GEOLOGY, GEOPHYSICS AND PROSPECTING RPT.

AMSHAW PORCUPINE MINES LTD.

1947.

63.97

I N D E X

LIST OF MAPS

(1) Property Plan - scale 1" equals 600'

(2) Property Plan - scale 1" equals 40 chains
(showing base and picket line layout)

(3) Geological Map - scale 1" equals 400'

(4) Geological Map
a. North Section of Property - scale 1" equals 200'
b. South Section of Property - scale 1" equals 200'

(5) Isodynamic Contour Map
a. North Section of Property - scale 1" equals 200'
b. South Section of Property - scale 1" equals 200'

INTRODUCTION

In the Fall of 1946 the writer conducted a field investigation of the property of the Amshaw Porcupine Mines Limited. This rather large mining property is located to the north of Malga Porcupine Mines in Shaw Township, Porcupine Gold Area. In view of recent successes enjoyed by the Malga Porcupine operation and the known similar rock structure on Amshaw it was decided by the company to conduct a complete surface investigation of the Amshaw property previous to diamond drilling. Exploration began September 1st and was completed December 15th, 1946. The program of work was threefold including prospecting, geophysical surveying, and geological mapping.

Prospecting of the property was carried out by John Lindstrom, an experienced prospector, and helper over a period of three months. All rock outcroppings were examined and old workings opened up and resampled. Trenching was carried out at interesting locations and a number of vein showings were found. In all 225 samples were taken for gold assay, most representing channel sampling.

The geophysical survey of the property was conducted by G. E. Thomas, an experienced mining engineer, and assistant. The instrument used for the survey was a Wolfson Askania Type Magnetometer with a sensitivity of 35-40 gammas per scale division. Stations were established in a grid lay-out 300 feet apart in an east-west direction and 100 feet apart in a north-south direction. In total 3532 readings were taken representing 60.9 miles of surveying. The results of this work are submitted on an isodynamic contour map of 100 gamma contour interval,

map scale one inch equals 200 feet.

The geological observations were made by the writer. Locations for mapping were the picket lines and chained stations used in the magnetometer survey. Two generalized geological outcrop maps are submitted. One is a compilation of field data on a scale of one inch equals 200 feet adapted to be used with the isodynamic contour map. The other is a more convenient sized map of one inch equals 400 feet.

PROPERTY AND LOCATION

The property of Amshaw Porcupine Mines Limited is composed of 51 mining claims totalling approximately 2100 acres, in the eastern part of Shaw Township, Porcupine Area, Ontario. A motor road from South Porcupine Station to Malga Porcupine Mines traverses a part of the Amshaw property. Access to the company's ground is gained by driving this road six miles southeast from South Porcupine to the north end of Amshaw. Trails and winter roads serve all but the northeastern part of the property.

The north third of the Amshaw property shows considerable rock outcrop with relief as high as 100 feet in some localities. In the rock areas a fair growth of jack pine and poplar occurs with minor amounts of spruce. Muskeg swamps are also found in the north section. The southern part of the property includes considerable farm land and with the exception of a few small isolated outcrops is entirely overburdened.

The Northern Ontario Power Line crosses the

Amshaw property.

A fair water supply is available from the Redstone River which flows through the central part of the Amshaw ground. This river was an early route into the area from Night Hawk Lake.

A camp in the southeastern corner of claim P29465 has been reconditioned and is suitable for sleeping five or six men. This camp is served by wagon road from the Malga road, a distance of one mile. Old farm buildings are located in the west central part of claim P9693 but are in poor repair.

Most prominent of the neighboring mining properties is Malga Porcupine where very good ore findings have been made in the first stages of underground development work. The Malga shaft is located about 4000 feet from the Amshaw boundary. The Carshaw Porcupine Gold Mines located to the southeast of Amshaw have indicated ore by diamond drilling. The local rock structure favors the projection on Amshaw ground on these two ore horizons. Kensull Gold Mines Limited adjoining to the east of Amshaw carried out some diamond drilling in 1946.

