

REPORT
ON THE
ELECTROMAGNETIC AND SELF-POTENTIAL SURVEYS
OF THE
KULAN LITTLE SALMON LAKE PROPERTY
done between May 12th and June 14th, 1963

CLAIM SHEET NO. 105 L-1

LONGITUDE $134^{\circ} 13'$ LATITUDE $62^{\circ} 11'$

YUKON TERRITORIES

BY

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Supervising Engineer
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August 1, 1963

Toronto, Ontario

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SUMMARY AND RECOMMENDATIONS

The Kulan Little Salmon Lake property consists of 28 claims. The work described in this report is concerned only with 8 of these claims, designated Carol 1 - 8, which are centred approximately $6\frac{1}{4}$ miles ENE of the eastern end of Little Salmon Lake in the Whitehorse district of the Yukon Territory.

These 8 claims were previously part of a group under option to Prospectors Airways who carried out work in 1955 and 1956 which included sampling, trenching, magnetic, geological, and geochemical surveys and 25 packsack drill holes of which only 6 reached bedrock.

The 8 claims were recently optioned by Kerr-Addison and subjected to line-cutting totalling 11.0 miles (58,300'), and electromagnetic and self-potential surveys.

The electromagnetic survey gave dip angles, on lines 1+00W to 3+00E just south of the north baseline, which are interpreted as caused by a mixture of magnetite and sulphides. This area and a few others were checked with self-potential equipment. The electromagnetically anomalous area exhibits a self-potential anomaly which has a relief of at least 75 millivolts and one reading indicates a relief of 150 millivolts. The anomalous area is underlain by a gossan zone called the "Lake Showing" which is known to contain magnetite, pyrrhotite, chalcopyrite and sphalerite. The ratio of magnetite and sulphides is unknown.

On line 8+00E there is a 75 millivolt self-potential anomaly associated with the "Cliff Showing" which consists of two steeply dipping veins of galena which occur at the junction of a steep north-south fault and a bedding plane fault dipping 45° SW.

Another self-potential anomaly with a relief of about 45 millivolts between lines 10+00E and 12+00E occurs over massive galena exposed in a small trench.

It is recommended that further work in the form of bulldozer trenching and diamond drilling be carried out over the known mineralized zones on the property.

THE PROPERTY AND LOCATION

The property consists of 28 claims of which 8 claims, designated Carol 1 - 8, are held on option from A. Kulan of Whitehorse, Y.T. The remaining 20 claims, designated Carol 9 - 28, were staked contiguous to the 8 optioned claims by Kerr-Addison Gold Mines Limited.

The 8 claim part of the group is centred $6\frac{1}{4}$ miles ENE of the east end of Little Salmon Lake in the Whitehorse district of the Yukon Territory, or about 105 miles in a direction $N15^{\circ}E$ from the town of Whitehorse.

PREVIOUS WORK

The showings on the 8 claim group were staked by A. Kulan and H. Law of Whitehorse and optioned in 1954 by Prospectors Airways who carried out the work briefly described as follows.

Geological work indicated that the gossan showing is a metamorphic contact zone occurring at the south contact of a southeasterly striking quartz-feldspar porphyry dyke with tuffaceous chert or cherty limestone. The tuffaceous chert dips about 40 degrees to the southwest at the Cliff Showing. The porphyry also dips about 40 degrees to the southwest. A strike fault appears to be present in the Lake Showing area.

The magnetometer survey showed that the mineralized metamorphic contact zone is magnetically anomalous with magnetic relief varying from 2000 to 16000 gammas.

The electromagnetic survey gave anomalous results, over the showings, characterized by reverse crossovers and abnormally high dip angles. A Sharpe SE-100 electromagnetic unit was used in this work.

The geochemical survey gave values which exceed 300 p.p.m. soluble heavy metals.

Assays of samples taken from shallow trenches across the Lake Showing indicated generally low values in lead, zinc, copper, and silver. The 25-hole packsack diamond drilling programme was quite inconclusive in as much as only 6 of the holes reached bedrock and none of them drilled in bedrock beyond shallow depths.

PRESENT WORK

The present work consisted of 58,300' of line-cutting followed by an electromagnetic survey and self-potential survey.

The lines cut are in the same location as those cut in 1955 by Prospectors Airways so that the present work consisted of brushing out the old lines and renewal of pickets and markings on the pickets.

The lines were used to carry out electromagnetic and self-potential surveys.

ELECTROMAGNETIC SURVEY

The work was done using a Crone EM reconnaissance unit which can be used in such a way that the readings are not affected by transmitter alignment, distance of separation or elevation differences.

