



52L07NW0009 63.914 WERNER LAKE

010

S O G E M I N E S D E V E L O P M E N T C O M P A N Y .

Report on the

ELECTRO-MAGNETIC SURVEY

of the

SHEARN GROUP CLAIMS..

Werner Lake Area,

District of Kenora

October 19th 1957.

B. M. Middleton.

INTRODUCTION

The claim group consists of 13 claims numbered as follows;

K.R.L. 36584	K.R.L. 36585
K.R.L. 36586	K.R.L. 36587
K.R.L. 36588	K.R.L. 36589
K.R.L. 36590	K.R.L. 36591
K.R.L. 36592	K.R.L. 36593
K.R.L. 36594	K.R.L. 36595
K.R.L. 36596.	

The above claims are all located in the Werner Lake area in the mining district of Kenora.

LOCATION AND ACCESS. The property lies approximately 50 miles north of the town of Kenora and is accessible by aircraft to Upper Fortune Lake, which adjoins the property on the East boundary. A road is presently being built to Gordon Lake about six miles to the west, to service the copper-nickel deposit held by Eastern Mining and Smelting.

TOPOGRAPHY. The area is more rugged than is usual in the Pre-Cambrian Shield, with elevation differences of up to 200 feet. Marked East-West depressions transect the property with development of cliff faces of up to a height of 30 feet. The ground is well drained and swamps are few. Overburden is thin throughout the group and over the high ground the rocks are almost totally exposed.

REASON FOR ELECTROMAGNETIC SURVEY.

Mineralisation in the Werner Lake nickel belt occurs in two forms; as narrow but continuous replacement bodies of nickeliferous pyrrhotite, and as 20% concentrations of sulphides in peridotites. Both of these type deposits should be detectable by E.M. surveys.

The survey was done to try and locate similar deposits either in the areas of overburden or occurring at shallow depth within the gneisses.

RESULTS OF SURVEY

Results of the survey on the claim block were negative with no strong conductors being indicated.

ELECTRO-MAGNETIC SURV Y.

The instrument used in the survey was the Electro-Magnetic unit made by Sharpes Instruments, Toronto. It is a low frequency unit operating at 1200 cycles per second. A current of 14 amperes is passed from the generator to the transmitter coil. A secondary induced current is then received by the receiver coil which would be zero when the receiver coil is normal to the plane of the transmitting coil. The presence of a conducting body will cause the secondary field to be distorted so that the null point on the receiving coil will be obtained by tilting the coil. The degree of tilting or 'dip angle' is measured in the survey.

Readings were taken up to a distance of 1200 feet from the transmitter to the receiving coil. Readings were taken at 100 feet intervals along picket lines spaced 300 feet apart. There was insufficient encouragement for taking any detail readings at closer intervals. The picket lines were cut on a true bearing of 012° .

A total distance of 13.9 miles of line were surveyed and a total of 704 readings were taken. 16 separate transmitter set-ups were used.

The greatest dip angle measured on the survey was 1° , with the majority of readings being zero or fractions of one degree.

One small 'cross-over' was located. It was located on line 12 West at 400 feet south and also at the 400 south pickets on lines 9 West and 6 West. The dip angles varied from 1° North to $.7^{\circ}$ South. This cross-over is located in a very marked depression with steep cliff faces on either side. The anomaly may be due to a fault zone in the depression, or just to the topographic effect and variation in the water table.

The remainder of the small dip angles may be due to minor errors in orientation of the transmitter coil or slight variations from the vertical plane of the coil.

No diamond drilling or further work on the claims can be recommended as a result of the E.M. survey.

Submitted by,





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020

S O G G I N E D E V E L O P M E N T C O M P A N Y L T D .

R E P O R T O N T H E

M A G N E T O M E T E R S U R V E Y O F T H E S H E A R N G R O U P C L A I M S .

W E R N E R L A K E A R E A

D I S T R I C T O F K E N O R A

O C T O B E R 1 0 t h 1 9 5 7

M . E . P E N S T O N E .

INTRODUCTION

The claim group consists of 13 claims numbered KRL 36584 to KRL 36596 inclusive, located in the Werner Lake Area in the district of Kenora. The property lies approximately 50 miles north of the town of Kenora and is accessible by aircraft to Upper Fortune Lake which lies on the East boundary of the claim block. A road is presently being built to Gordon Lake about six miles to the west to service the copper-nickel deposit held by Eastern Mining and Smelting.

REASON FOR MAGNETOMETER SURVEY.

A magnetometer survey was done on the property to try and locate either concentrations of pyrrhotite or bodies of peridotite similar to those at Gordon Lake.

The instrument used was a Sharpe D2 vertical variometer having a scale factor of 20.2 gammas per scale division.

A baseline was established across the property with a true bearing of 162° . Lines were out at right angles to this baseline at intervals of 300 feet and these lines were picketed every 100 feet. The total mileage of line out was 13.9 miles.

Basestations for the magnetometer were established along this baseline and these were tied into another station by the camp site at Fortune Lake. A total of 779 readings were taken excluding the regular check readings taken at the base stations. Readings were normally taken at intervals of 100 feet except where anomalous values were found where detailed readings were taken at 50 foot intervals.

TOPOGRAPHY.

The area is more rugged than is usual in the Pre-Cambrian shield with elevation differences on the property of up to 200 feet.

marked East-West depressions transect the property with frequent development of cliff faces up to 30 feet high. The ground is well drained and very few swamps occur. Overburden is thin throughout the group and over the high ground the rocks are almost totally exposed.

GEOLOGY

The consolidated rocks of the area are all Pre-Cambrian in age. The main rock types consist of a sedimentary series with occasional associated volcanics, all highly metamorphosed, and an intrusive series ranging from granite to diorite with much associated pegmatite. Much assimilation of the paragneisses by the granite has occurred and contacts in the area are largely transitional. Locally around Werner and Rex lakes small bodies of peridotite are found which are lenticular in shape with lengths of a few hundred feet and widths of up to 100 feet.

The strike of the sediments in the region is East-West and this is also the strike direction of the main breaks in the area. Topographic lineaments show to the North with North-South and north-easterly directions.

MAGNETOMETER SURVEY.

Variations in magnetic intensity on the property varied from a peak high of 7138 gammas to a low of -2487 gammas. Both these values however are isolated peaks. The majority of readings fell between a low range of 300 gammas to a high of 1400 .

Broadly speaking, the central part of the claims are magnetically flat and this coincides with the area that is covered by a thin mantle of overburden. On the high well exposed ground to the north and also the southern claims the magnetics are highly disturbed and erratic. There is no marked zone of high

or low magnetic intensity but values rise and fall by many hundreds of gammas abruptly in a few hundred feet. These values show little correlation from one line to the next.

INTERPRETATION.

Two salient points arise in interpreting the magnetics. The first of these is that in the area that has a slight covering of overburden, the values are lower and less disturbed than in the areas that are fully exposed. The second feature is that the anomalies are all spotty and have little lateral extent.

