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Report on the Geophysical Surveys
on the Property of
M & M Porcupine Gold Mines Limited
Carman Township - Porcupine Mining Division, Ontario.
for
McWatters Gold Mines Limited

SUMMARY:

This property is under option from M & M Porcupine Gold Mines Limited and consists of 71 unsurveyed and unpatented mining claims situated in the southwest quarter of Carman Township, Porcupine Mining Division, Ontario.

Access to the property is achieved by a road or water route southeasterly from South Porcupine, Ontario. From South Porcupine to the centre of the claim group it is 10 miles.

Geologically, the claim group straddles the margins of an elliptical dome-like structure, whose margin is rimmed by a zone of ultra-basic (peridotite-dunite (?) composition) intrusive rocks some two miles wide. The long axis of this structure is orientated in a direction striking about N 50° W, astronomic, and measures about 14 miles long and 8 miles wide. Near the eastern portion of this elliptical dome-like structure, an olivene diabase dike, striking N 50° E, transects the structure. This dike is a regional one, which continues into the Mattagami Lake area of Quebec. The ore deposits of Normetal Mines Limited in Desmeloizes Township, Rio Algom and Joutel Copper Mines in Joutel Township and those of New Hosco Mines Limited, Mattagami Lake Mines and Orchan Mines all lie with one to 4 miles of this intrusive body.

The subject acreage straddles some 1.8 miles of the rim of ultra-basic intrusive rocks, centered about the intersection of the forementioned regional basic dike and the northeast segment of the rim of the dome-like structure. The other stratified enclosing rocks are Keewatin type lava flows, acid to basic in composition, iron formation and pyroclastics. North-south trending quartz diabase dikes and acidic intrusives cut the Keewatin assemblage.

The strike of the stratified rocks varies on the property from east-west to north-south through to northwest-southeast. Dips are steep and mainly outward from the domal structure.

Pyrite and minor chalcopyrite occurs in several places on the property.

Pyrite and pyrrhotite are present replacing iron formation. In the north part of the property a quartz vein in carbonatized volcanics contains minor pyrite, sphalerite, chalcopyrite and galena mineralization.

Previous ground exploratory work on the property appears to have been solely that of prospecting and trenching, although four claims were covered by a magnetic survey and these were the object of investigation by several diamond drill holes. However, no attempt has been made to investigate systematically the overburdened favorable geological conditions for economic base metal mineralization.

The property is located in a geological environment favorable for nickel deposits and it is much like that of the Langmuir properties of Mining Corporation of Canada (1964) Limited and McWatters Gold Mines Limited, where two interesting nickel bearing deposits have been discovered.

The current exploratory effort by McWatters consisted of detail magnetic and electromagnetic surveys of the claim group at a picket line interval of 400 feet.

CONCLUSIONS:

1. Thirty-two separate zones of electrical conductivity were outlined on the property. These exhibit poor to good conductivity features and most of them show some magnetic activity.
2. Eleven of the electromagnetic anomalies exhibit qualities which are interpreted to be caused by sulphide mineralization.
3. Several bodies of peridotite were outlined on the claim group and certain of these because of their size, shape and magnetic content are considered favorable hosts for nickel mineralization.
4. The electromagnetic anomalies are situated in a geological environment favorable for mineral deposits. There is sufficient sulphide mineralization and hydrothermal alteration in the immediate vicinity to conclude that these anomalies are top priority targets to be investigated by diamond drilling for concentrations of economic base metal mineralization.

RECOMMENDATIONS:

The following is recommended:-

1. Firstly, that, the property be mapped in detail in order to correlate the known geophysical anomalous conditions with the detailed geology.

2. That thirteen diamond drill holes, totalling 5000 feet, be drilled on the property to investigate the fair to good anomalous conditions for base metal mineralization.

The particulars of these holes, as to location, dip, length, and bearing is shown in the appendix to this report.

3. That a program of trenching be conducted on the property concurrent with the drilling program to investigate the lesser important geophysical anomalies located in outcrop areas and where the overburden is relatively shallow.

The cost to carry-out the above recommendations is estimated at \$50,000.00 maximum.

PROPERTY AND LOCATION:

The property, under option from M & M Porcupine Gold Mines Limited, consists of 71 contiguous, unsurveyed and unpatented mining claims, numbered as follows:-

P-67231 and P-67232	2
P-67234 to P-67239 inclusive	6
P-70733 to P-70442	10
P-70601 to P-70617	17
P-70619 to P-70640	22
P-70651 to P-70663	13
P-70641	1
Total	<u>71</u>

The claim group is situated in the southwest quarter of Carman Township, Porcupine Mining Division in the Province of Ontario.

The south boundary of the property is the township line common to both Langmuir and Carman Townships. The southwest Bay of Nighthawk Lake lies about one-half mile east of the northeast segment of the property.

The claim group forms an irregular block, roughly three miles long in a north-south direction and two miles wide in an east-west direction.

ACCESS:

The property is easily reached from South Porcupine, Ontario by two routes, a distance of 10 and 22 miles in a southerly direction.

The first means of access is by water, from the Junction of Highway 11 and the Nighthawk River, in a southerly direction, a distance of about 22 miles.

The other route is directly south from South Porcupine, Ontario by road to the mine site of M & M Porcupine Gold Mines Limited and thence by bush road from the latter. The distance is about 10 miles.

TOPOGRAPHY:

The surface of the claim group is relatively flat, occupying part of a gently rolling peneplain. Approximately fifty percent of the surface of the property is covered by wet swamp. In the more elevated area, which seldom attain a relief of 50 feet or more above the low ground, rock outcrop is plentiful. The main outcrop areas lie in the south and north central part of the claim group.

Glacial deposits consist mostly of morainal sand and lacustrine clay.

The property is drained by several small, un-named creeks.

The area has been lumbered, and present growth constitutes a mixed bush, consisting mostly of alders, and balsam, with minor spruce, birch, cedar and pine.

HISTORY:

An airborne magnetometer survey was conducted, during 1947 to 1949, of Carman Township and surrounding townships by the Dominion Gulf Company. The results of this, particularly of Carman Township are published on maps numbered 293G and 294G, by the Department of Mines and Technical Surveys.

Claims P-67238, 67235, 67234 and 67231 formed part of the holdings of Dumont Nickel Corporation Limited. They carried out a ground magnetic survey and drilled several holes. The results of all this work are not available but a partial log of one hole drilled about 1600 feet south of the subject acreage disclosed the following:-

1. The hole was inclined at 50 degrees and drilled on former claim P-49802 in a direction bearing N 45° W to investigate a magnetic anomaly. This anomaly forms part of a series of anomalies which enters subject claim P-67234. The hole entered bedrock after penetrating 108.0 feet of overburden and a brief log of the hole to footage 270.5 is as follows:-

0.0 - 108.0	Casing
108.0 - 110.0	Well silicified banded material. Pyrite bands at 108.3, 108.6, 109.2, much fine chalcopyrite at 109.2.
110.0 - 156.0	Andesite - massive, medium grained, carbonatized, much carbonate stringers. Disseminated pyrite.
156.0 - 171.0	Iron Formation - highly siliceous in places. 162.5-163.0 much chalcopyrite, 163.0-164.5 5% pyrite, 167.0-169.0 some fine pyrite.
171.0 - 204.0	Diabase
204.0 - 215.0	Andesite
215.5 - 225.0	Highly silicified formation, well mineralized with pyrite.
225.0 - 270.5	Intermediate lavas - 247.0-249.0 brecciated, disseminated pyrite.

2. Assay results reported in the above hole are as follows:-

<u>No.</u>	<u>Footage</u>	<u>Width</u>	<u>Gold</u>	<u>Silver</u>	<u>Copper</u>
108A	108.0 - 110.0	2.0 feet	.005 oz.	.13 oz.	.13%
146	146.0 - 147.0	1.0 "	.01 "	.	
162	162.5 - 163.0	0.5 "	.005 "	.66 "	1.15%
163	163.0 - 164.5	1.5 "	.002 "	.25 "	.20%
167A	167.0 - 169.0	2.0 "	.005 "		
216A	216.0 - 218.0	2.0 "	.55 "	.08 "	.18%
218A	218.0 - 220.0	2.0 "	.09 "	.11 "	.27%
220A	220.0 - 222.0	2.0 "	1.30 "	.80 "	.17%

In May 1965, the subject acreage and surrounding area was the object of airborne magnetic and electromagnetic surveys. East-west flight lines were carried out at a height of 300 feet above ground, and at 1/8 mile intervals over the property.

