

File 63.1544

REPORT ON
AIRBORNE MAGNETOMETER SURVEY
OF THE
MOUNTJOY AND JESSOP TOWNSHIPS AREA,
FOR
MESPI MINES LTD.



42A11SW8367 63.1544 JESSOP

010

INTRODUCTION

Between March 5 and March 11, 1965, a combined airborne EM and magnetometer survey was flown by Canadian Aero Mineral Surveys Limited on behalf of Mespi Mines Limited in the Timmins area of Ontario. The block of ground is located mainly in the southwestern quadrant of Jessop Township and the northwestern quadrant of Mountjoy Township, but extends a short distance into Jamieson and Godfrey Townships.

This report pertains to the magnetometer phase of the programme.

II. SURVEY AND COMPILATION DETAILS

The survey was flown by the Canadian Aero Mineral Surveys Limited geophysically equipped Otter aircraft, registration CF-IGM, based at Timmins. The line direction for the survey was approximately N40°W (astr.) and the line spacing was 1/8 mile. The mean terrain clearance of the aircraft was approximately 150 feet. The geophysical data acquired within the block totalled 95 line miles.

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

G. A. Curtis	-	Project Manager
J. Gaudry	-	Pilot
D. McDonell	-	Navigator
D. Graham	-	Operator
R. Sarsfield	-	Mechanic
D. Sarazin	-	Data Compiler
G. Granger	-	Draftsman
A. Martin	-	Draftsman
P. Tallyhoe	-	Data Chief

The project was supervised by A. R. Rattew, P.Eng., 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.

Three settings are available providing full scale measurements of 600, 2000, and 6000 gammas. The useable short-term sensitivity is approximately 5 gammas and the total dynamic range of the instrument is 60,000 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 Mountjoy and Jessop Townships Area are presented on a single map at the scale of 1 inch equals $\frac{1}{4}$ mile.

III. GEOLOGY

The geology of this area is shown on the Ontario Department of Mines Preliminary Map P-158 (Jessop Township) at 1" = $\frac{1}{2}$ mile, and on Ontario Department of Mines Preliminary Map P-139 at 1" = 2 miles.

Outcrops are rare, but those which do exist are mostly volcanics. In composition the volcanics range from acidic through basic, with the intermediate and basic phases evidently being more common. Some occurrences of greywacke are indicated near the southern edge of the block.

IV. RESULTS

The main feature on the contour map is a complex zone of magnetic activity which extends in an east-northeasterly direction across the central part of the block. The zone broadens to the west, having a width of $\frac{1}{2}$ mile at the eastern boundary and a width of $1\frac{1}{2}$ miles at the western boundary. Maximum anomaly amplitudes are about 600 gammas above background.

A belt of intermediate and basic volcanics is suggested by the banded pattern of the anomalies and by their amplitudes. Two outcrops support this interpretation. The largest anomalies, located mainly in the northern and central parts of the belt, outline the more basic sections. The remainder of the belt should be of intermediate composition. The complexity of the

contour pattern within the belt suggests extensive folding.

To the north and south of this belt the magnetic field is quite flat, with the exception of a few small features in the 50-gamma amplitude range. Rocks of generally acidic composition are indicated, with occasional intermediate phases. There appears to be no clear-cut distinction between the sediments and the acidic phases of the volcanics.

Respectfully submitted,



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

OTTAWA, Ontario,
February 26, 1966.

PROJECT NO. 5044 - MOUNTJOY AND JESSOP TOWNSHIPS AREA

Anomaly	Fiducials	In-Phase Quad	Altitude	Magnetics	Rate	Comments
7A	9449/52	40/0	150	N Fluk 500γ	X	
8A	9539/46	0/40	135	Nil	X	Possible sur- face conductor
F	9551/60	0/60	140	Nil	3	" "
9A	9718/23	0/60	160	Nil	3	Broad, Partly PL?
10A	9781/4	20/40	145	Nil	3	
11A	9924/7	30/90	150	Nil	3	
12A	9978/81	60/40	150	Nil	3	
24A	1245/9	0/40	150	Dir? 50γ	3	Possible sur- face conductor
25A	18535/52	0/40	150	Dir? 20γ	X	Noise?
27A	1589/95	-/50	170	Assoc? 20γ	3	Possible sur- face conductor
29A	1937/41	0/40	150	Nil	3	Possible sur- face conductor
B	1910/4	0/40	150	Nil?	3	" "
30A	4699/7025	20/80	140	Nil?	3	Broad, Possible surface conductor
31A	2258/64	-/40	155	Nil?	3	Possible sur- face conductor
33A	2360/8	0/80	170	N Fluk 300γ	3	Possible sur- face conductor
36A	3090/3	10/30	150	Nil	X	



ONTARIO
DEPARTMENT OF MINES
Mining Lands Branch

PARLIAMENT BUILDINGS
TORONTO 2, ONTARIO

File 63.1544

THE MINING ACT

Assessment Work Credits

Name: MESPI MINES LIMITED

Township or Area: JESSOP TOWNSHIP, Mountjoy Township, Godfrey Township,
& Jamieson Township

