

Accession # 1



31L05NW0005 2.10767 SPRINGER

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Concentrated Rare Earth Minerals Ltd.  
Rare Earth Prospect  
Geophysical and Geological Surveys  
Springer Township  
Sudbury Mining Division  
Ontario

**RECEIVED**

**JAN 26 1988**

**MINING LANDS SECTION**

Date: January 15, 1988.

H. Grant Harper, P.Eng.  
Economic Geologist.

Volume Label: CREMEng  
Disk No.: 42-3  
Filename: \Titlpg\Sprngeop

Concentrated Rare Earth Minerals Ltd.  
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### Introduction

A tremendous amount of research is now being undertaken by physicists in the field of super-conductivity, a group of phenomena which, when fully controlled, will revolutionize human existence to a greater extent than the industrial revolution. Certain of the Rare Earth group of elements appear to be essential to the creation of superconductive media and therefore there is a growing interest in the distribution and amounts of Rare Earths in the accessible crustal rocks and in the development and mining of Rare Earth ore reserves.

At the present time the markets for Rare Earths are exceedingly limited. Yttrium is in the greatest demand for use in colour video screens. Europium is also used in this connection. The market for Yttrium amounts to some 500 tons per year at a price of about US\$52.50 per pound. Gadolinium is used as a highly efficient heat sink. Apparently it has the potential of eliminating the need for compressors in all refrigeration and air conditioning units. It is anticipated that the market for Gadolinium will double many times in the next 10 years. In their first quarter 1987 Report to Shareholders General Motors announced the opening of a new plant in Michigan to manufacture a new style of starter motor for cars and trucks. The starters will use magnets which contain Yttrium. Even more recently, General Motors has announced that their scientists are using Praesodymium and Neodymium in their research into super-conductivity.

The patented lands lying to the west of the subject property hold Rare Earth occurrences of potentially economic tonnage and grade. A portion of these occurrences spill over onto the Concentrated Rare Earth property. Therefore it was decided to start an evaluation project for these claims.

The line cutting, picketing, and geophysical surveys were performed by Roger Mercier, Geophysical contractor of Cardiff, Ontario. The geological mapping was done by Mercier and the writer. All interpretations of data were done by H.G. Harper, P.Eng.

An earlier report by Sandra J. McCance (in the public record) details the Property, its Location, Access, And History and these items need not be repeated here.

### Survey Results

#### Electromagnetic Survey

Four conformable conductors were identified by the survey. Two of the conductors are strong and cross the entire property. The other two do not. There are also many isolated conductive zones of short length.

Conductor "A" is a short, discontinuous conductor occurring with its greatest strength in low ground. It has very weak and discontinuous magnetic and radiometric associations.

Conductor "B" crosses the property from southeast to northwest. It is strong and occupies low ground for almost its entire length. It has no magnetic or radiometric association. It is probably a strike fault zone.

Conductor "C" is similar to Conductor "B". It lies almost entirely in low ground and has no magnetic association. It does have some questionable radiometric association and since Rare Earths are often associated with radioactivity, Conductor "C" should receive a surface examination.

Conductor "D" is confined to low ground and lies at the south end of the property well away from any known Rare Earth mineralization. It lies just north of the north flank of the best magnetic anomaly located. The conductor's south flank is associated with some weak but persistent radioactivity which occurs on the north flank of the above mentioned magnetic anomaly. Surface examination is certainly warranted.

### Magnetic Survey

The magnetic intensity ranges from a low of about 495 gammas to a high of 1570 gammas. A small area (800 by 400 feet) lies along the north boundary of the property. It has neither electromagnetic nor radiometric association. Outcrops are very sparse in the area and the one mapped shows a fair degree of carbonation. The area warrants surface examination.

The southwest corner of the property shows the highest magnetic background as well as the most variation in magnetic intensity. One zone of increase magnetic intensity crosses the property and demonstrates a minimum length of 2200 feet and a maximum width of 450 feet. This anomaly has a distant spatial relationship with Conductor "D" and with some above normal radiometric readings. The general area warrants further surface examination.

There are a number of isolated above average magnetic readings scattered about the property. It is doubtful if these have any significance.

### Radiometric Survey

The radiometric survey shows radiation intensities ranging from a low of about 1000 counts per minute to a high of 3400 cpm. Radiation intensities of 2000 cpm or higher were arbitrarily classed as anomalous. sixteen readings or zones of readings were thus classed as anomalous. The best anomalous zone lies along the south flank of Conductor "B" and this area lies closest to the Rare Earth Zone on the property adjoining to the west. The area certainly warrants surface examination and grab sampling for Rare Earths.

The spot of strongest radioactivity lies on L32 38+00N. The location lies just south and east of the magnetic anomaly. Further investigation is warranted.

Another zone of weak radioactivity lies on the south flank of Conductor "D" near the large magnetic anomaly. This zone also warrants surface examination and some grab sampling.

The remaining isolated spots of above normal radioactivity are nondescript. Sufficient to say that several of these should be surface examined in an attempt to evaluate their economic potential.

Table of Formations

Recent.....	Sand, gravel, clay, bog
GREAT UNCONFORMITY	
Precambrian.....	Pegmatite
	Granite
INTRUSIVE CONTACT ?	
	limestone, amphibolite

Biotite Gneiss

The biotite gneisses were, in all probability, originally impure limestones and argillaceous sediments now metamorphosed to amphibolites and biotite gneisses. These rocks occur in the southwest portion of the property and their chemical nature is reflected in the higher magnetism of that area. They are schistose and strike northwesterly.

Granite Gneiss

This is the dominant rock underlying the claim group. The banding probably represents remnants of bedding or formational boundaries. The rocks were probably original acid sediments which through metamorphism and granitization have lost virtually all of their original features.

Granite and Arkose

This is a strange grouping of rock types. These rocks are uncommon and occur chiefly in the northwest part of the property. In all likelihood the original rocks were coarse arkosic beds which, on being metamorphosed gain the appearance of granite in the hand specimen or on an individual outcrop. This rock is not sufficiently widespread to be a true granite.

Structural Geology

The formations strike northwesterly and dip to the north at about 60 degrees. They are part of a large area of folded Grenville rocks. No secondary fold structures were observed. Cross faulting was not detectable but the northeast trending swamp may well contain a cross fault whose displacement, if any, is indeterminable.