In the magnetic survey, the vertical component of the earth's magnetic field was recorded. In the electromagnetic survey, the intensity variations in a radio high frequency field originating from the northwest of the property were recorded. The surveys were carried out by Airborne Explorers Limited, Toronto, Canada.

Other work on the claim group has consisted of prospecting and trenching. Numerous pits and trenches were found and these appear to have been excavated in the search for gold and base metal mineralization.

In 1963, the Ontario Department of Mines commenced project 63-21, the geological mapping of Carman, Code and Thomas Townships. A geological map illustrating the results of this work will be published in the near future to the scale of one inch equals one-half mile.

GEOLOGY:

Regional - A study of the aeromagnetic data and known geological information reveals the possible presence of a broad dome-shaped structure. Its long axis strikes in a N 50° W direction and lies in the Townships of Eldorado, Carman, Adams, Langmuir, Deloro, Whitney, Shaw and Tisdale. It is about 14 miles long and 8 miles wide. The outer rim of this dome structure is marked by a zone of basic intrusive rocks (mainly peridotite in composition) approximately two miles wide.

The rocks inside the central part of the dome structure consist mainly of Keewatin acid to basic lava flows, some fragmentals and interbanded with both clastic and pyroclastic sedimentary rocks. At the northeast end of the domal structure and inside it, a stock of granite, some 2-3 miles in diameter, intrudes the Keewatin rocks. The basic rocks, as well as the Keewatin, are wrapped around this intrusive granite body.

The peridotite can be considered as the "rim" of the dome. The rocks outside the periphery of the dome are in general similar to those inside it.

Olivene diabase and quartz diabase intrude the above described rocks. The widest and most continuous of these basic intrusives is the Keeweenawan olivene diabase. One dike in particular strikes about N 50° E and attains a width of 700 feet. It can be traced from Eldorado Township, northeasterly into the Mattagami Lake area of Quebec.

The quartz diabase dikes, Matachewan in Age, are much narrower of the order of 40 to 200 feet, and strike in a north-south direction.

Two regional fault structures transect the dome structure. These are known as the Burrows - Benedict and Matachewan Lake faults. These may represent the same fault structure but offset by a regional NE-SW fault zone, now occupied by an olivene diabase dike.

The subject acreage is located on the northeast part of the domal structure straddling the main band or rim of ultra-basic rocks.

PROPERTY:

The consolidated outcropping rocks on the property consist of early Precambrian Keewatin type lava flows and iron formation. They are intruded by peridotite, olivene diabase, quartz diabase and granitic intrusives.

The strike of the rock formations varies from N 30° E to north-south through to N 60° W, dips are steep.

Rock outcrops are most abundant in the south part, the north central and north part of the property. In the south part intermediate to basic lavas are the most predominate rock type, whereas in the north central and north part, peridotite is most common rock type.

The subject acreage is so located as to straddle the rim of the domal structure.

ECONOMIC GEOLOGY:

Magnetite, pyrite, pyrrhotite, galena, sphalerite and chalcopryrite mineralization has been uncovered on the property.

Magnetite mineralization occurs in the peridotite and iron formation. The content of magnetite in both formations is far too low to be of interest as a source of iron ore.

Pyrite and pyrrhotite is present as disseminations and massive concentrations in iron formation. No values in nickel are known to be present in these occurrences on the property.

A quartz vein in carbonatized volcanics contains minor pyrite, sphalerite, chalcopryrite and galena mineralization on claim P-67234, in the form of blebs and stringers in iron formation. The occurrence has been investigated by several diamond drill holes, by previous owners of the subject acreage.

Asbestos is not known to occur on the property, although the host rock, peridotite, is abundant on the property.

GEOPHYSICAL SURVEYS:

Electromagnetic Survey - this survey was conducted using both Horizontal and Vertical Loop equipment. The south two-thirds of the property was surveyed using McPhar dual frequency vertical loop and the most interesting anomalous conditions were checked with Ronka horizontal loop equipment.

The north one-third of the property was surveyed with the Ronka equipment, utilizing a 300 foot coil separation.

Magnetic Survey - The magnetic survey was conducted using the Sharpe MF-1 fluxgate magnetometer.

Results of both surveys are shown on plans of one inch equals 400 feet, which accompany this report.

DISCUSSION OF GEOPHYSICAL RESULTS:

Thirty-two separate zones of electrical conductivity were outlined on the property and most of these exhibit some association with magnetic data.

Anomalies E 1 to E 21 are primarily vertical loop anomalies. Anomalies E 22 to E 32 are horizontal loop anomalies.

E. M. Anomaly 1 - lies in the central part of claim P-67232. It strikes N 60° E and it is about 800 feet in length. The width of the conductive body appears to be less than 50 feet and dips steeply to the north. Conductivity of the body is poor and there is a modest magnetic correlation with the conductor. It is located in an area underlain by intermediate to basic volcanics, but there is no outcropping near the conductor.

E. M. Anomaly 2 - this is a one line response located in the southwest corner of claim P-67236. There is no appreciable magnetic response over the zone and conductivity of the causative body is poor. It is of short length and narrow in width.

E. M. Anomaly 3 - lies in the north part of claim P-67237. It is about 1500 feet in length and narrow in width. It strikes N 80° E and dips steeply. It exhibits poor to fair conductivity. There is no appreciable magnetic response over the zone. The conductor is located in a geological environment consisting essentially of intermediate to basic volcanics.

E. M. Anomaly 4 - occurs on claim P-67239. It strikes N 60° E and dips steeply. There is no magnetic correlation. The conductor exhibits fair conductivity.

E. M. Anomaly 5 - occurs on claims P-67239 and P-70739. It strikes N 20° E and dips steeply to the southeast. Conductivity of the zone is poor to fair. There is no magnetic response over the conductor. It is located in a geological environment consisting essentially of basic lavas. The strike of the anomaly appears to be discordant to the trends of the formations, unless there is a marked structural change, in this section of the property.

E. M. Anomaly 6 - lies in the south part of claim P-67231. It strikes N 75° E and dips steeply to the south. Conductivity of the zone is poor. Horizontal loop survey check work did not reveal a genuine conductor. The conductor is located in an area of magnetic low. It is considered that the conductor is due to a conductive shear zone.

E. M. Anomaly 7 - it is located on claim P-70742. It is 200-400 feet in length and steeply dipping. Conductivity of the zone is poor. Horizontal loop survey checks reveals a conductor of poor conductivity. The conductor is located in an area of low magnetic relief, but about 200 feet northwest of an mediocre magnetic anomaly.

It would appear that the anomaly is probably due to a conductive shear zone, or overburden.

E. M. Anomaly 8 - located in the central part of claim P-70737. The anomaly is relatively short in length and narrow in width. It is coincident with a magnetic anomaly of about 2000 gammas above background. Horizontal loop reading indicate the causative body to be of poor conductivity. It is interpreted that the anomaly is due to a low content of sulphide mineralization.

E. M. Anomaly 9 - located in the southwest corner of claim P-70638. It strikes east-west and narrow in width. The conductor exhibits poor conductivity and no magnetic correlation. The anomaly occurs near the extremity of a known sulphide zone.

E. M. Anomaly 10 - located on claim P-70639. It strikes N 50° E and dips steeply. It exhibits fair to moderate conductivity and no magnetic correlation. Geologically, it is located about 300 feet south of the regional olivene diabase dike and in rocks thought to be primarily basic lavas. The anomaly is interpreted to be caused by a shear zone.

