

4336

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 4336 MAP

GEOCHEMICAL REPORT

on a 92H/15E, 92I/2E

SOIL SAMPLE GEOCHEMISTRY SURVEY

DOR CLAIM GROUP

ASPEN GROVE AREA, NICOLA M.D., B.C.

August 1972

DOR CLAIM GROUP : 11.2 miles S 50° E of the
Town of Merritt, B.C.
: 50° 120° SW
N.T.S.: 92 I/2E, 92 H/15E

Written for: Tanjo Mines Ltd (N.P.L.)
1019-409 Granville Street
Vancouver 2, B.C.

by: David G. Mark, Geophysicist,
Geotronics Surveys Ltd
514-602 W Hastings Street,
Vancouver 2, B.C.

August 30, 1972

Geotronics Surveys Ltd.

Vancouver, Canada

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GRAPHS AND MAPS - at end of report

Scale

#1 Location Map, Figure 1	1" = 134 miles
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Map - in pocket

#5 Soil Sampling Geochemistry - Copper Data and Contours - Sheet 1	1" = 400 feet
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SUMMARY

A soil sample geochemistry survey was completed over all of the DOR claim group located on and around Courtney Lake over eleven miles southeast of Merritt, B.C. The survey was completed during May, 1972. The purpose of the survey was to locate probable zones of copper sulphide mineralization.

The property is found within the Thompson Plateau. The terrain is largely that of grassy rolling plains broken by a few wooded hills and the elevation varies from 3,500 to 4,000 feet.

According to the G.S.C. maps of the area, the property is largely underlain by the Nicola rock group. North of the lake is a small intrusive plug of the Coast Intrusions and on the east bordering the plug is valley basalt.

The main showing on the property is that known as the Copper Star prospect and consists of chalcopyrite, chalcocite, and other copper minerals in a brecciated zone of augite andesite porphyry of the Nicola Group. A showing in the northeast corner of the property consists of copper stain in reddish andesite. All prospects in the Aspen Grove mining area are found within shear zones.

There are four anomalous zones that were revealed by the copper soil sample survey. All are composed of a multiple of smaller, narrow, high anomalies. Many correlate very well with VLF-EM conductive zones and therefore indicate the probability of copper sulphides occurring within shear zones. Also, many of the anomalies correlate directly with or on the flank of magnetic highs and consequently indicate that any sulphide mineralization is related to magnetite and/or pyrrhotite.

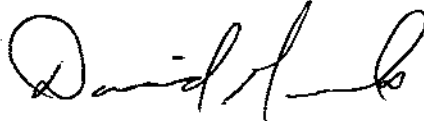
CONCLUSIONS AND RECOMMENDATIONS

Though the soil sampling does not indicate any large zones of copper mineralization, it still is felt to be successful in indicating possible zones of copper mineralization. This is largely due to excellent correlation between the magnetics and the VLF-EM results.

It is therefore strongly recommended to continue with the writer's recommendations in his previous report. As stated previously, the property must be geologically mapped before any further exploration is carried out. At the same time, all of the soil sample anomalous zones should be prospected.

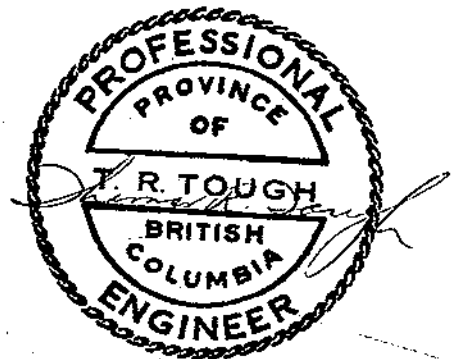
Further exploration work such as trenching, an induced polarization survey and diamond drilling would depend on the results of geological mapping.

Respectfully submitted,
GEOTRONICS SURVEYS LTD



David G. Mark
Geophysicist

August 30, 1972



GEOCHEMICAL REPORT

on

SOIL SAMPLE GEOCHEMISTRY SURVEY

DOR CLAIM GROUP

ASPEN GROVE AREA, NICOLA M.D., B.C.

INTRODUCTION AND GENERAL REMARKS

This report discusses the procedure of a soil sample geochemistry survey and the compilation and interpretation of its data. The soil sampling was carried out over the Dor Claim Group during June, 1972 in the Aspen Grove Area of the Nicola Mining Division.

The sampling was supervised by the writer and in the field by John Zeigler with the help of two assistants. The number of line miles completed was approximately 23 and the number of samples picked up and tested, 1337. Except for the lake, the total area of the property was covered.

The object of the soil sampling was to locate probable areas of copper sulphide mineralization in addition to the known copper sulphide occurrences on the property.

Much of the following preliminary information up to the end of Geology has been given in a previous report on the property by the writer and is quoted here for convenience of the reader.

PROPERTY AND OWNERSHIP

The property consists of 34 contiguous mineral claims called the DOR # 1 - 34 and are wholly owned by Tanjo Mines Ltd (NPL) of Vancouver, B.C. They are as on the table below and as shown on Figure 2.

