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Report on Geological and Geophysical Surveys

KIRKLAND MINERALS CORPORATION LIMITED

PROPERTY

The property of Kirkland Minerals Corporation Limited consists of twelve contiguous unsurveyed and unpatented mining claims numbered S-90662 to S-90673 inclusive.

LOCATION

The property straddles the east-west township line between Cunningham and Blamey townships, Sudbury Mining Division, Ontario.

PHYSIOGRAPHY and TOPOGRAPHY

The area was burned over some 50 years ago and since that time has become covered with a good second growth. For the most part, the area is covered with poplar, birch, spruce and minor jackpine.

Relief on the property is gentle with numerous low, steep rising hills. A small lake lies within the east central section of the property.

ACCESS

The property is accessible by a road from the town of Sultan, Ontario, situated on the Canadian Pacific Railway line connecting Sudbury and Chapleau, Ontario. At a point six miles from the town of Sultan along the road, a trail leads east to the property, a distance of about two miles.

HISTORY

The Cunningham-Garnet area was quite active during the early 1930's when numerous claims were staked for gold. Late in 1955, the area was reactivated by Shunsby Gold Mines Limited, the main interest centering about copper-zinc occurrences in an iron formation.

Kirkland Minerals Corporation Limited acquired a 12-claim group in Blamey and Cunningham townships, Ontario and almost immediately undertook thorough surface programs, both geological and geophysical to investigate

its mineral potential.

PROPERTY GEOLOGY

The consolidated rocks of the property are all Precambrian in age. The oldest rocks are of volcanic origin and include basic lavas, andesite, gabbro and diabase, with thin flows of acid lavas and beds of volcanic tuff. Interbedded with these rocks are those sedimentary in origin consisting of greywacke and conglomerate.

These volcanic and sedimentary rocks are intruded by granite, feldspar porphyry and diabase.

The formations strike S 75 E astronomic and dip 60 degrees south.

The various formations may be classified according to the geological legend as follows:

Table of Formations

Quaternary
Pleistocene - sand and gravel
Precambrian
Keweenawan
    Diabase (1a)
    Intrusive Contact
Algoman
    Granite (2a)
    Feldspar Porphyry (2b)

        Intrusive Contact

Timiskaming
    Greywacke (3a)
    Tuff (3b)
    Acid lava (3c)

    Iron Formation (4)

Keewatin
    Andesite (5a)
    Diabase (5b)

Description of Formations

Diabase (1a)

Two diabase dikes intrude the volcanic and sedimentary rocks on the property. Both are dark, massive and relatively fine grained and weather brown. They are no wider than 100 feet.

Algoman
Granite (2a)

The northern seventy-five percent of the property is underlain by Algoman granite. The main contact with the volcanic and sedimentary rocks is overburdened.

The granite is pink in color, medium to coarse grained. Occasionally it shows gneissic character. It is essentially a biotite granite, with some hornblende and alteration of the feldspars.

Feldspar Porphyry (1b)

These are light colored rocks and were noted intruding the volcanic sedimentary rocks. Phenocrysts of both orthoclase and plagioclase were noted.

Timiskaming
Greywacke (3a)

The south half of claim S-90866 is underlain by greywacke. The rock is well bedded, light to dark grey in color and has a somewhat silty appearance.

Tuff (3b)

These occur in small quantities throughout the Keewatin and Timiskaming rocks. These rocks are greyish green to dark green in color and present a stratified appearance.

Acid Lava

Small outcrops of rhyolitic material were noted intercalated with the basic Keewatin rocks in the northern part of claim S-90866. Because of the limited extent of outcrop, conclusive evidence was not obtainable as to the definite origin of the rock and this appears in the report as a unit rather than a definite rock type.

Iron Formation (4)

A small outcrop of iron formation was noted along the south shore of the lake in claim S-90867. The iron formation consisted of alternatively finely banded cherts varying from white to greyish-black in color. The attitude of this rock could not be determined although it seemed conformable to the adjacent greywacke and diabasic flow.

