



REPORT ON THE CONDUCT OF AN AIRBORNE  
GEOPHYSICAL SURVEY IN THE DISTRICT OF COCHRANE

During the period May 2, 3, 4, 1964, Hunting Survey Corporation carried out flying operations on a combined magnetometer and electromagnetometer survey over parts of the townships of Shaw, Carman, Eldorado, Langmuir and Douglas.

The work was carried out under contract to Mespil Mines Limited.

The location of the area surveyed is shown on a map accompanying this report.

Two data men were stationed in Timmins to give preliminary information to the client.

Final plotting and preparation of maps were carried out in Hunting's Toronto office.

FLYING SPECIFICATIONS

Flying was carried out by a Beechcraft 18 with a crew of four, i.e. pilot, instrument operator, electronic technician and aircraft engineer.

The technician and engineer did not accompany the aircraft on all survey flights.

Traverses were flown in a N.W./S.E. direction at an average spacing of 660 feet.

Terrain clearance was maintained between 450 and 500 feet, where safety would permit.

Eighty-two traverses were flown over the area, for a total of 432.5 linear miles.

INSTRUMENTATION

The following instruments were operated during the survey:

1. Gulf magnetometer.
2. Hunting Survey Corporation - Canadian Applied Research Limited dual frequency electromagnetometer measuring the phase displacement of the resultant field with respect to applied field; for frequencies of 400 and 2,300 cycles per second.
3. Modified APN-1 radio altimeter.
4. C.A.R.L.-H.S.C. 35 mm discrete frame positioning camera.
5. A four channel curvilinear recorder, showing from top to bottom:
  - (1) Altimeter record and camera fiducial pulses.
  - (2) Magnetometer profile showing variations in the strength of the earth's magnetic field, sensitivity 100 gammas per centimeter across a four centimeter channel.
  - (3) Phase angle of the resultant field with respect to a 2,300 cycle applied field, sensitivity 2° per centimeter across a four centimeter channel.
  - (4) Phase angle of the resultant field with respect to a 400 cycle applied field, sensitivity 1° per centimeter across a four centimeter channel.

6. A two pen rectilinear recorder with a five inch recording width, showing:

- (1) In red ink the terrain clearance record and camera fiducial pulses.
- (2) In black ink the variations in strength of the earth's magnetic field, sensitivity 100 gammas per inch.

NOTE: A pulse was shown on the altimeter record, co-incident with every tenth exposure of the 35mm camera.

This served to relate the records to the terrain over which they were made.

The magnetometer and E.M. detectors were located in separate "birds" towed behind and below the aircraft.

#### MAPS AND DATA COMPILATION

Navigation mosaics were prepared on a scale of 1 inch to 2,640 feet utilizing "Overthrust" mosaics available to the contractor.

For preparation of base maps, uncontrolled mosaics were made on a scale of 1 inch to 1,320 feet, utilizing photographs obtained from the Department of Lands and Forests (Year 1961 photography).

Flight path was established by visual comparison of the 35mm film with the above mentioned mosaics.

Base maps were traced from these mosaics also, showing recognizable planimetric features.

Township boundaries shown on the base maps were positioned by reference to Ontario Department of Mines claim maps.

A map was compiled showing:

- (a) flight traverses and
- (b) magnetic contours referred to an arbitrary datum.

Contour interval was 20 gammas.

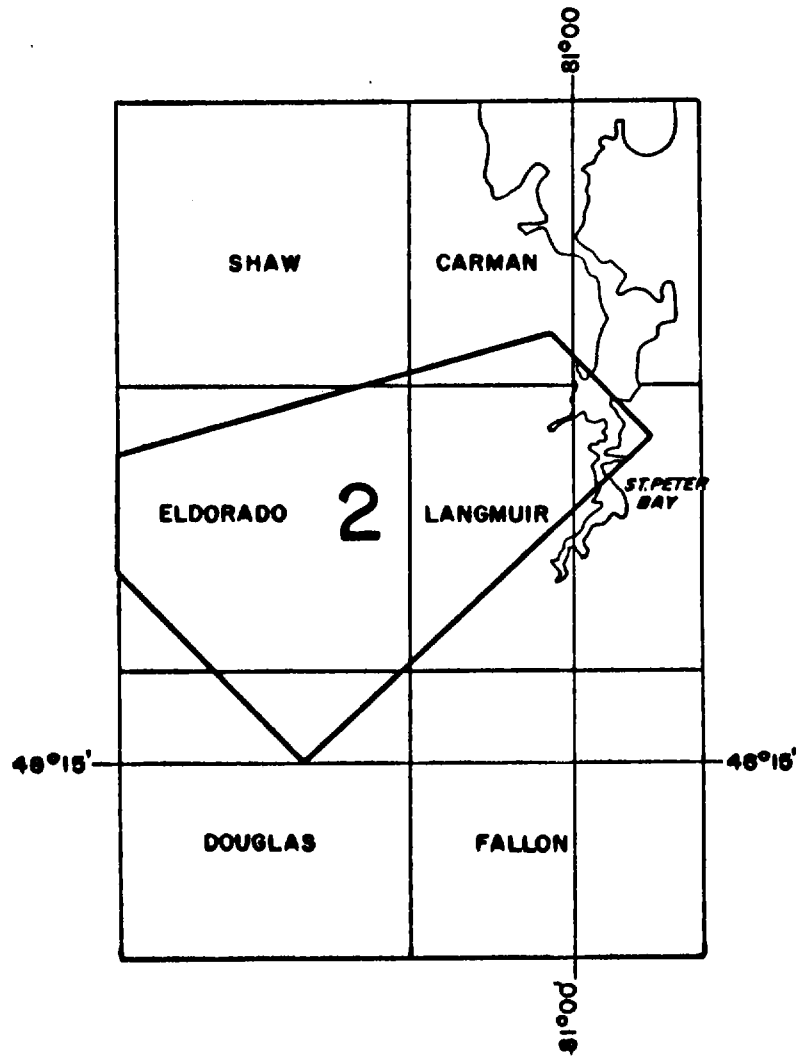
A second map was prepared showing:

- (a) flight traverses.
- (b) extent and location of the peak of the observed low frequency anomalies.
- (c) extent of residual low frequency anomalies.
- (d) the phase angle of observed high and low frequency anomalies read at peak values.
- (e) the phase angle of residual high and low frequency anomalies read at peak values.
- (f) value and location of magnetic peaks and lows, referred to on arbitrary datum.



R. N. Parkinson P. Eng.

HUNTING SURVEY CORPORATION LIMITED



SCALE : 1 Inch to 4 Miles



42A06NE0273 63.1400 CARMAN

020

## INTRODUCTION

During the period from January 27, 1966 to March 2, 1966 a magnetic and electromagnetic survey was conducted by Mespri Mines Limited on a group of 12 contiguous claims in Carman and Langmuir Townships, Porcupine Mining Division.

## LOCATION AND ACCESS

The 12 claims are located in the south west part of Carman township and the northeast part of Langmuir township, Porcupine Mining Division and are numbered as follows:

P. 76033, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44.

The property is located approximately fourteen miles southeast of the Town of Timmins.

Access to the group was by way of gravel road into southeast Shaw Township and by Bombadier Tractor along an abandoned power line.

## PREVIOUS WORK

Geological mapping was carried out in the area by M.E. Hurst, L.G. Berry, E.J. Leahy and R. Wares for the Ontario Department of Mines. The results of the geological mapping are published as Map No. 47a, M.E. Hurst, 1939; Map No. 49 L, L.G. Berry, 1942; preliminary map No. P. 356, E.J. Leahy and R. Wares, 1966.

The area has also been covered by an airborne magnetic survey which has been published as G.S.C. Aeromagnetic Maps 293 G, 294 G.

In 1951 the Dominion Gulf Company carried out detailed ground magnetic and geological surveys over a portion of the claim group.

## GEOLOGY

The rocks of the area are all of Precambrian age and consist of meta-sedimentary and meta-volcanic rocks which have been intruded by basic and ultrabasic rocks, acidic intrusives and two ages of diabase dikes.

The ultrabasic rocks on the property are largely serpentinized, locally green, flexible, short fibre asbestos development is common.

## INSTRUMENTS USED AND SURVEY METHOD

A baseline was established N70 E and lines were cut at 400 foot intervals.

The electromagnetic survey was done with a Grone dual frequency transceiver unit (1800 - 480 c.p.s.). The in-line method was employed and the coils were maintained 300 feet apart.

Subsequently lines were cut at 100 foot intervals and the additional lines were read again employing the in-line method with a 200 foot coil separation on odd numbered lines.

The dip angles shown on the plan are resultant dip angles and are plotted at the mid-point between the coils.

A Sharpe Fluxgate MF-1 magnetometer was used for the magnetic survey.

## SURVEY RESULTS

The magnetic and electromagnetic surveys indicated two highly conductive zones which were also strongly magnetic.

It was decided that because of the extremely complex geology of the area and the complex magnetic and electromagnetic results that three drill holes would be put down to cross-section

the anomalous zones before any extensive geophysical interpretation was attempted.

Diamond drilling based on the survey results showed that the magnetic and electromagnetic anomalies were due to an intricate "lacing" of magnetite through a highly serpentinized peridotite and meta-andesite.

