

43. 118

GEOLOGICAL REPORT - EAST BULL LAKE CLAIMS

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Summary and Conclusions

The complex geology of the area and the fact that showings of sulphides occur, from which Cu-Ni values have been obtained, along a definite zone in the same type of rock make the area one of potential economic interest. However, the fact that 2 types of geophysical survey have been done over the property by 2 separate organizations and that the showings have been diamond drilled deletes from its attractiveness. The detailed geological mapping did not indicate that definite structural features conducive to ore bearing traps have gone unexplored. Therefore, admitting the drill holes only disprove that ore does lie adjacent to them and may be present nearby or below, is not borne out by the geophysics. Therefore only optimistic probing of likely looking hypothecated structural breaks can be resorted to. The size and grade of the showings does not at present warrant much of this work. When any commitments previously made to the optionor are fulfilled and no promising results are obtained, the option agreement should be cancelled.

Introduction

Geological mapping on a scale of 400' to 1" was begun August 3rd, 1962 on enlargements at 400 scale of one quarter mile aerial photographs of an area south and east of East Bull Lake, Townships 123 and 130, District of Algoma, Sudbury Mining Division, Ontario of 34 claims. 8 claims, number's 116209 to 116216 are on the east boundary of Township 130. Claims number's 116708 to 116716 and number's 117018 to 117024; and number's 116199 to 116208 on the southern border, are in township 123 on the west central border. Claims number's 116708 to 116716 and number's 117018 to 117024 comprise the Rossac Option; while the remaining claims previously mentioned were staked by The Mining Corporation of Canada and consist of number's 116199 to 116216.

Exploration work was considered warranted on the property because of a favourable geological environment in which 3 showings of sulphides were present at separate locations. Assays of 2.61% Cu and .36% Ni were obtained previously from one of the showings.* In addition an interesting intersection of linear features was observed from the aerial photographs in which a major break with some obvious displacement was detected.

The geological situation was considered favourable because a band of volcanic rock not shown on the Government geological map was observed by Dr. W. L. Brown of Mining Corporation during a preliminary examination.

Detailed geological mapping was completed on the entire group of claims on August 29, 1962.

Owners

Claim number's S116708 to S 116716 inclusive and S 117018 to S 117024 inclusive are held by Mr. Samuel Rossac, 1369 Lansdowne, Toronto, Ontario, the remainder are the property of The Mining Corporation of Canada, Limited, Suite 1715, 44 King Street West, Toronto 1, Ontario. All claims were staked during September and October, 1961.

Location

The north boundary of the claims is 300' south of the south shore of East Bull Lake. The claims extend $\frac{1}{4}$ mile west and 1 and $\frac{1}{4}$ miles east of the north trending gravel highway (Ontario 553) from Massey. The claims are 21 miles north of Massey which itself is on highway 17 between Sudbury and Sault Saint Marie. The entire claim group is contained on quarter mile aerial photo number 59-4617-10-94.

* E. S. Moore and H. S. Armstrong "Geology of the East Bull Lake Area" Ontario Department of Mines, Vol. LII, Part VI, Pp 16.

General Geology

Rock types on the 34 claim group are separable into 4 general rock units. A northern mass of layered massive gabbro is flanked to the south by a hybrid complex of migmatized gabbro and greenstone with abundant amphibolite inclusions liberally injected with acid rock consisting of syenite on the west and granite to the east. Innumerable inclusions of gneissic granite derived by migmatitization of quartzite are present. It is to be noted that if the quartzite is Huronian, the invading acid solutions must have been Killarney in age.

South of these 2 units a volcanic band borders a mass of pink granite which is cut by abundant diabase sills and dykes. Pink granite dykes were observed cutting the diabase indicating Killarney granite is present; or the acid dykes are a direct differentiate of the diabase and are therefore of the same age as the basic sills.

The southern group of rock consists of a porphyritic pink syenite which is injected with a liberal amount of diabase.

Field relations observed during the mapping indicate the oldest rock to be a metamorphosed greenstone with small contorted patches of greywacke. This rock probably covered the entire area before igneous intrusion. Subsequent to gabbro intrusion and amphibolitization of greenstone proximate to the intrusion, an acid magma entered the complex. This felsic magma produced hybridized greenstone and gabbro which resembles a diorite, along the north edge of the injection.

The first phase of the acid injection was a porphyritic pink syenite which is cut by innumerable granite stringers. The main Algonan granite mass then was emplaced.

After Huronian sedimentation, a series of diabase sills and dykes probably of different ages then invaded the complex.

Although there was further granite injection after the diabase, the amount of this activity is unknown.

Table of Formations *

Cenozoic

Pleistocene and Recent: Glacial drift, sand and clay.

Pre-Cambrian

Keweenaw: Killarney granite, diabase dykes and sills.
Huronian: Quartzite - migmatized quartzite (gneissic granite).
Algoman: Grey and pink granite.
Haileyburian: Gabbro, intrusive contact.
Keewatin: Greenstone - greywacke

Description of Formations

In order of increasing age -

Granite - The youngest pink granite is exactly similar in appearance to the Algoman pink granite described below.

