REPORT

ON

ELECTROMAGNETIC SURVEY

PERFORMED FOR

MESPI MINES LTD. TORONTO

ON THEIR

THORBURN-MOBERLY GROUP

PORCUPINE MINING DIVISION

WORK BY

MESPI MINES LTD.

TIMMINS, ONT.

WORK CONDUCTED BETWEEN JANUARY 4-25/66

AUGUST 10/66

J.E. STEERS

INTRODUCTION

A Crone J.E.M. survey was carried out on a group of 29 claims in Thorburn and Moberly Townships by Mespi Mines Limited during the period from January 4 to January 25, 1966. The claims are recorded in the name of Mespi Mines Limited of 1705 Victory Building, 80 Richmond Street, West, Toronto, Ontario

LOCATION AND ACCESS

The 29 contiguous claims from a group situated in the southwest (EAST) corner of Moberly township and the southwest corner of Thorburn township. The group is some 18 miles northwest of Timmins, Ontario.

A semi-permanent tent camp located on Footprints Lake in Loveland township served as the base camp for the survey. Motorized toboggans were used and transport the crew along the Loveland-Thorburn township line.

PREVIOUS WORK

Most of the claim group has been covered by two combined airborne magnetic and electromagnetic surveys.

Canadian Aero Mineral Surveys flew the ground along notherly bearing flight lines at 1/8 mile spacing for B.W. Lang in 1963.

The area was reflown by Hunting Surveys Corporation along northeasterly bearing lines at 1/8 mile spacing for Mespi Mines Limited in May, 1964.

Both surveys indicated the presence of several electromagnetic conductors.

INSTRUMENTS USED AND SURVEY METHOD

A Crone dual frequency transceiver unit was used for the electromagnetic survey. The survey was performed employing the in-line method and a 300 foot coil separation. Readings were taken at 100 foot intervals and the resultant dip angles were plotted at the mid-point between the coils.

A total of 29.5 miles of line were cut and 1332 stations were established.

SURVEY RESULTS

Several anomalous areas were detected however little correlation between lines is evident.

In general the conductive zones appear to have a northerly strike and a vertical or near vertical dip.

The patterns established in this area are similar to those established further south in Loveland township where there are several short, discontinuous sulphide lenses arranged in semi-parallel, en echelon fashion.

CONCLUSIONS AND RECOMMENDATIONS

It is strongly recommended that each of the anomalous zones be checked using dual frequency vertical loop equipment and a fixed transmitter method.

Due to the limited strike length of the conductors it will probably be necessary to cut intermediate lines at two hundred foot intervals in order to detail the conductive zones.

Each detail area should be surveyed with a magnetometer.

Any decision as to diamond drilling should be deferred pending the results of the detail magnetic and electromagnetic work.

Respectfully submitted

J.E. Steers
Exploration Manager

JES/jf

June 7, 1966

020

INTRODUCTION

During the period from Oct. 19/65 to March 31/66 a Crone J.E.M. survey was conducted by Mespi Mines Limited of 1705 Victory Bldg., 80 Richmond St. West, Toronto, Ont. on one of their claim groups in Reid Township.

LOCATION AND ACCESS

This group of 26 claims is located in the northwest quadrant of Reid Township, Porcupine Mining Division and is some 18 air miles northwest of the town of Timmins.

A tent camp was established on Thorburn Lake some 1 1/2 miles southwest of the group to accomodate field crews and motorized sleds were used to transport the men between Thorburn Lake and the Reid claim group.

PREVIOUS WORK

The group was covered by two combined magnetic and electromagnetic airborne surveys.

Canadian Aero Mineral Surveys flew the ground in a northwest direction using 1/8 mile flight line spacing for B.W. Lang in 1963.

The area was reflown in May 1964 by Hunting Surveys Corporation for Mespi Mines Ltd. Northeasterly flight lines spaced at 1/8 mile intervals were used.

Both surveys established the presence of several electomagnetic anomalies associated with a striking magnetic feature.

INSTRUMENTS USED AND SURVEY METHOD

A Crone dual frequency transceiver unit was used for the electromagnetic survey. The survey was carried out using the in-line method, a coil separation of 300 feet and readings were taken at 100 ft. intervals(50 ft. in anomalous) areas) The dip angles shown on the plan are resultant dip angles and are plotted at the mid point between the coils.

Because the airborne surveys had indicated the presence of anomalous conditions

on northeast and northwest lines it was decided to cross grid the entire area.

A total of 21.5 miles of line were cut and 1138 stations were established.

SURVEY RESULTS

For much of the area there is no overburden response however several rather localized anomalous areas were indicated on both northeast and northwest lines. The anomalies are of only moderate strength and show little continuity however the ratios of low to high frequency dip angles indicate fair to moderate conductivity.