#### RECOMMENDATIONS


The magnetic and electromagnetic data have been adequately explained by diamond drilling and no further drilling is recommended at this time.

It is recommended that soil sampling be carried out over the area using a two hundred foot grid pattern and that the soils be analysed for copper and nickel.

Subsequent work should be based on the results of the soils analysis.

Respectfully submitted,

MESPI MINES LIMITED

  
J.E. Steers  
Exploration Manager

JES/jf



Report on Electromagnetic Survey  
for Acme Gas & Oil Co.. Limited.  
in Douglas Township, Por  
Ontario



42A06NE0273 63.1400 CARMAN

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Background:

This survey covered an area of rhyolite-andesite contact that was considered favourable for deposition of base metal ore-bodies. Forty-two of Acme's seventy-nine claims (in two blocks) were covered by the survey (list attached). In all 52 miles of survey were completed - 31 on Acme ground.

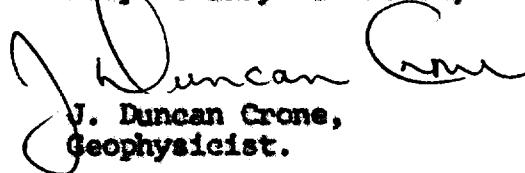
Survey Instrument Used:

A Crone Dual frequency E.M. unit was used with the in-line method. Coil separation was 300' with all readings taken on the high (1800 cps) frequency. The resultant dip angles are plotted at the mid-point between the two men. Since this was a reconnaissance survey the E.M. crew consisted of 3 men. A limited amount of vertical loop detail work was carried out using the same instrument.

Results of Survey:

The only conductor detected by the survey was on Line 76N, 3 + 00 N. Detail using the fixed transmitter vertical loop method failed to verify this conductor. However, this vertical loop work was carried out with a short (100') transmitter to receiver separation and thus lacked sufficient penetration. This conductor is small in extent and probably is covered with 40 to 60 feet of overburden. No drilling is recommended.

Respectfully submitted,

  
J. Duncan Crone,  
Geophysicist.

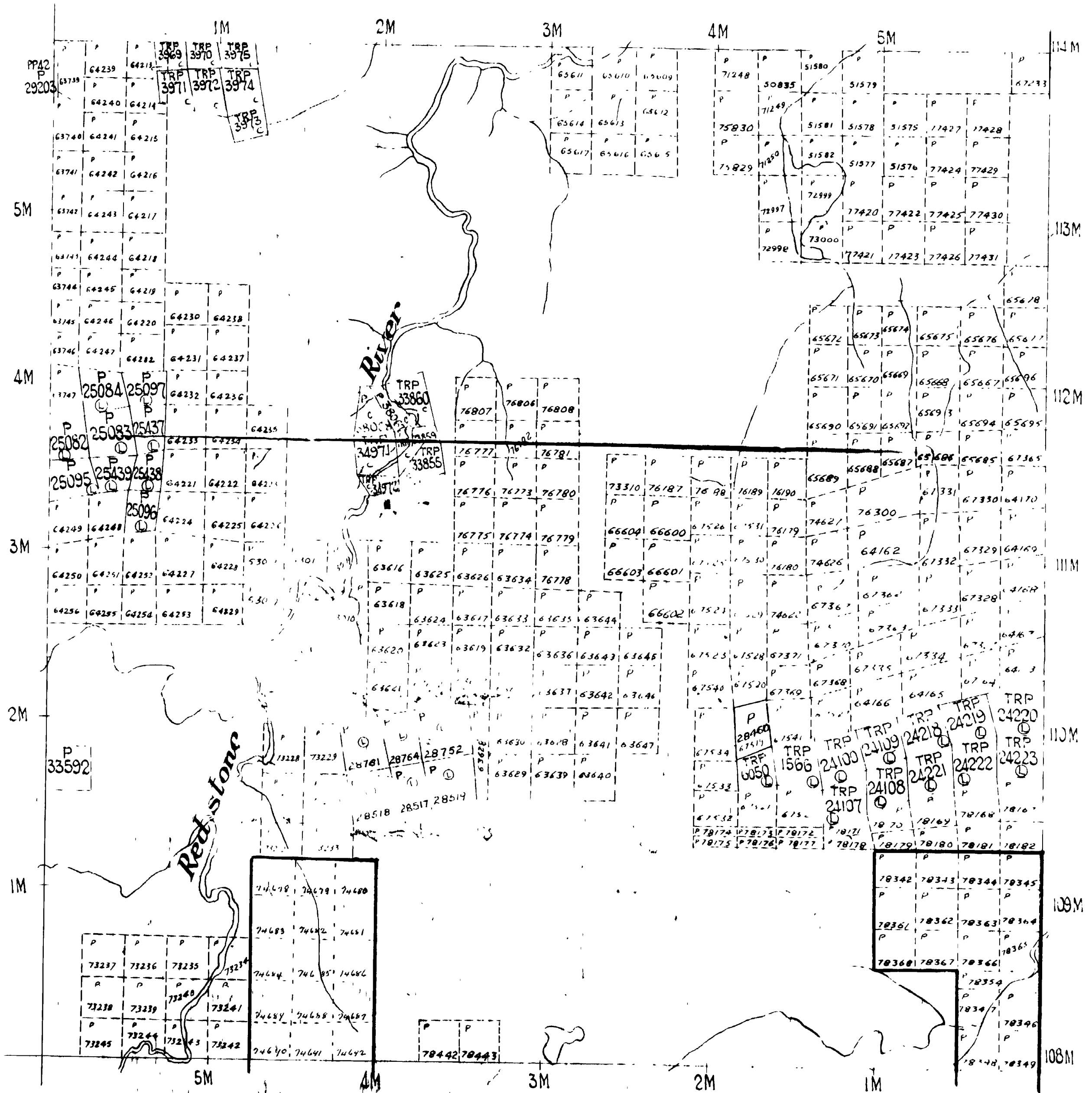
Toronto, Ontario,  
January 4th, 1966.

# ELDORADO

PORCUPINE MINING DIVISION  
 TIMAGAMI PROVINCIAL FOREST  
 DISTRICT OF TIMISKAMING  
 Scale - 10 Chains - 1 Inch.

North East

## SHAW



ADAMS

LANGMUIR

400' Surface rights reservation around all lakes & rivers.

### LEGEND

- CANCELLED LAND
  - PATENTED LAND
  - CROWN LAND SALE
  - LEASES
  - LOCATED LAND
  - LICENSE OF OCCUPATION
  - MINING RIGHTS ONLY
  - SURFACE RIGHTS ONLY
- ⊙
  - CS
  - ⊕
  - LOC
  - LO
  - MRO
  - SRO



