D O M I N I O N G U L F C O M P A N Y

Detailed Geology - Robb I

Base Map 42A/12S

ROBB TWP. ONTARIO

W. JOHNSTON AUGUST 23, 1954.

TABLE OF CONTENTS

SUMMARY AND CONCLUSIONS

Much of the Robb I property is swampy and covered by thick deposits of clay and gravel overburden.

Three rock types were noted in the outcrop areas - greenstone, gabbro, and granite. The greenstone and the gabbro appear to have been partially altered and assimilated by the intrusion of an acid differentiate of a gabbroic magma. The differentiate and the hybrid rocks were mapped as granite and quartz porphyry for lack of more suitable names.

Shearing and lineation is mostly confined to the greenstone. Shearing stresses applied to this rock have resulted in chlorite schists.

No mineralization of economic significance was encountered.

INTRODUCTION

Location - The Robb I property, which consists of 57 claims (37812-37840 inclusive, 37842-37867 inclusive and 37949 & 50 is located in the northern half of Robb Township, about 22 road-miles northwest of Timmins.

Access - The eastern edge of the property is accessible by road from Timmins. The road is mostly gravel surfaced and extends to the east shore of Half Moon Lake. The lake is situated entirely within the property.

Previous Work - Aside from a few shallow trenches in overburden, no surface prospecting was done on this ground prior to staking by the Dominion Gulf Company.

Results of resistivity and ground magnetometer surveys performed by Hollinger Cons. Gold Mines in the area east of Half Moon Lake and south of the Base Line are available.

Present Investigation - The purpose of the investigation by H. Johnston and R. Lemire was to search for outcrop and to map the topographic and geologic features. Field work was done between June 16, 1954 and July 31, 1954. Compilation was done between August 1, 1954 and August 10, 1954.

TOPOGRAPHY

The ground east of Half Moon Lake is largely glacier - deposited, high gravel ridges, trending N-S and sloping steeply to the west.

West of Half Moon Lake the ground is, for the most part, flat lying, swampy, and poorly drained. The soil grades from gravel on the east side to clay on the west, except for a few places where sand was encountered along the banks of the Kamiskotia river.

Vegitation consists of spruce, cedar, balsam and alder in swampy areas, while jackpine, poplar, and birch predominate on drier ground.

The Kamiskotia river cuts the property at the west end of the property. This river has eaten into the clay overburden and, in places, left banks 50 or 60 feet above its present level. It is about 100 feet wide, slow moving and about 20 feet deep.

Outcrops not previously mapped include those on line 152W and those in the river near line 136W. Outcrops previously located include those forming rapids at line 140W, and the granitic outcrops south of the base line.

GEOLOGY

Table of Formations:

Pleistocene

Gravel, sand, clay

Haileyburian

Quartz Porphyry (Granitization)

Granite (Gabbro differentiate)

Gabbro

Keewatin

Greenstone (include, chlorite schist)

DESCRIPTION OF FORMATIONS

Greenstone - The writer has assumed that the chlorite schists were formed by shearing of the greenstone. The outcrop which forms the rapids at line 140W was mapped as a greenstone. It was been sheared at its northern and southern extremities, which are 500 feet apart, and is massive at the center. The massive rock weathers dark green and in one place displays euhedral magnetite crystals which have weathered out. Quartz eyes and a small amount of pyrite are also present in the massive rock. The shear zone at the southern end is a chlorite-sericite schist. The shear zone at the northern end is also a chlorite-sericite schist. Both of these zones exhibit strong shearing and contain introduced carbonate, quartz and a little pyrite.

Another outcrop of schisted greenstone was found in the river just south of line 136W. This rock contains no quartz eyes or mineralization, and is apparently in contact with a small, fine-grained gabbro outcrop located about 30 feet south of it.

The outcrops near line 152S are marked by the presence of chlorite schist which occur as narrow zones striking about E-W through a highly siliceous, medium-grained rock. The chloritic rock has been partially silicified. Also noted were

narrow fine-grained chloritic rocks which appear to be inclusions, in some places, in the siliceous rock and in other places appear to take the form of irregular dike-like bodies.

Gabbro - The gabbro is a medium to fine-grained rock occuring in very small outcrops near line 152W and in the river near line 136W. The gabbro near line 152W appears to have been partially altered either by the intrusion of an acid magma or by the introduction of highly siliceous solutions. The writer prefers the former, since there are apparent acid differentiates associated with other gabbroic intrusives south of the property. Petrographic analyses of similar rock specimens by A.R. Graham, states that the felspars have been propylitized, indicating the introduction of hydrothermal solutions. These solutions could possibly have been associated with a highly siliceous magma, although there has been later introduction of quartz and carbonate.

Quartz Porphyry (Granitization) - A large portion of the outcrop near line 152W is composed of a medium-grained rock containing from 30 to 50 percent quartz in a finer-grained chlorite, sericite ground mass. The writer is of the opinion that the quartz was derived as a differentiate of a gabbroic magma, and that during the intrusion of this differentiate it assimilated some of the greenstone. The hybridisation of the acid intrusive and the greenstone would thus result in the formation of the quartz porphyry which is now present.

Granite (Gabbro Differentiate) - A small massive outcrop of granitic rock lies just within the property south of the base line. More of the same rock borders the property to the south. This rock type contains up to 70 per cent quartz, but is uneven in texture and composition. Some of the felspar in this rock has been altered to epidote, which appears in patches. The proximity of this rock to gabbro on the south side, and the nature of the composition of the rock leads the writer to believe that this is also a differentiate of a gabbroic magma.

STRUCTURE

Shearing and Lineation

The outcrops near line 152W exhibit slight to moderate lineation in the rather narrow zones of chlorite schist. The strike of this lineation is at about 85o.

The shearing at the rapids is very strong at either end of the outcrop area. The shearing is vertical and at the north end strikes at 95o. At the south end it strikes at 85o - 90o.

Little mineralization is associated with these structural zones, although they have apparently served as entry ways for hydrothermal solutions.

MINERALIZATION

No mineralization of particular significance was encountered in the limited number of outcrop areas on the property. A very small amount of chalcopyrite was observed in a chlorite schist near line 152W. A sample was taken for assay from a quartz vein in the smae outcrop and the results for gold were Nil. Pyrite is present in small amounts in the chlorite schists and in the massive greenstone. Magnetite is present in small euhedral crystals in the massive greenstone at the rapids and was also noted in one of the hybrid outcrops south of the 23 + 00N tie line on line 152W. Carbonate and quartz have been introduced along linear zones and in irregular fractures.

HJ/BJ

Herbert W. Johnston.

ATTACHMENTS

Detailed Geology Robb I, Base Map 42A/12S Porcupine - Kirkland, Ontario. Scale 1" = 200', by H. Johnston, August 23, 1954. (Two sections).

REFERENCES

1. Petrographic Examination of Four Rock Samples (from Robb I), A. R. Graham, June 24, 1954.
Dominion Gulf Company Report.

2. Geology of the Robb-Jamieson Area, L. G. Berry, 1946, Fifty-third Annual Report, Ontario Department of Mines.

D O M I N I O N G U L F C O M P A N Y

DETAILED GEOLOGY - ADDITIONAL ROBB I CLAIMS

BASE MAP 42A/12S

PORCUPINE-KIRKLAND ONTARIO

A. K. Temple August 5, 1955

TABLE OF CONTENTS

ABSTRACT

Seven claims were added by staking to the original Robb I group; a five-claim group was added on the south, and a two-claim group on the east.

The claims are largely situated on the high ground formed by an esker, and are accessible by motor road from Timmins.

One outcrop only of "quartz-eye greenstone" occurs immediately west of the 5-claim group. The rock is considered to represent one stage in the transformation of andesite to granite.[2] No mineralization was noted.

The ground magnetics of the claims present a picture similar to other Dominion Gulf claim groups in the district, namely, N-S trending diabase dyke anomalies, and NW trending elongated magnetic horizons, probably caused by andesitic horizons.

A geochemical survey has been carried out over selected magnetically anomalous areas on the 5-claim group. The results are not yet available.

RECOMMENDATIONS

The rock outcropping near the 5-claim group is of a similar type to that encountered in outcrop and drilling on Robb I. The lack of encouragement in the drill results on Robb I would tend to dim the prospects of the additional claims.

However, the magnetics of the claims are of a similar type to those encountered further east in Jamieson I, and it is felt that no consideration of dropping the Robb I additional claims should be made until the EM survey on Jamieson I has been fully evaluated. Should any encouragement be given by the EM survey and any drilling on Jamieson I, an EM survey of the Robb I additional claims will become

mandatory. In the writer's opinion, the results obtained by the EM survey on Jamieson I to date make an EM survey of the Robb 1 5-claim group desirable.

INTRODUCTION

The original Robb I group is situated in the northeast of Robb Township. Seven claims were added to the group by staking. The seven claims fall into a group of two (P-59305-6) situated on the east side of Robb I, and a group of five (P-58789-93) situated on the south side of Robb I

The 5-claim group is easily accessible by motor road from Timmins. Two roads pass through the property, one going to the Kam Kotia mine and the other to Half Moon Lake. The two-claim group can be reached by a jeep road leaving the Timmins-Kam Kotia road near Tommy Jacks' cabin.

Little previous work has been done on the claims. The outcrop on the west of the 5-claim group was mapped by ODM as "Transition zone" rock. Some trenching was done near the outcrop without reaching bedrock. Picket lines were cut over the claims by the Hollinger and presumably geophysical surveys carried out; the results of such surveys are not available.

The present investigation was carried out in the latter part of May 1955. Personnel involved were R. Hodgins, F. Faulkner, R. Buck and A. K. Temple.

TOPOGRAPHY

The topography of the seven claims is dominated by the esker which traverses the northeast of Robb Township in a N-S direction.

Typical vegetation on this sand country is jackpine, with subordinate spruce, birch, poplar and alder and cherry; blueberries are abundant. The west part of the 5-claim group is occupied by lower ground with a spruce-poplar-alder vegetation drained by streams flowing into Kamiskotia and Half Moon Lakes; this country is underlain by clay.

A long poplar ridge in the extreme west of the 5-claim group is composed of boulders; outcrop forms the south end of the ridge. The outcrop occurs outside the claim boundary.

GEOLOGY

One outcrop, approximately 350' x 100', occurs immediately west of the 5-claim group. Picket line 68W was extended across the outcrop.

The outcropping rock is massive, jointed at 60° and 350° The rock weathers buff coloured and has an uneven weathered surface due to the weathering out of quartz. On fresh surface, the rock is dark green in colour (chloritic) and has a vitreous appearance due to numerous quartz "eyes" - rounded quartz grains up to 1/8" in diameter.

The rock type was classified by ODM (Vol. LIII, Pt. IV, Map 58c) as "Transition zone; intermediate between normal Keewatin types and normal gabbro", and considered to be probably derived from the same magma as gabbro (p. 9).

The origin of this rock type was recently described (AKT, March 23, 1955) From a petrographic study of rocks from the Kamiskotia district, it was concluded that the rock described above, termed "quartz-eye greenstone", represents a stage in the transformation of andesite to granite.

The name "quartz-eye greenstone" was devised as a combination of a descriptive term and an indication of probable origin.

GEOCHEMICAL SURVEY

A geochemical sampling program has been carried out over selected magnetically anomalous areas. The sample analyses are not available at the time of writing.

GEOPHYSICS

Ground magnetic surveys have been carried out over the seven claims.

The magnetics of the 5-claim group indicate two N-S trending diabase dykes, and several NW trending, fairly narrow magnetic highs, similar to those encountered over the remainder of Robb I and in Jamieson I. The outcrop of "quartz-eye greenstone" occupies an area of low magnetics.

The magnetics of the 2-claim group indicate a N-S trending diabase dyke and a NW trending magnetic horizon of limited length.

The NW trending magnetic anomalies may represent andesitic horizons, either intrusive or extrusive.

A. K. Temple

AKT:bh
Duplicate - Mr. K. D. Wyckoff

ATTACHMENTS

1. DGC Detailed Geology - Robb I (2-claim group) - Base Map 42A/12S - Scale 1" - 200' - August 5, 1955.
2. DGC Detailed Geology - Robb I (5-claim group) - Base Map 42A/12S - Scale 1" - 200' - June 15, 1955.
3. DGC Sample Record Sheet.

REFERENCES

1. Berry, L. G., 1954 - Geology of the Robb-Jamieson Area - ODM Vol. XII, Pt. IV.
MEC Report - The Origin and Nomenclature of Controversial Rock Types in the Yellowknife District - AKT - March 23, 1955.

D106B

DOMINION GULF COMPANY
Rock Specimen Record Sheet

Property or Twp. Robb I ..... Base Map No. 42A/12S Prov. Ontario
To accompany [illegible], geology report [illegible], ENTITLED
Detailed Geology - Additional Robb I Claims
By A. K. Temple Dated August 5, 1955
(stroke out reports not applicable; state reasons for any lab. work at bottom of sheet)

Received in Central File by .....Date.....Stored at.....
Lab. Reports by (1) .....Dated.....
(2) .....Dated.....

C.F. No.	Field No.	Location	Field Name	Misc. Notes, Assay No., Results, Purpose; c/s, etc.
12599	189-AKT-1	23/20S 68/80W	Quartz-eye greenstone	
12600	AKT-2	22/50S 67/80W	"	

D O M I N I O N G U L F C O M P A N Y

DETAILED GEOLOGY - ROBB I (4 CLAIM GROUP)

BASE MAP 42A/12S

PORCUPINE-KIRKLAND ONTARIO

A. K. Temple August 8, 1955

No previous work has been carried out on the claims, prior to their acquisition by Dominion Gulf Company.