In carrying out the survey the two operators traversed the same line, the lines having been cut perpendicular to the average strike of the rocks. Both operators used similar units and kept a separation distance of 200 feet. At each station the chief operator first transmitted until the helper operator had oriented his coil and read a dip angle and then their roles were reversed and the chief operator read a dip angle. The two dip angles read were recorded and the resultant obtained by adding the two readings was plotted on the station position of the mid-point between the two men.

The results of the work are shown as plotted on Drawing E 4015. The anomalous area on lines 1+00W to 3+00E, just south of the north base line is interpreted as being caused by the magnetite in the showing. Field evidence indicates the presence of massive pyrrhotite with bands of galena and a dissemination of chalcopyrite. It is reasonably certain that the dissemination of chalcopyrite had no effect on the dip angles and although the massive pyrrhotite with bands of galena would probably be a good conductor it appears that any effect produced by it was overshadowed, and not detectable, by the effect of the magnetite.

SELF-POTENTIAL SURVEY

The electromagnetically anomalous areas were checked by self-potential work as recorded on Drawing No. SP 4016.

The self-potential instrument used is a null-balance, transistorized potentiometer equipped with a 10-turn dial. Two porous-pot electrodes connected through 2000' of wire on a commutator-equipped aluminum reel were used with the potentiometer.

The self-potential work was greatly hampered by a heavy cover of talus which prevented proper grounding of the electrodes. Where anomalies were found, such as on lines 2+00W to 3+00E, they occur over the main gossan zone which is known to contain magnetite, pyrrhotite, chalcopyrite, and sphalerite, among which magnetite and pyrrhotite predominate. The spacing of the equi-potential contours suggests that the dip of the mineralized zone is steep.

The anomaly on line 8+00E occurs on the Cliff Showing which consists of two steeply dipping veins of galena which occur at the junction of a steep northerly striking fault and a bedding plane fault which dips 45° southwest.

The anomaly between lines 10+00E and 12+00E occurs over massive galena exposed in a small band trench. The shape of this structure is not clear but it would appear to have a northwesterly trend much like the Cliff Showing.