42A08NE0273 63.1488 CARMAN

200

THE TOWNSHIP  
OF

# DOUGLAS

DISTRICT OF  
TIMISKAMING

PORCUPINE  
MINING DIVISION

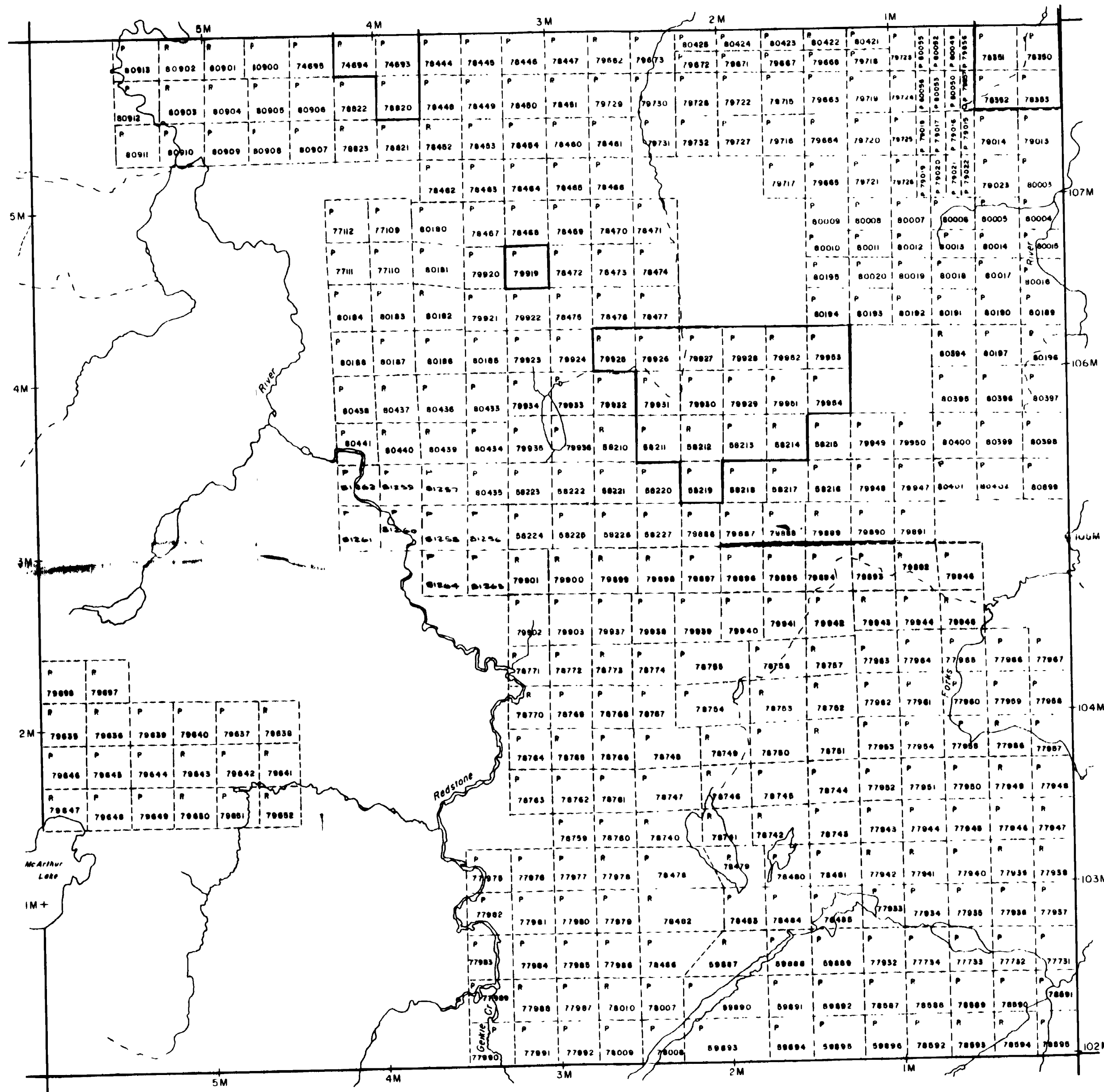
SCALE: 1-INCH 40 CHAINS

Eldorado Twp - M.276

McArthur Twp - M.298

Fallon Twp - M.278

Geikie Twp - M.320



### LEGEND

- PATENTED LAND P
- CROWN LAND SALE C.S.
- LEASES L.O.
- LOCATED LAND L.O.C.
- LICENSE OF OCCUPATION M.R.O.
- MINING RIGHTS ONLY S.R.O.
- SURFACE RIGHTS ONLY
- ROADS
- IMPROVED ROADS
- KING'S HIGHWAYS
- RAILWAYS
- POWER LINES
- MARSH OR MUSKEG
- MINES
- CANCELLED

### NOTES

400' Surface Rights Reservation around  
all lakes and rivers

PLAN NO. **M.274**

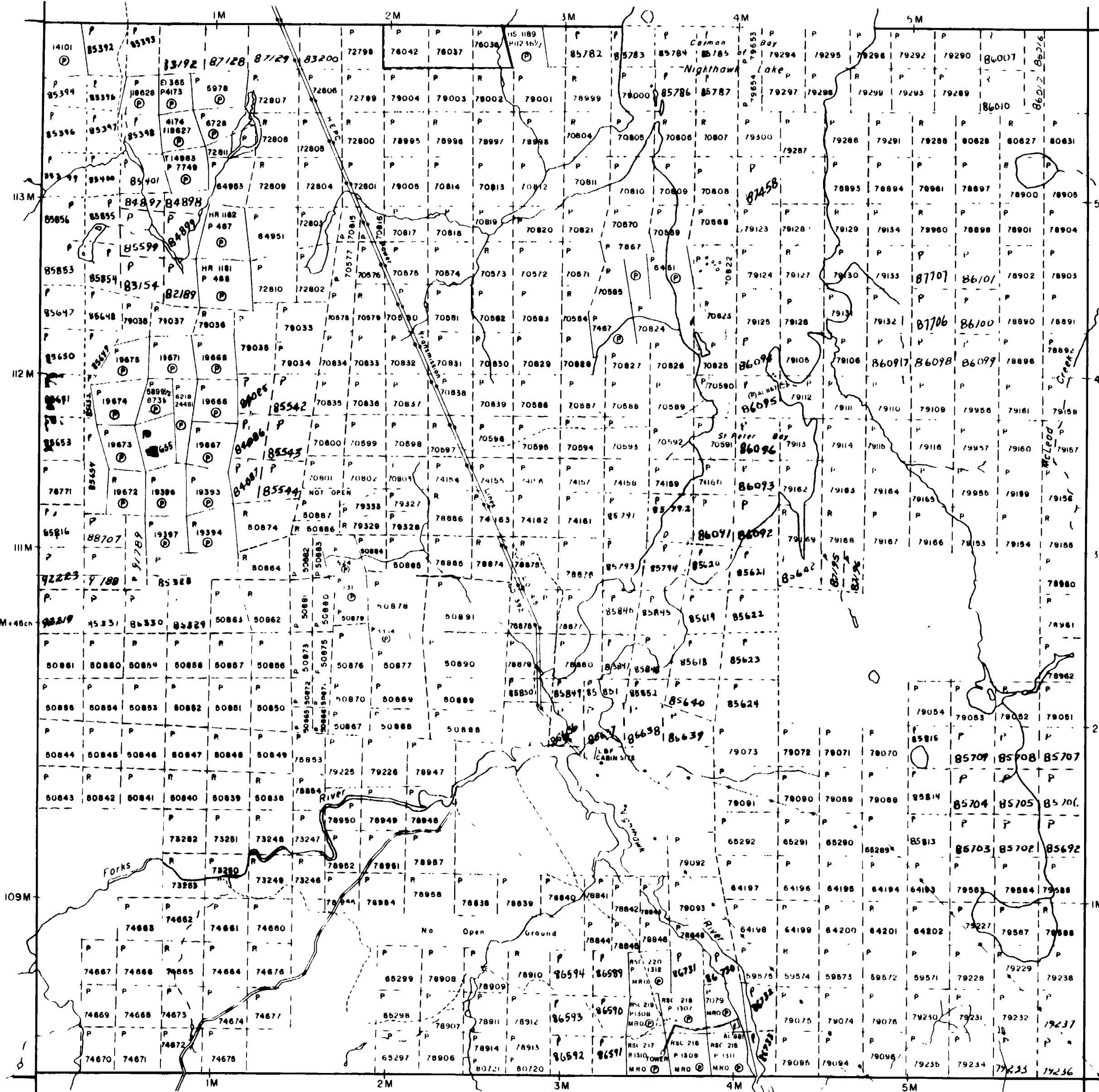
DEPARTMENT OF MINES

- ONTARIO -



42A86NE0273 63 1400 CARMAN

Carman Twp. - M.266



Fallon Twp. - M.278

THE TOWNSHIP OF

LANGMUIR

DISTRICT OF TIMISKAMING

PORCUPINE MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

- PATENTED LAND C.
- CROWN LAND SALE C.S.
- LEASES L.
- LOCATED LAND Loc.
- LICENSE OF OCCUPATION L.O.
- MINING RIGHTS ONLY M.R.O.
- SURFACE RIGHTS ONLY S.R.O.
- ROADS R.
- IMPROVED ROADS R.
- KING'S HIGHWAYS R.
- RAILWAYS R.
- POWER LINES R.
- MARSH OR MUSKOG R.
- MINES R.
- CANCELLED C.

NOTES

400' Surface Rights Reservation around all lakes and rivers

Flooding rights on Nighthawk Lake to the contour elevation 903.5' reserved to H.E.P.C.