Economic Geology

The 1969 drill program carried out on the adjoining property spilled over onto the subject claims and some Rare Earths were found on these claims. However, uncertainties respecting claim boundaries and drill hole collar locations as well as the fact that assaying for Rare Earths in 1969 produced results that are primitive by current standards, indicates that little value can be placed on the 1969 results other than they are true indicators of the presence of Rare Earths.

The surface showing of Rare Earths on the adjoining claims and the drill results clearly indicate that the Rare Earths are associated with calcite veining within which fluorite is found.

As one crosses the subject claims from east to west there is a very obvious increase in the carbonate content of all rock types. How much of this is

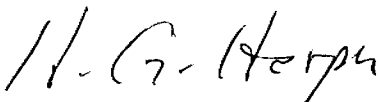
introduced carbonate and how much is re-mobilized carbonate is unknown. It is now evident that the claims must be prospected for Rare Earths utilizing the available data to concentrate the search.

### Conclusions and Recommendations

- 1.- The three geophysical surveys and the geological mapping carried out on the property have helped to define those areas where surface prospecting and sampling may locate zones of Rare Earth concentration.
- 2.- It is recommended that the claims group, especially the west side, be prospected and sampled for Rare Earths.

This report is respectfully submitted.

Willowdale, Ontario.  
January 15, 1988

  
H.G. Harper, P.Eng.

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GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS - If more than one survey, specify data for each type of survey

Number of Stations 408 Number of Readings 1632
Station interval 100' Line spacing 400'
Profile scale VLF 1" = 30%
Contour interval Variable

MAGNETIC

Instrument McPhar M 700
Accuracy - Scale constant 10 % max.
Diurnal correction method hourly checks or base & control station
Base Station check-in interval (hours) 1/2 to 1 hour
Base Station location and value B.L. "A" - 18400 W - 5258

ELECTROMAGNETIC

Instrument Ronke EM 16
Coil configuration fixed horizontal & vertical
Coil separation N/A
Accuracy +/- 1%
Method: [X] Fixed transmitter [ ] Shoot back [ ] In line [ ] Parallel line
Frequency Cutler, Machine 17.86 kHz
Parameters measured Vertical in plane & all of phase components

GRAVITY

Instrument
Scale constant
Corrections made
Base station value and location
Elevation accuracy

INDUCED POLARIZATION RESISTIVITY

Instrument
Method [ ] Time Domain [ ] Frequency Domain
Parameters - On time Frequency
- Off time Range
- Delay time
- Integration time
Power
Electrode array
Electrode spacing
Type of electrode

SELF POTENTIAL

Instrument \_\_\_\_\_ Range \_\_\_\_\_

Survey Method \_\_\_\_\_

Corrections made \_\_\_\_\_

RADIOMETRIC

Instrument McPhar TV 33A Scintillometer

Values measured T<sub>1</sub>

Energy windows (levels) T<sub>1</sub> = 0.2 mev T<sub>2</sub> = 1.6 mev T<sub>3</sub> = 2.5 mev

Height of instrument hip level Background Count \_\_\_\_\_

Size of detector 1.5" x 1.5" Sodium Iodide Crystal

Overburden 0 - 30 ± feet, sandy, clay, bog, variable  
(type, depth - include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey \_\_\_\_\_

Instrument \_\_\_\_\_

Accuracy \_\_\_\_\_

Parameters measured \_\_\_\_\_

Additional information (for understanding results) \_\_\_\_\_

AIRBORNE SURVEYS

Type of survey(s) \_\_\_\_\_

Instrument(s) \_\_\_\_\_  
(specify for each type of survey)

Accuracy \_\_\_\_\_  
(specify for each type of survey)

Aircraft used \_\_\_\_\_

Sensor altitude \_\_\_\_\_

Navigation and flight path recovery method \_\_\_\_\_

Aircraft altitude \_\_\_\_\_ Line Spacing \_\_\_\_\_

Miles flown over total area \_\_\_\_\_ Over claims only \_\_\_\_\_





2.10767

Minit

Title of Survey(s) *W8807.070*  
*Electromagnetic, Magnetic, Radiometric, Geological*

Township or Area  
*Springer Twp.*

Claim Holder(s)  
*Concentrated Rare Earth Minerals Ltd.*

Prospector's Licence No.  
*T4923*

Address  
*Box 2038 Suite 404 20 Eglinton Ave. West, Toronto*

Survey Company  
*Harper Consulting Service Inc.*

Date of Survey (from & to)  
*15 09 87 15 Jan 88*

Total Miles of line Cut  
*7.7*

Name and Address of Author (of Geo-Technical report)  
*H.G. Harper, as above.*

Credits Requested per Each Claim in Columns at right

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic	20
	- Magnetometer	20
	- Radiometric	20
	- Other	
For each additional survey: using the same grid: Enter 20 days (for each)	Geological	40
	Geochemical	
Airborne Credits Note: Special provisions credits do not apply to Airborne Surveys.	Geophysical	Days per Claim
	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	

Mining Claims Traversed (List in numerical sequence)

Mining Claim		Expend. Days Cr.	Mining Claim		Expend. Days Cr.
Prefix	Number		Prefix	Number	
5	973 276				
	973 277				
	973 278				
	973 279				
	973 280				
	973 281				
	973 282				
	973 283				

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FEB 2 1988

MINING LANDS SECTION

SOUTHERN ONTARIO MINING DIV  
RECEIVED

JAN 27 1988

SUDBURY  
MINING DIV.  
RECEIVED

JAN 28 1988

7|8|9|10|11|12|1|2|3|4|5|6

Expenditures (excludes power stripping)

Type of Work Performed  
*GEOPHYSICAL SURVEY*

Performed on Claim(s)  
*FEB 26 1988*

Calculation of Expenditure Days Credits  
Total Expenditures  $\div$  15 = Total Days Credits

Instructions  
Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Total number of mining claims covered by this report of work. **8**

