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APPENDIX "A"

ENCLOSURES:

TECK EXPLORATION CO LTD.
REPORT OF WORK ON
FREDA, WENDY, VULCAN, EAGLE, AND HAWK CLAIM GROUPS,
VULCAN CREEK, YUKON TERRITORY.

SUMMARY:

Claims of M.H.Frohberg and Associates, local Whitehorse prospectors and Teck Exploration Co Ltd., were grouped for doing a program of geophysical exploration.

A magnetometer survey was carried out to trace extensions of peridotite outcrops, and possibly locate magnetic sulphides.

A resistivity survey was conducted to locate any good electrical conductors such as sulphides, in the hope of tracing the source of the high nickel-copper float found near Upper Vulcan Creek.

Nothing of interest was located with this exploration, and further work appears unwarranted.

INTRODUCTION:

During 1954, prospectors for M.H.Frohberg and Associates found some high grade float on Upper Vulcan Creek. They also located some lightly mineralized peridotite south of Lower Vulcan Creek, near the Slims River. They staked a group of 22 "Freda" claims. Some of these Freda claims covered ground still held by local Whitehorse prospectors, but which had at first appeared to have lapsed. An agreement was reached with the owners to cover all claims with a program of exploration, being mainly geophysical. Six "Wendy" claims of Teck Exploration were also grouped with these claims, for the exploration program, to try and locate the source of the high grade float, or sulphides associated with the peridotite.

Dr. A.R.Clark of Vancouver, carried out the resistivity survey, Dr. M.H.Frohberg was the Consulting Geologist, A.J.Walker of Teck Exploration Company was in charge of the program. Fieldwork was carried out between July 25th. and Sept. 4th. 1955.

LOCATION AND ACCESSABILITY:

These "Freda", "Wendy", "Vulcan", "Eagle" and "Hawk" claims, are located south of Vulcan Creek, just east of the Slims River. They may be reached by the old highway which leaves the present highway just east of the new Slims River bridge.

TOPOGRAPHY:

Vulcan Creek has a very steep grade, and the mountains rise sharply from the creek bed. There is very little timber present, except near the Slims River. Steep bluffs and talus slopes make much of the area south of Vulcan Creek inaccessable. There is considerable talus on most slopes. The elevation of Slims River is about 2,700' above sea level, and going east from the river, along these claims, one climbs to over 5,000 feet. These same mountains rise sharply to over 7,000 feet just south of the claims.

GEOLOGY:

No Government geological map has been published on this area as yet. There is a map, Shakwak Valley, Sheet 1012-A, for the adjoining area to the northwest.

The most noted feature of the area is the Shakwak Valley Fault, trending northwest-southeast. The older rocks of the Yukon group are to the north of this fault, while to the south are the younger Cenozoic to Palaeozoic rocks. Several important nickel-copper showings associated with peridotite occur in the mountain ranges on the south of the Shakwak Valley.

These claims are located in the younger sediments, lavas, and intrusives, south of the Shakwak Valley. As much of the claims were either overburden covered or inaccessable, we were unable to make a detailed geological investigation. However, outcrops that were mapped are shown on the 2 maps entitled Geomagnetic map. These outcrops of cherty sediments, limestone, shale, schists, and argillites, have strikes conforming to the northwest trend of the area, parallel to the Shakwak Valley. The magnetometer was used to try and trace the peridotite outcrops under the overburden areas. The magnetics indicate much of the peridotite occurs as sills rather than dikes. The higher magnetic values, and outcrops, at the west end of the claims, indicate the possibility of a large sill below the heavy overburden.

Some of the peridotite was lightly mineralized. Previous grab samples taken by the prospectors in 1954 returned nickel values from 0.4% to 0.8% and lower copper values. No good conductors were found in these areas, or near the location of the high grade float on Upper Vulcan Creek.

