010

REPORT

ON

ELECTROMAGNETIC SURVEYS

CANADIAN JAVELIN LTD.

TIMMINS AREA, ONT.

INTRODUCTION

The following report covers electromagnetic surveys carried out on four separate properties in the Timmins area for Canadian Javelin Ltd. Two of these were detail surveys carried out on properties previously surveyed in Reid township. The original surveys are described in reports by the writer dated July 17th and August 30th.

The other surveys described in the report consist of a detail survey in Murphy township to outline a conductor on the Glencona property and a survey carried out in Kidd township.

PROPERTY AND LOCATION

The location of the properties in Reid township

are described in earlier reports. The area surveyed in Murphy township is shown on the location map.

The property in Kidd township is classed as Claim Group L-1 and includes the north half of lot 2, Concession 1.

GEOPHYSICAL SURVEY RESULTS AND INTERPRETATION

Three of the surveys described in this report were carried out using the Ronka Mark IV horizontal loop unit with a 300 foot coil interval. One of the detail surveys in Reid township was to check a Ronka conductor and vertical loop equipment was used.

A description of the results of each survey follows:

GROUP K-1

This is a detail survey of Anomaly "C" on Claim Group K-1 in Reid township. A previous vertical loop survey had also detailed this conductor. It is a fairly definite conductor and the writer understands that drilling has already indicated that graphite is the cause of the conductor.

VERTICAL LOOP SURVEY - REID TOWNSHIP

This survey was to check "A" anomaly indicated in a previous horizontal loop survey. In the vertical loop survey "A" anomaly shows a greater length and a stronger conductor. This is probably due to the greater penetration of the equipment.

The survey also indicated another anomaly referred to as "B" which actually looks as though it could be the extension of anomaly "A". It extends off the property to the east.

MURPHY TOWNSHIP

This was a detail survey to check a conductor on the property of Glencona Mines Ltd. The conductor was outlined for a length of approximately 1,000 feet and shows as a very strong conductor. It appears to be almost vertical and has an east-west strike.

The presence of gossan over the conductor indicates that the conductor is probably due to sulphides.

GROUP L-1 - KIDD TOWNSHIP

The survey was carried out along both east-west and

north-south lines, as shown on the accompanying map. The only responses indicative of a conductor were found on the north-south lines 0 and 3W. These are shown as separate conductors but could actually represent a north-east zone. The responses are quite weak and unfortunately the best one is on the property boundary.

It will be noted that some irregular positive responses were obtained on line 3W. These have no economic significance as there was nothing picked up on the east-west lines.

CONCLUSIONS AND RECOMMENDATIONS

The detail surveys served surveyed to check and in some cases further delineate the previously indicated conductors. Field data was given to the Company's geologist and at the time of writing this report these conductors have been checked.

The survey carried out on the Kidd township property indicated only a weak conductor close to the east boundary. It would seem advisable to check this with a vertical loop survey prior to any investigation by diamond drilling.

Respectfully submitted,
PROSPECTING GEOPHYSICS LTD.

H.J. Bergmann, P. Eng.

Montreal, Que.,
Nov. 13, 1964.

REPORT

ON

ELECTROMAGNETIC SURVEY

ON PROPERTY OF

CANADIAN JAVELIN LTD.

REID TOWNSHIP, ONT.

INTRODUCTION

An electromagnetic survey has been carried out on a property of Canadian Javelin Ltd. in Reid township, Timmins area of Ontario. The following report and accompanying map describes the results of this survey with an interpretation of the results.

PROPERTY AND LOCATION

The property surveyed is located in Concessions III, IV and V of Reid township, Porcupine Mining Division, Ontario. It consists of 46 claims of approximately 40 acres each, registered with the Department of Mines as shown on the accompanying map as follows:

61664 to 61681 inclusive

59670 to 59677 "

59688 to 59691 inclusive

59706 to 59721 "

GEOLOGY

Rock outcrops are relatively scarce in the area but there were some outcrops located during the geophysical survey and these are shown on the accompanying map. (WE QUESTION THIS, AS OUR ANC. OPR. W. JOCE, WORKED THE SAME LINES + FOUND NONE) The ground is almost entirely low-lying muskeg.

Geological map 2046 published by the Ontario Department of Mines does not show any outcrops in Reid township and from the areal geology one would expect the property to be largely underlain by volcanic rocks.

ELECTROMAGNETIC SURVEY RESULTS AND INTERPRETATION

The electromagnetic survey was carried out using a Ronka Mark IV electromagnetic unit along a network of northeast lines. The results are plotted on a map on a scale of 400 feet to the inch.

An examination of the map shows a number of broad weak conductors generally trending northwest. These are rather typical of conductive overburden as the out-of-phase reading is greater than the in-phase. "B" and "C"

zones are rather typical of this type.

The most interesting conductor indicated in the survey is referred to as "A" zone and was encountered on two lines for a length of approximately 800 feet. It actually consists of two parallel conductors but it is quite likely that the material in between the two is also conductive. If this is due to sulphide mineralization, it could consist of two bands of fairly massive sulphides with some disseminated sulphides in between them. On line 8 the conductivity is quite good and it gets weaker going to the southeast but this may be due to the depth of overburden. The readings on line 0 suggest the possibility of the conductor extending here but at depth. A weak conductor, referred to as "D" zone, shows up further southeast which could possibly represent the same structure.

There are a great many irregular positive responses obtained in the survey throughout the property. These responses have no significance and are due to the excessive wet conditions encountered in the survey.

SURVEY METHODS AND INSTRUMENT DATA

The electromagnetic survey was carried out using a Ronka Mark IV horizontal loop equipment with a 300 foot coil interval.

In the horizontal loop type of survey, both the in-phase and out-of-phase components of the secondary field are measured, whose special characteristics make possible a fairly accurate evaluation of the conductivity. A conductor caused by sulphide mineralization will produce a curve going from positive readings through zero to negative and back again to positive. Both the in-phase and out-of-phase readings show the same general curve. The ratio between the in-phase and out-of-phase readings over a conductor is an indication of the conductivity of the body. A good conductor would cause a greater deviation of the in-phase component than the out-of-phase component. The opposite is true of a poor conductor.

In some areas secondary currents are induced in swamps and lakes. These anomalies can usually be distinguished from a regular conductor as they cause a

response of the out-of-phase component with little or no deviation of the in-phase component.

CONCLUSIONS AND RECOMMENDATIONS

The electromagnetic survey indicated several conductive zones, most of which are weak and suggestive of conductive overburden.

The best looking conductor is referred to as "A" zone which has a northwest trend and a minimum length of approximately 800 feet. It shows up very strongly on one line with a ratio of 5:1 and this is worthy of investigation.

As mentioned previously, the other conductors are suggestive of conductive overburden and investigation of one of these could be used to determine the importance of the others.

Respectfully submitted,

PROSPECTING GEOPHYSICS LTD.

H.J. Bergmann, P. Eng.

Montreal, Que.,
Aug. 30, 1954.

A P P E N D I X

Since the original survey was carried out, a diamond drill hole has investigated "A" zone on line 8NW and penetrated through 176 feet of overburden at 50°. It is the writer's understanding that there was nothing in the underlying rocks to explain the conductor. As a result, a vertical loop E.M. check survey was carried out on both "A" and "C" zones.

The results of this survey are shown on a separate map accompanying this report and a description follows.

The vertical loop readings on "A" zone do not show a conductor with the exception of line 12NW where the horizontal loop response was quite weak. On line 8NW where high readings were obtained on the horizontal loop equipment there was not a cross-over but only a slight indication on the vertical loop readings.

The readings obtained in the horizontal loop survey are not typical of conductive overburden but one would not expect such high readings and ratio from a conductor in the underlying rocks buried under more than

100 feet of overburden. Therefore the explanation would appear to be some type of conductor in the overburden. The most likely explanation is that there is a horizontal conductor in the overburden (water seam containing an electrolyte) that shows up well with the horizontal loop survey but the response with a vertical loop survey is negligible except along the edges. The limited work carried out did not encounter the edges of the conductive sheet.

The vertical loop survey carried out over "C" zone indicates a fairly good conductor here extending from line 36SW to line 20 and it is still open. Unfortunately, only one day's work was carried out so the lateral extent has not been fully outlined. It is also impossible to determine the dip since the readings are not taken sufficiently far on each line. The indication is a dip to the (southeast.) NORTHEAST OR SOUTHWEST W.B

The conductor indicated by the vertical loop survey is situated some 200 feet southeast of the previous conductor. This may possibly be due to the dip or it may be the orientation. The two axes are

reasonably close on lines 20 and 24 and this would appear to be a good place to test the zone.