It is extremely difficult to do any interpretation on the basis of the information available.

CONCLUSIONS AND RECOMMENDATIONS

It is common knowledge that much of the area surrounding this claim group is covered by 150 to 200 feet of overburden and that the rocks underlying the overburden are part of a sedimentary-volcanic complex.

If the claim group is covered by a like thickness of overburden then any bedrock conductor would be expected to appear as a weak conductor if it was located at all.

These facts coupled with the fact that there is no overburden response over much of the area leads the writer to believe that more detail work in this area is called for

It is recommended that a dual frequency vertical loop survey be conducted in the anomalous areas. If the results of the vertical loop survey are anomalous it is further recommended that detail grids be cut and a magnetic survey be carried out.

Respectfully submitted

MINI MINES LTD.
J.B. Steers, Geologist.

SEPT. 9/1964

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

On the following dates May 1, 4 and 8, 1964, Hunting Survey Corporation carried out flying operations on a combined magnetometer and electromagnetometer survey over parts of the townships of Geary, Mahaffey, Moberly, Thorburn, Reid and Loveland.

The work was carried out under contract to Mespi 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 Northeast-Southwest direction at an average spacing of 660 feet.

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

Thirty-eight traverses were flown over the area, for a total of 381.5 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. 35mm 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.

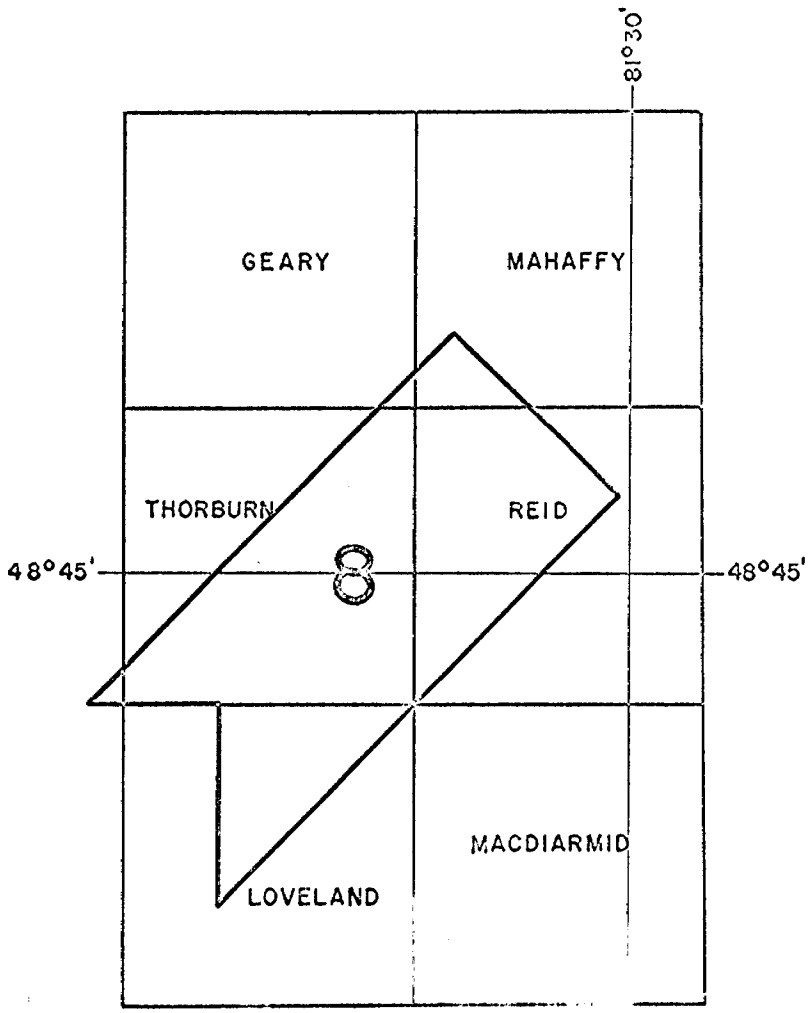
(e) the phase angle of residual high and low frequency anomalies read at peak values.

(f) value and location of magnetic peaks and lows, referred to on arbitrary datum.

R. N. Parkinson P. Eng.

HUNTING SURVEY CORPORATION LIMITED

MESPI MINES LTD.



SCALE: 1 Inch to 4 Mi.

63.1327

PLAN OF

MOBERLY T'WP.

PORCUPINE MINING DIVISION

DISTRICT OF COCHRANE.

Scale, 40 chains to an inch.

LEGEND

CANCELLED	C
PATENTED LAND	P
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.