The present investigation was undertaken to search the claims for outcrop and record topography. Control was given by picket lines spaced at 400-foot intervals. The investigation was carried out in July and August 1955. Personnel involved were P. Veinot, C. Coderre, R. Buck and A. K. Temple.

TOPOGRAPHY

The claims are drained by the Kamiskotia River; in the north, the river crosses boulder rapids which are circumnavigated for travel by a portage. The river flows in a shallow valley through plateau country, diverted by minor streams draining into the river. Cedar growth marks the river margins, whilst spruce, with mixed spruce and poplar, some birch and balsam, covers the ground away from the river. Thick underbrush of moose maple, alder, willow and raspberry bushes is common close to the river and streams.

Clay underlies the whole property, varying from plastic blue clay in spruce stands and alder to a hard dry tan clay in poplar country.

GEOLOGY

No rock outcrops on the claims. The geology is most probably similar to the adjacent Robb I group (see Detailed Geology, Robb I).

GEOPHYSICS

A ground magnetometer survey has just been completed over the four claims. The results of the survey are not yet available.

ABSTRACT

Robb I (4 claim group) comprises four claims, numbered P-38099, 38100, 38125 and 38126, situated immediately adjacent to the west end of Dominion Gulf Company's Robb I group.

The claims are accessible from Kamiskotia Lake via portage and Kamiskotia River. The claims are drained by the Kamiskotia River and covered with predominantly spruce growth. The overburden is clay.

No rock outcrops on the claims. A ground magnetometer survey has been carried out over the claims.

RECOMMENDATIONS

No rock outcrops on the claims. A ground magnetometer survey has just been completed over the claims; the results are not yet available.

Recommendations regarding further work will be deferred until further information is available. The claims can be kept in good standing for assessment purposes by the diamond drilling program recently completed on Robb I.

INTRODUCTION

Robb I (4 claim group) comprises four claims, numbered P-38099, 38100, 38125 and 38126, situated immediately adjacent to Dominion Gulf Company's Robb I group, Robb Township.

The claims are accessible either from Half Moon Lake, using the Robb I picket line system, or from Kamiskotia Lake by the Kamiskotia River portage, and thence up the Kamiskotia River. Camp is set up below the first rapids.

ATTACHMENTS

DGC Topographic Map - Robb I (4 Claim Group) - Scale 1" - 200' - August 7, 1955.

REFERENCES

DGC Report - Detailed Geology - Robb I - by H. Johnston.

A. K. Temple

AKT:bh
Duplicate - Mr. Wyckoff

040

D O M I N I O N G U L F C O M P A N Y

Interpretation of Ground Magnetometer Survey Data

ROBB I

Porcupine-Kirkland Area Ontario

J.H. HAZLITT December 21, 1954

TABLE OF CONTENTS

INTRODUCTION

The Robb I claim group, consisting of 61 claims, lies in the north central portion of Robb township, about 25 miles northwest of Timmins, Ont. The claim group is believed to lie on strike with the Kam Kotia Mines copper-zinc ore body, 2 miles to the northwest of the Kam Kotia open pit.

Interest in the area was derived from an aeromagnetic anomaly lying at or near the andesite-rhyolite contact. This contact, where sheared, is believed to be favourable for base metal deposition. At the time of staking, it was believed that the aeromagnetic anomaly represented either a large basic intrusive, or possibly was directly indicative of pyrrhotite mineralization. In either event, its location near the interpreted andesite-rhyolite contact warranted further investigation. Rock outcrops are very rare within the claim group, only 4 outcrop areas being found during subsequent detailed geological mapping. As a result, it was apparent that geophysical methods would be required to investigate the claim group prior to diamond drilling.

In an attempt to determine the structural characteristics of the claim group, a ground magnetometer survey was proposed. Accordingly picket lines at 400 foot intervals were cut across the entire property with the exception of the four westernmost claims. An Askania Schmidt-type magnetic balance, having a sensitivity of about 20 gammas per scale division was used on the survey. Basic coverage consisted of stations 100 feet apart on picket lines 400 feet apart. In anomalous areas detail lines and stations were added. In all, a total of 6,671 stations were observed on 81.66 miles of picket line.

The basic data were observed and reduced by a Dominion Gulf Company magnetometer crew under the direction of R. McDonald. On completion of the survey, the basic data were transmitted to the Toronto Office of the Dominion Gulf Company for further processing and interpretation. The basic data, together with its magnetic contours and interpretation are presented on a map

at a scale of 1 inch equals 20 feet, accompanying this report.

SUMMARY AND RECOMMENDATIONS

The ground magnetometer survey of this property has broken down the rather simple picture formulated from the aeromagnetic survey, into a complex series of anomalies. Four diabase dykes have been outlined, and have aided in the interpretation of three strike faults. An attempt has been made to ascribe various causes to the individual anomalous zones forming the major aeromagnetic anomaly. The conformable magnetic anomalies have, in general, been ascribed to the andesitic lavas, either as more basic flows, or as alteration along a particular flow. The unconformable magnetic anomalies have been ascribed to either basic intrusives, or alteration of the andesitic flows along the margins of acidic intrusives. One anomaly in particular, anomaly 3, has been suggested as indicative of pyrrhotite mineralization rather than a basic intrusive. It is believed that any drilling program designed to sample this claim group should include a hole to sample this anomaly.

In order to provide information on the geology of the claim group to assist in further interpretation of the magnetic data, it is suggested that a minimum of 2,500 feet of diamond drilling be done during the coming winter. Basically it is suggested that the first hole be drilled from the rhyolites to the north through the peak of anomaly 3 and into the magnetic flat south of anomaly 2. This would sample the rhyolite horizon, the north fault zone, anomaly 2 and the magnetic flat south of anomaly 3.

The second hole should be drilled to sample the southeastern prong of anomaly 2, the low between anomaly 2 and anomaly 5, and anomaly 5 itself.

The third hole should be collared in anomaly 8 and designed to cut anomaly 8, the two fault zones to the south, and anomaly 10.

The fourth hole should be collared in the circular anomaly on L.94W at T.L. 2300 N and directed southwesterly to intersect the magnetic low axis and the peak of anomaly 6 on L.98W.

The fifth hole should be spotted to cut anomaly 7 on both sides of the interpreted cross fault.

It is believed that such a drilling program will provide the greatest amount of geological data to permit a detailed reevaluation of the magnetic data on this property.

INTERPRETATION

From the limited amount of geology available on the property and its immediate vicinity, it is apparent that the following rock types are present; diabase, granite, gabbro, rhyolite and andesite. Some of these rocks are highly altered by both chemical and dynamic metamorphism. Strong shearing was found in three localities on the Kamiskotia River. The magnetic anomaly zone is found to lie between the northern and southern zones of shearing.

Comparing the aeromagnetic map with the ground magnetometer map, it is at once apparent that the simple magnetic anomaly shown on the aeromagnetic map is, in reality, a complex combination of anomalies, which, when viewed at an altitude of 500 feet, blend together to form a single anomaly. This immediately suggests that the depth of overburden is not great. Several depth estimates were made on the north flank of the northern band of anomalies extending from L.11W to L.13W. These anomalies indicate overburden depths ranging from 15 feet to 60 feet. The lower depths are consistent with the height of the river banks in those areas in which rock was found in the bed of the river.

For ease in reference, the major anomalous areas have been numbered on the map. Each anomaly will be discussed in the following paragraphs, and finally an attempt will be made to draw some conclusions of structural significance to aid in determining likely diamond drill hole locations.

Anomalies 1, 14, 15 and 16 have been ascribed to diabase dykes, due to their distinctive north-south trend. Of these anomalies, 1 and 16 are very typical of the stronger (wider) diabase dykes, while 14 and 15 appear to be rather weak and

narrow. While the dykes are of little use economically, they give good indications of cross cutting structures. Typical of these indications are the "spill-outs" shown on the flanks of anomalies 1, 14 and 16, and warps as on anomaly 14. It is believed that these features indicate shear zones or rock contacts, which the dyke material has invaded during intrusion.

Immediately east of anomaly 4, cutting anomaly 6, and separating anomalies 9 and 11, is another north-south trend. Unlike the typical diabase dyke anomaly, this trend is characterized by very low readings, the values sinking well below the regional base level. There are however, minor indications of a flanking high on the east flank of the low trend. It has been suggested that this anomaly combination is indicative of a diabase dyke dipping to the east. If a normal polarization is considered, however, this cannot be the case, since the negative anomaly is everywhere stronger than the associated positive anomaly. It is therefore necessary to postulate the existence of an horizon totally lacking in magnetite (as contrasted to a presence of magnetite in all other rock types-even rhyolite) or a magnetic horizon having an inverse remanent magnetization. Such characteristics cannot be attributed to the type of diabase dyke normally encountered in this area. The cause of this low can only be answered by diamond drilling.

Anomaly 7 trending northeasterly from the central part of anomaly 1 is somewhat of an enigma. It is composed of a number of minor magnetic anomalies, which, taken by themselves, do not appear to represent a continuous feature. When considered as parts of the whole, however, a series of strong, continuous trends are derived. These trends, however, appear to be contrary to the regional strike except near the eastern end of the anomaly, where the northeasterly trend gives way to an easterly trend flanking a rather strong shear zone. Due to the peculiar trend direction, it is believed that anomaly 7 is either caused by a basic intrusive or is representative of an alteration zone around an acid intrusive. Both granite and gabbro are known to be present in the immediate vicinity. Granitized lavas where

exposed, however, do not give rise to a magnetic anomaly, therefore, it is probable that the anomaly is indicative of a gabbro intrusive.

Anomaly 3 lying immediately east of anomaly 2, appears to be quite different in character. It is rather sharp and linear and is quite similar on all counts to that observed over the Kam Kotia ore body. Perhaps it is too optimistic to hope for, but it is believed possible that anomaly 3 could represent pyrrhotite mineralization. It must be admitted, however, that the anomaly could well be an eastern extension of anomaly 2, and is therefore indicative of either gabbro, or granitic alteration.

Anomaly 4 appears to be similar in character to anomaly 3, but buried at a greater depth, and offset to the south by a cross fault.

Anomaly 5 is a narrow dyke-like anomaly trending northeasterly, parallel to anomaly 2. If the assumed regional east-west strike is correct, then this feature is also cross cutting the regional structure, and is therefore an intrusive rock, or possibly an alteration zone associated with an intrusive rock. Since anomalies 6, 7 and 8 all strike east-west, it would appear logical that they represent the true regional strike and that anomaly 5 is unconformable. It is perhaps possible, then, that the northeasterly strike exhibited by anomalies 2 and 5 is controlled by tension faults joining the two major east-west fault zones shown on the map.

Anomalies 6 and 13 probably form a concordant unit within the andesite horizon. They may represent a basic sill, or merely a more basic band or an altered band of andesitic lavas. The same interpretation may be placed on anomaly 7.

Anomalies 8 and 11 may also be considered as a concordant unit. The western half of anomaly 8, however, appears to be intimately associated with a major shear zone as shown by an outcrop in the river. East of the cross fault, however, it would appear that the shear zone moves southerly while anomaly 8, although becoming more sinuous, maintains its original course. It is believed that anomalies 8 and 11 probably represent an altered andesitic horizon, or perhaps a basalt interflow.

Anomaly 9 is one of the few anomalies which can be directly correlated with rock outcrop. However the rock type itself is rather difficult to name. It is either a coarse grained andesite, or a gabbroic sill. The rock appears in two forms, one containing visible magnetite, the other containing little if any magnetite. Anomaly 9 corresponds with the magnetite bearing variety. This rock, although slightly sheared, may be considered massive as compared with the highly sheared lavas on either side of it. It appears to have been caught up as a block during shearing and has therefore suffered little deformation itself.

Anomaly 10 trends northwesterly and must therefore be considered unconformable. It may be indicative of a narrow, weak dyke, which pinches out to the southeast.

Anomaly 12 is quite different from any other anomaly in the claim group. It appears as an isolated plum cutting an otherwise magnetically uniform area. It is probably caused by a basic intrusive plug punching its way up through the andesite horizon.

Anomaly 17 appears to be conformable with the regional strike and may represent a more basic lava horizon, similar to anomaly 9.

Anomaly 18 lies in a granite outcrop area, and probably represents an alteration of the enclosing lavas by the intrusive granite.

The major structures which can be traced are four faults, three of which may be seen in the few rock outcrops available for study. The northern fault, along the north contact of the main anomaly zone may be observed in a rock outcrop in the Kamiskotia River. It is extended easterly along the magnetic contact. Extending the fault to the west, it may be seen that it intersects anomaly 1 at one of the "spill outs", which may be construed as a logical point of intersection.

The two faults along the south boundary of the major anomaly area are also shown in outcrops in the river. Extending them to the west, they also cut anomaly 1 at "spill outs" and appear to continue to the west. To the east, the northern fault lies along the south flank of anomaly 8 until a cross fault is reached.

At this point it would appear that the fault is offset to the south but anomaly 3 continues. The next rather definite indications for this fault are found as "spill outs" on anomalies 14 and 16. The linearity of these features is believed to be quite powerful evidence for the location of the fault as shown, although it must be admitted that an alternative location along the south flanks of anomalies 9 and 11, and across the northern terminus of anomaly 14 to the "spill out" on anomaly 16 may be just as logical.

The location of the southern fault, east of the Kamiskotia River is based solely upon a warp in the diabase dyke represented by anomaly 14 and the termination of several minor trends. However its parallelism with the northern fault in the more positive areas cannot be overlooked and thus provides further evidence for its present location.

A cross fault has been shown separating and offsetting anomalies 3 and 4, offsetting anomaly 7, and interrupting anomaly 9 and possibly anomaly 10. While there are strong arguments for neglecting this cross fault, such as the throughgoing appearance of anomaly 9, it is believed that there is more evidence for the fault than against it.