Keewatin
Andesite (5a) Diabase (5b)

These rocks are all mainly dark green in color, but differ greatly in texture, ranging from fine grained to coarse grained and from massive to schistose. Nomenclature of these rocks was based almost entirely on the texture.

STRUCTURE

No important structural features were noted from the geological survey.

MINERALIZATION

Two good pyrite showings were observed in claim S-90866. The pyrite occurred in a bedded tuff and the pyrite content varied from 5 to 40 percent of the host rock. Other than minor magnetite there are no observed minerals in association.

RESULTS OF MAGNETOMETER SURVEY

Numerous moderate magnetic intensities occur in the western section of the property. Two magnetic anomalies within claim S-90864 are local in extent and more likely indicate contact metamorphism effects along the granite-sediment contact.

The continuous anomalous zone striking through claims S-90866, 90867 and 90872 indicates the trend of the Keweenawan diabase.

The anomalies in the south western corner of claim S-90866 indicate pyrite-magnetite mineralization within the tuff horizons.

RESULTS OF ELECTROMAGNETIC SURVEY

Two strong electromagnetic conductors were delineated within claim S-90866. Correlating with the magnetics and geology of this claim, it is quite conclusive that the anomalies indicate the known pyrite-magnetite mineralization.

A minor conductor lies in the southeast corner of the same claim and this is probably the continuation of the south mineralized zone.

A conductor under the small lake is indicated. However, examination of tilt angles of the survey suggest this conductor to be weak and of minor extent.

CONCLUSION

From the combined geological and geophysical surveys conducted on the property, indications of mineral potential on the property are confined to one claim, namely S-90866.

Within this claim two mineralized zones occur, each with a minimum length of 400 feet. Furthermore, the mineralization consists primarily of pyrite and magnetite in a volcanic tuff.

RECOMMENDATIONS

As the rock exposures are small and limited, the importance of the pyrite-magnetite mineralization could not be thoroughly evaluated. Because the electromagnetic conductors are strong over these zones, it is recommended that two rock trenches be excavated across the zones, followed by thorough sampling of the exposed mineralization.

From the results of this trenching, the importance of the mineral showing can better be evaluated with respect to the mineral potential of the property.

Respectfully submitted,
SIMARD and KNIGHT

per Michael Zurowski

July 4, 1956.

APPENDIX

Technical Details of the Assessment Work

LINECUTTING

The mileage cut and chained for the survey is as follows:

Base line	-	1.0 mile
Picket Line	-	8.7 "
Detail Line	-	0.8 "
		10.5 "

The base line was cut S 75 E astronomic, through the central part of the claim group. Picket lines were turned off at right angles from the base line at 400-foot intervals.

MAGNETOMETER SURVEY

The magnetometer survey was carried out during the month of May, 1956. It was conducted by a Sharpe D1M Magnetometer whose scale constant is 26.1 gammas. A total of 504 stations were established along the picket lines. Readings were taken on swing and diurnal variations were applied during course of the survey.

Interpretations of the magnetic results were done by use of magnetic contours at 200 gamma intervals on a plan of one inch equals 200 feet.

ELECTROMAGNETIC SURVEY

The electromagnetic survey was conducted during the month of June, 1956, using a Sharpe SE 100 electromagnetic unit.

Interpretation of the electromagnetic results were done by plotting the dip readings on a plan and indicating the axis of the electrical conductor.

GEOLOGICAL SURVEY

The property was geologized using the established picket lines as control. Interline traverses were done by the pace and compass method. Outcrops, topography and other significant features were compiled on a plan to the scale of 1 inch equals 200 feet.

WORK DONE BY:

Linecutting	Residence	Period
Russel Stewart,	Sultan, Ontario	May 6-May 28 inc., 1956
James Stewart,	Sultan, Ontario	May 6-May 28 inc., 1956
Kenneth Molyneaus,	Sultan, Ont.	May 6-May 31 inc., 1956

Magnetometer Survey (Field and office work)

R. Granger, 951 Ann St., North Bay, Ontario. May 6-31 inc., 1956.

WORK DONE BY: (Continued)

Geological Survey (Field Work and office work)

F. Hodgkinson, 127 Bingham Ave., Toronto, Ontario
Period: May 6-May 31 incl., 1956.

Electromagnetic Survey (Field work)

C.S. Jessop, Prospect Hotel, Sudbury, Ontario.
J. Jessop, " " " "
Period: June 5th to June 15th incl., 1956.