DOR CLAIM GROUP (34)

<u>Name</u>	<u>Record Number</u>	<u>Expiry Date</u>
Dor 1 - 26	40717 - 40742	May 16, 1973
Dor 27 - 34	40965 - 40972	June 3, 1973.

LOCATION AND ACCESS 50° 00'N, 120° 36' W

The DOR claims cover an area of ground around Courtney Lake which is about eleven miles S 50° E of the town of Merritt. By highway, the distance is about 13.5 miles.

For access, Highway No. 5 passes southerly through the western end of the claim group. A rancher's dirt road leaves the highway about one half mile south of Courtney Lake and gives access to the eastern part of the property.

PHYSIOGRAPHY

The Aspen Grove area is located within the physiographic unit known as the Thompson Plateau which is part of the Interior Plateau system. The terrain varies from rolling, grassy plains to wooded hills. Elevation varies from about 3,500 feet to 4,000 feet giving a relief of 500 feet.

Poplar and alder are found in the low swampy areas and spruce and alder on the hills.

Water supply is excellent since Courtney Lake is found within the centre of the property and Quilchena Creek flows southerly about one mile east of the Claim Group.

Climate of the area is semi-arid with an annual precipitation being not much more than 10 inches. Temperatures vary from below zero in winter to the high 90's in summer.

GEOLOGY

The geology of the property is as shown on Figure 3 and was sketched from the G.S.C. map of H.M.A. Rice, published in 1947 and that of W.E. Cockfield, published in 1948.

The oldest and by far the most prevalent rock group in the area is that of the Nicola Group of Upper Triassic Age. It is largely composed of volcanic rocks which are greenstone, andesite, basalt, agglomerate, breccia and tuff, and associated minor amounts of sedimentary rocks which are limestone, argillite and conglomerate. The strata of the Nicola Group has been folded into gentle anticlines and synclines trending northerly.

The Nicola Group during Jurassic and (?) later time has been intruded by the Coast Intrusions. Within the property boundary on the north end of Courtney Lake is a small plug composed of granite, granodiorite, and/or gabbro.

A few hundred feet off the western edge of the property is a rock group identified as the Coldwater Beds, which are composed of shale, conglomerate, sandstone, and coal. Its age is Miocene or earlier.

The youngest rock type in the area and on the property is of Miocene and later age. It is located on the northeastern side of the Courtney Lake and on the eastern side of the intrusive plug and is largely basalt.

The main mineralization on the property is that known as the Copper Star prospect and is located immediately south of Courtney Lake. It was probably located by the survey crew as a shaft shown on Sheets 1 and 2 in the same area. Its geology is described by Rice on Page 93 of Memoir 243. The minerals are chalcopyrite, chalcocite secondary copper carbonates and a little native copper which occur in a brecciated zone in an augite andesite porphyry of the Nicola Group. 45 tons of ore were shipped and returned 8.7% copper and 2.2 ounces per ton of silver.

Copper staining was noted by W.A. McClelland to be on a shaft wall and its dump in the northeastern part of the property. The country rock is apparently a reddish andesite.

HISTORY OF PREVIOUS WORK

Since the claims were staked, previous work done on the property was a VLF-EM survey carried out by Klyceptor International Air Surveys Limited during the spring of 1970. In May of 1972, Geotronics Surveys Ltd carried out a combined VLF-EM and magnetometer survey over the total property area.

Near the beginning of the century, when interest in the Aspen Grove mining camp was high, many trenches, adits and shafts were dug out. Three of these are found on the DOR claims as mentioned under Geology.

SURVEY PROCEDURE

For both surveys, the grid from the previous VLF-EM survey was followed. On this grid, the first baseline runs about N 15° W the whole length of which is almost totally located west of Highway No. 5. The second baseline is located east of Courtney Lake and runs about N 10° W. The survey lines run in a N 80° E direction and are measured from the first baseline. The baselines and the survey lines were marked during the survey at 100-foot intervals by flagging tape upon which was written the grid co-ordinates. As the whole of the property was not covered by the 1970 VLF-EM survey, extra lines were put in.

The soil samples were picked up at 100-foot intervals at the flagged stations. They were collected from a depth of 16 to 18" where possible so as to penetrate through the organic layer and sample the underlying 'B' layer. A soil auger was used and cleaned after each sample taken to prevent possible contamination. The samples were placed in brown wet-strength paper bags with grid co-ordinates marked thereon.

Colour of the soil varied from brown to black. In swampy areas, only the black, organic top layer could be obtained as a sample.

TESTING PROCEDURE

All samples were tested by General Testing Laboratories of Vancouver, B.C. The sample is first thoroughly dried and then sifted through an -80 mesh screen. A measured amount of the sifted material is then put into a test tube with subsequent measured additions of a solution of perchloric and nitric acid. This mixture is next heated for a certain length of time. The parts per million (ppm) copper is then measured by atomic absorption.