JHR/BJ

J.H. Ratcliffe.

ATTACHMENTS

1. Dominion Gulf Company Map, Ground Magnetometer Survey, Robb I, North Sheet, Porcupine - Kirkland Area, Ontario, Scale 1" = 200', dated August 20, 1954.

2. Dominion Gulf Company Map, Ground Magnetometer Survey, Robb I, South Sheet, Porcupine-Kirkland Area, Ontario, Scale 1" = 200' dated July 26, 1954.

Appendix

Feb. 3, 1956.

Introduction

Following the acquisition and ground magnetometer survey of the original 57 claim group in Robb township, the Dominion Gulf Company acquired by staking 11 additional claims lying on the fringes of the original group. Four of the new claims form an additional north-south row contiguous with the original western boundary of the claim group and have been added to the North Sheet (Map 1) in their proper location. Similarly two contiguous claims P-39305 and P-39306 were added to the extreme eastern part of the original group and are also shown in their correct location on the North Sheet (Map 1). Five contiguous claims were added as a block to the south eastern corner of the original group. The five claim group has been mapped as a separate unit and appears as Map 3 of this report. It may be located with respect to the South Sheet (Map 2) by means of the 39+60 South Base Line and the 44+00 West Picket Line. From this, it may be seen that claims P-37825, P-37826, P-38789 and P-38791 have a common corner at about 56+00 West and the 39+60 South Base Line.

Basic coverage for the four westernmost claims added to Map 1, consisted of stations 100 feet apart on picket lines 400 feet apart. Greater detail was obtained on the two easternmost claims added to Map 1, where the station spacing was 50 feet on lines 400 feet apart, except in anomalous areas where additional picket lines and stations were added. On the 5 claim group basic coverage consisted of stations 50 feet apart on picket lines separated by 200 feet. In all, a total of 1,818 stations were observed on 19.63 miles of picket line in order to obtain the desired

coverage over the 11 new claims.

As in the original survey, the basic data were observed and reduced by a Dominion Gulf Company magnetometer crew under the direction of R. McDonald. On completion of the surveys the data were transmitted to the Toronto office of the Dominion Gulf Company for further processing and interpretation. Since the claims covered by these surveys are fringe claims, the additional data did not affect the original interpretation to any great extent, thus the additional data may be interpreted in the light of the original survey.

Summary and Conclusions

The four westernmost claims are remarkably uniform, magnetically. Consequently the new data add very little to the previously established picture, except to emphasize the importance of the diabase dyke indicated by Anomaly 1. Apparently this dyke, or a pre existing structure occupying the same zone, marked the western boundary of intrusive or metamorphic activity.

A single north-south trending anomaly is established by the new data on the two easternmost claims. This anomaly, Number 19, was weakly indicated on the South Sheet (Map 2) of the original survey. It is much more prominent on the two new claims, perhaps because of the more detailed coverage. The anomaly appears to represent another of the north-south diabase dykes and as such is of little significance except as a structural marker.

The five claim group shown on Map 3 is somewhat more complex. The major feature is another north-south diabase dyke anomaly, the southward extension of Anomaly 14. A minor north-south magnetic high axis near the eastern boundary of the sheet may represent the southern extension of Anomaly 15. Superimposed upon these north-south trends are several more or less continuous southeasterly trends, which probably represent more basic members of the lava series. A north-south trending low immediately ajacent to the western flank of the diabase dyke Anomaly 14, may be caused by the dyke dipping to the east, but more likely is indicative of a topographic depression in the bed rock, which in turn suggests the presence of a north-south trending fault. The "hashy" anomalies along the western boundary of this claim group indicate that the overburden is rather shallow in this area. This, indeed, is born out by granite outcrops which have been found a short distance to the west.

Economically, none of the claims covered by this appendix, appear to have much significance, based on the ground magnetometer data. Since however, the major significance of the area in general, is related to base metal deposition, it would appear logical to consider ground electromagnetic surveys as a means toward locating any conducting sulphide bodies in the area.

Interpretation

Considering first the four westernmost claims on the North Sheet (Map 1), claims P-38099, P-38100, P-39125 and P-39126, it is immediately evident that the magnetic data, due to their remarkable uniformity, yield little information concerning bed rock structure. It is perhaps fair to state that the underlying rocks are at least relatively uniform in their magnetite content, and that they lie under an overburden cover of from 50

to 100 feet. The highest values are found in claim P-38099 and the south-eastern quarter of claim P-38125. This section appears to be the western terminus for the highly anomalous area lying to the east of diabase dyke Anomaly 1. For a distance of about 400 feet west of Anomaly 1, the magnetic conditions appear to be similar to those east of the dyke. Over the four new claims, however, the numerous, sharp highs and lows common to the area east of the dyke are lacking. This suggests two things; the depth of overburden becomes much greater and the metamorphic activity much less, over the four westernmost claims. It is possible, however, to trace the magnetic zone, in its much weakened state across Claim P-38099. In this section, however, it might easily be considered merely a slightly more magnetic phase of the lava series. The location of the three faults interpreted as entering the area from the east must however remain a mystery due to the lack of magnetic definition.

If one considers that the anomalous zone east of Anomaly 1 is caused by metamorphic action from underlying intrusives, it is then possible to suggest that the four westernmost claims represent a downfaulted block, thus presenting a higher, less altered section for inspection. The minor anomalies immediately west of Anomaly 1 could then be attributed to the diabase dyke itself.

Moving now to the two easternmost claims on the North Sheet (Map 1), the major feature has been designated Anomaly 19. In appearance, this anomaly is similar to the diabase dyke anomalies encountered elsewhere on the property. It extends southward onto the South Sheet (Map 2) where it is only weakly defined. This however may be due in part at least to the rather

widely spaced data in this area. It is known that a short distance to the south of the claim group, the anomaly picks up in intensity and continues its north-south trend. There seems little doubt therefore that Anomaly 19 is indicative of a diabase dyke.

In the east central part of claim P-39305, a rather prominent zone about 150 gammas below base level trends northerly, parallel and adjacent to Anomaly 19. A study of the topography of this section shows that the low is situated on a rather prominent sand ridge which rises quite rapidly from swampy areas on either side. It is therefore believed that the low may be explained by considering a rather flat bedrock surface upon which is superimposed andoverburden of varying depth. In effect, the plane of measurements will become a warped surface. This will give rise to a "negative"anomaly similar to that shown on the map. The magnitude of the negative anomaly is consistent with the height and width of the sand ridge and the susceptibility of the lava bedrock. This therefore seems to be a reasonable explanation for the magnetic low. It is also possible to explain the minor changes in magnetic intensity found in claim P-39306 by invoking the idea of changing overburden depths. Thus it may be seen that all of the bedrock east of Anomaly 19 is probably quite uniform in magnetite content and consequently is quite likely a uniform rock type, possibly rhyolite.

A more complicated picture is outlined on Map 3, showing the five southeasternmost claims P-38789 to P-38793 inclusive. Here again the major feature is a north-south trending magnetic anomaly which is the southern extension of Anomaly 14. This anomaly very probably represents a diabase dyke. It will be noticed, however, that a definite change in base level is apparent on either side of this dyke, the base level values on the west side being about 200 gammas, while those on the east side are about 400 gammas. The obvious solution to this problem is a dyke dipping to the east,

and examining Map Sheet 3 only, a very good case for this interpretation could be derived. On Map Sheet 2, to the north, however, the low on the west side diverges from the dyke anomaly to a point at least 800 feet west of the dyke anomaly where both trends are offset by a major fault. The low is picked up again on the north side of the fault, having been offset 1200 feet west and continues across the property in a northerly direction. There are several possible explanations for this peculiar low trend. In the original report, it was suggested that it could be caused by a dyke- or vein-like feature composed of a material entirely devoid of magnetite. It could also be caused by an inversely polarised dyke, such that the remanent magnetization was stronger than the induced magnetization.
It is, however, believed that the best solution to the problem is obtained by considering the anomaly due to a topographic depression in the bedrock. This suggests a zone of weakness which was hollowed out at a much later date by glacial action. The locus of the zone of weakness could be a shear zone, fault or joint plane. A diamond drill hole which may have cut the zone in Map 1 indicated a shear zone near the bottom of the hole. An island in Kamiskotia Lake has a north-south fault which lies on strike with the low zone. While these pieces of evidence are in no way conclusive, they do substantiate the possibility of the low being associated with a fault zone. Calculations made on a theoretical rectangular depression in the bed rock of 50 feet deep, and 100 feet wide, where the uniform bedrock surface was assumed to be 50 feet below the plane of measurement, indicate that such a depression could cause a negative anomaly of about 100 gammas, if the depression cut through rocks having a susceptibility of .0013, or roughly that of an intermediate lava horizon. Thus the theory is consistent with the known evidence.

A very weak north-south trend is shown near the eastern edge of the map sheet. This anomaly has been labelled Anomaly 15A, since it lies on strike with Anomaly 15 which may be seen on Maps 1 and 2. Although Anomaly 15 is very weak south of the major fault on Map 2, it is quite possible that a narrow diabase dyke could traverse the area and fail to be detected due to the picket line spacing in this region. It is therefore believed that Anomaly 15A is merely the southern extension of Anomaly 15, and consequently is representative of yet another diabase dyke.

The remainder of the anomalies in the area trend south-easterly, this trend corresponding to the regional trend of the lavas in the area. They probably represent more basic phases of the volcanic horizons and may therefore represent andesitic flows interbedded in the more acid, less magnetic rhyolite horizons. Typical of these is Anomaly 20, which appears as an isolated pod of more magnetic material. It appears to be cut off at either end by diabase dykes. Anomaly 22 on the other hand, while interrupted by a diabase dyke Anomaly 14 and the "negative" anomaly zone may be found again on the east side of the diabase dyke. Anomaly 17A appears to be the eastern extension of Anomaly 17, on Map 2.

Anomaly 23 appears at first glance to be discordant. However a similar trend is found in the southwestern portion of Map 2, and when compared spacially, it may be seen that these features are on strike with each other.

Anomaly 21 does not have the same definite lineation shown by the other anomalies in this group. It appears more as zone of "hashy" magnetics which trends roughly along the regional strike direction. This "hashiness" is peculiar to the western portion of Map 3. It is definitely indicative of shallow overburden as proven by the presence of granite? outcrops along the western claim boundary. This rock, which contains quite a bit of free quartz is probably responsible for most of the anomalies west of Anomaly 14. It is suggested that the rocks as presently constituted are the highly granitized remnants of the original volcanic flows, and that the more magnetic phases represent the more basic units of the original flows. This would require, of course, that the granitic intrusive lay a short distance to the west, but did not extend far enough onto the claim group to totally digest and destroy the original structures in the volcanic horizons.

It has been pointed out by others working in the area, that west of the anomalous zone of low magnetics, which on Map 3 lies immediately west of Anomaly 14, the magnetic base level is considerably lower than that east of the same zone. A reasonable explanation for this phenomenon might be that vertical displacement has occurred along the fault zone postulated for the zone of low magnetics.

If this movement were west side up, east side down, the material on the surface at present would be at two different depths with respect to the granitic intrusion. Thus west of the fault, the original magnetite in the lavas would be destroyed and the iron could have migrated to higher levels which were subsequently eroded. East of the fault the rocks would be in the zone of iron enrichment, thus increasing the magnetite content of the volcanic horizons and giving rise to a higher magnetic base level. As a consequence of this arguement, one would therefore expect to encounter sulphide deposits east of the fault rather than west of it. In a general

way, this is borne out by the fact that many sulphide occurrences are known to the east of the break, but limited diamond drilling which appeared to be strategically located by means of structure determined from the magnetic data, failed to show any sulphides west of the fault. Similarly, electromagnetic surveys east of the fault have outlined many electrical conductors which may be due to sulphides, but no conductors have been found west of the break on the Robb I property. It is therefore suggested that further exploration for sulphide deposits be confined to the region east of the fault interpreted as lying along the line of the magnetic depression immediately west of Anomaly 14.

J.H. Ratcliffe.

Attachment

1. Dominion Gulf Company Map, Ground Magnetometer Survey, Robb I (5 Claim Group) Robb Twp., Province of Ontario, Scale 1" = 200', dated Feb. 3, 1956.

D O M I N I O N G U L F C O M P A N Y

INTERPRETATION OF ELECTROMAGNETIC SURVEY DATA

ROBB I

Porcupine - Kirkland Area Ontario.

J. H. Ratcliffe January 28, 1955.

CONTENTS

INTRODUCTION

The Robb I claim group consists of 61 claims located in north central Robb township, about 25 miles northwest of Timmins, Ontario. The claim group was staked following the definition of an aeromagnetic anomaly in an area adjacent to, and on strike with the Kam Kotia Mines copper-zinc open pit. It was known that the copper-zinc mineralization was intimately associated with pyrrhotite, a highly magnetic iron sulphide. Although there was very little hope that the aeromagnetic anomaly was caused by pyrrhotite alone, it was believed that the anomaly could represent an area of intrusive activity or an alteration zone which might be favourable for sulphide deposition. Following staking of the property, a geological survey and a detailed ground magnetometer survey of the property were run on picket lines cut for the purpose. The geological survey uncovered only four small outcrop areas on the entire property. These were concentrated along the north-south stretch of the Kamiskotia River, and added very little information to our knowledge of the property, except to indicate that siliceous fluids had attacked the andesitic rocks in the area, that granite and gabbro intrusions had occurred, and that strong east-west shearing was prominent in three locations.