For Office Use Only

Total Days Cr. Recorded: **800**

Date Recorded: **JAN. 29/88**

Date Approved as Recorded: **19 Feb 88**

Mining Recorder: *U.C. Miller*

Branch Director: *W. Howard*

Date: **Jan 15/88**

Recorded Holder or Agent (Signature): *H.G. Harper*

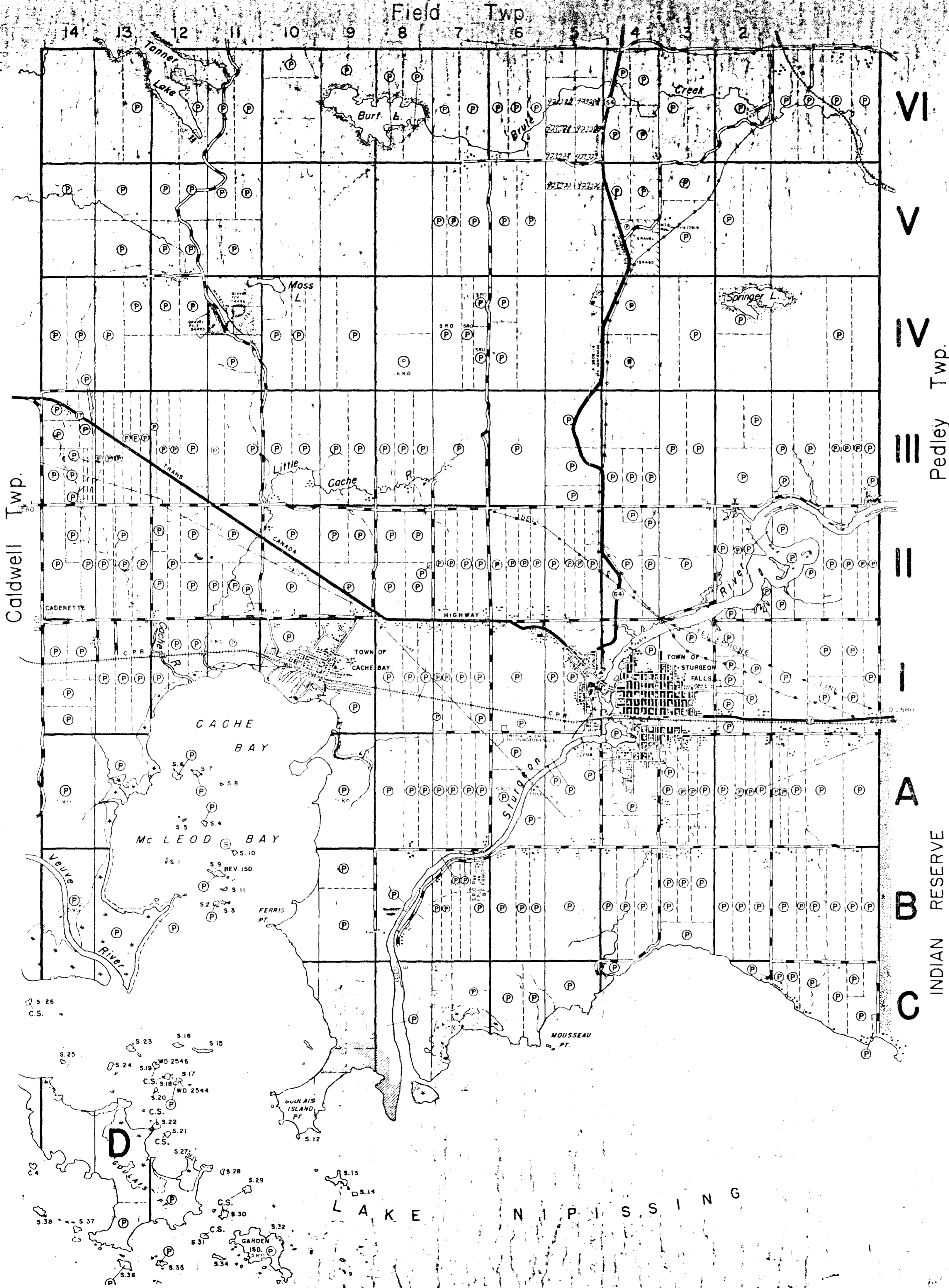
Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying  
*H.G. Harper - PEM, as above.*

Date Certified: **Jan 15/88**

Certified by (Signature): *H.G. Harper*



THE TOWNSHIP  
OF  
**SPRINGER**  
DISTRICT OF  
NIPISSING  
SUDBURY  
MINING DIVISION  
SCALE: 1-INCH=40 CHAINS

**LEGEND**

PATENTED LAND	(P)
CROWN LAND SALE	C.S.
LEASES	(L)
LOCATED LAND	Loc.
LICENSE OF OCCUPATION	L.O.
ROADS	(---)
IMPROVED ROADS	(=)
KING'S HIGHWAY	(=)
RAILWAYS	(---)
POWER LINES	(---)
MARSH OR MUSKEG	(---)

**NOTES**

400 Surface Rights Reservation around all lakes & rivers.

Geodetic survey posts shown thus: \*

All land under water in Town of Sturgeon Falls part of the original bed of Sturgeon R 14.30 acres, patented - Abitibi Power and Paper Company.

Lake Nipissing:

- Land under water withdrawn from staking by Order in Council dated April 30, 1912.
- Islands withdrawn from staking. File 67051.

Flooding Rights reserved to elevation 645.00 C.G.S Datum. File 81049.