Number of Assessment work days per claim

Geophysical 20.7 Electromagnetic Geological N11

Mining Claims: P 57014, 57018
P 57032 to 57049 inclusive



ONTARIO
DEPARTMENT OF MINES
Mining Lands Branch

PARLIAMENT BUILDINGS
TORONTO 2, ONTARIO

File 63.1544

THE MINING ACT

Assessment Work Credits

Name: MESPT MINES LIMITED

Township or Area: JESSOP, JAMIESON, MOUNTJOY & GODFREY TOWNSHIPS

Number of Assessment work days per claim

Geophysical 20 Airborne Geological 41

Mining Claims: P 57014 to 57030 inclusive
P 57032 to 57049 inclusive
P 63146 to 63157 inclusive
P 67483 to 67490 inclusive



ONTARIO
DEPARTMENT OF MINES
Mining Lands Branch

PARLIAMENT BUILDINGS
TORONTO 2, ONTARIO

File 63,1544

THE MINING ACT

Assessment Work Credits

Name: MESPI MINES LIMITED

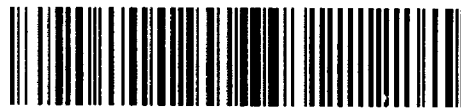
Township or Area: JESSOP TOWNSHIP

Number of Assessment work days per claim

Geophysical 32 ~~Electromagnetic~~ Geological nil

Mining Claims: P 63156

REPORT ON
AIRBORNE GEOPHYSICAL SURVEY
OF THE
MOUNTJOY AND JESSOP TOWNSHIPS AREA, ONTARIO
FOR
MESPI MINES LTD.



42A11SW8367 63.1544 JESSOP

020

I. INTRODUCTION

This report pertains to the combined airborne EM and magnetometer survey flown on behalf of Mespi Mines Ltd. over a block of ground lying mainly in southwestern quadrant of Jessop Township and the northwestern quadrant of Mountjoy Township, Ontario. The survey flying was accomplished between March 5 and March 11, 1965, by the Canadian Aero Mineral Surveys Limited geophysically-equipped Otter aircraft (registration CF-IGM) based at Timmins.

The line direction for the survey was approximately N40°W (astr.) and a line spacing of 1/8-mile intervals was used. The mean terrain clearance of the aircraft was approximately 150 feet. The data acquired within the block totalled 95 line miles.

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

G.A. Curtis	- Project Manager
J. Gaudry	- Pilot
D. McDonell	- Navigator
D. Graham	- Operator
R. Sarsfield	- Mechanic
D. Sarazin	- Data Compiler
G. Granger	- Draftsman
A. Martin	- Draftsman
P. Tallyhoe	- Data Chief

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

The EM data and all magnetic anomalies in excess of 100 gammas are plotted on a plan map at the scale of 1 inch equals 1/4 mile. An airphoto laydown provided the base for this map.

Details of the equipment carried on the aircraft and an explanation of the recorder charts are provided in Appendix II. Appendix III describes our anomaly rating and anomaly listing procedures. Appendix I is a complete listing of all EM anomalies detected.

II. GEOLOGY

The geology of this area is shown on Ontario Department of Mines Preliminary Map P.158 (Jessop Township) at 1" = 1/4 mile, and on O.D.M. Preliminary Map P.139 at 1" = 2 miles.

Outcrops are rare but those which do exist are mainly volcanics, ranging in composition from basic to acidic. There are also some sediments known in the area, primarily greywackes.

III. RESULTS

Four conductive zones are indicated on the EM map, along with three isolated, questionable (X-type) anomalies. Of these, only zone 1 can be considered a definite bedrock conductor. The other EM anomalies may derive from surface conductivity contrasts, or in the case of the X-type anomalies they may be noise.

The northeastern end of zone 1 exhibits relatively high conductivity but the anomaly amplitude is rather weak. The southwestern half of the zone has very low conductivity, being

seen only on the quadrature trace, and could very well be a surface conductor, at least in part. The isolated nature of this conductor makes it interesting even though it is rather weak.

The suggested correlation of anomalies to form zone 2 is highly speculative. Furthermore, they could all be surface conductivity anomalies. Nevertheless, the suggestion of associated magnetics and the proximity to possible faulting (as indicated by the stream pattern) lend some interest to this zone.

If zone 2 is a legitimate conductor, then conductor 3 may be related alongstrike. Its only response is a weak out-of-phase anomaly, so it may be nothing more than a surface conductor.

Zone 4 could actually be traced further, both to the northeast and to the southwest, if one wished to plot very feeble out-of-phase indications on adjacent lines. This zone is interpreted as a surface conductor, or more specifically as the conductive edge effect of a broad surface feature.

IV. RECOMMENDATIONS

Due to the economic potential of the Timmins area all definite bedrock conductors merit examination. On this basis the eastern end of zone 1 should be pinpointed by ground EM and drilled, if it has not already been explored.

Careful ground EM work is recommended to check out the possibility of a bedrock conductor in the vicinity of

zones 2 and 3. If a conductor exists it should be sampled.

Any one of the three isolated, X-type anomalies could be an indication of anomalous bedrock conductivity, but all are questionable features.

