 3 feet long. Pillow shapes were not suitable for top determinations or strike, although some pillows are elongated in a general easterly direction. The pillows commonly have a variole-rich outer margin grading into lighter coloured centers. The varioles are up to 0.3 inches in diameter and weather chalky white.

Moyneur Lake Area: Claim L757834

The stripping was done in the area of an old trench in which a sample of loose fly rock assayed 200 ppb Au. The tractor opened up an area of about 210 feet by 70 feet, exposing outcrop knobs. The stripping revealed that the sample assaying 200 ppb Au was probably from a large metasedimentary boulder sitting between two outcrops of porphyritic mafic syenite.

The syenite in the stripped area is coarse-grained, massive

and feldspar phyric. The syenite contains up to 35% red feldspar laths up to 5mm long. The feldspar crystals are generally randomly oriented but locally subparallel. The syenite is locally strongly magnetic and contains about 1% dark green chlorite filled gashes. In the east portion of the stripped area, the syenite contains up to about 3% fine-to coarse-grained disseminate pyrite along thin, possibly sheared zones less than 1 foot wide.

The syenite is cut by two magnetic, locally plagioclase phyric diabase dikes. White to light-green altered plagioclase crystals and aggregates up to 11 cm long occur in a fine-to medium-grained dark greenish black matrix. The diabase locally contains up to 2% medium-grained disseminated pyrite.

Respectfully Submitted,

Roberta Bald

Roberta Bald

REFERENCES

BURROWS, A.G., 1918
The Matachewan gold area: Ont. Bureau of Mines, Vol. 27, pt. 1, pp 215 - 240.

BURROWS, A.G., 1920
Matachewan gold area; Ontario Dept. Mines, Vol. 29, pt. 3, pp 53 - 64/

COOKE, H.C., 1919
Geology of the Matachewan district, Northern Ontario; Geol. Survey of Canada, Mem. 115.

DYER, W.S., 1935
Geology and ore deposits of the Matachewan-Kenogami area; Ont. Dept. Mines, Vol. 44, pt. 2, pp 1 - 55 (Published 1936).

LOVELL, H.L., 1967
Geology of the Matachewan area, District of Timiskaming; Ont. Dept. of Mines, G.R. 51, 61p. Accompanied by Maps 2109, 2110, Scale 1 inch to 1/4 mile.

## DECLARATION OF QUALIFICATIONS

I, Roberta Bald, submit this document to certify that the following statements are to the best of my knowledge, true and correct:

1. That I am the author of the attached report.

2. That I was on the property during the present stripping program.

3. That I have received the following university degrees in geology: Honours B.Sc., Laurentian University, 1975, M.Sc., University of Manitoba, 1981.

4. That I have been working as a geologist since graduation.

5. That I am a member of the Geological Association of Canada.

Respectfully Submitted,

Roberta Bald

Roberta Bald

OM 83-6-C-308

41P15NE8327 53.4495 CAIRO

900

THIS SUBMITTAL CONSISTED OF VARIOUS REPORTS, SOME OF WHICH HAVE BEEN CULLED FROM THIS FILE. THE CULLED MATERIAL HAD BEEN PREVIOUSLY SUBMITTED UNDER THE FOLLOWING RECORD SERIES (THE DOCUMENTS CAN BE VIEWED IN THESE SERIES): D.D.H # C-1 to C-3

See Cairo Tp D.D.R. #16

## LEGEND

- contact, observed, interpreted
- 76° strike of bedding, dip
- strike of foliation, dip
- outline of outcrop area
- outline of outcrop with steep sides
- 45° drill hole
- QV quartz vein
- py pyrite
- trench in boulders
- trench in outcrop
- L650130 claim number
- claim line
- claim post
- △ survey post
- swamp
- outline of swampy area
- outline of high area
- stream, direction of flow
- $H_2O$ standing water
- spring
- culvert
- g gravel pit
- mg metal garbage
- power line
- telephone line
- road
- trail
- top of beds in direction of arrow from graded bedding

L0 L2E L4E L6E L8E L10E L12E L14E L16E L18E L20E L22E L24E L26E L28E L30E L32E

mag. 10° astr.