**SPRINGER**  
PLAN NO. - M-1123

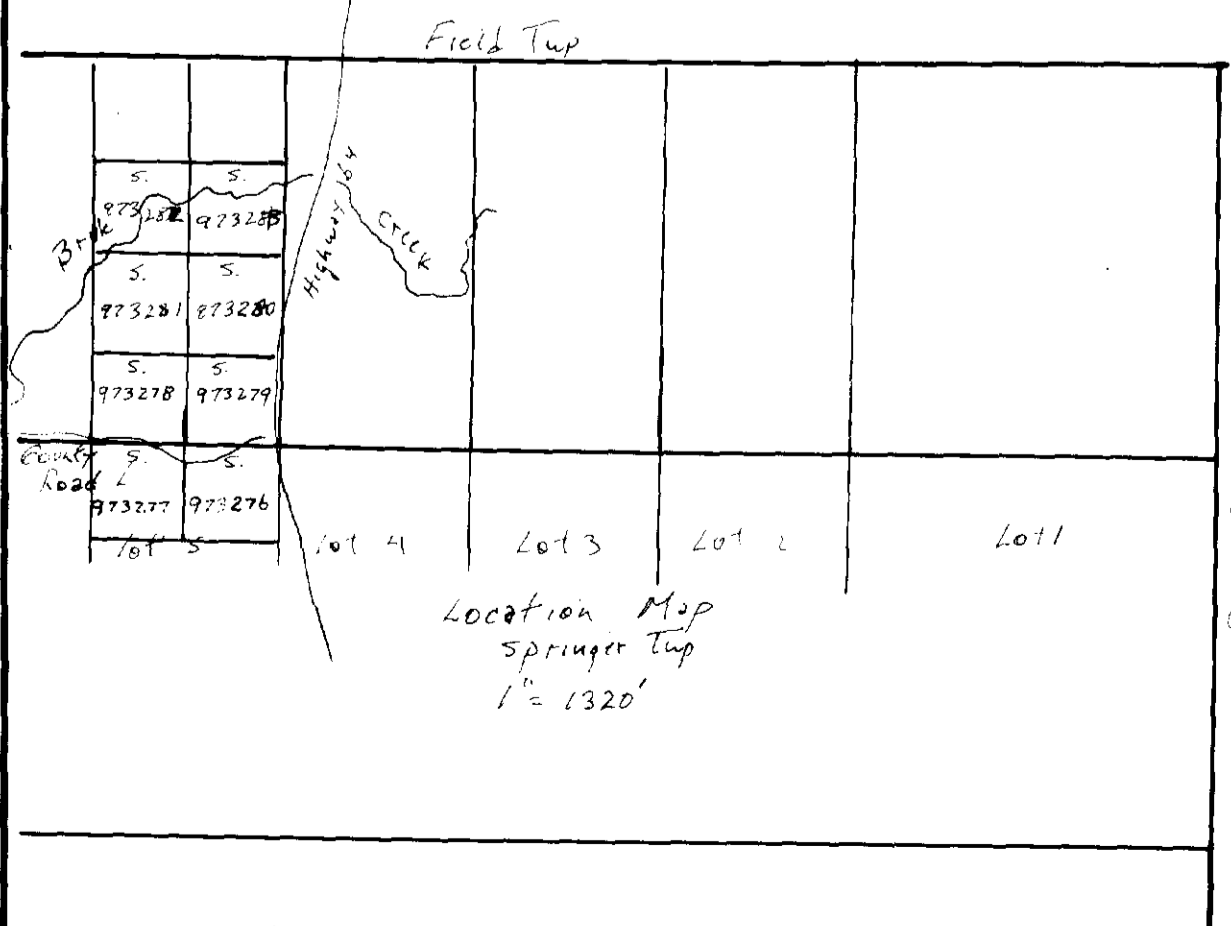
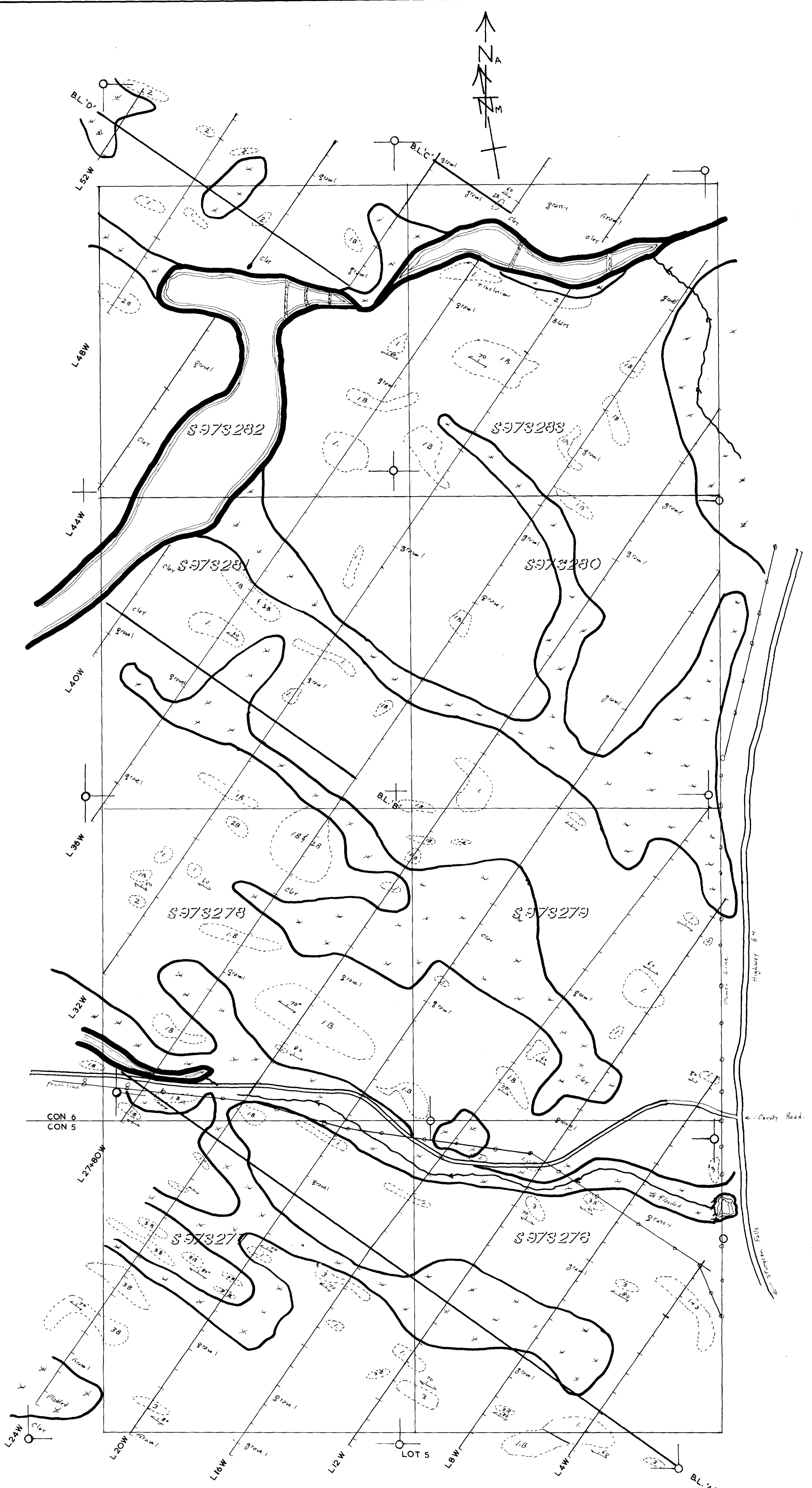
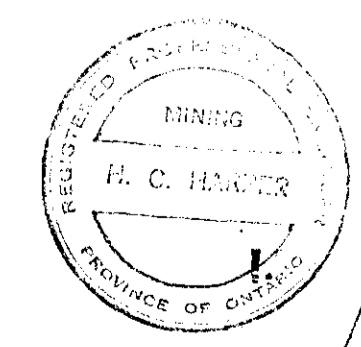


Table of Formations

- 1. 1. Granite Gneiss: 1B Gr + carbonate
- 2. 2. Granite or Arkose: 2B Gr + carbonate
- 3. 3. Biotite Gneiss: 3B Bio Gr + carbonate



