

GEOSEARCH CONSULTANTS LIMITED



42A15SW0109 2.12131 MCCART

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VLF-EM, HLEM, and Magnetic Surveys
by
Geosearch Consultants Limited
for
Placer Dome Inc.
on
Project 356
McCart Township, Ontario
(To Accompany Maps 88-250, to 88-253)

December 29, 1988

RECEIVED

JAN 31 1989

MINING LANDS SECTION

INTRODUCTION

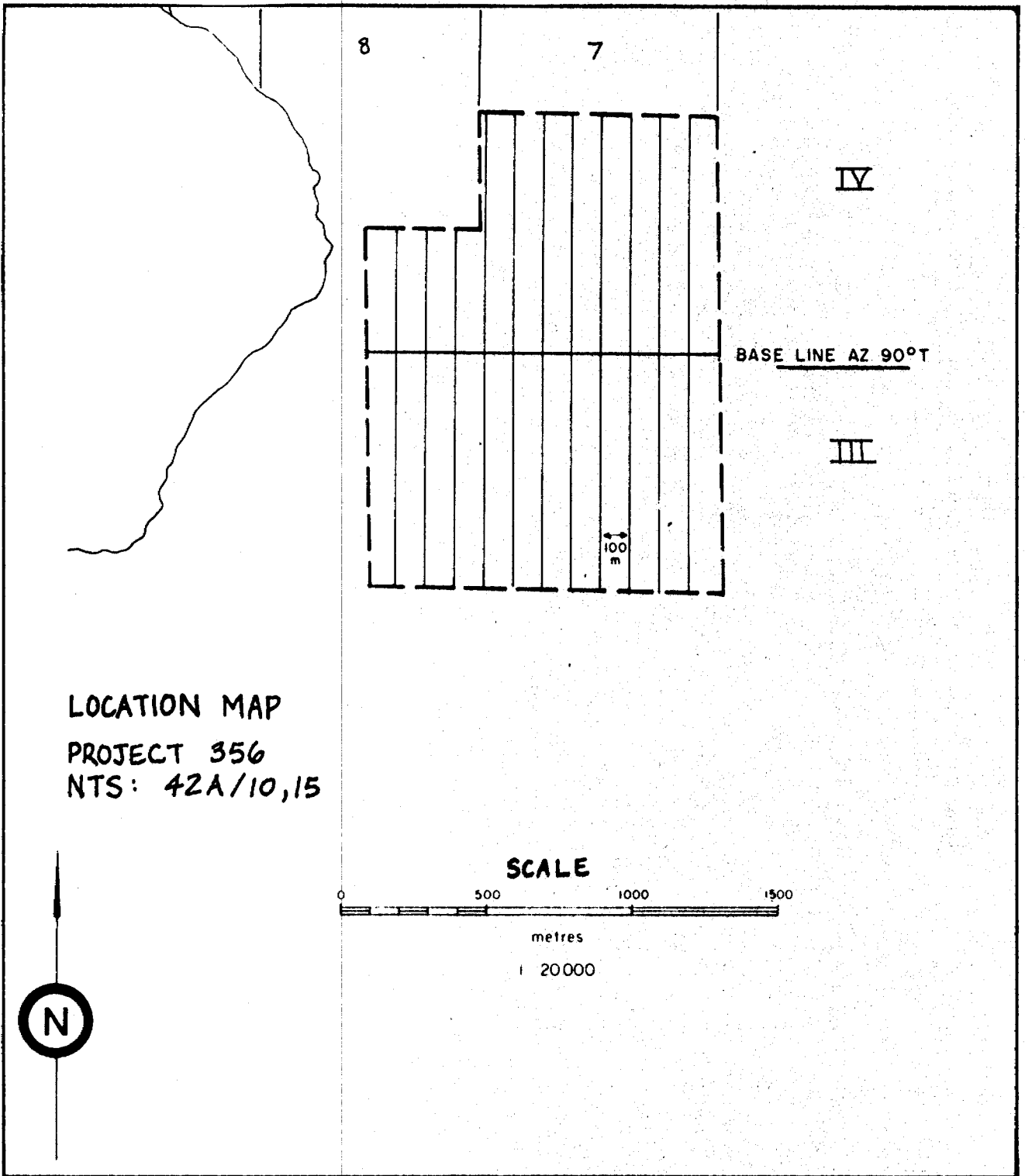
A total field magnetic survey, a HLEM survey, and a VLF-EM survey were carried out for Placer Dome Inc. on Project 356, McCart Township, Ontario.

The property consists of 11 contiguous, unpatented mining claims, numbered P 1008696 to P 1008700, and P 1038154 to P 1038159. These are located in Concessions III and IV, Lots 7 and 8 of McCart Township, Ontario, which is located ~45 km north-east of the town of Timmins, Ontario. Access to the property was made by motor vehicle on secondary roads off of HWY 11.

The purpose of the surveys was to locate subsurface, geo-electrical conductors and to outline geological structures as revealed by the magnetics, which may prove conducive for gold mineralization.

The VLF-EM survey located no conductors. The HLEM survey located three conductors within a very conductive background. The magnetic survey revealed a regional north-west trend.

The accompanying maps show the area surveyed and the results obtained.



METHOD AND INTERPRETATION OF RESULTS - ELECTROMAGNETIC SURVEY

Operating Principle: When an electrical conductor is subjected to a primary alternating field, a secondary current is induced in the conductor. This current produces a secondary alternating field which together with the primary field produces a resultant field of different amplitude and phase from the applied primary field. These differences may indicate the presence of a conductor.

Operation: The battery-powered transmitter sets up a primary field while the in-phase and out-of-phase (quadrature) components of the complex secondary vertical field are detected by a receiving coil and measured by means of a compensator-amplifier unit located a fixed distance from the transmitter unit. These parameters are expressed in percentage of the primary field.