TREATMENT OF DATA

The values in ppm copper were first grouped into a logarithmic interval of 0.075. The cumulative frequency for each interval was then calculated and then plotted against the correlating interval to obtain the logarithmic cumulative frequency graph as shown in Figure 4.

The coefficient of deviation, indicative of the range or spread of values was calculated to be 0.10, a relatively low figure. Therefore, the spread of values is indicated to be rather narrow.

The graph shows the mean background value to be about 55 ppm taken at the 50% level. The sub-anomalous threshold value (a term used by the writer to denote the minimum value that is not considered anomalous but still important as an indicator of mineralization) is taken at one standard deviation from the mean background value which is at the 16% level and is in this case 70 ppm. The anomalous threshold value is two standard deviations away at the 2 1/2% level and is on this property 90 ppm.

The graph shows a break at the 1.7% level which therefore indicates that there is an excess of high copper values on the Dor Claim Group. This is usually the case where copper sulphide mineralization occurs.

The break at the 82% level indicates that there is an excess of low values below 40 ppm, that is, 18% of the values. However, in mineral exploration one is usually only interested in the anomalously high values and therefore this is of relatively little importance.

DISCUSSION OF RESULTS

As can be seen by examining Sheet 1, the anomalies and sub-anomalies are quite sporadic. Also, some of the anomalies have high values compared to the background. Being there is no one large anomaly that would indicate a large body of copper mineralization, it is felt that any copper sulphides that may be causing the anomalies are probably found in shear zones. This is attested to by the fact that the anomalies are narrow and that there is good to excellent correlation between most of them and the VLF-EM conductive zones.

It also appears from the map that the anomalies strike in a north-south direction. However, since the grid is 100 feet by 500 feet, there is a bias error produced in this direction. If samples were taken between the lines on some of the anomalous zones, such as 'A', it may well be seen that they strike in a more northwesterly direction.

There are four main anomalous zones recognized by the writer and are labelled A, B, C, and D. All of these are composed of a multiple of smaller anomalies more concentrated together than over the rest of the survey area.

Zone A is at least 2,000 feet long, up to 1,000 feet wide, and is open on the north and south ends. The writer has added to this the anomaly at (L-90S, 32E).

The zone is probably underlain by an augite andesite porphyry as is the Copper Star prospect which is likely within this zone. The individual anomalies occur directly over and on the flank of magnetic anomalies. Also four of the copper soil anomalies correlated directly with VLF-EM conductive zones. Therefore, the probable copper sulphides are likely to occur within parallel shear zones.

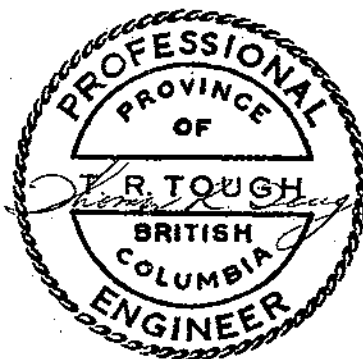
It is interesting to note that neither a VLF-EM conductive zone or a copper soil anomaly correlates with the diggings that have previously been assumed to be the Copper Star prospect near (L-80S, 25E). This, therefore may not be its main showing. For example, a more likely area is the VLF-EM conductive zone and soil sample anomaly centered at (L-90 S, 32E).

Zone B is 2000 feet long by 1,200 feet wide and is open on the east end and strikes in a northerly direction. One small anomaly correlates directly with a VLF-EM conductive zone and the others occur on the flanks of these

conductors. Also the 'zone correlates more with a magnetic low except for one small one which correlates directly with a magnetic high. This copper zone is found directly around diggings that have uncovered malachite staining on andesite rock.

Zone C is 1800 feet long up to 1,000 feet wide, open on the south end and strikes northerly. The zone is largely underlain by an intrusive according to the GSC map of the area. The main part of the anomaly correlates directly with a dyke-like magnetic high and a VLF-EM conductive zone. This was previously felt by the writer to reflect the contact with the valley basalt. However, it could also reflect a shear zone or a relatively conductive dyke that is mineralized with copper sulphides and magnetite or pyrrhotite.

Zone D is composed of four small anomalies that occur only on L-15S. According to the GSC map, this is underlain by valley basalt. Two of the anomalies flank a VLF-EM conductive zone and a magnetic high.