Both these points suggest that the variation in values are due to very local and shallow concentrations of magnetite. This is borne out by field observation where small pockets of magnetite, up to an inch in diameter were seen in the granite. The occurrence of this magnetite appears to be quite erratic. In the gneisses, some bands show a reddish hematitic form of stain and on crushing this rock appreciable magnetite can be extracted by a pocket magnet. These bands of gneiss pinch out rapidly along strike.

Results of magnetometer surveys on other properties in the area have also shown similar erratic results. It is thought that the random distribution of magnetite in the granite and the narrow bands of gneiss account for the variations in magnetic values on the property, and that none of the anomalous values can be attributed to either appreciable concentrations of pyrrhotite or to bodies of ~~pyrrhotite~~ occurring just below the surface.

Submitted by,



Sogemines Development Company.



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030

S O G E M I N E S D E V E L O P M E N T C O M P A N Y

Report on the

SELF POTENTIAL SURVEY

on the

SHEARN GROUP CLAIMS

Werner Lake Area

Kenora Mining Division.

29 October 1957.

M.E. Penstone.

INTRODUCTION.

The claim group consists of 13 claims numbered as follows:-

K.R.L.36584	K.R.L.36585
K.R.L.36586	K.R.L.36587
K.R.L.36588	K.R.L.36589
K.R.L.36590	K.R.L.36591
K.R.L.36592	K.R.L.36593
K.R.L.36594	K.R.L.36595
K.R.L.36596.	

The above claims are all located in the Werner Lake Area in the mining district of Kenora.

LOCATION AND ACCESS. The property lies approximately 50 miles north of the town of Kenora and is accessible by aircraft to Upper Fortune Lake, which adjoins the property on the East boundary. A road is presently being built to Gordon Lake about six miles to the West, to service the copper-nickel property held by Eastern Mining and Smelting.

Topography The area is more rugged than is usual in the Pre-Cambrian Shield, with elevation differences of up to 200 feet. Marked East-West depressions transect the property with the development of near vertical cliff faces up to 30 feet high. The ground is well drained and swamps are few. Overburden is thin throughout the group and over the high ground the rocks are almost totally exposed.

REASON FOR SELF POTENTIAL SURVEY.

Concentrations of sulphide minerals, magnetite and graphite when in an oxidising environment, give rise to small earth currents which at the surface show as centres of negative potential. The survey was done to try and locate and trace any such centres that might be on the property.

RESULTS OF SURVEY.

An anomalous zone of high negative potential was located on the claims adjoining the property to the East. This zone strikes at 290° and just swings to the north of this claim group. No other anomalous areas were located.

SELF POTENTIAL SURVEY.

The instrument used was the Self potential unit of Geophysical Engineering and Surveys at North Bay. The instrument is basically a potentiometer which will read potential differences of from 1 millivolt to 1400 millivolts. Contact was made with the ground by using two non-polarising electrodes, consisting of two porous pots containing saturated copper sulphate solution.

The survey was confined to the areas of lower ground which consist of the central claims of the block.

A total of 6.1 miles of line were surveyed and a total of 322 readings were taken. The readings were taken at 100 feet intervals. There were no anomalies found that required detailing at closer intervals.

Readings were tied into an arbitrary zero point located on adjoining claims to the East, also under option to this company. Values obtained in the survey ranged from +9 millivolts to -105 millivolts. The latter occurred close to a very small showing with low disseminated sulphides and limonite staining. The low readings did not extend on the lines to the East and West and was just a single reading anomaly. It is located at Line 6 East, 26+00 N. This anomaly only really represents a low of 50 millivolts as the general background value for the survey was about -50 millivolts.

On the claims to the East a long anomaly was located trending at approximately 100° . This anomaly should cut the Northeast corner of the Shearn group claims. However this area is one of almost continuous outcrop and the survey was not extended over this part of the claims as readings become erratic over areas of barren rock due to poor contact being obtained between the ground and the pots.

No further work can be recommended as a result of the Self Potential Survey.

Submitted by.


M.E. Penstone.



52L07NW0009 63.914 WERNER LAKE

040

REPORT ON THE
GEOLOGY OF THE SHEARN GROUP CLAIMS
WERNER LAKE AREA DISTRICT OF KENORA
OCTOBER 18th 1957. M. E. PENSTONE.

INTRODUCTION

The claim group consists of 13 claims numbered KRL 36584 to KRL 36596 , located in the Werner Lake area , in the district of Kenora. The property lies approximately 50 miles north of the town of Kenora and is accessible by aircraft to Upper Fortune Lake which lies on the East boundary of the Claim Block. A road is presently being built to Gordon Lake about six miles to the west to service the Copper Nickel deposit held by Eastern Mining and Smelting .

TOPOGRAPHY.

The area is more rugged than is usual in the Pre-Cambrian shield , with elevation differences occurring on the property of up to 200 feet. Marked East-West striking depressions transect the group with frequent development of vertical cliff faces up to 40 feet high. There are also two well defined North-South linears present.

The ground is well drained and swamps are rare. On the high ground the rocks are practically free of any overburden. Glacial action in the area appears to have had limited effect on the topography. The lineaments do not conform to the regional glacial direction. Glacial drift deposits are scant over the majority of the ground and in the depressions , overburden does not appear to be very thick.

The ground is sparsely timbered with spruce and pine and occasional birch.

WORK DONE

A baseline was established across the property at a true bearing of 112° , and then lines were out at 300 foot intervals. These lines were used for tying in the outcrops and then geochemical sampling to bedrock was done at 100 foot stations with

GEOLOGY.

GENERAL.

The area was first mapped in 1929 by D.R.Derry for the Ontario Department of mines. The mapping was of the reconnaissance type following the main waterways and with only limited traversing through the bush.

The consolidated rocks of the area are all Pre-Cambrian in age. The main rock types consist of a sedimentary series with occasional associated volcanics which have all been highly metamorphosed, and an intrusive series ranging from diorite to granite with much associated pegmatite. The intrusive bodies are of great extent. Locally around Werner and Rex Lakes small lenses of peridotite occur often with sulphide mineralisation

TABLE OF FORMATIONS. (after D.R.Derry.)

<u>Quaternary</u>	Recent.	Peat, Lake deposits of clay and sand.
	Pleistocene.	Glacial boulder clay.
<u>Pre-Cambrian.</u>	Algonian	Pegmatite and Aplite. White Binary granite Porphyritic biotite granite. Grey granodiorite and Oligoclase granite. Diorite.
	Keewatin.	Peridotite ? Sedimentary Gneiss, Quartz Biotite schists. Garnet Hornblende Schists, Basic Schists.

DESCRIPTION OF FORMATIONS.

ALGONIAN

On the claim group the Algonian is represented by a pink granite and a small body of diorite. The granite is usually equigranular and consists of quartz, Orthoclase, Hornblende and minor

biotite. In some areas the mafic mineral content decreases until the rock is almost an Alaskite. Biotite or hornblende clots occur frequently and are partly assimilated xenoliths of the sediments. Near the contacts the gneissic inclusions become very abundant, and the contact zone is not sharp but transitional. The contact is taken as being where original gneissic structures are visible and can be traced along the strike.