Respectfully submitted



A. R. Rattew, P. Eng.
Geophysicist

Ottawa, Ontario
May 6, 1965



42A11SW8367 63.1544 JESSOP

574

030

INTRODUCTION

During the period from January 23 to January 26, 1966 an electromagnetic survey was carried out by Mespi Mines Limited on a single claim in Jessop township.

LOCATION AND ACCESS

Claim P. 63156 is located in the northeast quarter of the south half lot 6, concession II of Jessop township.

The claim is easily reached via highway 629 from Timmins to the Timmins Airport and the Department of Transport access road to the radio range site.

PREVIOUS WORK

The area was covered in March 1965, by a combined magnetic and electromagnetic airborne survey performed for Mespi Mines Limited by Canadian Aero Mineral Surveys Limited.

Flight lines were oriented approximately N 40 W (Ast.) and a nominal flight line spacing of 1/8 mile was used. Mean terrain clearance was approximately 150 feet.

GEOLOGY

Prior to working the area little was known of the geology as there are no rock outcroppings on the claim.

It was surmised that the bedrock was part of a meta-sedimentary-volcanic complex encountered to the north in diamond drill holes by Vespar Mines Limited and to the west by Mespi Mines Limited.

Subsequent drilling confirmed the assumed geological picture.

INSTRUMENTS USED AND SURVEY METHOD

A Crone dual frequency (1800 - 480 c.p.s.) fixed transmitter, vertical loop unit was used for the survey.

A trial set-up was made and a conductor axis established. The transmitter was then set-up on the conductor axis and lines six and eight hundred feet from the transmitter were read. The results shown on the plan are dip angles with the positive angles plotted towards the transmitter station and the negative angles plotted away from the transmitter.

The high frequency conductor axis are shown as a solid red line and the low frequency axis as a dashed red line.

SURVEY RESULTS

Two distinct electrical axes were located and a third was indicated. It is possible that the most easterly conductor is related to the one which strikes westerly. Due to the proximity of the two strong conductors it was not possible to definitely establish the relationship between the two conductors.

Sharp inflections on the profiles on lines 0 and 2S probably due to the presence of a fourth conductor. This interpretation was not checked since it appear that the zone of carbonaceous sedimentary rocks encountered by Vespar Mines to the north of this claim group would probably continue on the claim about 500 feet east of the baseline.

The profile shapes and sharp inflections indicated that very little overburden covered the conductors and that for the most part the conductors were vertical or dipped steeply to the east.

A drill hole was spotted at 11 00 S and 300 east bearing N 50 deg. W. It was hoped that the one hole would intersect both conductors.

CONCLUSIONS AND RECOMMENDATIONS

Diamond drilling largely confirmed the geophysical and geological interpretation. The two conductive zones were due to carbonaceous sedimentary rocks containing non-economic sulphide mineralization.

One conductor was left untested however since carbonaceous sedimentary rocks were encountered to the north and to the west of this grid it was decided that the untested conductor was probably due to carbonaceous sedimentary rocks.

No mineralization of economic significance was encountered there no further work is warranted at this time.

Respectfully submitted

MESPI MINES LIMITED



J.E. Steers
Exploration Manager

JES/jf



INTRODUCTION

During the period from October 30, 1965 to November 13, 1965, an electromagnetic survey was carried out by Mespi Mines Limited on a group of 20 contiguous claims known as the West Jessop Group.

LOCATION AND ACCESS

The claims are located in Jessop, Mountjoy, Jamieson and Godfrey Townships. Six claims are located in the southwest corner of Jessop township, six claims are in the northwest corner of Mtjey township, four claims are in the northeast corner of Godfrey township and four are in the southeast corner of Jamieson township.

The claim group is readily accessible by motor vehicle. The field crew followed highway 629 north from Timmins for 4 miles then travelled west along a gravel concession road for some 3 miles and then north 1 mile along a winter road to the Jessop-Mountjoy township line.

PREVIOUS WORK

The area was covered, in March 1965, by a combined magnetic-electromagnetic survey performed for Mespi Mines Limited by Canadian Aero Mineral Surveys Limited.

The line direction for the survey was approximately N 40 deg W (Ast.) and a line spacing of 1/8 of a mile was used.

Mean terrain clearance was approximately 150 feet.

One "X" type, in-phase anomaly flanking a 500 gammas magnetic anomaly was located on the Jessop-Mountjoy township line

near the common corner of the four townships.

INSTRUMENTS USED AND SURVEY METHOD

A Crone dual frequency (1800 c.p.s. - 480 c.p.s.) transceiver unit was used for the complete survey. The survey was carried out using the in-line method, 300' coil separation with readings taken at 100' intervals (50' in anomalous areas). The dip angles shown on the plan are resultant dip angles and are plotted at the mid point between the coils.

The Jamieson-Jessop township line was used as a baseline and lines were cut at 200' intervals east and west from the township line.

26.5 miles of line were cut and 1323 stations were established.

SURVEY RESULTS

Wherever anomalous readings were obtained at 1800 cycles low frequency (480 c.p.s.) readings were taken.

Three narrow anomalous zones were detected. The zones show weak to moderate conductivity and apparently trend generally north in a somewhat sinuous fashion. Poor line to line correlation was indicated. The anomalous zones were checked using a fixed dual frequency vertical loop transmitter. Three northerly trending conductors were established. All three exhibited weak to moderate conductivity.