DATE OF ISSUE

SEP 19 1900

ONTARIO DEPT. OF MINES

ONT. DEPT. OF MINES  
 MINING LANDS BR  
 THIS MAP FOR CHECKING  
 PURPOSES ONLY - MUST  
 NOT BE SOLD

PLAN NO. M.292

DEPARTMENT OF MINES

- ONTARIO -

S.S.M

ELDERADO TWP. - M.276

S.S.M

S.S.M

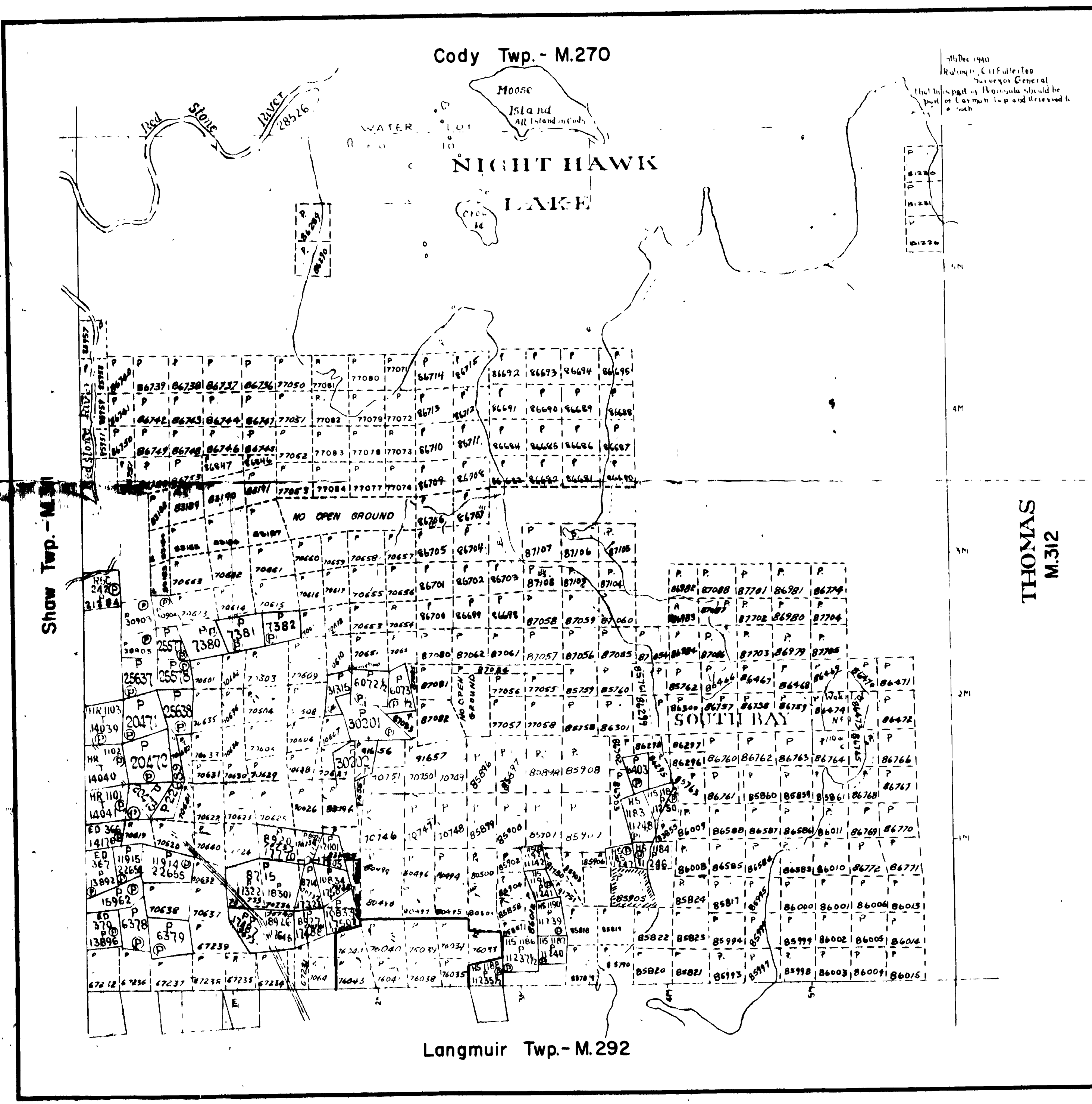
LANGMUIR TWP. - M.263

S.S.M



W50E

W50E



THE TOWNSHIP OF

# CARMAN

DISTRICT OF COCHRANE

PORCUPINE MINING DIVISION

SCALE 1 INCH = 40 CHAINS

### LEGEND

- PATENTED LAND Ⓟ
- CROWN LAND SALE CS
- LEASES (L)
- LOCATED LAND Loc
- LICENSE OF OCCUPATION LO
- MINING RIGHTS ONLY MR
- SURFACE RIGHTS ONLY SRO
- ROADS —
- IMPROVED ROADS =
- KING'S HIGHWAYS =
- RAILWAYS =
- POWER LINES =
- MARSH OR MUSKEG =
- MINES X
- CANCELLED C

### NOTES

400' Surface Rights Reservation around all lakes and rivers.

Reserve Flooding Rights to the Ontario Hydro-Electric Power Commission to Elevation 903.5' T.B.N.O. Railway Datum on Night Hawk Lake.