Conductor Recognition: The typical curve over a steeply-dipping conductor shows a low (negative - greater than 5%) over the centre of the conductor, flanked by positive readings on both sides of the conductor. Both the in-phase and the out-of-phase components usually produce the same general shape of curve. An asymmetrical curve may indicate one or more of the following conditions: (1) more than one conductor (2) variable conductive overburden (3) a shallow dipping conductor.

Conductivity Determination: The ratio of the amplitudes of the two measured components, in-phase to out-of-phase, is directly proportional to the conductivity of the conductor, in areas of non-conductive overburden.

Conductor Location: For a single conductor, both component readings are normally zero when either the transmitting or receiving coil is directly above the conductor. The location of the conductor is calculated by adding one-half the distance between the transmitting coil and the receiving coil (coil interval) to the co-ordinate at which the readings are zero. A unique solution is generally not possible in the case of multiple conductors spaced less than one coil interval apart. This results in the possibility that an apparently wide conductor may actually consist of two or more narrow conductors.

Depth of Penetration: The maximum depth of penetration for detection of a steeply-dipping conductor in a geo-electrically neutral background is about 0.7 times the coil interval. Over horizontal or flatly-dipping conductors, penetration of up to 1.5 times the coil interval is possible.

METHOD

The HLEM survey was completed using an APEX Max Min II system with a 150 metre coil separation, and frequencies of 444Hz and 1777Hz. These values were posted and profiled (Map 88-250).

The magnetic survey was completed using Gem Systems GSM-18 Proton Precession Memory Magnetometers. The values were posted (Map 88-251) and contoured (Map 88-253). Contouring was completed by Geosearch using the Geosoft software package.

The VLF-EM survey was completed using GEONICS EM-16 receivers. The inphase and quadrature values were posted and profiled (Map 88-252). The inphase data was not "fraser filtered" due to the low amplitude of the values.

RESULTS

The magnetic survey reveals an area with limited magnetic relief. No structural features are observed, however, a north-west trending regional strike is evident. Also noted is the gradual increase in amplitudes from the north-east to the south-west, with values ranging from 59,500 to 59,650.

The HLEM survey picked up three discreet conductors. The inphase values, especially of the high frequency, are consistently positive. Similarly, the quadrature is consistently negative. This is indicative of very conductive overburden. These positive and negative amplitudes decrease to the north-east, suggesting that the overburden decreases in thickness to the north-east. Within this background three conductors are noted. These are listed in the following table.

COND #	LINE	STATION	MAX APPARENT WIDTH	IP / OP RATIO		DEPTH ESTIMATE		σ_t HF / LF	
				HF	LF	HF	LF	HF	LF
1	3+00W	6+33N	MIN	-	-	-	-	-	-
	2+00W	5+94N	MIN	1	1.5	30	49	7.8	33
	1+00W	5+50N	MIN	1	1	24	38	10	27
	0+00	5+10N	MIN	2	2	35	44	19	45
	1+00E	4+72N	MIN	2	2	44	53	16	42
	2+00E	3+86N	MIN	-	-	-	-	-	-
2	3+00E	4+37N	MIN	1	1	33	56	4.2	17
3	0+00	1+13N	MIN	-	-	-	-	-	-
	1+00E	0+68N	MIN	-	1	29	57	5	9
	2+00E	0+20N	MIN	1	1	34	51	7	15
	3+00E	0+25S	MIN	.5	1	42	54	6.1	11.3

All of the conductors follow the regional north-west strike. Conductors #1 and #2 flank a subtle magnetic low of 59,530 gammas. The discontinuity between these two conductors at L 2+00E, which suggests faulting, is not evident from the magnetic data. Conductor #3 shows no magnetic correlation.

The VLF survey located no conductors. The profile traces of the data show virtually no relief. For this reason, the "fraser filter" was not applied to the inphase data.

RECOMMENDATIONS

The lack of any response by the VLF survey suggests that there is no conductivity or resistivity contrast in the survey area. This is consistent with the conductive cover suggested by the HLEM survey. This cover acts as a conduit for the VLF-EM field, not allowing for penetration to the conductors at depth. The HLEM has a different geometry allowing for penetration through the conductive overburden sheet.

Drill testing of the conductors is recommended.

Conductor #1 on Line 0+00.

Conductor #3 on Line 2+00E.

Conductor #2 is close to the property boundary; Drilling of conductor #2 should be undertaken after results of the previous two are known.

Respectfully submitted,



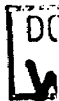
Louis Racic
Geophysicist



Ministry of Northern Development and Mines

Report of Work

(Geophysical, Geological, Geochemical and Expenditures)



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2.12131 #356 2.12131 Mir

Type of Survey(s) **VLF-EM, HLEM, and Magnetic** Township or Area **McCart Twp., Ont.**

Claim Holder(s) **Placer Dome Inc.** Prospector's Licence No. **T-837**

Address **P.O. Box 350, IBM Tower, TD Centre, Toronto, Ont.**

Survey Company **Geosearch Consultants Limited** Date of Survey (from & to) **03 Day | 12 Mo. | 88 Yr. | 29 Day | 12 Mo. | 88 Yr.** Total Miles of line Cut **19.95 km**

Name and Address of Author (of Geo-Technical report) **Louis Racic, 360-111 Queen St. E., Toronto, Ont., M5C 1S2**

Credits Requested per Each Claim in Columns at right

Mining Claims Traversed (List in numerical sequence)

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

Mining Claim		Expend. Days Cr.	Mining Claim		Expend. Days Cr.
Prefix	Number		Prefix	Number	
P	1008696				
	1008697				
	1008698				
	1008699				
	1008700				
	1038154				
	1038155				
	1038156				
	1038157				
	1038158				
	1038159				

RECEIVED
MAR 15 1989
MINING LANDS SECTION

RECEIVED
JAN 26 1989

R
JAN 26 1989
1038159

Expenditures (excludes power stripping)

Type of Work Performed **ONTARIO GEOLOGICAL SURVEY ASSESSMENT FILES OFFICE**

Performed on Claim(s) **MAR 17 1989**

Calculation of Expenditure Days Credits

Total Expenditures \$ **16**

Total Days Credits **16**

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.