Consultants (combined programs)

Simard and Knight, 403 - 25 Adelaide St.W., Toronto, Ontario
Period: May 10th to May 31 incl., 1956.

BREAKDOWN

Geological Surveys	10 Hr. Man Days	Factor	Total 8 Hr. Man Days
Linecutting & chaining	36	4	180
Geological Survey (field and office work)	26	4	130
Consultants	11	4	55
		Total	365

On per claim basis $\frac{365}{12}$ = 30.4 man days

Geophysical Surveys			
Linecutting & chaining	36	4	180
Magnetometer Survey (field work)	26	4	130
Electromagnetic Survey (field work)	11	4	55
Consultants	11	4	55
		Total	420

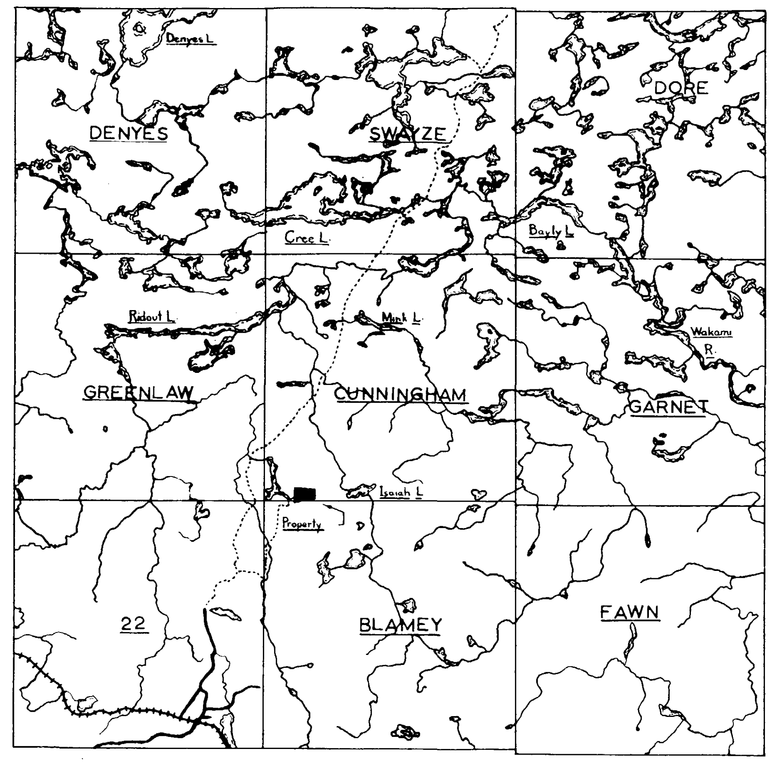
On per claim basis $\frac{420}{12}$ = 35.0 man days

Note: Total linecutting time pro-rated evenly between geophysical and geological surveys.