Diabase - The diabase is typically aphanitic dark green to black in colour and individual crystals are difficult to distinguish. It is fresh and unaltered and the fabric is similar to that of a basic volcanic rock. Even in the thicker portion of sills the fineness of grain is retained.

Granite - The pink granite, locally porphyritic, is medium grained. The rock is highly feldspathic and the amount of mafic minerals is small and accessories minor. From megascopic observations of twinning it appears there is a large proportion of acid plagioclase.

Granite - The grey granite is characteristically medium grained, feldspar is light grey and the amount of mafic constituents is higher than in the pink granite producing a much darker cast and mottled appearance.

Syenite - The syenite is a coarse grained pink rock, distinctly porphyritic with large euhedral pink feldspar set in a finer groundmass of anhedral pink feldspar and chlorite. Mafic material, often sparingly present, consists of amphibole as distinct crystal fragments and as stringers or segregations now largely altered to chlorite. Magnetite is disseminated within the fabric locally, probably it was derived from alteration of hornblende to chlorite.

* Ages taken from field relations and observations and Ont. Dept. of Mines Rept, Vol. LII, Part VI, 1943 Geology of East Bull Lake Area Pp. 4.

Amphibolite - Amphibolite is a medium to coarse grained dark green rock with abundant subhedral metacrysts of green amphibole in a finer dark green matrix of chlorite and feldspar.

Gabbro - The gabbro is a coarse grained greenish black massive rock with a seriate fabric produced by large mafic minerals, originally pyroxene but now probably largely replaced by amphibole. Dark grey basic feldspar occurs interstitial to the mafic minerals. At places near granite, the gabbro has been metamorphosed to coarse amphibolite in which subhedral amphibole with a preferred orientation comprises nearly all the rock fabric.

Basic Volcanic - The basalt or greenstone is dark green to black with aphanitic groundmass. Flow structures and characteristic volcanic features are almost entirely lacking due to metamorphic alteration. Fragments of pillows are visible but often indistinct. Considerable recrystallization has occurred near contacts with intrusives producing an amphibole rich fabric. In places there has been considerable introduction of acid material into the volcanics producing a hybrid resembling diorite.

Structural Geology

The general trend of volcanic rocks in the area is east and west to 20° north of west. Several strikes on vague flow structures taken in the volcanics were all at that general azimuth. The limited amount of sediments present in the area, largely as xenoliths were not considered reliable for determination of formation trends because of probable rotation during incorporation in the igneous masses. Igneous contacts are generally east-west indicating ancient fold axes assumed to be at an oblique angle to due north, may have partially controlled the manner of igneous injection.

The common direction of jointing within igneous intrusive complex of gabbro, syenite, and granite is azimuth 300° to 325°, this corresponds to the direction of linears observed in the field and from aerial photographs from the latter of which it would appear that there has been some lateral movement. However this movement was not detected as a result of field mapping. Along one linear on the west side of the claims there is a variance in rock type, gabbro on the south and granite on the north, but this could be an igneous contact.

Shear zones evident in the area were minor and were parallel to the foliation which was always at an oblique angle to due north and corresponds to the direction of pillow axes in the volcanics.

Economic Geology

There are 3 areas in which showings of sulphides occur on the property. The 3 are located along an east west line in the center of the property. Two are east of the main gravel road which crosses the property in a northerly direction, and are located at $\frac{1}{4}$ and $\frac{3}{4}$ of a mile along an old trail leading east from the gravel road. The 3rd is located on the face of a steep south facing cliff over a quarter mile west of the road on the north-western-most claim. All showings are in gabbro, the latter consisting of impregnations and segregations of sulphides in massive gabbro overlooking a southeasterly trending swamp. Numerous drill holes are present in the gabbro to the north of the showing.

Of the other 2 showings, the first is $\frac{1}{4}$ mile east of the gravel road and although it occurs in large angular rocks imbedded in drift, is not considered to be in bedrock. Considerable work would be necessary to determine if the sulphide rich rock is part of the bedrock. Sulphides, largely pyrrhotite, occur as disseminations and impregnations and replace the gabbro,

The second or major showing on the property from which Cu and Ni assays have been obtained consists of several gossan zones in slightly sheared and brecciated gabbro. Numerous pits and trenches have been excavated on these showings but they appear very local and do not seem to continue in depth. Two drill holes at 225° azimuth cut the ground under and to the southwest of the main showing. In interesting lineal east west swamp borders the north side of the showings and, from the mapping, is a contact zone of granite with gabbro.

Geophysical work performed on the property using the electromagnetic method, disclosed a few cross overs but they had no lateral extent. Magnetometer work contoured the areas of diabase and zones of magnetite concentrated in syenite.

Additional breaks have been postulated as possible in the area from the aerial photos and the combination of different rock types on opposite sides of depressions. However these may be merely contact zones accentuated by glaciation or they may be related to the joint pattern.

Summary of Exploration Work

There has been a long history of exploration work on the showings of the property. The numerous test pits and trenches attest to that fact. Noranda Mines Limited conducted an electromagnetic survey over the property some years ago from cut lines at 400' intervals from an established base line bifurcating the property southeasterly near its center. An unknown number of diamond drill holes on the showings resulted from this work. The remnants of core and drilling accessories in the vicinity of the showings indicate some drilling was done prior to the Noranda Option. A geological map was made in conjunction with the geophysical work.