E. M. Anomaly 11 - is located on claim P-70629. It is about 1400 feet in length, narrow width. It strikes N 65° E and dips steeply. There is no significant horizontal loop anomaly over the zone. It is inferred that the anomaly is caused by disseminated sulphides and at a depth in excess of 100 feet below surface.

E. M. Anomaly 12 & 13 - these anomalies lie to the east of E 11 and en-echelon in plan. They are 400 feet and 2000 feet in length. They exhibit poor to fair conductivity and no appreciable magnetic correlation. Horizontal loop check work over the vertical loop responses did not reveal any appreciable anomaly.

The geological environment in which the anomalies occur is similar to that of EM-11. The latter is interpreted to be caused by disseminated sulphides at depth. Consequently, anomalies 12 and 13 could well be due to the same cause.

E. M. Anomaly 14 - is located in the western part of claim P-70621. The length of the anomaly is about 500 feet and narrow in width. There is no magnetic correlation with the zone and it is located in a swampy area. The magnitude of the anomaly is low and conductivity is poor to fair. The cause of the anomaly appears to be at some depth below surface.

E. M. Anomaly 15 - is located on claim P-70633 and in a swampy area. It is a one-line, cross-over and exhibits poor to fair conductivity. There is no magnetic response over the zone. Horizontal loop check work over the vertical loop anomaly did not reveal the presence of a conductor. It would appear that the anomaly is probably due to conductive overburden.

E. M. Anomaly 16 - this anomalous zone consists of three separate cross-overs on consecutive alternate picket lines. They are low amplitude responses and there is a displacement in the low and high frequency cross-overs. Conductivity of the causative body is very poor. There is direct magnetic correlation with the cross-overs on lines 8 N, 16 N and 24 N. The anomalous readings occur in ultra-basic rocks and may represent conductive serpentized shears or low content of sulphide mineralization in peridotite. Horizontal loop check work did not reveal the presence of an anomaly.

E. M. Anomaly 17 - this anomaly occurs on claims P-70628 and P-70606. It is about 1500 feet in length and relatively narrow in width. There is some magnetic response over the zone and geologically it appears to lie along a peridotite - volcanic contact zone. Conductivity of the zone is very poor, diagnostic of shear zones or a zone of very low sulphide content. Because of its location geologically, it is worthy of investigation by diamond drilling.

E. M. Anomaly 18 - this anomaly is located on claim P-70627. A high frequency anomaly lies 300 feet to the west of it and more or less parallels it. There is magnetic correlation with the anomaly. Geologically, it is situated in an area believed to be underlain by olivine diabase. Conductivity of the causative body is poor. The cause of this anomaly is believed to be overburden.

E. M. Anomaly 19 - occurs on claim P-70601. It is about 1200 feet in length and located in an outcrop area. The anomaly exhibits fair conductivity and there is good magnetic correlation with the central of the zone. It would appear that the anomaly occurs in peridotite and that it could well represent a shear zone or sulphide mineralization.

E. M. Anomaly E 20 - occurs on claim P-70602. It is a low amplitude response and there is no magnetic correlation. Rock outcrop

is present near the south extremity of the zone.

E. M. Anomaly E 21 - occurs on claim P-70603. It is a low amplitude response and conductivity is good. The anomaly appears on one line only and there is no direct magnetic correlation. This anomaly may not be genuine.

Anomalies E 22 to E 33 are anomalies outlined with horizontal loop equipment using a coil separation of 300 feet and frequency of 876 c.p.s.

E. M. Anomaly E 22 - this anomaly occurs along the boundary of claims P-70613 and P-70663. The anomaly is about 900 feet in length and narrow in width. It is primarily an out-of-phase anomaly, diagnostic of a very poor conductor. There is no magnetic correlation with the zone. The anomaly is due to a shear zone or overburden.

E. M. Anomaly E 23 - this anomaly on claim P-70614. It is primarily an out-of-phase response and caused by effects described under E 22.

E. M. Anomaly E 24 - occurs on claim P-70613. It is 1500 feet in length and varies in width from 10 to 30 feet. The west part of the anomaly exhibits conductivity qualities usually shown by sulphide mineralization. The east part of the anomaly, exhibits poor conductivity qualities. There is good coincident magnetic response over the zone.

E. M. Anomaly E 25 - occurs on claim P-70660. It is primarily an out-of-phase anomaly. It lies in an area of high magnetic relief and which area is believed to be underlain by peridotite. The anomaly is due to a shear zone or a zone of weak sulphide mineralization.

E. M. Anomaly E 26 - this anomaly is over 3000 feet long and trends across claims P-70611, P-70602, P-70610 and P-70651. It varies in width from 10 to 240 feet. The electrical and magnetic qualities of the zone suggest that it is due to sulphide mineralization. The anomaly is coincide with a sulphide occurrence on line 4+00 E at 6+00 south of base line 4. A north-south diabase dike, more or less, bisects the zone.

E. M. Anomaly E 27 - this anomaly lies 500 feet north of E 26 and parallel to it. The northwest end of the zone exhibits fair to good conductivity whereas the southeast part of the zone is relatively weak. There is no appreciable magnetic response over the electrical zone.

E. M. Anomaly E 28 - this anomaly strikes across claims P-70616, 70617, 70612, and 70653. Conductivity of the zone is poor. There is no appreciable magnetic response over the zone and geologically it is located about 600 feet southwest of the margins of a large mass of peridotite.

E. M. Anomaly E 29 - this anomaly lies on claim P-70615. It is primarily an out-of-phase response and conductivity is poor. There is no appreciable magnetic response over the zone. Geologically, it is located about 500 feet south of the margins of a large mass of peridotite.

E. M. Anomaly E 30 - this anomaly occurs on claims P-70653, 70654, and 70652. It is over 2200 feet in length and narrow in width. Conductivity of the zone is poor. It is located in an area of low magnetic susceptibility, and about 1600 feet removed from a large mass of peridotite.

E. M. Anomaly E 31 - This anomaly lies about 800 feet south of E 30 and trends parallel to it. The conductivity of the zone varies from fair to poor. There is no magnetic correlation with this zone.

E. M. Anomaly E 32 - this anomaly lies about 600 feet south of E 31 and trends parallel to it. The anomaly is primarily an out-of-phase response and diagnostic of a very poor conductor. It is located in an area of low magnetic susceptibility.

In addition to the above described electromagnetic anomalies, there are several much weaker anomalous indications. Considering these in relation to zones of magnetic activity and known geological features, they are considered to be of secondary importance.

The magnetic survey of the subject acreage has revealed numerous areas of varying magnetic susceptibility.

The most salient of the anomalies are two linear trends striking about N 50° E, astronomic across the property. These magnetic features, in support of direct geological evidence, are caused by olivine diabase dikes. The widest of these dikes is a regional one, which extends into the Mattagami Lake area of Quebec.

In the north part of the property a broad zone of higher than average magnetic susceptibility was outlined. This area is interpreted to be underlain by rocks of peridotite in composition.

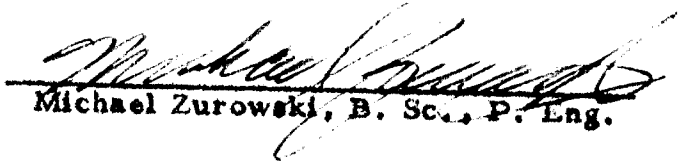
In the north central part of the property, the juxtaposition of a multitude of magnetic closures is attributed to an intermixing of peridotite and diabase intrusive bodies in a geological environment consisting essentially of volcanic lavas, interlayered with beds of magnetic iron formation.

The trend of the isomagnetic lines, reveals a marked change in strike of the geological formations from an east-west direction in the southwest portion of the property through to northwest-southeast direction in the northern part of it. This strike conforms structurally to the position of property with relation to the dome-like structure of the area.

Respectfully Submitted,

M. E. M. CONSULTANTS LIMITED.

MZ/sp
Toronto, Ontario.
February 10th, 1966.


Michael Zurowski, B. Sc., P. Eng.