REGIONAL GEOLOGY

The broad regional rock structure on which the Amshaw property is located is indicated to be a dome shaped anticline made up of Keewatin rocks. The northwest, north, and northeast flanks of this dome appear successively in Deloro, Whitney, and Shaw Townships. The axis of the structure would appear to trend north-

northeast in the northwestern part of Shaw Township, (see map Ontario Department of Mines No. 47A, M. E. Hurst). The outer exposed limb of this anticline is indicated by a more or less regular trend of iron bearing rocks with a thickness of five or six thousand feet. While iron formation occurs elsewhere in the area this horizon is particularly marked by an abundance of iron. The gold bearing iron formation on the Malga Porcupine property in the southeastern part of Shaw Township would appear to be a member of this broad iron bearing horizon quite close to the base of the series.

The Amshaw property is located to the northwest of Malga on the same limb of the anticline and rock trends indicate that the Malga iron formation horizon and considerable of the iron bearing formation will underlie Amshaw ground.

GEOLOGY OF THE AMSHAW PROPERTY

Rock Formations

Submitted with this report are geological maps and isodynamic contour maps of the property. The latter are drawn from a magnetometer survey, the results of which have been used to locate the rock types underlying the overburdened areas. For purposes of correlation the interpretation of the high and low intensities shown on the map are marked in colour. These do not represent the extent of the underlying formation but only the assumed rock types which caused the anomaly. The colours used are as follows: Blue - iron formation, Yellow - serpentine, Orange - grano diorite, Black - diabase.

The various rock types exposed are found almost entirely on the north third of the property.

(a) Keewatin

The country rock is composed of flat dipping Keewatin flows and fragmentals. A division of the Keewatin rocks may be made in the northwestern part of the property between the non-iron-bearing massive andesite flows occuring in the extreme western claims, and the overlying Keewatin rock to the east which include considerable fragmental material and iron formation. An irregularity of contact outline has been left by the erosion remnants of the flat-lying Keewatin beds so no attempt has been made to subdivide them in mapping further than to show the iron formation members. Most rock dips vary from 15 to 35 degrees to the northeast. Strikes taken on the flows are not reliable due to their flat lying attitude. Over-all trend of iron formation lenses is the best guide and this is shown both by surface mapping and geophysical work.

The iron formation on the property is of chief economic interest. This is composed of thin bands of pyrite and hematite and minor amounts of magnetite interbedded with broad chert layers. Most outcrops of iron formation on the Amshaw property show considerable vein quartz. Some beds show thicknesses up to 60 feet. The iron formation may vary greatly in width along strike as well as show considerable variation in strike and dip locally. Many bands terminate suddenly indicating their lenticular nature. The individual iron beds also vary considerably along

strike in their magnetic properties. Presumably this is due to the amount of replacement of the iron by vein formation and the percentage of magnetite in the iron formation. The characteristic iron formation anomaly as shown on the contour map (blue colour) is a small high intensity area elongated normal to the strike of the iron bed. Anomalies of this type were picked up over greenstone area which showed no iron outcrop but were on strike of iron bearing horizons indicating probably the existence of an iron lens that did not outcrop. It should be emphasized that considerable non-magnetic iron formation may exist between the anomalies. Where iron formation horizons were known to occur the magnetometer in all cases gave some typical strong reactions along the zone.

Considerable areas of fragmental rock occur on the property. The largest of these areas appear to be brecciated flows. However coarse chert agglomerate is found and is well exposed in a broad outcrop on claim P15981, a few hundred feet north of a wide iron band. It is interesting to note that some large fragments of magnetite, up to two feet in length, may be found in the chert agglomerate indicating that there might be a considerable hiatus at this horizon and that it might be a good horizon marker.

(b) Serpentine

Several areas of serpentine are shown to occur on the property indicated by outcrop and geophysics. The largest of these occupies a low swampy area in the north-western part of the property. The rock is highly altered

and usually contains ribbons of talc. At the north tip of the large serpentine exposure in claim P15983 some interesting specimens of scheelite were found associated with talc. In the serpentine areas the magnetometer survey showed large anomalies of high intensity. The serpentine anomalies are marked in yellow and numbered as anomalies 6 - 7 - 8 - 9.

(c) Acid Intrusives

Though angular boulders of quartz porphyry were found on the property no definite outcrop evidence of porphyry intrusion was found. In claim P29818 a rock is shown in purple colour on the geological map. A thin section examination of this rock favors an intrusive porphyry but field evidence is inclined to identify it as an acid flow rock.