ONT. DEPT. OF MINES  
MINING LANDS BR  
THIS MAP FOR CHECKING  
PURPOSES ONLY - MUST  
NOT BE SOLD

PLAN NO **M.266**

DEPARTMENT OF MINES

— ONTARIO —

Show Twp. - M.312

THOMAS M.312

CARMAN TWP

CARMAN TWP

W50E

W50E



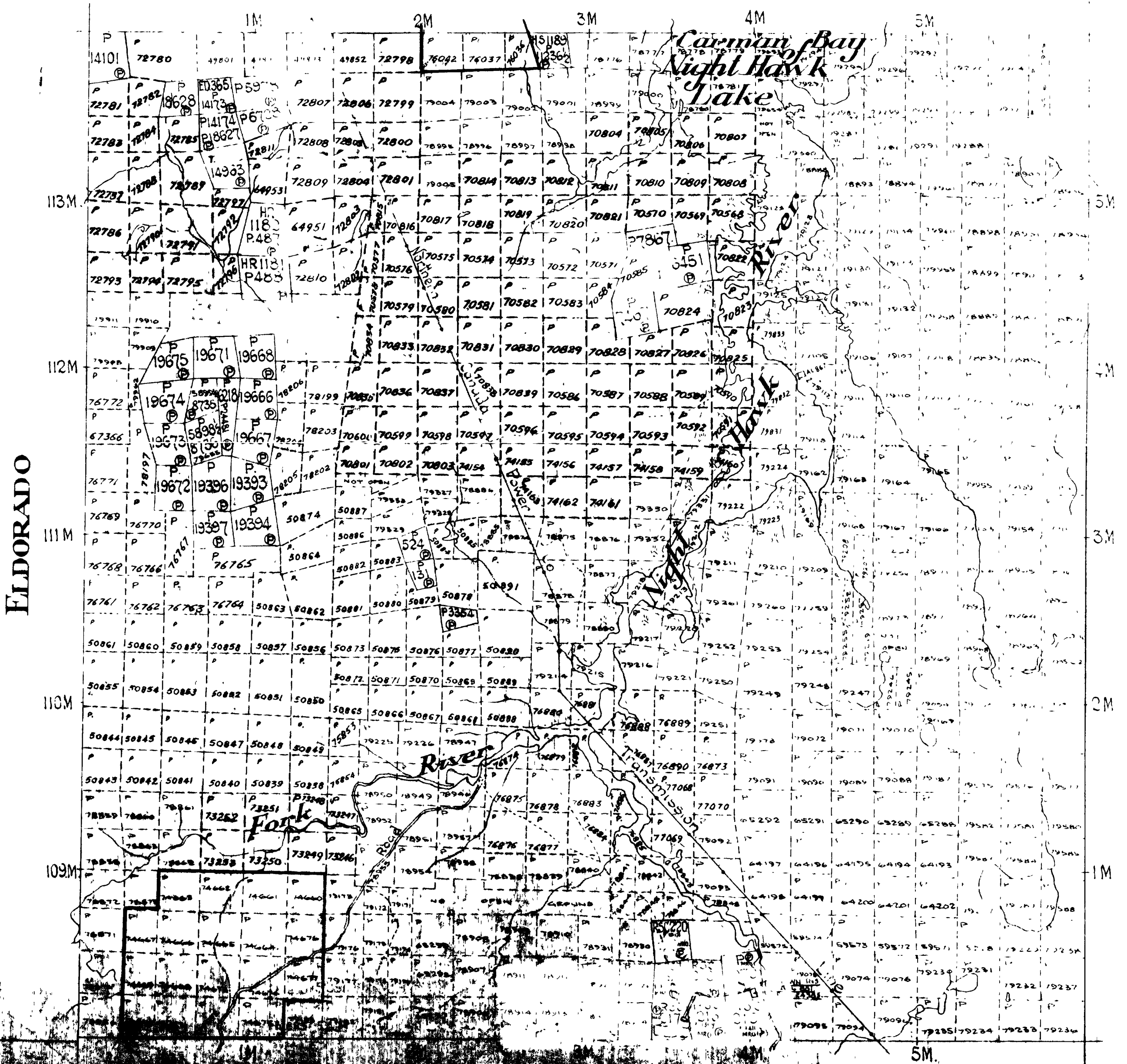


# LANGMUIR

PORCUPINE MINING DIVISION  
DISTRICT OF TIMISKAMING

Scale - 40 Chains = 1 inch

## CARMAN

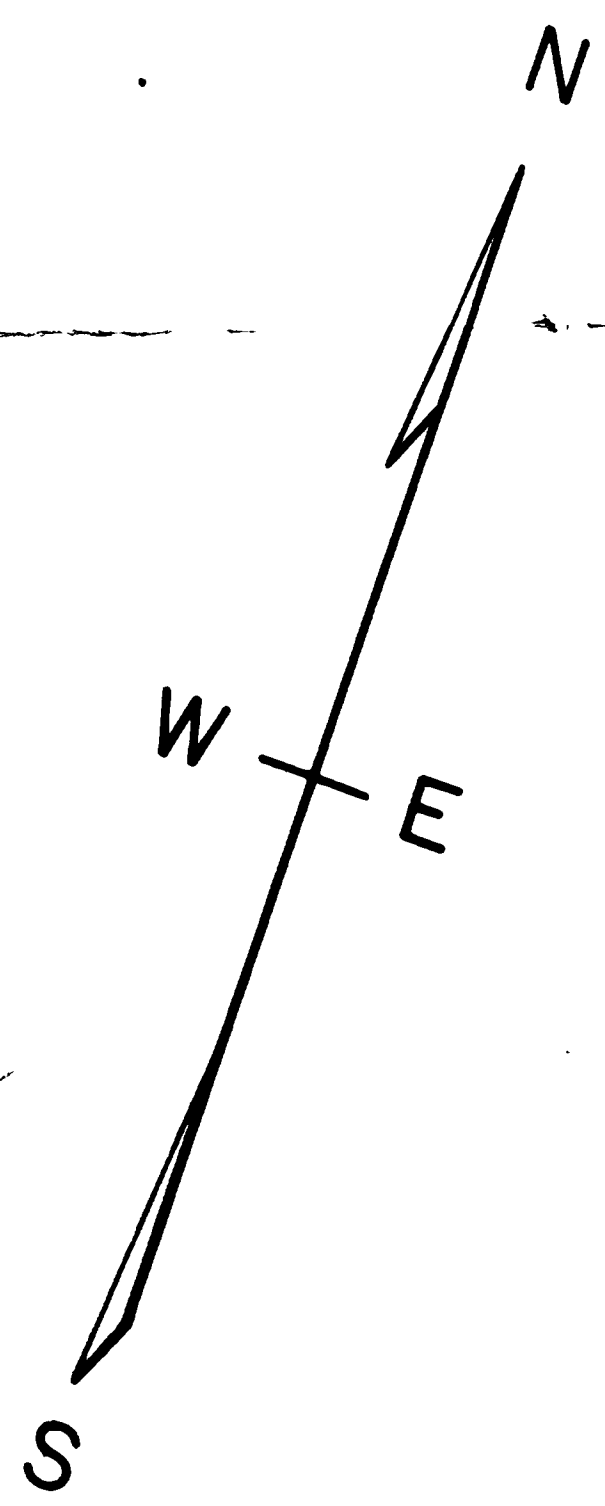


ELDORADO

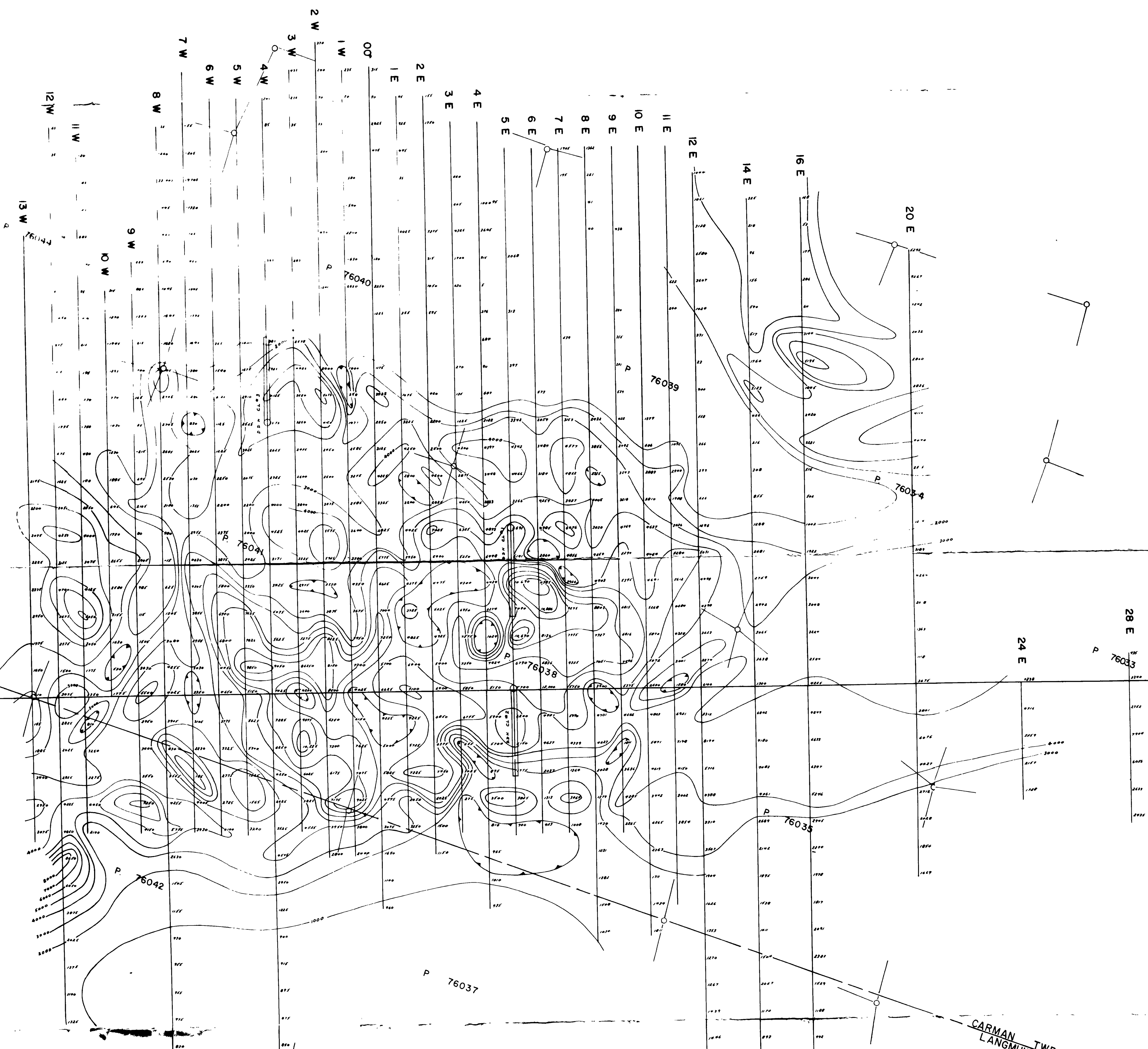
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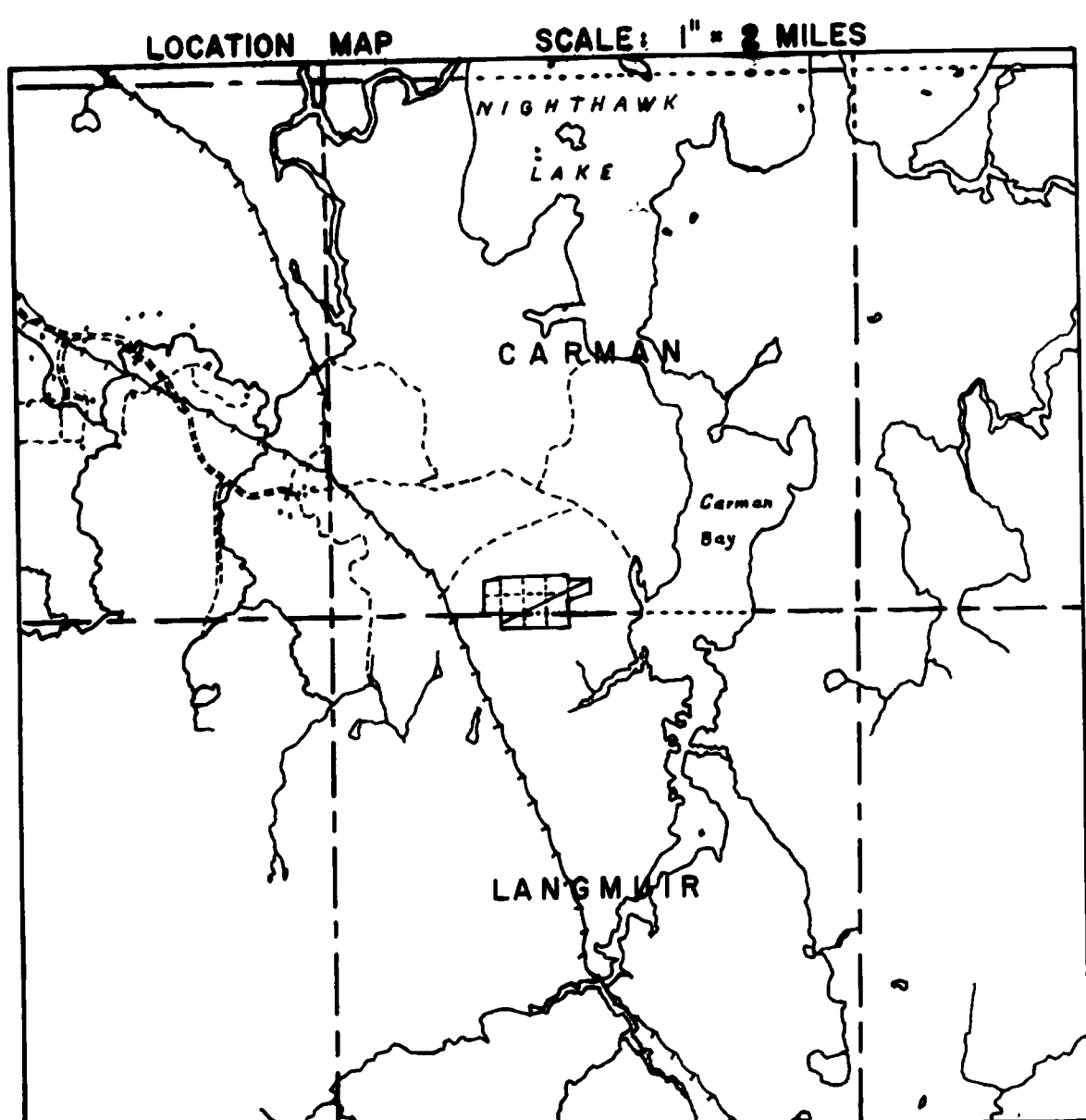
42A96NE0273 63 1488 CARMAN



0+00 BASE LINE



CARMAN TWP  
LANGMUIR TWP



MESPI MINES LTD.  
CARMAN TWP  
MAGNETOMETER SURVEY  
INSTRUMENT: FLUXGATE MF-1  
MAP SCALE: 1"=200'