MAPS

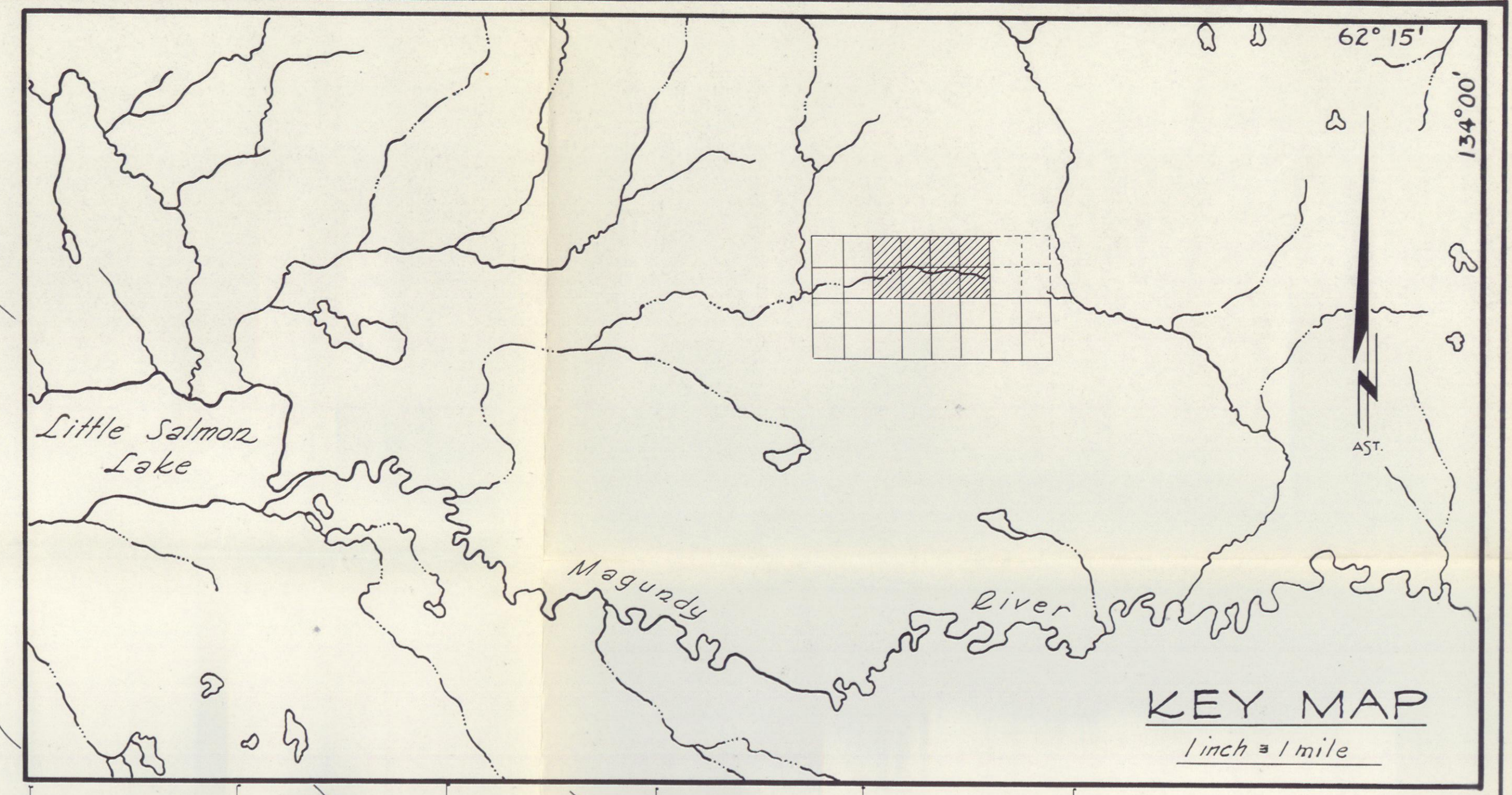
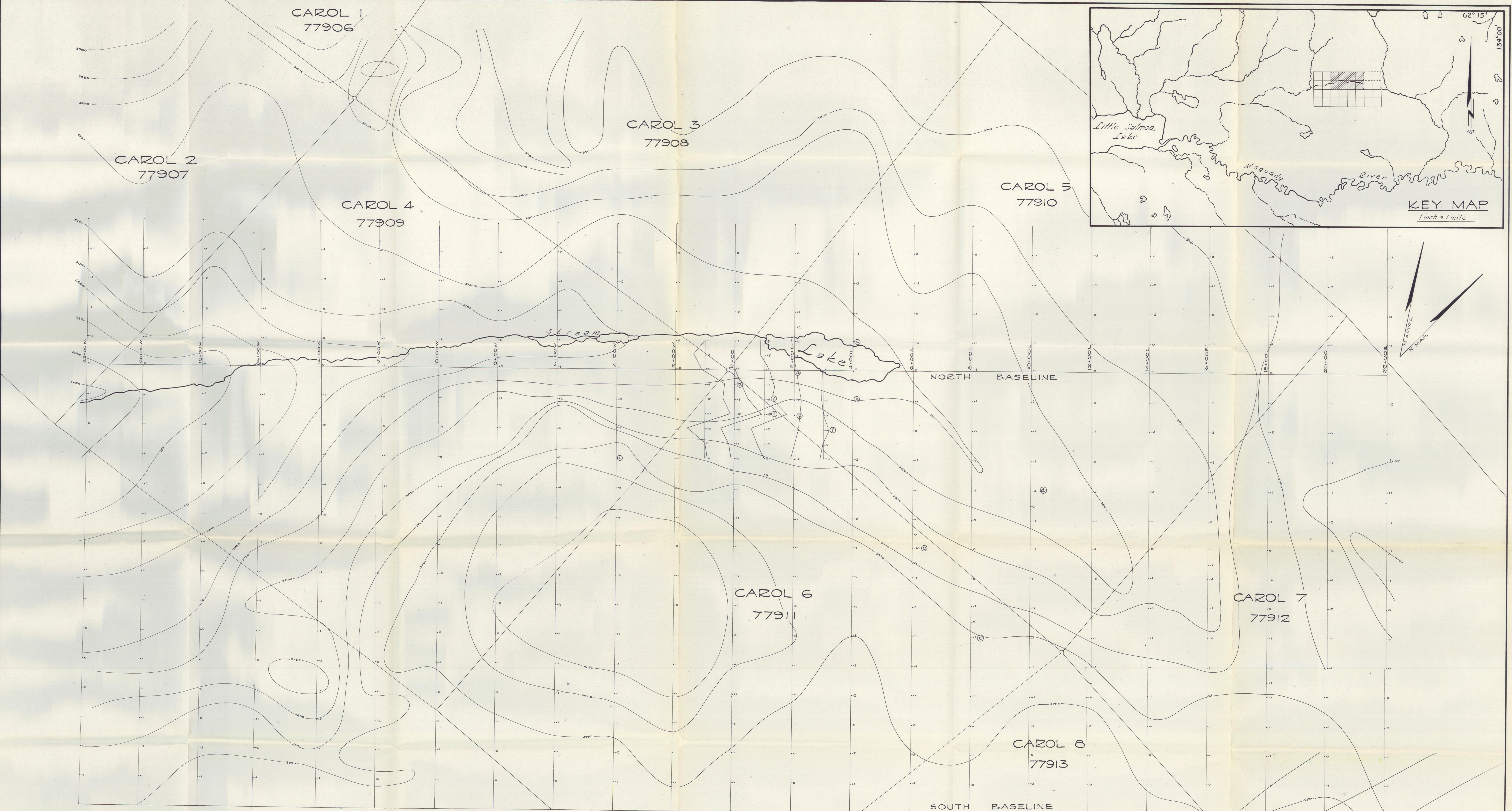
Electromagnetic Survey Plan
Self-Potential Survey Plan