Mapping of outcrops was in relation to lines cut for the geophysical surveys. Mapping was carried out by F.Mills and T.English, under the supervision of A.J.Walker. Dr. M.H.Frohberg was the Consulting Geologist.

MAGNETOMETER SURVEY:

This survey was carried out to trace known peridotite outcrops under overburden, (as several showings in the area are associated with peridotite), to locate any massive pyrrhotite bodies and to provide geological and structural information to help corelate the resistivity survey that was to follow.

The peridotite appears to occur as sills in the western section of the property, as indicated by the magnetics.

Two maps entitled Geomagnetic map, are enclosed at rear of report, showing individual gamma values, contours, lines cut, claim locations and numbers, as well as some mapping of outcrops.

Magnetometer Survey Detail: CREW: Operators - A.J.Walker - Toronto, Ont.
- F.K.Mills - Cincinatti, Ohio.
Assistants - Local Labour.
Type of Instrument - Watts Schmidt Type.
Sensitivity - 29.55 gammas per scale div.
Base stations - At camp and on base line.
Readings - 525
Distance surveyed - 10 Miles (Approx.)

RESISTIVITY SURVEY:

This method of geophyics was used to prospect for any electrical conductors, such as sulphide zones, which might be present on these claims. After comparing results at Arch Creek, between the resistivity and electro-magnetic methods, it appeared resistivity was more suitable for surveying rough terrain.

This survey indicated that there are no conductors of commercial interest, as concluded by Dr. A.R.Clark, (See Dr. Clark's report attached to this report). Two maps are enclosed at rear of report showing observations, contour of equal resistivity, and lines surveyed.

Resistivity Survey Detail:			
	Operators -	Dr. A.R.Clark	- Vancouver, B.C.
	-	A.J.Walker	- Toronto, Ont.
	Assistants -	F.K.Mills	- Cincinatti, Ohio.
	-	T.English	- South Africa.
	Consultant -	Dr. A.R.Clark	- Vancouver, B.C.
	Observations -	411	
	Distance surveyed -	8 miles (approx.)	

LINECUTTING, CHAINING, AND TRANSIT WORK:

A base line was established along the length of the claims. Triangulations was necessary to extend the base line in some rough sections and to locate points on the ground which could not be located by chaining. Whenever possible, lines were cut out at 400 foot intervals.

Crew:		
	T.English.(Engineer)	South Africa.
	F.K.Mills.	Cincinatti, Ohio.
	Billy Roberts.	Kloo Lake, Yukon Territory.
	Billy Joe.	" " " "
	Thomas Joe.	" " " "
	Joseph Johnson.	Burwash Landing, Yukon.
	Larry Jacquot.	" " "
	Russel Dickson.	" " "
	Joe Jacquot.	" " "
	George Boulter.	Whitehorse, Yukon.
	Frank Smith.	" "

ROADBUILDING:

A camp was established on Freda Claim # 23, about 1 mile from the old Alaska Highway. A road was cleared by hand suitable for servicing the camp by truck. This involved cutting brush, removing large boulders and dragging the road with logs. This work was charged to "Freda" claim # 23 for representation (assessment) work, the cost being in excess of $ 100.

GROUPING: (for representation work)

Claim "Freda" # 23 is by itself for recording work. Other claims are grouped as follows:-

Group A: Freda # 1,3,4,5,6,7, 8,9,10,11,12,13,14. = 13 claims.

Group B: Vulcan # 1,2,3,5,Eagle 4,5,6,7,8,Hawk 1. = 10 claims.

Group C: Freda # 15,16,17,18,19,20,21,22,Wendy 1,2,3,4,5,6, = 14 claims.

Because of overlapping, much of the work on groups A and B is common to both groups. Costs have been divided however.