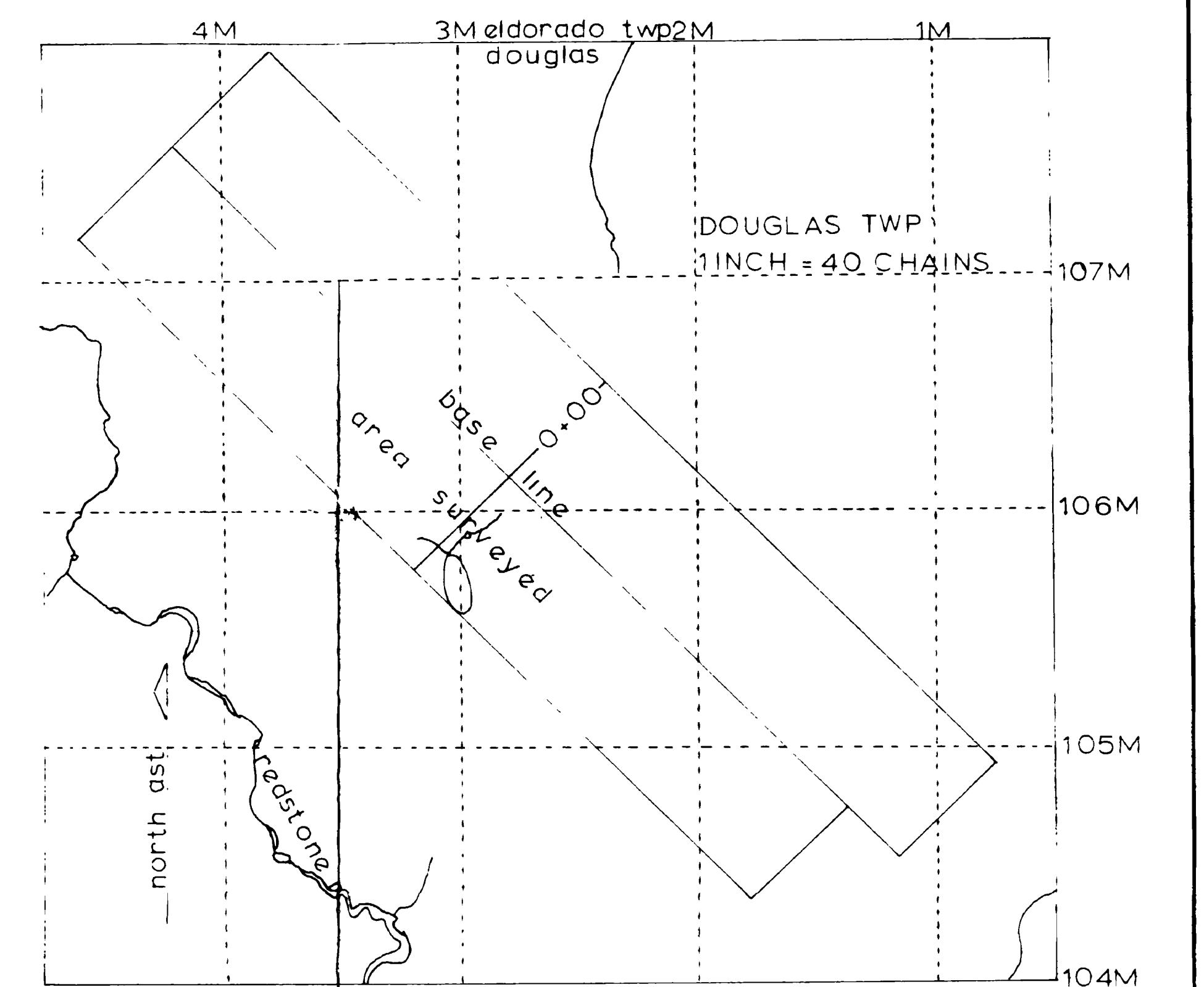
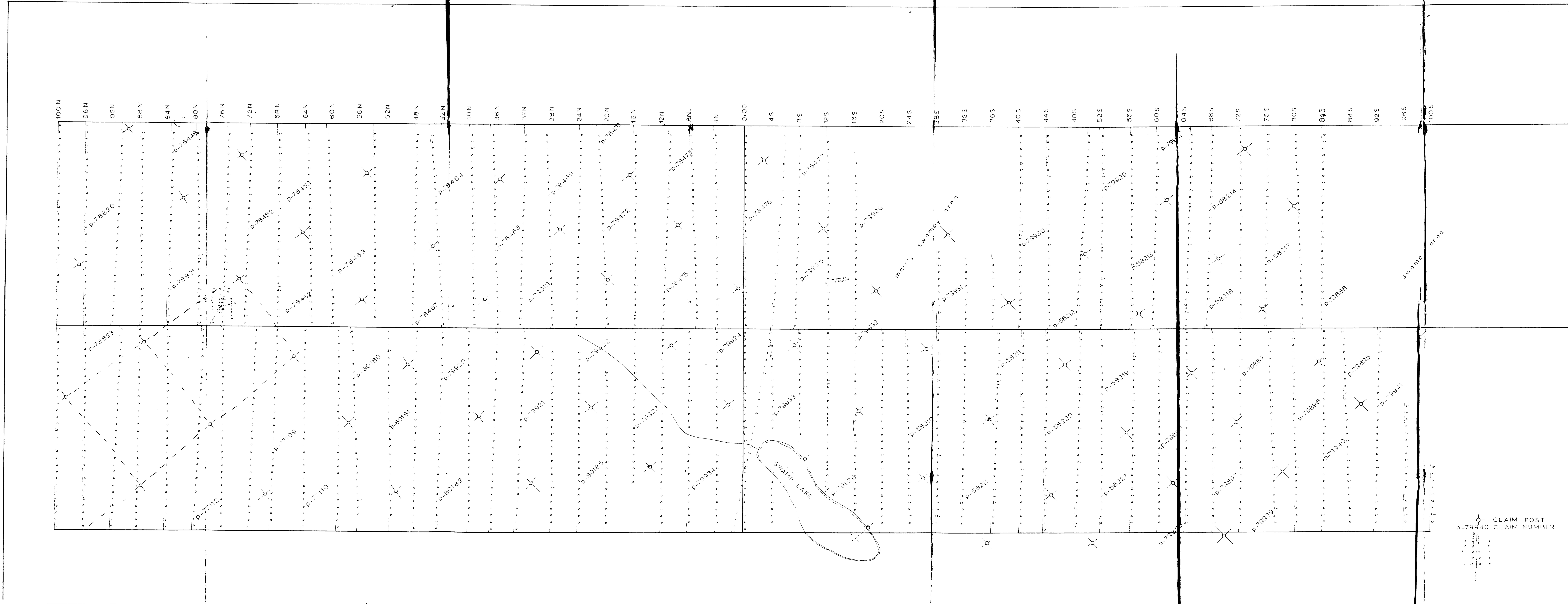
CONTOURS  
1000 - Gamma Intervals.

area, with no readings, north of B.L.  
was resurveyed with instrument off scale

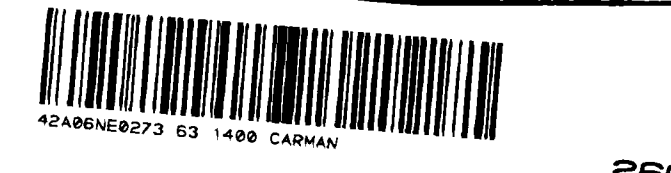
Drawn by: *T.C. Dorman*  
Approved by: *J. J. Lewis*

Date: FEB. 25 to MARCH 2/66.