Map No.

E 4015

SP 4016





- Legend*
- ⊙ Lake - no reading
 - ⊙ Cliff "
 - ⊙ Galena
 - ⊙ Swamp
 - ⊙ Snow patch
 - ⊙ Gossan
 - ⊙ Gossan + magnetite
- Station readings recorded in dip angles.*

*Survey operators: D. McEae
R. Wolfe*

Supervised by: W. M. Siro la



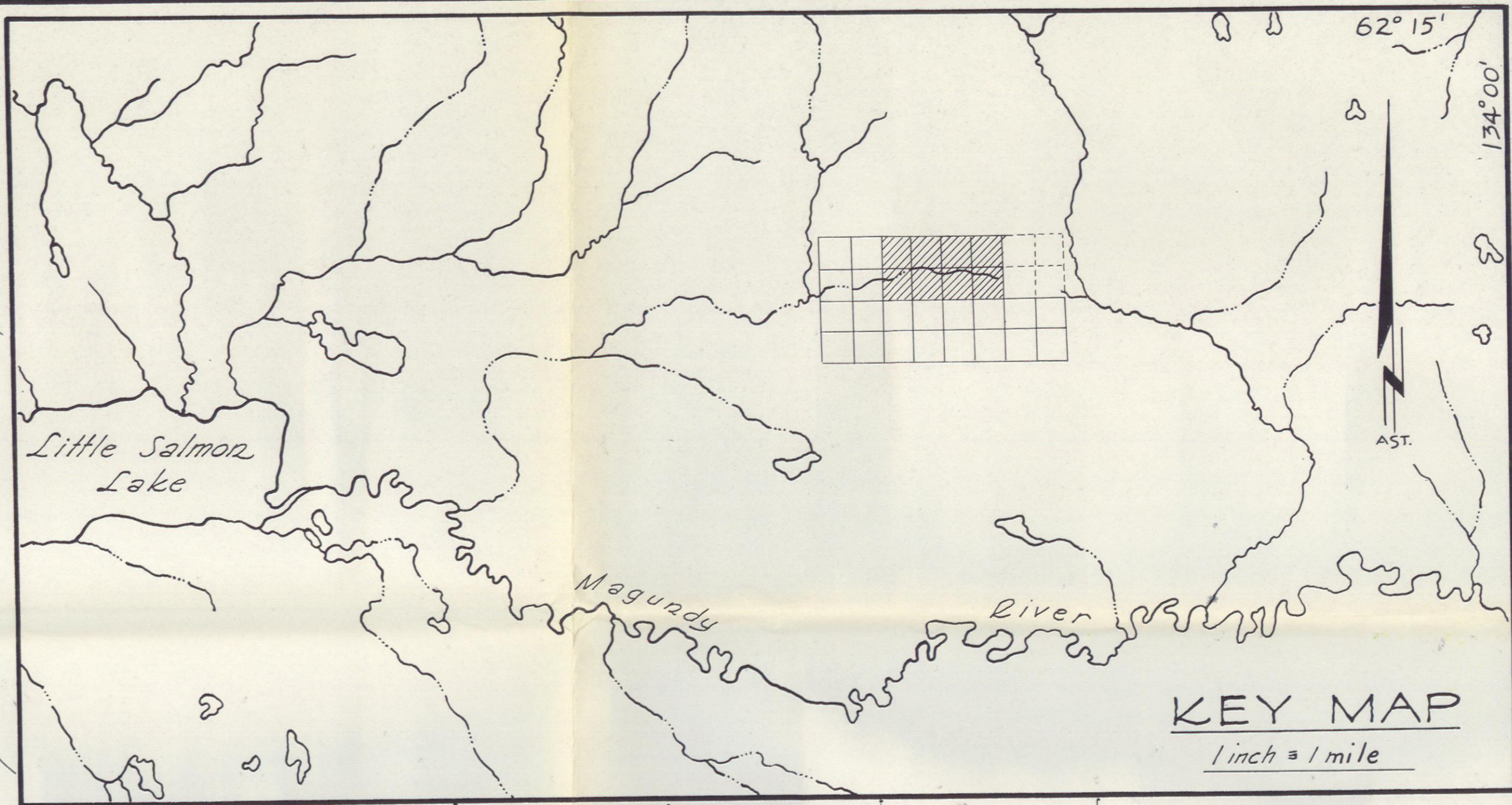
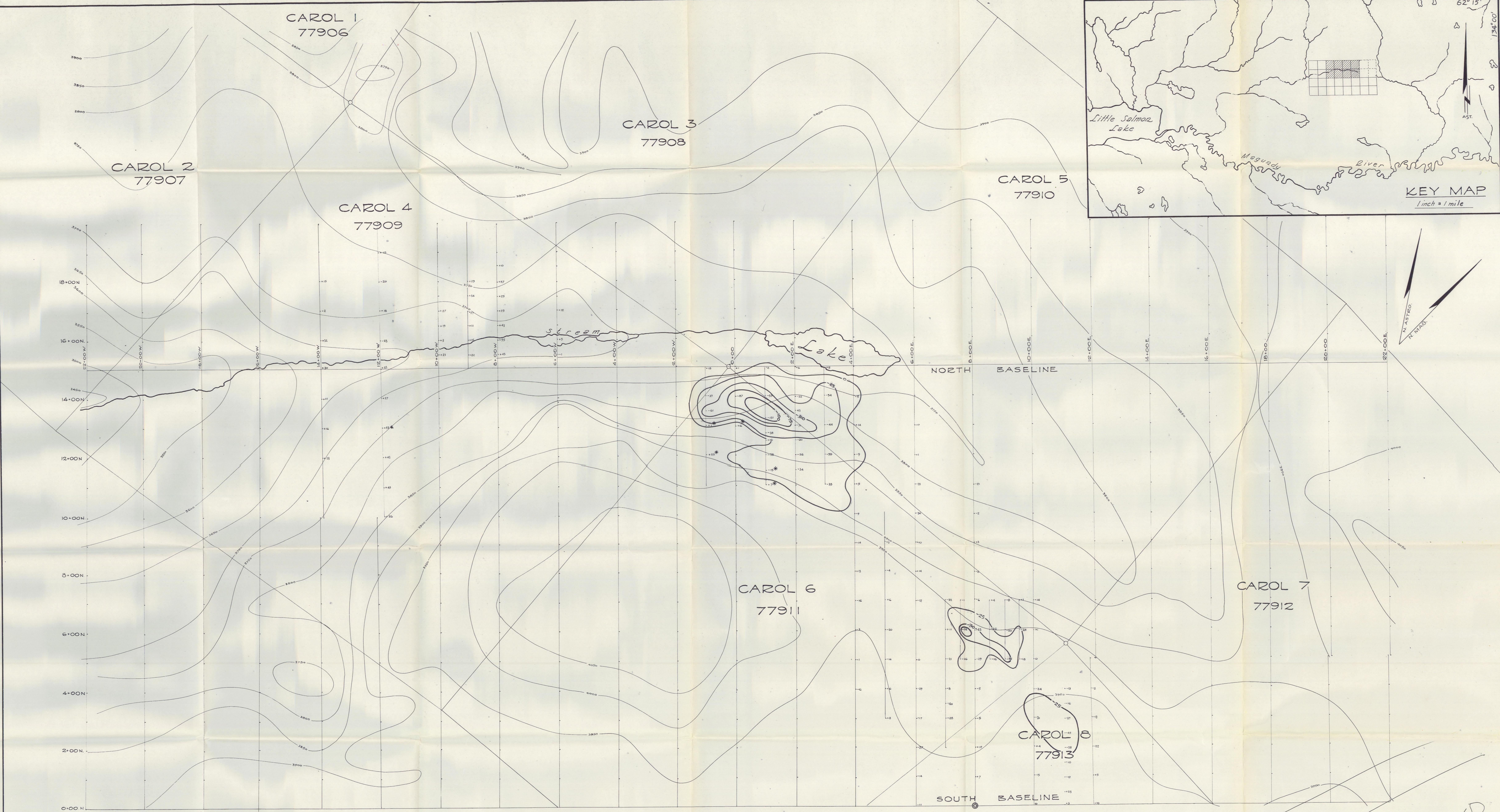
KERR-ADDISON GOLD MINES LIMITED
KULAN LITTLE SALMON LAKE PROPERTY, Y.T.
ELECTRO-MAGNETIC SURVEY

Scale 1" = 100'

Drawn by C. Goode

July 15, 1963

Dwg E 4015



Legend

- * Talus
- Topographic contours
- Equipotential lines

Readings in millivolts
 © Arbitrary zero: - Base Station

Survey Operator: B. Wolfe
 Supervised by: W. M. Siro la



KERR-ADDISON GOLD MINES LIMITED
 KULAN LITTLE SALMON LAKE PROPERTY, Y.T.