L28W L26W L24W L22W L20W L18W L16W L14W L12W L10W L8W L6W L4W L2W

28N 26N 24N 22N 20N 18N 16N 14N 12N 10N 8N 6N 4N 2N BLO 2S 4S 6S 8S 10S 12S 14S 16S 18S 20S 22S 24S 26S 28S 30S

L650131 L650132 L650130 L650115 L561730 L650134 L650116 L650133 L650117 L650118 L757832 L757833

MOYNEUR LAKE

OLD HWY

HIGHWAY 66

KNOTT LAKE

MONTREAL RIVER

PARR sand

transformer station

1/4 mile to Matachewan

### ASSAY RESULTS

| SAMPLE | AU PPB | NI PPM | CU PPM | ZN PPM |
|---|---|---|---|---|
| R-1 | 13 | 5 | 7.5 | 55.0 |
| R-2 | 5 | 5 | 5.5 | 44.0 |
| R-3 | <2 | 24 | 1.5 | 44.0 |
| R-4 | 26 | 16 | 14.0 | 74.0 |
| R-5 | 2 | 4 | 3.0 | 17.0 |
| R-7 | 15 | 810 | 130.0 | 360.0 |
| R-8 | 6 | 580 | 120.0 | 170.0 |
| R-9 | 4 | 350 | 19.0 | 73.0 |
| R-10 | 7 | 17 | 21.0 | 27.0 |
| R-11 | 4 | 530 | 98.0 | 97.0 |
| R-12 | <2 | 400 | 74.0 | 170.0 |
| R-13 | 5 | 49 | 32.0 | <0.5 |
| R-14 | <2 | 6 | 6.5 | 10.0 |
| R-15 | <2 | 7 | 520.0 | 23.0 |
| R-16 | <2 | 5 | 14.0 | 7.0 |
| R-17 | 2 | 2300 | 2.0 | 12.0 |
| R-18 | <2 | 59 | 2.0 | 45.0 |
| R-19 | 5 | 66 | 6.0 | 31.0 |
| R-20 | 2 | 210 | 18.0 | 5.5 |
| R-21 | 16 | 190 | 69.0 | 58.0 |
| R-22 | 4 | 120 | 70.0 | 87.0 |
| R-23 | <2 | 6 | 12.0 | 8.5 |
| R-24 | 23 | 29 | 29.0 | 61.0 |
| R-25 | <2 | 53 | 57.0 | 100.0 |
| R-26 | 14 | 37 | 7.0 | 11.0 |
| R-27 | 23 | 14 | 11.0 | 8.5 |
| R-28 | 21 | 180 | 1600 | 1200 |
| R-29 | 4 | 470 | 6.0 | 110.0 |
| R-30 | 27 | 66 | 850 | 35.0 |
| R-31 | 11 | 5 | 6.0 | 24.0 |
| R-32 | 12 | 8 | 10.0 | 52.0 |
| R-33 | <2 | 460 | 1000 | 75.0 |
| R-34 | <2 | 440 | 1300 | 2200 |
| R-35 | 3 | 1100 | 1300 | 57.0 |
| R-36 | 11 | 140 | 1500 | 270.0 |
| R-37 | 41 | 160 | 1500 | 1500 |
| R-38 | 6 | 260 | 1600 | 66.0 |
| R-39 | <2 | 770 | 1100 | 52.0 |
| R-41 | 7 | 58 | 23.0 | 32.0 |