On the basis of the check survey, the zone warrants investigation by drilling to determine if it is conductive overburden or a conductor in the underlying rocks. If the results are encouraging, the other zones should also be checked by means of the vertical loop equipment.

Respectfully submitted,

PROSPECTING GEOPHYSICS LTD.

H.J. Bergmann, P. Eng.

Montreal, Que.
Sept. 3, 1964

AIRBORNE GEOPHYSICAL SURVEY
OF THE
EDWARDS, REID AND THORBURN TOWNSHIP AREAS,
FOR
CANADIAN JAVELIN LTD.

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I. INTRODUCTION

A combined airborne EM and magnetometer survey has been completed for Canadian Javelin Ltd. over three blocks of ground in the Timmins area of Ontario. The aircraft employed was the Canadian Aero Mineral Surveys Limited geophysically-equipped de Havilland Otter, registration CF-IGM.

The areas surveyed are described as the Edwards Township, Reid Township and Thorburn Township blocks. The final areas laid out by Canadian Javelin field personnel differ somewhat from the original areas described in the contract of May 12, 1964, especially the Edwards block which was enlarged appreciably. The final line-mileage flown totals 700.2 line-miles, distributed as follows:

Edwards Township block	-	358.8	line-miles
Reid Township block	-	225.7	line-miles
Thorburn Township block	-	115.7	line-miles

In all three areas, the line-spacing was 1/8-mile and the mean terrain clearance, 150 feet.

The survey began on May 16, 1964, and was completed on July 11, 1964.

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

G. A. Curtis	--	Electronic Technician and Project Manager
E. Jensen	--	Pilot
D. Smith	--	Pilot
T. Appleton	--	Pilot
J. D. Lloyd	--	Aircraft Mechanic
R. Sarsfield	--	Aircraft Mechanic
K. McLeod	--	Navigator
D. Graham	--	Electronic Operator
D. J. Sarazin	--	Data Analyst
G. Granger	--	Draftsman

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

Details of the equipment carried on the Otter and an explanation of the recorder charts are provided in Appendix II. Appendix III describes our anomaly rating and anomaly listing procedures.

The airborne EM data are presented on three separate sheets at the scale of one inch equals ¼-mile. An air-photo laydown provides the base for the EM maps.

II. GEOLOGY

Geological information on these areas is scarce. They are deeply covered by drift for the most part.

The Reid and Thorburn areas are covered by the Ontario Department of Mines preliminary map P.139 at the scale of one inch equals two miles. Most of the Edwards Township block is covered by O.D.M. preliminary maps P.152 and P.153 at one inch equals ¼-mile.

In the few outcrops which do exist a wide variety of Precambrian rocks have been mapped. They include acidic to basic volcanics, acidic and basic intrusives, quartzite, amphibolite and various gneissic rocks.

One sulphide showing with minor chalcopyrite is reported in the western part of Edwards Township.

III. RESULTS

All EM anomalies have been assigned numbers which are shown on the maps and in the anomaly list, Appendix I. These numbers consist of the line upon which the anomaly occurs, plus letters A, B, C, etc., from south to north or from east to west. Additionally, the main zones of conductivity are assigned reference numbers on the map sheets to facilitate discussion in this report (numbers 1, 2, 3, etc.).

The "x" category of anomaly rating is reserved for questionable anomalies and for anomalies which are suspected of being due to surface conductors. Because the Timmins area has great economic potential, we include on the maps, any feature from the EM charts which has a reasonable chance of being a legitimate anomaly.

In many parts of the Timmins area, the overburden has a fairly high conductivity, yielding substantial quadrature anomalies. Most of these quadrature anomalies are broad and smooth and many correlate clearly with swamps; these are readily discarded. The sharper quadrature anomalies could derive from either low-conductivity bedrock conductors or narrow, conducting swamps.

Many of these features are included on the maps, and attention is drawn to the possibility of a surface conductor in the "Comments" column of the anomaly listing or in the text of this report.

Edwards Township Area

Seven zones of anomalous conductivity have been numbered on this sheet. All of them but one, (zone 3), consist of single-line anomalies. Additionally, there are eleven "x-type" anomalies designated only by their anomaly numbers.

Zone 1 is a triple-peaked anomaly occurring in the vicinity of known sulphide mineralization. The direct magnetic correlation on the centre anomaly suggests an appreciable pyrrhotite content, and there may be a slight magnetic anomaly on the northern peak as well.

Zone 2 is a very weak, multiple anomaly, but it is probably legitimate. The O.D.M. geology map shows a north-easterly strike in this vicinity, suggesting that 1 and 2 may, in fact, be the same conductive zone.

The only extensive zone of bedrock conductivity is zone 3, a 3/4-mile-long, multiple-conductor belt. The width of the zone changes drastically from line to line and there is

magnetic correlation with many of the EM anomalies. Chances are good that sulphides will be found in this belt, probably in combination with graphite. The strongest EM response within zone 3 is anomaly 6B.

Zones 4, 5, 6, and 7 consist of single-line, broad, quadrature anomalies. The possibility exists that surface conductors are the source of one or all of these anomalies, but in all cases, there are reasons to suspect some bedrock conductivity contrast. Therefore, in a thorough follow-up programme, these conductors should be explored.

Any of the eleven questionable, "x-type", anomalies could warrant exploration if the geological environment is sufficiently encouraging. Strictly on the basis of the anomaly characteristics, our preference among the questionable features is for anomalies FA, 6A, 24A, 24B, and 34A.

Reid Township Area

Nine zones of anomalous conductivity have been numbered and there are four other "x-type" anomalies shown.

Zones 1, 5, 6, 7, 8, and 9 are definite bedrock conductors. Of these, 5, 6, and 9 appear to be related. Note

that information on zone 9 is incomplete and its position is somewhat uncertain, because it occurs at the end of the lines outside the job boundary.

Zone 8 is a good sulphide prospect, a localized feature of high conductivity with a coincident magnetic anomaly.

Although zone 2 consists of a single, questionable anomaly, we consider that it has a fair chance of being a legitimate bedrock conductor.

Zone 3 is a definite anomaly, but it could derive from a surface conductor rather than a bedrock source.

Zone 4, consisting of strong, broad, quadrature anomalies, is probably a surface conductor. It is stronger than most, however, and is therefore included on the map.

The three "x-type" anomalies 52A, 53A, and 55A, all have similar characteristics: they are in-phase anomalies related to terrain. We consider them poor prospects for bedrock conductivity. Anomaly 60A is also a probable surface effect.

Thorburn Township Area

Five zones of anomalous conductivity have been numbered on this sheet. Of these, we consider zones 1, 2, and 3 definite bedrock conductors, and zones 4 and 5 good possibilities.

Although both the anomalies in zone 4 are questionable, they tend to support each other.

The characteristics of zone 5 are such that it is questioned as a possible surface conductor.

The remaining ten "x-type" anomalies plotted on this sheet are all strongly suspected of being surface effects or noise effects. Our preference among these is anomaly 10A.

IV. SUMMARY AND RECOMMENDATIONS

Due to the economic potential of this area, all definite bedrock conductors warrant exploration. Furthermore, if the local geological environment is considered sufficiently encouraging, any of the questionable anomalies could be worth examination.

The definite bedrock conductors are as follows:

Edwards - 1 and 3.

Reid - 1, 5, 6, 7, 8, and 9.

Thorburn - 1, 2, and 3.

A number of other zones have a good chance of being bedrock conductors and we recommend that they be included on the list for mandatory followup. They are as follows:

Edwards - 2, 4, 5, 6, and 7.

Reid - 2 and 3.

Thorburn - 4 and 5.

There is a considerable variation in characteristics among the more questionable anomalies which we include on the maps.

Strictly on the basis of their geophysical properties, we prefer the following from this group:

Edwards anomalies FA, 6A, 24A, 24B, and 34A.

Thorburn anomaly 10A.

Respectfully submitted,

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

OTTAWA, Ontario,
July 28, 1964.