A drill hole was spotted on line 12N at 17 00 West. After penetrating more than 150' of overburden the hole was lost in a highly sheared and chloritized andesite tuff.

A second hole was spotted on line 12 north at 21 00 west and drilled easterly. The conductor was found to be due to a zone of carbonaceous slates with minor pyrite.

CONSLUSIONS AND RECOMMENDATIONS

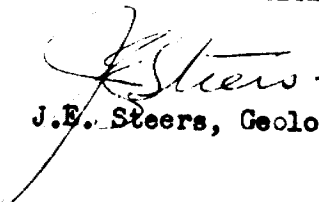
In view of the fact that three definite conductors were established by ground detail work and only one has been tested by diamond drilling further work is recommended..

Only one of the conductors was indicated on the air-borne survey, and that as a weak "X" type in-phase anomaly.

It would not be practical to fully test the three conductors by diamond drilling it is therefore recommended that a gravity survey be conducted and that further drilling be planned on the results of the gravity survey.

Respectfully submitted

MESPI MINES LIMITED


J.E. Steers, Geologist

JES/jf

Kidd Twp.

THE TOWNSHIP OF
OF

JESSOP

DISTRICT OF
COCHRANE

PORCUPINE
MINING DIVISION

SCALE: 1-INCH= 40 CHAINS

LEGEND

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

NOTES

Lands Withdrawn From Mining Act Section 39(1)
For Airport Shown Thus:

Surface Rights Only Withdrawn From Certain
Lands Shown Thus:

Gravel Reserve For S.W. pt. S 1/2 Lot 9 Cont

400' Surface rights reservation around all lakes &
rivers.

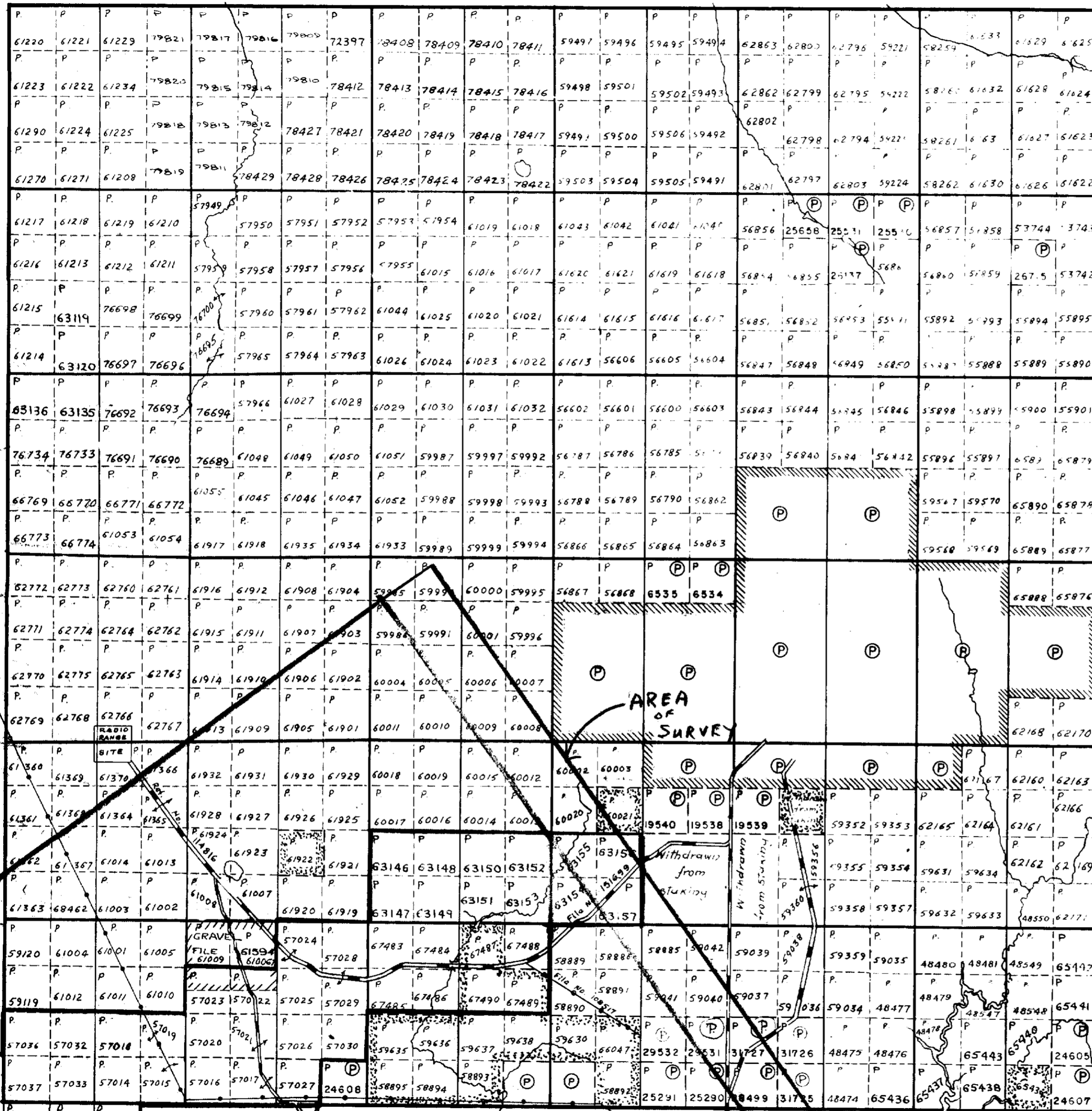
No disposition of sand & gravel from May 8th, 1964
until further notice.