### ASSAY RESULTS

| SAMPLE | AS PPM | AG PPM | SB PPM |
|---|---|---|---|
| R-1 | 14.0 | <0.5 | <0.1 |
| R-2 | 4.7 | <0.5 | <0.1 |
| R-3 | 2.1 | <0.5 | <0.1 |
| R-4 | 5.2 | <0.5 | <0.1 |
| R-5 | 2.4 | <0.5 | <0.1 |
| R-7 | 88.0 | 0.5 | <0.1 |
| R-8 | 4.0 | 0.5 | <0.1 |
| R-9 | 19.0 | 0.5 | <0.1 |
| R-10 | 35.0 | <0.5 | 0.2 |
| R-11 | 13.0 | 0.5 | 0.3 |
| R-12 | 10.0 | 0.5 | 0.1 |
| R-13 | 38.0 | <0.5 | 0.7 |
| R-14 | 2.6 | <0.5 | <0.1 |
| R-15 | 1.9 | <0.5 | <0.1 |
| R-16 | 1.0 | <0.5 | <0.1 |
| R-17 | 2.6 | <0.5 | <0.1 |
| R-18 | 0.4 | <0.5 | <0.1 |
| R-19 | 0.3 | 0.5 | <0.1 |
| R-20 | 1.4 | 1.0 | <0.1 |
| R-21 | 1.6 | <0.5 | <0.1 |
| R-22 | 0.4 | 0.5 | <0.1 |
| R-23 | 1.2 | 2.0 | 0.1 |
| R-24 | 0.5 | <0.5 | <0.1 |
| R-25 | 0.7 | <0.5 | <0.1 |
| R-26 | 0.6 | <0.5 | <0.1 |
| R-27 | 0.7 | <0.5 | <0.1 |
| R-28 | 3.1 | 1.0 | 0.1 |
| R-29 | 2.1 | 0.5 | <0.1 |
| R-30 | 8.7 | 0.5 | <0.1 |
| R-31 | 0.2 | <0.5 | <0.1 |
| R-32 | 0.5 | <0.5 | <0.1 |
| R-33 | 1.9 | 0.5 | <0.1 |
| R-34 | 11.0 | 0.5 | 0.2 |
| R-35 | 260.0 | <0.5 | 0.1 |
| R-36 | 8.5 | 0.5 | 0.1 |
| R-37 | 7.0 | 0.5 | 0.2 |
| R-38 | 22.0 | 0.5 | 0.1 |
| R-39 | 3.8 | 0.5 | 0.2 |
| R-41 | 0.4 | <0.5 | <0.1 |

## LEGEND

7 Gowganda Formation (Cobalt)
- e argillaceous conglomerate
- d arkosic conglomerate
- c argillaceous quartzite
- b hematite-stained quartzite
- a argillite

6 Diabase (Matachewan)

5 Quartz-Feldspar Porphyry

4 Ultramafic and Mafic Intrusive Rocks
- b serpentinite
- a gabbro

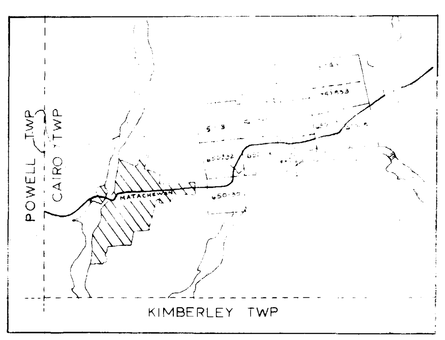
Volcanic Rocks (Keewatin)