APPENDIX I

PROJECT NO. 4026 - EDWARDS TOWNSHIP AREA

Anomaly	Fiducials	In-Phase Quad	Altitude	Magnetics	Rate	Comments
FA	5974/7	-/80	130	nil	x	
DA	5334/8	-/50	135	nil	x	Probable swamp effect
DB	5391/7	-/60	140	nil	x	Probable swamp effect
CA	5127/33	-/70	125	nil	3	Double, ore peak sharp
BA	5011/3	-/40	145	nil	x	Probable swamp effect
BB	5028/34	-/50	140	Assoc? 40g	3	Possible swamp effect
AA	6582/94	-/100	135	Assoc? broad 200g	3	
AB	6543/7	-/60	140	nil	x	
1 A	2857/61	120/60	140	Dir? 15g	3	Double, strong
1 B	2851/5	40/50	135	Dir.broad 30g	3	Broad - Broader quad
2 A	3018/22	60/120	140	Dir: 40g	3	Double, strong broad quad
2 B	3024/9	-/70	150	Dir:? 60g	3	Broad quad - Double ?
3 A	3343/7	80/60	125	Dir. to N 130g	3	

PROJECT NO. 4026 - EDWARDS TOWNSHIP AREA

Anomaly	Fiducials	In-Phase Quad	Altitude	Magnetics	Rate	Comments
3 B	3340/3	40/200	135	Dir: 150g	3	Strong quad
3 C	3336/40	-/180	135	Dir.broad 120g	3	Strong quad
3 D	3333/6	-/170	140	Dir? 70g	3	
4 A	3508/12	-/90	150	N.Flank 80g	3	Broad - No IP
4 B	3654/65	-/150	145	nil	3	Multiple quad, surface conductor ?
5 A	3828/32	50/40	140	Dir? 20g	3	Double ?
6 A	3978/84	60/-	150	nil	x	Probable manoeuvre noise
6 B	3992/6	120/220	145	Dir. 15g	2A	
6 C	3996/400	40/40	150	Dir. 230g	3	Broad, weak
7 A	4317/21	40/70	150	S.edge 180g Possibly some direct mag.	3	Poor IP, Double ?
11 A	5451/5	40/-	130	Dir. 25g	x	Probable turbulence noise
20 A	8053/60	60/-	120-160	Dir. C 80g	x	No quad. Broad multiple
21 A	8261/4	140/20?	150	S.Flank 100g	2B	

PROJECT NO. 4026 - EDWARDS TOWNSHIP AREA

Anomaly	Fiducials	In-Phase Quad	Altitude	Magnetics	Rate	Comments
21 B	8264/6	80/20?	150	Dir: 300g	3	Sharp mag.
21 C	8266/8	50/20?	150	Dir: 15g	3	
23 A	8881/4	30/-	150	nil	x	Doubtful
24 A	9063/6	40/-	150	S.Flank 20g	x	
24 B	8938/41	40/-	150	N.Flank 60g	x	
34 A	2126/9	-/50	140	nil	x	Possible surface effect.

PROJECT NO. 4026 - REID TOWNSHIP AREA

Anomaly	Fiducials	In-Phase Quad	Altitude	Magnetics	Rate	Comments
39 A	4677/80	20/30	160	N.side 80g	x	Weak
40 A	4526/9	30/30	155	N.edge 60g	3	Weak
40 B	4523/6	30/-	150	Dir: 40g	x	IPonly, weak
50 A	2602/5	40/-	155	Dir.broad 300g	x	Good shape
52 A	2357/64	100/-	145	Assoc? 100g	x	Probable surface effect
53 A	2051/6	90/-	140	nil	x	Probable surface effect
53 AB	1995/9	-/80	135	N.Flank 600g	3	Possible surface conductor
54 A	1741/4	-/120	145	nil	3	Possible surface conductor
54 B	1814/9	-/80	135	nil	3	Probable surface conductor
54 C	1861/6	60/20?	145	N.Flank 200g	3	Double ?
55 A	1524/30	80/-	140	nil	x	Probable surface effect
55 B	1501/12	-/140	125	nil	3	Probable surface conductor

PROJECT NO. 4026 - REID TOWNSHIP AREA

Anomaly	Fiducials	In-Phase Quad	Altitude	Magnetics	Rate	Comments
57 A	930/3	20?/40	125	N.Flank 120g	3	Weak
57AA	3313/8	-/120	140	nil	3	Possible surface conductor
57AB	3256/60	60/20?	165	nil	x	Double?
58 A	533/6	60/20	125	nil	3	Broader and weak quad
58 B	520/3	40/40	130	Dir? broad 25g	3	
59 A	447/50	40/30	125	N.edge 60g	3	Broader quad
60 A	0050/3	10/30	130	nil	3	Weak
60 B	0024/9	-/40	125	nil	x	Probable surface effect
65 A	8867/70	40/40	140	Dir. 120g	3	Weak
66AA	7492/5	80/20	135	N.Flank 80g	3	
66 A	3035/8	60/20	155	Dir. 60g	3	Strong
67 A	7481/5	70/40	135	N.Flank 60g	3	

PROJECT No. 4026 - THORBURN TOWNSHIP AREA

Anomaly	Fiducials	In-Phase Quad	Altitude	Magnetics	Rate	Comments
1 A	0137/41	-/50	110	Dir. 100g	x	Probable surface effect
2 A	0211/5	-/50	140	nil	x	Possible surface conductor
4 A	0479/82	-/20	130	Dir. 15g	x	
5 A	0544/7	-/40	130	Dir. 150g	3	
6 A	0697/0701	-/40	140	Dir? 30g	x	
6 B	0712/5	-/30	145	N.Flank 150g	x	
7 A	0754/7	10?/40	145	nil	x	
8 A	987/90	50/20	160	Dir? broad 15g	3	
9 A	1013/6	20/50	140	E.Flank 30g	3	
10 A	1220/3	60/-	135	nil	x	
10 B	1289/92	-/40	160	nil	x	
11 A	1394/7	-/50	115	nil	x	Possible surface effect
12 A	7495/8	90/-	150	Dir. 50g	x	Probable manoeuvre noise
17 A	2648/51	40/40	140	E.edge 150g	3	
18 A	2953/6	40/70	140	E.edge 70g	3	

PROJECT NO. 4026 - THORBURN TOWNSHIP AREA

Anomaly	Fiducials	In-Phase Quad	Altitude	Magnetics	Rate	Comments
19 A	8270/3	20/30	155	Dir? 10g	x	
22 A	8875/8	40/-	160	nil	x	
23 A	8945/8	-/40	150	Dir? broad 40g	x	
29 A	4796/4800	-/40	150	nil	x	Possible surface conductor
29 B	4834/7	-/30	140	Dir. 50g	x	Possible surface conductor
30 A	4900/3	-/40	135	E.Flank 100g	x	
32 A	5148/51	-/50	140	nil	x	Possible surface effect.

Canadian Javelin Limited

Report On The

K-1 Claim Group

Reid Township, Ontario

Introduction:

This report considers the field work conducted by Canadian Javelin Limited on a group of forty-six unpatented mineral claims located in the west central portion of Reid Township, Porcupine Mining Division, District of Cochrane, Ontario. This group of claims was purchased from Messrs. J. Hamilton and J. Sweet in early May 1964 and has been designated by the Company as the K-1 claim group.

Purpose:

The purpose of this report is to describe and evaluate the field program which consisted of line-cutting, airborne and ground magnetic and electromagnetic surveying, and diamond drilling. This program was initiated in late June 1964 and was completed in early October.

The ultimate goal of this program was to locate a base metal sulfide deposit by drilling a target or targets outlined by geophysical methods.

Location and Access:

The forty-six 40 acre claims, bearing the following numbers -

P-61664 - 61681 inclusive
P-59670 - 59677 inclusive
P-59688 - 59691 inclusive
P-59706 - 59721 inclusive

are registered in the name of Canadian Javelin Limited, 100 Bronson Avenue, Ottawa 4, Ontario, with the Ontario Department of Mines, Timmins Recording Office. These claims are located in a township in which the sub-division has been annulled. However, if this township were sub-divided, the K-1 claim group would lie approximately in Lots 12, 11 and the west half of Lot 10, northernmost 3/4 of Concession III; east half of Lot 10, Lot 9, and the west half of Lot 8, northernmost 3/4 of Concession III and the south half of Concession IV; east half of Lot 8, northernmost 3/4 of Concession III and the southernmost 3/4 of Concession IV; and the west half of Lot 7, northernmost 3/4 of Concession III and the south half of Concession IV; Reid Town-

ship, which is situated about 20 air miles north-northwest of Timmins.

The northward flowing Thorburn Creek meanders through the central portion of the property, and the west branch of Thorburn Creek flows eastward through the southernmost tier of claims from the Reid - Thorburn Township line, to just south of claim number 61664, where it joins the northward flowing branch.

Thorburn Creek does not carry sufficient water to allow the use of boats of any type, but it would possibly be suitable for "skidoo" type vehicles when frozen. Consequently, helicopters are necessary for access to the property. During the recent field season, large helicopter landing areas were cleared in claims numbered 61669, 59674 and 59720.