DATE OF ISSUE
JAN 10 1964
INTAILED DEPT. OF MINES

PLAN NO.-M.289

DEPARTMENT OF MINES

—ONTARIO—



VI

V

IV

III

II

I

Jamieson Twp.

Murphy Twp.

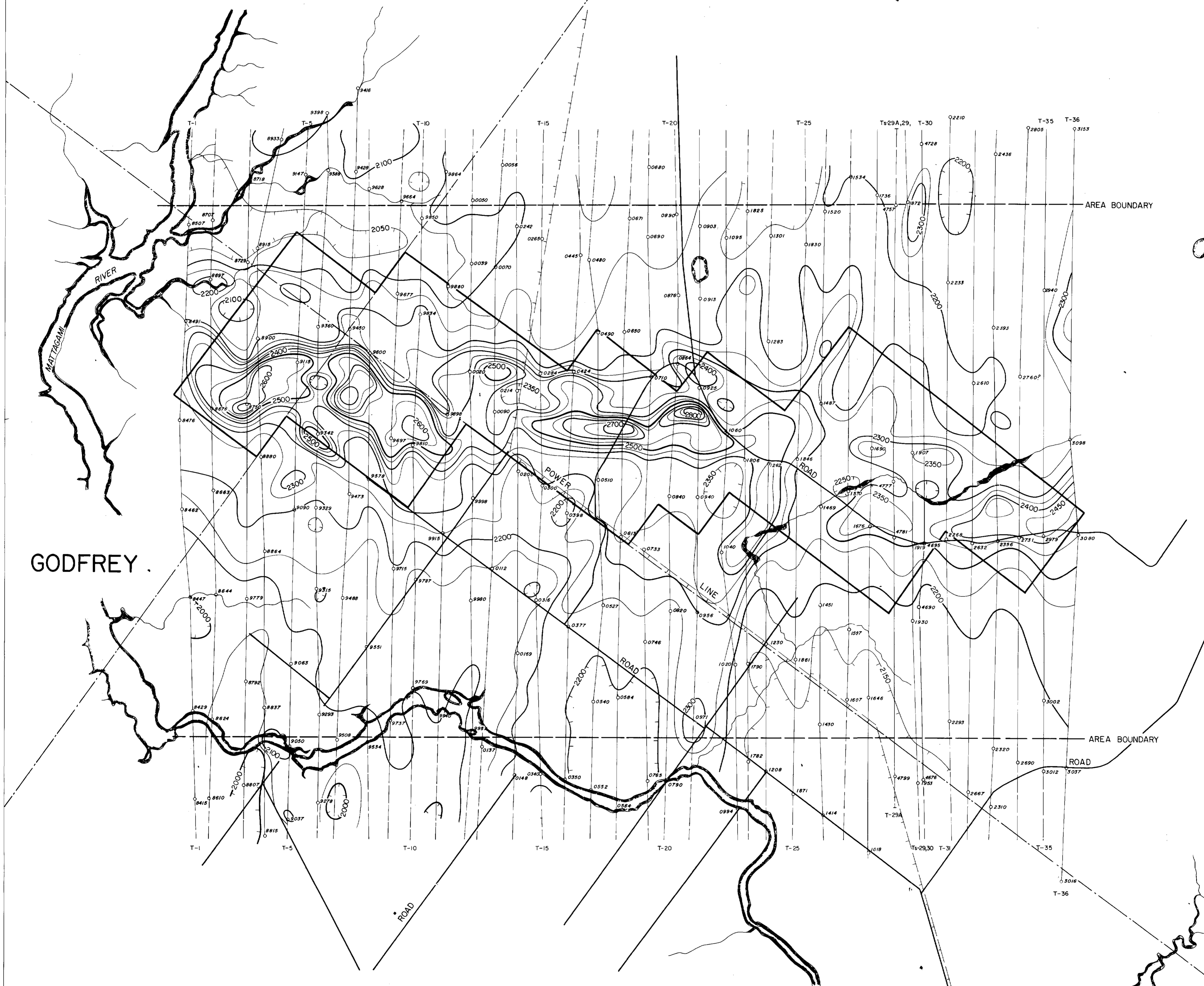
ntjoy Twp.



42A115W8367 63.1544 JESSOP

JAMIESON

JESSOP



GODFREY

MOUNTJOY



210

LEGEND

- CONTOUR INTERVAL... 50 GAMMAS
- 500 GAMMA CONTOUR...
- 100 GAMMA CONTOUR...
- 25 GAMMA CONTOUR...
- MAGNETIC LOW...