The ground magnetometer survey provided more definitive information over the entire property. The single aeromagnetic anomaly was broken down into a number of strong, linear magnetic anomalies, confined to the area outlined by the aeromagnetic survey. None of these linear anomalies could be definitely correlated with the few rocks outcropping in the area. Several strong north-south trending linear anomalies occurring outside the major anomaly zone could be explained by diabase dykes. Certain warps, offsets, and "spill-outs" along the diabase dykes suggested east-west trending faults.

While the ground magnetometer survey indicated interesting structural conditions, and outlined several anomalies conforming to the regional strike which could be considered somewhat similar to the ground magnetometer anomaly existing over the Kam Kotia open pit, as defined by Jones, there was no definite information on which to select a particular anomaly as indicative of pyrrhotite and associated sulphides. It was believed that a drilling program at this stage might be costly and premature. It was therefore proposed that an attempt be made to show that some of the magnetic anomalies in the major anomaly zone were also associated with electrical conductors. If such a coincidence could be established, it could be reasonably assumed that the causative body consisted of pyrrhotite mineralisation at least, with the possibility that other sulphides might be associated with the pyrrhotite, as they are at the Kam Kotia pit.

Accordingly, an electromagnetic survey of those parts of the property which were considered favourable for pyrrhotite mineralisation was undertaken during the months of August and September, 1954. The transmitting equipment consisted of a vertical, hexagonal coil, having a radius of eight feet, powered by a 3,000 watt, 900 cycles per second gasoline motor-driven generator. Two circular receiving coils, having diameters of 14 inches were mounted on tripods and equipped with miniature amplifiers and earphones. The receiving coils were traversed on picket lines on either side of the transmitting coil, in such a manner as to "fan" across the regional strike of the geological formations. Readings were taken by observing the departure of the null (or zero sound) from the theoretical null, (ie at right angles to the plane of the transmitting coil). All stations occupied were in the plane of the transmitting coil. The angles measured and recorded are the "strike" angle (deviation measured in a horizontal plane from the plane of the transmitter) and the "dip" angle (deviation measured in a vertical plane from the plane of the transmitter). The strike angle is subject to large errors due to orientation factors and is not considered to be very significant. The dip angle, however, is generally considered significant

if it exceeds 5 degrees and follows the normal cross-over pattern.

Stations were generally observed at 100 foot intervals, on picket lines 400 feet apart. In all a total of 1376 stations were observed from 17 transmitter set-ups.

Trial surveys were run in the vicinity of the Kam Kotia open pit, and over the sulphide occurrences recently outlined by diamond drilling on the adjoining New Kelore property, with the kind permission of the property managements.

The survey crew consisted of six men under the direction of the author. On completion of the survey, the data were transmitted to the Toronto Office of the Dominion Gulf Company for further processing and interpretation. The data are presented in profile form, on a map at a scale of 1 inch equals 200 feet, accompanying this report.

SUMMARY AND RECOMMENDATIONS

Several strong strike angle anomalies were recorded, but these appear to be due to errors in orientation, and as a result, are not necessarily indicative of conductive material. Several minor anomalies were encountered in the dip angles. In general, these deviations were recorded at the ends of traverses, near the limit of audability. On further checking, it was found that the anomalies tended to disappear when the transmitter was moved closer to the anomalous condition. It is interesting to note however, that all such indications were found in the vicinity of the north-south trending Kamiskotia River, when an orientation favouring north south conductors was being employed. It is therefore possible that the conductor indications are real, and represent induced electrical currents in the river.

In no instance were clear cut normal cross-overs similar to those observed over the Kam Kotia and New Kelore sulphide deposits encountered. For this reason it is believed that the survey has failed to reveal a conductive sulphide deposit. This does not mean, however, that a sulphide body does not exist in the area surveyed. Excessive overburden, lack of connection between sulphide particles, and highly conductive overburden may have reduced the response of the secondary field to below noise level, making it impossible to detect the sulphide body.

It is therefore recommended that a drilling program based on other methods of exploration be undertaken, and that the data gained from the electromagnetic survey be completely ignored in such a program.

INTERPRETATION

An examination of the accompanying maps indicates that the strike angles are often quite erratic as opposed to the generally flat, uniform profiles shown on the dip angle plot. The erratic character of the strike angle plot may be explained by considering the nature of the measurement, and the manner in which it is obtained. The survey method employed involves precomputation of the normal strike angle in order that a transmitting coil erected on one north-south picket line may be directed toward a particular station on an adjoining picket line. In the case of both the transmitter coil and the receiver coil, the precomputed angle is turned off from the fixed north-south line as determined from the particular picket line upon which the individual coil is erected. Thus errors in misorientation with the picket line, between two picket lines, between chainages on two adjoining picket lines, in addition to the personal factor, will all reflect in anomalous strike angles. It is obvious that the method is much more accurate in areas where "line of sight" orientation may be performed. Due to the many possible orientation errors which may be involved, the strike angle is usually neglected from an interpretation viewpoint, its only function being to provide a complete record of the vector, and perhaps, in the case of a "dip angle" anomaly, to act as corroborative evidence.

Over the entire area surveyed on Robb I only 10 dip angles in excess of 5 degrees were found. Of these, 8 were located at the extreme ends of traverses where the signal was very weak and great difficulty was encountered in determining a null point. In all cases, check traverses failed to confirm the strong dip angles. In no case where a dip angle of more than 5 degrees was observed, could the high dip angle be associated with an equivalent high dip in the opposite direction

to [redacted] a normal cross over. Five very weak normal cross overs were obtained, however. Four of these occur in one section, at from 5+00N to 9+00N, on picket lines 132+00W (7+00N), 134+00W (9+00N), 140+00W (5+00N) and 144+00W(5+00N). The cross over on picket line 140+00N was not reproduced using a second, apparently favourable array. The fifth normal cross over, at 32+00N, picket line 136+00W, could not be reproduced despite the fact that two other apparently favourable arrays were used in an attempt to define the anomaly.

It is immediately apparent that the anomalous dip angles, those in excess of 5 degrees, and those indicative of normal cross overs, are confined to a belt in the vicinity of the Kamiskotia River. If the radiation pattern from the transmitting coil is considered, it will be seen that each anomalous indication is so located that the horizontal portion of the radiation field for the particular station involved, must pass through the Kamiskotia River at some point in its path. It is therefore highly possible that either the primary field itself is distorted by the river, or that the primary field sets up a secondary field in the river, thus indicating that a conductor is present.

It is therefore believed that none of the anomalous "indications" can be considered valid indicators of metallic conductors. This does not mean that metallic conductors are not present in the area covered by the survey. The depth, and conductivity of the overburden, and the size, shape, attitude and conductivity of the metallic conductor are all exceedingly important factors which may have prevented detection of the assumed sulphide body.

As examples of normal cross-overs the test profiles obtained over the Kam Kotia and New Kelore ore zones are appended to this report. Traverses Number 1 and 5 on the Kam Kotia property are excellent examples of sulphides occurring on the surface. Here it is obvious that dip angles in the range of 15° to 27° may be expected over an outcropping sulphide body. The profile on L. 42 of the New Kelore property is perhaps what might have been expected on the Robb I property. It is perhaps interesting to note that about 25 feet of overburden has cut down the

resultant dip angle to about 10 degrees. Of course, such direct comparison is unfair, since the width of the sulphide body on the New Kelore property is about one tenth that of the Kam Kotia, but perhaps it may be conceded that the attenuation due to overburden cover is substantial. Since the overburden on the Robb I property is about twice that on the New Kelore, it is immediately evident that any response from similar sulphide occurrences will probably be within the "noise" level, and therefore not detected by this method.

REFERENCES

JHR/BJ

J. H. Ratcliffe.

ATTACHMENTS

1. Dominion Gulf Company Map, Electromagnetic Survey, Robb I, North Sheet, Porcupine-Kirkland, Ontario, Scale 1 inch = 200 feet, dated January 28,1955.

2. Dominion Gulf Company Map, Electromagnetic Survey, Robb I, South Sheet, Porcupine-Kirkland, Ontario, Scale 1 inch = 200 feet, dated January 28, 1955.

3. Dominion Gulf Company Map, Sketch Map of Kam-Kotia Mine, Showing Location of E.M. Traverses, Scale 1 inch = 200 feet, dated Aug. 18, 1954.

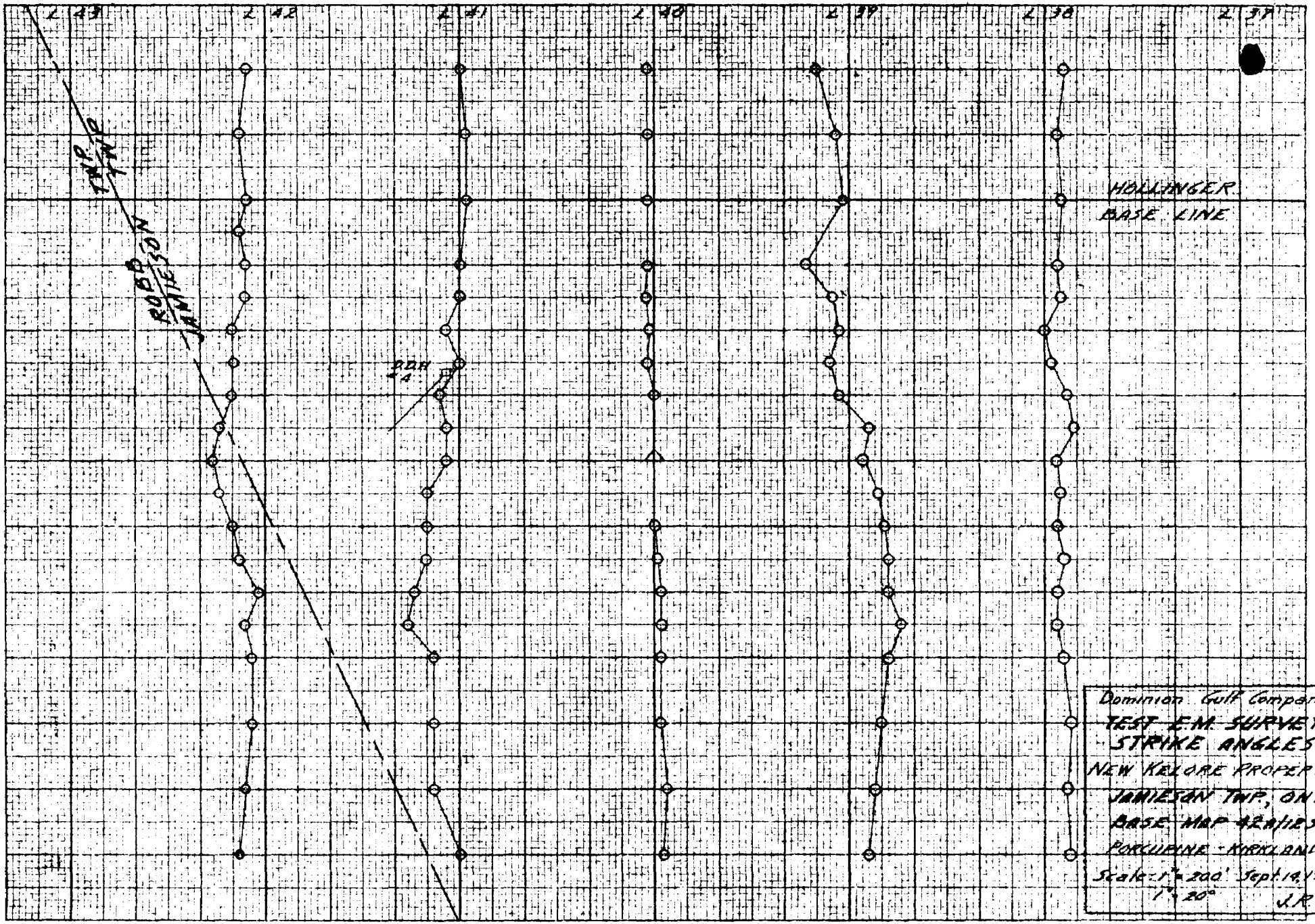
4. Two Dominion Gulf Company Graphs, Reconnaissance E.M. Survey, Kam-Kotia Pit, Robb Twp., Base Map 42A/12S, Scale 1 inch = 100 feet, 1 inch = 20 degrees, dated Aug. 18, 1954, by J. H. Ratcliffe.