Mr. Samuel Rossac of Toronto staked 16 claims and Mining Corporation of Canada, 18 additional claims. They, in turn, optioned the ground from him in an agreement dated January 15, 1962.

A new set of cut lines at 400' intervals were established by Mining Corporation from a base line running northwesterly. Magnetometer readings were taken every 100' on a 400' grid interval and an electromagnetic survey was run over the same grid. This occurred some months prior to the present program of 400 scale geological mapping.

:gc

September 13, 1962.

W. Gilman
W. Gilman *M.A.*
Geology

THE MINING CORPORATION OF CANADA, LIMITED

GEOLOGICAL SURVEY - BULL LAKE GROUP

Mining Claims S.116199 to 116216; S.116708 to 116716
and S.117018 to 117024 in the townships numbered 123
and 130.

Geological Survey conducted during the period
August 3 to August 29, 1962

Ulo Sibul, 632 Windermere Ave., Toronto, Ont. (Geological Asst.) August 3 to August 29	27 days
Warren Gilman, 3 Ecclestone Dr., Toronto 16, Ont. (Geologist) August 3 to August 29	27 days
Gerald E. Cooper, 17 Tanburn Place, Don Mills, Ont. (Geologist) August 8 to August 12 " 25 to " 29	10 days
Days worked 64 x 4	256 days
Warren Gilman, Geologist Report, mapping, etc. 5 x 4	<u>20</u> days
Total work credit	276 days

CERTIFIED CORRECT

W. L. Brown Ph D.

W. L. Brown
Chief Geologist

Toronto, Ontario
MRS:JS
September 26, 1962



63.1183

THE MINING CORPORATION OF CANADA, LIMITED

MAGNETOMETER AND VERTICAL LOOP E. M. SURVEYSBULL LAKE CLAIM GROUP

This group of claims is on a motor road about 15 miles north of Massey, Ontario. Post No. 1 of S. 116211 is about 400' south of the 4 mile post on the line between Townships 123 and 130 in the Sudbury Mining Division.

The unpatented claims comprising this group are S.116199 - 116208 inclusive, S.116708 - 116716 inclusive and S.117018 - 117024 inclusive in Township 123 and S.116209 - 116216 inclusive in Township 130. (See inset map on magnetometer survey plan).

Magnetic Survey

Magnetic readings were taken with an Askania Vertical Component Torsion Magnetometer (scale constant is 223.4 gammae per degree). Stations were usually at 100' intervals along lines 400' apart, but many 50' stations were paced in and some 200' lines were read. The normal diurnal and datum corrections were applied and the resultant readings were then contoured. Contour intervals are usually 200 gammae except in cases of abrupt magnetic change.

The magnetic pattern is far from simple. There are a number of intermittent eastwardly trending anomalous areas of intermediate to "high" intensity. These in most cases are paralleled and cut up by sharp lows. This is the geophysical expression of the erratically distributed magnetite observed in some of the outcrops.

Interpretation can best be made after the detailed geological survey which will be made in June of this year. Then, the contours may be better used to help trace contacts or suggest extensions of surface showings.

E.M. Survey

An electromagnetic survey was made along the same lines. A Sharpe S.E. 200 vertical loop instrument was used. As the grid lines were essentially perpendicular to the strike of the formations, the Parallel Method was used. In this system, the transmitter was set up on line A at 100'S (say) and the receiver at 100'S in line B. The reading is taken, then transmitter and receiver are both moved to 200'S on their respective lines and so on.

The E.M. dip angles are all small. Only one cross over was found.

Conclusions

Pending the results of the geological survey, no worth while magnetic interpretation can be made.

The E.M. work offers no encouragement for the presence of any strong sulphide zone.

Toronto, Ontario
May 22, 1962.


J.W. Britton
Geophysicist

THE MINING CORPORATION OF CANADA, LIMITED

GEOPHYSICAL SURVEYS - BULL LAKE GROUP

RECEIVED
DEC 17 1962

RESIDENT GEOLOGIST
SAULT STE. MARIE

Linecutting

Contractor - J. Alix Co., Val d'Or, Quebec.

Miles of Line : 19.7

Work credit (see attached statement)

80 days

Magnetometer Survey

Askania Vertical Component Torsion Magnetometer (S.C. 223.4 g/deg.)

Stations: 2085 + 100 sub base + 220 base station = 2405

Period: February 17th to March 16th inclusive 1962

Operator: L. Claveau, Amos, Quebec.,

Days worked: 28, therefore work credit 28 x 4 =

112 days

E.M. Survey

Sharpe S.E. 200 vertical loop.

Stations: 1482

Period: February 17th to March 16th inclusive 1962

Operator: C. Branch, Bathurst, N.B. + 1 helper

Days worked: 28, therefore work credit 28 x 4 x 2

224 days

Drafting Calculation, Interpretation

J.W. Britton, Toronto, Ontario.