NOTE
400' Surface Rights Reservation around all Lakes and Rivers

N. E. S. W.

All North.

WILHELMINA T'WP.

AITKEN T'WP.

THORBURN T'WP.

Wanikatia River

THORBURN

PORCUPINE MINING DIVISION

DISTRICT OF COCHRANE

Scale - 40 Chains = 1 Inch

NOTE

400' Surface Rights Reservation around all Lakes and Rivers.

GEARY

MOBERLY

REID

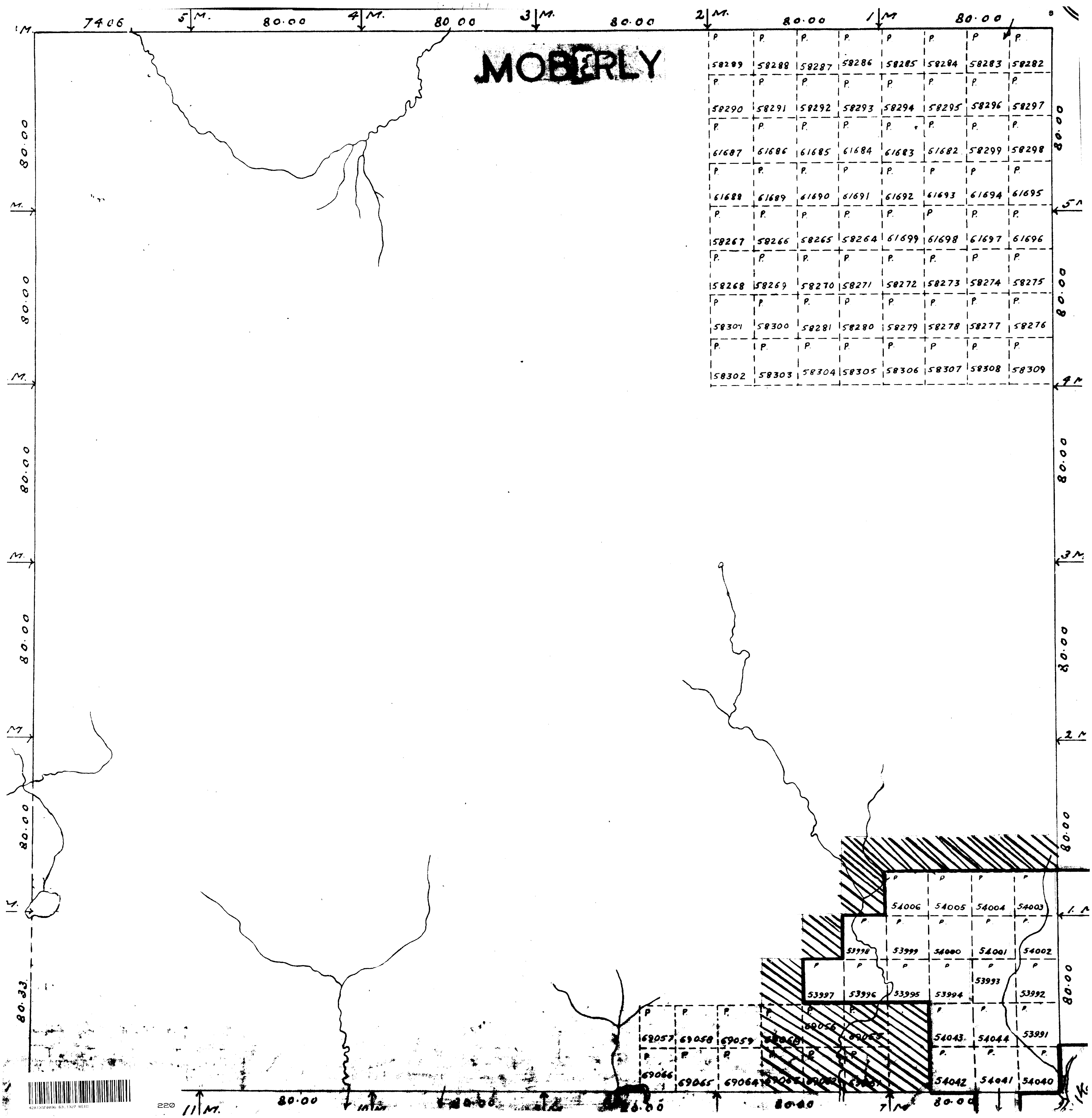
NORTH AST

5M. 4M. 3M 2M. 1M.