COSTS: (for representation work)

	Group A.	Group B	Group C
Total salaries and wages for linecutting and geophysical surveys.	$ 1,110.00	$ 850.00	$ 1,190.00
Transportation & lodgings & truck rental.	240.00	185.00	260.00
Supplies.	326.00	294.00	412.00
Workmen's Compensation.	19.50	15.00	21.00
Consulting fees.	26.00	20.00	29.00
Total for each group.	$ 1,721.50	$ 1,364.00	$ 1,912.00

No charge has been made for transportation of technical personnel to the Yukon, or for rental of equipment, instruments, etc.

CONCLUSIONS AND RECOMMENDATIONS:

Nothing of commercial interest was found by geophysical or geological work.

The good float found by the prospectors on Upper Vulcan Creek had probably travelled some distance, or came from a zone on these claims too small to be detected by instruments.

No further interest is warranted on these claims.

A. James Walker

AJW/HSB

A.James Walker.

4 Jan. 1956.

APPENDIX "A": DR. CLARK'S REPORT ON RESISTIVITY SURVEY:

DESCRIPTION OF METHOD:

Two current electrodes are placed in the earth a large distance apart and connected by insulated wire to the terminals of a 60 cycle generator. The direction of current flow in the ground is parallel to the line joining the electrodes and the current density along one of these lines is constant as long as the electrodes are not too closely approached. Thus by OHMS law the voltage difference between points on surface on one of the lines will be proportional to the electrical resistance of the rock below the line. Conductors such as sulphide zones then are marked by low values.

In order to compare values on successive lines a quantity called the resistivity is calculated. The calculation takes into account the decrease in current as the readings are obtained farther from the electrodes. These resistivity values plotted on a map and contoured enable one to trace out conducting zones which may contain massive sulphides.

DISCUSSION OF RESULTS:

(a) West Section:

There are no anomalies in this area which are of economic interest. The large areas of lower values, interrupted by high valued anomalies, suggest flat dipping sediments capped in places by poor conducting rocks such as diorite or peridotite.

The behaviour of the magnetic values suggest that the peridotite occurs as sills rather than dikes.

(b) East Section:

Three profiles were surveyed to investigate the overburden covered area between Vulcan Creek and the bare ridges at higher elevation.

The contours of equal resistivity strike almost at right angles to the traverses and suggest changes in rock formation. The low values on the north end of profile 3 and the corresponding low on profile 2 are in line with argillite outcrops on the east side of the creek valley.

The behaviour of the magnetic values again suggest that the peridotite occurs in the form of sills.