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

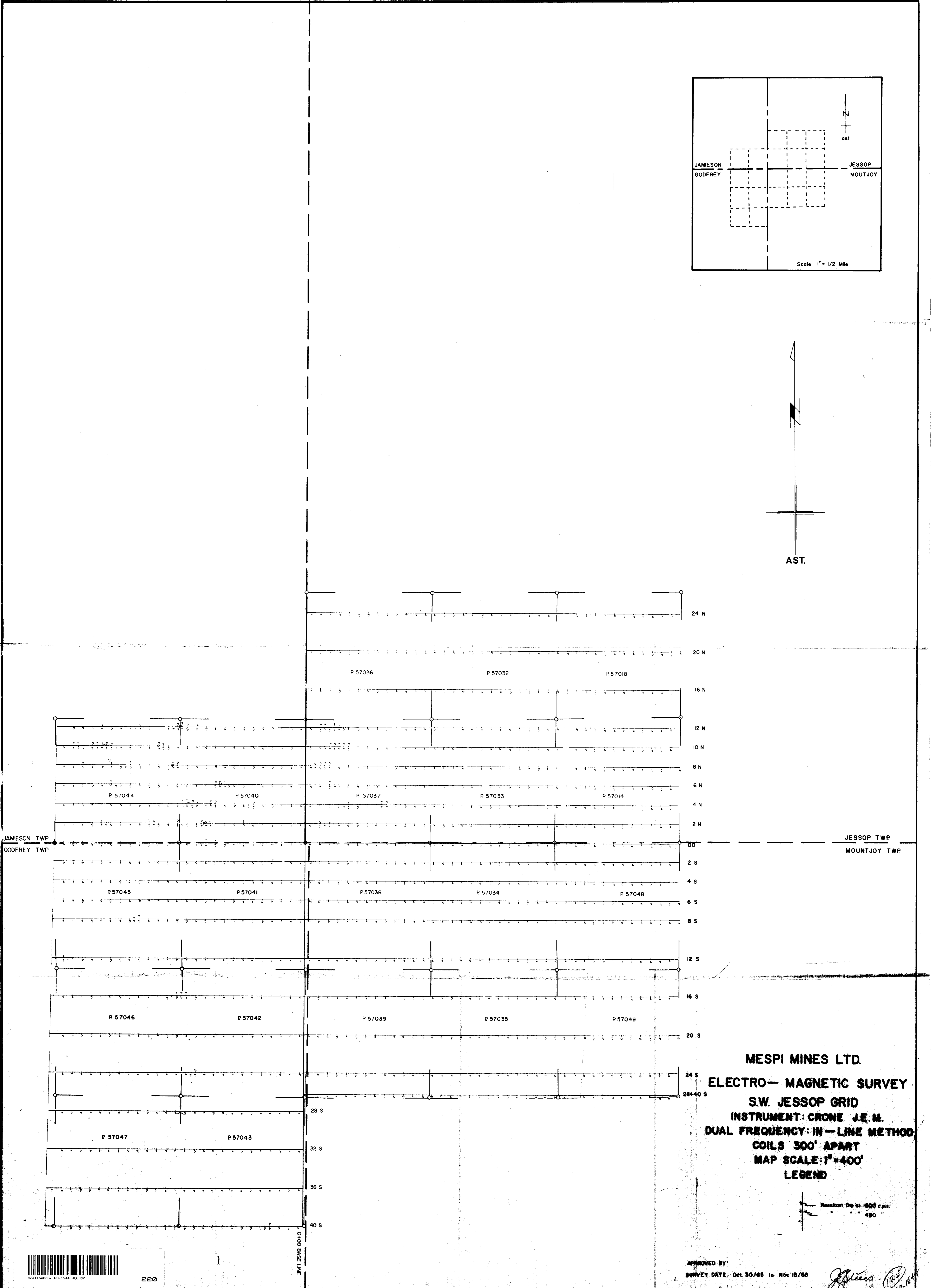
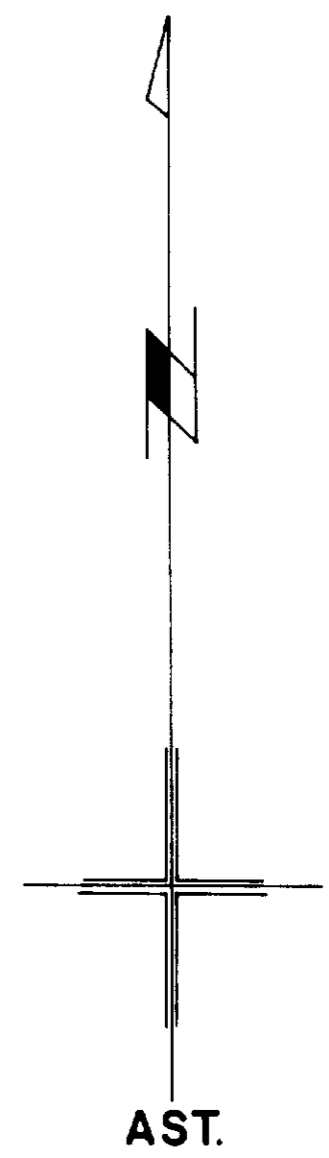