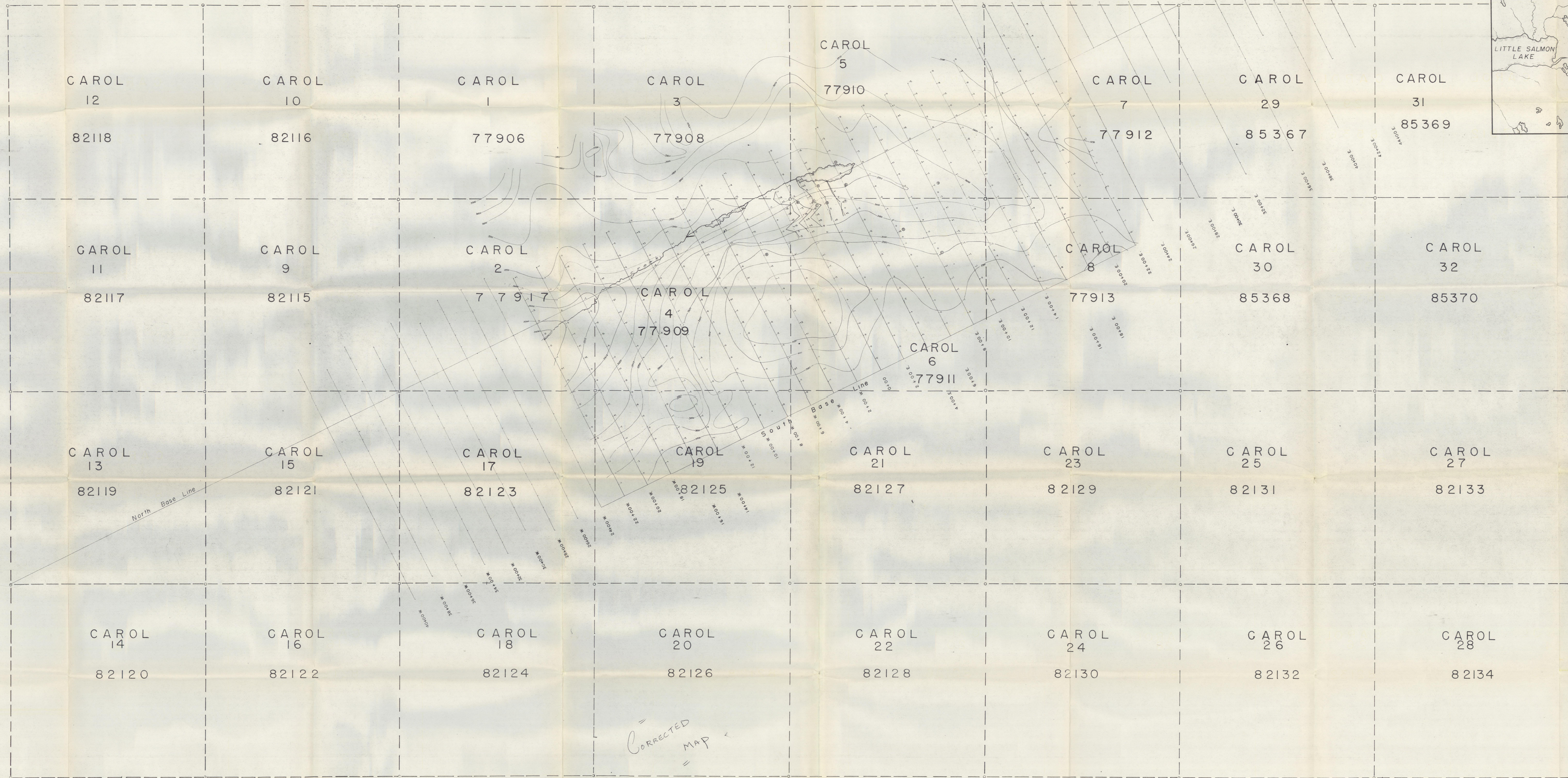
SELF-POTENTIAL SURVEY

Scale 1" = 100'