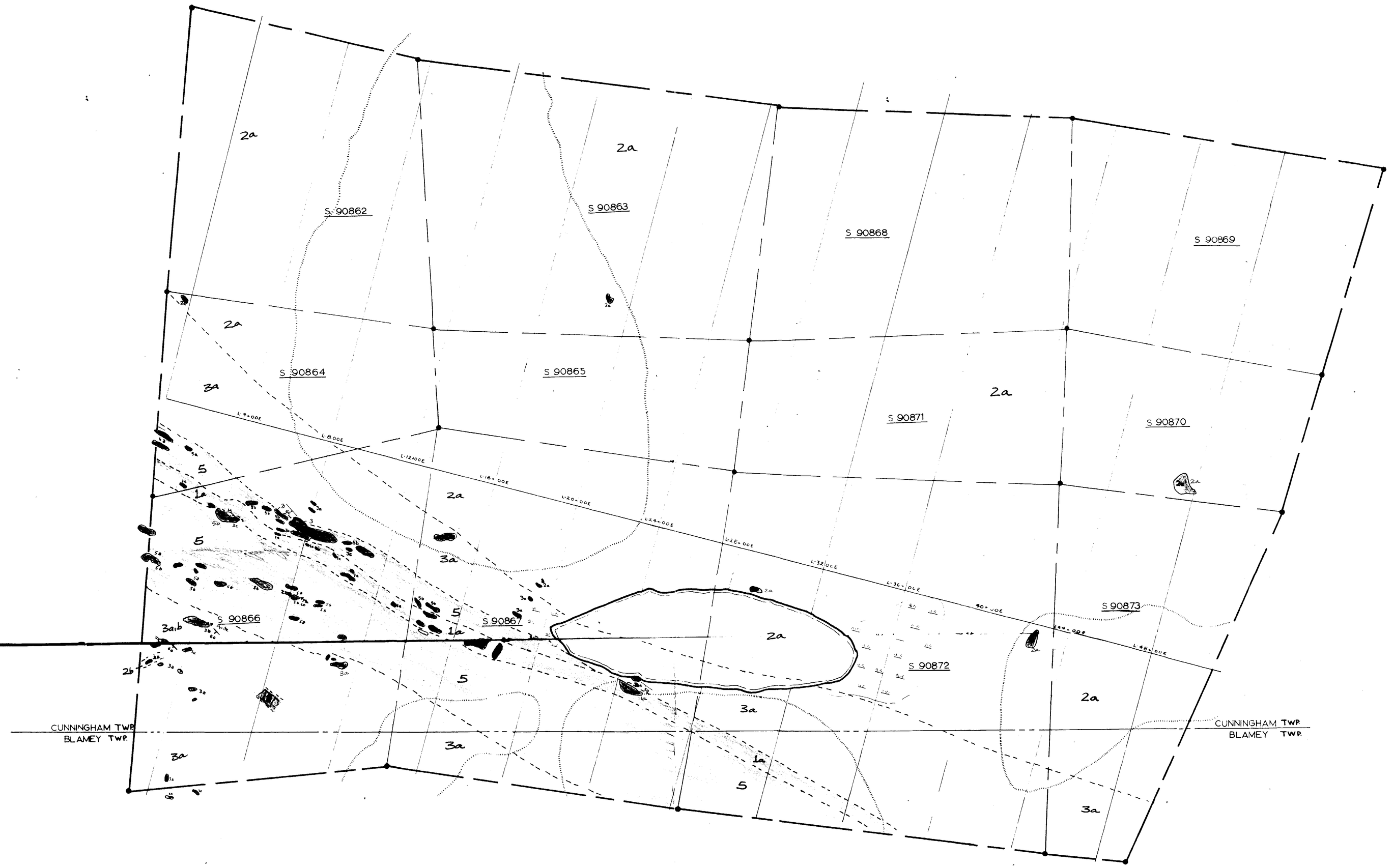
Respectfully submitted,
SIMARD and KNIGHT

per Michael Kurowski.

Toronto, Ontario
July 4, 1956.



KEY MAP
Scale – 1 Inch = 2 Miles



SYMBOLS

- Geological Boundary - defined
- Geological Boundary - assumed
- Strike & Dip of Bedding
- Flow Contact - tops of flows indicated by arrow
- Strike & Dip of Schistosity
- Shearing
- Sulphide Mineralization
- Claim Posts
- Lake Contour
- Swamp
- Base of Hill
- Picket Line