APPENDIX

SCHEDULE OF PROPOSED DIAMOND DRILL HOLES

<u>Hole No.</u>	<u>Latitude</u>	<u>Departure</u>	<u>Dip</u>	<u>Bearing (Ast)</u>	<u>Length</u>	<u>Remarks</u>
66-1	7+50N of B. L. 1	Line 4+00E	50°	South	350'	x-Sect. E 1
66-2	2+00S of B. L. 2	Line 48+00E	45°	N 30° W	400'	x-Sect. E 8
66-3	44+00N of B. L. 2	Line 16+00E	45°	S 30° E	350'	x-Sect. E 11
66-4	44+25N of B. L. 2	Line 36+00E	45°	S 30° E	350'	x-Sect. E 13
66-5	18+50E of B. L. 3	Line 12+00N	45°	West	350'	x-Sect. E 17
66-6	2+25W of B. L. 3	Line 24+00N	45°	East	500'	x-Sect. E 16
66-7	20+74N of B. L. 2	Line 4+00W	45°	S 30° E	350'	x-Sect. E 9
66-8	2+00W of B. L. 4	Line 12+00E	45°	N 50° E	350'	x-Sect. E 26
66-9	3+60W of B. L. 4	Line 28+00E	45°	S 50° W	350'	x-Sect. E 26
66-10	24+65E of B. L. 4	Line 28+00E	50°	S 50° W	350'	x-Sect. E 30
66-11	30+20W of B. L. 4	Line 28+00W	45°	S 50° W	350'	x-Sect. E 24
66-12	16+50E of B. L. 4	Line 24+00W	50°	N 50° E	400'	x-Sect. E 25
66-13	7+00E of B. L. 4	Line 32+00W	45°	S 50° W	<u>550'</u>	x-Sect. Mag. Anomaly
				Total	5000'	



42A06NE0064 63.1671 WHITNEY

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REPORT ON
AIRBORNE MAGNETIC & ELECTROMAGNETIC SURVEYS
IN SHAW & CARMAN TOWNSHIPS
DISTRICT OF COCHRANE
PROVINCE OF ONTARIO
FOR
M & M PORCUPINE GOLD MINES LIMITED

On May 19th and 20th, 1965 airborne surveys were performed over several groups of claims belonging to M & M Porcupine Gold Mines Limited in Shaw and Carman Townships, District of Cochrane, Province of Ontario.

The flights were carried out at a height of 300 feet above ground. The surveys included recordings of the vertical component of the earth's magnetic field and the intensity variations in a radio high frequency field originating from the northwest. Over the main portion of the area, flights were made along east-west lines approximately 1/8 of a mile apart, but in the northwest corner of Shaw Township the lines were flown in a north-south direction.

Two maps accompany this report. These maps are drawn to scale one inch equal to 1.320 feet, (four inches equal to one mile).

In order to show as exactly as possible the position of the flight lines relative to the various claims, the lines as actually flown are indicated on the maps.

One map shows the variations in the vertical magnetic intensity by means of contours at intervals as close as one hundred gamma. Intensity higher than normal is coloured blue and below normal red. The magnetic high intensity areas show regional east-west trends. Smaller patches of high intensity here and there may indicate portions of iron formation or areas of serpentinization, etc.

Of particular interest is the indication of an east-west trending fault with the northern portion displaced westward. (This can be seen best in the vicinity of claims 70635, 70636, 70304, and 70305.) South of this fault line, there is indicated a major eastward plunging anti-clinal structure, a feature which might be of considerable economic interest and make the anomalies here of greater significance, especially those that cut across the formational east-west trend.

On the second map variations in conductivity are indicated by contours and colours. Red colour indicates conductivity normal for the area. Areas left uncoloured have somewhat higher than normal conductivity and show certain directional trends. As the E.M. method

used is very sensitive to even small changes in conductivity, some of the larger green areas may correspond to general sulphide dissemination, not necessarily of economic importance. Furthermore, as most of the minor details in the conductivity pattern are merely of academic interest, only the major features are shown on the map.

With dotted lines are shown positions of fractures or shears, or possibly faults as interpreted from the intensity pattern. Owing to the fact that the geological information made available to me of this area is rather sketchy and the ground mostly covered by soil and muskeg, it has been necessary to spend considerable time on the interpretation of the intensity pattern.

Besides the general confirming of the trends indicated from the magnetic intensity, a number of moderate conductors with decided lineal conductivity character are outlined. These are most likely caused by shearing or slight mineralization near contacts along bedding planes following the regional strike. The main east-west fault and the displacement are well indicated. Some subsidiary fracture zones or faults following a northwest-southeast trend are clearly indicated but only slight displacement is noted along them.

In the vicinity of the M & M Property the conducting zones cut almost perpendicularly across the general east-west trend. While

the area to the north of the property appears to be broken up into smaller sections, the north-south trend still prevails, even a short distance north of the fault.

From the drilling recently performed to the north of the mine the anomalies there may be interpreted as caused by medium to poor mineralization or dissemination (mostly pyrite).

The main showing "The Sulphide Zone" at the mine is very well indicated on claims 8301, 8302 and 25436. Slightly to the north-west there is another anomaly on claims 18056 and 7835 which, in some way, ties into the known "Tommy Burns Vein".

To the west, definite indications cutting across the regional trend are found on claims 6338, 20666 and also on claim 63340 from where a conducting zone seems to extend a considerable distance southward. These are areas recommended to be acquired or staked and prospected for mineralization similar to the main showing on the M & M Property.

South, and near the indicated main fault, on claims 63342, 63343 and 63345 there is an anomaly which might be worth studying in detail. To the north of the fault on claims 20665, 63331 and 63329 there are small anomalies which should be studied to determine

whether they carry any values in gold or could be caused by disseminated serpentine. Farther to the north and west of the Redstone River, the anomaly on claim 66095 and others to the northwest should be prospected for sulphides.

The large conducting zone centering around claim 70733 in Carman Township may be of importance as the magnetic intensity here is very low and having in mind earlier experience this year in the Porcupine Camp, the possibility exists that this anomaly could be caused by a moderately conducting sulphide mineralization. At the west end of this anomalous area there is a small outcrop of quartz porphyry on the edge of claim 70638 which might be of significance (for gold values).

Just north of claim 70619 over comparatively low magnetic intensity there are indications of a very good conductor (just under the power line). This anomaly is worth a closer study and perhaps some drilling or digging would be justified after it has been acquired or staked.

Guided by the magnetic and electromagnetic results, some shallow exploratory trenching and prospecting should be carried out in order to obtain geological information that would help a more detailed interpretation of the geophysical results.

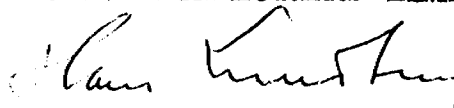
Near the northwest corner of Shaw Township there are some northeast-southwest magnetic trends which may be caused by zones of serpentinized rocks. Generally the strike along the western border of Shaw Township appears to be north-south but no pronounced conductors have been indicated that could be caused by any important sulphide zones.

A general prospecting, exploration and mapping campaign on the various claim groups might reveal geologic information that could help to make a more detailed evaluation of the geophysical data.

As more geologic information becomes available, during the ground studies in the area, it should be possible to revise or add details to our interpretation that would guide future development of the property.

Respectfully submitted,

AIRBORNE EXPLORERS LIMITED



Hans Lundberg, President

Toronto, Canada
July 19
1965

Whitney Twp. (M. 319)

THE TOWNSHIP OF

SHAW

DISTRICT OF COCHRANE

PORCUPINE MINING DIVISION

SCALE: 1-INCH=40 CHAINS

LEGEND

- PATENTED LAND Ⓟ
- CROWN LAND SALE C.S.
- LEASES Ⓛ
- LOCATED LAND Loc.
- LICENSE OF OCCUPATION L.O.
- MINING RIGHTS ONLY M.R.O.
- SURFACE RIGHTS ONLY S.R.O.
- ROADS — — — — —
- IMPROVED ROADS — — — — —
- KING'S HIGHWAYS — — — — —
- RAILWAYS — — — — —
- POWER LINES — — — — —
- MARSH OR MUSKEG — — — — —
- MINES — — — — —
- CANCELLED — — — — —

NOTES

400' Surface Rights Reservations Around All Lakes And Rivers.