Days worked: 8, therefore work credit 8 x 1 x 4

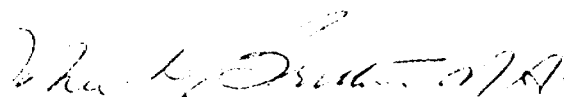
32 days

Total work credit

448 days

ASSESSMENT WORK

Certified Correct



J. W. Britton
Geophysicist

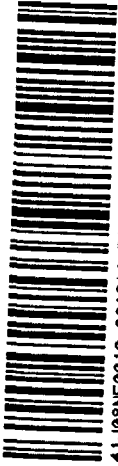
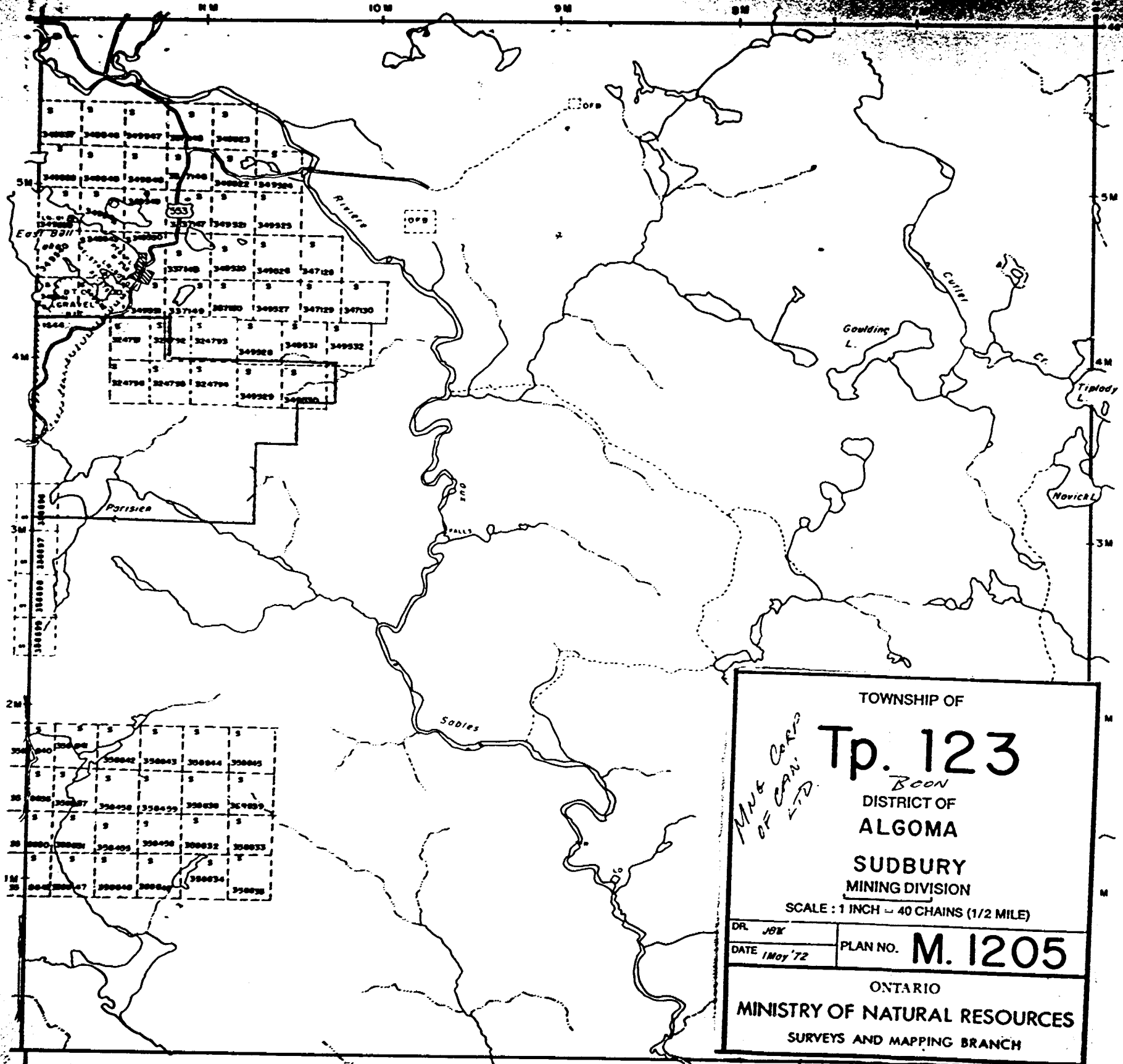
Toronto, Ontario,
May 22, 1962.

JWB:JS

NOT TO BE REMOVED FROM
THE OFFICE OF THE RESIDENT
GEOLOGIST, ONT. DEPT. OF MINES
SAULT STE. MARIE, ONT.

Tp. 124 M. 1206

900



41-J08NE0010 0012A1 500N

Tp. 118 M. 1202

TOWNSHIP OF
Tp. 123
 BOON
 DISTRICT OF
 ALGOMA
 SUDBURY
 MINING DIVISION

SCALE : 1 INCH = 40 CHAINS (1/2 MILE)

DR. J9K	PLAN NO. M. 1205
DATE 1 May '72	

ONTARIO
 MINISTRY OF NATURAL RESOURCES
 SURVEYS AND MAPPING BRANCH

MINE CORP OF CANADA LTD.