Two small occurrences of syenite were found. One small dyke showing considerable vein quartz occurs in claim P32737. The other outcrop of this rock is in the extreme northeast corner of claim P39474.

A rock occurrence classified as granodiorite underlies most of claim P39469. Outcroppings of this rock show considerable fissure vein quartz and slight anomalies were recorded over it in the magnetometer survey.

Other occurrences of acid intrusive rocks may underlie the overburdened parts of the property. It is not known whether or not these could be indicated by the magnetometer survey.

(d) Diabase Dykes

The youngest rocks on the property are diabase

dykes. One of these dykes of quartz diabase composition outcrops prominently in the northeastern part of the property. Its extension to the southeast across the Amshaw is shown by the magnetometer survey in anomaly No. 10. The most southerly trace of this dyke by geophysical evidence is in claim P22555 which is a fairly close projection with the prominent quartz diabase dyke occurring on the Carshaw property.

In claim P30546 a small isolated outcrop of olivine diabase is found. Geophysical evidence shows a very large series of anomalies trending east-west across the property at this location and it is assumed that here the property is crossed by one of the large olivine diabase dykes known to occur in the area.

Vein Formation

(a) Iron Formation Veins

Much of the outcropping iron formation shows the development of innumerable quartz veins in at least two sets of directions. In all cases these are fracture fillings or replacements with no evidence of shearing. The most prominent quartz fillings, up to 16 inches in width, are developed in a plane at right angles to the strike and dip of the iron bedding. Another prominent direction is parallel with the bedding. Many veins show considerable pyrite, much of it a coarse massive variety, similar in appearance to the gold bearing sulphides at Malga. In spite of the good appearance of the iron outcrops the highest value obtained was a chip sample from a very large iron boulder in claim

P29466 which ran $5.60. Selected samples from the iron occurrence in claim P15981 showed assays up to $2.45. The largest exposures of vein formation in iron bands are in claims P15981, P29818, and P29647.

(b) Quartz Fissure Veins

Three wide quartz fissure veins on which considerable past work has been done occur in claims P29470 and P15981. These are referred to from east to west as veins No. 1-2-3. Sampling of these veins did not show values.

Quartz fissure veins are widespread over the property. In all exposures examined these were barren or only slightly mineralized. Where the harder rocks occur, as the granodiorite area in claim P29469, quartz fissure vein development in various directions is found. No values of importance were found in these veins.

(c) Stockwork Vein Formation

An occurrence of a stockwork of quartz veins developed in a syenite dyke is found in claim P32737. The veins are fairly well mineralized but showed only low values.

(d) Carbonate Zones

Some highly carbonated rock occurs on the property usually in the neighborhood of the iron formation which may indicate them to be of sedimentary origin. Most outcrops observed on this rock were barren of vein matter and mineralization. However one mineralized section near the iron formation in the northeast corner of the property returned a value of $5.25 from a grab sample.

(e) General

Considering the large overburdened areas of the property gold bearing vein matter of a different type than exposed might be important. However as far as examined the iron formation veins would appear to hold most promise. In the course of prospecting the property all veins of good appearance were sampled. Vein quartz in the iron formation was given particular attention.

GEOLOGICAL STRUCTURE OF THE AMSHAW PROPERTY

Tracing of the gold bearing iron formation horizon from Malga to the Amshaw property is of importance for diamond drill exploration. The following are the indications from the geological and geophysical survey.

As mentioned above the strike of the Keewatin rocks on the property are best indicated by the iron formation trends. These indicate a general direction of strike over most of the rock exposed area of north 15 to 35 degrees west and dips varying from 15 to 35 degrees to the northeast. Two departures from this general strike are noted. In the northwestern part of the property the swing of the large iron formation in claim P15981 to the east shows a change of strike borne out by an east-west strike found further east in claim P15984. This strike again changes to an north-south direction on the Amshaw property showing a local flexure. In the northeastern part of the property a change of strike to a more easterly direction

is found and in the northeast corner an abrupt flexure in a wide band of iron formation alters the strike from a north-south to an east-west direction. While local flexures of this type may exist it may be observed from the Porcupine Area map that a continued trend of the regional strike of the Keewatin rocks in this part of Shaw Township would conform very well with the rock strikes on the Malga and Carshaw properties.