UNPATENTED MINING CLAIMS IN THE SUBDIVIDED PORTION OF SHAW TWP. ARE SUBJECT TO SECTION 110 OF THE MINING ACT, Dept. of Mines File: 83.5.

DATE OF ISSUE

NOV 22 1965

ONTARIO DEPT. OF MINES

ONT. DEPT. OF MINES
MINING LANDS BR.
THIS MAP FOR CHECKING
PURPOSES ONLY - MUST
NOT BE SOLD.

PLAN NO.-M.311

DEPARTMENT OF MINES

— ONTARIO —

Deloro Twp. (M. 272)

Carman Twp. (M. 266)

VI

V

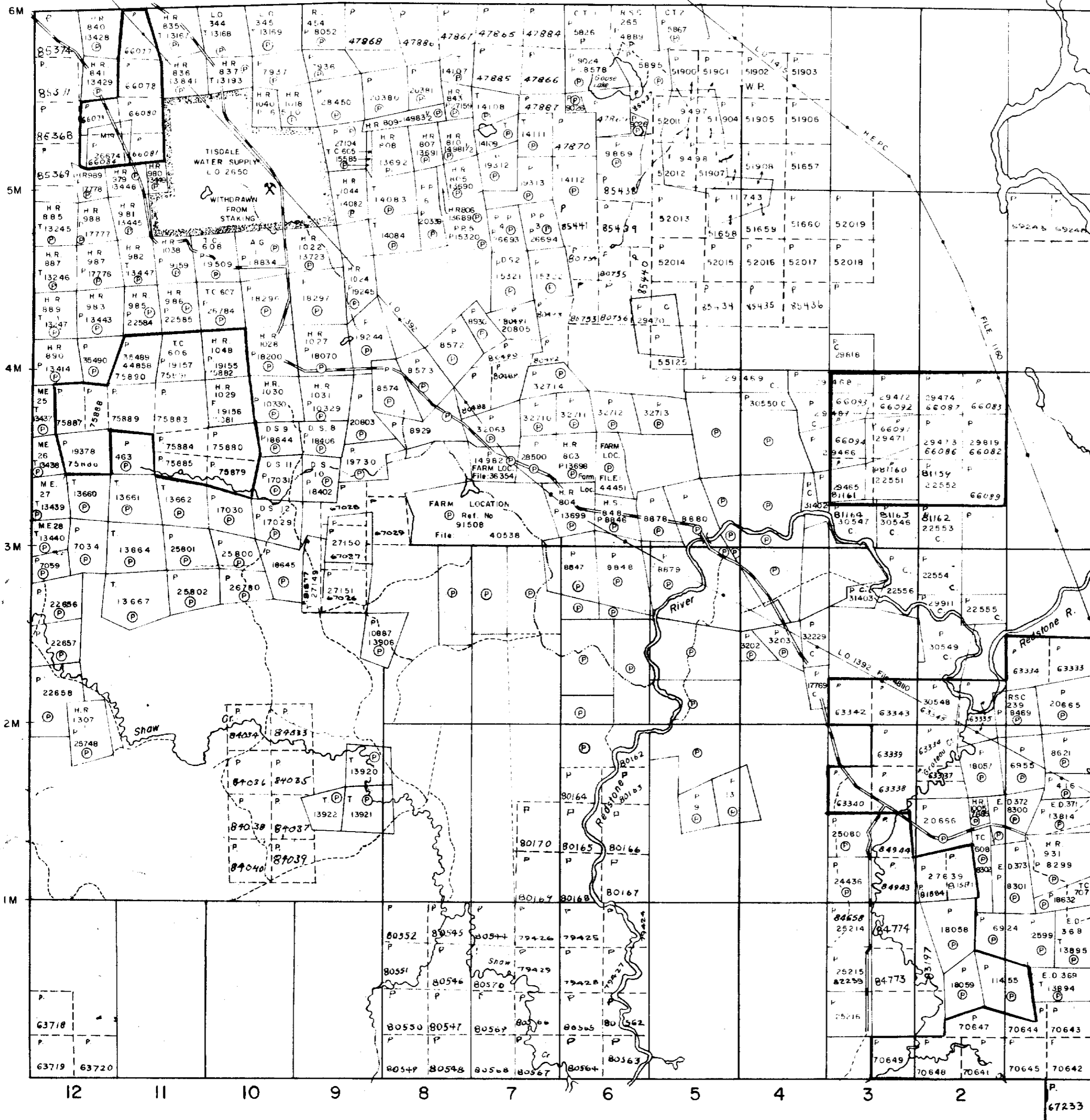
IV

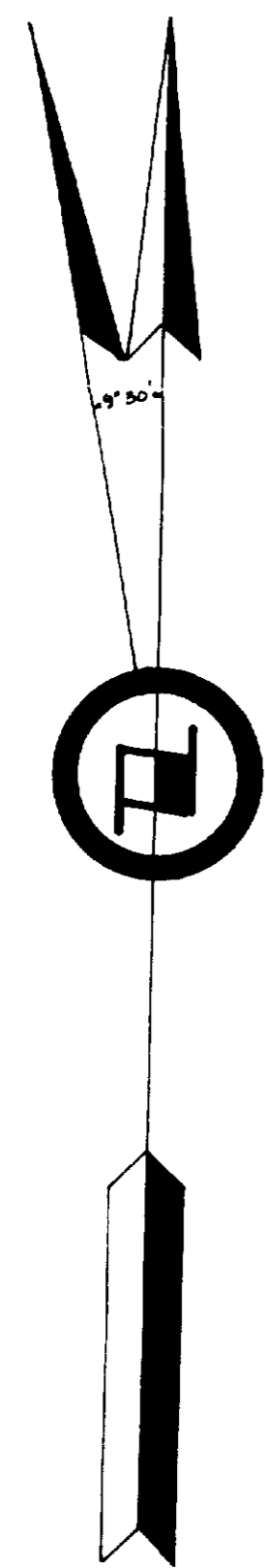
III

II

I

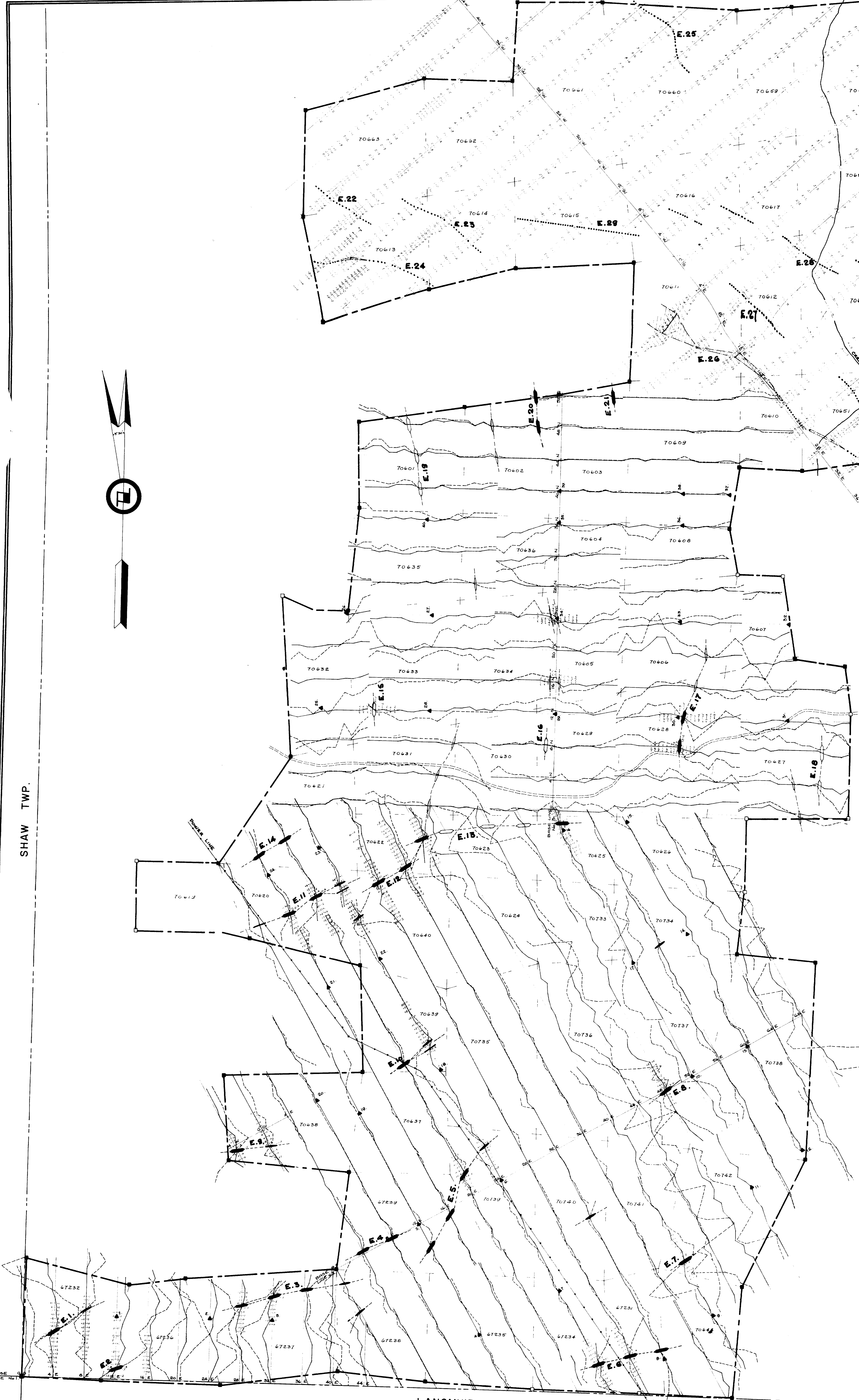
KEY PLAN





SHAW TWP.

LANGMUIR TWP.

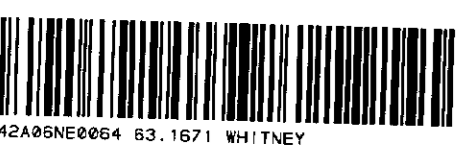


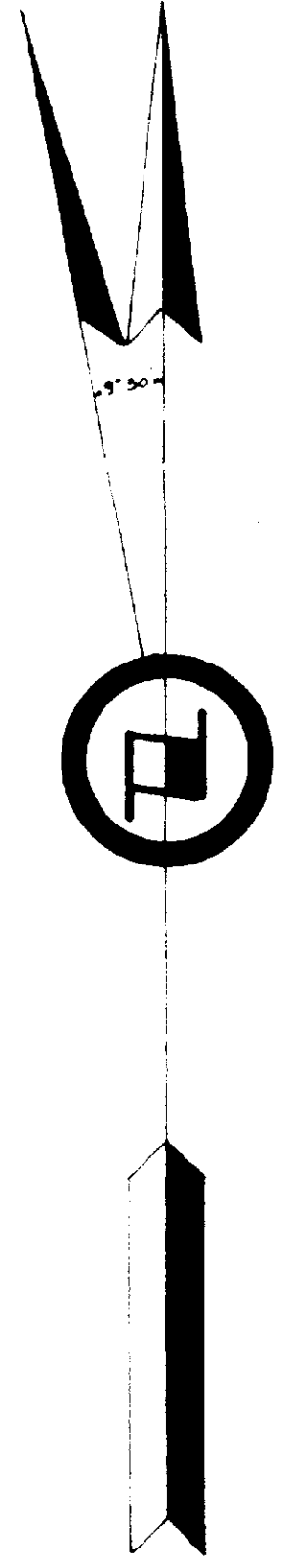
SYMBOLS

- PROFILE OF 1000 CYCLE PER SECOND READINGS OF THE RESULTANT MAGNETIC FIELD IN DEGREES; NORTH INCLINATIONS PLOTTED TO EAST, SOUTH INCLINATIONS PLOTTED TO WEST OF LINE, PROFILE SCALE 1" = 20 DEGREES.