Thorburn Creek

NO OPEN GROUND

Enid Creek



42A13SE0096 63.1327 REID

220

THORBURN

63.1327

5M 4M 3M 2M 1M

NO OPEN GROUND

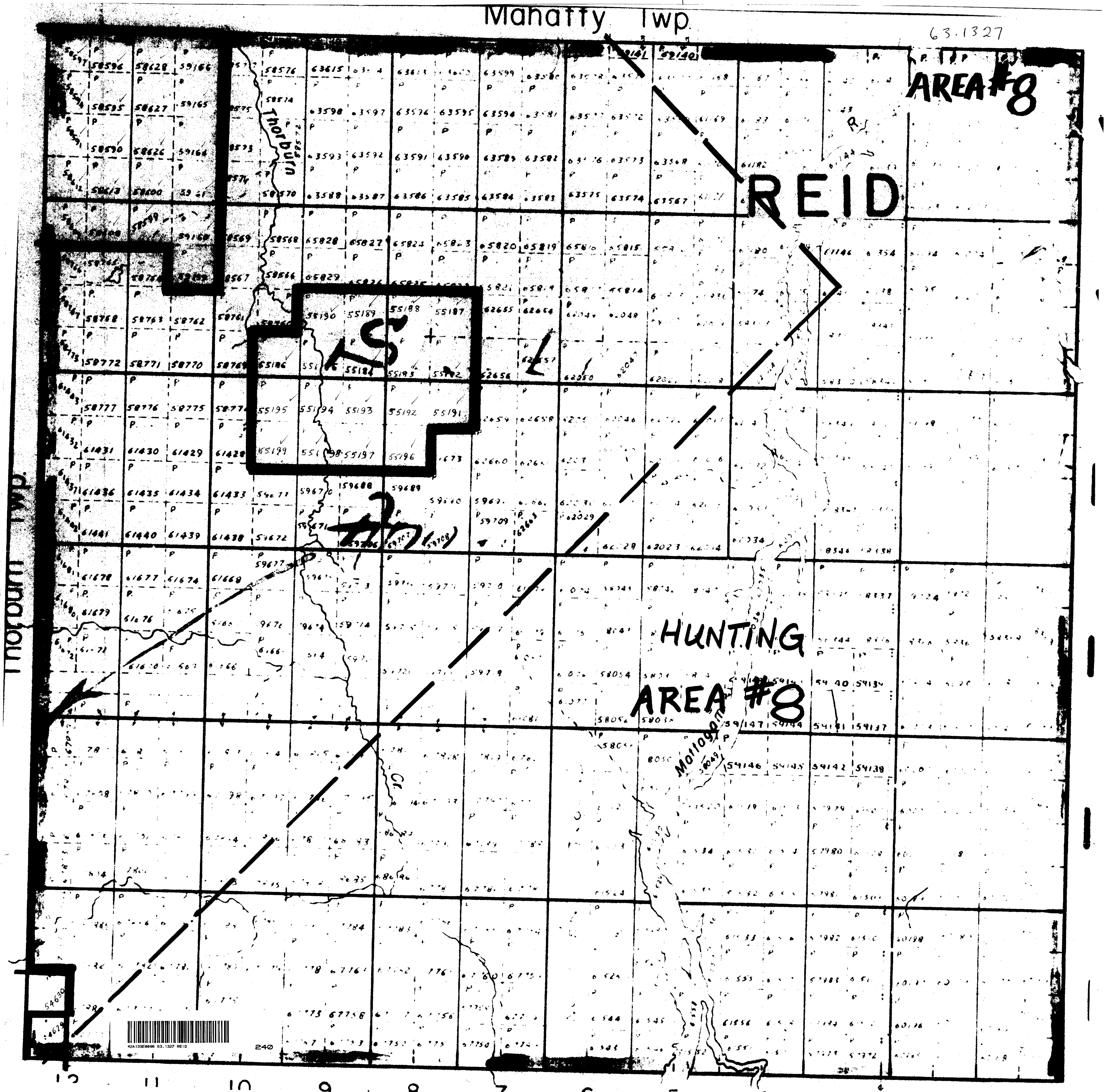
Thorburn

HUNTING AREA #8

Enid Creek

42A13SE0096 63.1327 REID

230


Mahaffy Twp.
63.1327
AREA #8
REID
Thorburn
Thorburn Twp.
HUNTING
AREA #8
Mattagami
Cr.
42A13SE0096 63.1327 REID
240

63.1327

3rd BASE LINE surveyed in 1905 by O.L.S. A NIVEN

LOVELAND

HUNTING AREA # 8

NOT OURS

NO OPEN GROUND

Byers Lake

Enid

Loveland Creek

Komiskotia River

1st MERIDIAN LINE surveyed in 1905 by O.L.S. A NIVEN

5M. 4M. 3M. 2M. 1M.

