



42A06SE0113 63.2044 ELDORADO

REPORT
AIRBORNE MAGNETOMETER SURVEY
OF THE
ELDORADO TOWNSHIP AREA OF ONTARIO
FOR
MR. P.W. LANG.

1. INTRODUCTION

A combined airborne EM and magnetic survey has been flown by Canadian Aero Mineral Surveys Limited on behalf of B.W. Lang over a block of ground in the Timmins Area of Ontario. The flying was completed by February 10, 1966. The block covers most of Eldorado Township and small portions of Deloro, Adams, Langmuir and Fallon Townships.

This report pertains to the magnetometer phase of the programme.

11. SURVEY AND COMPILATION DETAILS

The survey was flown by the Canadian Aero Mineral Surveys Limited geophysically equipped Otter aircraft, registration CF-1GN, based at Timmins. Flight lines were oriented approximately N32°E (astr.) and were spaced at 1/8-mile intervals. Geophysical data acquired totalled 300 line miles. The mean terrain clearance of the aircraft was approximately 150 feet.

Canadian Aero Mineral Surveys Limited personnel associated with the project were as follows:

- | | | |
|------------|---|-------------------------------|
| A. Curtis | - | Project Manager |
| G. Deluce | - | Pilot |
| R. Irvine | - | Aircraft Maintenance Engineer |
| T. Peacock | - | Electronic Technician |
| D. Sprazin | - | Navigator |

G. Granger	-	Data Compiler and Draftsman
P. Tallyhoe	-	Data Chief
W. Schuurq	-	Geophysicist

The project was supervised by A. R. Rattew, P.Eng., co-author of this report.

The magnetometer used in this survey was the Elliott electron-tube instrument. The measuring head, installed in the tail section of the Otter, utilizes National Union Electron Beam tubes. Deflection of a beam of electrons by the magnetic field produces a differential current which flows between two cathode plates in the tube. This current is amplified and the resultant voltage is proportional to the magnetic field. Two such tubes orient a third tube by means of servo-mechanisms into the direction of the earth's total field. Total field is then cancelled electronically and variations in the total field are measured and recorded.

Four settings are available providing full scale measurements of 500, 1000, 2500, and 5000 gammas. The useable short-term sensitivity is approximately 5 gammas and the total dynamic range of the instrument is 50,000 gammas.

The magnetic profile is displayed in rectilinear form on an 8-inch Texas Instruments Rectilinear Recorder.

The flight path of the aircraft is recorded by an Aeropath AS-5 continuous strip, 35 mm. camera. The camera is synchronized with the magnetometer record by means of a fiducial numbering system. Path recovery is accomplished by relating this strip film to an airphoto composite of the area. Identified points are designated by their fiducial numbers.

An overlay of the airphoto mosaic showing the recovered fiducial points, provides the base for the isomagnetic contour map. After a line-to-line comparison of the levels of the magnetic record to reduce all the profiles to the same base level, the profiles are transcribed from the tapes to the plan map. These data are then contoured at 50-gamma intervals and drafted. The isomagnetic contours of the El Dorado Township Area are presented on a map at the scale of 1" = 1/4 mile.

III. GEOLOGY

The Ontario Department of Mines has published the following maps in this area:

Preliminary Geological Map No. P141, Timmins Sheet, 1962
Scale: 1" = 2 miles.

Map No. 47d, Keefer-ElDorado Area, Ontario Department of Mines Annual Report, 1938, Vol. XLVII, Part 4,
Scale: 1" = 1 mile.

Map No. 49h, Langmuir-Sheraton Area, Ontario Department of Mines Annual Report 1940, Vol. XLIX, Part 4,
Scale: 1" = 1 mile.

The survey area covers a broad belt of Keewatin basic to intermediate volcanic rocks. This belt is flanked to the northeast and to the southwest by large granitic intrusives. The strike of the volcanics appears to follow more or less closely the inferred outline of the acidic intrusives.