- PROFILE OF 5000 CYCLE PER SECOND READINGS OF THE RESULTANT MAGNETIC FIELD IN DEGREES; NORTH INCLINATIONS PLOTTED TO EAST, SOUTH INCLINATIONS PLOTTED TO WEST OF LINE, PROFILE SCALE 1" = 20 DEGREES.
- AXIS OF COINCIDENT 5000 AND 1000 CYCLE FREQUENCY RESPONSE - DEFINITE
- AXIS OF COINCIDENT 5000 AND 1000 CYCLE FREQUENCY RESPONSE - INDEFINITE.
- AXIS OF 5000 CYCLE FREQUENCY RESPONSE.
- AXIS OF 1000 CYCLE FREQUENCY RESPONSE.
- TRANSMITTER LOCATION.

SYMBOLS

- IN PHASE COMPONENT OF SECONDARY FIELD PLOTTED TO LEFT OF THE LINE.
- OUT OF PHASE COMPONENT OF SECONDARY FIELD PLOTTED TO RIGHT OF THE LINE.
- AXIS OF RONKA E.M. ANOMALY, FAIR TO GOOD CONDUCTIVITY.
- AXIS OF RONKA E.M. ANOMALY, POOR TO FAIR CONDUCTIVITY.
- CLAIM POST LOCATED - ASSUMED.
- PROPERTY BOUNDARY.
- ROAD.



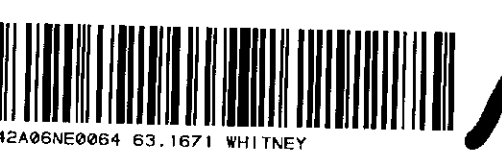


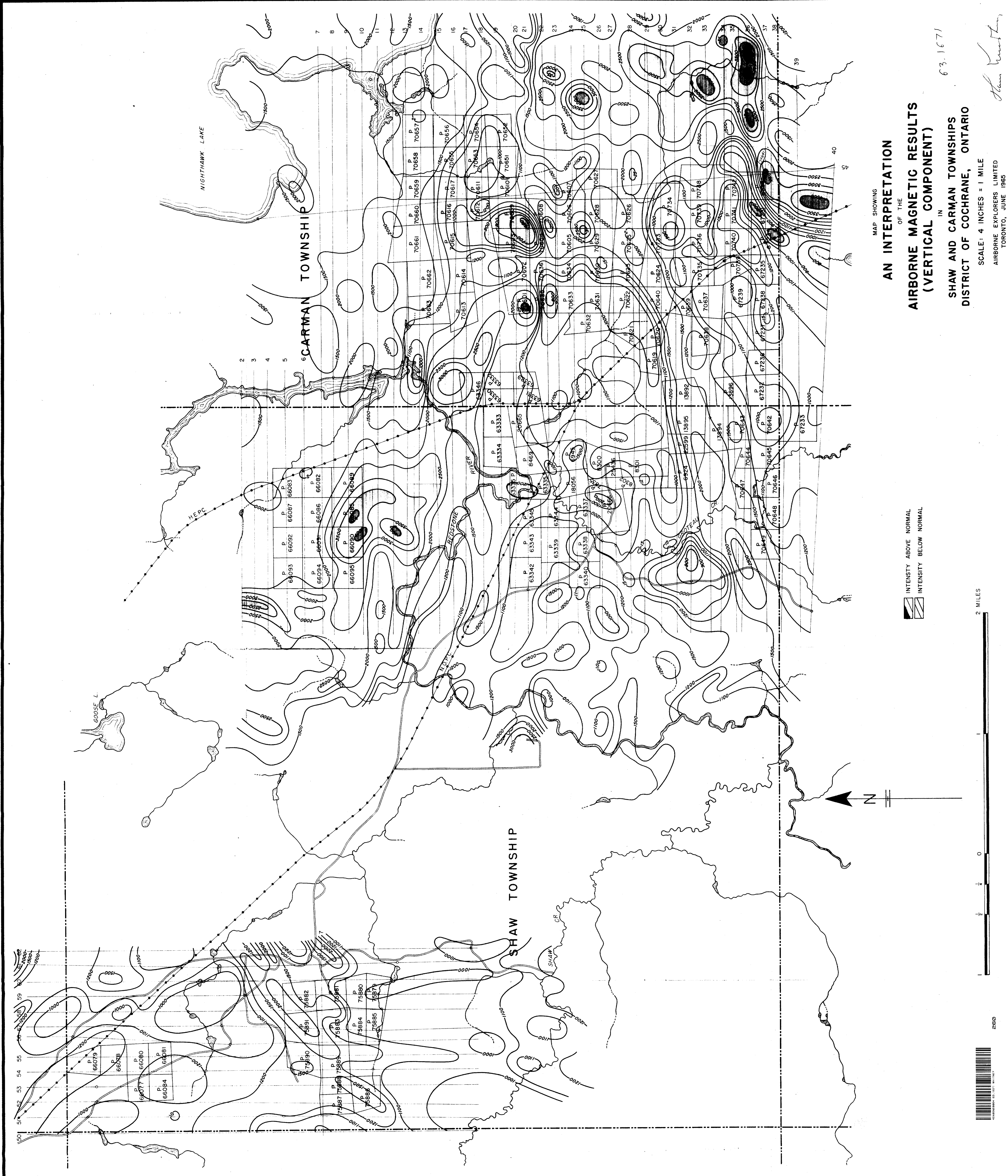
SHAW TWP.