17M 16M 15M 14M 13M

63983 63982

42A13SE0096 63.1327 REID

250

BYERS

HUNTING AREA #8

NOT OURS

BYERS LAKE

Enid Creek

63.1327

260

GEARY TWP.
MAHAFFY TWP.
146 E
152 E
156 E
P 58597
P 58596
P 58628
P 59166
P 58594
P 58595
P 58627
P 59165
112 E B.L.
108 E
104 E
100 E
96 E
32 N. B.L.
92 E
28 N
88 E
84 E
24 N
P 58591
P 58590
P 58626
P 59164
144+00 E B.L.
140 E
136 E
132 E
128 E
P 58612
P 58613
P 58600
P 59161
P 58610
P 58609
P 58608
P 58599
P 59160
P 61700
P 59159
0+00 BASE LINE
P 85170
P 85169
28 S
P 85173
P 85172
P 85171
22 MILE POST
34 S
38 S
42 S
46 S
P 85161
P 85160
P 85159
50 S
P 85164
P 85163
P 85162
54 S
58 S. B.L.
P 85167
P 85166
P 85165
80
76 E
72 E
68 E
64 E
62 S
66 S
70 S
74 S
52 E
78 S
56 E
84 S
60 E
THORBURN TWP.
REID TWP.
270
SURVEY DATE Mar. 1/66 to M

210-W. B.L.

180-W. B.L.

150-W. B.L.

P. 54026. P. 54025. P. 540

P. 54019. P. 54020. P. 54021. P. 54022. P. 5

P. 54018. P. 54017. P. 54016. P. 54015. P. 5

P. 54002.

P. 54009. P. 54010. P. 54011. P. 54012.

P. 53993. P. 53992.

P. 54007. P. 54008. P. 86047. P. 86046.

P. 54044. P. 53991.

P. 54043.

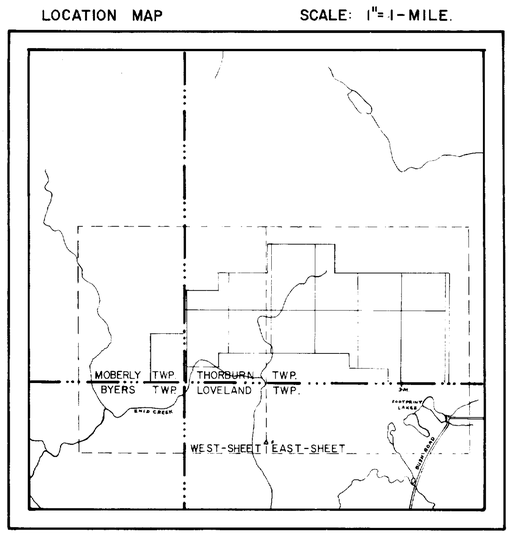
P. 54042 P. 54041. P. 54040

MOBERLY TWP.
BYERS TWP.

THORBURN TWP.
LOVELAND TWP.

ENID CREEK

LOCATION MAP SCALE: 1"= 1-MILE.