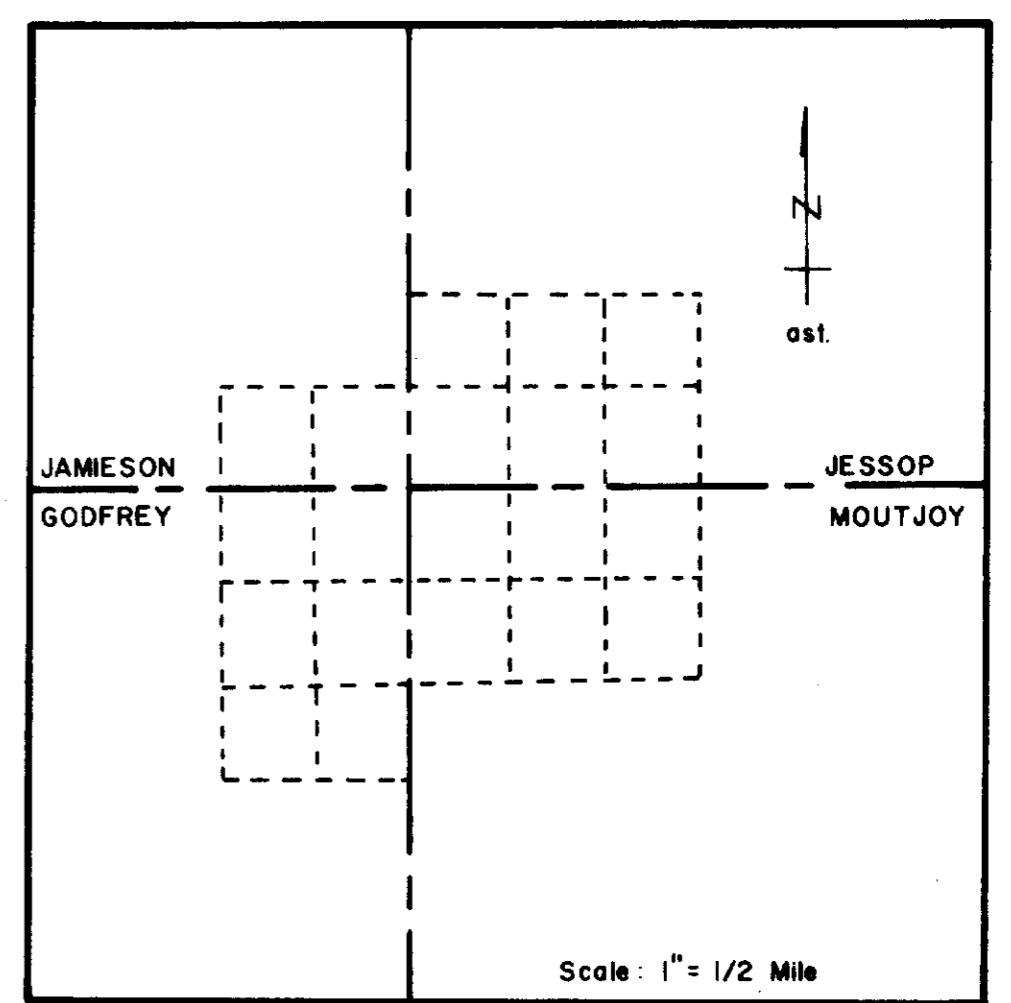
AIRBORNE MAGNETOMETER SURVEY
MOUNTJOY & JESSOP TWPS. AREA
 ONTARIO