TENNYSON TWP M 1155

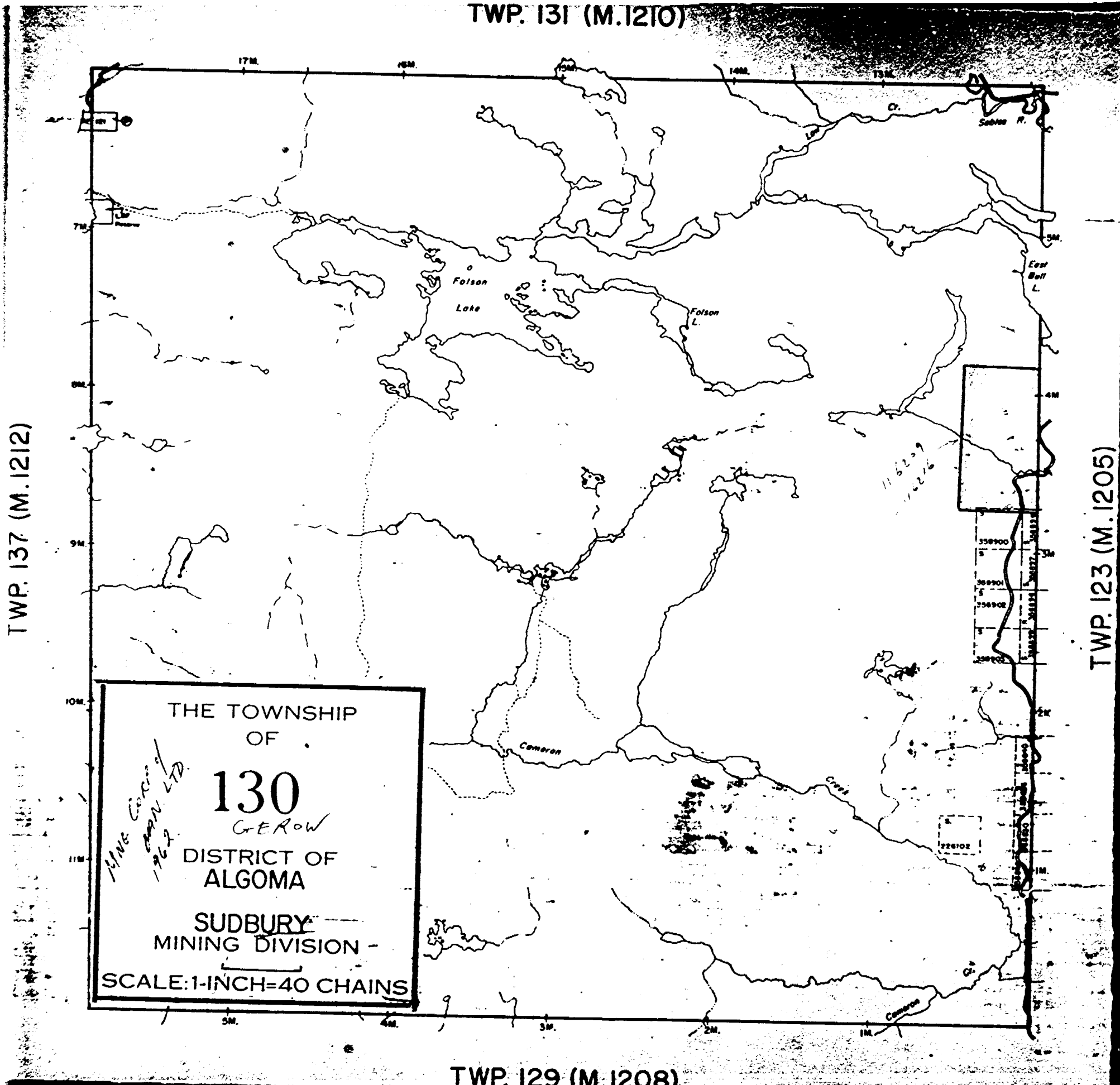
TWP. 131 (M.1210)

TWP. 137 (M.1212)

TWP. 123 (M.1205)