An iron formation band, fairly closely on strike of the Malga zone, is shown to occur on the Amshaw by the geophysical survey anomaly No. 1. The iron formation anomalies are numbered on the contour map as 1-2-3-4-5. Nos. 2-3-4-5 are verified along strike in places by outcrop of iron lenses. No. 1 anomaly is known only from geophysical evidence and is several thousand feet south of the iron formation outcrops. The No. 1 anomaly shows an abrupt change of strike in the formation from North-northwest through claims P30548 and P30549 to east-west across claims P9693, P9692, and P32229. Along this strike on claim P9692 at an old farm location numerous sulphide boulders are found near a small greenstone outcrop. In order to conform with the general rock structure an east-west strike of this extent would probably belong to the same flexure observable in the northeast part of the property. If so the formations probably turn north paralleling the west boundary of Amshaw through the Smith, McNicoll, Thiboult, and Fournier farm areas. In this case the horizon of the No. 1 iron formation anomaly is quite possibly repre-

sented by the broad iron in claim P15981 (anomaly No. 5) in the northwestern part of the property. Evidence to substantiate the possibility that the No. 5 anomaly, the No. 1 anomaly, and the Malga ore-bearing horizon are the same is found in the fact that all three appear to be basal members of the iron bearing rocks. Also chert agglomerate typical of that found above the ore at Malga occurs north of the iron formation represented by the No. 5 anomaly. Some evidence of iron formation is found on the Thiboult farm outcrop which this zone may traverse.

The only fault of appreciable dimensions is indicated by the geophysical survey. This is marked by an offset along the trend of serpentine anomaly No. 6. The strike of the fault through claims P15983 and P29470 is shown to be northeast with a right hand displacement of about 1600 feet.

What structural control may be important in localizing gold values in the Malga Porcupine iron formation is not known. The presence of the felsite dyke which forms the hanging wall of the Malga orebody may be significant. Possibly acid intrusive rocks have provided a route for gold-bearing solutions to penetrate the iron formation. The iron formation itself would appear to be an ideal host rock as there are many instances in the field in which quartz vein development is confined entirely within the walls of the iron bed. Probably there was considerable quartz development in the iron formation before the entrance of the rich gold-bearing sulphide in the Malga ore. Particular horizons

may not be important. On the other hand rising solutions might seek the first favorable host rock which could be the bottom members of the iron formation zone providing these were sufficiently well fractured.

RECOMMENDATIONS

The iron formation zones on the Amshaw property provide a good chance for ore occurrence. Most outcrops of this rock show quartz vein formation and some associated sulphide mineralization. Diamond drilling of these occurrences where they are indicated by the geophysical and the geological maps should be the first step in the exploration of the property.

Of particular interest for ore search is the iron formation band indicated by geophysical anomaly No. 1. This represents an horizon which is fairly well on strike of that of the Malga shaft zone. The interpretation of this zone should be checked by diamond drilling first in claim P9692 where overburden is light and sulphide boulders have been found. Since this zone has been traced for a distance of one mile probably 5000 feet of diamond drilling would be required for its investigation if the drill intersections prove to be of good appearance.

All the iron formation zones have a possibility of being ore bearing. The iron formation may be lenticular but the zones along which the lenses occur are fairly well indicated. One of the largest zones on the property is that striking north-south in claims P29467 and P29466. On claim P29466 some large iron

boulders apparently originating from the above mentioned zone returned values up to $5.60 per ton. Diamond drilling of this iron zone should be proceeded with as second in importance to the No. 1 anomaly. It is recommended that the southern extension of the iron zone in claim P29466 be drilled.

Two other large iron zones are found in claims P29818 and P15981. These have both been traced over distances of several claims by the geophysical survey and the zones should receive diamond drill exploration.

The procedure to follow in carrying out the drilling of the iron formation zones will depend considerably on the results gained. For routine drilling holes spaced at distances greater than 200 feet risk the chance of missing commercial orebodies. However reconnaisance drilling could proceed at 400' intervals along strike and the best looking sections could be more closely drilled. Considering the nature of the gold occurrence at Malga in veinlets crossing the bedding of the iron, angle drilling would give a better intersection. However since considerable of the drilling on Amshaw would be through overburden angle drilling would not be feasible. Where iron formation of particularly good appearance is obtained in drill section and it is thought that values might be present it would be well to wedge the hole and gain a second drill intersection.