Granite underlies the southernmost four claims of the block. Another belt of granite occurs in the centre of the group between zones of paragneiss, and this belt includes the small mass of diorite. This rock consists of coarse hornblende set in a host of coarse white plagioclase in the centre of the body and at the margins it becomes finer grained and the hornblende shows a strong gneissic structure.

KEEWATIN.

Peridotites. These rocks have been grouped with the Keewatin although insufficient is known about them to assign them definitely to any period. In form the bodies are lenticular in shape with lengths up to several hundred feet and widths of up to 100 feet. They appear to occur as very altered fine grained rocks with the degree of alteration varying with grain size. Generally the finer the texture, the higher the metamorphism. Thin section studies have shown some specimens to have a high hypersthene content. The writer considers it possible that these rocks may not be intrusive in origin, but might be products of the regional metamorphism.

Sedimentary Gneisses. The sedimentary rocks were placed by Derry in the Keewatin as they comprise the oldest rocks in the area and are also lithologically similar to those of the series occurring at the town of Keewatin, 50 miles to the South.

Three main types of gneiss are present; namely a Biotite hornblende gneiss, which is dark and fine to medium grained

a garnet hornblende gneiss which is medium to coarse grained, and a siliceous garnet gneiss. Considerable lit par lit injection has occurred in these rocks and also they are frequently riddled by irregular dykes of granitic and pegmatitic material. In some parts the injected material may constitute more than 50% of the rock, but where the original gneissic or sedimentary features are still recognisable, the rocks are still classed as paragneiss. Two bands of Paragneiss cross the property and are separated by a belt of granite 1000 feet wide. The rocks have a well developed gneissosity varying from 080° to 110° and with a vertical or slight northerly dip.

M STRUCTURE

The regional and local strike of the metasediments is East-West. Folding is present only on a small scale and can be regarded as more a local contortion than as a structural feature.

No faults or breaks are exposed on the ground although suspected loci of such breaks are the two drift covered areas. The regional fault direction is East-West.

MINERALISATION.

General. The claims are located in the same belt of paragneisses that are hosts to the small but high grade copper-nickel deposits of Norpax Mines and Oils, and of Eastern Mining and Smelting, and also of the cobalt property worked by Ventures in the last war. At the two first named deposits, mineralisation occurs in two forms, namely as replacements of a narrow pegmatite zone by nickeliferous pyrrhotite and chalcopyrite, or as replacements of peridotites by the same minerals. A common break is said to link all three deposits, and it is considered likely that this same break continues eastwards into Upper Fortune Lake.

Only one showing of chalcopyrite occurs on this group and is located at about 150 feet west of 30+00 N picket on Line 3 East. This consists of a limonite stained zone 65 feet long and up to 10 feet in width. In the centre of the zone is a 5 inch band of massive chalcopyrite. The showing is totally exposed on all sides, and occurs at the contact of a narrow sill of granite and a garnet paragneiss horizon. The zone conforms to the gneissosity which is vertical and strikes at 100° .