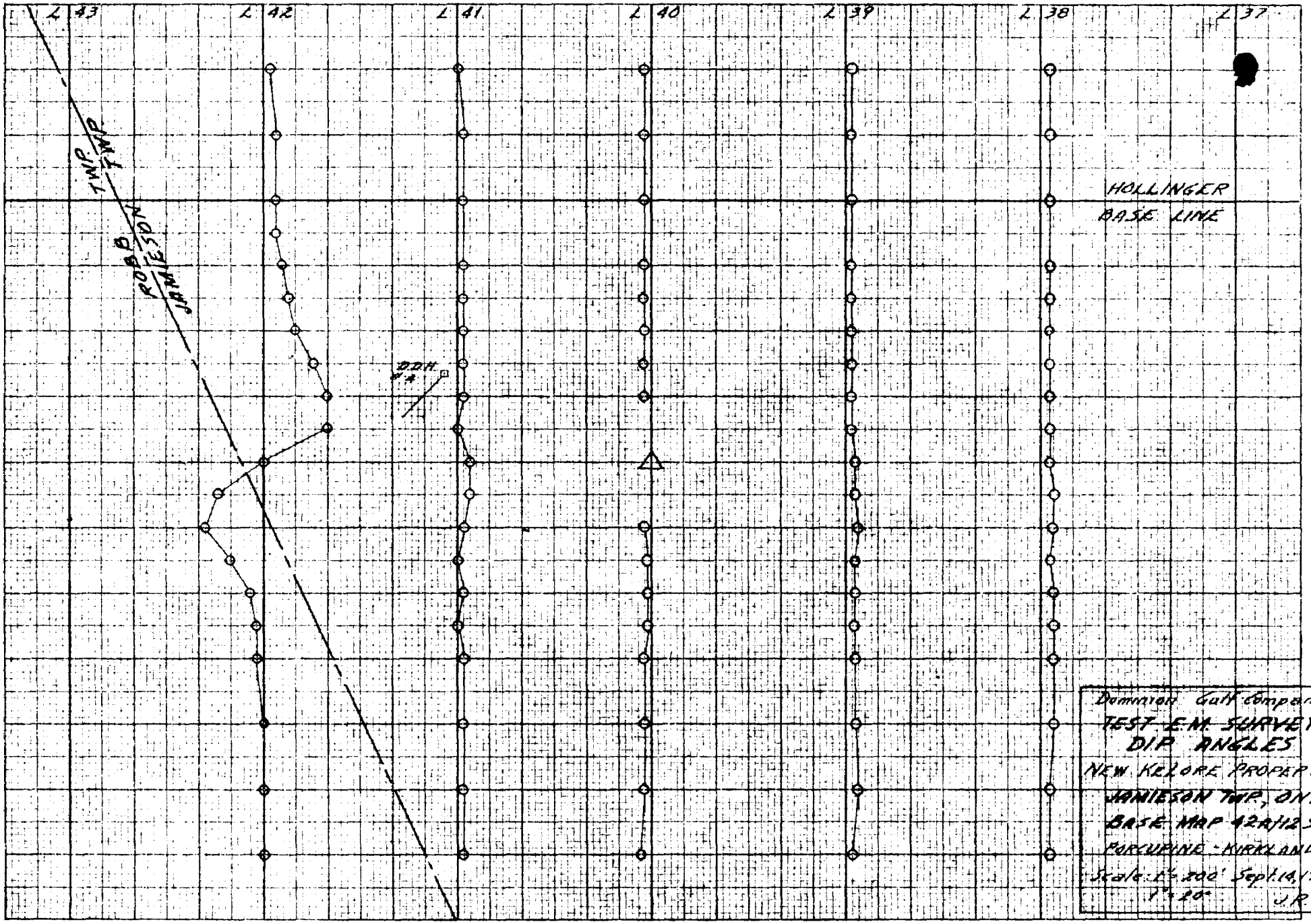
5. Dominion Gulf Company Map, Test E.M. Survey, Dip Angles, New Kelore Property, Jamieson Twp., Ontario, Base Map 42A/12S, Porcupine-Kirkland, Scale 1 inch = 200 feet, 1 inch = 20 degrees, dated Sept. 14, 1954 by J.H. Ratcliffe.

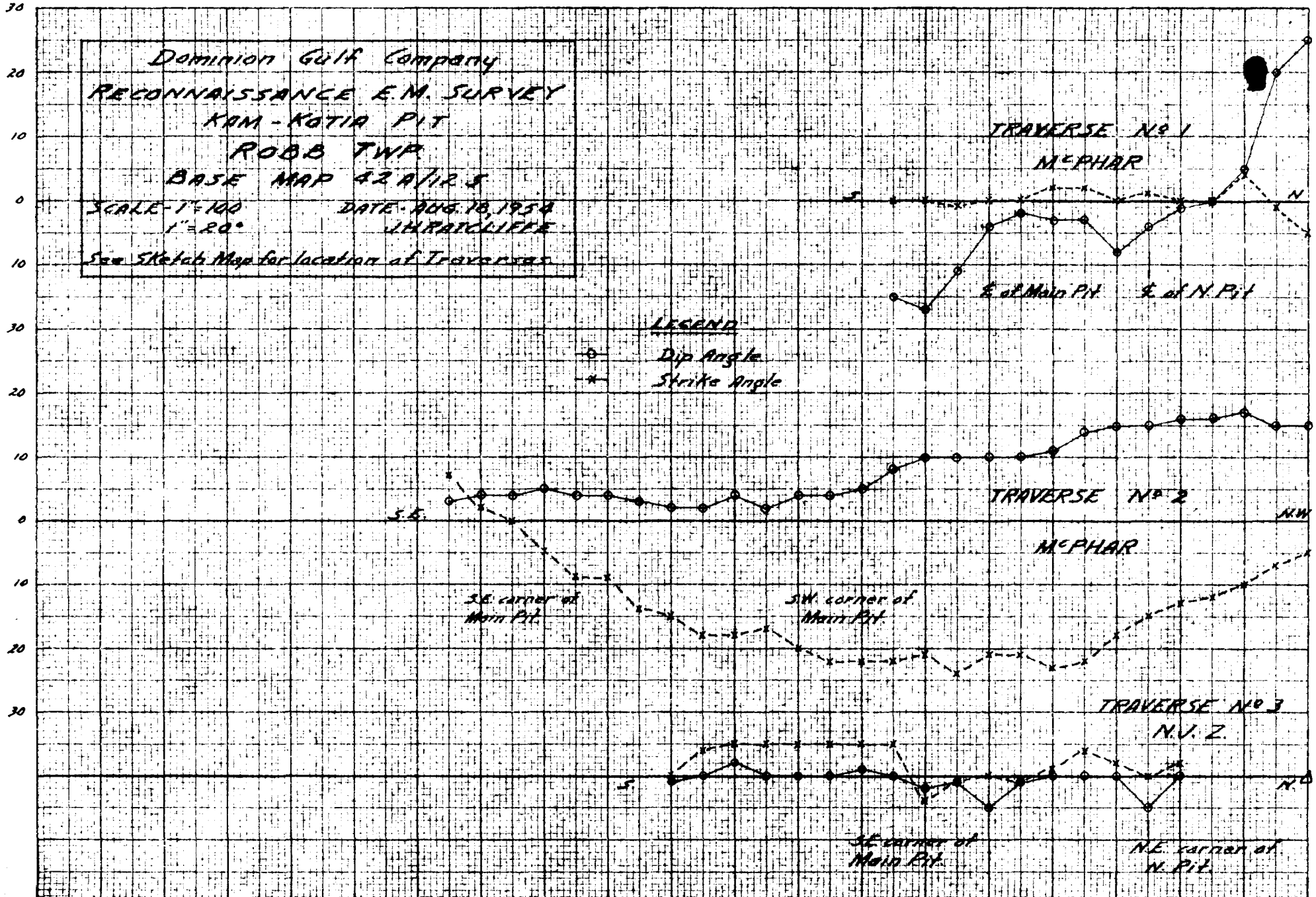
6. Dominion Gulf Company Map, Test E.M. Survey, Strike Angles, New Kelore Property, Jamieson Twp., Ontario, Base Map 42A/12S, Porcupine-Kirkland, Scale 1 inch = 200 feet, 1 inch = 20 degrees, dated Sept. 14, 1954, by J.H. Ratcliffe.

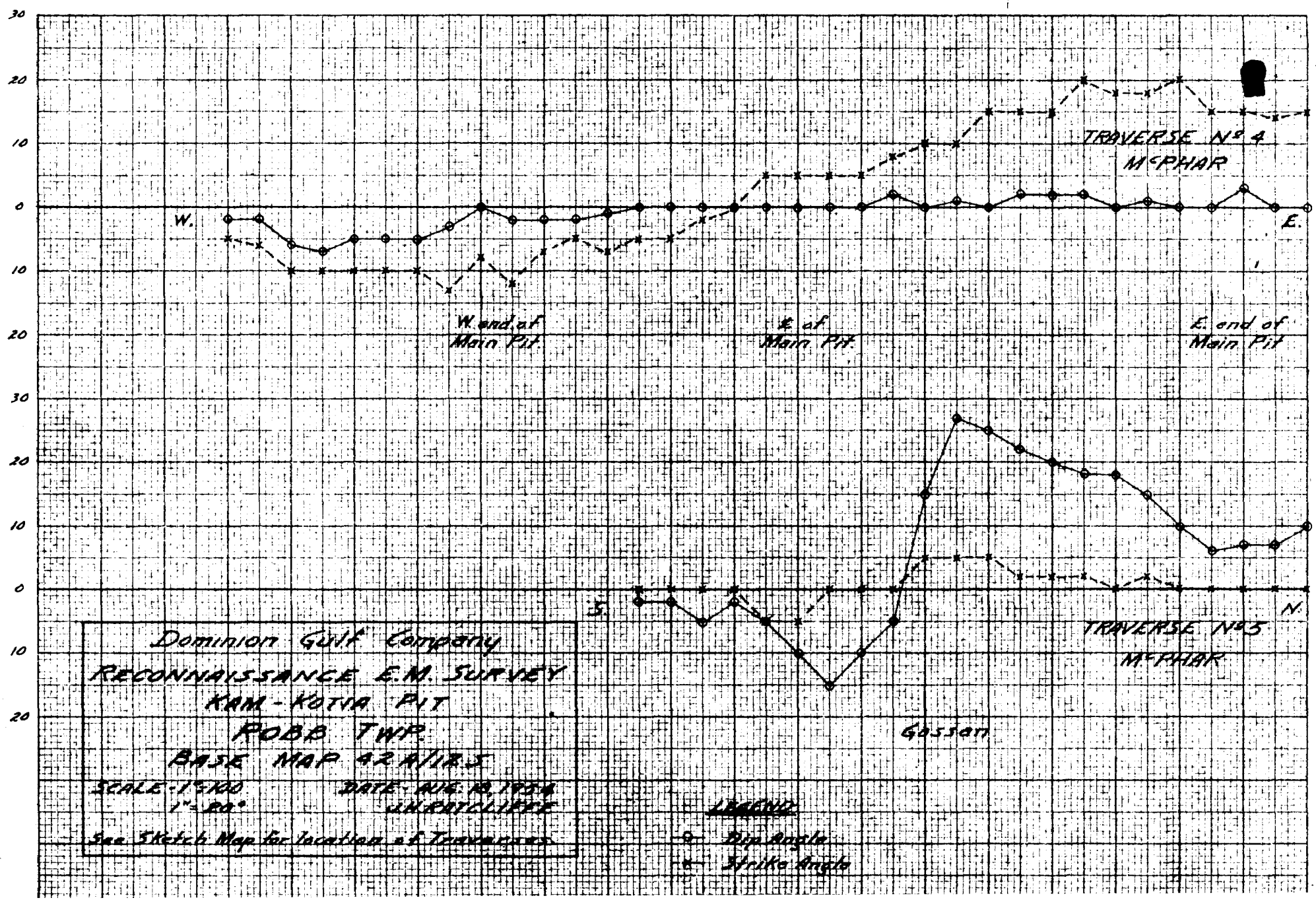
REFERENCES

1. W. A. Jones, "Experience With Some Electrical and Magnetic Methods of Prospecting," Trans. C.I.M.M., Vol. L, 1947, pp. 537-557.


L 43
L 42
L 41
L 40
L 39
L 38
L 37
ROBB
JAMIESON
TWP
DDH #4
HOLLINGER
BASE LINE
Dominion Gulf Company
TEST E.M. SURVEY
STRIKE ANGLES
NEW KELORE PROPERTY
JAMIESON TWP., ONT.
BASE MAP #2a/12S
PORCUPINE - KIRKLAND
Scale: 1" = 200' Sept. 14, 1954
1" = 20°
J.R.


L 43
L 42
L 41
L 40
L 39
L 38
L 37
TWP. LINE
ROAD
JAMIESON
DDH #1
HOLLINGER
BASE LINE
Dominion Gulf Company
TEST E.M. SURVEY
DIP ANGLES
NEW KELORE PROPERTY
JAMIESON TWP., ONT.
BASE MAP 42A/12S
PORCUPINE - KIRKLAND
Scale 1"=200' Sept. 14, 1954
1"=20'
J.R.


Dominion Gulf Company
RECONNAISSANCE E.M. SURVEY
KAM-KOTIA PIT
ROBB TWP.
BASE MAP 42 A/12 E
SCALE-1"=100'
1"=20°
DATE-AUG. 18, 1954
J.H. RATCLIFFE
See Sketch Map for location of Traverses
LEGEND
Dip Angle
Strike Angle
TRAVERSE No 1
McPHAR
S
N
E. of Main Pit
E. of N. Pit
TRAVERSE No 2
S.E.
N.W.
McPHAR
S.E. corner of Main Pit.
S.W. corner of Main Pit.
TRAVERSE No 3
N.V.Z.
S
N
S.E. corner of Main Pit.
N.E. corner of N. Pit.


TRAVERSE No 4
McPHAR
W.
E.
W. end of Main Pit
E. of Main Pit
E. end of Main Pit
S.
N.
TRAVERSE No 3
McPHAR
Gossan
Dominion Gulf Company
RECONNAISSANCE E.M. SURVEY
KAM-KOTVA PIT
ROBB TWP.
BASE MAP 42 A/12 S
SCALE-1"=200'
1"=20°
DATE-AUG. 19, 1954
LEGEND
Dip Angle
Strike Angle
See Sketch Map for location of Traverses

September 22, 1954

Dominion Gulf Company
165 Bloor Street East
Toronto 5, Ontario

Attn: Mr. E.A. Vestrick

Dear Mr. Vestrick:

In connection with the surface soil sampling completed in August levels were run over portions of the more important anomalies. The purpose of this work was to determine if possible what effect drainage might have had either on the accumulation or transportation of the values to the points where they were found.

In general it may be said that the area covered by the survey is a quite flat plain except where it has been dissected by drainage near the river. Some portions rise a few feet above the average level in the eastern and north central portions and the anomalies found in these areas seem to be in relatively high ground.