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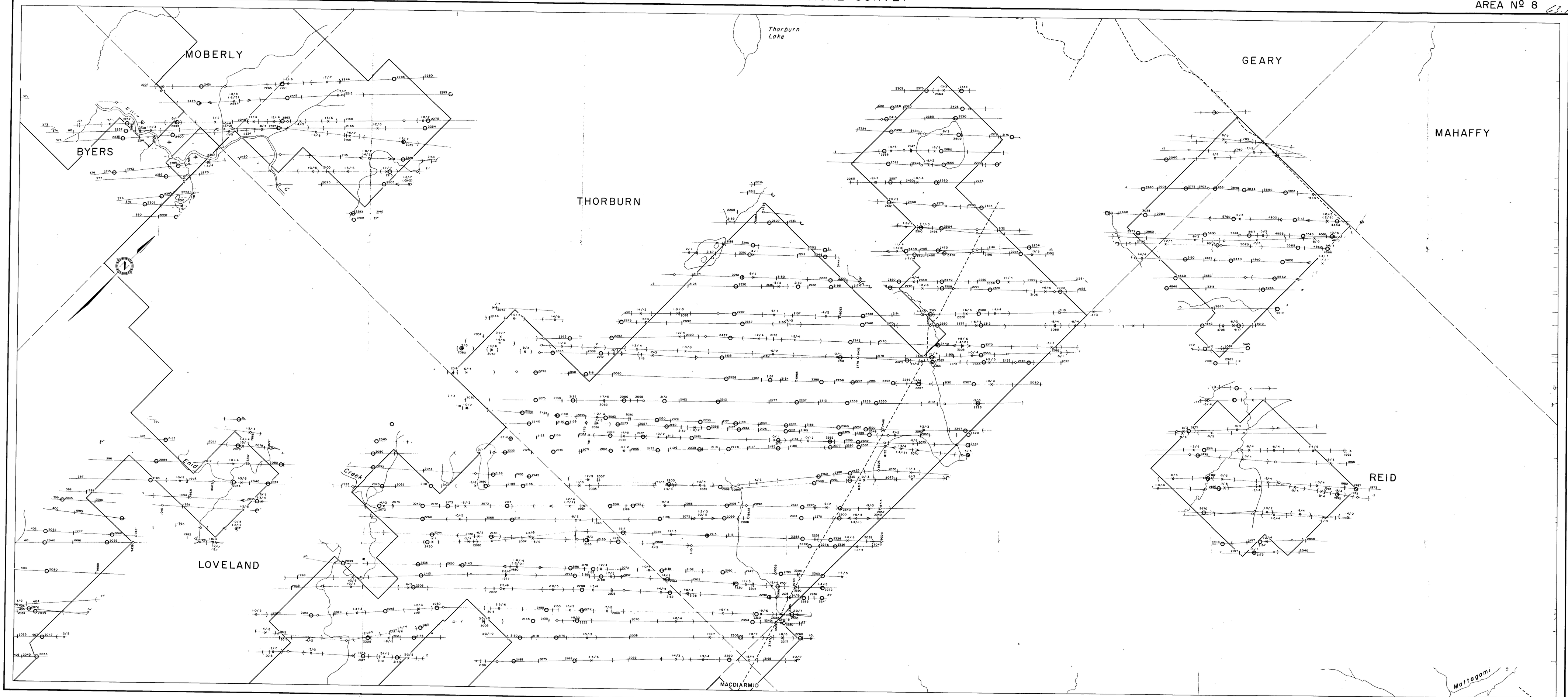
WEST-SHEET

AEM RPT 30

MESPI MINES LIMITED
AIRBORNE GEOPHYSICAL SURVEY

AREA Nº 8 63-1527



MEAN TERRAIN CLEARANCE ..... 450 FEET
MEAN FLIGHT LINE SPACING ..... 660 FEET
MAGNETIC HIGH ..... O 3340
MAGNETIC LOW ..... I 3070
FIDUCIAL POINTS ..... O 2760
FLIGHT LINES ..... ○
EXTENT OF E.M. ANOMALY ..... ( )
RESIDUAL E.M. ANOMALY ..... < >
PEAK OF E.M. ANOMALY X