Topography and Cover:

The ground in the K - 1 claim group is generally flat, moderately well drained, and not extremely swampy. It is entirely covered with glacial drift to depths probably well over 100 feet. The area has not been cut over for many years, and the trees are mainly large spruce, jackpine, birch and poplar. Dense alder underbrush is prevalent only along the banks of Thorburn Creek.

Field Program:

Since this property was acquired by Canadian Javelin in early May 1964, no previous field work has been performed on the K-1 claim group by or for that Company, nor is there any evidence of previous work on this ground by others.

The field work consisted of establishing two surveyed base lines, bearing N 45° W - 6900 feet apart, for a total base line length of 14,680 feet. The zero point on the main base line is located in the southwest corner of claim number 59670. A total of 198,000 feet of picketed cross line was cut at 400 foot intervals at right angles to the base lines. The north and south claim boundaries were used as tie lines. All of the above information is presented on the enclosed map at a scale of 1 inch equals 400 feet.

Ground and airborne geophysical surveys were then conducted over the property. This phase located conductive zones which were later, tested to depths over 550 feet by diamond drilling.

Airborne Survey:

A total of 24 miles (including turns) of electromagnetic and magnetic survey was flown within the confines of the K-1

group by Canadian Aero Mineral Surveys Limited, Hunt Club Road, Ottawa, during the month of June 1964. A De Haveland Otter equipped with the appropriate geophysical gear flew lines bearing N45° E at 1/8 mile line spacing and at a 150 - 200 foot elevation.

The airborne survey determined the presence of two anomalies (numbered 1 and 2 on the Aero Surveys map). The larger one (No. 1) is about 1500 feet in length and is located in claim numbers 61679 and 61680: it trends approximately east-west. The number 2 anomaly was picked up only on one flight line and is approximately located in claim number 59720.

The number 1 anomaly has been considered by Canadian Aero to be a definite bedrock conductor, and the number 2, although a single questionable anomaly, has been considered to have a fair chance of being a legitimate bedrock conductor. The number 1 anomaly is associated with a 40 gamma magnetic response and the number 2 is associated with a 300 gamma magnetic high.

The geophysical data was interpreted by A. R. Rattew, P. Eng., author of the report entitled "Airborne Geophysical Survey of the Edwards, Reid and Thorburn Township Areas for Canadian Javelin Limited, by Canadian Aero Mineral Surveys Ltd.", Project No. 4026, dated 28 July 1964. This report carries the

Canadian Javelin file number - 312.

There were no conductive zones indicated in the remaining portion of the claim group, and an examination of the airborne magnetometer tapes indicated additional magnetically anomalous zones, which were subsequently precisely located during the ground survey.

Geology:

There are no reported outcrops in Reid Township other than in the very southwest corner at a point common to the townships of Reid, MacDairmid, Thorburn and Loveland, where the Ontario Department of Mines Map No. 2046 - the Timmins-Kirkland Lake Sheet, reports undifferentiated Archean acid and intermediate volcanics in contact with andesites and basalts which, in turn, are in contact with gabbros and diorites. The contacts are reported to trend west-northwest or north-west and the attitudes of three magnetic highs on the K-1 claim group suggest a similar orientation of probable basic intrusives.

A thorough search on the K-1 claim group failed to locate any outcrops and the diamond drilling indicated that the overburden is in the range of 100 to 150 feet in depth.

Three diamond drill holes were put down at the following locations:

K - 1/1	54 + 50 SW / 8 + 00 NW	SW @ 55°
K - 1/2	75 + 25 SW / 28 + 00 NW	" @ 65°
K - 1/3	2 + 25 SW / 52 + 00 SE	" @ 60°

and the logs of the holes are briefly summarized below:-

K - 1

0 - 172	Overburden, large boulders	160 - 172'
172 - 605	Varigated dacite tuff.	
	Core Angle: 45 - 70°	
	------ End of Hole -------	

K - 1/2

0 - 175	Overburden - sand and gravel.
175 - 200	Andesite.
200 - 217	Rhyolite.
217 - 365	Phyllitic sediments with weak graphite and pyritic mineralization.
365 - 445	Rhyolite tuff and tuff breccia.
445 - 465	Andesitic tuff.
465 - 525	Rhyolitic tuff.
525 - 554	Andesitic tuff.
	Core Angle: 40 - 50°
	------- End of Hole ------

K - 1/3

0 - 130	Overburden - sand, gravel and clay.
130 - 157	Rhyolite with minor pyrite mineralization.
157 - 526	Gabbro - "Polka Dot".
526 - 556	Rhyolite tuff.
556 - 611	Gabbro - "Polka Dot".
	Core Angle: 50 - 60°
	------- End of Hole ------

The core angles indicate that the rocks dip steeply to the northeast. The diamond drilling suggests that, (1) the western portion of the K-1 claim group is underlain by acid and intermediate volcanics which lie above and below a 148 foot band of sediments, (2) the central portion is underlain by intermediate volcanics, and (3) the eastern portion is underlain by an extensive body of gabbro, intruded into acid volcanics.

Magnetics:

The magnetic survey on the K-1 claim group was conducted by W. Voce from Davison, Michigan and W. Vickers of Porquis, Ontario. A Jalander Model W 505, total field type magnetometer was used. Magnetic base stations were established at 400 foot intervals along the base lines and over 3960 readings were taken at fifty foot intervals along 198,000 feet of NE - SW picketed cross line.

The magnetic background appears to trend roughly north and south and is in the range of 650 to 850 gammas. This approximately duplicates the area magnetic background recorded on the Department of Mines and Technical Surveys Sheets 298 G - 299 G 300 G and 301 G, The Pamour, Kamiskotia Lake, Thorburn Creek and Crawfish Lakes Sheets.

The ground survey established the presence of two very prominent anomalous magnetic zones, one in the eastern portion of the property and the other in the southwest corner.

The largest and most extensive 'B' anomaly actually consists of two nearly parallel magnetic ridges extending from the south to the north claim boundary at about N 11° W.

The extent and orientation of these ridges suggest that they may be caused by two relatively near surface northward trending basic dikes.

A study of the profiles across these anomalies suggests that, (1) the westernmost ridge is caused by the presence of two adjacent dikes which merge into one near the south boundary, and (2) the western 'pair' dips westward, and (3) the eastern single dike dips vertically or steeply to the west.

The distance between the western 'pair' and eastern single dike appears to gradually increase from 1000 feet near the south boundary to over 1500 feet at the north end. By the same token, the total width of the 'B' anomaly increases from 1500 feet to over 2000 feet from south to north.

The recorded magnetic response over the 'B' anomaly is

up to 1200 gammas above the background.

A southeast trending conductive zone "B" located from 2 + 50 SW x 36 + 00 SE to 4 + 50 SW x 60 + 00 SE appears to cross a portion of the western magnetic anomaly. However, diamond drilling to test the conductive zone suggested that the EM anomaly was caused by conductive overburden. A 369 foot intersection of gabbro in DDH K-1/3 suggested that the gabbro might be the underlying rock responsible for the magnetic anomaly; however, the gabbro apparently is non-magnetic, as several sections of drill core tested with a Brunton compass failed to visibly deflect the compass needle.

The "C" magnetic anomaly, located in the southwest corner of the property, is quite complex - the eastern and western portions are possibly caused by underlying basic dikes trending north-north-northwest. The rock causing the eastern portion of the anomaly could possible be more deeply buried.

The central portion of the "C" anomaly trends slightly south of east, and appears to be associated with the "C" EM anomaly, which diamond drilling indicated is caused by a heavily graphitic zone in metamorphosed Archean sediments. The high magnetic readings, however, were encountered about 300 feet

southwest of the conductor. This suggests that they are possibly caused by the presence of underlying andesitic rock, which was encountered in the bottom of DDH K-1/2.

As stated above, the magnetic background appears to trend roughly north and south, and, although there is very little relief in the background, it suggests that the grain of most of the underlying rock between the "B" and "C" anomalies is north and south or slightly north-northwest-south-southeast.

Electro Magnetics:

The electromagnetic survey on the K-1 claim group was conducted by Prospecting Geophysics Limited of 3518 Vendome Avenue, Montreal, Quebec. A Ronka Mark IV horizontal loop unit, with a 300 foot coil separation was used in the field. The operators were F. Dicaire and E. Vaillancourt from Val d'Or, Quebec, who were on the property from 20 July to 12 August, 1964. A Squires Vertical loop unit and the Ronka Mark IV were used on lines 20 / 00 NW through 36 / 00 NW, and 0 / 00 through 12 / 00 NW and 48 / 00 SE - 56 / 00 SE, on 1 and 2 September, 1964, by P. Ferderber, J. LeClaire, J. Doyon, R. Pelette and L. Routhier to check the initial horizontal loop survey.