The strongest portion of the "Eastern Zinc Area" appears to lie on an easterly slope with a grade of about 3%, while the copper area just to the north of this lies on a westernly slope of similar grade.

The anomaly in Claim P 37850 appears to coincide closely with a low ridge striking slightly north of east. In the western portion of the property the main anomaly seems to lie on the western side of a hill, having a grade of about 5 to 10%.

In no case did the anomalies appear to occupy drainage basins which would suggest surface accumulation. However, if as appears likely the overburden is shallower in the high ground, this may have had considerable influence in the appearance of values at surface. Further study of the topographic data will be made in connection with the deep sample results which are now being completed and will be reported shortly.

Surface sampling was extended to cover the claims west and south of the lake. This work indicated three anomalous areas. The first appears to be an extension southward of what has been called the "Eastern Zinc Area". It contains some quite interesting values in copper as well as zinc. The second lies in claim P 37840 and appears a further extension of this zone. This also contains interesting copper values as well as zinc.

The third area lies principally in claims P 37824 and P 37826, is less continuous and carries somewhat lower values in copper and zinc.

The results of deep sampling are not yet completed but show interesting improvement with depth at some points, particularly on line 99 W from 21 to 22 north. This improvement in metal value with depth appears to be largely in copper.

Enclosed is a plan showing the latest surface sampling and the topographic work as well as our invoice for $1,146.00 to cover the former. You may expect final reports on all the work to date early next week.

Yours very truly,

CTB:mh

C.T. Bischoff, P.Eng.

Enclosures

[illegible] PHONE 2061

C. T. BISCHOFF
MINING ENGINEER
ROUYN, QUE.

September 24, 1954

Dominion Gulf Company
165 Bloor Street East
Toronto 5, Ontario

Attn: Mr. E. [illegible]. Westrick

Dear Mr. Westrick:

Analyses of additional deep sampling taken from the Robb No. 1 property have now been completed.

At some points these show encouraging persistance and sometimes increase in base metal values with depth, although range of values is not very high.

On the basis of geochemical sampling the most important area would appear to be in the western portion of claim P 37842 and the eastern portion of P 37846. Interesting copper values were picked up here in the original surface sampling and deep sampling has given fairly encouraging results.

The most probable location of mineralization in the underlying bedrock has been indicated on the accompanying plan covering this section. If drilling is contemplated on this property I would suggest drilling two or three holes of about 500 feet each in this section as a test. Results of this work would provide a gauge for adjacent sampling results as well as those obtained in other parts of the property.

Some encouragement was also obtained in sampling the "Eastern Zinc Area" in claim P 37838. This was particularly true on line 88 W which also gave the best results in surface sampling. However, this section did not provide much encouragement in copper so that considering the price of metals, it must be considered of secondary importance. Nevertheless, while the drill is on the property it would be worthwhile putting two or three holes on this section to test the results.

The eastern portion of the north central anomaly in Claim P 37850 was also sampled in considerable detail. This work gave indication of copper and zinc mineralization trending slightly north of east as is shown on the accompanying plan. These indications are somewhat feebler than those encountered in the first anomaly but give much better results in copper than do those in the second.

I would say these results warrant at least two short holes cross-sectioning the apparent zone to test the results. The western zinc anomaly was also deep sampled but in considerably less detail. Results along lines 160 and 164 W gave relatively meagre results. However, at two points good copper and zinc values were encountered, namely 19N on line 160 and 22 N on Line 164.

At Mr. McIntosh's request we also took a few deep samples along line 152 from 18 and 26 north, as it was believed that overburden was rather shallow along this line. Results of these samples showed little or no improvement over those obtained on surface which were low.

Regarding topography and its possible effect on the sampling results, it may be said that two of the zones trend parallel to the contours, namely No. 2 and 3 anomalies.

Anomaly 2 is located on a very gentle slope toward the east, while No. 3 trends along a low ridge rising about 5 feet above the average elevation. No. 1 anomaly appears to trend across the contours which here again involve very gentle slopes.

In the western portion tested by deep sampling, the ground has been considerably dissected by drainage. However, at the two points where the most encouraging results were obtained, slopes are relatively slight. Consequently, one would expect that the source of mineralization should be located within a relatively short distance, probably within 100 feet, of the best surface indications and quite close to the best deep results. It is very difficult to evaluate these results in a quantitive way as at this stage they are entirely relative.

We have obtained better results in other locations over rather low grade ore. However, the effect of the very dense clay covering most of the property is uncertain. It is quite possible that the results obtained, although low, may have their source in commercial ore and in consequence I would recommend a few short holes in what appear the most favorable locations.

It is doubtful whether any further deep sampling would prove useful prior to drilling some of the best indications obtained. Such drilling would provide the best criteria for applying this technique to conditions found on this property.

Enclosed are prints of three plans showing the deep sampling results plotted to scale and also showing the adjacent topography where this was covered by the transit survey. Enclosed also is our invoice for $1,016.00.

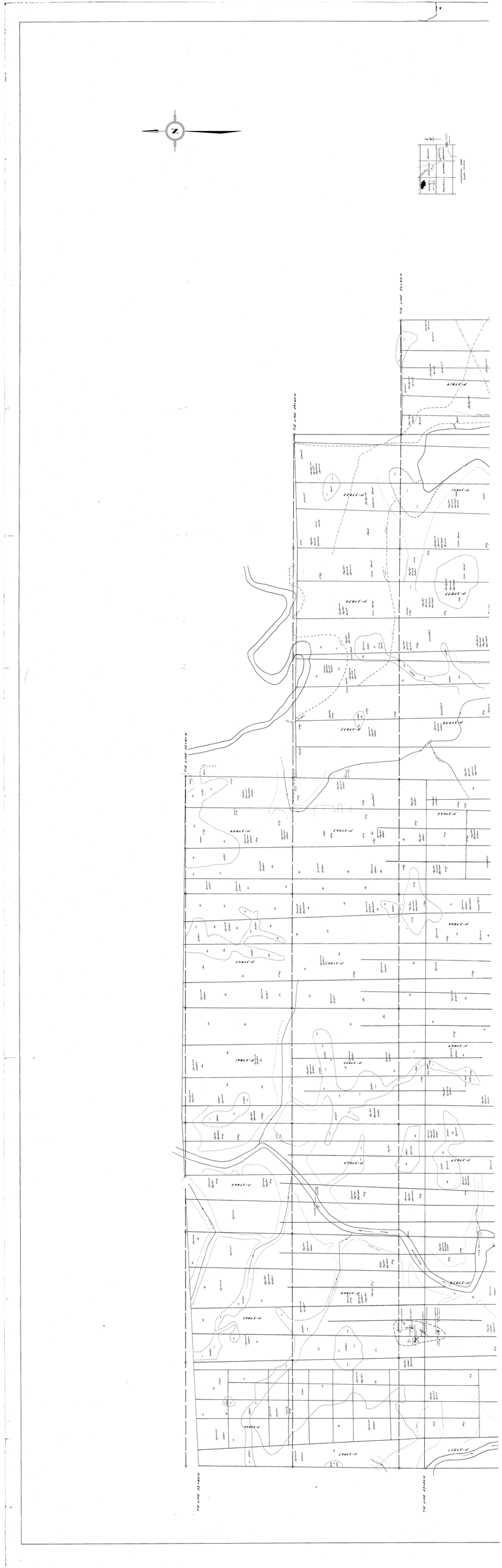
Should any of the data supplied you require further clarification, please feel free to call on me.

Yours very truly,

C.T. Bischoff, P.Eng.

CTB:mh

Enclosures




MAIN BASE LINE
TIE LINE 13+20 S
TIE LINE 17+50 S
TIE LINE 26+40 S
TIE LINE 39+60 S
OLD BASE LINE
SYMBOLS
Strike & dip
Lineation
Geological boundary - Known
Geological boundary - well defined
Exposure boundary
Muskeg, swamp
Trench
702 x Sample No. and location
H.E.J.-1X Specimen No. and location
Tote road
Trail
SAMPLE No.
DESCRIPTION
ASSAY - Au. Oz / ton
079
3" Quartz vein, 1% pyrite very little chalcopyrite
Nil
LEGEND
Quartz Porphyry (Granitization) (Q)
Granite (2)
Gabbro (G)
Greenstone (Gs.)
Chlorite, sericite schist
LOCATION MAP
Dominion Gulf Company
DETAILED GEOLOGY - ROBB I
SOUTH PART
BASE MAP 42 A/12 S
PORCUPINE - KIRKLAND ONTARIO
SCALE : 1" = 200' DATE : October 19, 1954.
To accompany report by H.E. Johnston, Dated:- Aug. 23, 1954.

(2x6) 128/R.

LEGEND

Q-E-Gs — QUARTZ-EYE GREENSTONE

JOINT

MOTOR ROAD

TRAIL

DOMINION GULF COMPANY

DETAILED GEOLOGY-ROBB I (5 CLAIM GROUP)

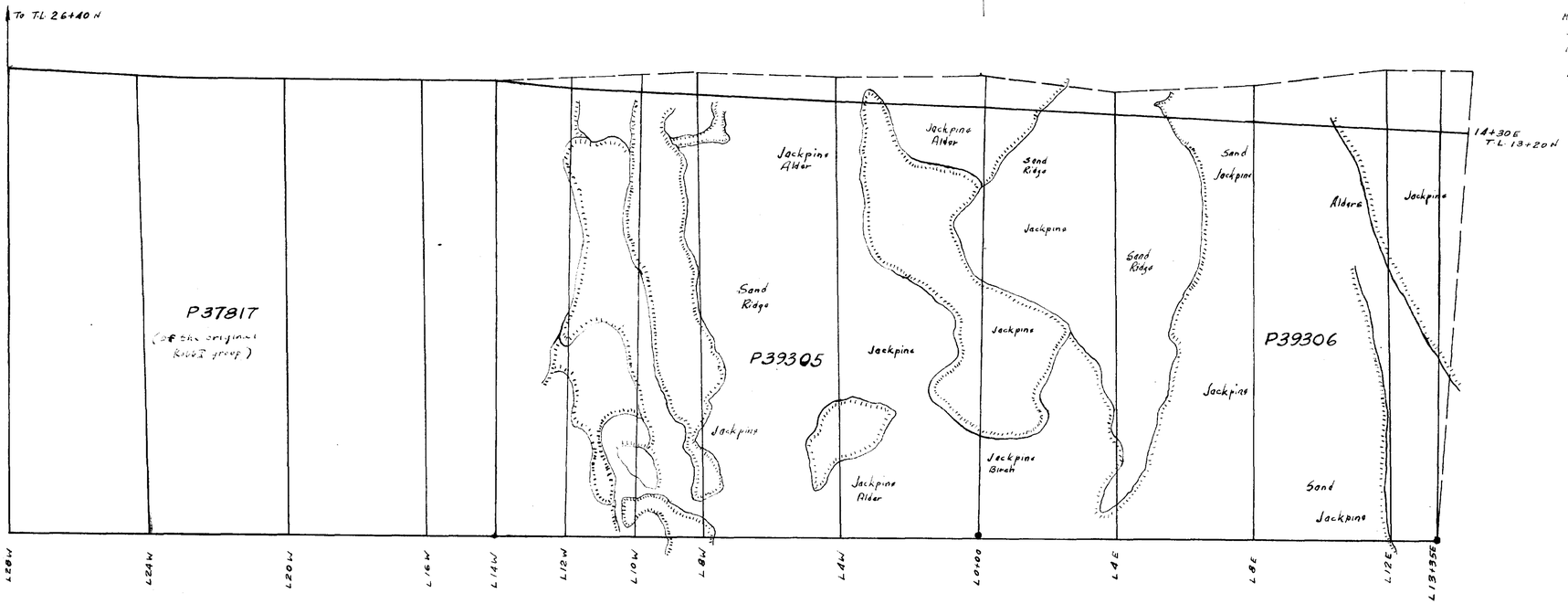
42 A/12 S — ONTARIO

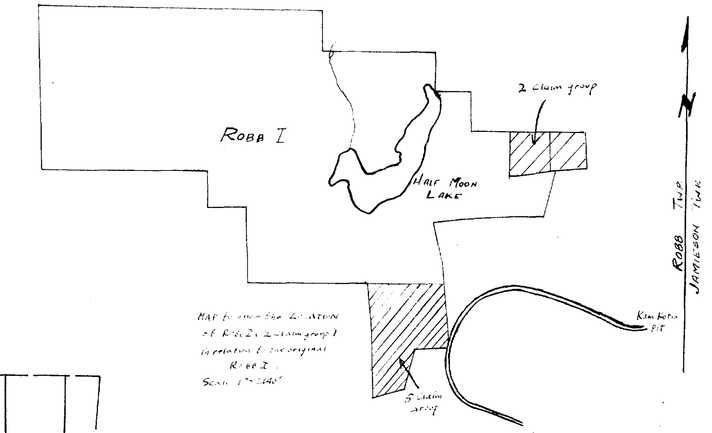
SCALE: 1" = 200' — AUG. 18, 1955

To accompany report by A.K. Temple - dated - Aug. 5, 1955.