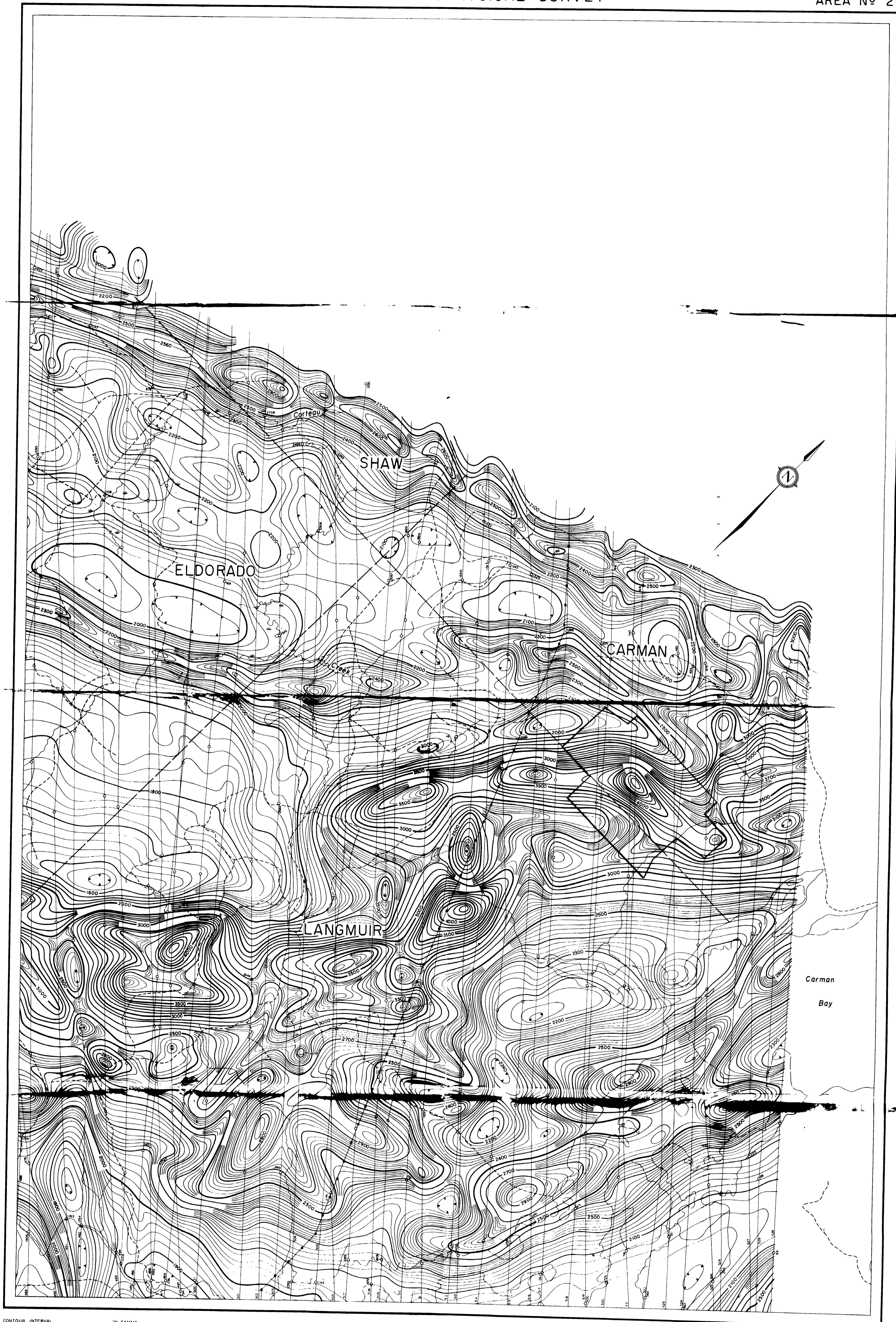




ACME GAS & OIL CO. LTD.  
 ELECTRO-MAGNETIC SURVEY  
 DOUGLAS TOWNSHIP  
 PORCUPINE MINING DIVISION  
 TIMMINS AREA ONTARIO  
 CRONE J.E.M. COILS 300' APART  
 READINGS: HIGH FREQUENCY  
 SCALE 1 INCH = 400 FEET  
 O.D.M. 63.1400







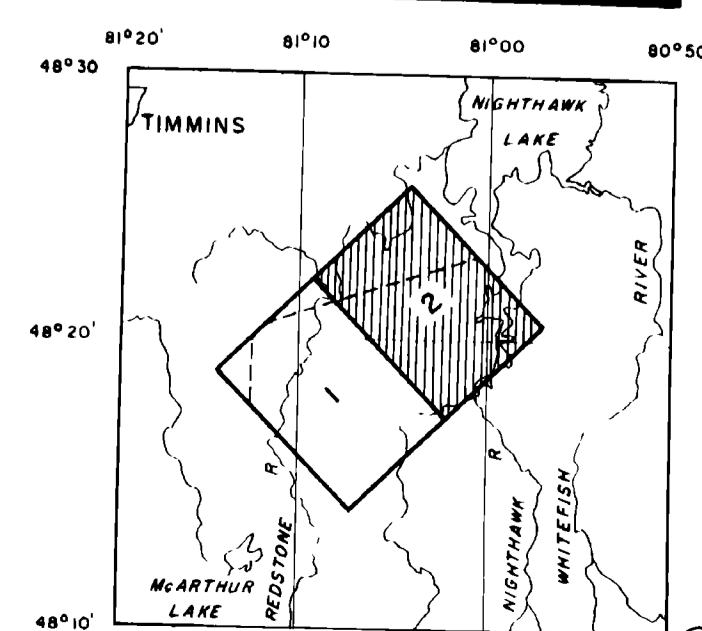
CONTOUR INTERVAL ..... 20 GAMMA  
 MEAN FLIGHT LINE SPACING ..... 660 FEET  
 MEAN TERRAIN CLEARANCE ..... 450 FEET  
 500 GAMMA CONTOUR .....  
 100 GAMMA CONTOUR .....  
 20 GAMMA CONTOUR .....  
 MAGNETIC LOW .....  
 FIDUCIAL POINTS ..... 36900  
 FLIGHT LINES .....

TIMMINS AREA, ONTARIO  
 MAGNETONETRIC MAP

SCALE  
 1000 0 1000 2000 3000 4000 5000  
 FEET  
 1 Inch to 1320 Feet

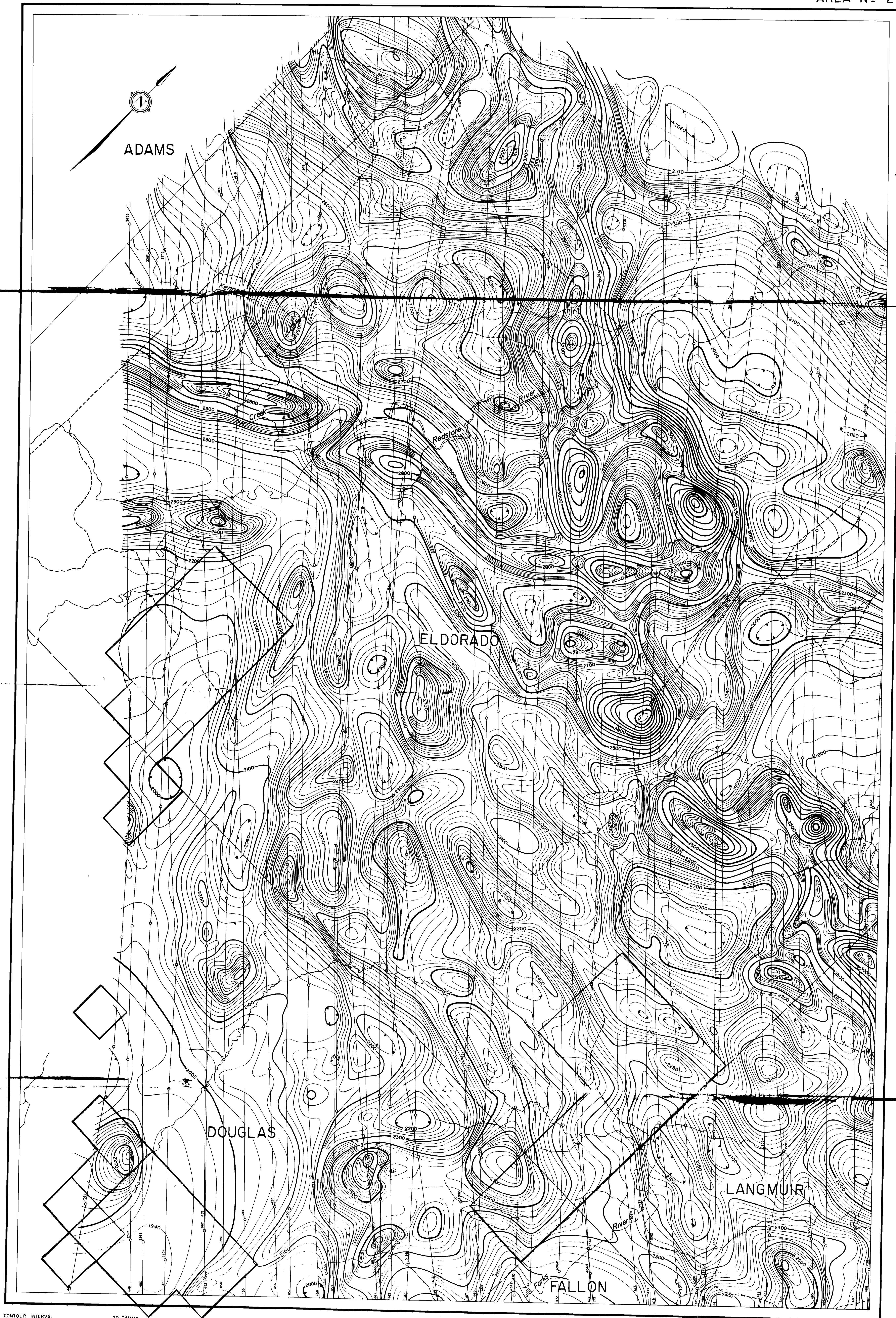
Flown and Compiled by  
 HUNTING SURVEY CORPORATION LIMITED  
 TORONTO, CANADA

964



*Robinson  
 Sept. 9, 1964*





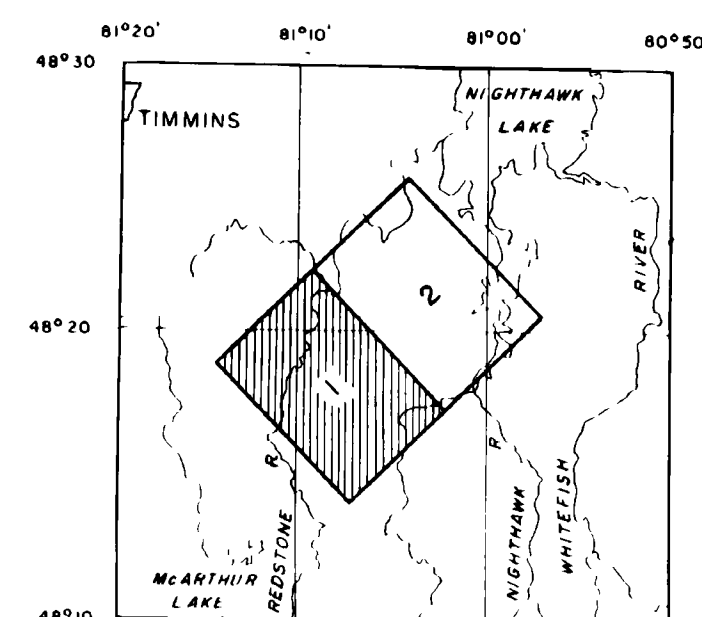
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 MEAN TERRAIN CLEARANCE . . . . . 450 FEET  
 500 GAMMA CONTOUR  
 100 GAMMA CONTOUR  
 20 GAMMA CONTOUR  
 MAGNETIC LOW  
 FIDUCIAL POINTS  
 FLIGHT LINES