In view of the long stretches of ground warranting diamond drill exploration it is recommended that an initial program of 10,000 feet of diamond drilling be

carried out. Allowing $2.50 per foot for drilling and 75¢ a foot for engineering, assaying, core-grabbing, and core boxes the cost might be estimated at $3.25 per foot or a total expenditure for 10,000 feet of drilling of $32,500.00. A building now on the property will accommodate five or six men. It is recommended that a core shack capable of housing 25,000 feet of core be built with an additional room suitable for office, engineers quarters, core splitting, etc. A building of this type would cost about $800.00.

SUMMARY

The Amshaw Porcupine Mines Limited composes a large property of over 2000 acres situated to the north of the Malga Porcupine Mines in Shaw Township. The results of the first stages of underground work at the Malga are very impressive for both grade and tonnage possibilities. The Malga ore findings in iron formation have opened up a new field of search for ore in the Porcupine camp.

A recent geological and geophysical survey has indicated that the Amshaw property covers a considerable stretch of the favorable iron-bearing formation. Surface outcroppings of iron formation have been found on the Amshaw property which show abundant vein formation and some gold values. Also iron formation bands of considerable extent under the overburdened areas have been located on Amshaw for diamond drill exploration.

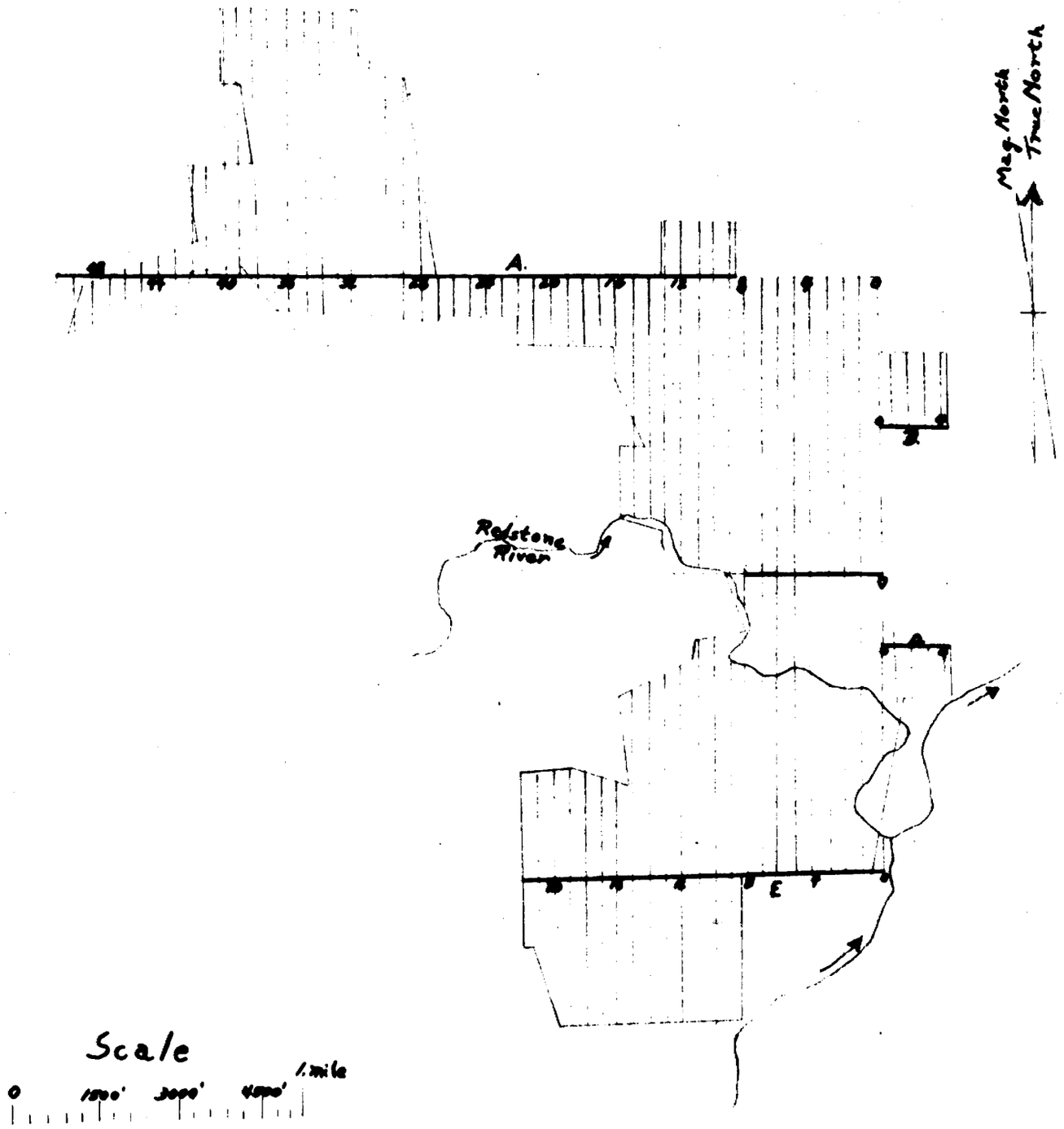
Geological conditions favorable to ore occurrences are known on the Amshaw property and it is recommended that 10,000 feet of diamond drilling exploration proceed.