MESPI MINES LIMITED
 SCALE: 1 INCH = 1/4 MILE (approx.)

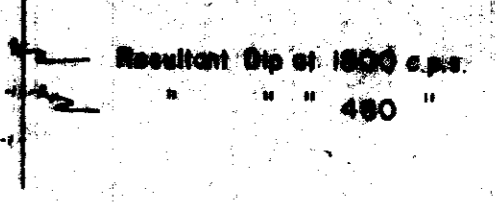


(APPROX.)

CANADIAN AERO
Mineral Surveys LTD.
 OTTAWA & TORONTO, ONTARIO

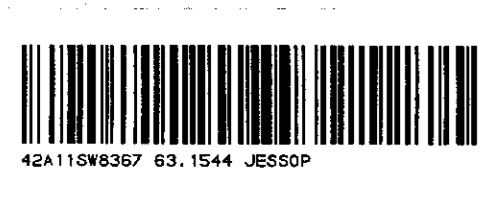


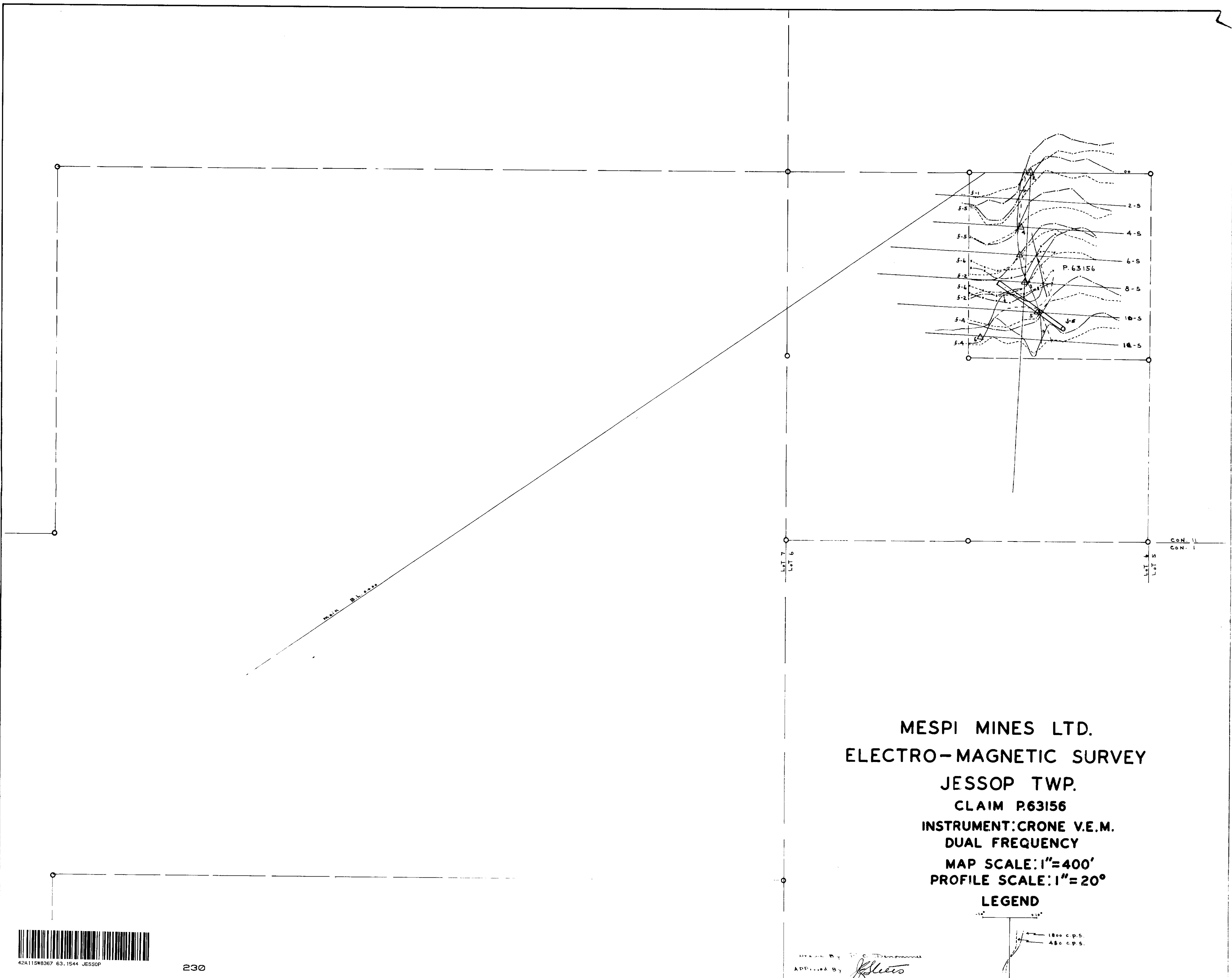
MESPI MINES LTD.
ELECTRO— MAGNETIC SURVEY
S.W. JESSOP GRID
INSTRUMENT: CRONE J.E.M.
DUAL FREQUENCY: IN— LINE METHOD
COILS 300' APART
MAP SCALE: 1"=400'
LEGEND



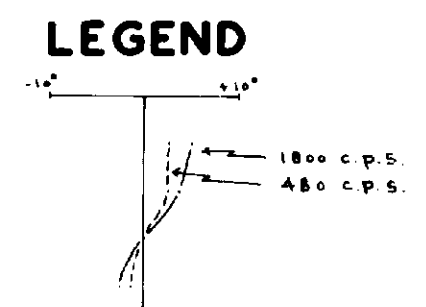
APPROVED BY:
 SURVEY DATE: Oct 30/66 to Nov 15/66

[Handwritten signature]





MESPI MINES LTD.
 ELECTRO-MAGNETIC SURVEY
 JESSOP TWP.
 CLAIM P.63156
 INSTRUMENT: CRONE V.E.M.
 DUAL FREQUENCY
 MAP SCALE: 1"=400'
 PROFILE SCALE: 1"=20'



Drawn By: *[Signature]*
 Approved By: *[Signature]*



JAMIESON

JESSOP

GODFREY

MOUNTJOY



MAGNETIC LEGEND

- S - SHARP
- VS - VERY SHARP
- B - BROAD
- VB - VERY BROAD
- F - FLAT
- M - MULTIPLE /
- 200 - AMPLITUDE



240

LEGEND

- 1 A ANOMALY
- 1 B ANOMALY
- 2 A ANOMALY
- 2 B ANOMALY
- 3 ANOMALY
- X type ANOMALY

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

AIRBORNE ELECTROMAGNETIC SURVEY
MOUNTJOY & JESSOP TWP. AREA
 ONTARIO
MESPI MINES LIMITED
 SCALE: 1 INCH = 1/4 MILE (approx.)



CANADIAN AERO
Mineral Surveys LTD.
 OTTAWA & TORONTO, ONTARIO

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