Date **Jan 24/89** Recorded Holder or Agent (Signature) *[Signature]*

For Office Use Only

Total Days Cr. Recorded **880** Date Recorded **JAN. 26/89** Mining Recorder *[Signature]*

Date Approved as Recorded **March 16/89** Branch Director *[Signature]*

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



**TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.**

Type of Survey(s) VLF-EM, HLEM, & Magnetic
 Township or Area McCart Twp., Ont.
 Claim Holder(s) Placer Dome Inc.
 Survey Company Geosearch Consultants Ltd.
 Author of Report Louis Racic
 Address of Author 360-111 Queen St.E., Toronto, Ont.
 Covering Dates of Survey 03/12/88 - 29/12/88
 (linecutting to office)
 Total Miles of Line Cut 19.95 kilometers

MINING CLAIMS TRAVERSED
List numerically

P 1008696 to
(prefix) (number)
P 1008700
P 1038154 to
P 1038159

<u>SPECIAL PROVISIONS CREDITS REQUESTED</u>	<u>DAYS per claim</u>
ENTER 40 days (includes line cutting) for first survey.	40
ENTER 20 days for each additional survey using same grid.	20
Geophysical	
-Electromagnetic	40
-Magnetometer	20
-Radiometric	
-Other VLF-EM	20
Geological	
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer _____ Electromagnetic _____ Radiometric _____
(enter days per claim)

DATE: 29/12/88 SIGNATURE: *Louis Racic*
Author of Report or Agent

Res. Geol. _____ Qualifications 28017

Previous Surveys

File No.	Type	Date	Claim Holder

TOTAL CLAIMS 11

If space insufficient, attach list

OFFICE USE ONLY

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations 845 Number of Readings MAG 1644 VLF 1644 HLEM 767
Station interval 25 m (12.5 m) Line spacing 100m
Profile scale 1 cm = 20%
Contour interval 20 gammas

MAGNETIC

Instrument Gem Systems GSM-18 Memory Magnetometer
Accuracy - Scale constant 0.1 gamma
Diurnal correction method Base station recorder with reading repeated
Base Station check-in interval (hours) at 3 second intervals
Base Station location and value

ELECTROMAGNETIC

Instrument Apex Max Min II VLF Geonics EM-16
Coil configuration Co-planar
Coil separation 150 m
Accuracy 1%
Method: VLF [X] Fixed transmitter [] Shoot back [X] In line [] Parallel line
Frequency HLEM 1777 Hz, 444 Hz VLF NAA CUTLER 24.0 kHz
Parameters measured In phase and quadrature response of the secondary vertical field.

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

GEOPHYSICAL TECHNICAL DATA

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

Number of Stations <u>845</u>	Number of Readings <u>MAG 1644 VLF 1644 HLEM 767</u>
Station interval <u>25 m (12.5 m)</u>	Line spacing <u>100m</u>
Profile scale <u>1 cm = 20%</u>	
Contour interval <u>20 gammas</u>	

MAGNETIC

Instrument Gem Systems GSM-18 Memory Magnetometer

Accuracy – Scale constant 0.1 gamma

Diurnal correction method Base station recorder with reading repeated

Base Station check-in interval (hours) at 3 second intervals

Base Station location and value _____

ELECTROMAGNETIC

Instrument Apex Max Min II VLF Geonics EM-16

Coil configuration Co-planar

Coil separation 150 m

Accuracy 1%

Method: VLF Fixed transmitter Shoot back In line Parallel line

Frequency HLEM 1777 Hz, 444 Hz VLF NAA CUTLER 24.0 kHz

Parameters measured In phase and quadrature response of the secondary vertical field.
(specify V.L.F. station)

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 _____

ON LINES SHOWN HEREON
GIVE THE BEST INFORMATION
AS TO TRUE POSITION IS NOT

FOR SURVEY PURPOSES CONSULT
FIELD PLANS AND FIELD
NOTES IN THE DEPARTMENT OF
LANDS, TORONTO.