JAN 15 1988  
H. C. Harper

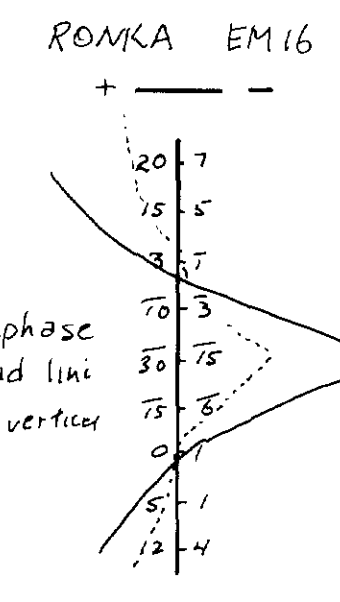
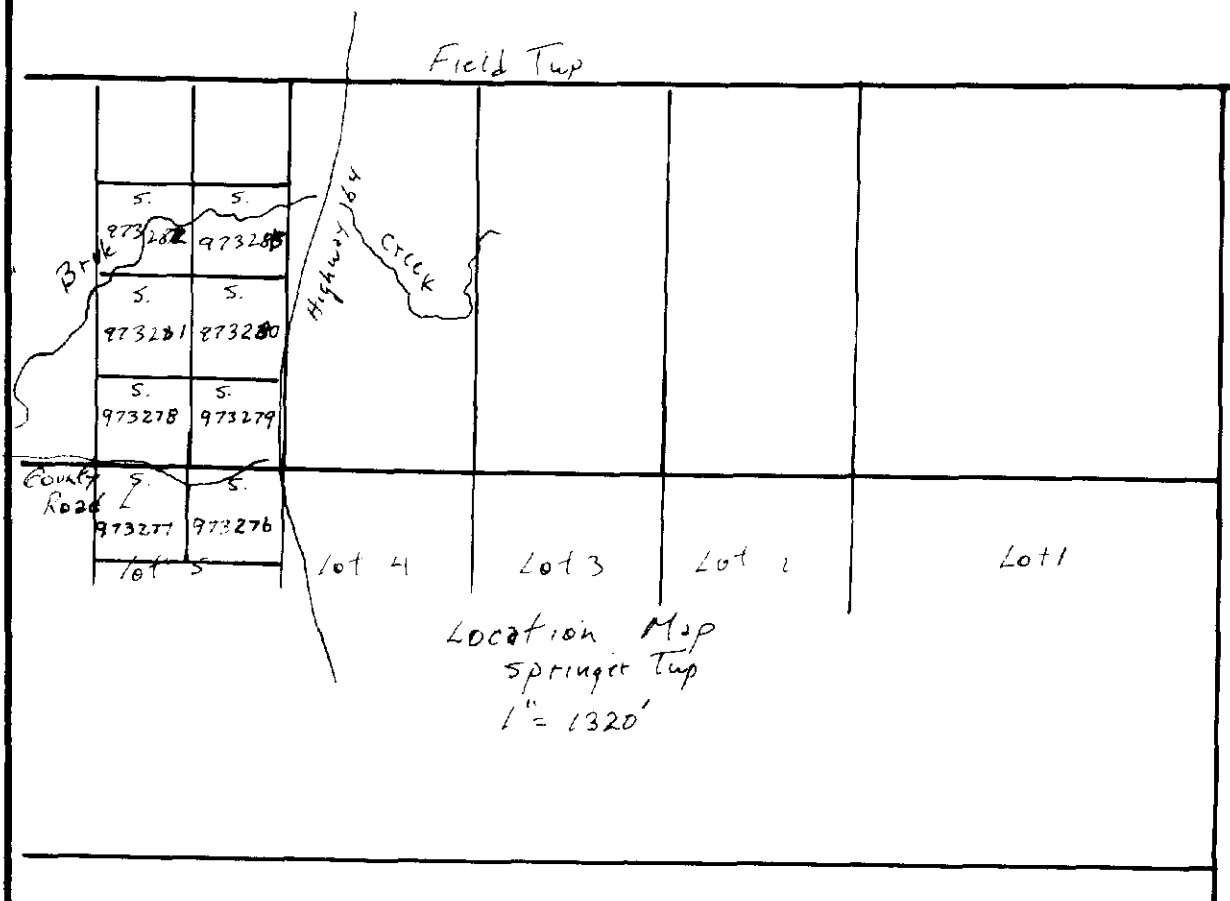
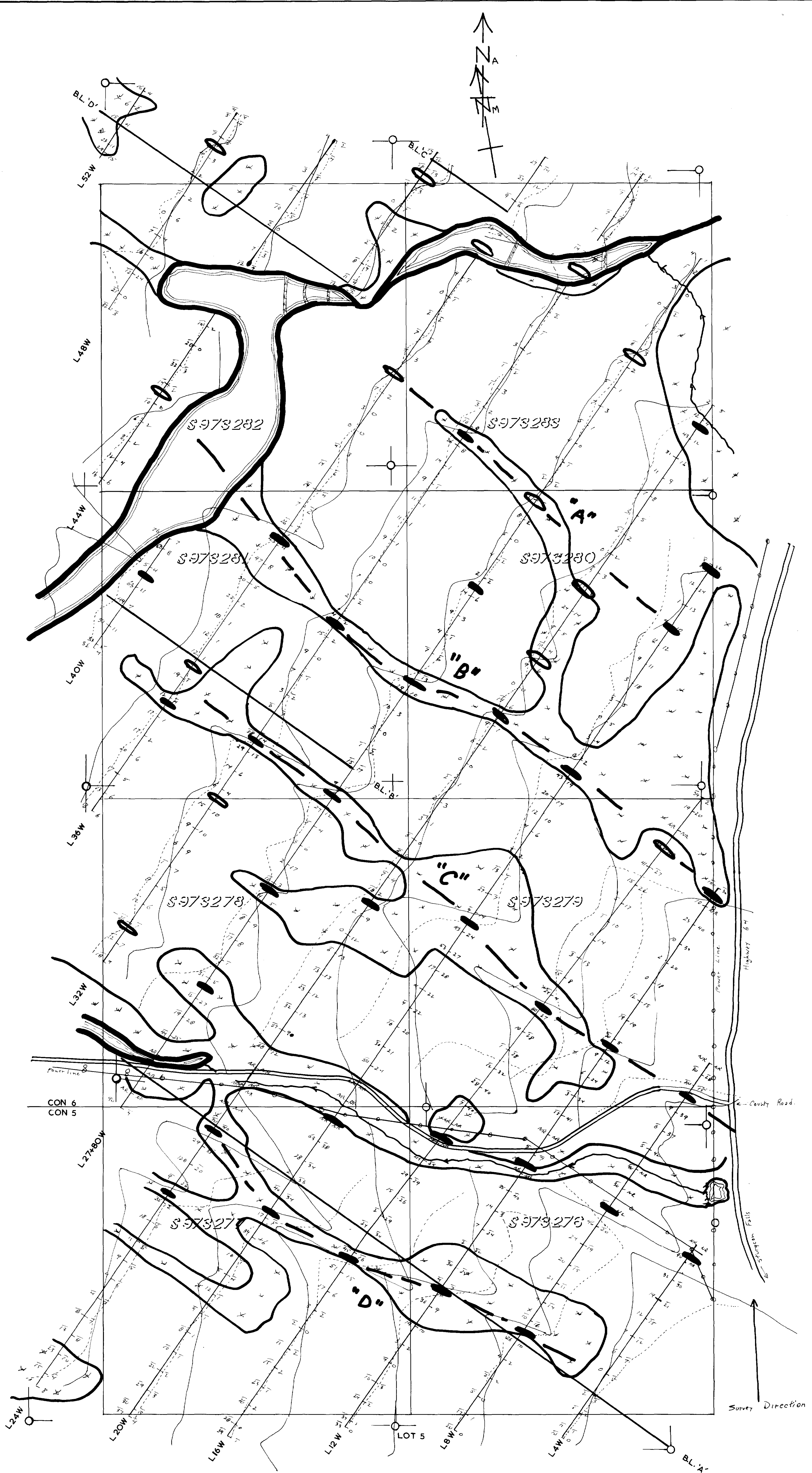
CONCENTRATED RARE EARTH MINERALS LTD  
SPRINGER TWP.