Respectively submitted,
GEOTRONICS SURVEYS LTD

David G. Mark
David G. Mark
Geophysicist

August 30, 1972

SELECTED BIBLIOGRAPHY

- Cockfield, W.E. - Geology and Mineral Deposits of the Nicola Map Area, British Columbia, Geol. Survey of Can. Mem. 249, 1948.
- Fraser, D.C. - Contouring of VLF-EM Data, Geophysics, Vol. 34, No. 6, pp. 958-967, 1969.
- Hings, D.L. - Geophysical Report No. EM-70-106 for Tanjo Mines Ltd (NPL) DOR Claim Group. Klyceptor International Air Surveys Ltd June, 1970.
- Kelley, Sherwin F. - Report on the Hope and Dor Mineral Claims near Merritt, B.C. for Tanjo Mines Ltd April, 1970.
- Kelley, Sherwin F. - Supplemental Report to Tanjo Mines Claims near Merritt, B.C. for Tanjo Mines Ltd., April, 1970.
- Lepeltier, Claude - A Simplified Statistical Treatment of Geochemical Data by Graphical Representation, Economic Geology, Vol. 34, pp. 538-550, 1969.
- Mark, D.G. - Geophysical Report on Magnetic and VLF-EM Surveys, Dor Claim Group, Aspen Grove Area, Nicola M.D., B.C. Geotronics Surveys Ltd., May, 1972.
- Rice, H.M.A. - Geology & Mineral Deposits of the Princeton Map Area, British Columbia. Geol. Surv. of Canada, Mem. 243, 1960.

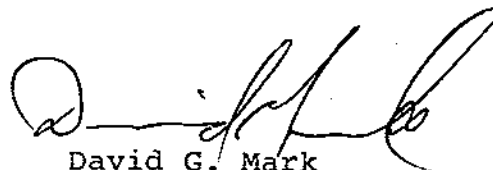
GEOPHYSICIST'S CERTIFICATE

I, David G. Mark, of the City of Vancouver, in the Province of British Columbia, do hereby certify:

That I am a Consulting Geophysicist of GEOTRONICS SURVEYS LTD with offices at 514-602 W Hastings Street, Vancouver 2, B.C.

I further certify that:

1. I am a graduate of the University of British Columbia (1968) and hold a B.Sc. degree in Geophysics.
2. I have been practising my profession for the past four years and have been active in the mining industry for the past seven years.
3. I am an associate member of the Society of Exploration Geophysicists and a member of the European Association of Exploration Geophysicists.
4. This report is compiled from data obtained from a soil sample geochemistry survey carried out by John Zeigler, May 1972 on the DOR claim Group and pertinent data from published maps and reports as listed under Selected Bibliography.
5. I have no direct or indirect interest in the properties or securities of Tanjo Mines Ltd (NPL) Vancouver, B.C. nor do I expect to receive any interest therein as a consequence of writing this report.



David G. Mark
Geophysicist

August 30, 1972

ENGINEER'S CERTIFICATE

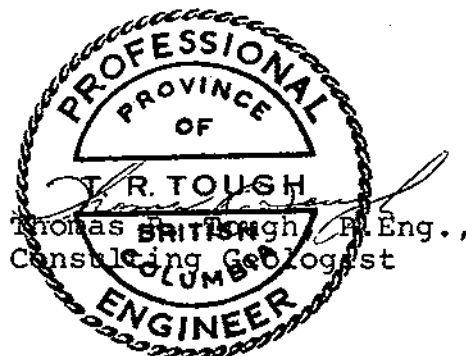
I, Thomas R. Tough, of the City of Vancouver, in the Province of British Columbia, do hereby certify that:

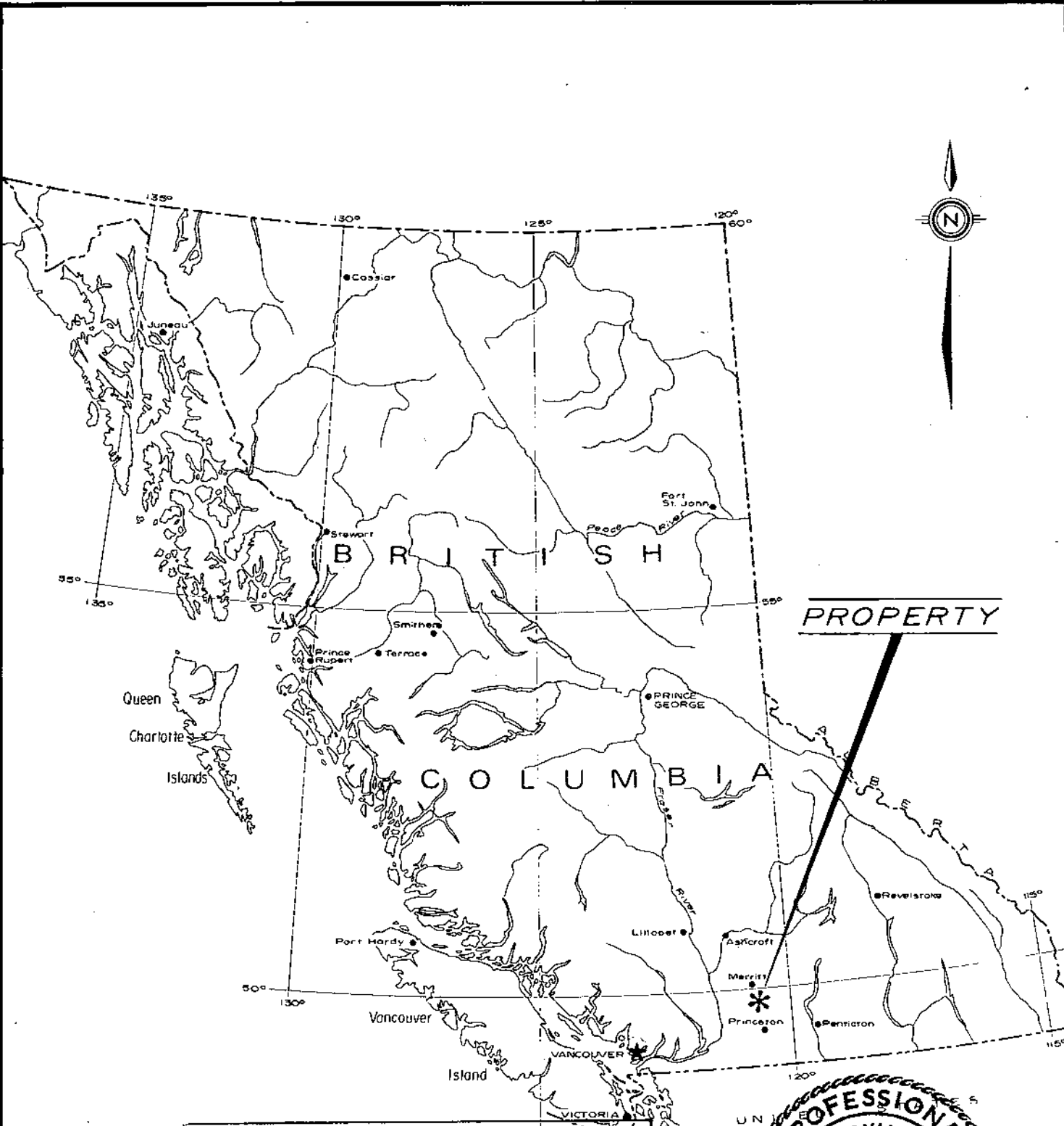
I am a Consulting Geologist and an associate with T.R. Tough & Associates Ltd, with offices at 519-602 W Hastings Street, Vancouver 2, B.C.

I further certify that:

1. I am a graduate of the University of British Columbia (1965) and hold a B.Sc. degree in Geology.
2. I have been practising my profession for the past six years and have been active in the mining industry for the past thirteen years.
3. I am registered with the Association of Professional Engineers of British Columbia.
4. I have studied the accompanying report dated August 30, 1972, on a soil sample geochemistry survey, submitted by Geotronics Surveys Ltd written by David G. Mark, Geophysicist, and concur with findings therein.
5. I have no direct, or indirect interest whatsoever in the property described herein, nor in the securities of Tanjo Mines Ltd (NPL) and do not expect to receive any interest therein.

August 30, 1972





Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 NO. **4336** MAP #1

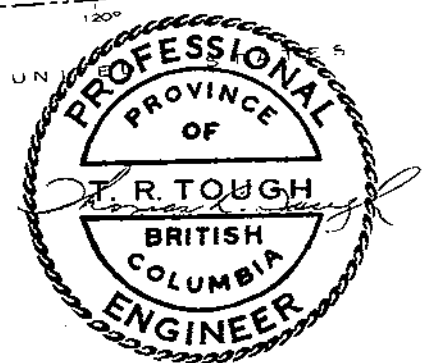


FIG. 1
 TANJO MINES LTD (N.P.L.)
 DOR CLAIM GROUP
 NICOLA M.D., B.C.

LOCATION MAP

SCALE: 1" = 136 miles

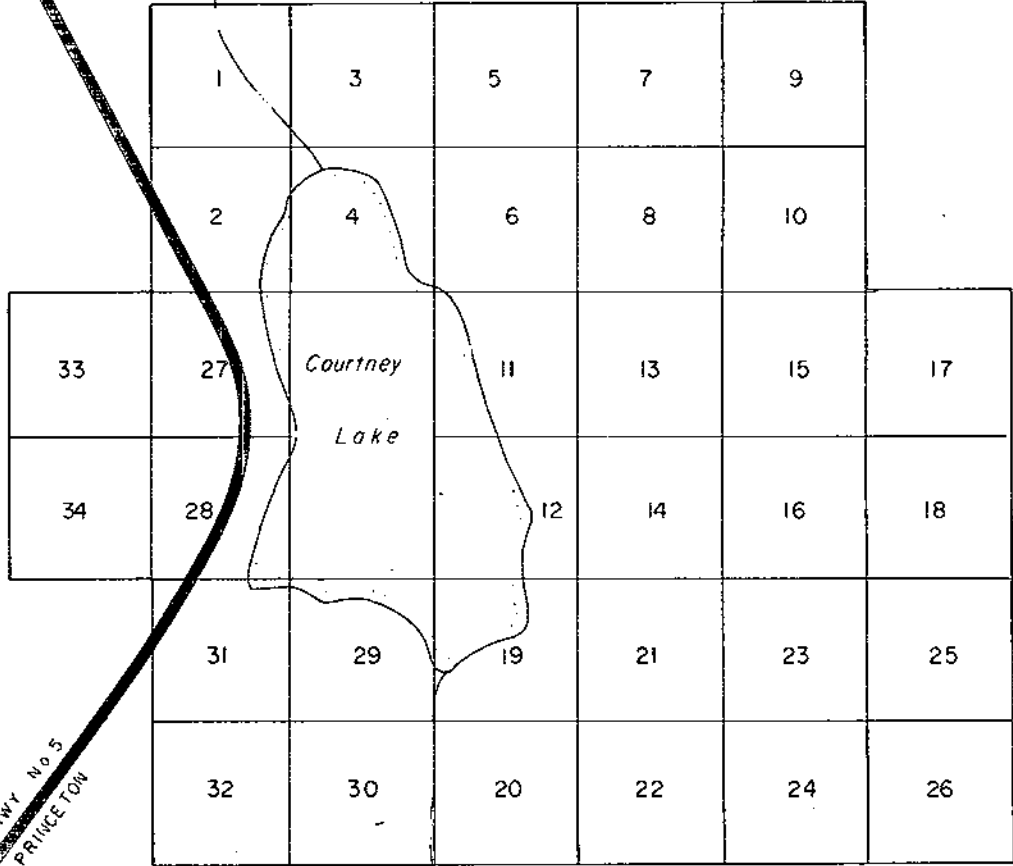
Department of
Mines and Technical Resources