42A12SE0275 03.679 ROBB

220





DOMINION GOLF COMPANY

DETAILED GEOLOGY - ROBB I (2 CLAIM GROUP)

BASE MAP 42A/12b

PORCUPINE - KIRKLAND - ONTARIO

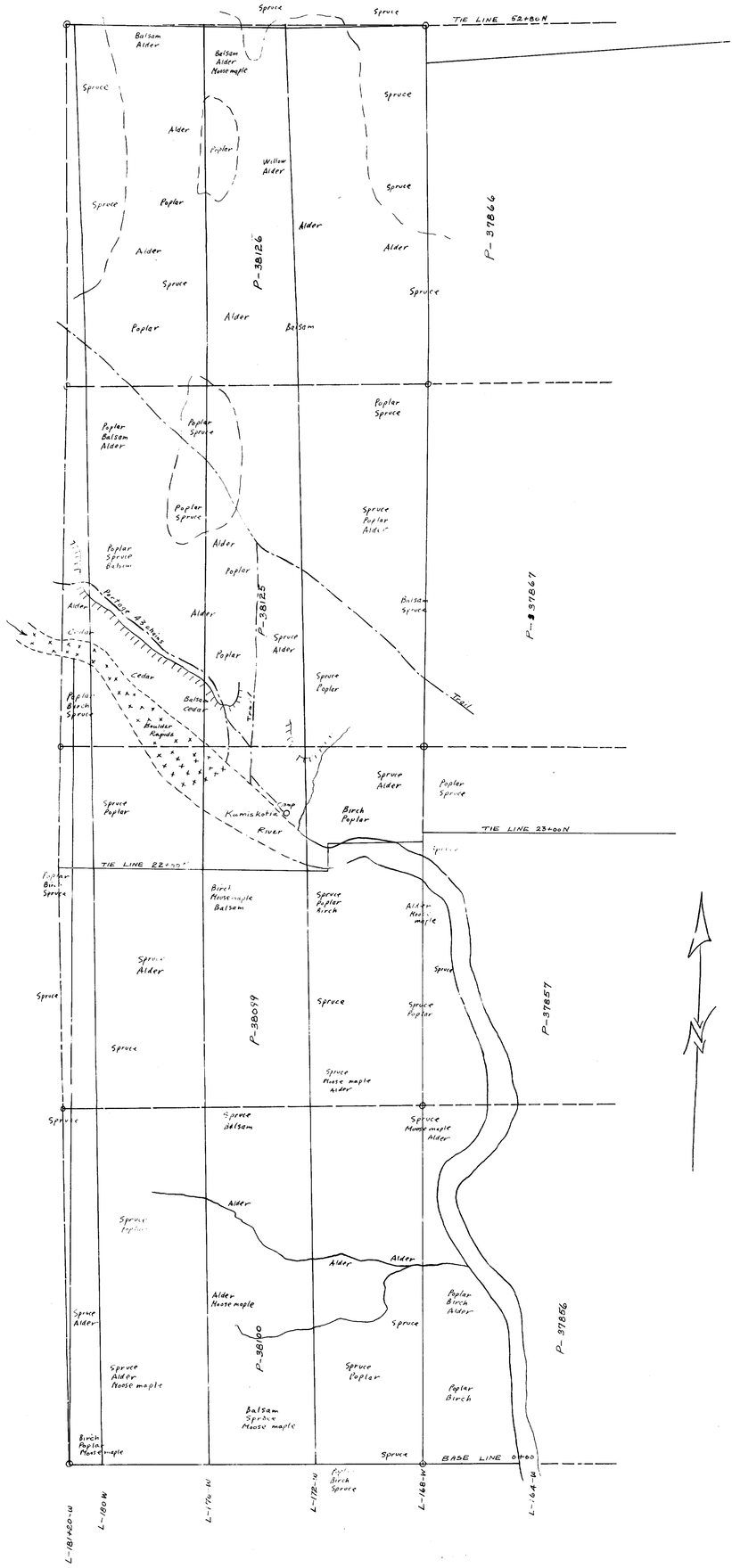
SCALE 1" = 200' 5TH AUGUST 1955

DRAWN BY R.W. HUTCHINSON

TO ACCOMPANY REPORT BY A.E. PENTLE DATED 5TH AUG 55.

230

(28x1½) 834 sq ft.



DOMINION GULF COMPANY

TOPOGRAPHIC MAP - ROBB I
(4 CLAIM GROUP)

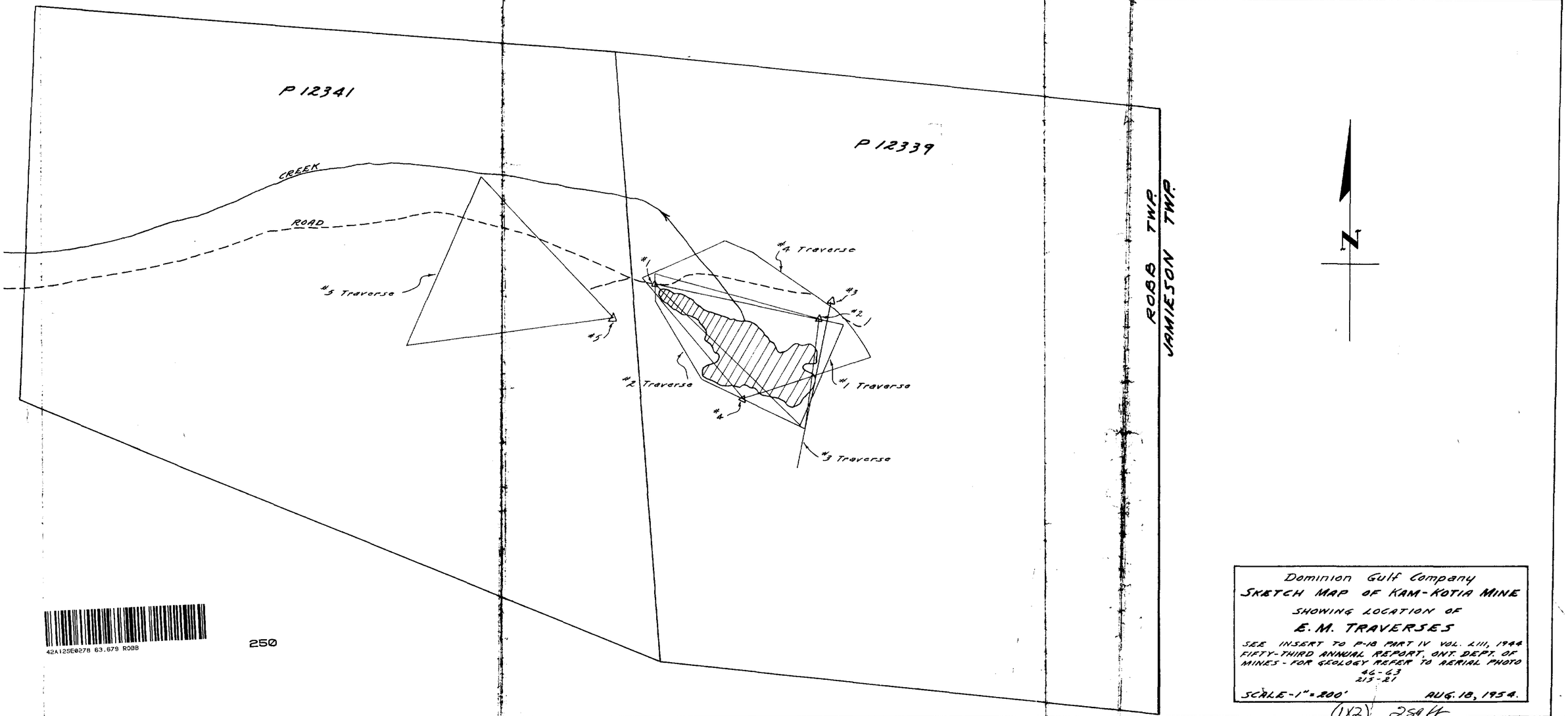
42 A/12 S ONTARIO

TOPOGRAPHY BY P.VEINOT, A.R.TEMPLE

DRAWN BY R.J.BUCK AUG. 2, 1983

SCALE: 1" = 2'0" SEPT. 22, 1983.

(1 X 3½) 3½ sq ft.



Dominion Gulf Company
SKETCH MAP OF KAM-KOTIA MINE
SHOWING LOCATION OF
E. M. TRAVERSES

SEE INSERT TO P-18 PART IV VOL. LIII, 1944 FIFTY-THIRD ANNUAL REPORT, ONT. DEPT. OF MINES - FOR GEOLOGY REFER TO AERIAL PHOTO
46-63
213-21

SCALE-1" = 800' AUG. 18, 1954.

(1X2) 2sq ft

250

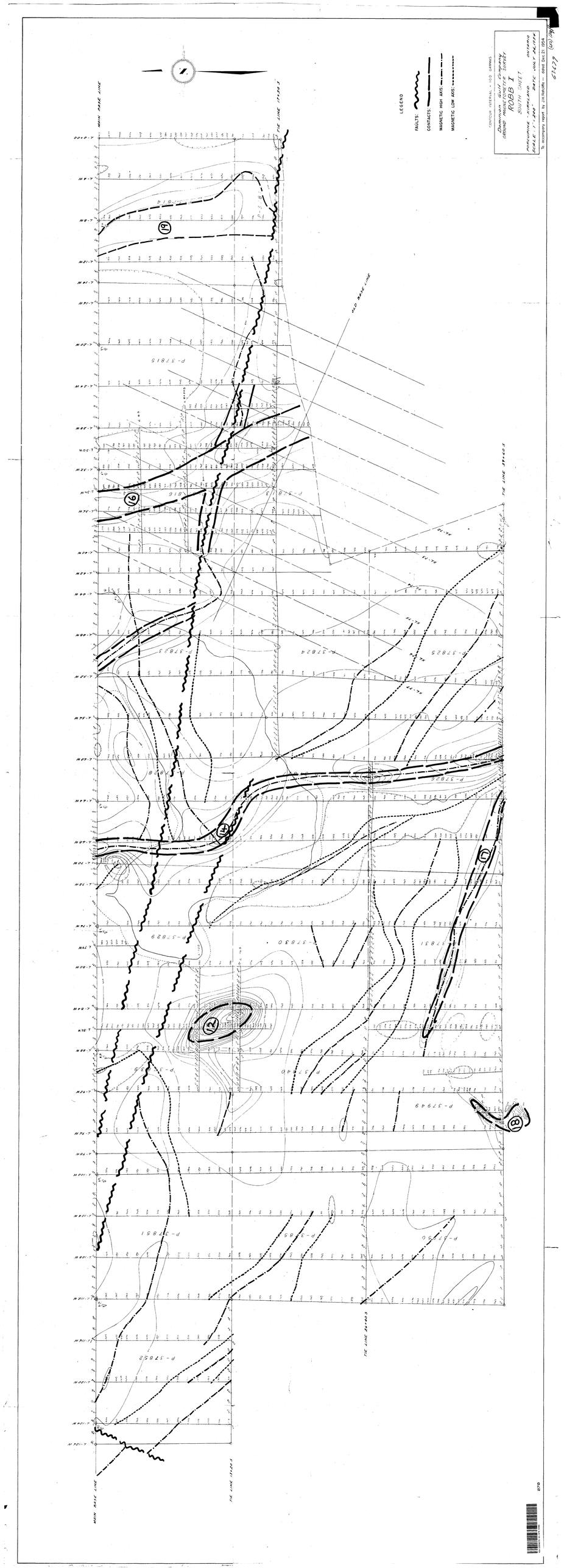
LEGEND

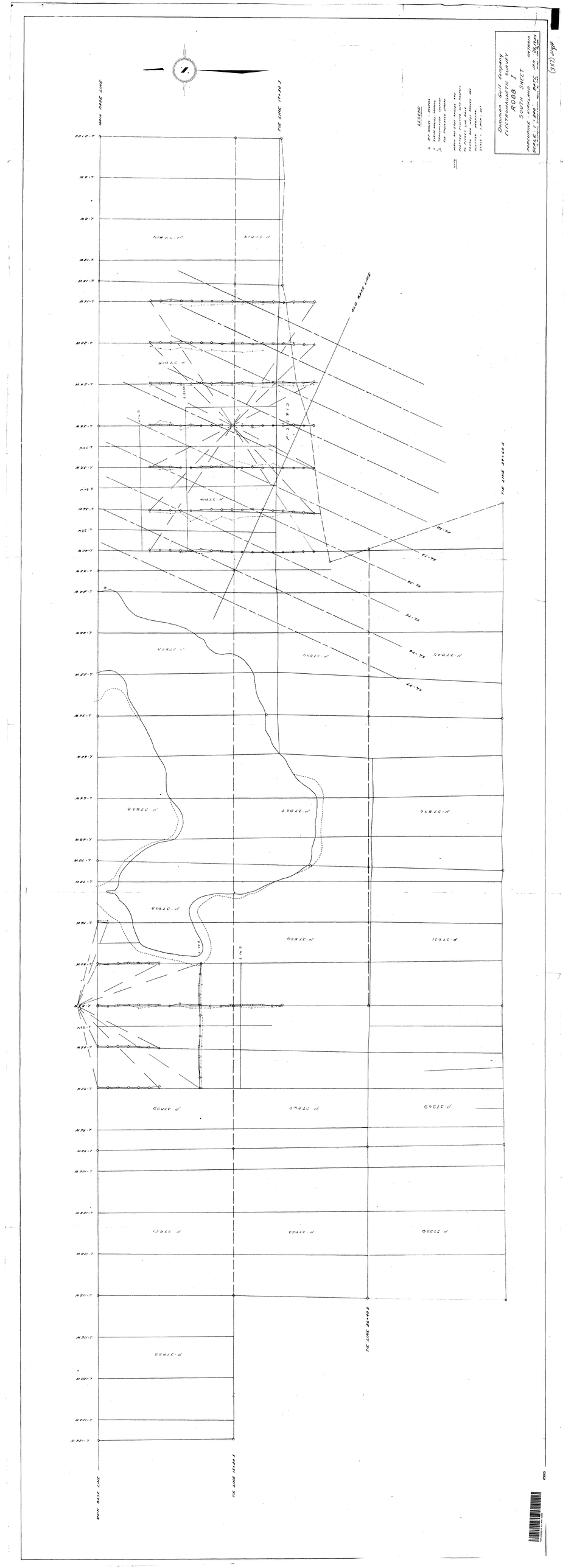
○ DIP ANGLES - DEGREES
x STRIKE ANGLES - DEGREES
Δ TRANSMITTER LOCATION FOR INDICATED SPREAD