LEGEND

PRECAMBRIAN

Keweenawan
- 1a diabase
- intrusive contact

Algoman
- 2a granite
- 2b feldspar porphyry
- intrusive contact

Timiskaming
- 3a greywacke
- 3b tuff
- 3c acid lava
- 4 iron formation

Keewatin
- 5a andesite
- 5b diabase

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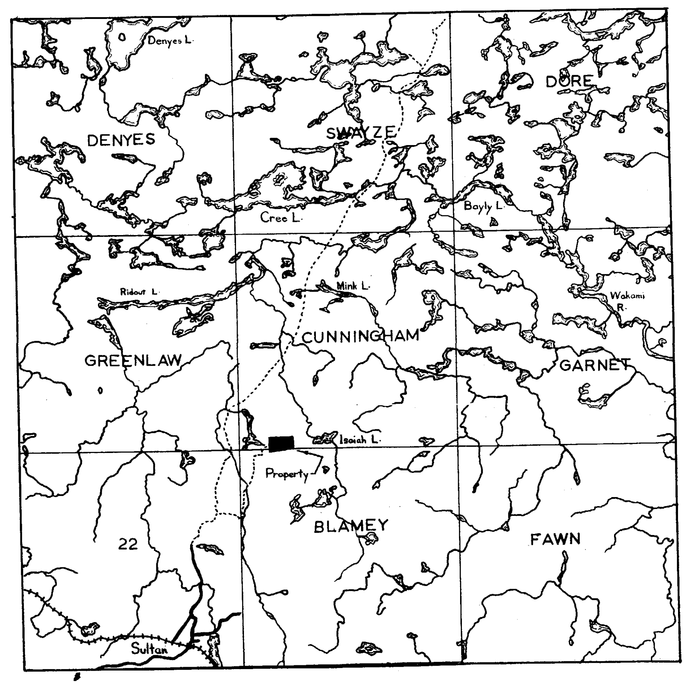
ONTARIO