THE TOWNSHIP
OF
130
GEROW
DISTRICT OF
ALGOMA
SUDBURY
MINING DIVISION
SCALE: 1-INCH=40 CHAINS

*MINE CLAIMS
1967
GEROW LTD.*

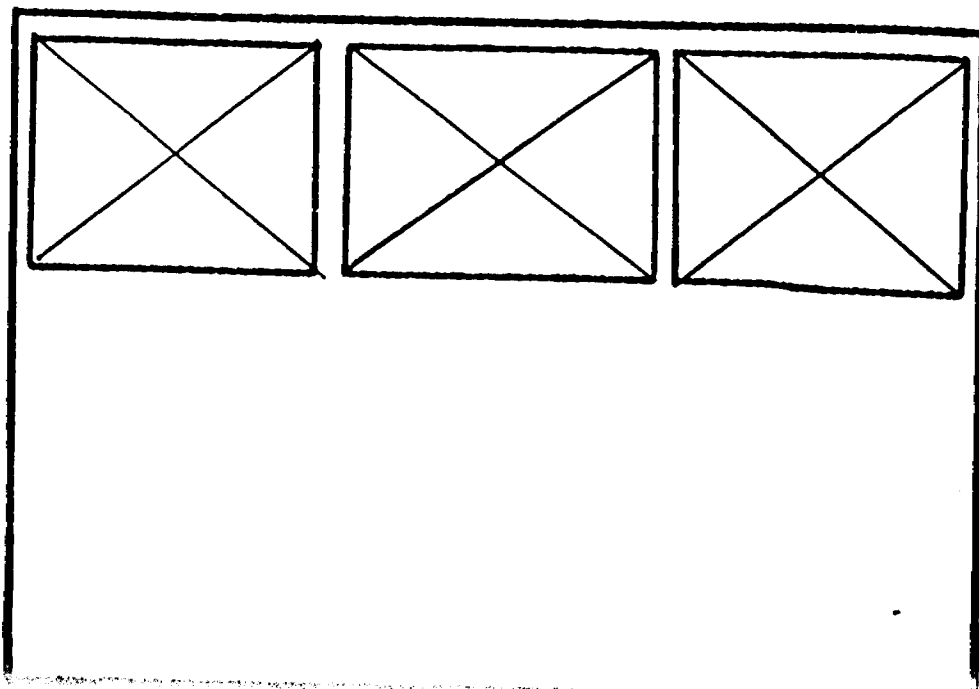


TWP. 129 (M.1208)

SEE ACCOMPANYING
MAP(S) IDENTIFIED AS

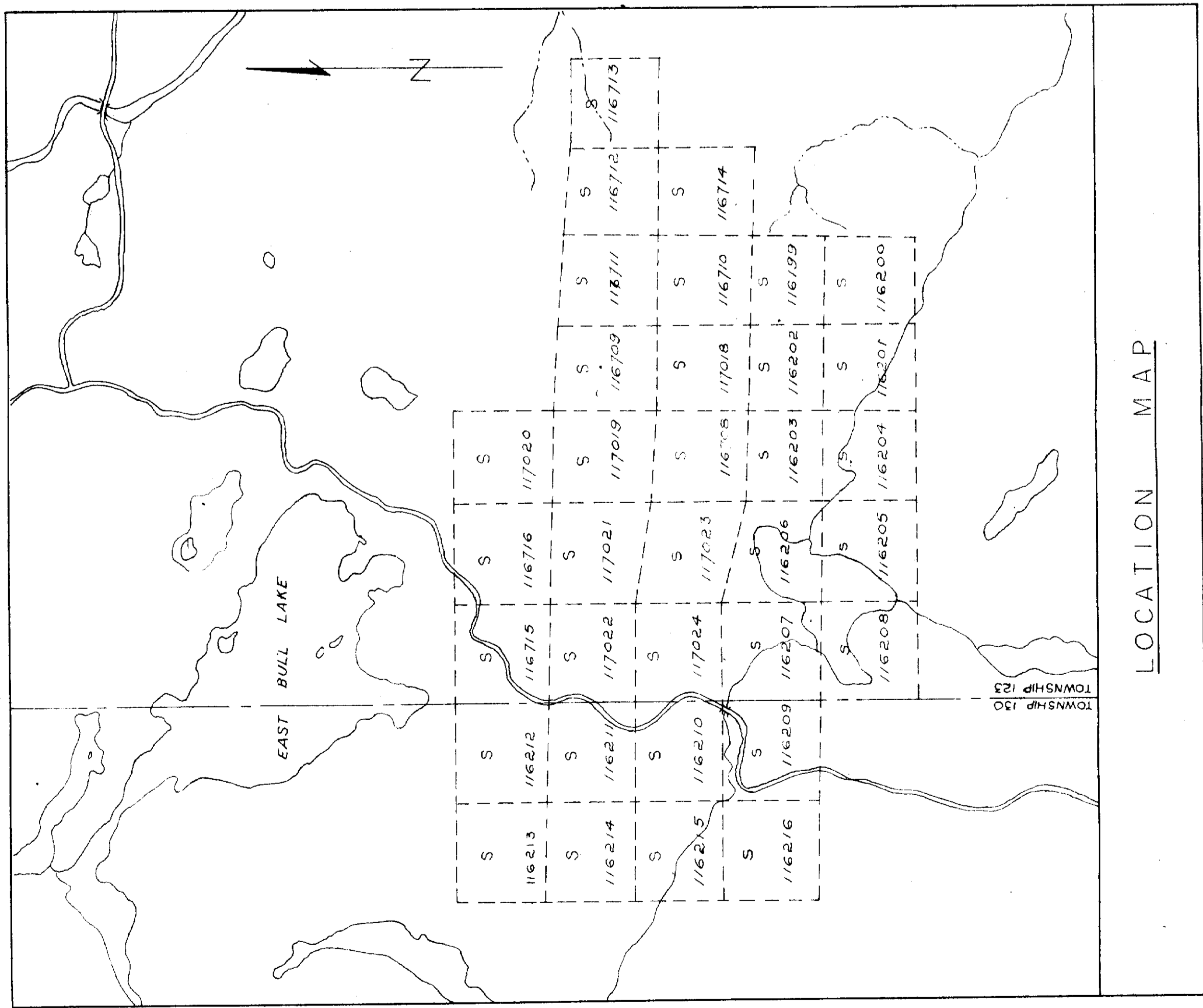
BOON-0012-A1, #1-3

LOCATED IN THE MAP
CHANNEL IN THE FOLLOWING
SEQUENCE (X)



