Aeromagnetic Survey

FOREWORD

The work reported on here was carried out under the direction of the writer during the summer months of May, June, July, August, and September, 1948. Field work was begun with linecutting on the 8th of May and magnetometer readings were completed August 25th. Some additional property work was done in September. In conjunction with the magnetometer survey a thorough search was made for rock outcroppings on all claims. The only rock exposure found on the new claims acquired by the company in the past year are at the north boundary of claim L42978 in Garrison Township and at the southeast corner of the property in claim L52781 in Thackeray Township. These were mapped and a geological map is submitted.

The writer has reported on the Garthack property previously and supervised a diamond drilling campaign directed to the No. 1 Vein in 1947. The purpose of the present magnetic survey was to determine the structural relationship of the prominent vein occurrences in claim P.35447 for the better directing of a future diamond drilling program. Two geological features in particular were thought of possible importance. These were (a) the diorite intrusive near the vein showings and (b) the location of the Garrison Canyon fault ? which projection could be made close to the vein showings. The survey has been successful in outlining the diorite as a prominent anomaly and has also indicated an offsetting in the rocks which may

well be the Garrison Canyon feature.

It should be emphasized that a survey of this kind will show only the differences of the magnetic permeability of rocks and rock structures. Large differences are frequently rock contacts and disturbances in rock formation, locations where ore may occur. It is quite possible that commercial ore bodies can exist on a property and show no indication of their presence by any known geophysical means. On the other hand strong anomalies can be caused by rocks and structures of no importance from an ore standpoint.

PROPERTY AND ACCESS

The property is composed of twenty-two mining claims, of which three are patented, on the boundary of Garrison and Thackeray townships. The four mile post on the township line is the No. 4 post of Garthack patented claim P.35447. The claims are recorded as follows: Thackeray Township: -- P35447-48-49, L47538-39-42, L50809-10-11-12, L52780-81-82-83-84-85; -- Garrison Township: L45654-55, L46004-05, L52978-79. The total acreage would approximate 880 acres.

The property is reached by 31 miles of auto drive east from Matheson, Ontario. This route turns south off the present new highway a mile east of Perry Lake and leads southeast on the Buffonts road to the crossing at Garrison Creek. From here the Garthack Mine road leads five miles to the property. Temporarily

a road washout two miles from the Garthack camp prevents driving in to the property.

TOPOGRAPHY

The property is close to the south margin of the broad sand area occurring to the west and northwest. The southwestern part of the group is high and sand overburdened showing a growth of large jackpine, spruce, birch and poplar trees, frequently reaching diameters of 20 inches. The remainder of the property which is chiefly the 10 east claims in Thackeray township and the north claims in Garrison is low spruce swamp with some dry areas of large poplar. There are two marked topographic features. One of these is Thackeray Creek, a fast flowing stream which crosses the property from south to north. The second feature is a sand bluff extending from claim L46004 in Garrison to the east and south through claims L45655, P35447-49, L47538-39.

Several trails and bush roads give access to most parts of the property. The old Harker winter road which is on the township line along most of the extent is still used occasionally. The north part of the property can be reached by a well marked trail leading north to the Buffonta Road.

Rock outcrops are scarce and occur at only three general locations: (1) on the patented claims near the township line and on the claims adjoining north of these in Garrison; (2) at the north boundary of claim L52978 which is the northernmost

claim of the property; and (3) at the southeast corner of the property in claim L52781.

The location of Thackeray Creek and an alignment of lakes and streams as far south as Victoria Lake in Arnold township may possibly indicate the strike of the Garrison Canyon rock feature, the nature of which is yet undetermined.

GEOLOGY

The geology of a part of this property has been reported on previously by the writer. Since this report Dr. Satterly of the Ontario Department of Mines has completed a geological survey of Garrison township.

The geology of Garrison township shows the occurrence of a considerable body of granite intruding a country rock of greenstones. The south boundary of the granite occurs about a mile north of the Garthack property. In regard to the structure of the lava flows surrounding the granite Dr. Satterly has described it as follows: "it would appear that the granite is a concordant intrusive implaced within a dome of lavas". On the Garthack property indications are that the flows strike northeast and face and dip south which is in conformity with Dr. Satterly's mapping further north.