Apart from various small intrusives of varying composition which have been mapped within the volcanics, a diabase dyke can be traced continuously from the southeastern corner of Adams Township to the northeast corner of Eldorado Township. Scattered outcrops of olivine diabase to the northwest of this dyke suggest the presence of a second dyke parallel to this one. A third diabase dyke is mapped southeast of the first one. In the south-central part of Eldorado Township some outcrops occur of acid volcanics and in the southern part of Langmuir Township, indications are found of sedimentary rocks in the Gowganda formation.

IV. INTERPRETATION OF RESULTS

The isomagnetic contour map presents a very complicated pattern, suggesting an intricate geologic structure. Three main units could be distinguished in the surveyed area: they are the central belt of volcanics, the northern granite intrusive, located between traverses T40 and T60 approximately, and the southern granite intrusive, located in the southwestern corner of the survey

block. The magnetic depression centered around fiducial 4715 on traverse 59 is interpreted as a granite intrusion as well. The slightly higher magnetic pattern of the depression in the northeast corner of the area suggests acid volcanics. This appears to be confirmed by a few outcrops. The high magnetic relief found both in the western part of the basic volcanics belt and the northeast of the two northern granite intrusives where magnetic values of up to 6000 gammas are observed, should be ascribed to basic and ultra-basic intrusives rocks.

The major belt of basic volcanics shows a general strike direction of N60°W. Around the two major granite intrusives the prevalent direction in the belt appears to be more or less parallel to the granite contact. The decreasing magnetic relief towards the south might be explained by an increase of either sedimentary or acid components in the series.

Three major diabase dykes cut through the block. The first one starts at approximately fiducial 9620 on traverse 34 and extends to the southwest off the surveyed area. The second dyke runs approximately one mile northwest of the first one, more or less continuously through the entire block. On one spot, a possible fault might be indicated by an interruption in the isomagnetic contours, approximately north of the end of the other diabase dyke.

The third dyke is outlined in the northwestern part of the block only. It is located approximately 2½ miles northwest of the second diabase dyke. It extends off the block to the east-north east.

In summary, the magnetic map matches the geological map very well. It appears to provide much more detail than any geological maps of this poorly exposed area can give and it should be possible to make good use of magnetic data to enhance the geological mapping in those parts of the area, which, due to scarcity of outcrops, have not yet been mapped in detail.

Respectfully submitted,



A. R. Rattew, P.Eng.,
Geophysicist.

OTTAWA, Ontario,
May 30, 1966.

ACME GAS & OIL CO., LIMITED

Summary of Claims on which Survey is to be applied:

<u>Claim No.</u>	<u>Days</u>	<u>Claim No.</u>	<u>Days</u>
P-58210	20	P-79886	20
P-58211	20	P-79887	20
P-58212	20	P-79888	20
P-58213	20	P-79895	20
P-58214	20	P-79896	20
P-58215	20	P-79897	20
P-58217	20	P-79898	20
P-58218	20	P-79919	20
P-58219	20	P-79920	20
P-58220	20	P-79921	20
P-58221	20	P-79922	20
P-58227	20	P-79923	20
P-74660	20	P-79924	20
P-74661	20	P-79925	20
P-74662	20	P-79926	20
P-74663	20	P-79927	20
P-74664	20	P-79928	20
P-74665	20	P-79929	20
P-74666	20	P-79930	20
P-74667	20	P-79931	20
P-74668	20	P-79932	20
P-74669	20	P-79933	20
P-74670	20	P-79934	20
P-74671	20	P-79936	20
P-74672	20	P-79939	20
P-74673	20	P-79940	20
P-74674	20	P-79941	20
P-74675	20	P-79951	20
P-74676	20	P-79952	20
P-74677	20	P-79953	20
P-74678	20	P-79954	20
P-74679	20	P-83467	20
P-74680	20	P-83468	20
P-74681	20	P-83469	20
P-74682	20	P-83470	20
P-74683	20	P-83471	20
P-74684	20	P-83472	20
P-74685	20	P-85693	20
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P-74692	20	P-85700	20
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P-74694	20	P-85710	20
P-78820	20	P-85711	20
P-78821	20	P-85712	20
P-78823	20	P-85713	20

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ACME GAS & OIL CO., LIMITED

Summary of Claims on which Survey is to be applied:

<u>Claim No.</u>	<u>Days</u>	<u>Claim No.</u>	<u>Days</u>
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P-85715	20	P-85811	20
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P-85721	20	P-86394	20
P-85722	20	P-86395	20
P-85723	20	P-86396	20
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P-85725	20	P-86398	20
P-85726	20	P-86399	20
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P-85803	20	P-86434	20
P-85807	20	P-86435	20
P-85808	20	P-86436	20
P-85809	20	P-86437	20

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ACME GAS & OIL CO., LIMITED

Summary of Claims on which Survey is to be applied:

<u>Claim No.</u>	<u>Date</u>	<u>Claim No.</u>	<u>Date</u>
P-86438	20	P-86956	20
P-86439	20		
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P-86441	20		
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P-86541	20		
P-86542	20		
P-86543	20		
P-86544	20		
P-86545	20		
P-86546	20		

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*Jan 17/66 - MAR 18/66
" " " "
Jan 18/66 - " " " "*

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124 = 19.5

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9738*

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9738*

There are approximately 125 line miles flown over these claims.

ELDORADO TOWNSHIP

ROGER C. DENOMMEE

Eldorado
9737

- P-91226 to P-91234 inclusive

July 9/66 - July 12/66

P. 91232 - 33 - 34

July 10/66 - July 13/66

There are approximately 4½ line miles flown
over these claims.

Airborne Geophysical Certificate applied for
these claims.

63.2044

Shaw Twp. - M.311

THE TOWNSHIP OF
OF

ELDORADO

DISTRICT OF
TIMISKAMING

PORCUPINE
MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

LEGEND

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

NOTES

400' Surface Rights Reservation around all lakes and rivers.