The electromagnetic data was interpreted by H. J.

Bergmann, P. Eng. of Prospecting Geophysics Limited, and was presented to Canadian Javelin Limited in the following reports:

" Report on Electromagnetic Survey On Property of Canadian Javelin Limited, Reid Township, Ontario" Aug. 30, 1964 and Appendix dated 3 Sept. 1964
- Canadian Javelin File No. 308 -

and

" Report on Electromagnetic Surveys, Canadian Javelin Limited, Timmins Area, Ontario" 13 November, 1964.
- Canadian Javelin Limited File No. 324 -

The initial horizontal loop survey outlined four major possibly conductive zones (A, B, C & D). However, Bergmann considered only the 'A' zone to be caused by the presence of a conductor in the underlying rock. He felt that the B, C. and D zones, plus five undesignated anomalous areas, were caused by conductive overburden conditions.

The 'A' anomaly was encountered on lines 4 + 00 NW and 8 + 00 NW and was over 800 feet in length. A study of the electro magnetic profiles suggested that it was caused by a conductive zone dipping steeply to the north, and that it could possibly represent two bands of fairly massive sulfides with disseminated sulfides between them.

This conductive zone was tested to a depth of 605 feet, by

diamond drill hole K-1/1, drilling S 45° W at 55° from 54 ∠ 50 SW/8 ∠ 00 NW. The drilling failed to intersect any mineralization which would have produced the 'A' anomaly, whereupon check surveys were conducted over the zone with vertical loop and horizontal loop units. The results of the vertical loop survey do not show a conductor except on line 12 ∠ 00 NW where a "cross-over" was determined, but where the initial horizontal loop response was quite weak. The check survey with the horizontal loop equipment was unable to duplicate the first survey results, and the inconsistency has been explained by Prospecting Geophysics as a combination of condensation in the equipment, wet ground, conductive overburden and a possible sharp drop in bedrock topography, which produced a false (A) anomaly.

The 'C' anomaly crosses lines 20 ∠ 00 NW through 36 ∠ 00 NW, in a northwesterly direction, and is probably the No. 1 anomaly determined by the airborne survey. This anomaly was considered by Prospecting Geophysics as possibly being caused by conductive overburden; however, diamond drill hole K - 1/2 collared at 75 ∠ 25 SW on line 28 ∠ 00 NW and drilling south 45° west at 65° intersected metamorphosed graphitic sediments from 217' to 365' with a massive sulfide zone from 335.0 to 337.5 This intersection quite definitely identified the cause of the anomaly

as being a conductor in the underlying rock, rather than in the overburden. The 'C' anomaly appears to be associated with a fairly strong magnetic ridge about 300 feet to the south, and which has a very similar orientation. This is the only case on the K-1 claim group in which the magnetics and conductivity are even remotely associated.

The 'B' anomaly extends north-northwesterly from line 60 ∕ 00 SE to line 36 ∕ 00 SE, crosses a strong magnetic high at 60 ∕ 00 SE/6 ∕ 00 SW, and is probably the No. 2 anomaly indicated by the airborne survey.

Prospecting Geophysics stated that all of the EM anomalies other than 'A' were probably caused by conductive overburden, and the results of diamond drill hole K-1/3, collared at 2 ∕ 25 SW/52 ∕ 00 SE, drilling S45° W at 60°, appear to substantiate this assumption, as the pyrite-pyrrhotite mineralization encountered in this hole was too weakly disseminated to provide the response obtained in the electromagnetic survey. A check survey with horizontal loop equipment, prior to spotting the drill hole, verified the plotted position of the 'B' conductor.

From the results of the diamond drilling it is obvious that the electromagnetic surveys on the K-1 claim group were not particularly successful, what with vanishing conductors, coupled

with deep and probably conductive overburden conditions. It is felt that the entire claim group should be systematically re-examined in the future with more definitive electromagnetic equipment.

Diamond Drilling:

Three "Ax" sized diamond drill holes were put down to test the conductive zones delineated by the A, B and C electromagnetic anomalies. The drilling was performed by Boyles Bros. (Que.) Ltd. of Noranda, P.Q. and a BBS-2 drill machine was used in all instances.

Three drill holes have been logged by the writer and are presented as follows:

None of the mineralized sections of core from holes K-1/1 and K-1/3 warranted assaying, however a 5.0 foot sample was taken from K-1/2 and assayed for gold, silver, copper and nickel by Swastika Laboratories, with the following results:

GOLD	SILVER	COPPER	NICKEL
nil	nil	.01	none

Although the results of the drilling are not particularly encouraging, they have indicated that a potentially favourable volcanic - sedimentary environment exists in the southwest corner of the K-1 claim group.

Geological Interpretation:

Based upon diamond drilling and magnetic information, it is possible to make an educated guess as to the distribution and orientation of the rock types which underly the K-1 claim group. The western boundary area is probably underlain by two deeply buried basic dikes striking nearly north-south, in close proximity to a zone of volcanics and intercalated metamorphosed sediments which probably strike nearly N 45° W and dip steeply to the north-east. The central portion is probably underlain by intermediate volcanics and tuffs, with a general north-northwest strike and a steep eastward dip. In the vicinity of DDH K-1/3 an extensive gabbroic mass, possibly a sill, has intruded conformably into a

zone of northward trending eastward dipping rhyolites. The eastern portion of the claim group is probably cut by two basic dikes striking N10° - 15° W and dipping either vertically or very steeply to the west. Due to the resistant nature of the more basic rocks in comparison to rhyolites and dacites, the basic dikes may not have been eroded to the same level as those rocks underlying the central portion of the claim group. This is somewhat substantiated by the fact that the magnetic responses across the assumed dikes are consistently 600 to 1200 gammas above the background, and that the overburden in hole K - 1/3 is only 100 ft. deep, whereas in holes K - 1/1 and K - 1/2 it is over 140 feet in depth.

Conclusions:

The 1964 field program on the K - 1 claim group consisted of line cutting, airborne and ground magnetic and electromagnetic surveying and diamond drilling.

Even though the electromagnetic surveys were not particularly successful in locating bedrock conductors, diamond drill hole K - 1/2 definitely identified the cause of the 'C' electromagnetic anomaly as being a highly graphitic zone of sediments between andesitic and rhyolitic tuffs. The diamond drilling also

indicated that the A and B conductors were either non-existent, or due to conductive overburden. It is felt that the excessive overburden depths and possible conductivity have reduced the effectiveness of the electromagnetic equipment used on the K-1 claim group during the 1964 season.

Although only one of the drill holes identified a conductive zone in the bedrock, the remaining two holes did serve to identify the underlying rock types and to permit a probable geologic interpretation of their distribution and attitudes.

Recommendations:

Since only the 'C' electromagnetic anomaly appears to be associated with a magnetic feature, it is difficult to become encouraged about the remaining conductors as none of them are conformably related to any definite magnetic highs or lows.