3 Basalt
- c pillowed
- b variolitic, locally pillowed
- a massive flow

2 Iron Formation

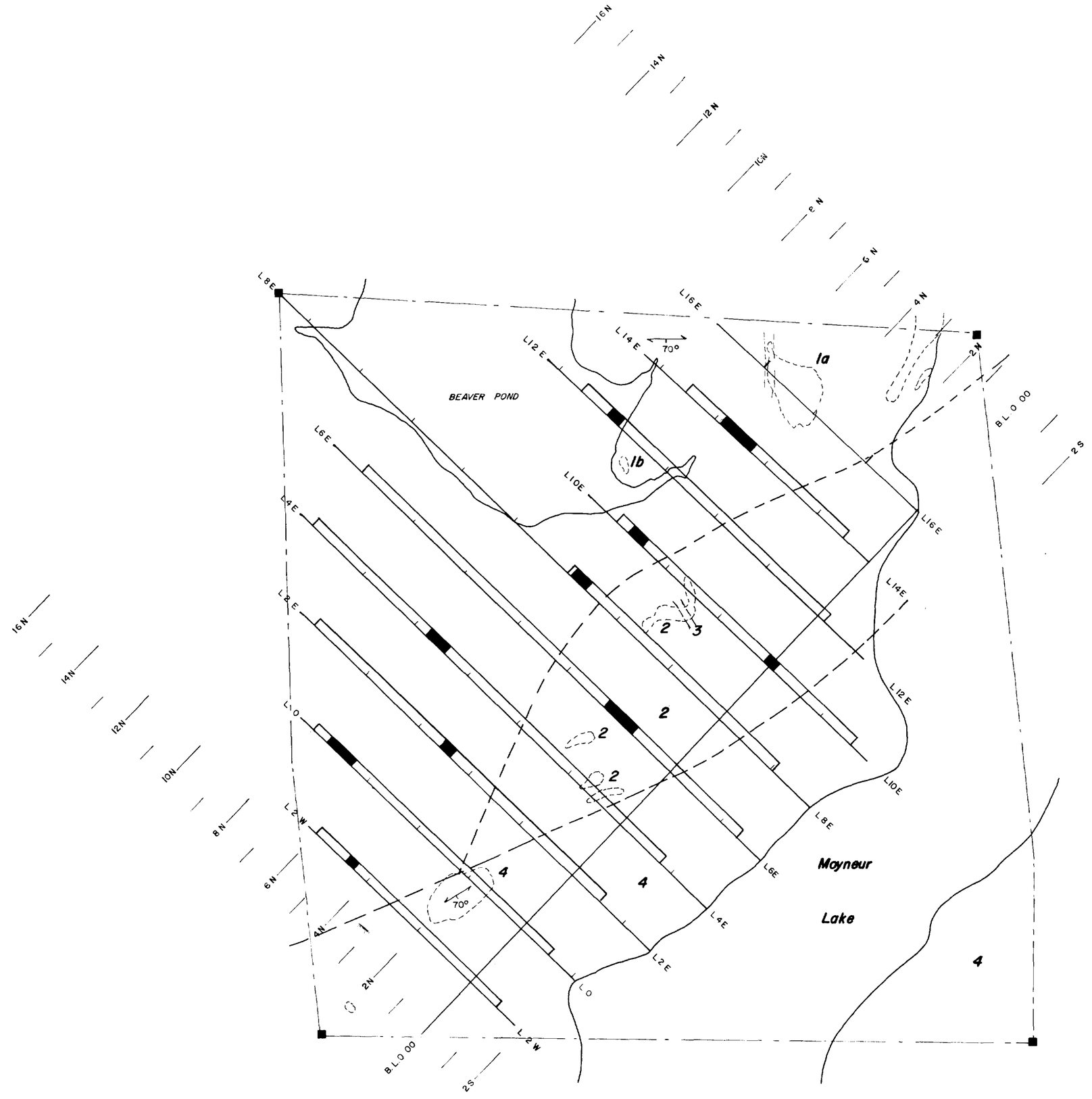
1 Rhyolite
- b agglomerate
- a massive flow

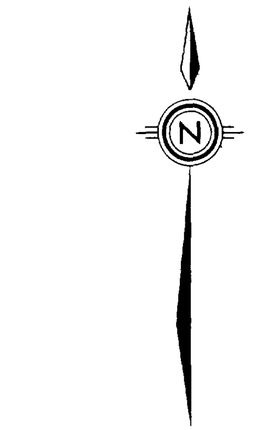
I.P. Anomaly




63.4495

| REVISIONS | ROBERT S. MIDDLETON EXPLORATION SERVICES INC. |
|---|---|
| | for GRAND SAGUENAY |
| | Title CAIRO TWP I.P. ANOMALY COMPILATION |
| | Date: MAY 1984 \| Scale: 1" = 200' \| N.T.S.: |
| | Drawn: \| Approved: \| File: M.-18 |




LEGEND

4 Conglomerate

3 Diabase

2 Syenite porphyry

Ib Metasedimentary conglomerate

Ia Arkose

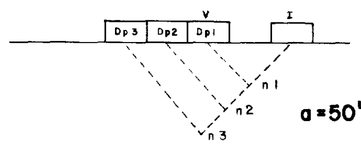
Outcrop

Geologic contact

INDUCED POLARIZATION ANOMALY

LIMITS OF SURVEY

INDUCED POLARIZATION




63.4495

| REVISIONS | ROBERT S. MIDDLETON EXPLORATION SERVICES INC. | | |
|---|---|---|---|
| | for GRAND SAGUENAY | | |
| | Title CAIRO TWP. PROPERTY MOYNEUR LAKE GRID ANOMALY LOCATION | | |
| | Date: June 84 | Scale: 1" = 200' | N.T.S.: |
| | Drawn: a.w. | Approved: | File: M - 18 |

41P15NE8327 63.4495 CAIRO


LEGEND:

- sample location
- channel sample
- edge of bulldozed area
- outcrop
- boulder
- cut line
- jointing
- contact, observed, interpreted
- Plagioclase Phyric Diabase
- Porphyritic Mafic Syenite
- Metasediment