ASSESSMENT REPORT

NO. **4336** MAP # **2**



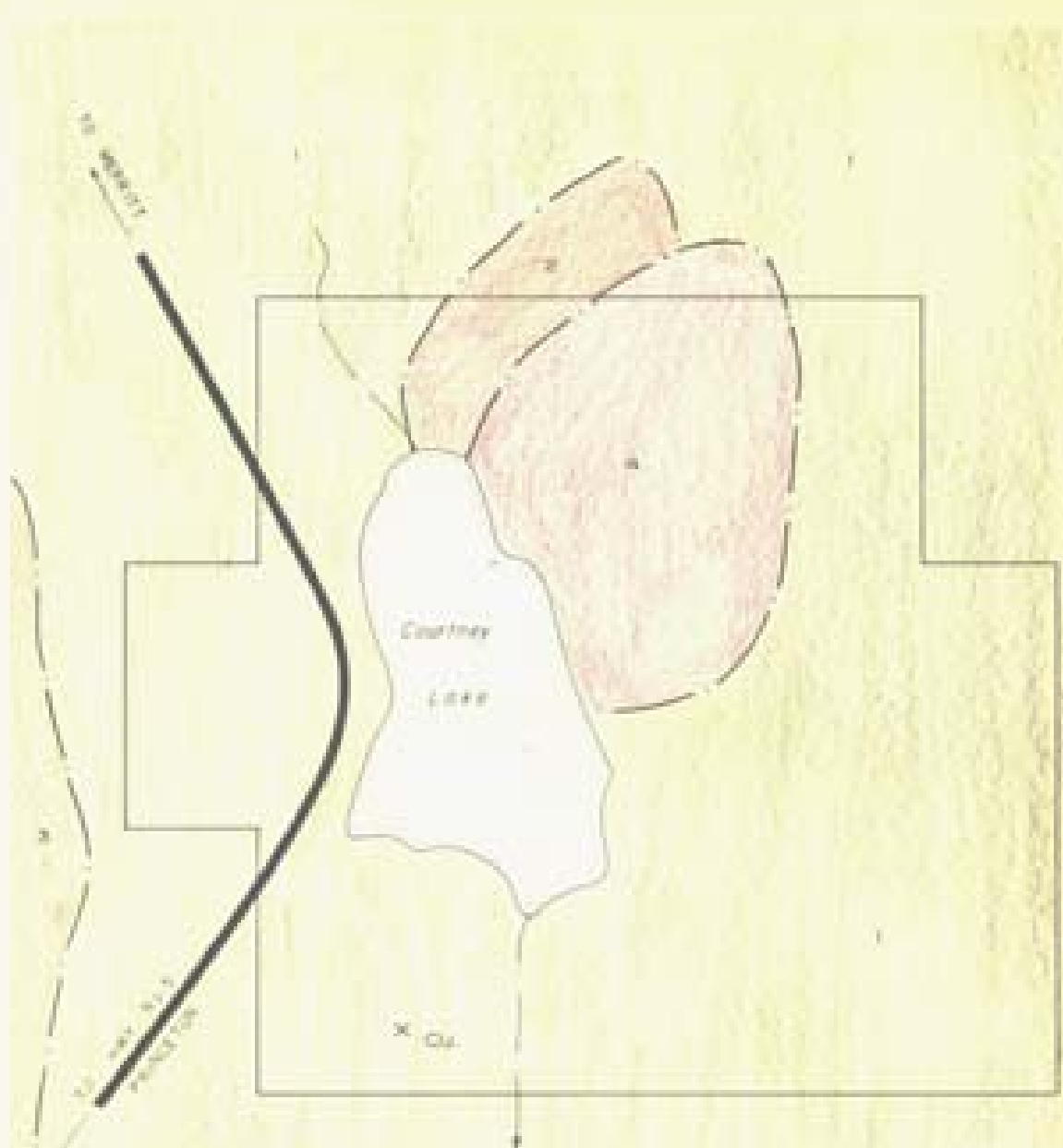
TO MERRITT



TO HWY No 5
PRINCETON

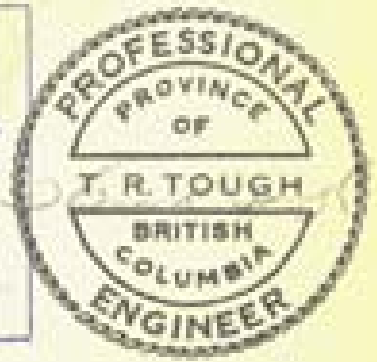


FIG. 2
TANJO MINES LTD (N.P.C.)
DOR CLAIM GROUP
N.C.A. W.L.S.C.
CLAIM MAP



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO **4336** MAP **#3**



GEOLOGY

- 4** Valley floor
COLDWATER BEDS
- 3** Conglomerate, shale, sandstone, & coal
- 2** COAST INTRUSIONS- granite, gneiss, quartzite, gabbro
- 1** NICOLA GROUP- greenstone, andesite, basalt, agglomerate, breccia, tuff, minor argillite, limestone, conglomerates.