Drawn by: C. Goode

July 15, 1963

Dwg SP 4016



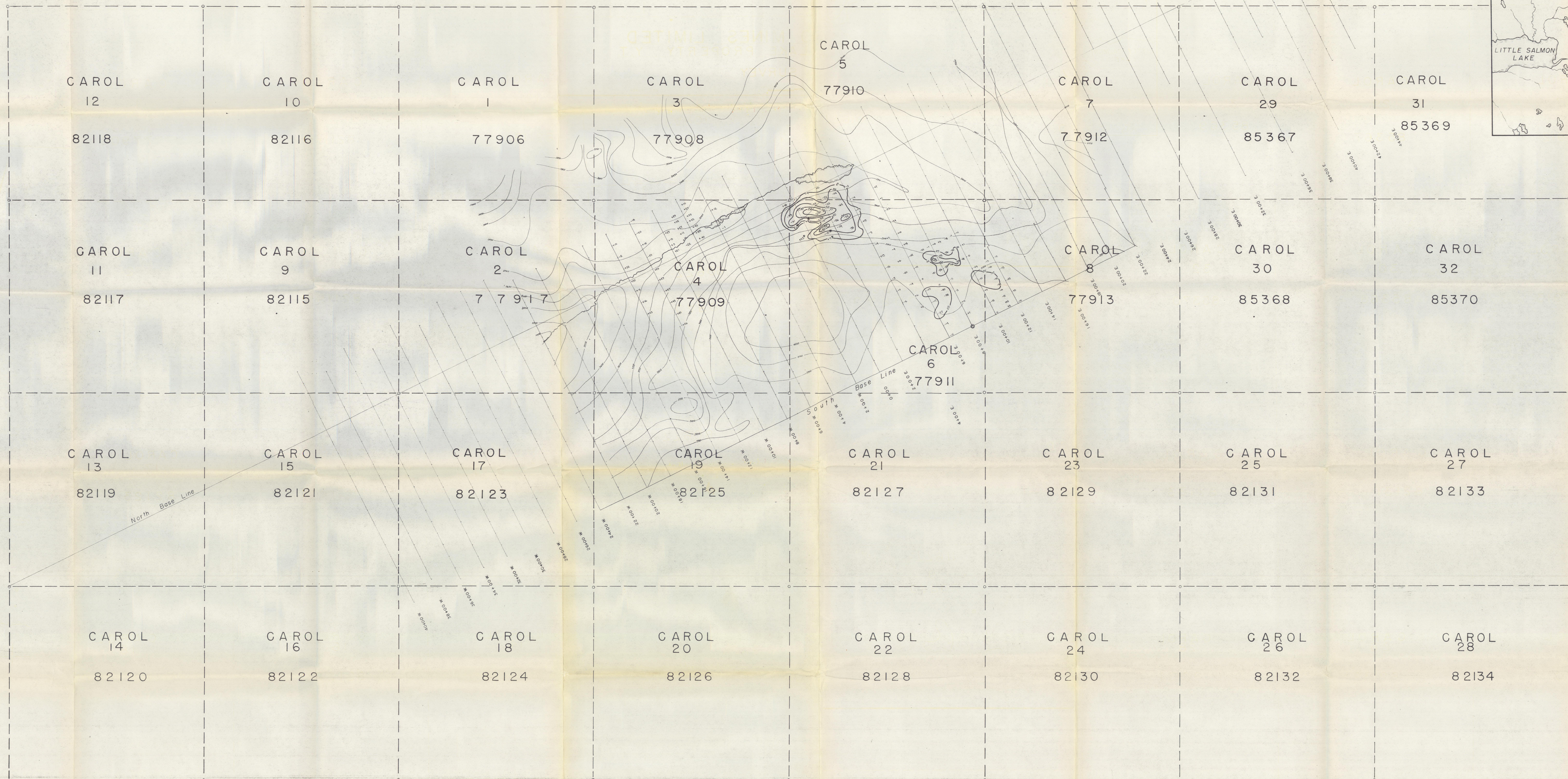
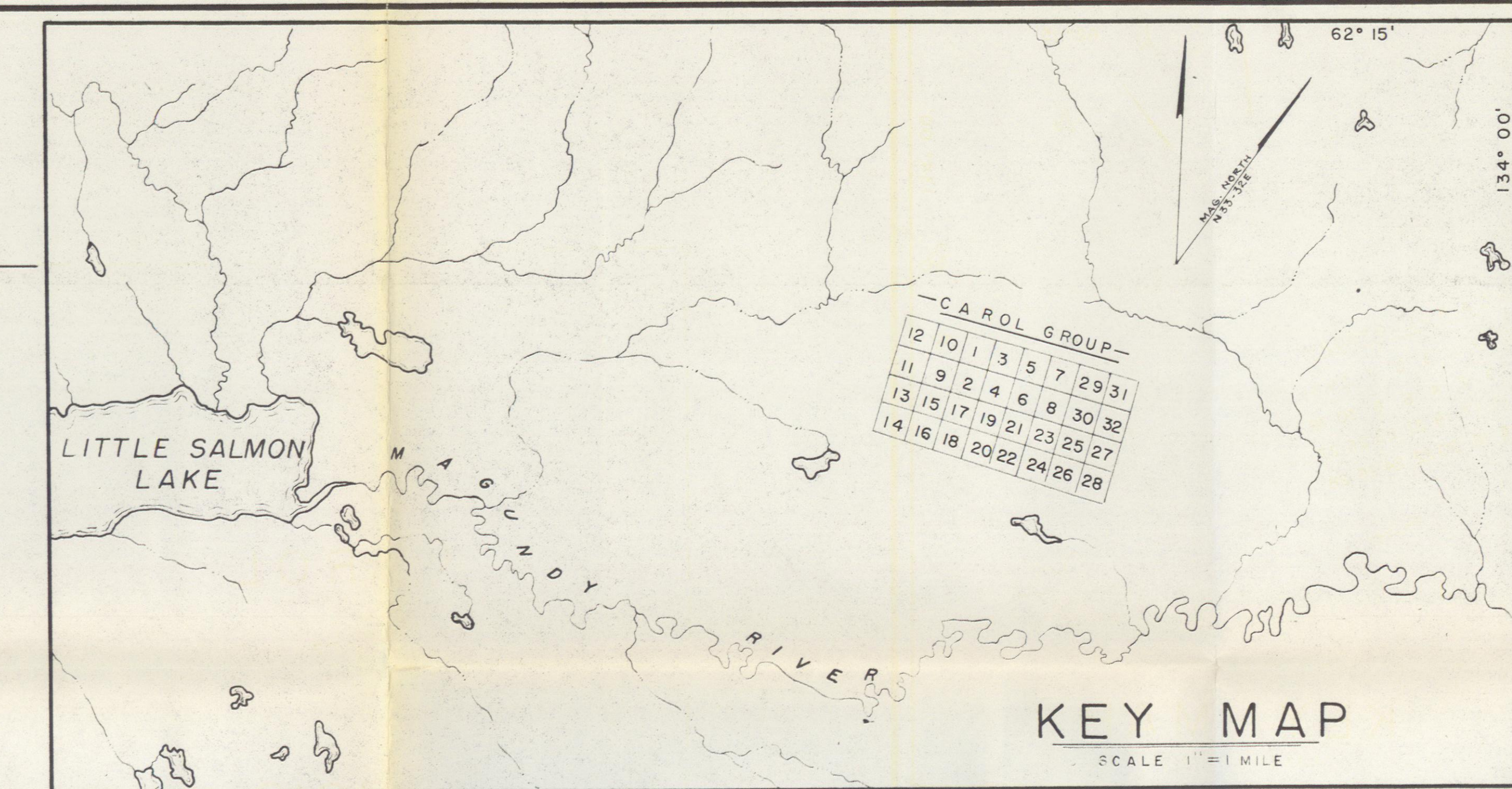
KERR-ADDISON GOLD MINES LIMITED
KULAN LITTLE SALMON LAKE PROPERTY Y.T.
ELECTRO-MAGNETIC SURVEY