DATE OF ISSUE

AUG 12 1966

ONTARIO DEPT. OF MINES

PLAN NO. M.276

DEPARTMENT OF MINES

— ONTARIO —

Adams Twp. - M.261

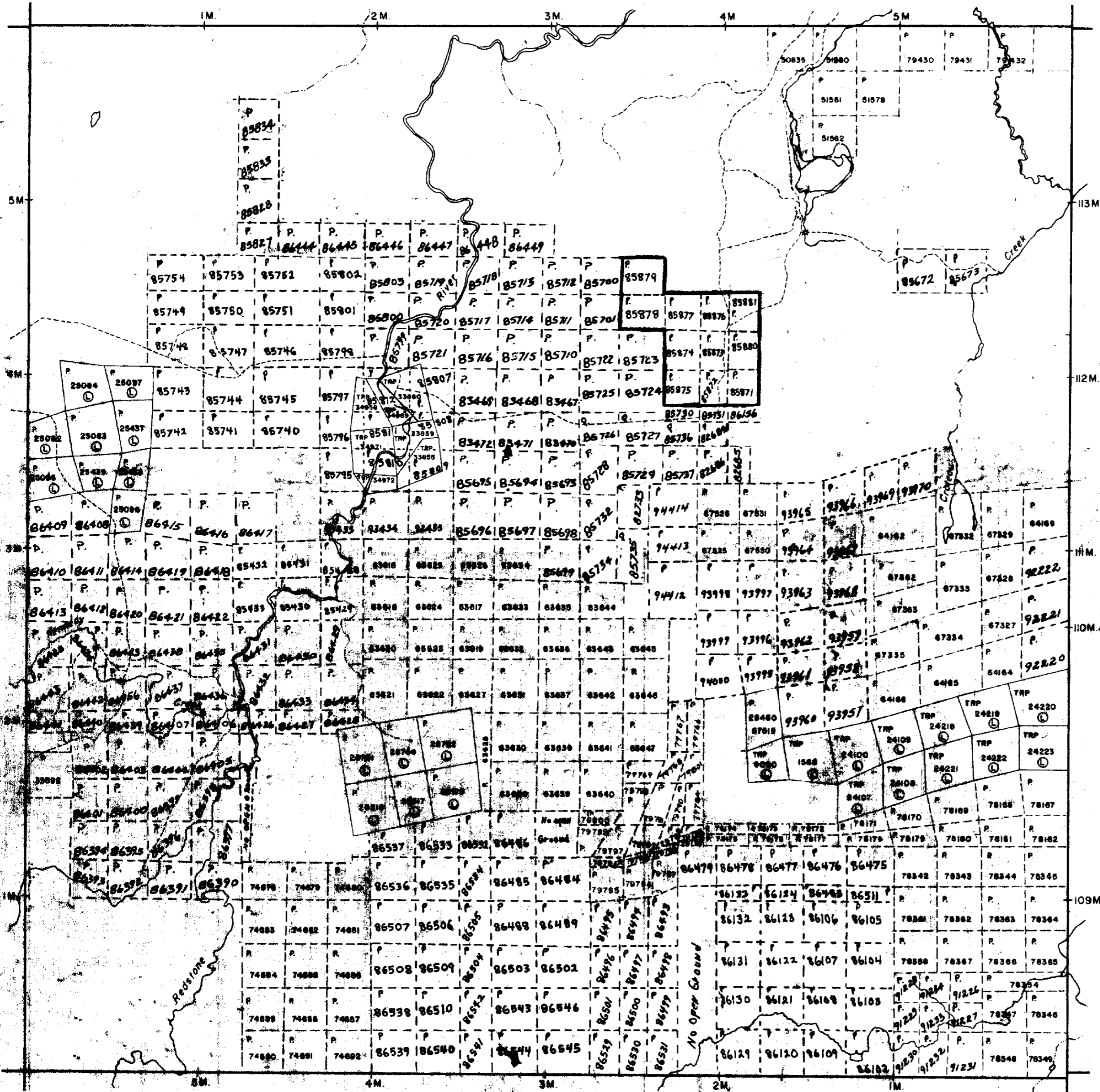
Langmuir Twp. - M.292

Douglas Twp. - M.274



42A06SE0113 63.2044 ELDORADO

Shaw Twp. - M.311



Adams Twp. - M.261

Langmuir Twp. - M.292

Douglas Twp. - M.274

THE TOWNSHIP OF
ELDORADO

DISTRICT OF
TIMISKAMING

PORCUPINE
MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

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- SURFACE RIGHTS ONLY S.R.O.
- ROADS — — — — —
- IMPROVED ROADS — — — — —
- KING'S HIGHWAYS — — — — —
- RAILWAYS — — — — —
- POWER LINES — — — — —
- MARSH OR MUSKEG — — — — —
- MINES Ⓜ
- CANCELLED C.

NOTES

400' Surface Rights Reservation around all lakes and rivers.

DATE OF ISSUE
JUN 8 1967
ONTARIO DEPT. OF MINES

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

PLAN NO. M.276

DEPARTMENT OF MINES

- ONTARIO -



42A06SE0113 63.2044 ELDORADO










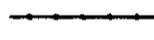
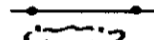




LANGMUIR

DISTRICT OF
TIMISKAMING

PORCUPINE
MINING DIVISION

SCALE: 1-INCH = 40 CHAINS

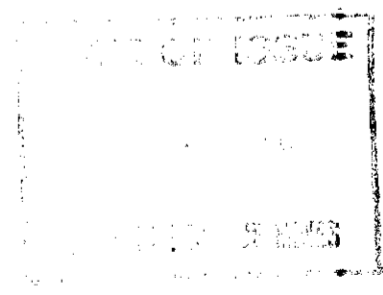
LEGEND

- PATENTED LAND 
- CROWN LAND SALE 
- LEASES 
- LOCATED LAND 
- LICENSE OF OCCUPATION 
- MINING RIGHTS ONLY 
- 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.