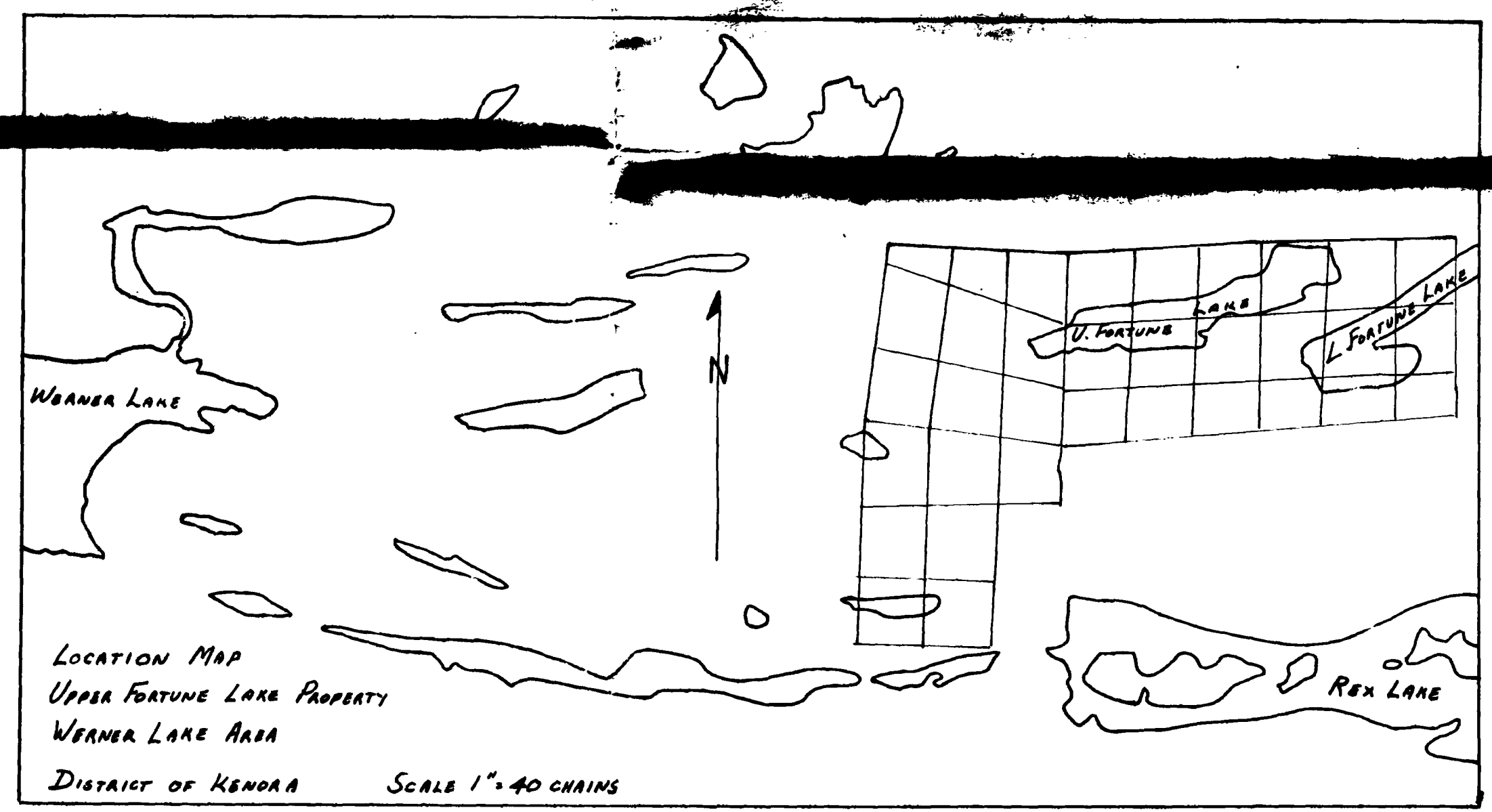
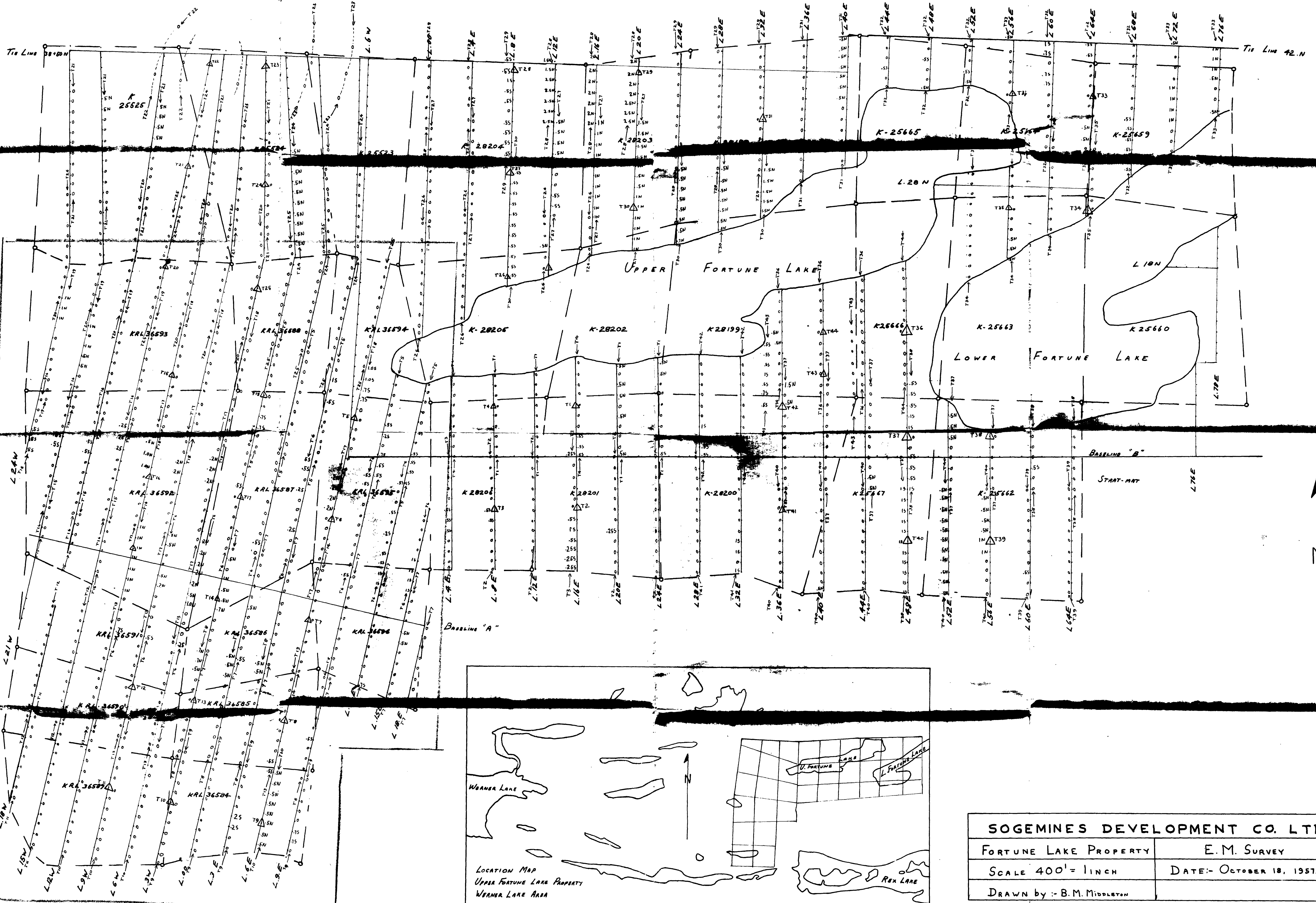
Several other bands of gneiss show staining over widths of up to 2 feet, due to very minor quantities of disseminated sulphides and magnetite.

GEOCHEMICAL SURVEY.