Geological Survey

2.10767



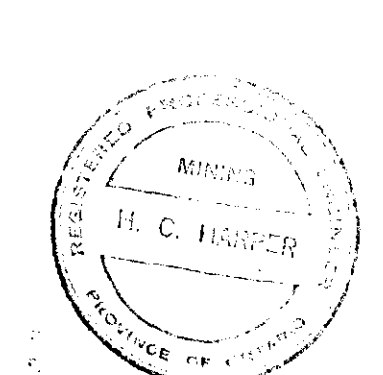




Transmitting Station: Outler, Maine

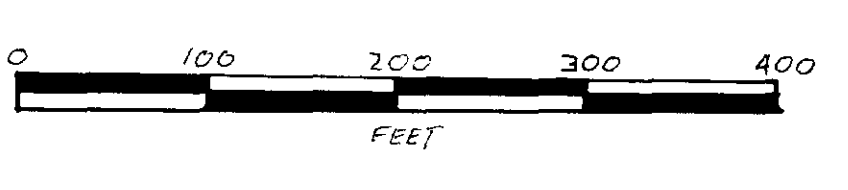
Electromagnetic Conductor

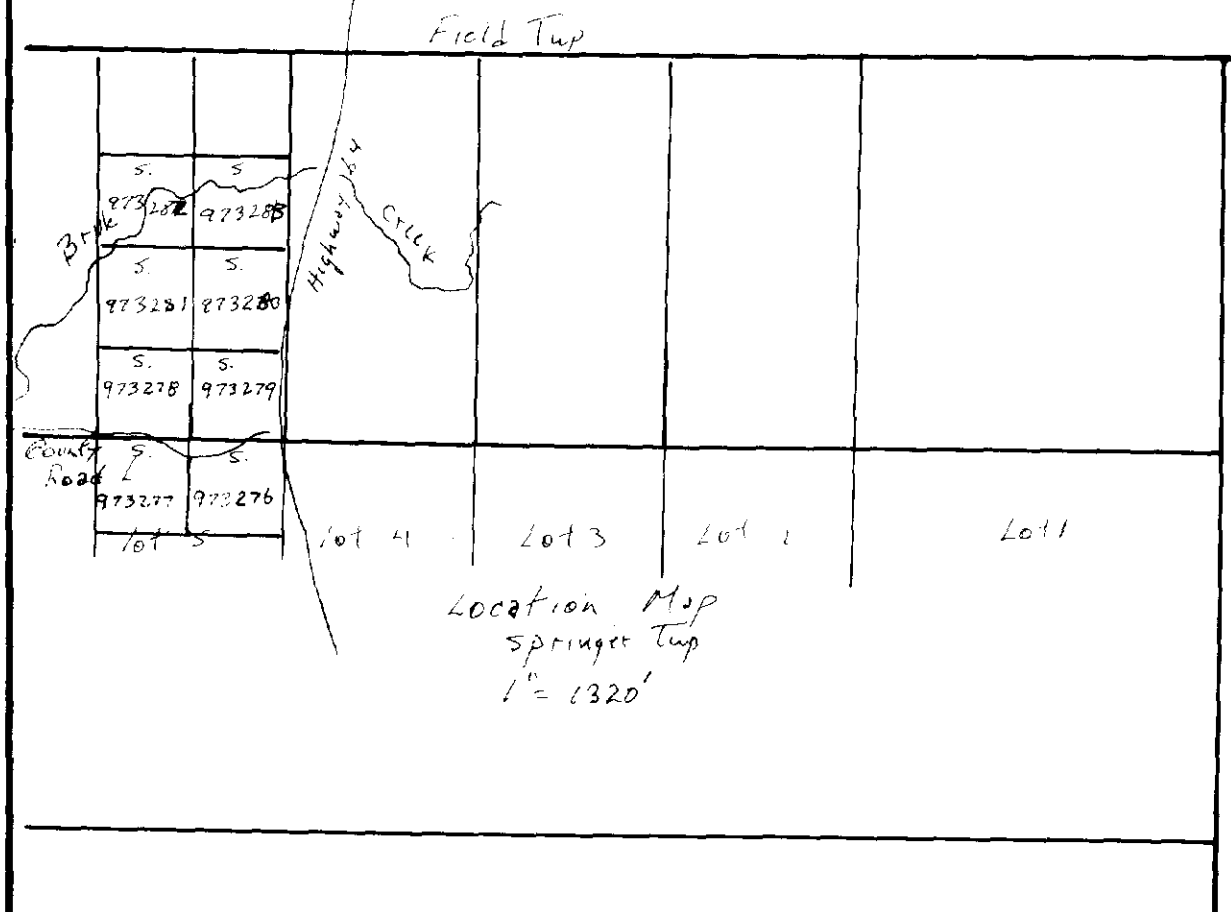
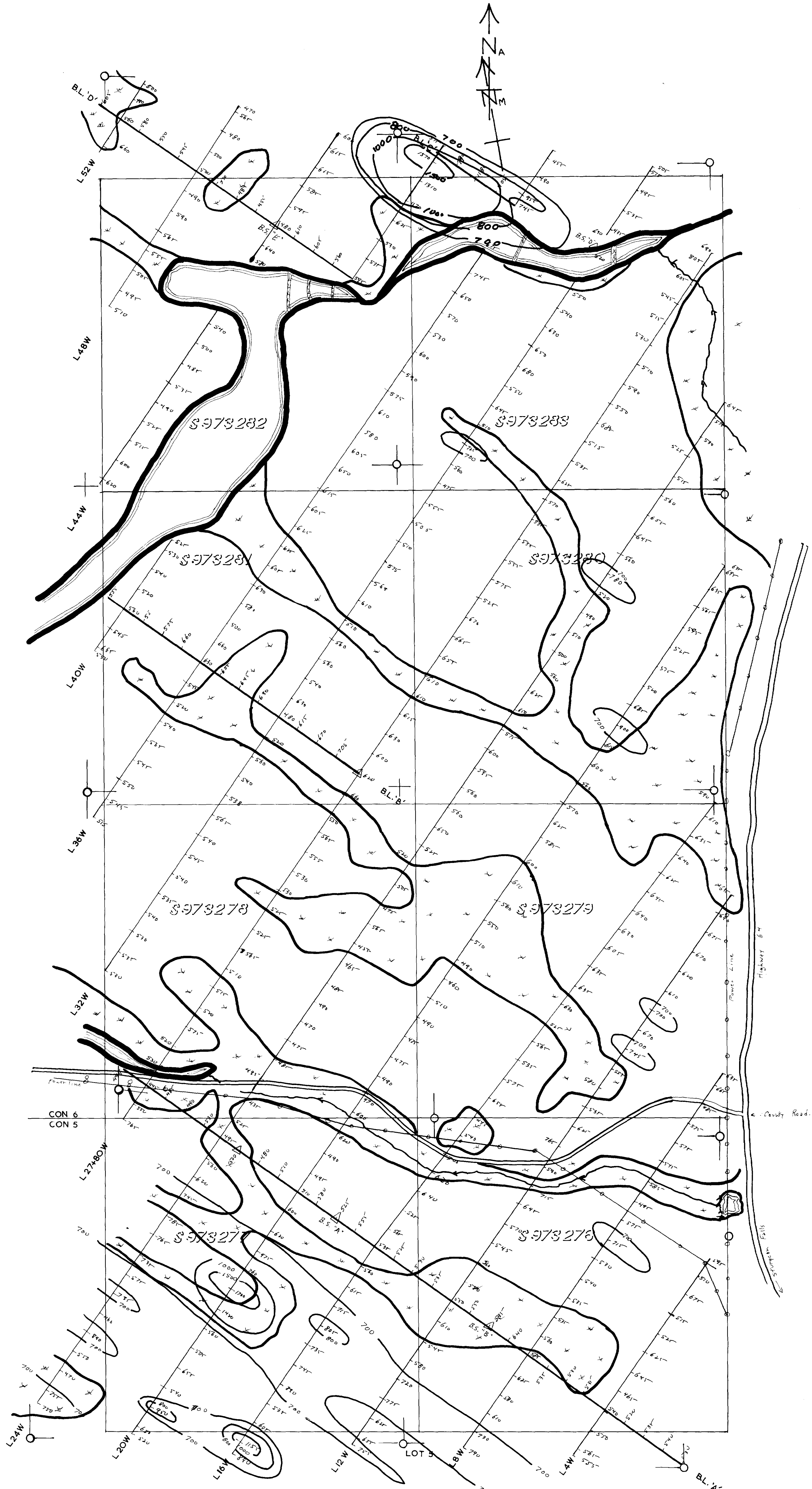
JAN 15 1988



*N.G. Hoop*  
**CONCENTRATED RARE EARTH MINERALS LTD**  
 SPRINGER TWP.

# Electromagnetic Survey





- LEGEND
- over 1500 Gammas
  - 1000 to 1500 Gammas
  - 800 to 1000 Gammas
  - 700 to 800 Gammas
  - under 700 Gammas

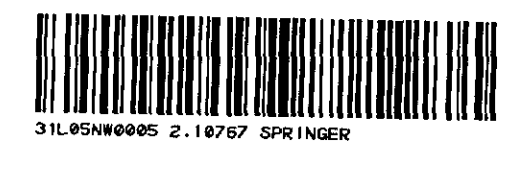
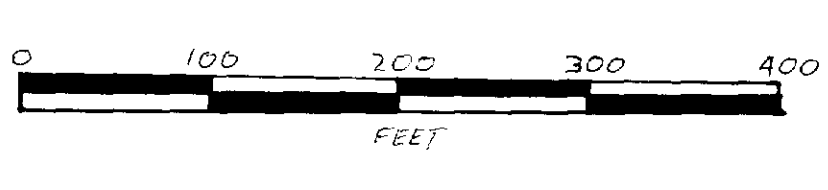
MoPhor M 500 Fluygate Myle to meter  
 Base Station: Base Lia A  
 B.S. "A" 2540 West  
 500 X