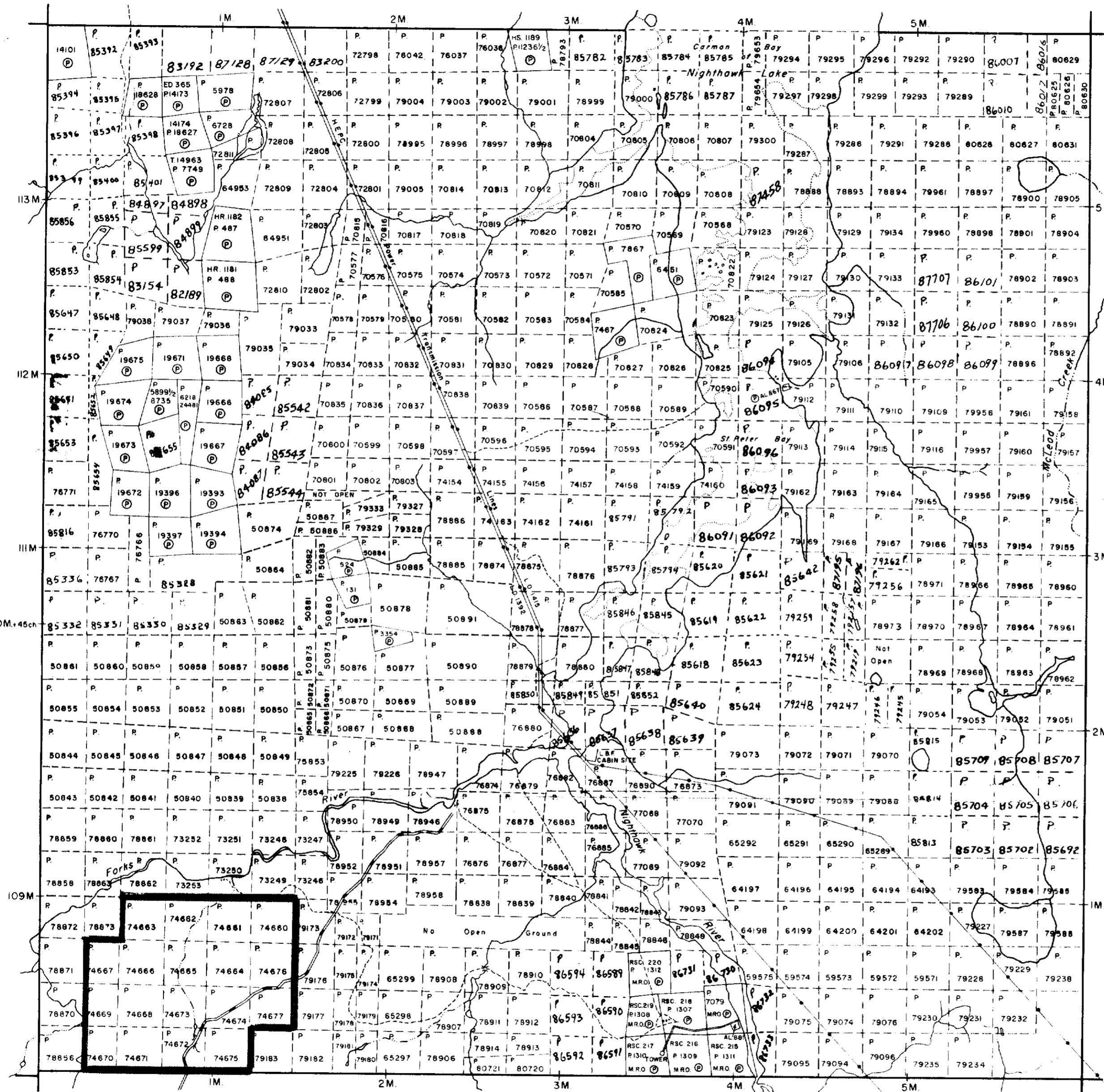
Flooding rights on Nighthawk Lake to the contour elevation 903.5' reserved to H.E.P.C.