The greenstone rocks found on the property are made up of massive andesite and basalt, spherulitic andesite, and flow breccia. These flows are intruded by sills or bosses of diorite, and dykes

of feldspar porphyry and quartz diabase. The few outcrops of these rocks give little indication of the structure. Structural interpretation however has been helped out considerably by the magnetometer survey results.

The gold bearing veins on the Garthack property occur in greenstone and diorite in claims P35447-48. These are stock-works of quartz in rock fractures. Little evidence is found of shearing. The veins are well mineralized with pyrite in places with lesser amounts of chalcopyrite and hematite. Magnetite is common and shows up in large patches. Some isolated high readings gained during the geo-magnetic survey are probably due to magnetite bearing boulders from these veins.

On the outcrop at the north boundary of the property and the north end of line 00 north some mineralized quartz stringers occur striking east-west. Surface stripping in this section might reveal more vein matter.

At the southeast corner of the property vein matter may be found in the outcrop at the bottom of line 27. Here a broad carbonated shear zone striking east-west should be stripped and sampled.

In 1947 nine holes were diamond drilled to the No. 1 vein which strikes north 20 degrees west and dips 45 degrees to the west in claim P35447. All these holes intersected good vein widths varying between 10 and 20 feet. Only low gold values were gained in each hole, the highest being 0.09 ozs. across 4.2' in hole No. 8.

In view of the wide spread vein occurrence and the finding of some coarse gold and good assays in past work it was decided that a magnetometer survey should be carried out as an aid to structural interpretation.

GEOPHYSICAL DATA

The instrument used on the survey was a Sharpe Schmidt-type magnetometer of their latest design. The sensitivity employed was 25 gammas per scale division. Linecutting was completed for the readings on the property using the township line as a base from which lines were run north and south at east-west distances of 300'. In all 86,650 feet of line was cut in this work including property boundaries on which stations were established. Previously 44,750 feet of line had been completed making a total of line cut now on the property of 131,400 feet. Stations on all lines were marked at 100' intervals giving a total number of 1,265 readings. All readings were tied in to base control stations run in on the township line. The main base control station is the 00 mark on the No. 4 line which point is on the township line just west of the Garthack road crossing.

INTERPRETATION

An examination of the isodynamic contour map of the eastern part of the Garthack property will show a regular decrease in magnetic intensities to the southeast. The contour lines mark a series of lava flows striking northeast-southwest and showing a composition

becoming more acidic toward the southeast part of the property. Readings taken on outcrops of average andesite composition on the property ran about 350 gammas. This would compare with the most acidic phase as shown by the magnetic intensity readings so it may be assumed that most of the eastern part of the property is underlaid by medium to basic lavas. The fact that these lavas increase regularly to a more acidic phase to the southeast may show a transition to the rhyolite bearing formations crossing the north part of Elliott township in a northeast-southwest direction. If so an uninterrupted series of greenstones occur between the granite in Garrison township and the rhyolite bearing rocks around the Elliott-Harker township section. These rocks as far as known dip and face south and strike northeast.

The regular strike of the rocks is interrupted in the area near lines 8, 9, and 10, south, by a fairly sharp flexure or bending to the north going east. This zone is on strike of a fault indicated as crossing lines 5, 6, and 7, north, where the zone has a south 20 degrees east direction. At the top of the map it may be seen that this is a close alignment with the projection of the Garrison Canyon fault (?). According to the geomagnetic contour map there is not represented any great deal of lateral displacement along this possible fault feature. There is also not much displacement of formation crossed by the Garrison Canyon in Garrison township.

Only one small anomaly is shown to occur on the eastern claims. This is shown on lines 18 and 19 south and reveals a high reading of 1415 gammas. It is possibly caused by a small intrusion

of diorite.

A large quartz diabase mapped by Dr. Satterly in the southeastern corner of Garrison township has a projected strike which would cross the Garthack property in the neighborhood of the No. 1 vein. This dyke is several hundred feet wide where mapped in Garrison township and could be expected to persist. The geomagnetic survey has however not shown this dyke up prominently. Its most likely location according to one outcrop of diabase composition is crossing the Garthack property southeast through claims P35449 and L50809. The outcrop occurs on the north boundary of claim P35449 contains large feldspar phenocrysts and possibly represents the north contact of this large dyke the remainder of which is overburdened.