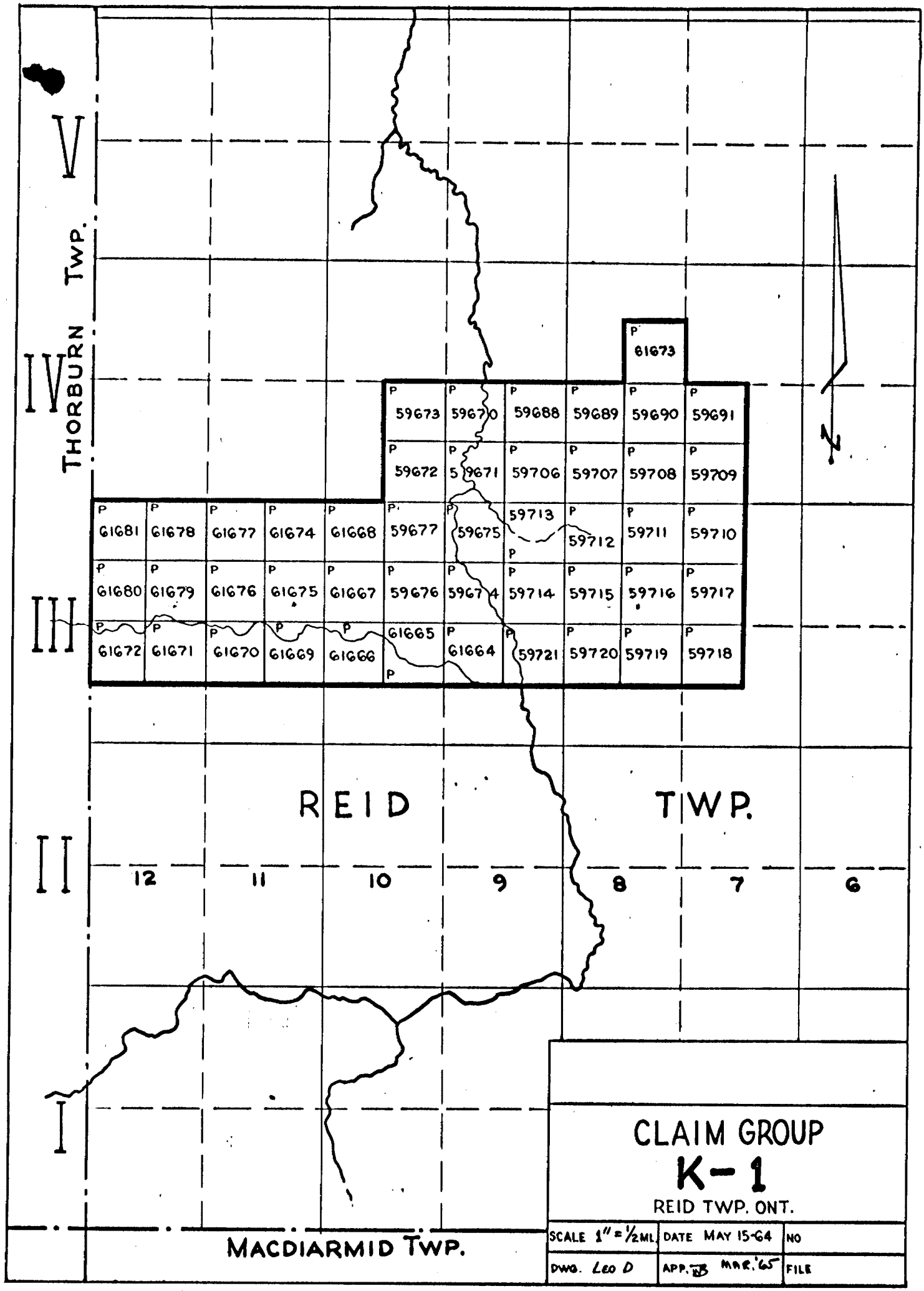
The property should be held as long as we have sufficient man day credits to do so, and it is recommended that the entire claim group be re-run with a vertical loop electromagnetic unit, although there are very slim chances of outlining additional or significant conductive zones. There is still some question as to the plausibility of the reasons put forth by Prospecting Geo-

physics Limited concerning the presence and then disappearance of the "A" conductive zone.

Respectfully Submitted,

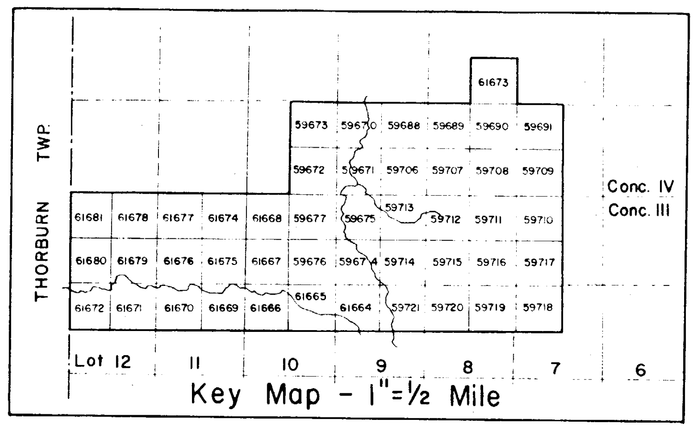
Wm. B. Blakeman,
Geologist,
(B.A. Geol.)

March 24, 1965



CLAIM GROUP
K-1
REID TWP. ONT.

SCALE 1" = ½ML	DATE MAY 15-64	NO
DWG. Leo D	APP. MAR. '65	FILE



In question these outcrops, as our mag ops. map them as more,

LEGEND

- MEASUREMENT STATIONS ALONG PICKET LINES
- ELECTROMAGNETIC READINGS – In Phase Component (%)
- ELECTROMAGNETIC READINGS – Out of Phase Component (%)
- PROFILE – In Phase Component (Scale 1"=20%)
- PROFILE – Out of Phase Component (Scale 1"=20%)
- ELECTRICAL CONDUCTOR
- OUTCROP AREA

ELECTROMAGNETIC SURVEY

— for —

CANADIAN JAVELIN LTD.

Claim Group K-1

REID TOWNSHIP, ONTARIO

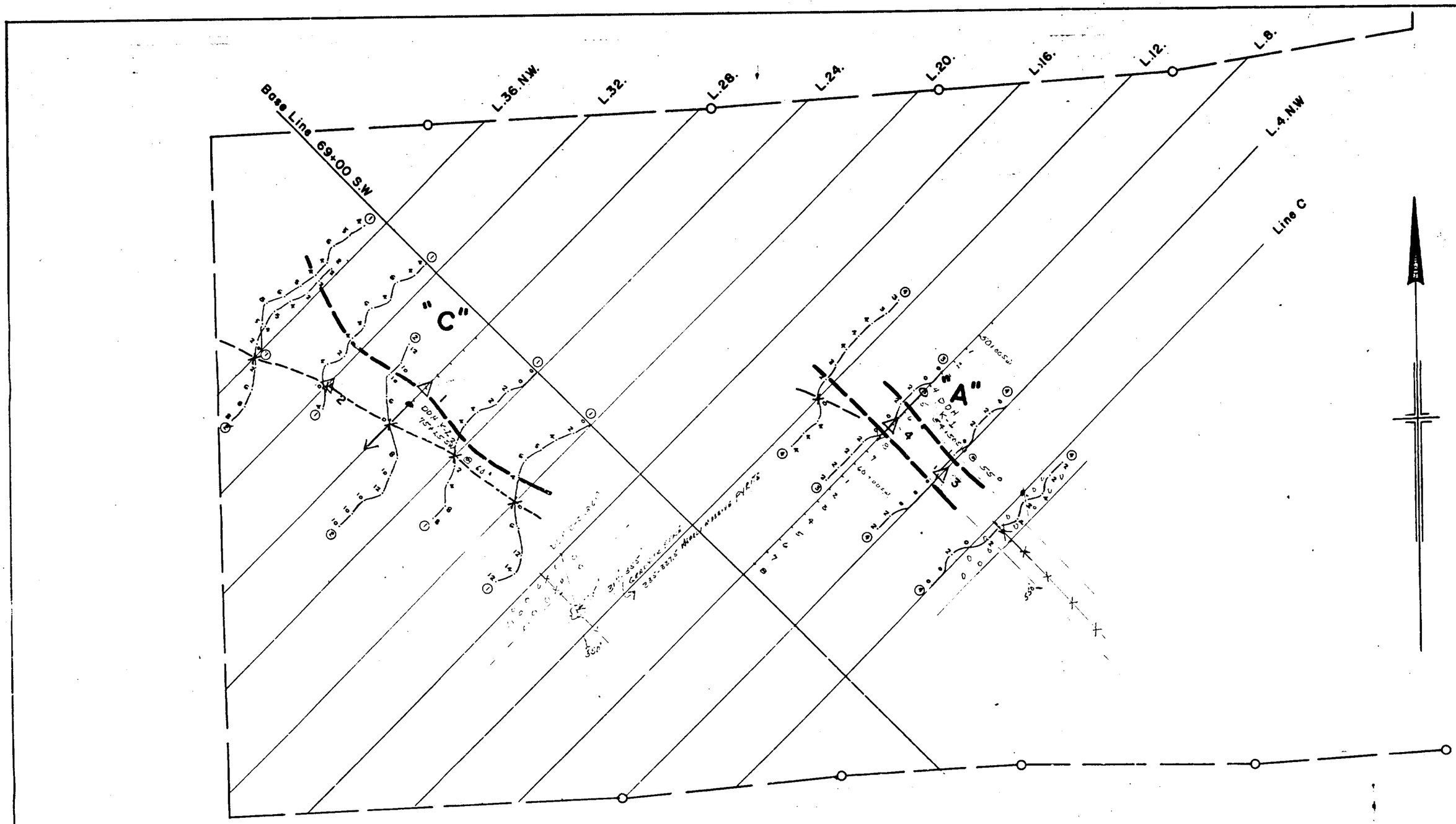
— by —

PROSPECTING GEOPHYSICS LTD.

REPORT # 308

1" = 400'

AUG. 1984



LEGEND

3 Δ Transmitter set-up and number.

Profile scale - 1"= 20°

③ Profile of E.M readings from Transmitter set-up No. 3

Electrical Conductor. (Horizontal Loop)

Electrical Conductor (Vertical Loop)

ELECTROMAGNETIC SURVEY

VERTICAL LOOP

ON PART OF THE PROPERTY OF

CANADIAN JAVELIN LTD.