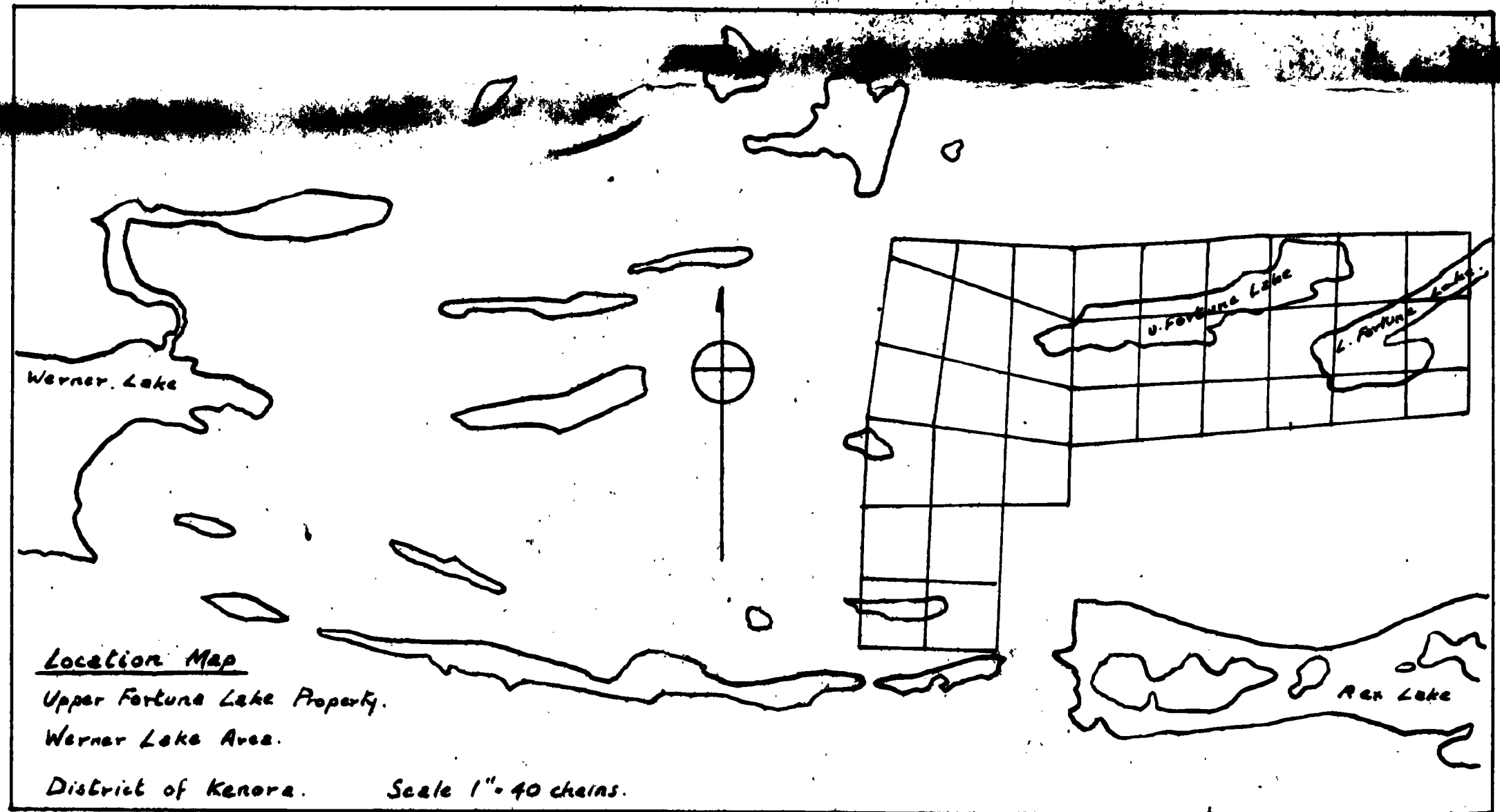
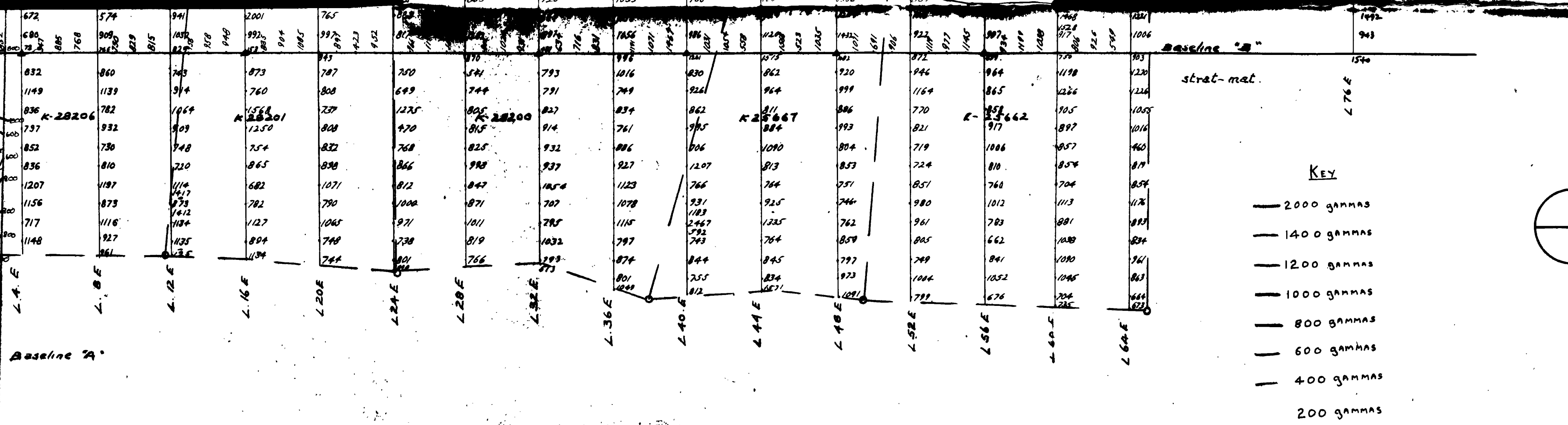
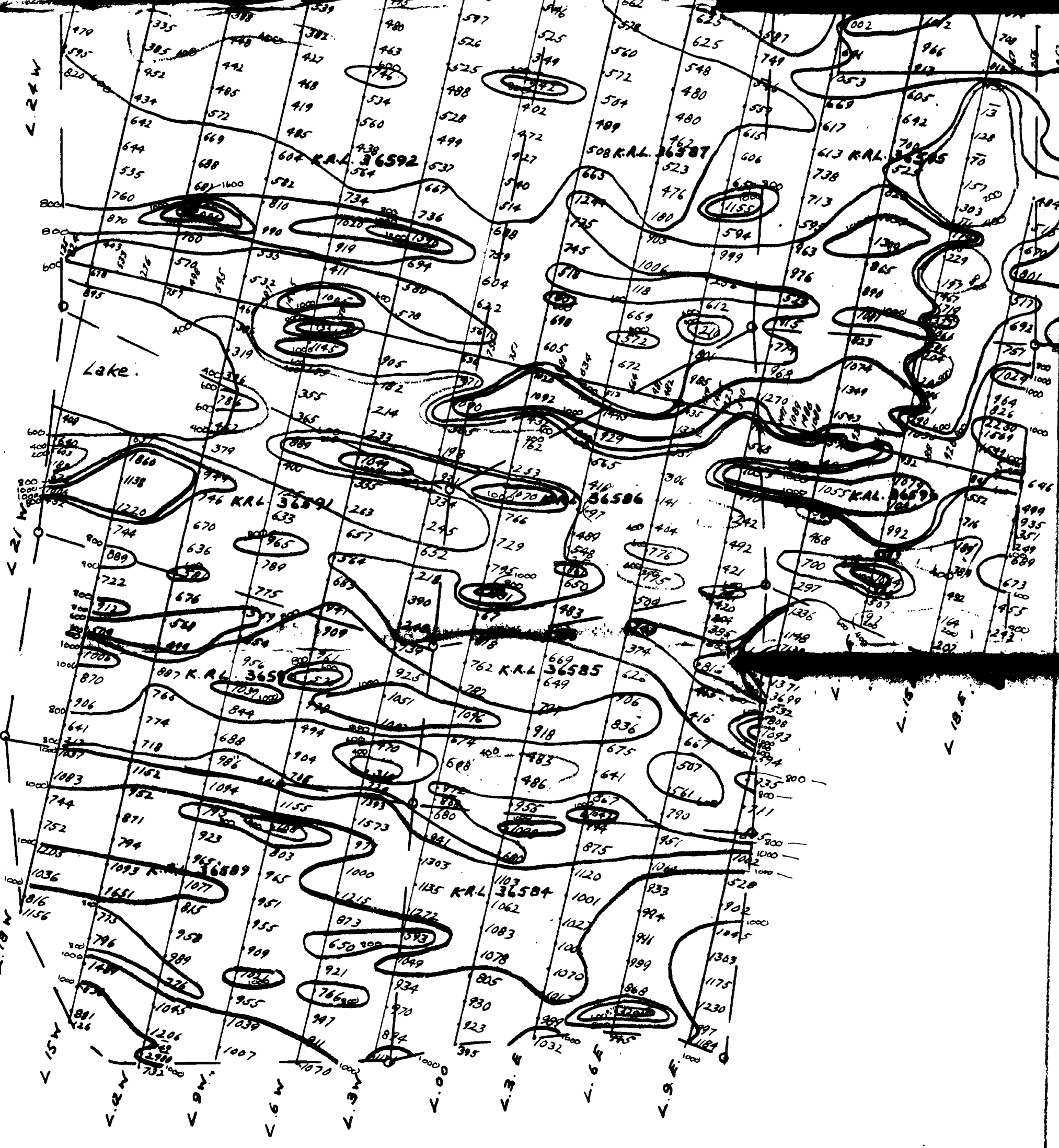
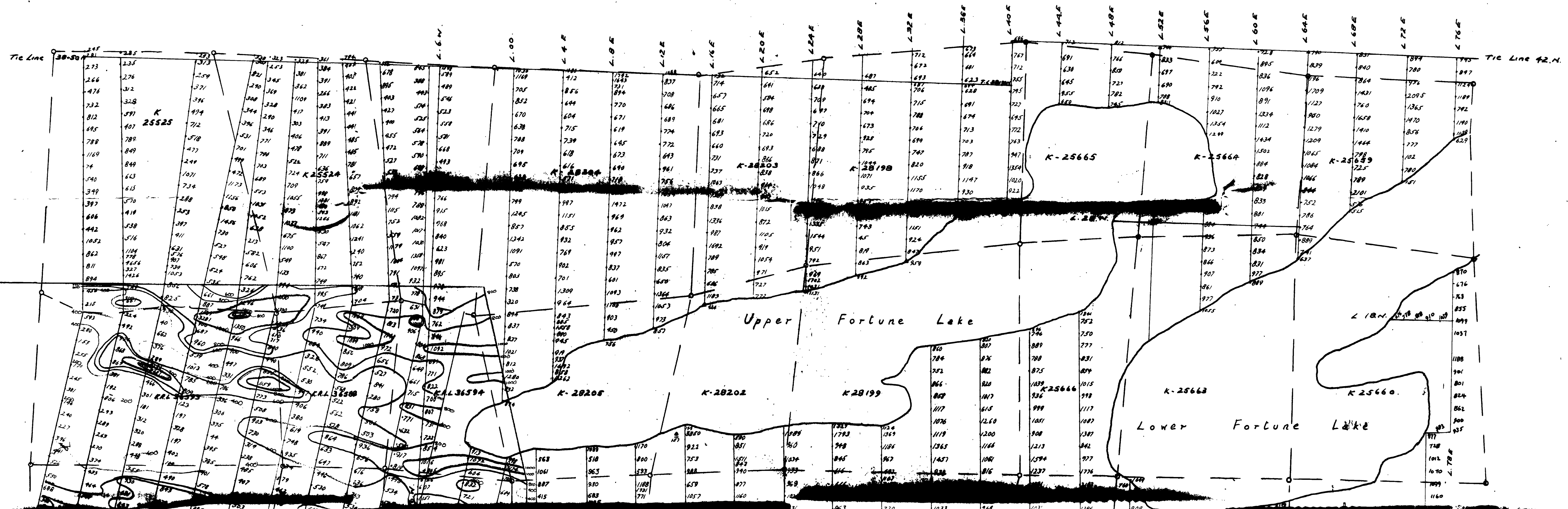
Geochemical sampling was done over the entire group along picket lines at 100 feet intervals, with sampling at 50 feet intervals in the main depressions. All samples were taken at bedrock depth as well as this could be determined. The deepest samples were from the depressions where the overburden was up to 20 feet in thickness. Samples were analysed in the field with check samples being sent to McGill University for comparison with the field results. Results of the comparison were very encouraging. No anomalous area was located and only one sample gave a positive reading. The field analytical method was a colorimetric test for heavy metals by placing the sample in a test tube and adding 5ccs of a buffer solution. To this was added a dilute solution of nitrozone in Xylene which remained green in the absence of heavy metals but will turn pink if traces of Copper or Zinc are present. The buffer solution eliminates interference by iron in the test.