LANGMUIR TWP.

SYMBOLS

- MAGNETIC COMPONENT IN EARTH'S MAGNETIC FIELD IN GAMMAS
- ISOMAGNETIC LINE
- CLAIM POST, LOCATED - ASSUMED
- PROPERTY BOUNDARY
- ROAD





MAP SHOWING
AN INTERPRETATION
 OF THE
AIRBORNE MAGNETIC RESULTS
(VERTICAL COMPONENT)

IN
SHAW AND CARMAN TOWNSHIPS
DISTRICT OF COCHRANE, ONTARIO

SCALE: 4 INCHES = 1 MILE
 AIRBORNE EXPLORERS LIMITED
 TORONTO, JUNE 1965

63.1671



260

2 MILES

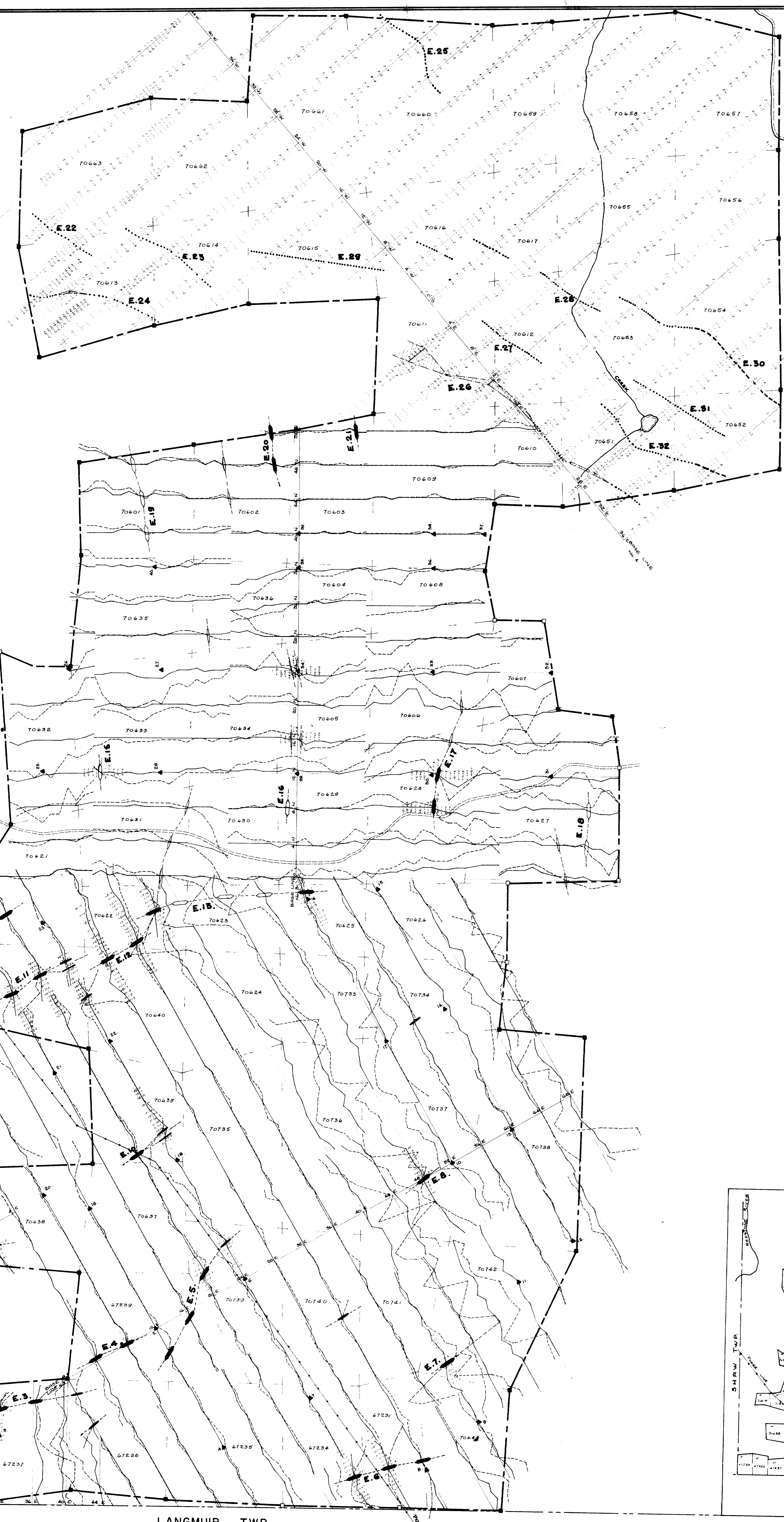


INTENSITY ABOVE NORMAL
 INTENSITY BELOW NORMAL

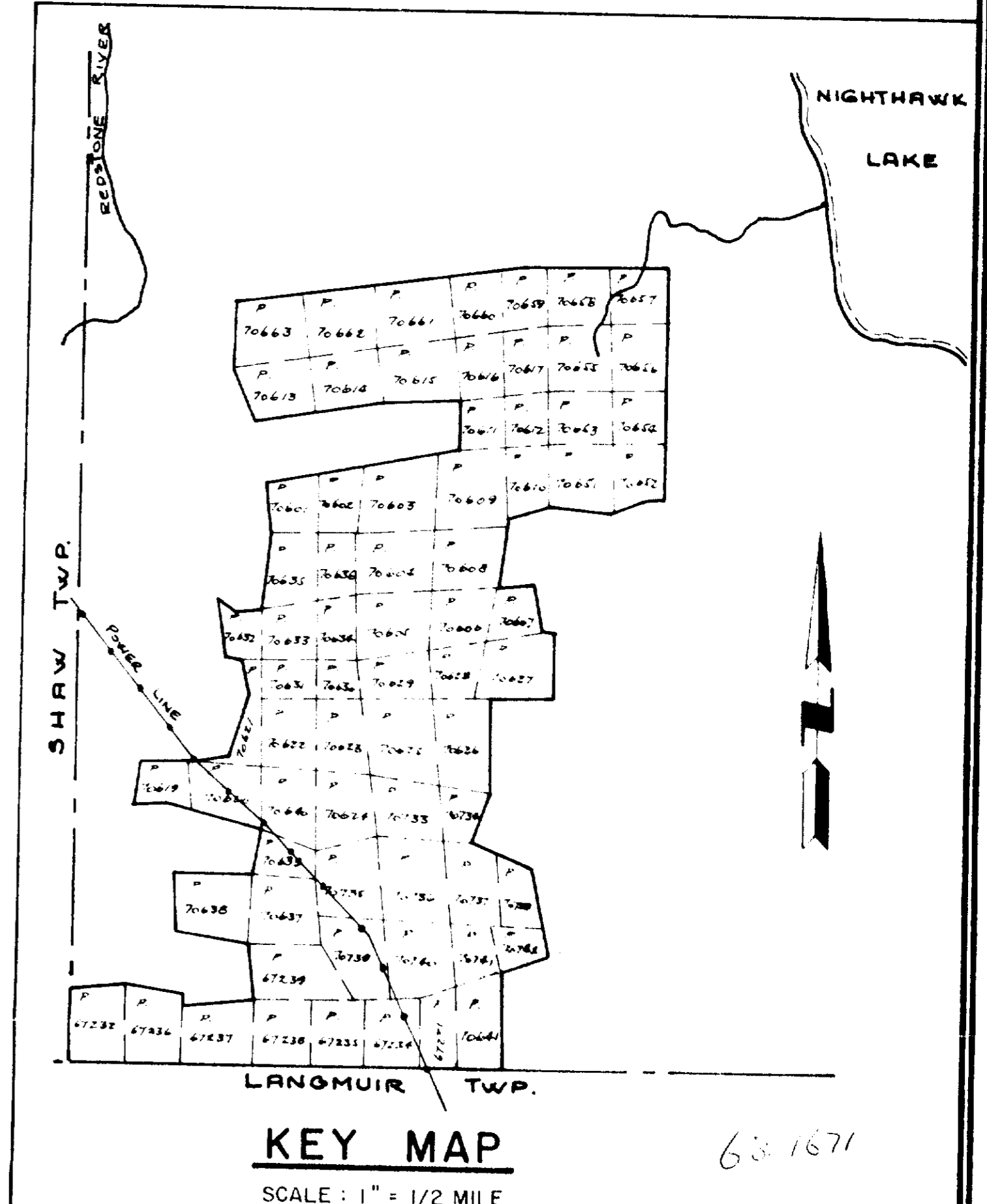


63.1671

Shaw



LANGMUIR TWP.



SYMBOLS

- IN PHASE COMPONENT OF SECONDARY FIELD PLOTTED TO LEFT OF THE LINE.
- OUT OF PHASE COMPONENT OF SECONDARY FIELD PLOTTED TO RIGHT OF THE LINE.
- AXIS OF RONKA E.M. ANOMALY, FAIR TO GOOD CONDUCTIVITY.
- AXIS OF RONKA E.M. ANOMALY, POOR TO FAIR CONDUCTIVITY.
- CLAIM POST LOCATED - ASSUMED.
- PROPERTY BOUNDARY.
- ROAD.

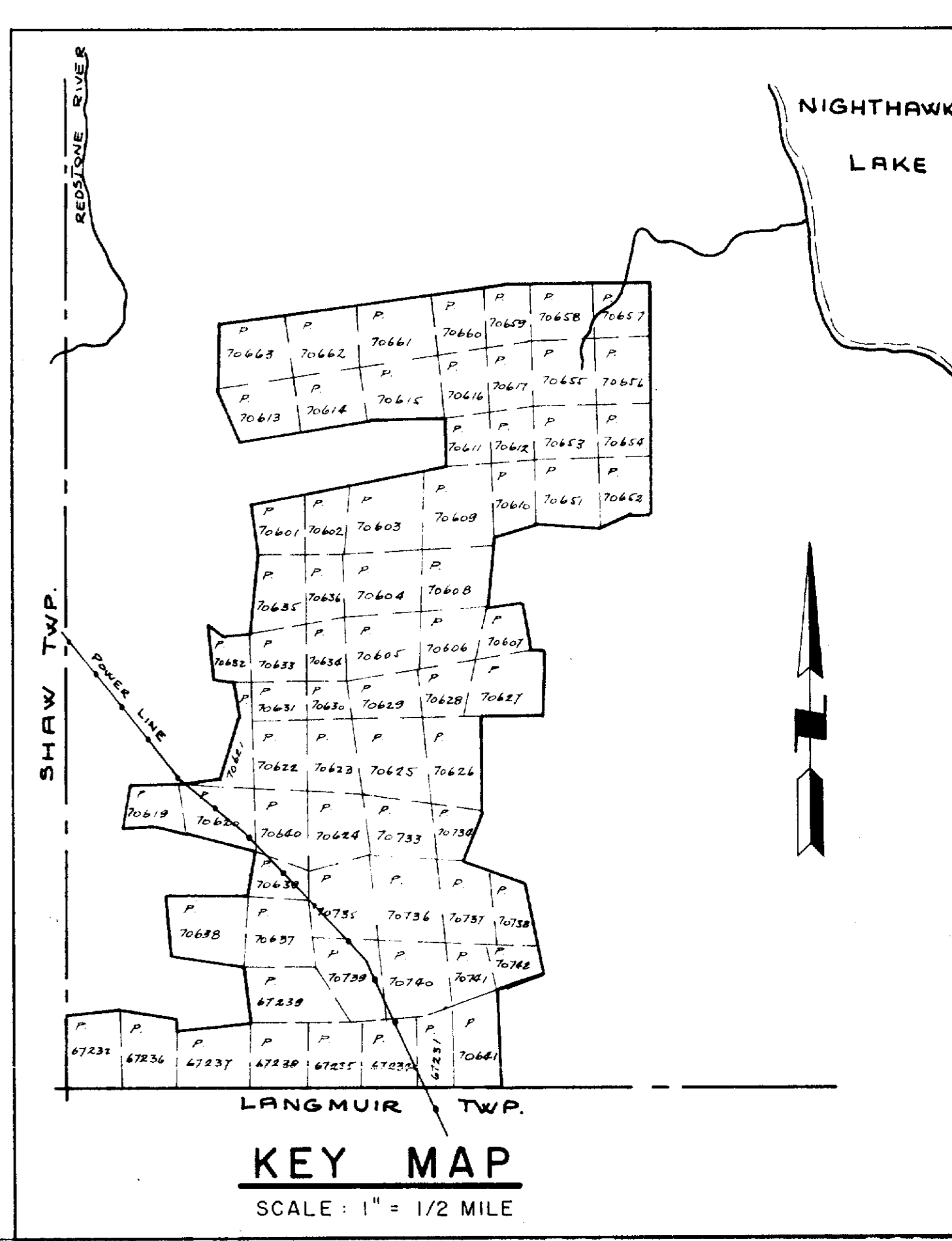