Respectfully submitted by

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

February 12, 1947.

Sketch showing
property, base and picket line lay-out.



Haileybury, Ontario,
February 12, 1947.

Mr. A. M. Bilsky, Director,
Amshaw Porcupine Mines Limited,
85 Richmond Street West,
Toronto, Ontario.

Dear Mr. Bilsky:

I am enclosing my report on the Shaw Township property of the Amshaw Porcupine Mines Limited. Field work on this project was begun under my direction the 1st of September 1946 and completed in December. During this period a geophysical (magnetometer) survey, a geological survey, and a prospecting of the property was carried out. The report submitted is a summary of the results obtained with interpretations and recommendations for an exploration program.

Maps which have been prepared and are submitted with this report include a property topographical plan, geophysical contour maps, and geological maps.

Yours very truly,

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

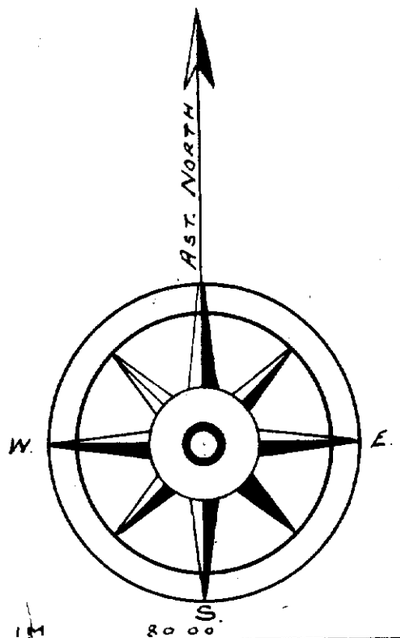
TOWNSHIP OF

SHAW

DISTRICT OF COCHRANE

PORCUPINE MINING DIVISION

Scale 40 Chains to an inch.



WHITNEY TWP.

DELORO TWP.

CARMAN TWP.

Wand S. Boys by O.L.S. J.M. Fitzgerald 1908.

N. Boundary O.L.S. R. Niven 1899.

" " " " 1896.

Note: 200 Acres [illegible]

Subdivided by.
Arch. Gillies O.L.S.
Timmins. May 23rd 1927.