Submitted by,



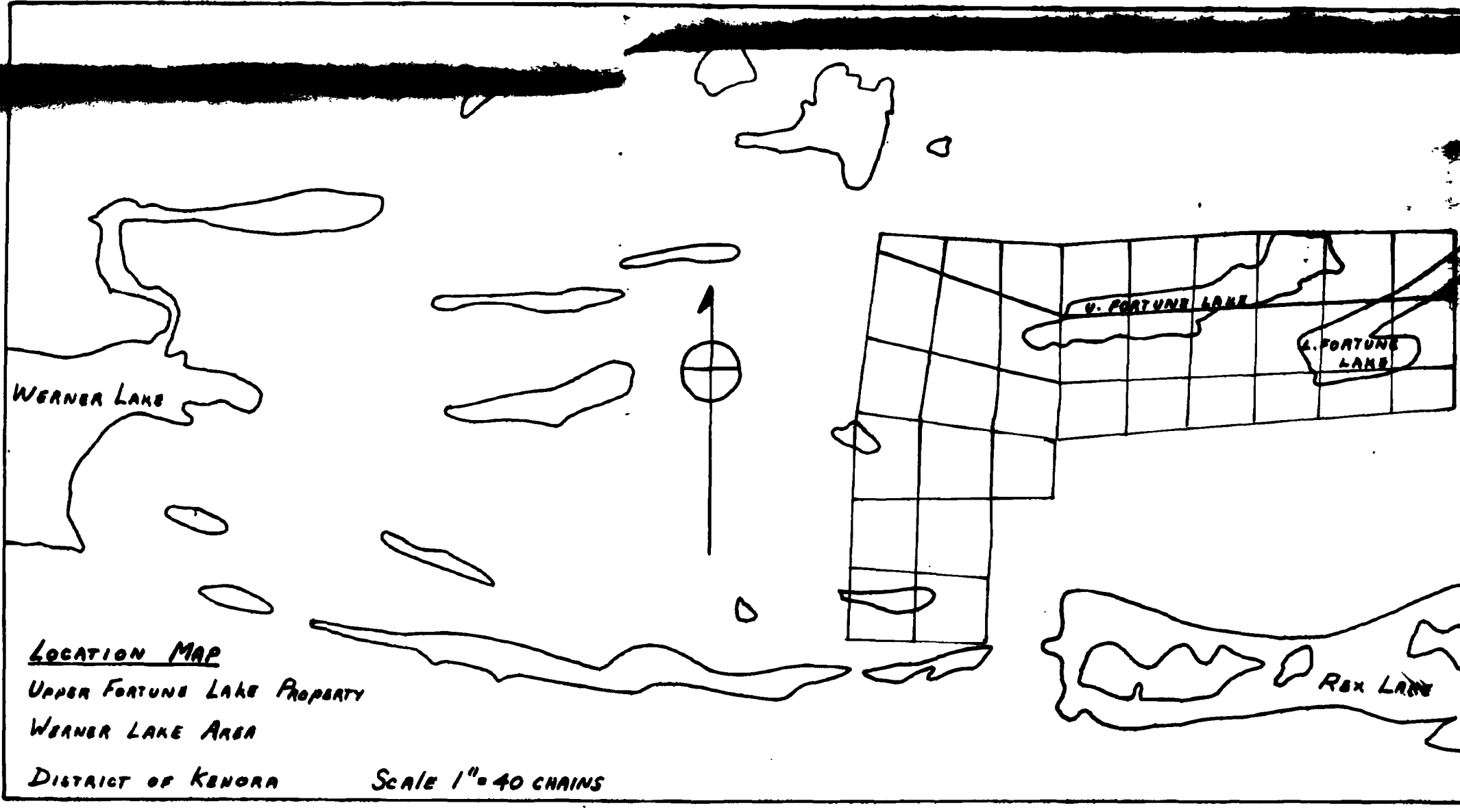
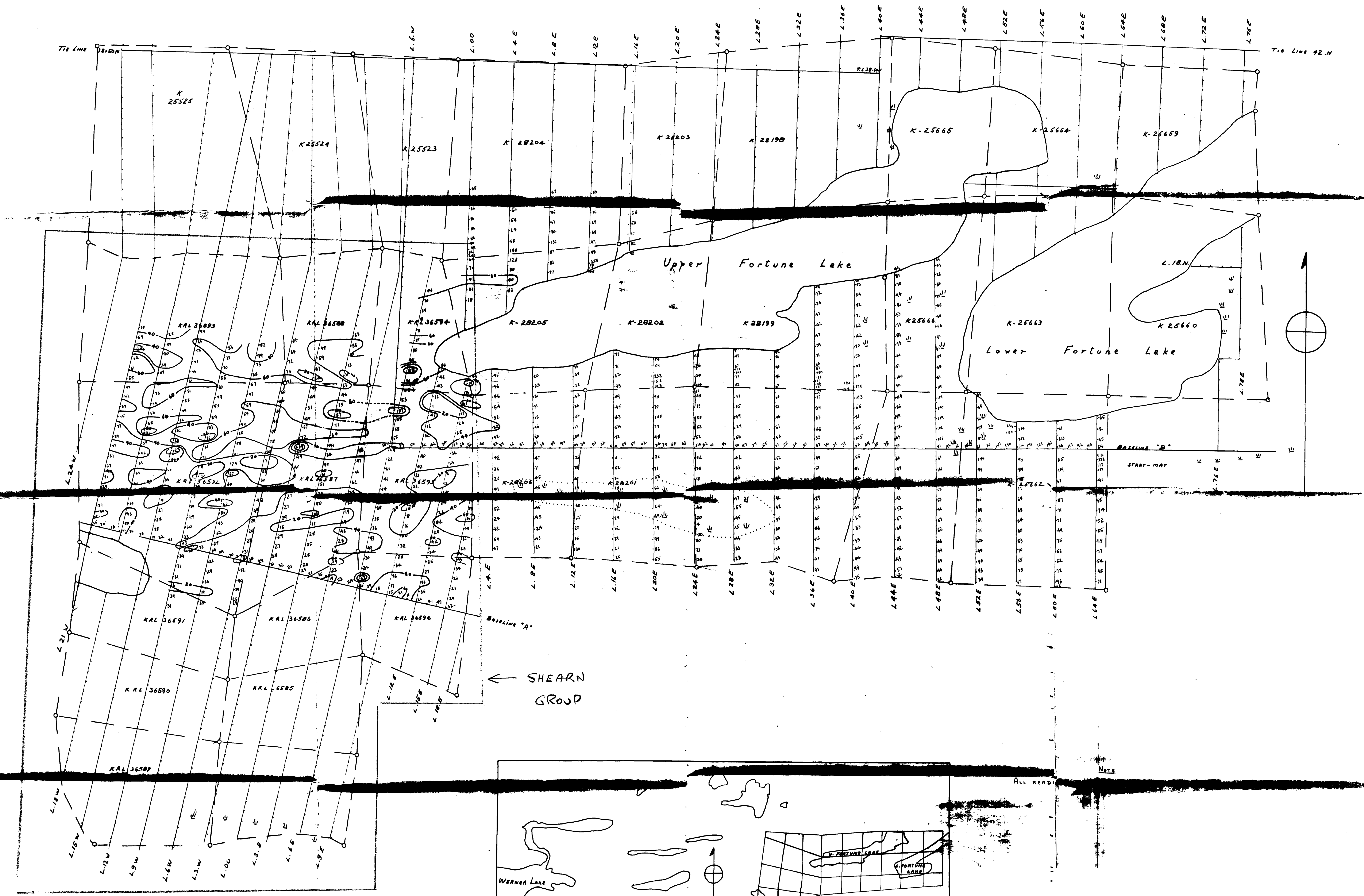


SOGEMINES DEVELOPMENT CO. LTD.	
FORTUNE LAKE PROPERTY	E. M. SURVEY
SCALE 400' = 1 INCH	DATE:- OCTOBER 18, 1957.
DRAWN by :- B.M. MIDDLETON	