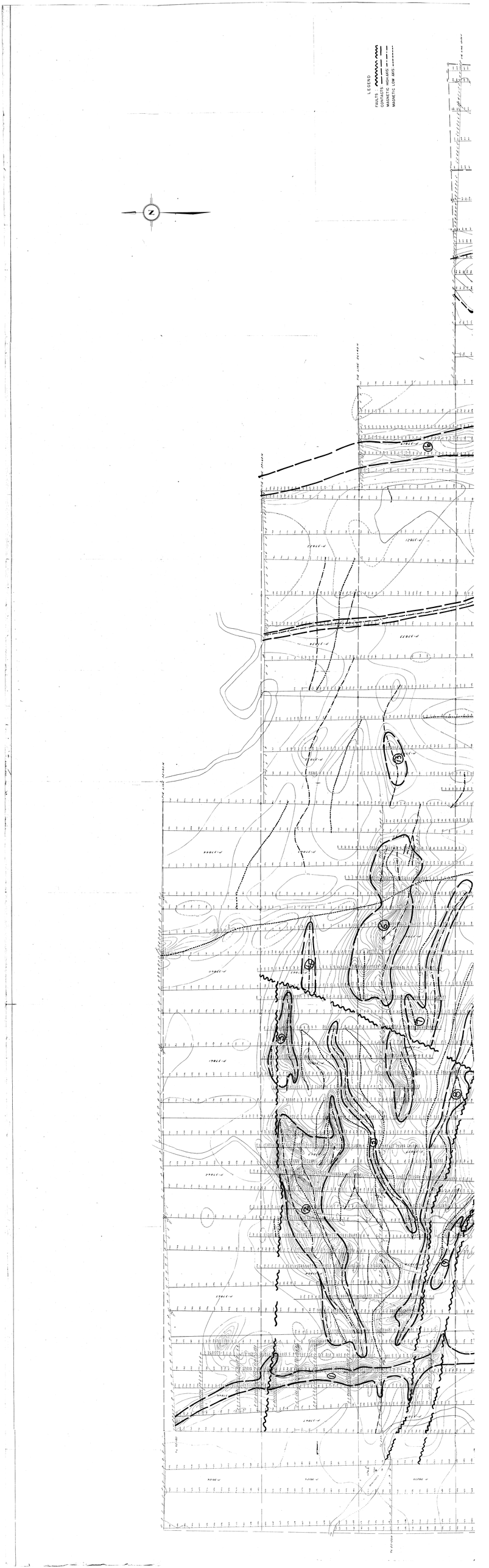
NOTE NORTH AND EAST ANGLES ARE PLOTTED POSITIVE WITH RESPECT TO PICKET LINE BASE. SOUTH AND WEST ANGLES ARE PLOTTED NEGATIVE. SCALE - 1 INCH = 20°

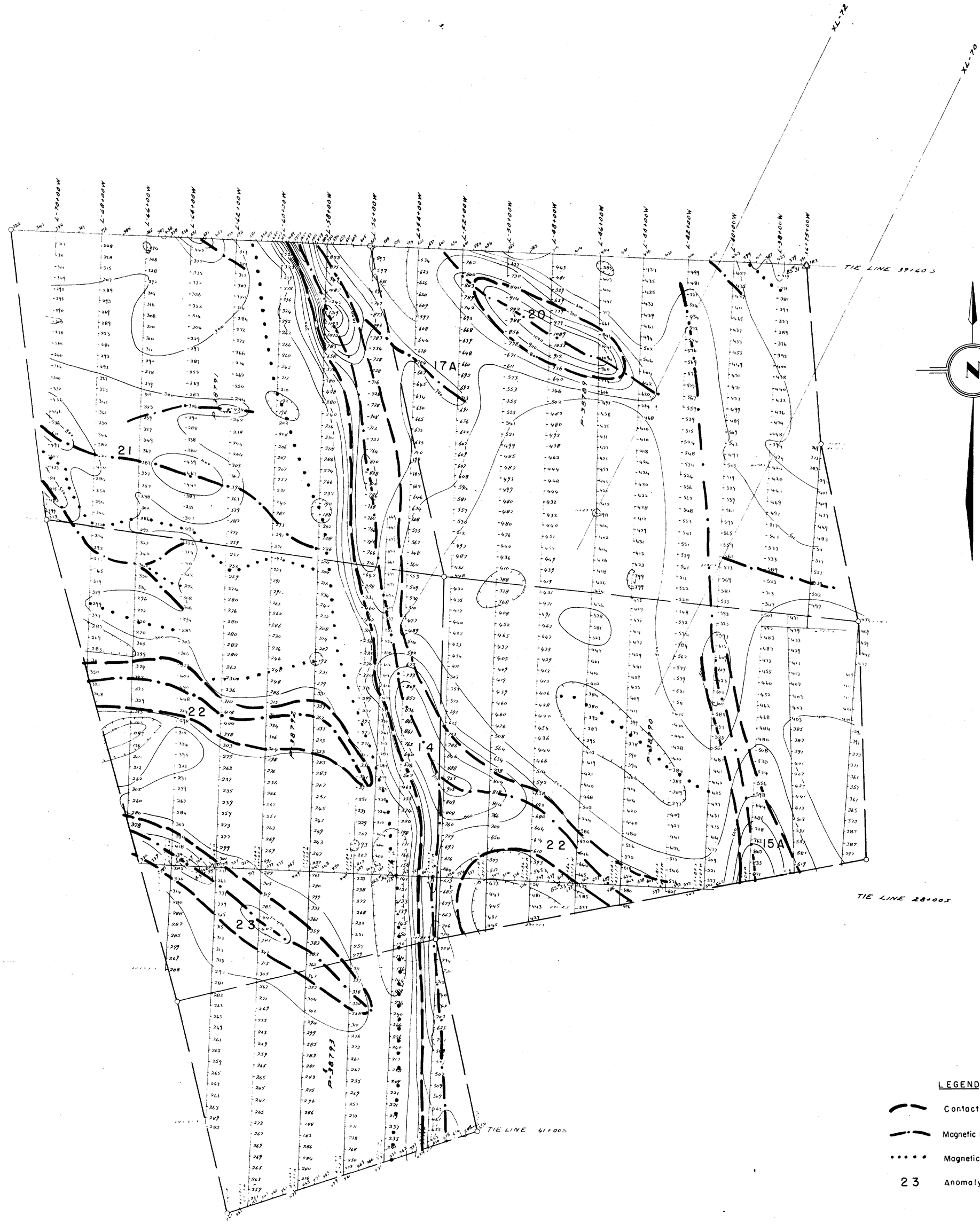
Dominion Gulf Company
ELECTROMAGNETIC SURVEY
ROBB I
NORTH SHEET
PORCUPINE - KIRKLAND ONTARIO
SCALE : 1" = 200' DATE : JAN. 28, 1955
To Accompany Interpretation Report By J.H.R. Dated - JAN. 28, 1955.

2½ X 7½ (18¾ sq ft)


CONTOUR INTERVAL = 100 GAMMAS
Dominion Gulf Company
GROUND MAGNETIC SURVEY
PROJECT I
SOUTH SHEET
MAGNETIC HIGHLAND VALLEY AREA
SCALE: 1" = 200' DATE: JULY 1954
To accompany report by J.H. Riddle - dated Dec. 21, 1954
LEGEND
FAULTS:
CONTACTS:
MAGNETIC HIGH AXIS:
MAGNETIC LOW AXIS:
MAIN BASE LINE
OLD BASE LINE
TIE LINE 17+45 S
TIE LINE 22+45 S
TIE LINE 27+45 S
TIE LINE 32+45 S
P-37814
P-37815
P-37816
P-37823
P-37824
P-37825
P-37826
P-37828
P-37829
P-37830
P-37831
P-37840
P-37849
P-37850
P-37851
P-37852
(4)
(9)
(11)
(12)
(18)


Dominion Gulf Company
ELECTROMAGNETIC SURVEY
ROBB
SOUTH SHEET
PERSHING COUNTY, NEVADA
SCALE: 1" = 200'
LEGEND
NOTE
MAIN BASE LINE
TIE LINE 37+50 S
OLD BASE LINE
TIE LINE 39+00 S
TIE LINE 39+00 S
MAIN BASE LINE


LEGEND
FAULTS
CONTACTS
MAGNETIC HIGH AXIS
MAGNETIC LOW AXIS



LEGEND

- Contact
- Magnetic High Axis
- Magnetic Low Axis
- 23 Anomaly Number

DOMINION GULF COMPANY

GROUND MAGNETOMETER SURVEY

ROBB I

(5 CLAIM GROUP)

ROBB TWP. PROV. OF ONT.

SCALE 1"= 200' DATE FEB. 3, 56

To accompany Appendix, dated Feb 3, 1956, of interpretation report by J.H.R., dated Dec. 21, 1954.

300

63-679

(2½x2½) 6145ft. [redacted]

98 W 96 92 88 84 80 76 72 68 64 60 56 52 48 44 W

BASE LINE

TIE LINE 17+50 S

P-37839

P-37840

P-37829

P-37828

P-37823

P-37830

P-37827

P-37824

P-37831

P-37826

P-37825

DOMINION GULF COMPANY

ROBB I PROPERTY

ROBB TOWNSHIP, ONT.

GEOCHEMICAL SURVEY

SOUTH PART

SCALE 1" = 200' SEPT. 22, 1954 C. T. BISCHOFF

LEGEND

P.P.M. CU IN SOIL	50 +
P.P.M. ZN IN SOIL	+60
ABNORMAL CU VALUES	SHADES OF RED
ABNORMAL ZN VALUES	SHADES OF BLUE

310

P-37867 P-37864 P-37863 P-37850 P-37845 P-37843

P-37857 P-37858 P-37859 P-37849 P-37846 P-37842

P-37856 P-37855 P-37854 P-37848 P-37847 P-37838 P-37837

168 164 160 156 152 148 144 140 136 132 128 124 120 116 112 108 104 100 96 92 88 84

DOMINION GULF COMPANY

ROBB I PROPERTY

ROBB TOWNSHIP, ONT.

GEOCHEMICAL SURVEY.

(north part)

SCALE: 1" = 200' AUGUST 10, 1954 C.T. BISCHOFF.

REVISED AUGUST 21, 1954

LEGEND

P.P.M. CU IN SOIL 60

P.P.M. ZN IN SOIL 90

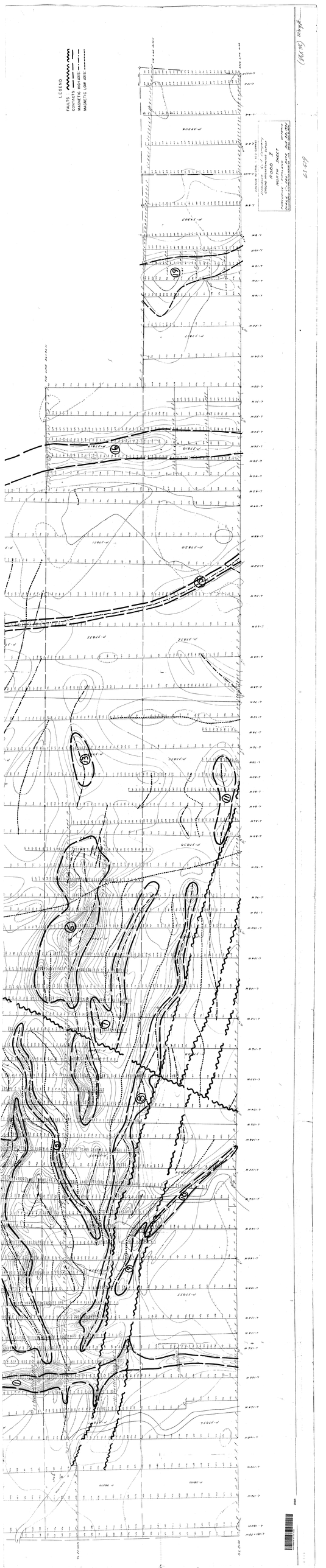
ABNORMAL CU VALUES SHADES OF RED

ABNORMAL ZN VALUES SHADES OF BLUE

(DRH) 10 sq ft

320


Dominion Gulf Company
DETAILED GEOLOGY - ROBB I
NORTH PART
BASE MAP 42A/12S
PORCUPINE - KIRKLAND
ONTARIO
SCALE : 1" = 200'
DATE : October 19, 1954.
To accompany report by H.E. Johnston, Dated:- Aug. 23, 1954.
(3X10) 30sqft
SYMBOLS
Strike & dip
Lineation
Geological boundary - Known
Geological boundary - well defined
Exposure boundary
Muskeg, swamp
Trench
702 x
Sample No. and location
H.E.J.-1X
Specimen No. and location
Tote road
Tra
SAMPLE No.
DESCRIPTION
ASSAY-Au. Oz / ton
079
3" Quartz vein, 1% pyrite very little chalcopyrite
Nil
LEGEND
Quartz Porphyry (Granitization) (Q)
Granite (2)
Gabbro (G)
Greenstone (Gs.)
Chlorite, sericite schist
TIE LINE 13+20 N
MAIN BASE LINE
TIE LINE 26+40 N
TIE LINE 23+00 N
LOCATION MAP


LEGEND
FAULTS
CONTACTS
MAGNETIC HIGHS
MAGNETIC LOWS
NORTH SHEET
ROAD