PLAN NO. **M.292**

DEPARTMENT OF MINES

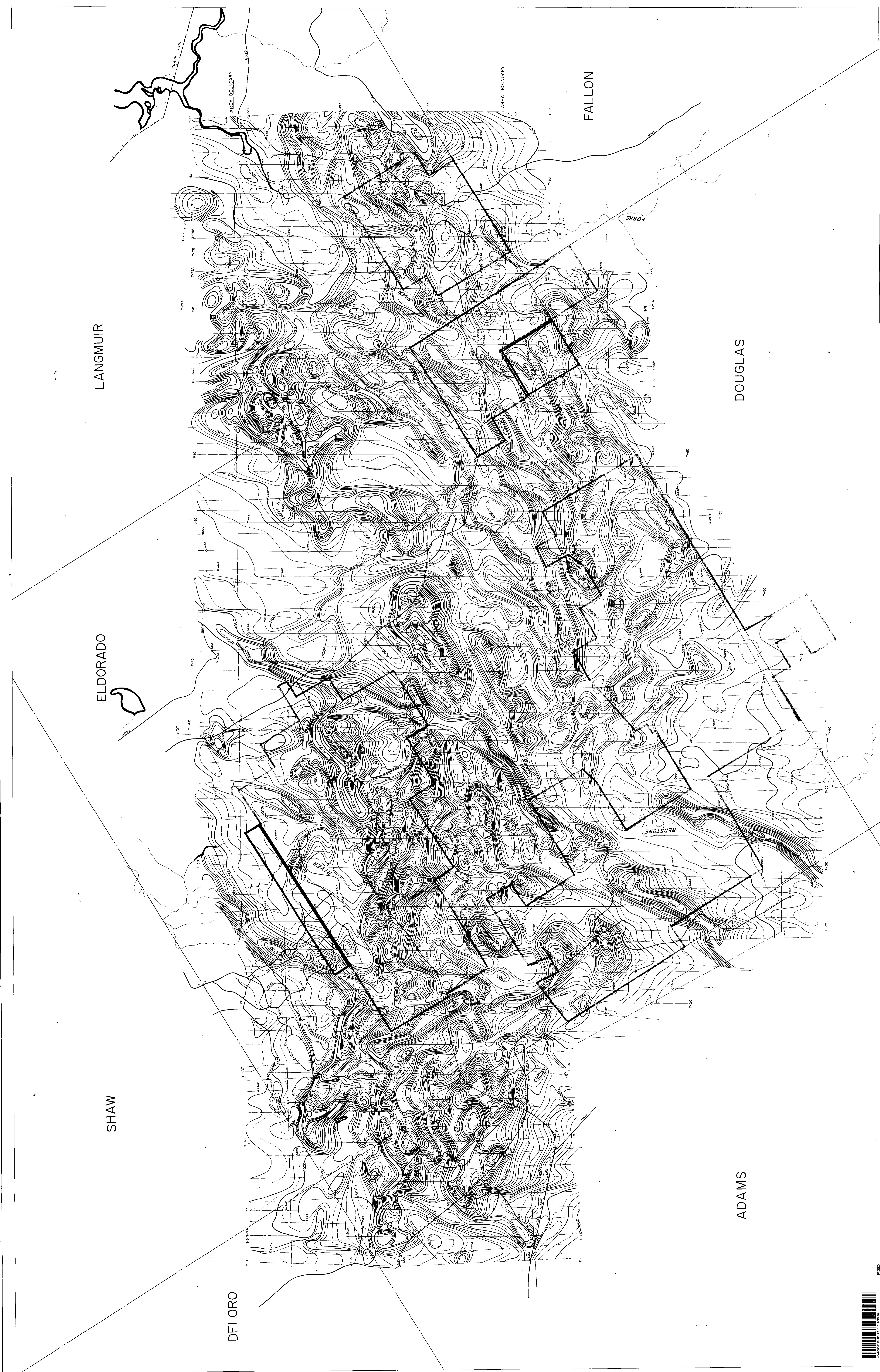
- ONTARIO -



Eldorado Twp. - M.276

Blackstock Twp. - M.263





LANGMUIR

ELDORADO

SHAW

DELORO

ADAMS

DOUGLAS

FALLON



2330

LEGEND

- CONTOUR INTERVAL... 50 GAMMAS
- 500 GAMMA CONTOUR... 1/8 MILE
- 100 GAMMA CONTOUR... 1/4 MILE
- 25 GAMMA CONTOUR... 1/2 MILE
- MAGNETIC LOW

- MEAN TERRAIN CLEARANCE... 150 FEET
- FLIGHT LINE SPACING... 1/8 MILE
- RIVERS AND LAKES
- HORIZONTAL CONTROL... BASED ON PHOTO LAYDOWN

ARRBORNE MAGNETOMETER SURVEY
ELDORADO TOWNSHIP AREA
 ONTARIO
 B. W. LANG
 SCALE: 1 INCH = 1/4 MILE (approx.)



63-2444