REID TWP., ONTARIO.

—by—

PROSPECTING GEOPHYSICS LTD.

REPORT #308

SEPT. 1964

SCALE - 1"= 400'

—CLAIM GROUP K-1—

LEGEND

MEASUREMENT STATIONS ALONG PICKET LINES

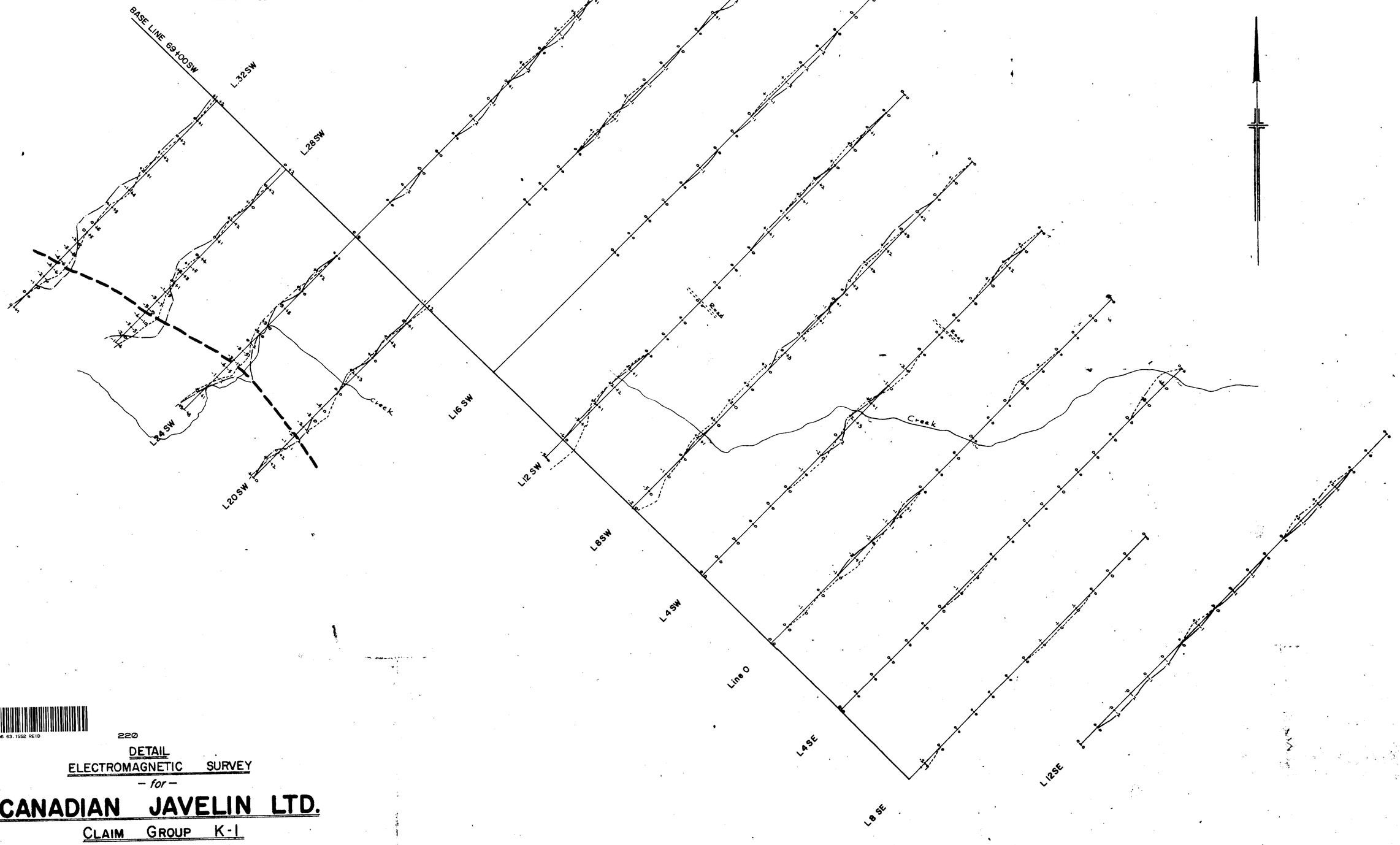
ELECTROMAGNETIC READINGS – In Phase Component (%)

ELECTROMAGNETIC READINGS – Out of Phase Component (%)

PROFILE – In Phase Component (Scale 1"=20%)

PROFILE – Out of Phase Component (Scale 1"=20%)

ELECTRICAL CONDUCTOR



220

DETAIL
ELECTROMAGNETIC SURVEY
– for –

CANADIAN JAVELIN LTD.

CLAIM GROUP K-1
REID TOWNSHIP, ONTARIO
– by –
PROSPECTING GEOPHYSICS LTD.
REPORT #324

1" = 200'

OCT. 1964

THORBURN

REID

MACDIARMID

ROAD

CREEK

THORBURN

CREEK

MATTAGAMI

RIVER

JOCKO

CREEK

MACDIARMID

CREEK

JOB BOUNDARY

JOB BOUNDARY

POWER LINE

T-36 T-39 T-40 T-45 T-50 T-55 T-57 T-57"A" T-60 T-65 T-66 T-66"A" T-69 T-70 T-75 T-76

I II III IV V

12 11 10 9 8 7 6 5 4 3

1 2 3 4 5 6 7 8 9

40Y 300Y 120Y 60Y 25Y?

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

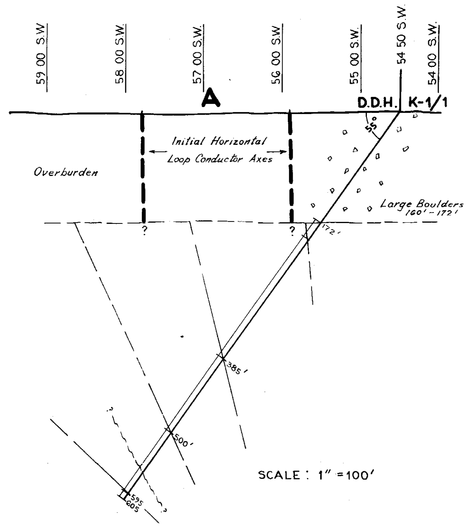
AIRBORNE ELECTROMAGNETIC SURVEY
REID TOWNSHIP AREA
ONTARIO
CANADIAN JAVELIN LIMITED
SCALE - 1 INCH = 1/4 MILE (APPROX.)

APPROX.

CANADIAN AERO Mineral Surveys LTD.
OTTAWA & TORONTO, ONTARIO

I 63.1552

LINE 8 00 S.E. LOOKING NORTH WEST

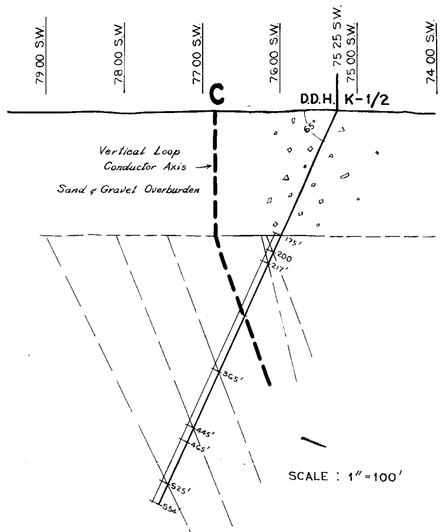


D.D.H. K-1/1

0'-172'	Overburden
172'-200'	Dacite tuff, hard, dense, light green. Minor py. & pyrrhotite veinlets. Core α = 45°
200'-385'	Dacite tuff, fairly hard, light green. No mineralization. Core α = 50°
385'-500'	Dacite tuff, light green med grained to massive, very fine minor veinlets py & pyrrotite Core α = 50°-55°
500'-595'	Dacite tuff, light green, vesicular, veinlets of calcite. Core α = 70°. Possible shear zone at 560'
595'-605	Dacite tuff, pale green, foliated at 80° End of hole

Note: Mineralization appears to be too weak to produce strong conductors with over 160' of overburden.