IN RESPECT OF PATENTED
DISTANCE WITH AREA

OWNERS FROM DISPOSITION

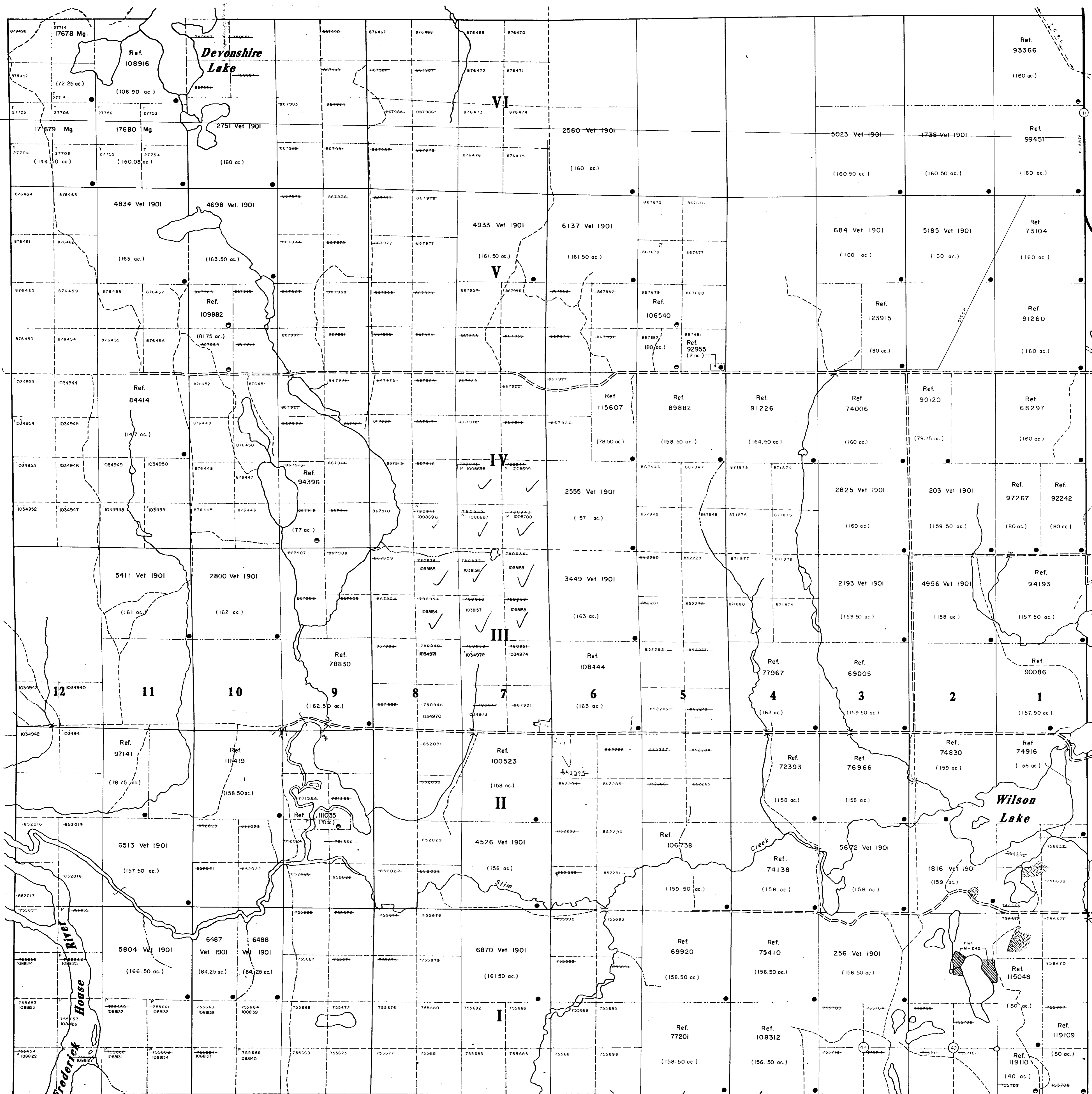
MINING RIGHTS ONLY
SURFACE RIGHTS ONLY
LOT AND SURFACE RIGHTS

No.	Date	Disposition	File
1	14/12/70	S.R.M.R.	36666

1/84

LITTLE
OF
TOWNSHIP

CALVERT
OF
TOWNSHIP



TOPOGRAPHY
LAKES, RIVERS, ETC., FROM FOREST RESOURCES
INVENTORY SHEETS NO 486804 AND 487804

SURVEYS
TOWNSHIP OF McCART SUBDIVIDED BY A. D.
GRIFFIN, O.L.S., 1904. FIELD NOTE BOOK 1401
WEST LIMIT OF McCART TOWNSHIP (SEE
LITTLE TWP) SURVEY BY J.W. FITZGERALD,
O.L.S., 1904. FIELD NOTE BOOK 1402.
EAST LIMIT OF McCART TOWNSHIP (SEE
CALVERT TWP) SURVEY BY ALEXANDER BAIN,
O.L.S., 1904. FIELD NOTE BOOK 1009.
THIRD MERIDIAN (EAST LIMIT OF McCART TWP)
BY WILLIAM GALBRAITH, O.L.S., 1904. FIELD
NOTE BOOK 2363.
BASE LINE (SOUTH LIMIT OF McCART TWP)
BY T.J. PATTEN, O.L.S., 1903. FIELD NOTE BOOK 1401.

LEGEND

HIGHWAY AND ROUTE No.	
OTHER ROADS	
TRAILS	
SURVEYED LINES:	
TOWNSHIPS, BASE LINES, ETC.	
LOTS, MINING CLAIMS, PARCELS, ETC.	
UNSURVEYED LINES:	
LOT LINES	
PARCEL BOUNDARY	
MINING CLAIMS ETC.	
RAILWAY AND RIGHT OF WAY	
UTILITY LINES	
NON-PERMANENT STREAM	
FLOODING OR FLOODING RIGHTS	
SUBDIVISION OR COMPOSITE PLAN	
RESERVATIONS	
ORIGINAL SHORELINE	
MARSH OR MUSKIEG	
MINES	
TRAVERSE MONUMENT	

DISPOSITION OF CROWN LANDS

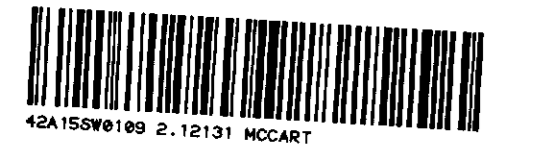
TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	
" SURFACE RIGHTS ONLY	
" MINING RIGHTS ONLY	
LEASE, SURFACE & MINING RIGHTS	
" SURFACE RIGHTS ONLY	
" MINING RIGHTS ONLY	
LICENSE OF OCCUPATION	
ORDER-IN-COUNCIL	
RESERVATION	
CANCELLED	
SAND & GRAVEL	