South of this possible diabase location is an anomaly running northeast-southwest in claim L47538. This anomaly terminates to the northeast and apparently represents a diorite area. There is an outcrop of diorite showing within the contour boundaries of this anomaly in the northeast corner of claim L47538. Quartz float may also be found at this location but trenching was unsuccessful in locating quartz veins in place.

The large anomaly in claims L46004-05, L45654-55, P35447-48-49 appears to indicate the diorite area near the east margin of which the No. 1 vein is located. The strike of the No. 1 vein on surface is north 20 degrees west which is the same direction as the east side of the diorite mass as indicated by the iso-dynamic contours. In addition

to the possible structural control of the diorite on the No. 1 vein an apparent fault mapped from geophysical evidence extends down the east side of claims L46005 and L45655. This feature also has a strike of north 20 degrees west, parallel to the No. 1 vein and as mentioned above is perhaps the extension south of the Garrison Canyon fault (?). Pre-ore movement along this fault may have caused the fracturing now represented by the No. 1 vein and other veins close to the No. 1. According to the outline shown for the diorite it is probable that the No. 1 vein extends north on the east side of the diorite. The extent of this diorite mass is shown to be 2500 feet beyond the northernmost drill hole, No. 8. This should be favorable prospecting ground. It may also be noted that the indicated fault and the east margin of the diorite converge to the north so that a distance of only a few hundred feet separate the two features in the neighborhood of the beaver pond in claim L46005.

RECOMMENDATIONS

It is recommended for the No. 1 vein area that drilling be carried to the northwest in a series of four holes spotted on strike of the No. 1 vein at 200 feet distances, and that these be drilled at an angle of 45 degrees to intersect the vein at a vein depth of 250 feet on an assumed dip of 45 degrees to the west. An allowance of 400 feet should be made for each of these holes and it is recommended that two of the holes be allowed to extend beyond this depth for deeper exploration in this section. Drilling re-

quired 2000 feet.

It is further recommended that a hole be drilled across the small anomaly in the northwestern part of claim L45655. This is indicated to be in the diorite area and near the east margin of the diorite. A hole located here to be drilled east at an angle of 45 degrees and extended to cover a lateral distance of 500' would serve as a cross-section hole, the cross section to be continued across the indicated fault zone by a hole further north. Required drilling footage for this hole marked No. 11 on the map would be about 750 feet.

A cross-section hole drilled to explore the area near the indicated fault is spotted on the map near the beaver pond in claim L46005. This is recommended as the first hole and is marked No. G10. At this location the diorite contact and fault zone are shown to be at their closest proximity. A cross-sectioning of about 600 feet of ground would be required which is recommended in one hole drilled east at an angle of 45 degrees. The required drilling would be about 900 feet. As far as the writer is informed this would be the first diamond drill exploration of the Garrison Canyon fault (?) zone. The number of vein occurrences located along its length suggest that it may represent a location of pre-ore movement and if so it may be important as a gold bearing structure.

The above holes total a drilling footage of approximately 3650 feet. Allowance should be made in the preliminary drilling program for two or three check holes of any interesting intersection made.

hence a program of 5000' of drilling is proposed. All holes will be in overburden which will increase the cost of drilling above a straight footage basis and will increase the length of time to complete a program.

SUMMARY AND CONCLUSION

A geomagnetic survey of the property of the Garthack Mining Company was completed under the direction of the writer in the summer of 1948. This work was begun May 8th and completed early in September. The purpose of the survey was to determine the structural relationship of known gold bearing quartz veins to the neighboring rocks. In this regard it was hoped to outline the extent of the diorite body found as outcrop in the vein area and also to locate the feature referred to as the Garrison Canyon fault (?). The geomagnetic contour map shows up both of these features it is believed and in such a relationship that good direction for further drilling is suggested. In addition to the geomagnetic survey the geology of the property was completed and mapped.

5000 feet of diamond drilling are recommended as a next step in the exploration of the property and 3600 feet of this are shown on the map as 6 proposed holes Nos. 010-11-12-13-14-15. Such a program would attempt to locate a zone of improved values in the No. 1 vein or to locate another vein of importance. The cost of such a program will be about $15,000 unless overburden difficulties are exceptional.