SURFACE GEOLOGY

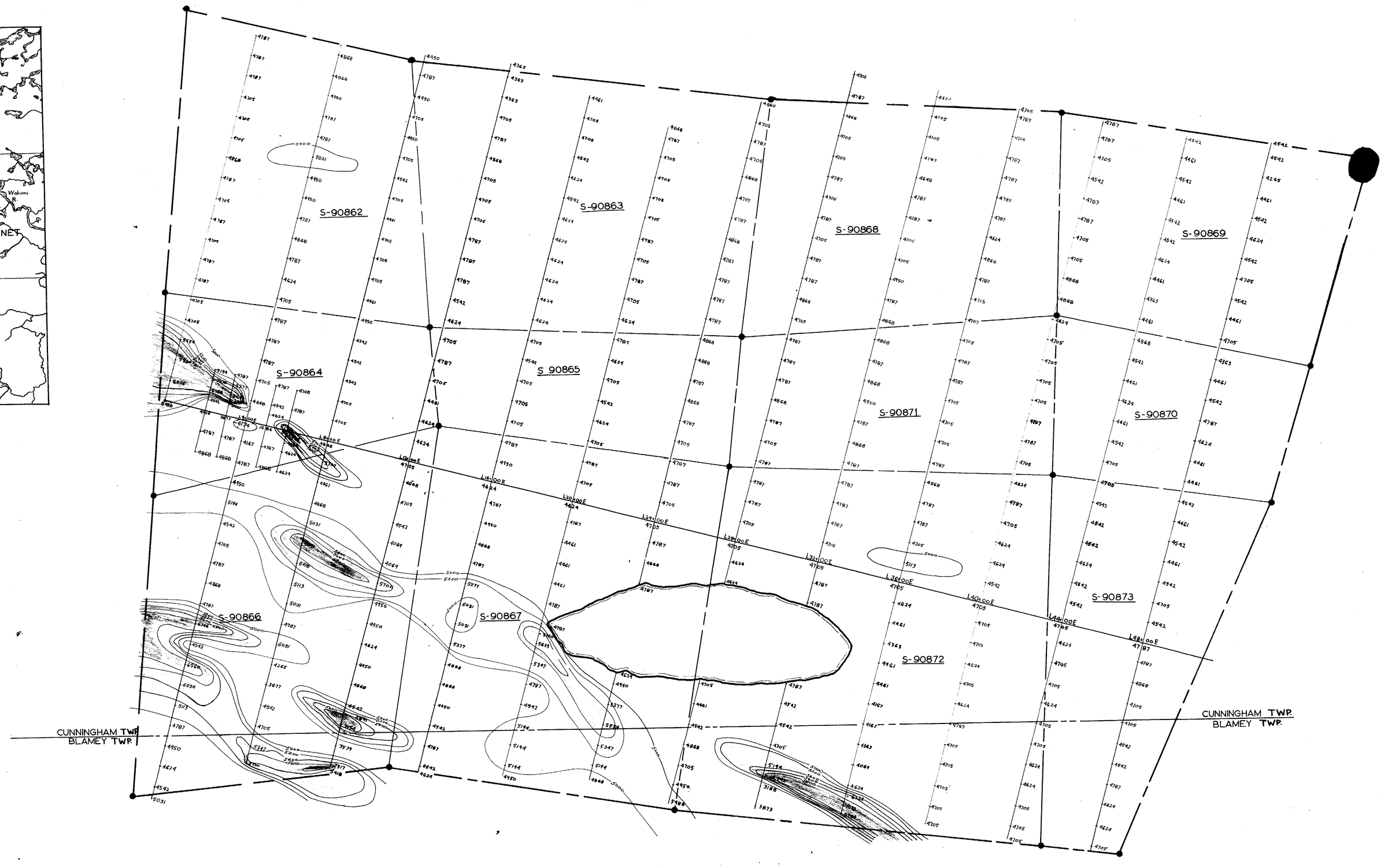
Scale 1 inch = 200 feet

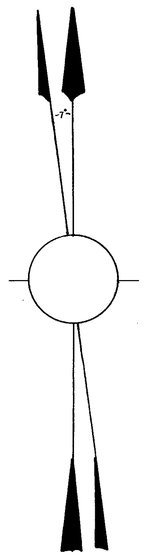
200



KEY MAP

Scale - 1 Inch = 2 Miles





LEGEND

- OVER 5800 GAMMAS
- 5600 – 5800 GAMMAS
- 5400 – 5600 GAMMAS
- 5200 – 5400 GAMMAS
- 5000 – 5200 GAMMAS
- UNDER 5000 GAMMAS