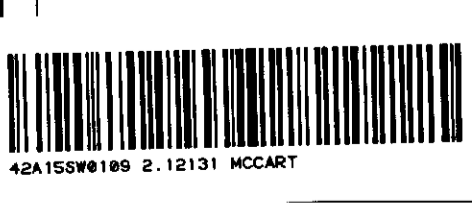
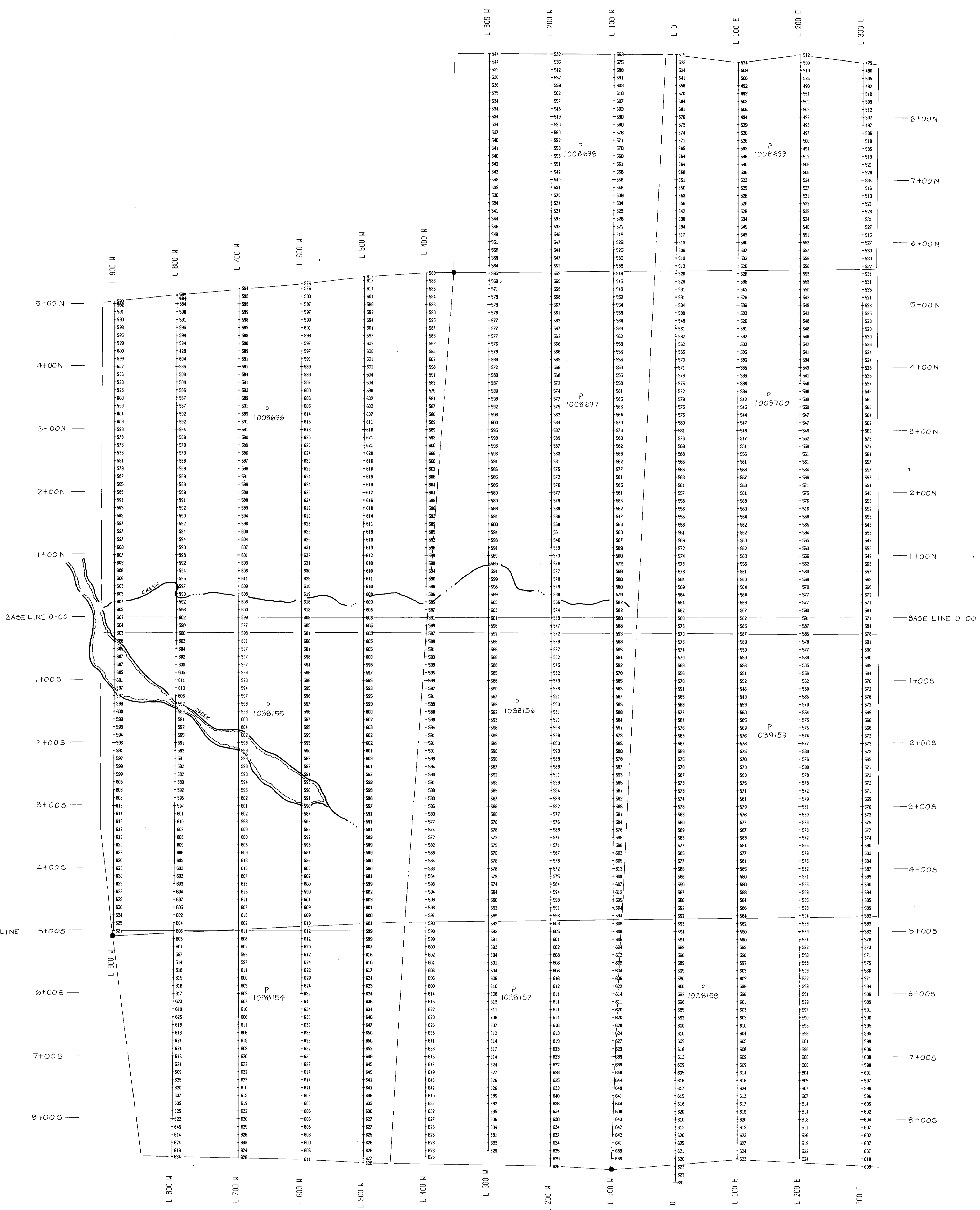
NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6
1912, VESTED IN ORIGINAL PATENTEES BY THE PUBLIC
LANDS ACT, R.S.O. 1910, CHAP. 340, SEC. 61 & 62.

SCALE: 1 INCH = 20 CHAINS
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METRES 0 200 400 600 800 1000 1200

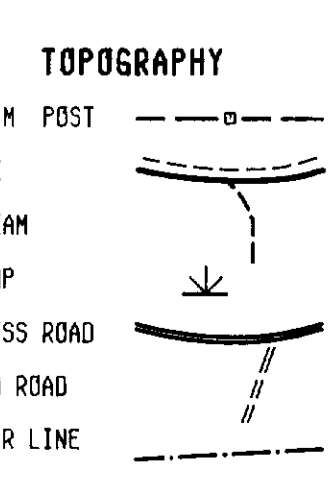
TOWNSHIP
Mc CART
M.N.R. ADMINISTRATIVE DIVISION
COCHRANE
MINING DIVISION
PORCUPINE
LAND TITLES / REGISTRY DIVISION
COCHRANE