Roberta Bald

20 15 10 5 0 10 20 feet

634495

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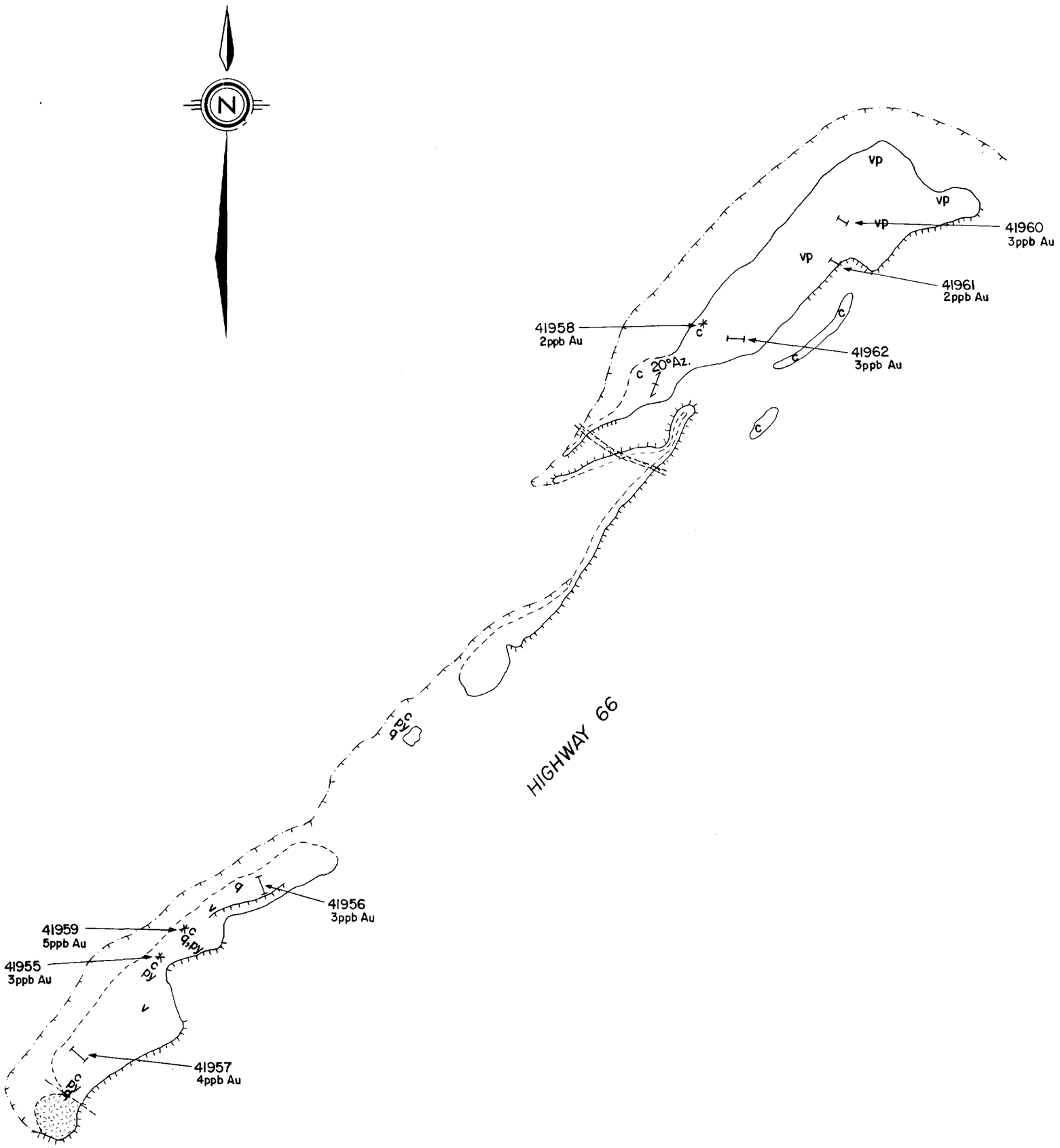
|---|---|---|---|
| | for GRAND SAGUENAY | | |
| | Title CAIRO TWP. TRENCH & SAMPLE LOCATION MAP | | |
| | Date: MAY 1, 1984 | Scale: 1:120 | N.T.S.: |
| | Drawn: | Approved: | File: M-18 |

41P15NE8327 63.4495 CAIRO




LEGEND:

- sample location
- channel sample
- edge of bulldozed area
- edge of washed outcrop
- edge of outcrop, gradual slope
- edge of highway rock cut, cliff
- foliation
- contact, observed, interpreted
- Diabase
- Iron Tholeiite

p pillowed
v variolitic
c carbonatized
q quartz veinlets
py pyrite

Roberta Bald

20 15 10 5 0 10 20 feet

63.4495

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|---|---|---|---|
| | for GRAND SAGUENAY | | |
| | Title CAIRO TWP. TRENCH & SAMPLE LOCATION MAP | | |
| | Date: MAY 1, 1984 | Scale: 1:120 | N.T.S.: |
| | Drawn: | Approved: | File: M-18 |

41P15NE8327 63.4495 CAIRO

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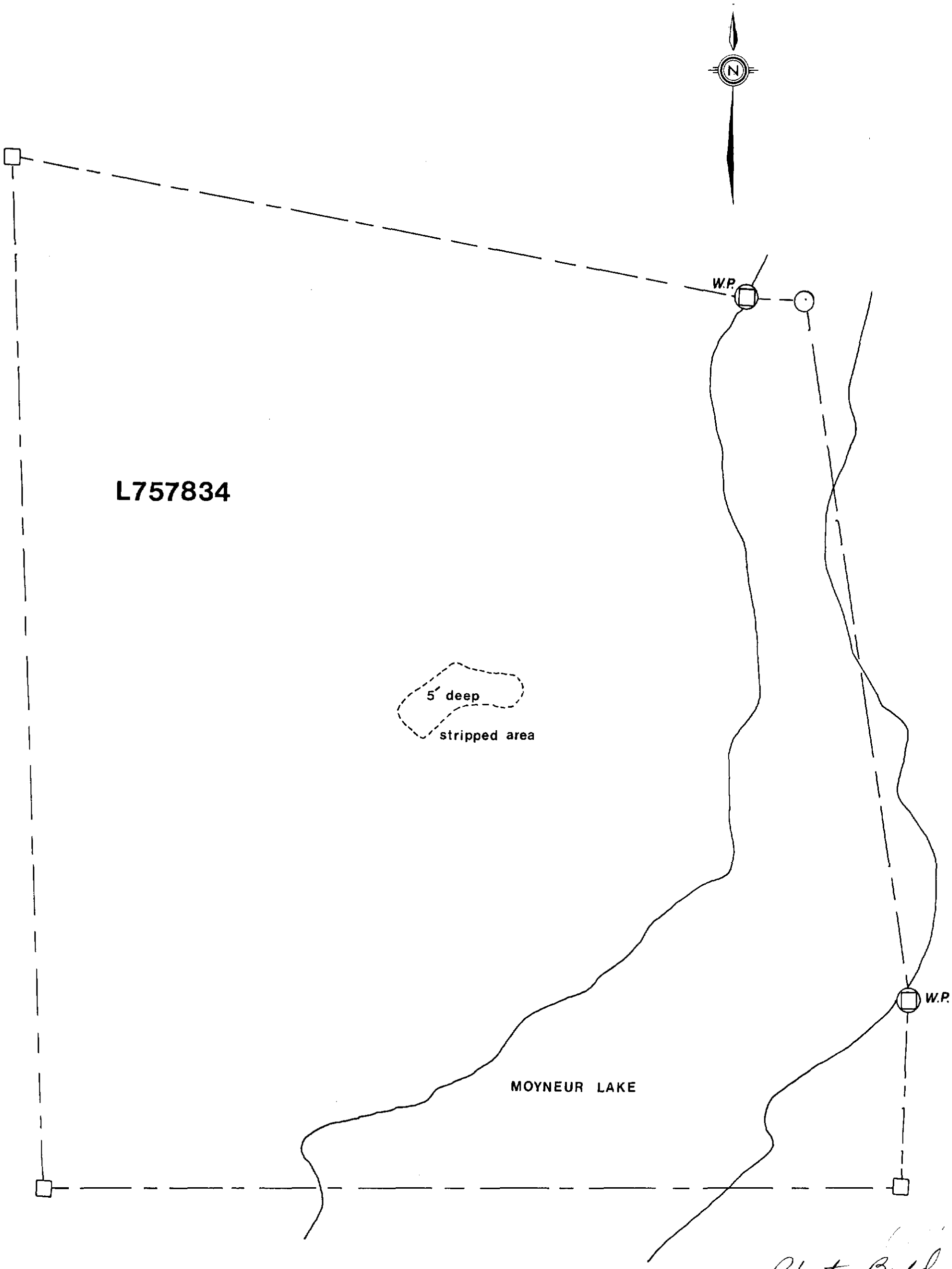