TIMMINS AREA, ONTARIO  
MAGNETOMETRIC MAP

SCALE  
 1000 0 1000 2000 3000 4000 5000  
 FEET  
 1 Inch to 1320 Feet

Flown and compiled by  
 HUNTING SURVEY CORPORATION LIMITED  
 TORONTO, CANADA

1964



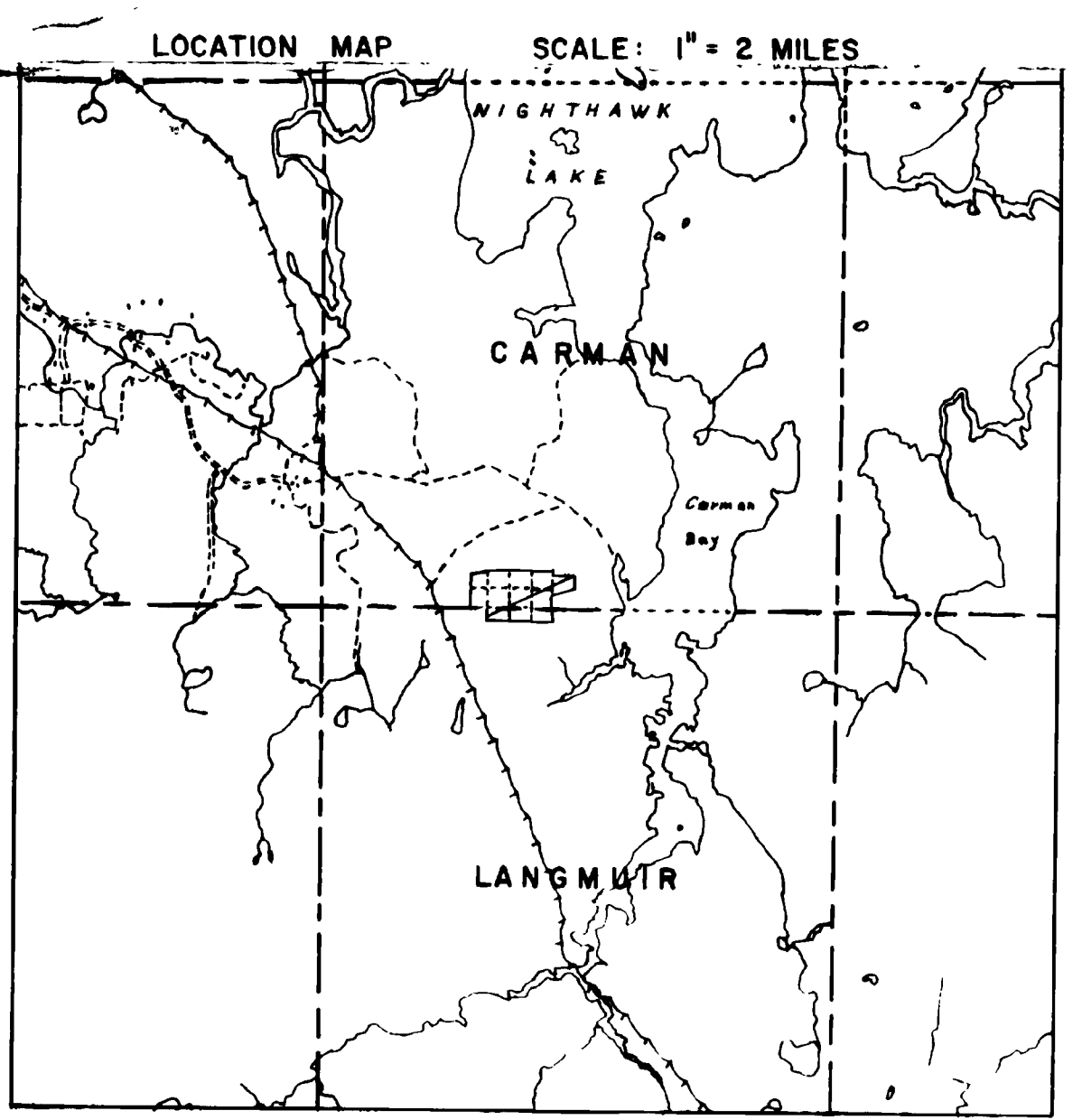
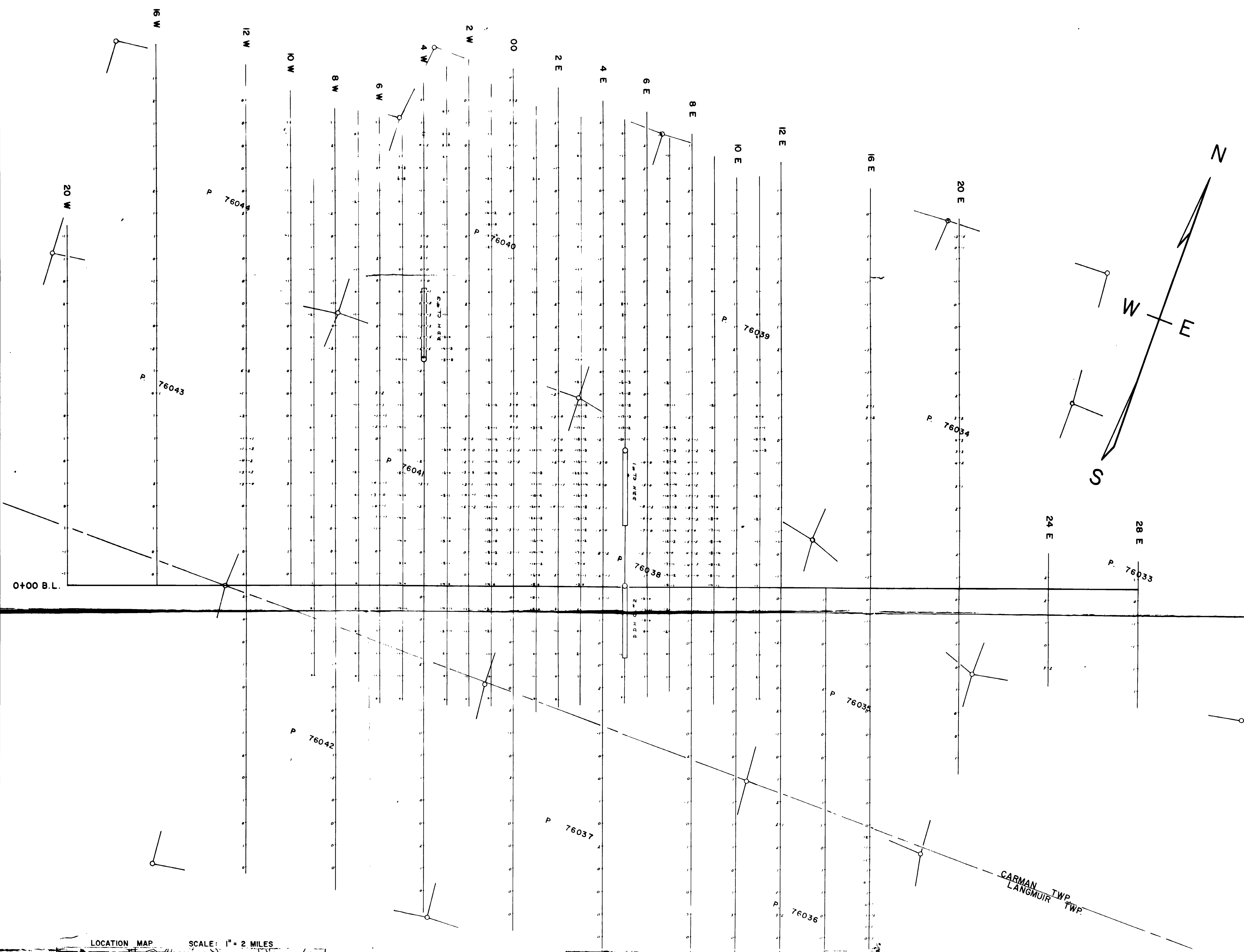
280

631400

SHEET NO 1

*Handwritten signature and date: 6.3.14.00*





MESPI MINES LTD.  
 ELECTRO-MAGNETIC SURVEY  
 CARMAN TWP  
 INSTRUMENT: CRONE J.E.M  
 DUAL FREQUENCY: IN-LINE METHOD  
 MAP SCALE: 1"=200'

LEGEND  
 RESULTANT DIP AT 1800 C.P.S  
 " " " 480 C.P.S.  
 O.D.M. 63-1400