Ministry of Natural Resources
Ministry of Northern Development and Mines
Ontario





210



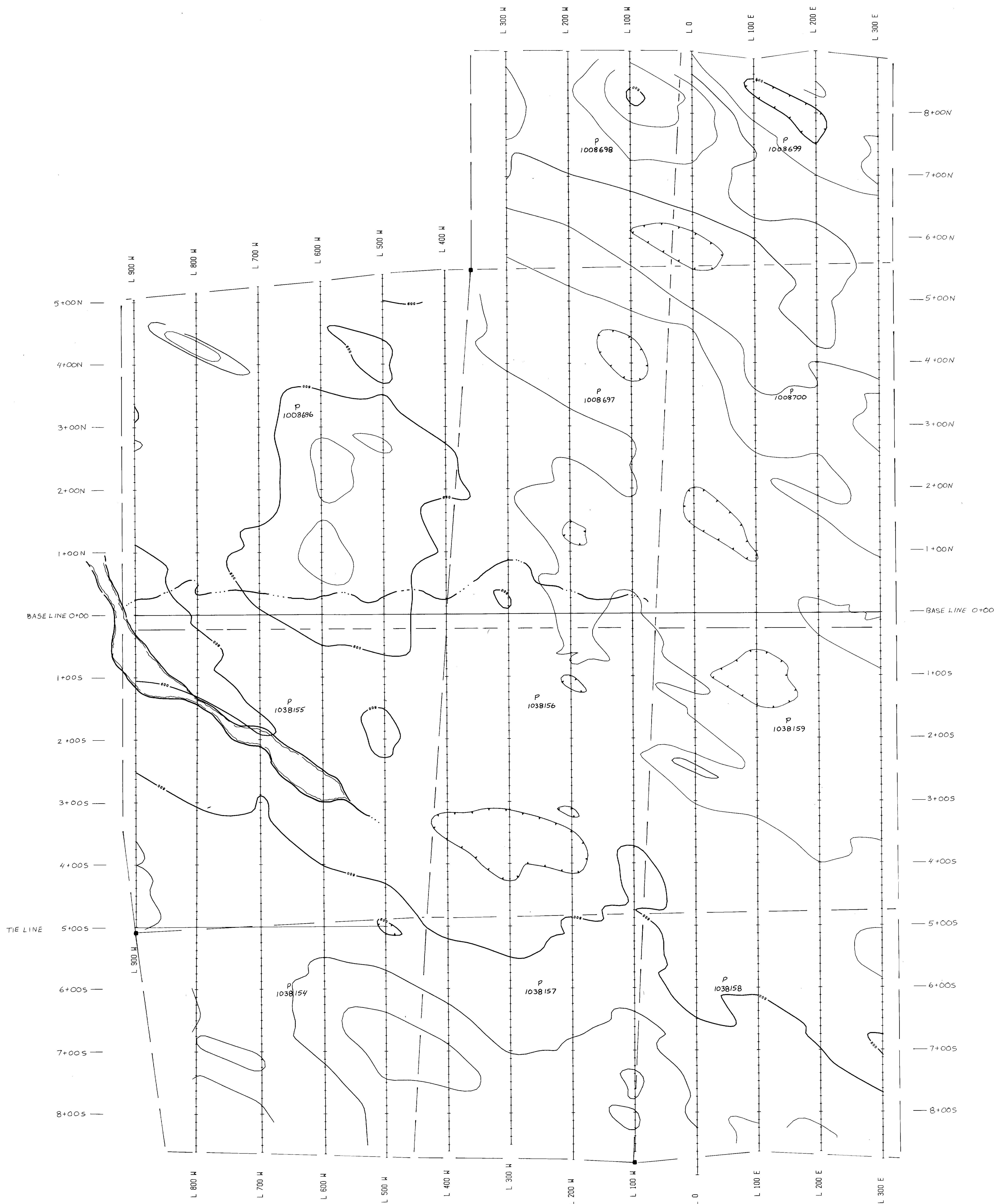
BASE LEVEL 58,000 FT REMOVED
 INSTRUMENT : GEN SYSTEMS GSN-18

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 50 (METERS) 100 150 200

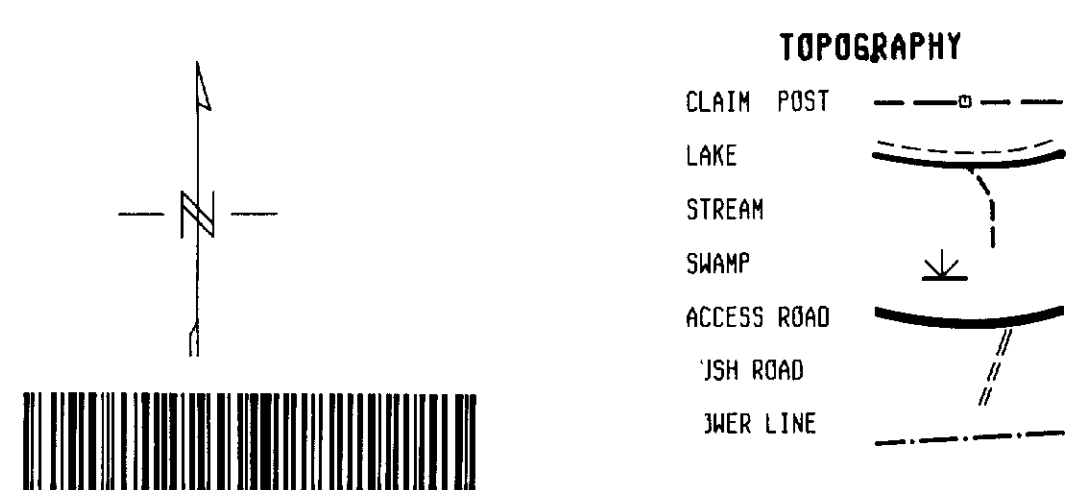
2.12131

TOTAL FIELD MAGNETIC SURVEY
 by
 GEOSearch CONSULTANTS LIMITED
 for
 PLACER DOME INC.
PROJECT 356
MCCART TWP., ONT.