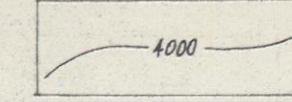
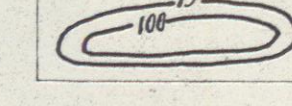
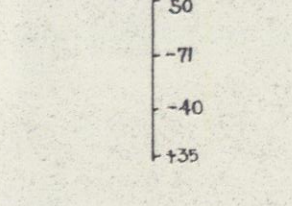


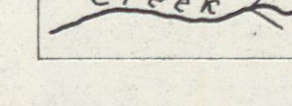
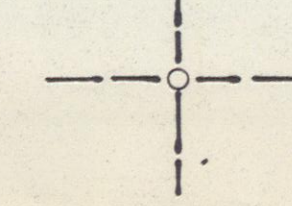
DRAWN BY J.E.S.

SCALE 1" = 200'

DEC 1963

Instrument Operator: R. Wolfe,
D. McRae.



- LEGEND**
-  Topographic Contours
 -  Equipotential Contours
 -  Traverse line showing self-potential readings on right side of Traverse Line; Readings are measured in Millivolts.
 -  Arbitrary Base Station
 -  Talus
 -  Creek showing direction of flow.
 -  Claim post & claim line approximate
- Instrument Operator: R. WOLFE

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KULAN LITTLE SALMON LAKE PROPERTY Y.T.
SELF-POTENTIAL SURVEY