FREDA 21

FREDA 22

FREDA 17

FREDA 20

STEEP BLUFFS

FREDA 19

WENDY 6

WENDY 4

WENDY 2

FREDA 14

HIGH BLUFFS
LIMESTONE & DIORITE

N

FREDA 18

FREDA 15

FREDA 16

WENDY 5

WENDY 3

WENDY 1

FREDA 13

SEDIMENTS & DIORITE

RESISTIVITY TRAVERSES

VULCAN CREEK

CONFIDENTIAL

PERIDOTITE
DIORITE
CHERTY SEDIMENTS
SHALE
SCHIST
ARGILLITE
CONGLOMERATE
LIMESTONE

-3245 READINGS IN GAMMAS
3000 MAGNETIC CONTOUR

TECK EXPLORATION CO LTD

GEOMAGNETIC MAP

FREDA & WENDY

CLAIM GROUPS

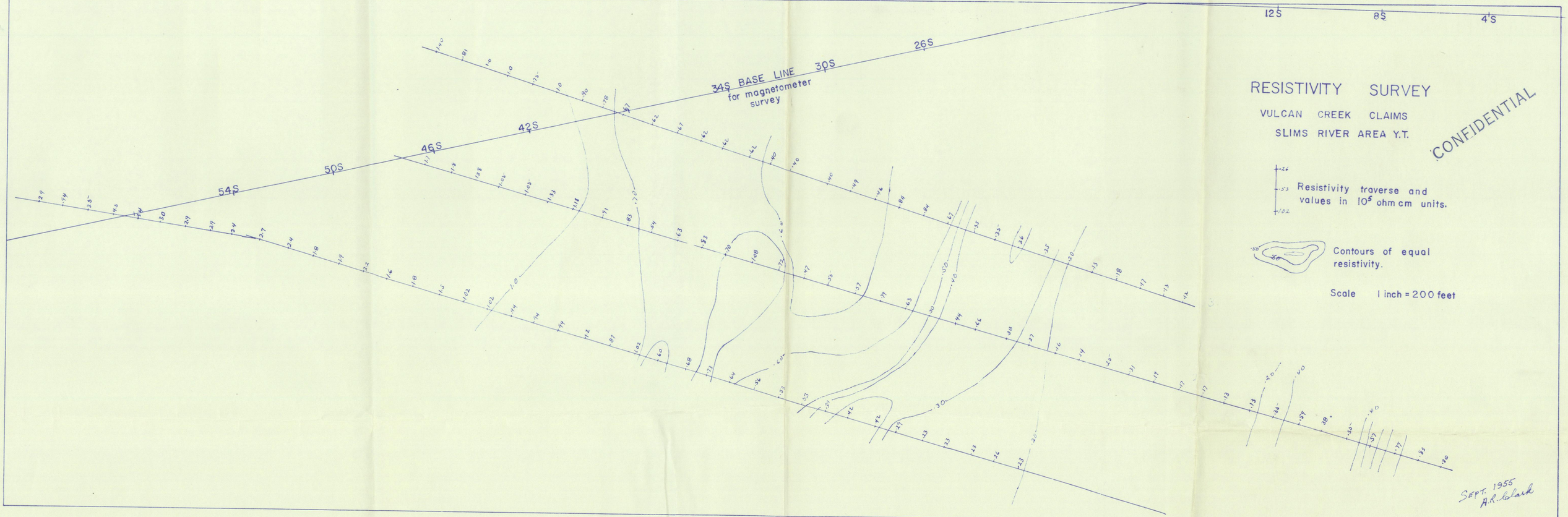
UPPER VULCAN CREEK

YUKON TERRITORY

Scale 1" = 200' DEC. 1955

A.J.W.


WENDY 2
FREDA 14
FREDA 12
FREDA 10
WENDY 1
FREDA 13
FREDA 11
FREDA 9
FREDA 8
FREDA 7
FREDA 6
FREDA 5
FREDA 4
FREDA 3
FREDA 1
EAGLE 5
EAGLE 7
EAGLE 8
EAGLE 4
EAGLE 6
HAWK 1
VULCAN #3
VULCAN #5
VULCAN #1
VULCAN #4
VULCAN #2
VULCAN #6
LIMESTONE BLUFFS
LIMESTONE
BASE LINE
SLIMS RIVER FLATS
PERIDOTITE
DIORITE
CHERTY SEDIMENTS
SHALE
SCHIST
ARGILLITE
CONGLOMERATE
READING IN GAMMAS
MAGNETIC CONTOUR
CONFIDENTIAL
TECK EXPLORATION CO LTD
GEOMAGNETIC MAP
FREDA, VULCAN, EAGLE & HAWK
CLAIM GROUPS
LOWER VULCAN CREEK
YUKON TERRITORY
Scale 1" = 200' DEC. 1955
A.J.W.



RESISTIVITY SURVEY

VULCAN CREEK CLAIMS

SLIMS RIVER AREA Y.T.

CONFIDENTIAL

Resistivity traverse and values in 10^5 ohm cm units.

Contours of equal resistivity.