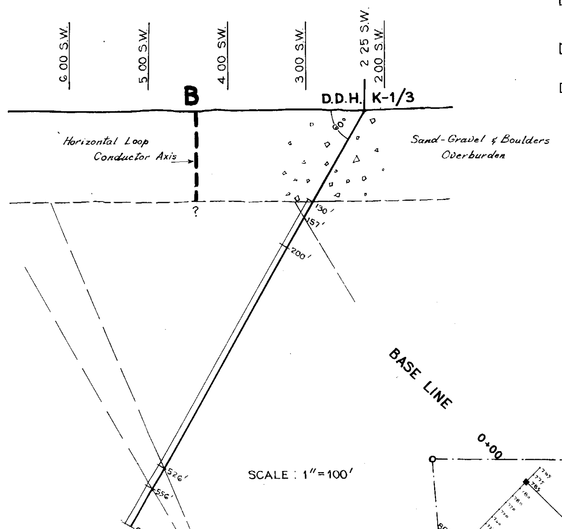
LINE 28 00 S.W. LOOKING NORTH WEST



D.D.H. K-1/2

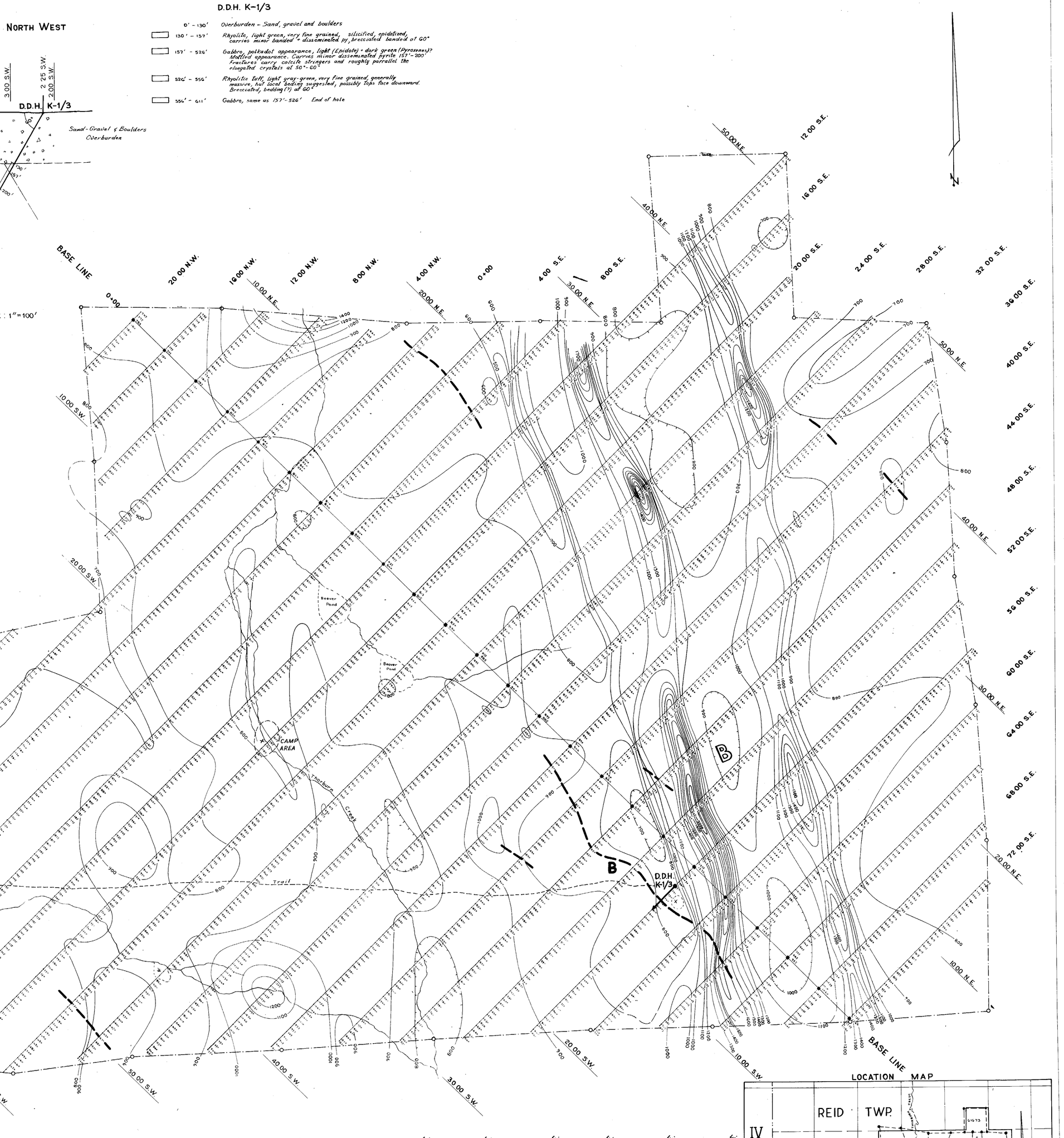
0'-175'	Oberburden
175'-200'	Andesitic tuff, badly decomposed, quartz & calcite stringers, heavy limonitic stain in quartz-calcite veins, foliation (?) Core α = 45°
200'-217'	Rhyolite (?) Strongly foliated and sericitized, chloritized, almost schistose, foliation Core α = 35°
217'-365'	Sediments, dark gray sericitized phyllites, strongly foliated, fractured and brecciated, recemented with quartz and carbonates. Nodules and bands of pyrite. Chloritized shear planes. Heavily graphitic (High carb. shale?) 317'-325'. Massive py-pyrr. (~75%) 335'-337.5' Core α = 40°-45°
365'-445'	Rhyolitic tuff & tuff breccia, yellow-green, fractured & sheared, sericitized & talcose shear planes. Foliation strong at 45°
445'-465'	Andesitic tuff (?) Gray-green, fine-med grained, foliated & sheared, heavily chloritized shear planes.
465'-525'	Rhyolitic tuff (?) Pink-gray color, med. fine grained, Foliated, core α = 50°
525-554'	Andesitic tuff, same as 445'-465', Core α = 50° End of hole

LINE 52 00 S.E. LOOKING NORTH WEST

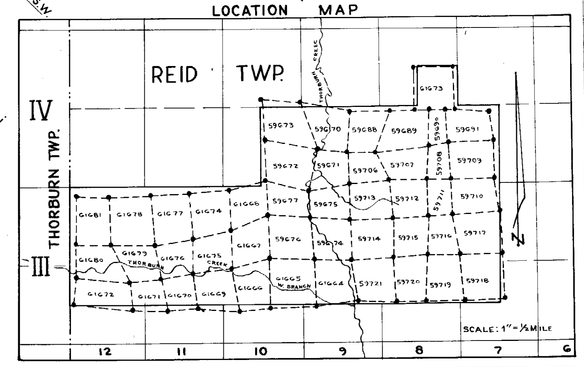


D.D.H. K-1/3

0'-130'	Oberburden - Sand, gravel and boulders
130'-157'	Rhyolite, light green, very fine grained, silicified, epidotized, carries minor banded & disseminated py, brecciated banded at 60°
157'-526'	Gabbro, poikadot appearance, light (Epidote) + dark green (Pyroxenes)? Mottled appearance. Carries minor disseminated pyrite 157'-200' fractures carry calcite stringers and roughly parralel the elongated crystals at 50°-60°
526'-554'	Rhyolitic tuff, light gray-green, very fine grained, generally massive, but local bedding suggested, possibly Tops face downward. Brecciated, bedding(?) at 60°
554'-611'	Gabbro, same as 157'-526' End of hole



NOTE: ENTIRE MAP AREA COVERED WITH OVERBURDEN



LEGEND...

- A — E.M. CONDUCTOR
- B — MAGNETIC HIGH
- MAGNETIC BASE STATION
- CLAIM GROUP BOUNDARY, CLAIM POST
- D.D.H. LOCATION
- (x) HELICOPTER PAD

GAMMA VALUES

700	1200	1700	2200
800	1300	1800	2300
900	1400	1900	2400
1000	1500	2000	2500
1100	1600	2100	2600
1200	1700	2200	2700
			2800
			2900
			3000

NOTE:
MAGNETIC BACKGROUND IS APPROXIMATELY EQUAL TO THAT REPORTED ON CAN. DEPT. OF MINES AND TECHNICAL SURVEYS AERO MAGNETIC MAPS 298 N/W, 299 S/W, 300 S/W AND 301 S/W

ELECTROMAGNETIC CONDUCTORS SHOWN ON THIS MAP HAVE BEEN TRANSFERRED FROM MAPS INCLUDED IN REPORTS BY PROSPECTING GEOPHYSICS LTD., WHICH COVER THIS PROPERTY.

SCALE:	1 IN. = 400 FT.
DATE:	MARCH 1965
DWG.	K.L.D.
APP.	
No	1 OF 1
FILE	

CANADIAN JAVELIN LIMITED 63.1552

ISO-MAGNETIC MAP SHOWING E.M. RELATIONSHIP

K-1 CLAIM GROUP — REID TOWNSHIP ONT.