BULL LAKE

GEOLOGICAL MAP OF CLAIM GROUP

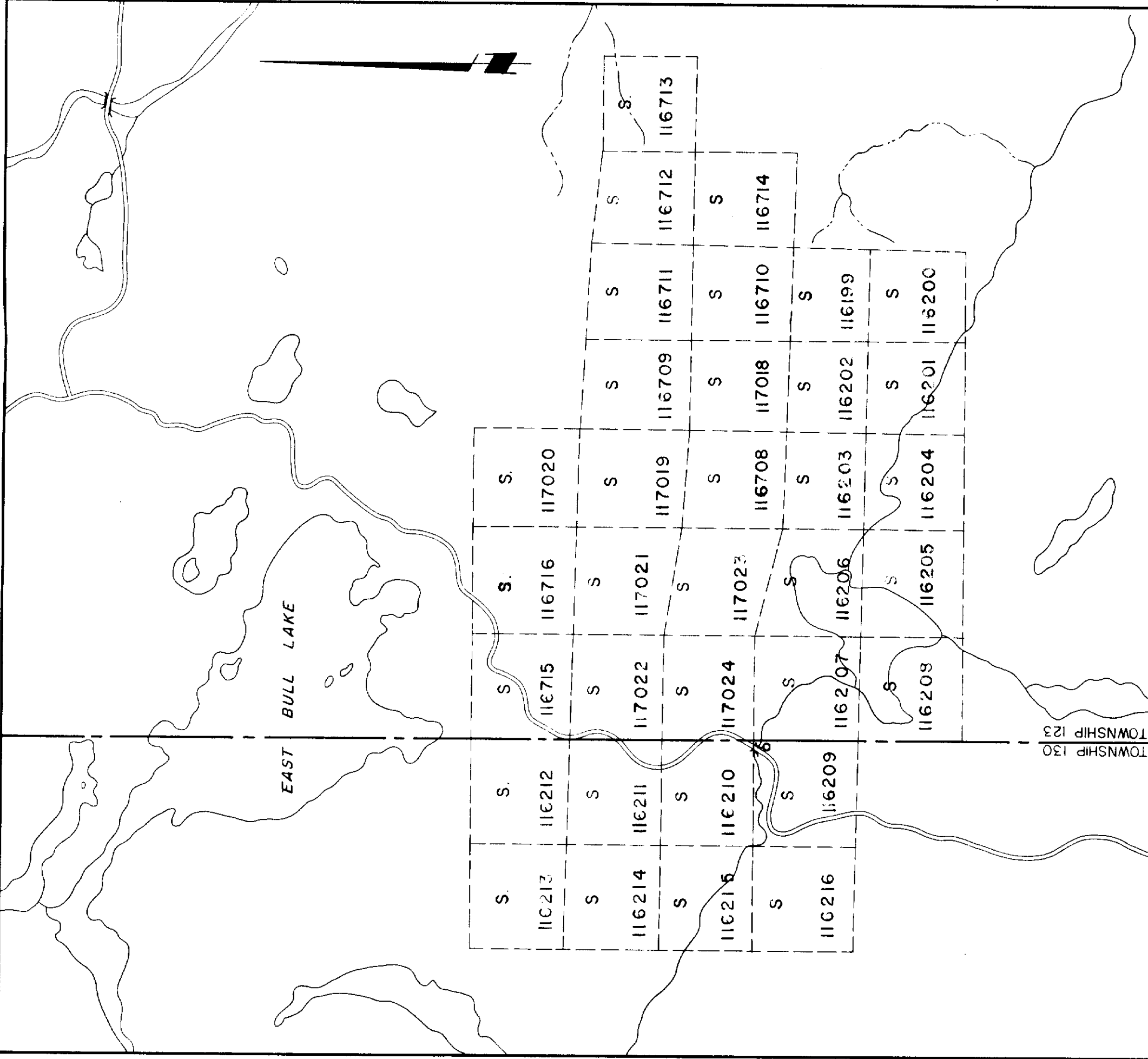


- ### LEGEND
- PINK GRANITE DYKE
 - DIABASE
 - MIXED
 - GREY GRANITE
 - SWAMP
 - SYENITE
 - GABBRO
 - VOLCANICS & SEDIMENTARY INCLUSIONS
 - OUTCROP BOUNDARY
 - STRIKE OF FOLIATION, 80° DIP
 - STRIKE OF FOLIATION, DIP UNKNOWN
 - SWAMP
 - LARGE AREAS OF SWAMPY LOWLAND
 - D.M. (OLD)
 - PROPOSED P.M.
 - GEOLOGICAL CONTACT DEFINED
 - GEOLOGICAL CONTACT ASSUMED
 - TRAIL
 - OLD CABIN
 - GRAVEL ROAD
 - CLAIM POST
 - LOCAL INCLUSIONS OF VOLCANICS
 - LOCAL INCLUSIONS OF GRANITE
 - LOCAL INCLUSIONS OF SYENITE
 - ANORTHOSITE
 - AMPHIBOLITE
 - LOCAL INCLUSIONS OF SEDIMENTS
PREDOMINANTLY QUARTZITE
 - SMALL QUARTZ VEINS
 - BOULDER BED
 - SULPHIDES
 - DIRECTION OF ICE MOVEMENT
 - FAULT ZONE
 - ASSUMED FAULT