DATE : DEC. 1988 NTS : 42 A/10.15
 DRAWN : J.A.R. 88-251



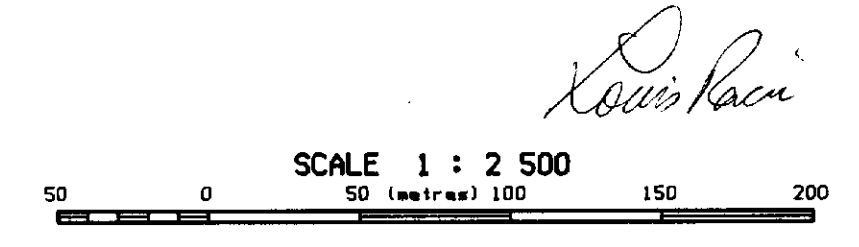
2.12131



TOTAL FIELD CONTOURS

- 20
- 100
- 500

BASE LEVEL 58,000 mT REMOVED
INSTRUMENT: GEM SYSTEMS 65M-18

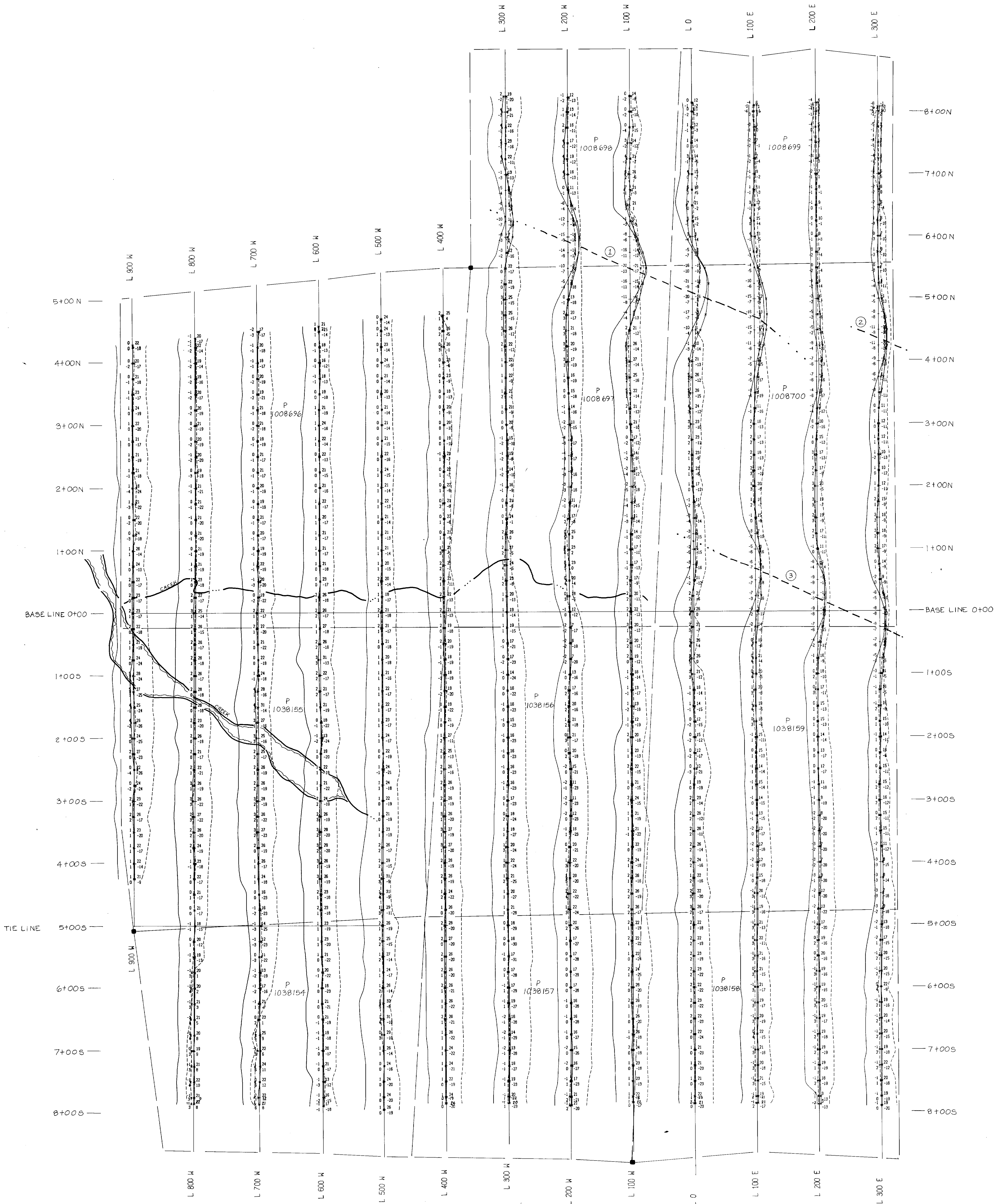


TOTAL FIELD MAGNETIC CONTOURS
by
GEOSEARCH CONSULTANTS LIMITED
for
PLACER DOME INC.
PROJECT 356
McCART TWP., ONT.

DATE: DEC. 1988
DRAWN: J.A.R.