Scale 1 inch = 200 feet

SEPT. 1955
A.R. Blank

CONFIDENTIAL

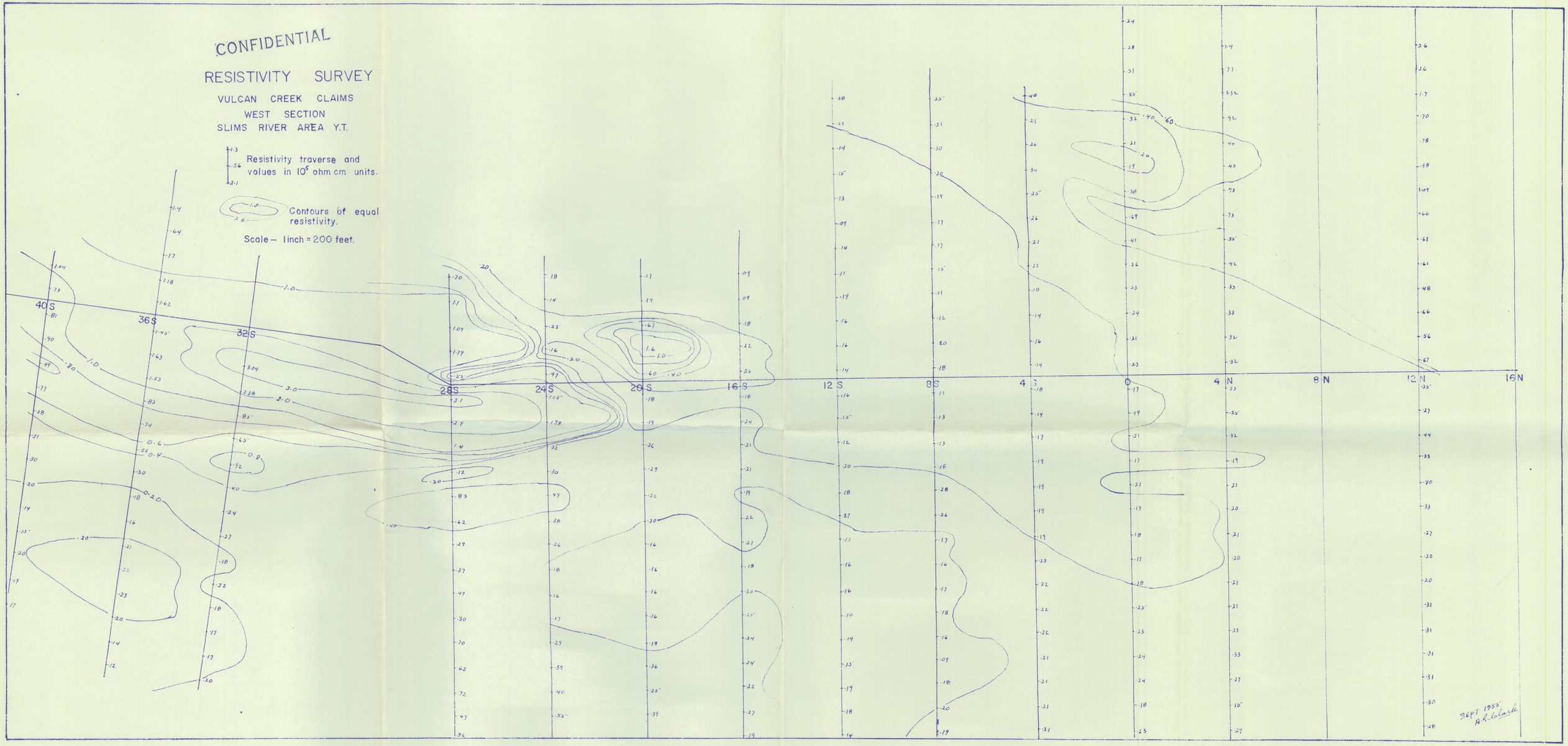
RESISTIVITY SURVEY

VULCAN CREEK CLAIMS
WEST SECTION
SLIMS RIVER AREA Y.T.

Resistivity traverse and values in 10^5 ohm cm units.

Contours of equal resistivity.

Scale – 1 inch = 200 feet.



SEPT 1955
A.R. Lalonde