✓ BROWN
X GREEN
BLUE
GREEN
GREY

PROPERTY PLAN
of
AMSHAW PORCUPINE MINES LIMITED
SHAW TOWNSHIP, PORCUPINE AREA, ONTARIO

SCALE 1" = 600 FEET

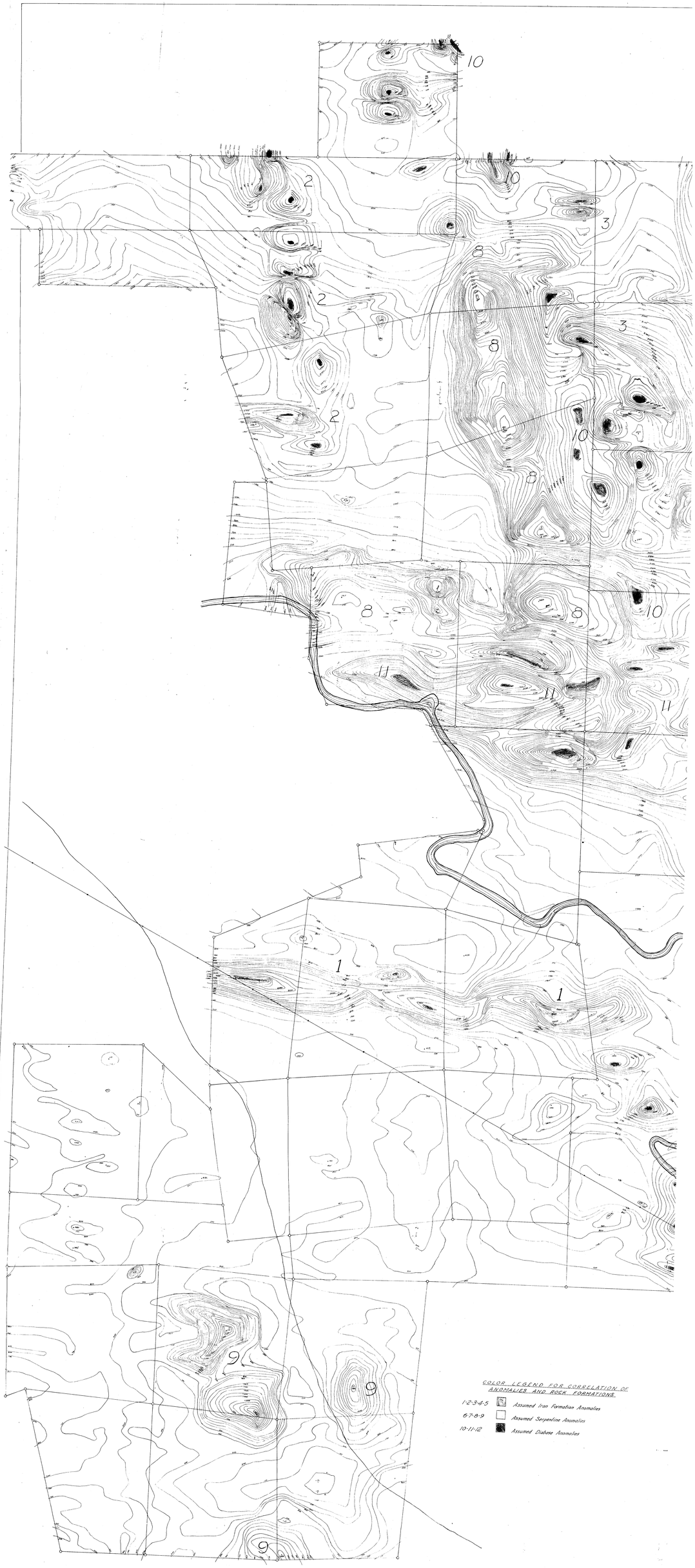
600 0 600 1200 1800 2400 3000

To accompany property report by E.L. MacVeigh

January 1947

Draughted by D.J. Mackey for E.L. MacVeigh

Shaft 25'
P-29818
P-29468
P-29467
P-29472
P-29474
P-29471
P-29466
P-29473
P-29819
P-22551
P-29465
P-22552
P-31402
KENSULL
GOLD MINES
MALGA ROAD
SWAYZE FARM
LAST FARM
ONTARIO POWER
SMITH FARM
P-30546
P-22553
REDSTONE
RIVER
P-22554
P-22556
31403
P-22555
LOT 5
LOT 4
P-32229
P-9692
pits and sulphide boulders
P-9693
P-30549
P-31352
P-31353
P-9691
P-31950
P-17769
P-30548
P-31351
P-31349
CON III
CON II
P 31344
P-31343
P-31348
THORMAC PORCUPINE MINES
Approximately 3500' to Malga Shaft
P-31345
P 31346
P-31347
POPE CREEK
GEOLOGICAL MAP
AW PORCUPINE MINES LIMITED
SHAW TOWNSHIP, PORCUPINE AREA, ONTARIO
SCALE 1 INCH = 400 FEET
0
400
800
1200
1600
2000
roperty report by E.L. MacVeigh
. MacVeigh
January, 1947.
Draughted by D.J. Mackey



63-97

AMSH

Draughted

SHEET "A"
NORTH SECTION
ISODYNAMIC CONTOUR MAP
of

AMSHAW PORCUPINE MINES LIMITED

SHAW TOWNSHIP, PORCUPINE AREA, ONTARIO
CONTOUR INTERVAL - 100 GAMMAS
Magnetometer Survey conducted by G.E. Thomas, M.E.
Map Scale 1 inch = 200 Feet.