READINGS OF THE INCLINATION OF THE NORTH INCLINATIONS PLOTTED TO EAST, LINE, PROFILE SCALE 1" = 20 DEGREES.
 READINGS OF THE INCLINATION OF THE NORTH INCLINATIONS PLOTTED TO EAST, LINE, PROFILE SCALE 1" = 20 DEGREES.
 CYCLE FREQUENCY RESPONSE - DEFINITE.
 CYCLE FREQUENCY RESPONSE - INDEFINITE.
 POHSE.
 POHSE.

McWATERS GOLD MINES LIMITED
 (M & M PORCUPINE MINES OPTION)
 CARMEN TOWNSHIP, PORCUPINE MINING DIVISION PROVINCE OF ONTARIO

PLAN OF ELECTROMAGNETIC SURVEY

DATE: NOV 9, 1965 SCALE: 1 INCH = 400 FEET DRAWN BY: *[Signature]*

M.E.M. CONSULTANTS LIMITED 63-1671



SYMBOLS
 COMPONENT IN EARTH'S MAGNETIC FIELD IN GAMMAS
 METRIC LINE
 SET, LOCATED - ASSUMED
 BOUNDARY

M. E. M. Consultants Limited

McWATTERS GOLD MINES LIMITED
 (M & M PORCUPINE MINES OPTION)
 CARMEN TOWNSHIP, PORCUPINE MINING DIVISION, PROVINCE OF ONTARIO

PLAN OF MAGNETOMETER SURVEY

DATE NOV 9, 1965	SCALE 1 INCH = 400 FEET	DRAWN BY: <i>W. E. M.</i>
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M.E.M. CONSULTANTS LIMITED 63-1671