THE NUMBERS SHOWN AS 4/2 ARE:
2300 PHASE CYCLE PEAK VALUES
400 PHASE CYCLE PEAK VALUES

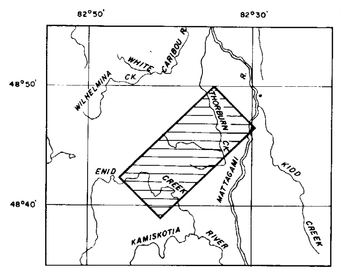
290

TIMMINS AREA, ONTARIO
ELECTROMAGNETIC MAP

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

63-1527

Flown and Compiled by
HUNTING SURVEY CORPORATION LIMITED
TORONTO, CANADA
1964



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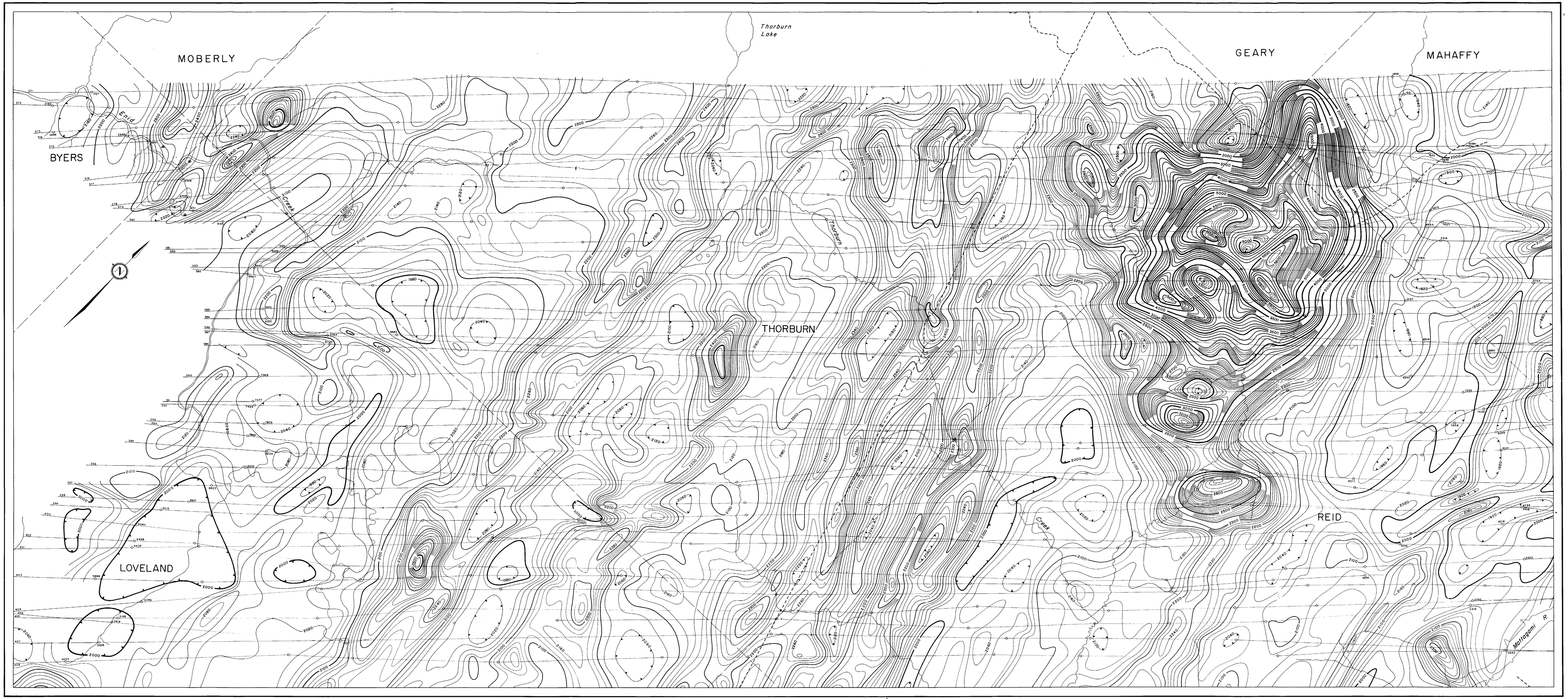
MESPI MINES LIMITED
AIRBORNE GEOPHYSICAL SURVEY

AREA Nº 8



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 ..... MIXED
FLIGHT LINES

63.1327

TIMMINS AREA, ONTARIO
MAGNETOMETRIC MAP

SCALE

1000 FEET 0 1000 2000 3000 4000 5000 FEET

1 Inch to 1320 Feet

Flown and Compiled by
HUNTING SURVEY CORPORATION LIMITED
TORONTO, CANADA
1964

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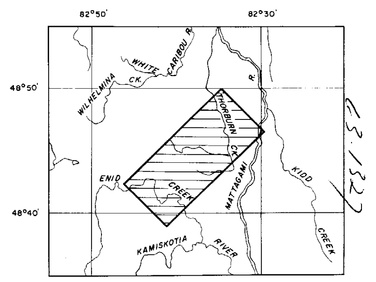
Amc