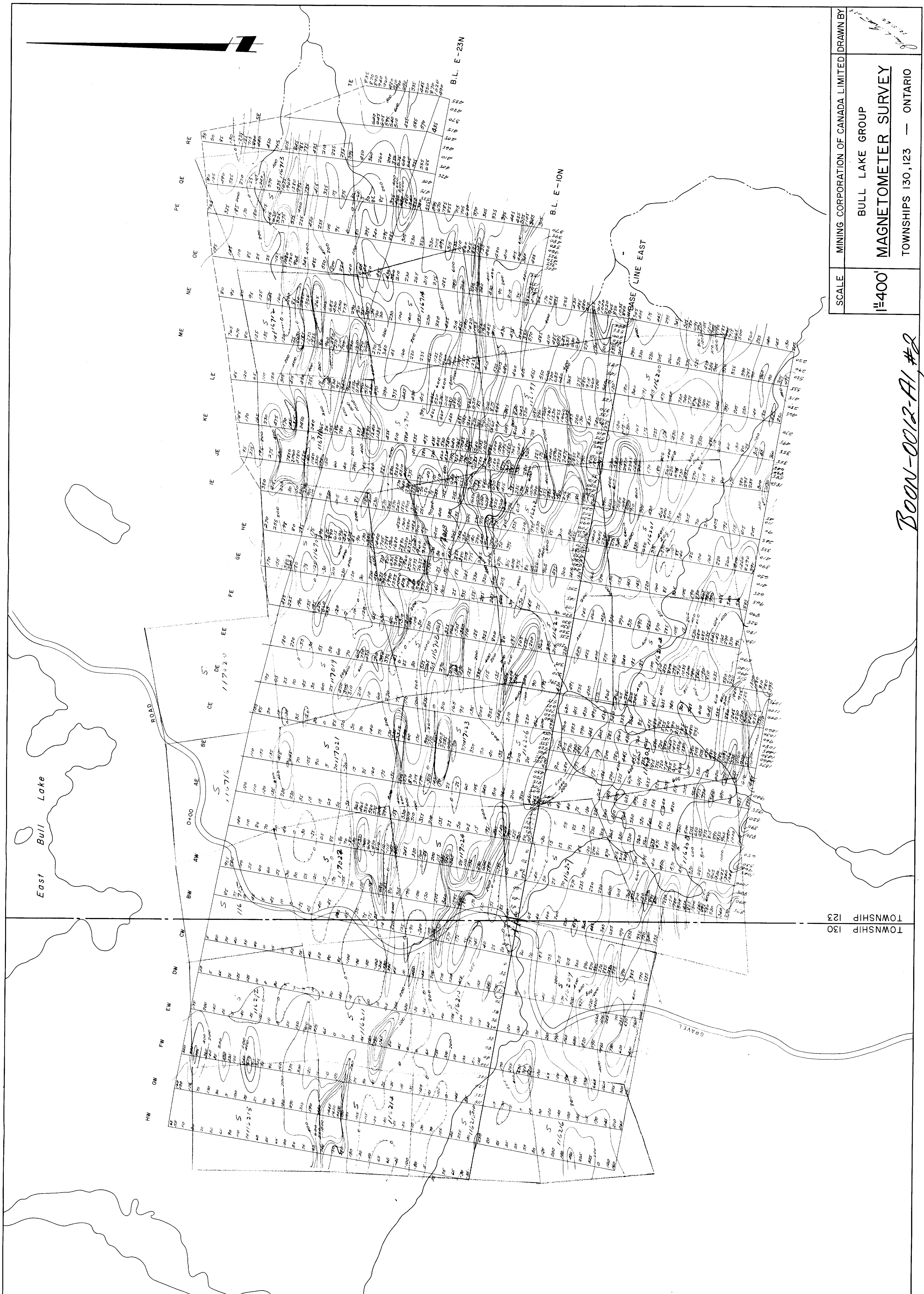
SCALE: 1 INCH = 400 FEET

NOTE: THE ABOVE MAP WAS PREPARED FROM PHOTOGRAPHS AND AERIAL PHOTOS FROM SURVEILLANCE AND SERVICES LTD. OTTAWA, CANADA.

Boon-0012-A1#1



LOCATION MAP
 • LOCATION OF PERMANENT MAG. BASE STATION



1:400
 PICKET LINE - readings in gpmms.
 ISOL. MAGNETIC CONTOUR.

TOWNSHIP 123
 TOWNSHIP 130

SCALE	MINING CORPORATION OF CANADA LIMITED DRAWN BY
1:400	BULL LAKE GROUP
	MAGNETOMETER SURVEY
	TOWNSHIPS 130, 123 — ONTARIO

BOON-0012-A1 #2