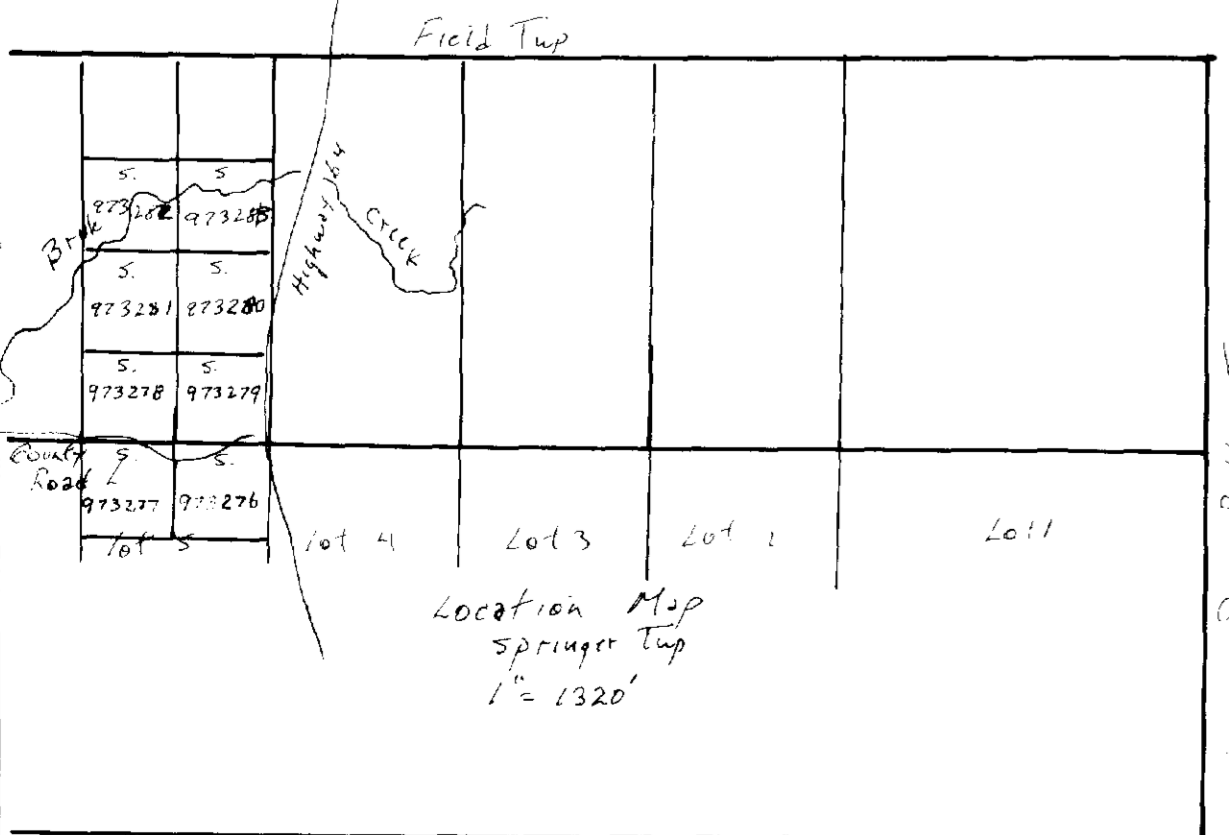
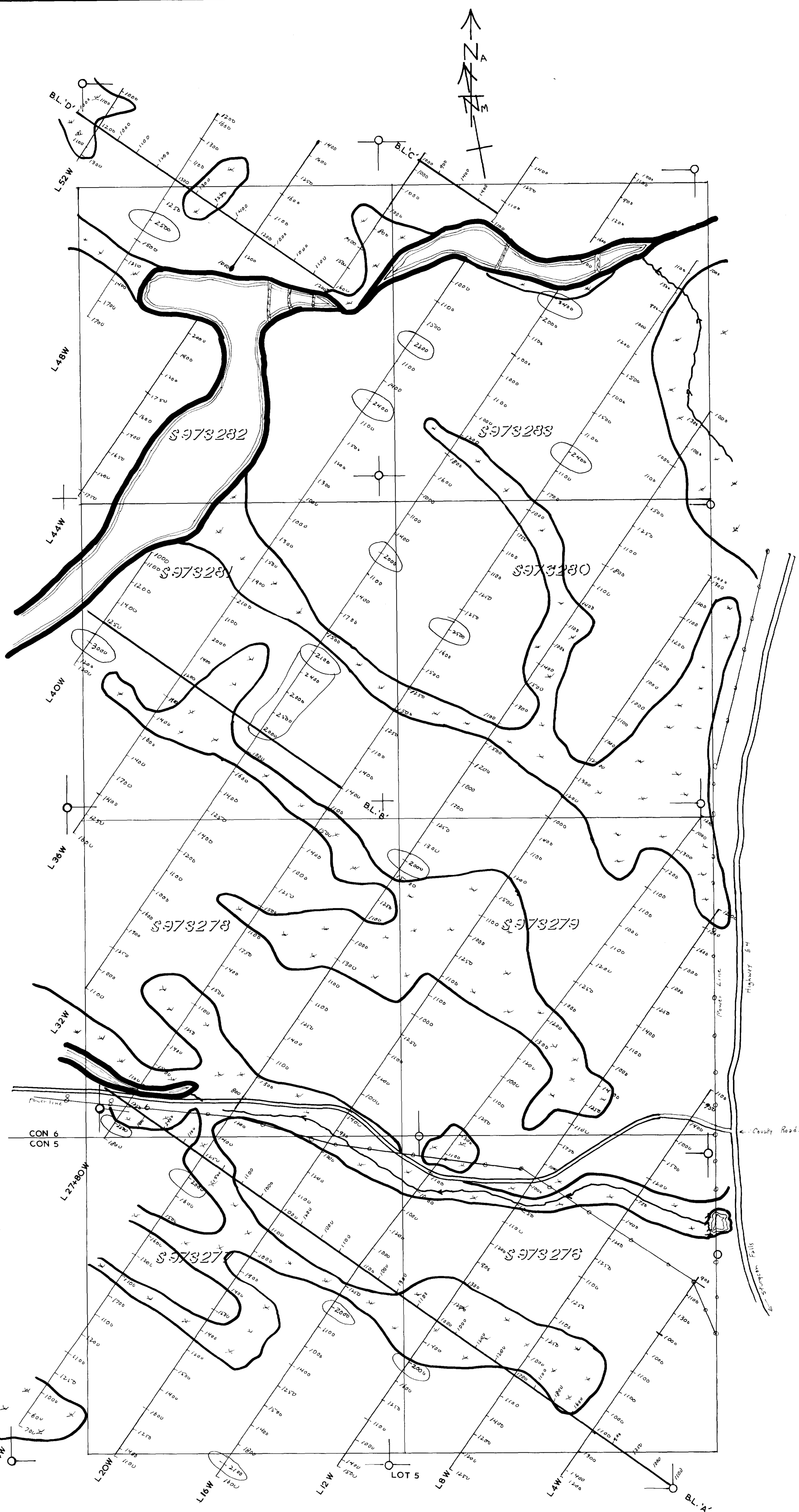
JAN 15 1968

CONCENTRATED RARE EARTH MINERALS LTD  
 SPRINGER TWP.

**Magnetic Survey** 2.10761







Instrument: Mophor TVI-A  
Spectrometer

○ 2000 + 6pm.



JAN 15 1988

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SPRINGER TWP.

# Radiometric Survey