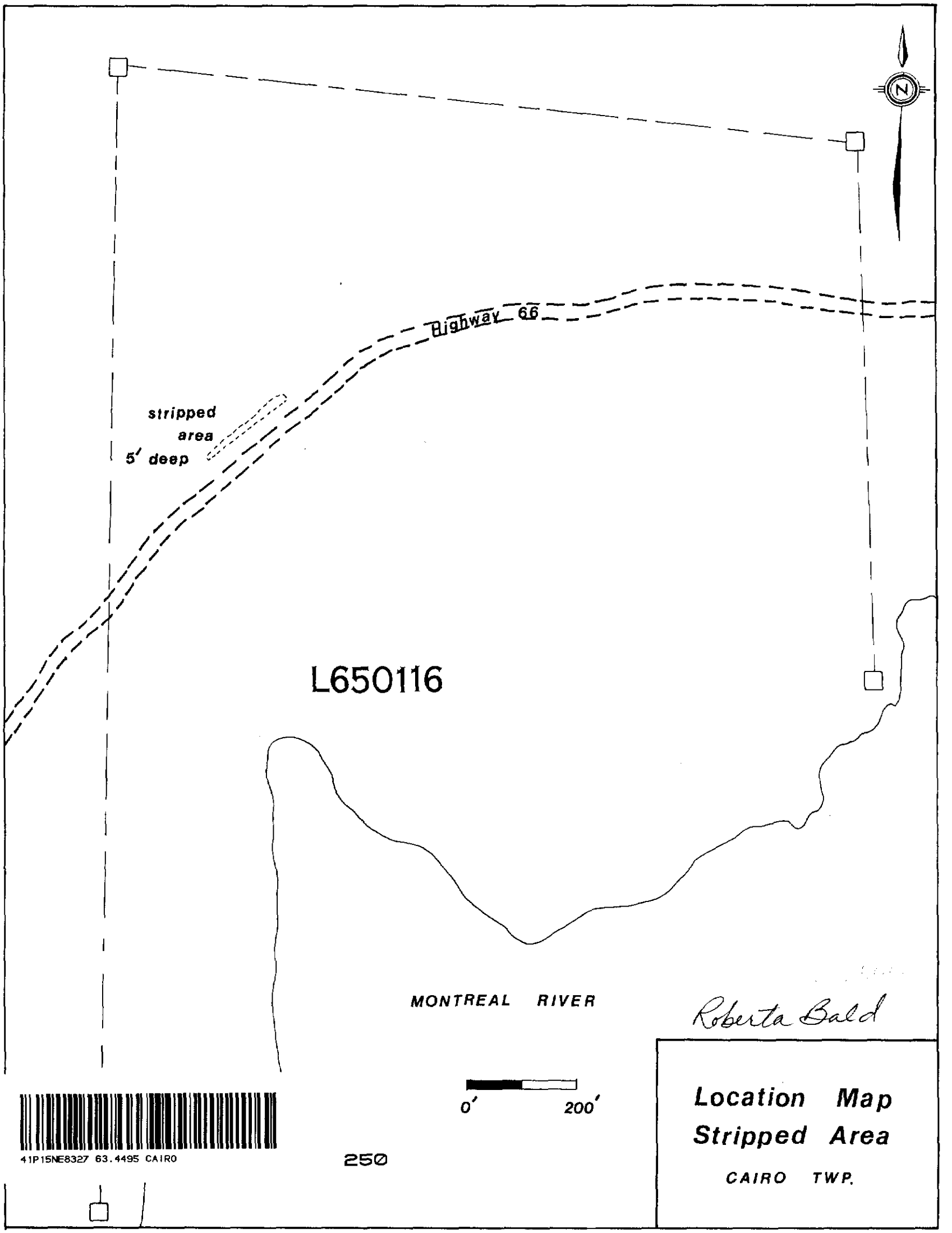

Roberta Bald

**Location Map**
**Stripped Area**

CAIRO TWP.

0' 100' 200'

41P15NE8327 63.4495 CAIRO


N
Highway 66
stripped
area
5′ deep
L650116
MONTREAL RIVER
0′
200′
250
41P15NE8327 63.4495 CAIRO
Roberta Bald
Location Map
Stripped Area
CAIRO TWP.