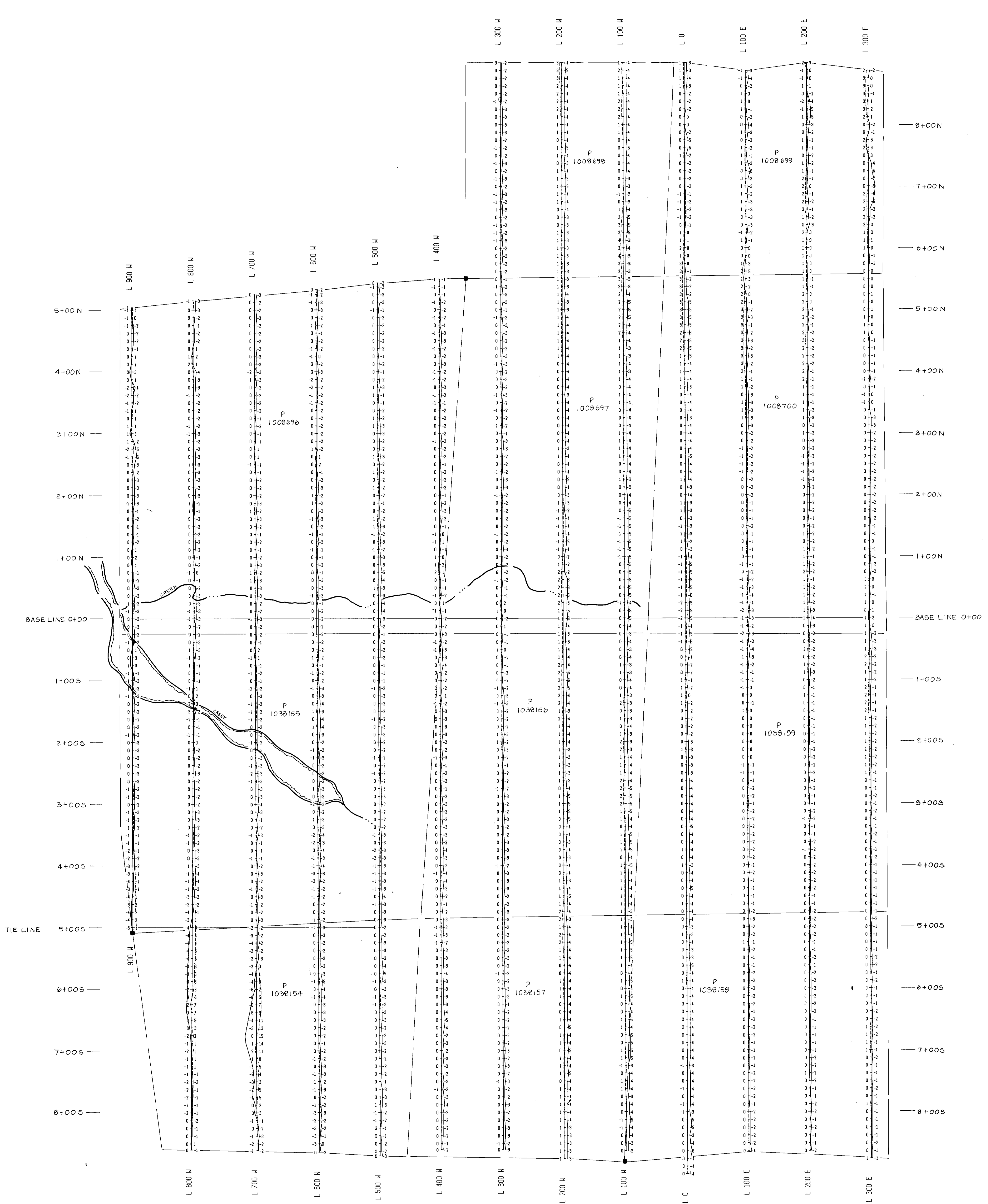
NTS : 42 A/10.15
88-253



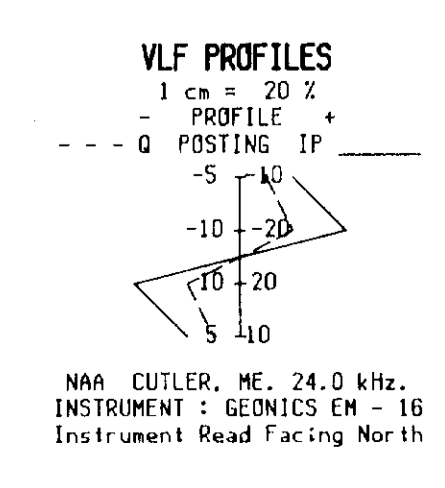
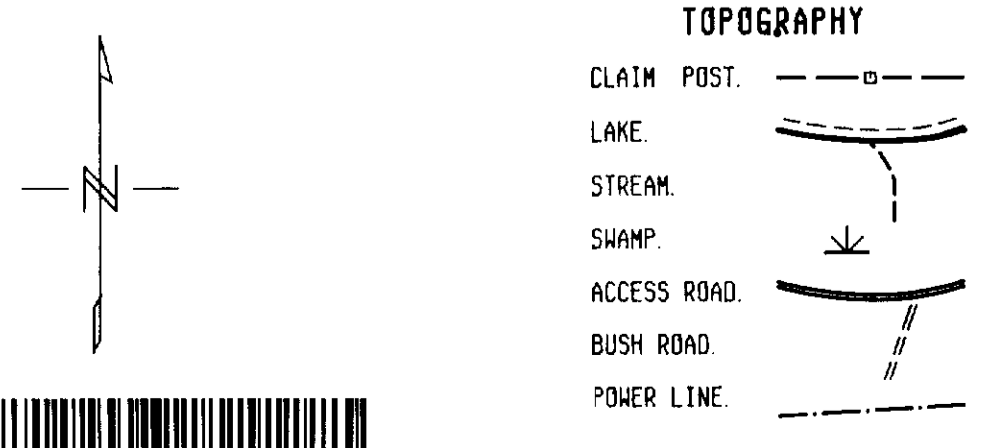


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<p>TOPOGRAPHY</p> <ul style="list-style-type: none"> CLAIM POST LAKE STREAM SWAMP ACCESS ROAD USH ROAD CHER LINE 	<p>HLEM INTERPRETATION LEGEND</p> <ul style="list-style-type: none"> BEDROCK CONDUCTORS STRONG WEAK INDEFINITE CONDUCTIVE ZONE STRONG WEAK 	<p>MAX-MIN HLEM LEGEND</p> <p>1 km. = 20.2 FREQUENCIES 44 1377 Hz IN PHASE QUADRATURE COIL SEPARATION 100.0 M. POSTING L-1P H-1P L-0 H-0</p>	<p>HORIZONTAL LOOP ELECTROMAGNETIC SURVEY by GEOSEARCH CONSULTANTS LIMITED for PLACER DOME INC. PROJECT 356 McCART TWP., ONT.</p> <p>SCALE 1 : 2 500</p> <p>DATE : DEC. 1988 NTS : 42 A/10.15 DRAWN : J.A.R. 88-250.</p>
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SCALE 1 : 2 500
 0 50 100 150 200

V.L.F. ELECTROMAGNETIC SURVEY
 by
 GEOSearch CONSULTANTS LIMITED
 for
 PLACER DOME INC.
PROJECT 356
 McCART TWP., ONT.
 DATE: DEC. 1988 NTS : 52 A/10.15
 DRAWN: J.A.R. 88-252