200 0 200 400 600 800 1000

To accompany Property Report by E.L. MacVeigh.

Draughted by D.J. Mackey

January 1947

LOT 9
CON V

LOT 8

LOT 7

LOT 6

LOT 5

LOT 4

LC

CON. V
CON. IV

CON. IV
CON. III

CON. III
CON. II

CON. II
CON. I

ROCK

FC

CLARK FARM

MALGA ROAD

CHENIER FARM

DALEY

South Porcupine

S. VAYZE FARM

LAST FARM

FOURNIER FARM

McNICOLL FARM

School

SMITH FARM

CAMP

NORTHERN ONTARIO POWER

farm land

pulpar & spruce

LEGEND

- Motor Road
- Wagon Road
- Trail
- Buildings
- Power Line
- River
- Stream
- Bridge
- Shaft
- Outcrop area generalized
- Swamp
- Township Line
- Concession Line
- Lot Line

PROPERTY PLAN
of
AMSHAW PORCUPINE MINES LIMITED
SHAW TOWNSHIP, PORCUPINE AREA, ONTARIO

SCALE 1" = 600 FEET

600 0 600 1200 1800 2400 3000

To accompany property report by E.L. MacVeigh

January 1947

Draughted by D.J. Mackey for E.L. MacVeigh


P-32735
P-32736
P-32734
P-15980
ch agg
old cabin
shaft 20'
shaft 25'
90°
50°
P-32690
P-32691
FC
FC
MALGA ROAD
NORTHERN ONTARIO POWER
LAST FARM
SWAYZE FARM
SMITH FARM
LOT 5
LOT 4
P-32229
P-31352
P-31353
P-17769
P-31351
CON III
CON II
P-31344
P-31343
P-31345
P-31316
LEGEND
Olivine diabase
Quartz diabase
Acid intrusives
Granodiorite
Serpentine
Acid flow, maybe intrusive porphyry
Iron formation
Massive andesite, pillow andesite fragmentals, clastics
SYMBOLS
Outline by magnetometer–blue line
Quartz Vein
Pit
Buildings
Facing of flow
Strike & dip indicated
30°
Outcrop boundary
Formation Boundaries
Swamp
63.97
42A06NE0339 63.97 SHAW
220

GEOLOGICAL MAP

AMSHAW PORCUPINE MINES LIMITED

SHAW TOWNSHIP, PORCUPINE AREA, ONTARIO

SCALE 1 INCH = 400 FEET

400 0 400 800 1200 1600 2000

To accompany property report by E. L. MacVeigh

Geology by E.L.MacVeigh

January, 1947.

Draughted by D.J.Mackey

SHEET "B"
SOUTH SECTION
ISODYNAMIC CONTOUR MAP
OF
AMSHAW PORCUPINE MINES LIMITED
SHAW TOWNSHIP, PORCUPINE AREA, ONTARIO
CONTOUR INTERVAL - 100 GAMMAS
Magnetometer Survey conducted by G.E. Thomas
Map Scale 1 inch = 200 Feet.

To accompany Property Report by E.L. MacVeigh

Draughted by G.E. Thomas

January 1947

COLOR LEGEND FOR CORRELATION OF ANOMALIES AND ROCK FORMATIONS

1-2-3-4-5 Assumed Iron Formation Anomalies

6-7-8-9 Assumed Serpentine Anomalies

10-11-12 Assumed Diabase Anomalies

Assumed Granodiorite Anomalies

F.C.

SHEET "A"
NORTH SECTION
ISODYNAMIC CONTOUR MAP
of
AMSHAW PORCUPINE MINES LIMITED

SHAW TOWNSHIP, PORCUPINE AREA, ONTARIO

CONTOUR INTERVAL - 100 GAMMAS

Magnetometer Survey conducted by G.E. Thomas, M.E.

Map Scale 1 inch = 200 Feet

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January 1947