SYMBOLS

- MAGNETIC CONTOUR
- LAKE CONTOUR
- CLAIM POST
- PICKET LINE

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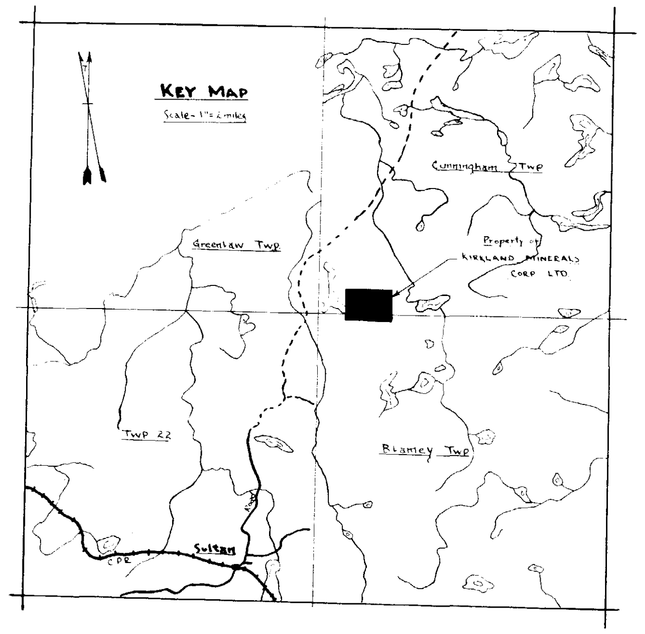
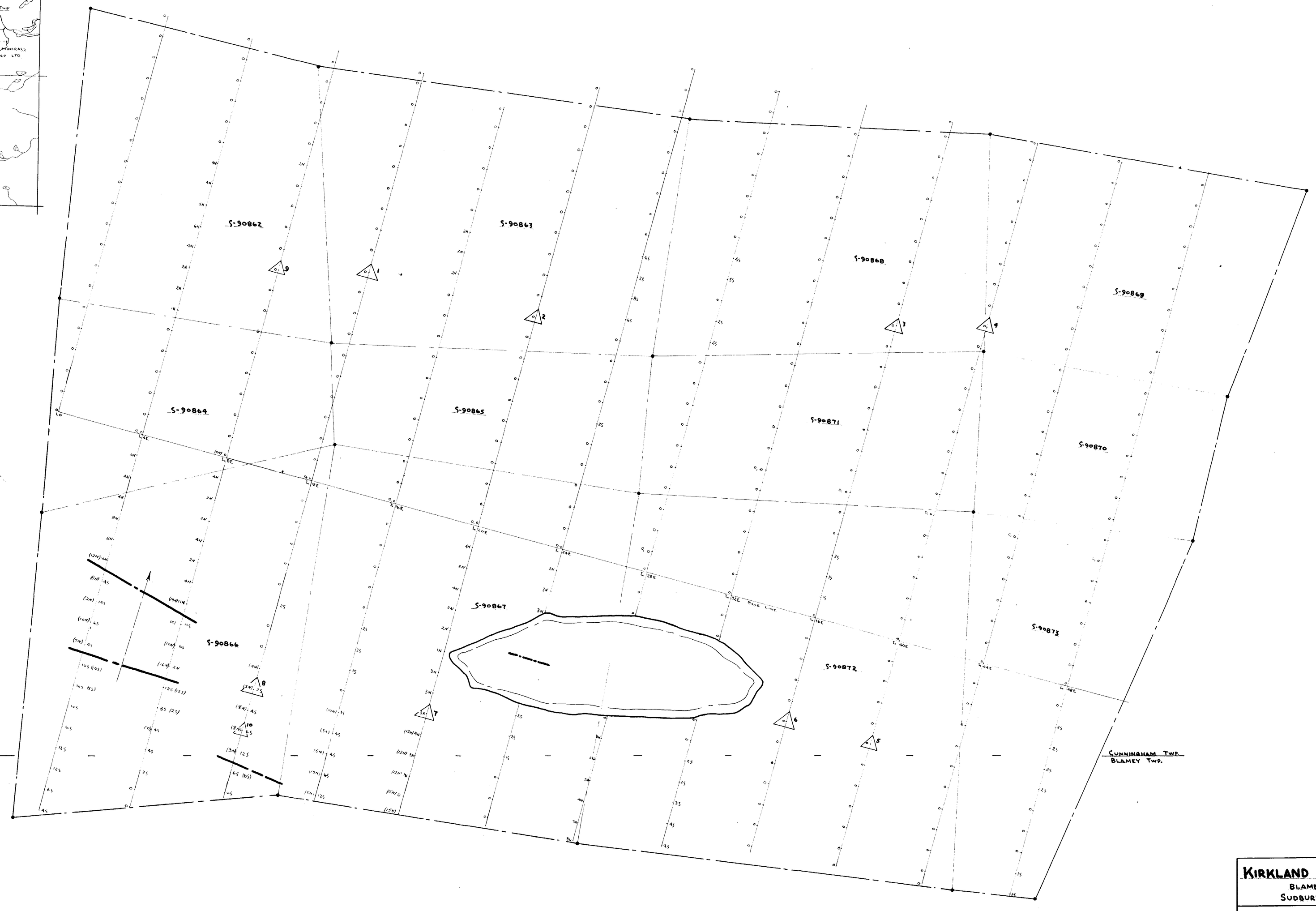
MAGNETOMETER SURVEY

Scale 1 inch = 200 feet

210





SYMBOLS

- Picket line - cut & chained
- Lake contour
- Claim posts & claim line
- Defined Electromagnetic conductor
- Inferred Electromagnetic conductor
- Township line
- Transmitter Station
- Proposed cross section

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SUDBURY MINING DIVISON - ONTARIO

PLAN OF ELECTROMAGNETIC SURVEY

Scale - 1 inch = 200 FT.

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220