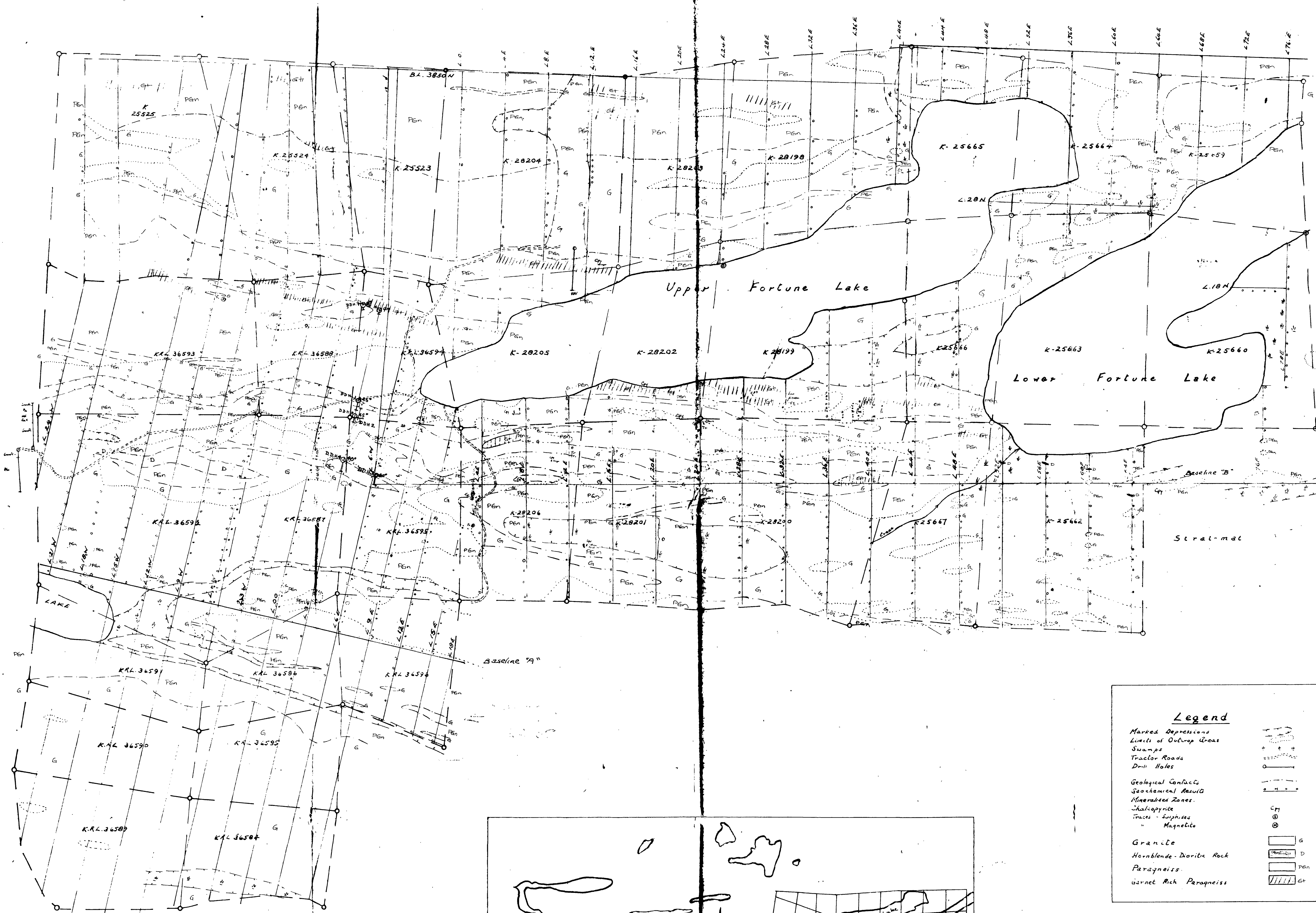


NOTE
 Instrument: Sharpe D-2 Vertical Variometer
 Scale Factor 20.2
 Operator: J. Merrill.

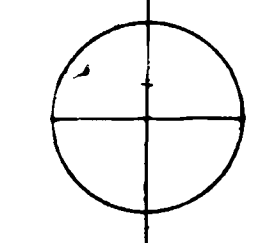
SO GEMINES DEVELOPMENT CO. LTD.	
Fortune Lake Property	Magnetic Survey
Scale 400' = 1 inch	Date 12. 9. 57
Drawn by: H. [unclear] & H.L.T.	



SOGEMINES DEVELOPMENT CO. LTD.	
FORTUNE LAKE PROPERTY	S. POTENTIAL SURVEY
SCALE: 400' = 1 inch	DATE: OCT. 28, 1957
DRAWN by: M. PENSTONE	

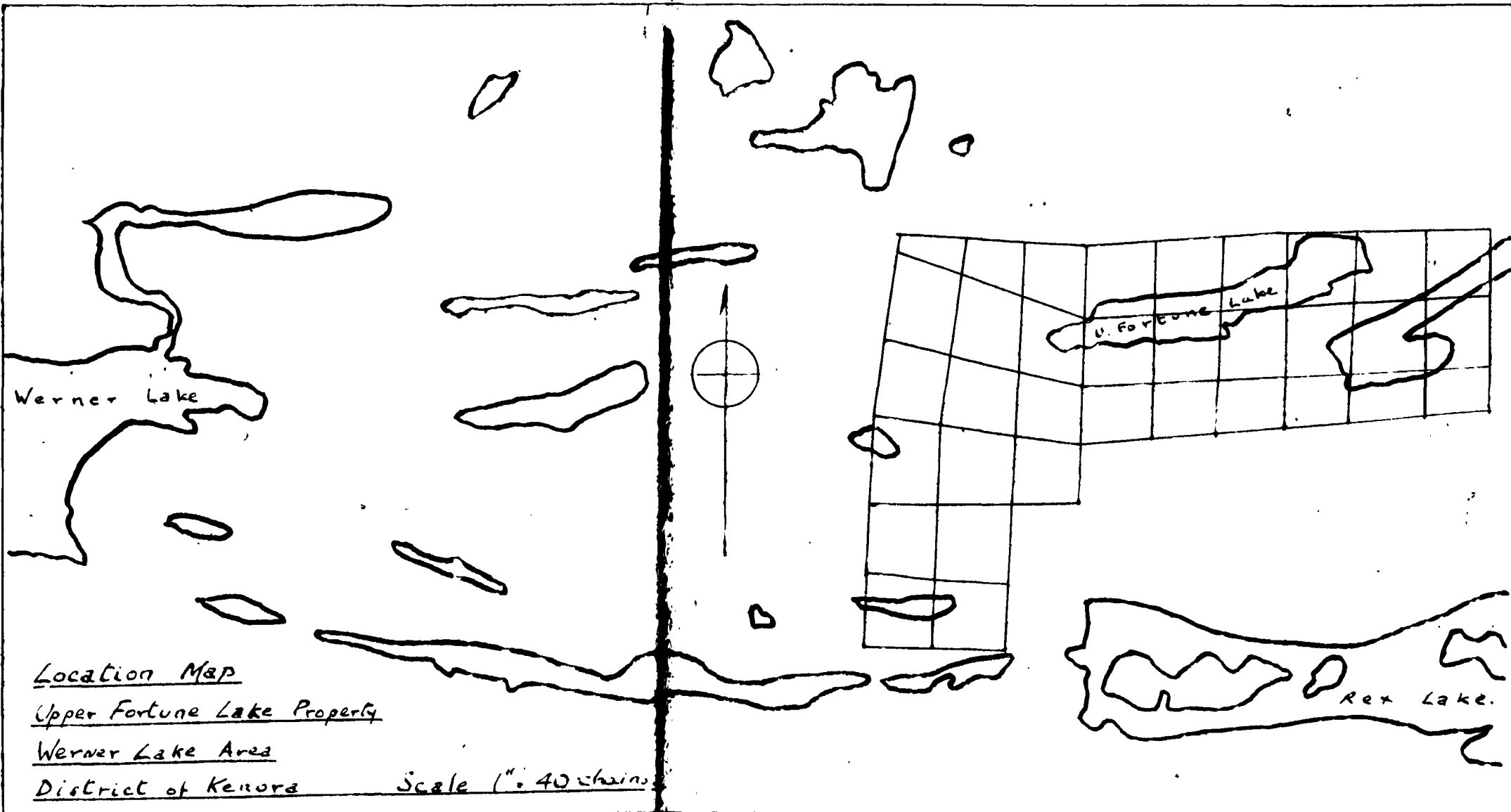


Tie Line 42.N



Legend

Marked Depressions	
Limits of Outcrop Areas	
Swamps	
Tractor Roads	
Drill Holes	
Geological Contacts	
Geochemical Results	
Mineralized Zones	
Chalcopyrite	
Traces - Sphurides	
Magnetite	
Granite	
Hornblende-Dioritic Rock	
Paragneiss	
garnet Rich Paragneiss	



SOGEMINES DEVELOPMENT CO. LTD.	
Fortune Lake Property	Geological Survey
Scale 400' = 1 inch	Date 12.9.57.
Drawn by: H. B. ...	Geology by: H. B. ...