The geophysical survey has been successful in outlining the general rock structures on the Garthack property little of which was

known previously. The diorite zone in which the vein fractures occur is shown to be extensive and the Garrison Canyon fault zone will be an interesting exploration possibility. The Company should proceed with their ore search along these two structures.

Respectfully submitted by,

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E. L. MacVeigh, B.A., M.Sc.

SURVEY DATA

PROPERTY Garthack Mining Company Limited
Room 1502 - 372 Bay Street, Toronto
holding 22 mining claims of which 3 are patented, all composing one block on the boundary of Garrison and Thackeray Townships, Larder Lake Mining Division, Ontario.

240
4
960

43.6
22 | 960.8
88
80
62
140

Claims: Thackeray Township - ~~P35447-48-49~~
L47538-39-42
L50809-10-11-12
L52780-81-82-83-84-85
Garrison Township - L45654-55
L46004-05
L52978-79

19 claims

DATES OF SURVEY 40 days ~~start-finish~~

Line cutting & chaining, 3 men, May 8-July 1st	73 man days
Magnetometer Survey, 2 men, July 1st-August 23rd	87 man days
Office: calculating, plotting, draughting, etc. July 15-Aug. 23rd	60 man days
Geology, 2 men, August 1st-August 23rd.	20 man days
total	240 man days

BASELINE E-W township line between Thackeray & Garrison Townships

PICKET LINES Right angles to baseline at 300' distances

MILES OF LINE CUT IN THIS WORK 16.5 miles

OPERATOR E. L. MacVeigh B.A., M.Sc.

Assistant Henry Ford

LINE CUTTING Wilbur Charest(chief line-cutter), Jerry Charest, Clayton Ford

DRAUGHTSMAN Douglas Mackey (E.M.)

INSTRUMENT Sharpe Schmidt-type magnetometer, sensitivity 25.3 gammas

MAIN BASE 00 station on No. 4 picket line, being a point 125' east of the No. IV mile post on the township boundary line.

NUMBER OF MAGNETIC STATIONS 1265

TIE-INS	station	time (July 6, 1948)	value	normal correction -1000 gammas
	Matheson	10:45 AM	1,912	912
	SW Munro	05:15 PM	1,600	600

E. L. MACVEIGH
CONSULTING GEOLOGIST

TELEPHONE NO. 8
BOX 425, HAILEYBURY, ONT.

900

September 18th, 1948.

The President and Directors,
Garthack Mining Company Ltd.,
Suite 1502, 372 Bay Street,
Toronto, Ontario.

Gentlemen:

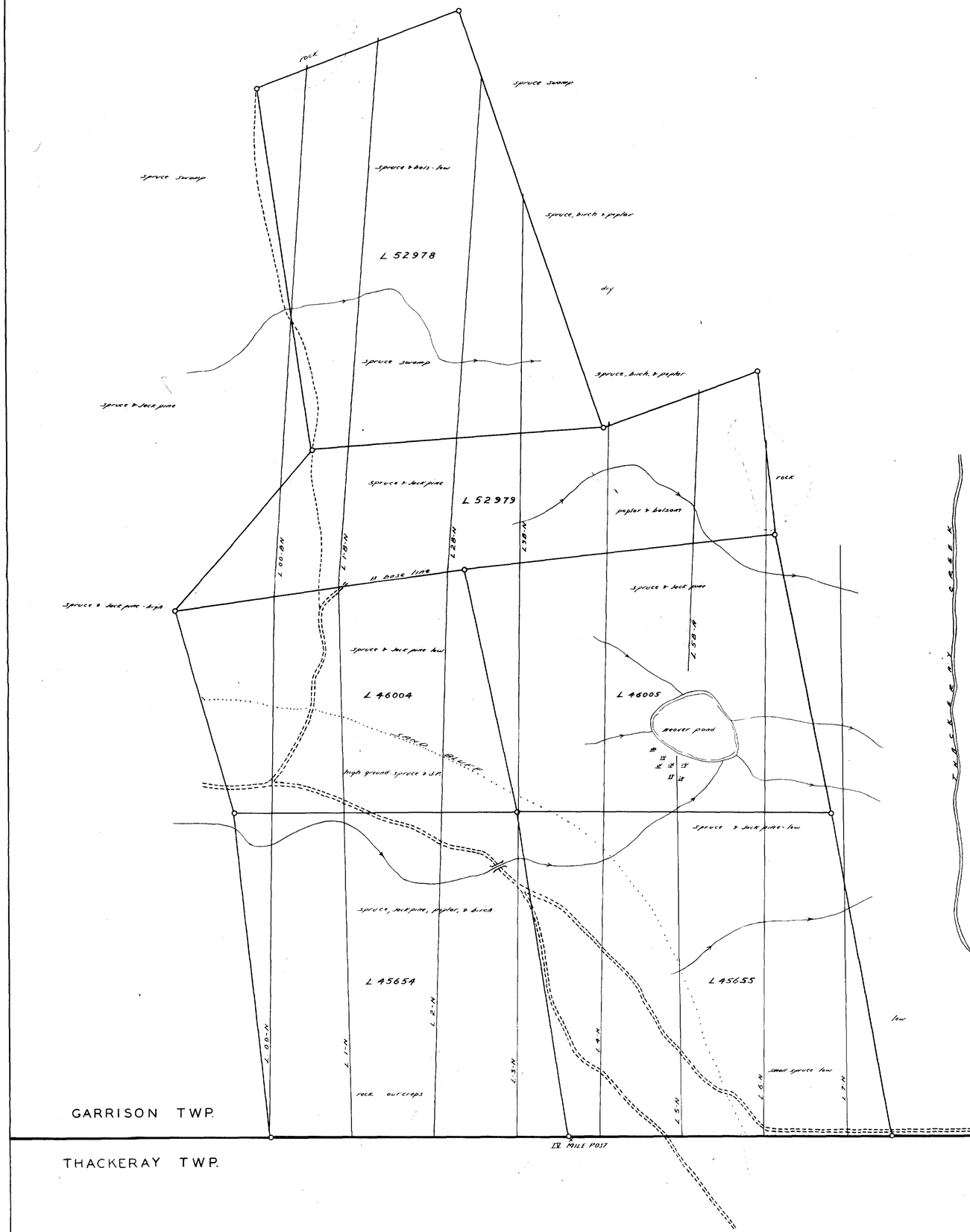
Enclosed is a report dealing with a geomagnetic survey on the Company's property in Garrison and Thackeray townships. This survey has been quite successful in outlining the rock structures underlying the generally overburdened area in which the property is located. The structural relationship of the No. 1 vein is suggested allowing further drilling to be proposed for this vein feature. A fault area is also considered favorable drilling. It is recommended that 5000' of exploratory diamond drilling proceed.

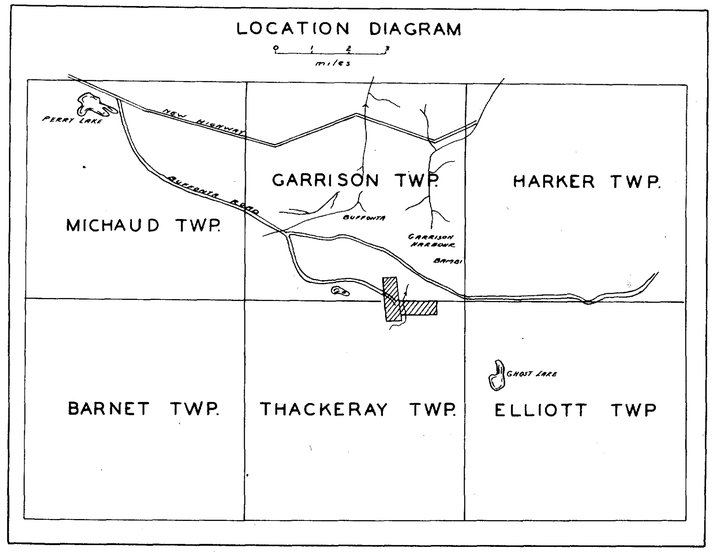
Yours very truly,

.....

ELM/p

E. L. MacVeigh, B.A., M.Sc.





PROPERTY PLAN

OF

GARTHACK MINING COMPANY

GARRISON AND THACKERAY TOWNSHIPS - ONTARIO

C. S. 155

scale 1" = 200'

NORTH SHEET

September - 1948

Thackeray BAME.