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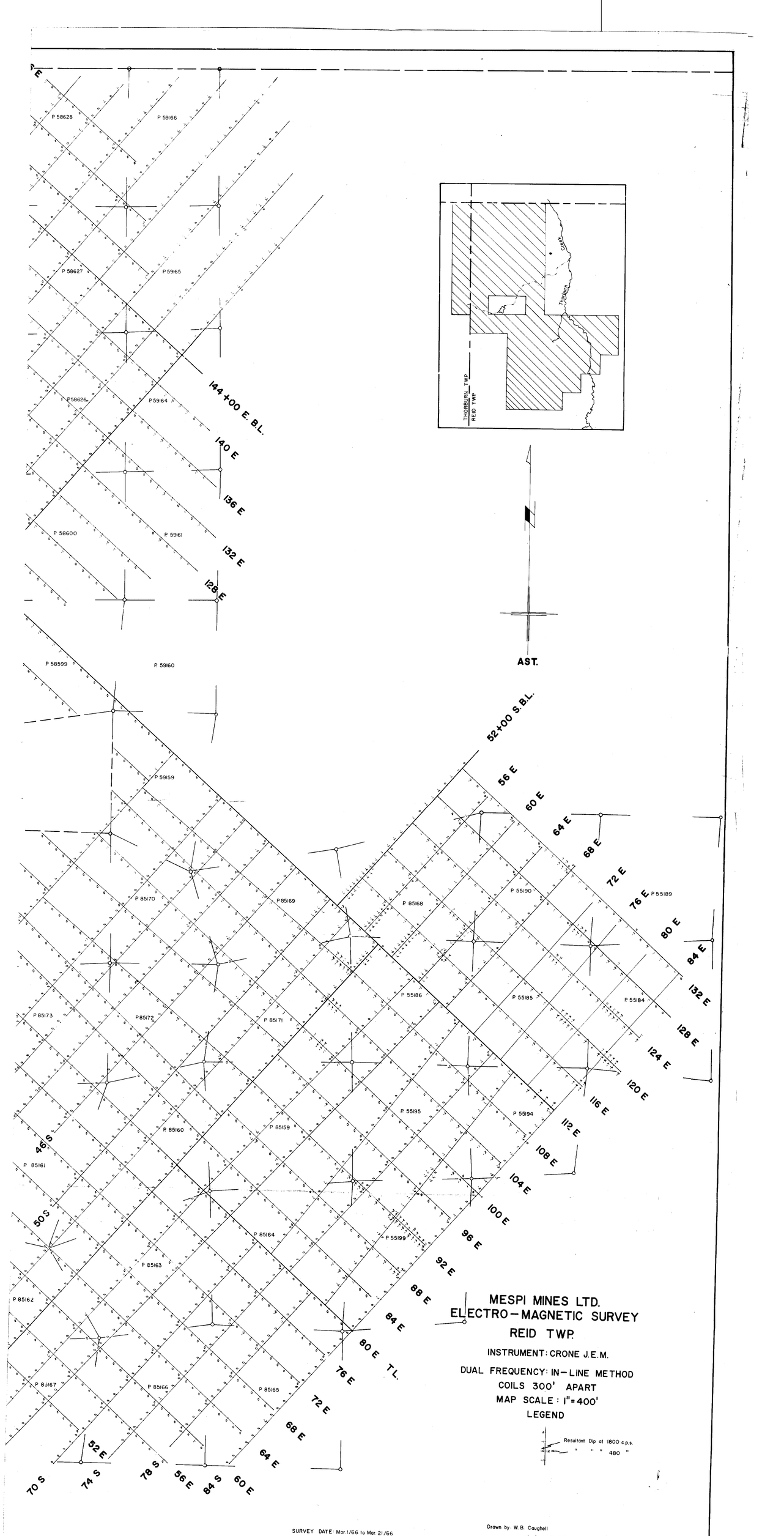
300


P 58628
P 59166
P 58627
P 59165
P 58626
P 59164
144+00 E. B.L.
140 E
136 E
132 E
128 E
P 58600
P 59161
P 58599
P 59160
P 59159
52+00 S. B.L.
56 E
60 E
64 E
68 E
72 E
76 E
80 E
84 E
132 E
128 E
124 E
120 E
116 E
112 E
108 E
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80 E T.L.
76 E
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60 E
P 85170
P 85169
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P 85160
P 85159
P 85161
46 S
50 S
P 85164
P 55199
P 85163
P 85162
P 85167
P 85166
P 85165
52 E
70 S
74 S
78 S
56 E
84 S
60 E
THORBURN TWP.
REID TWP
Creek
Thorburn
AST.
MESPI MINES LTD.
ELECTRO-MAGNETIC SURVEY
REID TWP.
INSTRUMENT: CRONE J.E.M.
DUAL FREQUENCY: IN-LINE METHOD
COILS 300' APART
MAP SCALE: 1"=400'
LEGEND
Resultant Dip at 1800 c.p.s.
" " " 480 "
SURVEY DATE: Mar. 1/66 to Mar. 21/66
Drawn by: W.B. Caughell
Approved by:

63.1327

120-W. B.L.

150-W. B.L

180-W. B.L.

28-N

24-N

20-N

16-N

12-N

8-N

4-N

0+00 —— 74-N. B.L.

4-S

8-S

12-S

16-S

20-S

24-S

28-S

32-S

36-S

40-S

44-S

P. 54026. P. 54025. P. 54024.

P. 54019. P. 54020. P. 54021. P. 54022. P. 54023.

P. 54018. P. 54017. P. 54016. P. 54015. P. 54014.

P. 54009. P. 54010. P. 54011. P. 54012. P. 54013.

P. 54007. P. 54008. P. 86047. P. 86046. P. 86045.

ENID CREEK

THORBURN TWP.

LOVELAND TWP.

LOCATION MAP SCALE: 1"= 1-MILE.

MESPI MINES LTD.
ELECTRO-MAGNETIC SURVEY
SOUTH-WEST THORBURN TWP.

INSTRUMENT: CRONE J.E.M.
COILS 300' APART
MAP SCALE 1"= 400'

LEGEND

Resultant Dip at 1800 cps
" " " 480 "

63.1327

Drawn by J.K. LYTLE
Approved by:

SURVEY DATE: Jan. 4-25, 66