155


PROPERTY PLAN
OF
GARTHACK MINING COMPANY
GARRISON AND THACKERAY TOWNSHIPS - ONTARIO
scale 1" = 200'
SOUTH SHEET
GARRISON
THACKERAY
TOWNSHIP LINE AND PICKET BASE LINE
OLD HARKER MINE WINTER ROAD
THACKERAY CREEK
LOG CABIN
rock outcrops and surface work
beaver pond
P 35448
P 35447
P 35449
L 47538
L 47539
L 47542
L 50809
L 50810
L 50811
L 50812
L 52780
L 52781
L 52782
L 52783
L 52784
L 52785
September - 1948

LEGEND

Db		Diabase
V		Vein material
FP		Feldspar Porphyry
D		Diorite
A		Andesite, amydaloidal basalt, Flow breccia.

GEOLOGICAL PLAN

OF

GARTHACK MINING COMPANY

GARRISON AND THACKERAY TOWNSHIPS - ONTARIO

scale 1"=200'

NORTH SHEET

September - 1948

Thomas J. Bank

GARRISON
THACKERAY
TOWNSHIP LINE
II MILE POST
I MILE POST
LOG CABIN
THACKERAY CREEK WEST BRANCH
THACKERAY CREEK EAST BRANCH
SAND BLUFF
beaver pond
diamond drill hole by Brewis & White
GEOLOGICAL PLAN
OF
GARTHACK MINING COMPANY
GARRISON AND THACKERAY TOWNSHIPS - ONTARIO
scale 1" = 200'
SOUTH SHEET
LEGEND
Db diabase
V vein material
FP feldspar porphyry
D diorite
A andesite, amygdaloidal basalt, flow breccia
SYMBOLS
trenching
diamond drill hole
glacial striae
outcrop boundary
contact
September - 1948
B.A. M.Sc
230

ISO-DYNAMIC CONTOUR CHART

OF

GARTHACK MINING COMP

GARRISON AND THACKERAY TOWNSHIPS - ONT

SCALE: 1" = 200'

LEGEND

DIABASE

VEIN MATERIAL

FELDSPAR PORPHYRY

DIORITE

ANDESITE, AMYDALOIDAL BASALT, FLOW BRECCIA

DIAMOND DRILL HOLE

PROPOSED DRILL HOLE

OUTCROP BOUNDARY

GLACIAL STRIAE

MAGNETIC

MAGNETIC INTO

BASE CO

INDICATED DIOR

OUTLINE OF HIGH

PROJECTED STRIKE OF GARRISON CANYON FAULT

L-52978

L-52979

INDICATED FAULT

B - BASE LINE

L-46004

L-46005

BEAVER POND

THACKERAY CREEK

PROJECTED STRIKE OF QUARTZ DIABASE

L-45654

L-45655

GARRISON

THACKERAY

TOWNSHIP LINE AND PICKET BASE LINE

OLD HARKER MINE WINTER ROAD

P-35448

P-35447

DIORITE AREA

P-35449

LOG CABIN

L-47538

L-47539

L-47542

L 50809

L-50810

L-50811

L-50812

L-52784

L-52785

DRIFT ROAD

BEAVER POND

ISO-DYNAMIC CONTOUR CHART

OF

GARTHACK MINING COMPANY

GARRISON AND THACKERAY TOWNSHIPS - ONTARIO

0 100 200 400 600 800 1000 1500

SCALE: 1" = 200'

LEGEND

DIABASE

VEIN MATERIAL

FELDSPAR PORPHYRY

DIORITE

AMYGDALOIDAL BASALT FLOW BRECCIA

TRENCHING

DIAMOND DRILL HOLE

PROPOSED DRILL HOLE

OUTCROP BOUNDAR

GLACIAL STRIAE

MAGNETIC READINGS OBSERVED

MAGNETIC CONTOUR

BASE CONTROL STATION

INDICATED DIORITE CONTACT

OUTLINE OF HIGH GROUND

0 - 500 GAMMA

500 - 1000

1000 - 1500

1500 - 2500

2500 - UP

RTZ DIABASE

OLD HARKER MINE WINTER ROAD

V MILE POST

L-12-S L-13-S L-14-S L-15-S L-16-S L-17-S L-18-S L-19-S L-20-S L-21-S L-22-S L-23-S L-24-S L-25-S L-26-S

L-52784

L-52782

L-50810

L-50812

L-52785

L-52783

DRILL ROAD

BEAVER POND

DIAMOND DRILL HOLE BY BREWIS & WHITE

45°