FIG. 3
TANJO MINES LTD (N.P.L.)
DOR CLAIM GROUP
N.C.D. NO. 20

GEOLOGY MAP
SCALE 1" = 2000 FT

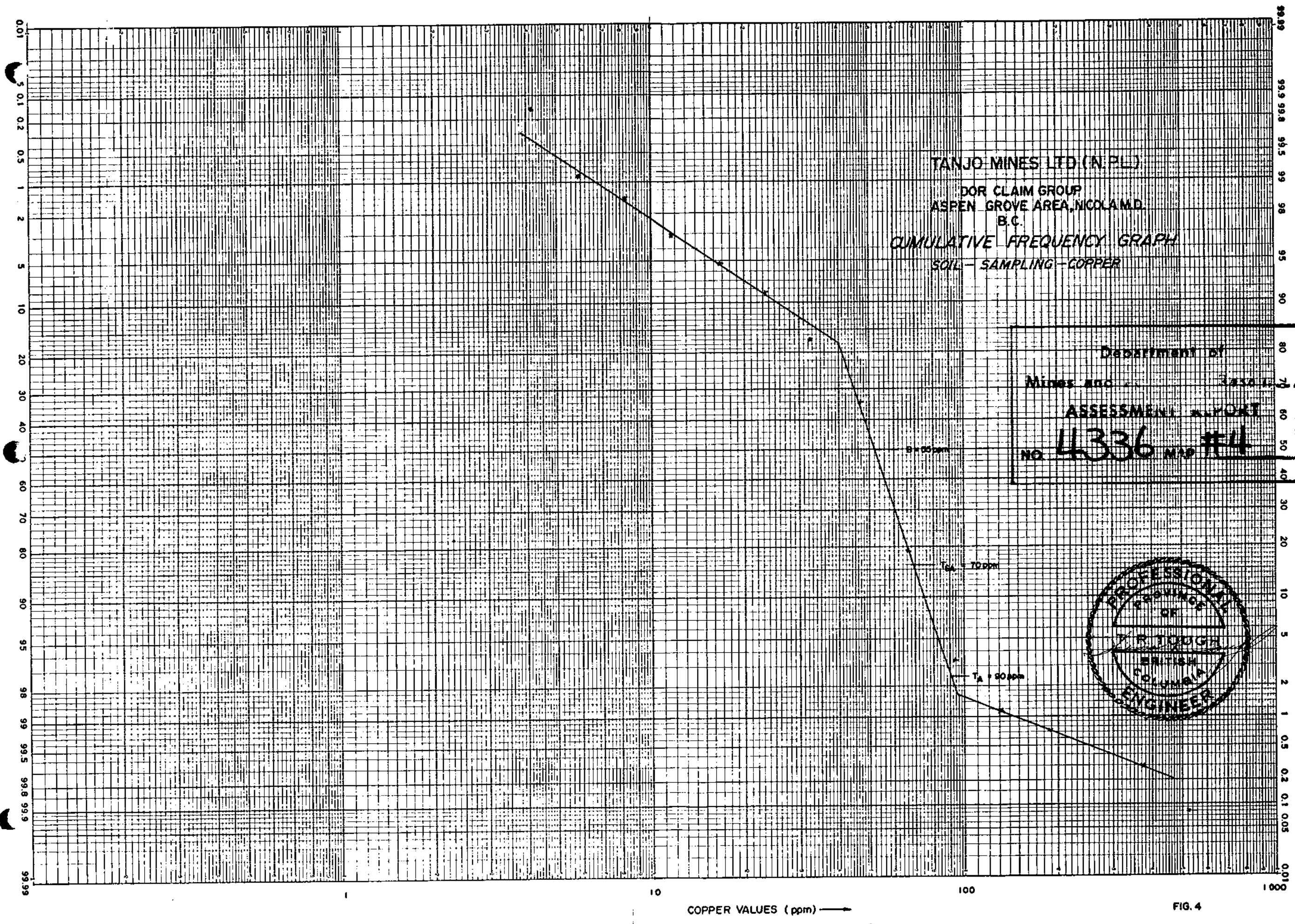


FIG. 4

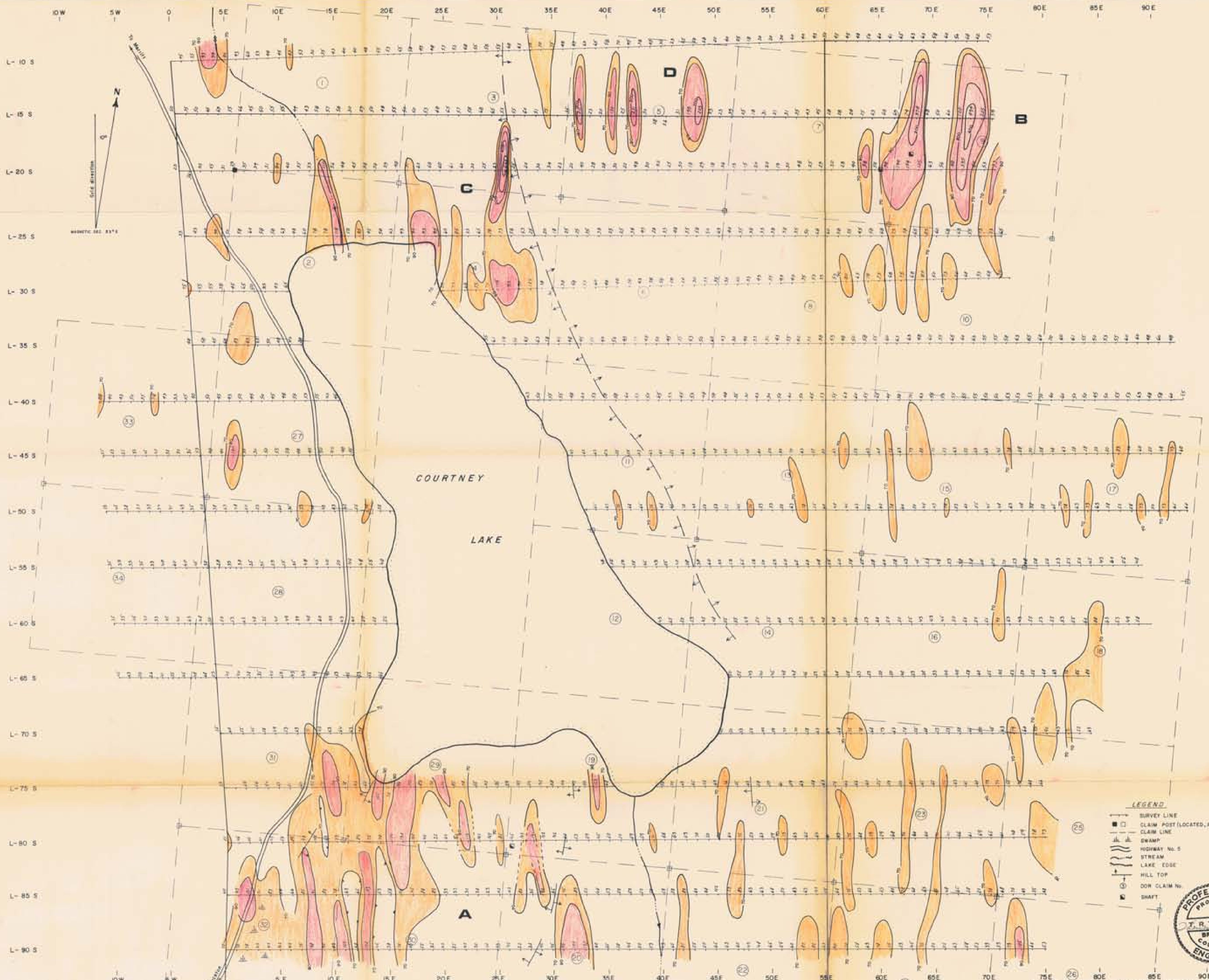
COST BREAKDOWN
CONTRACT NO. 72-54
SOIL SAMPLE GEOCHEMISTRY SURVEY
DOR CLAIM GROUP
ASPEN GROVE AREA, NICOLA M.D., B.C.

Wages

Field Supervisor - 12 days @ 100.00/day	\$ 1,200.00
2-man crew - 12 days @ 60.00/man/day	1,440.00
	<hr/>
	2,640.00
Equipment rental and survey supplies	130.00
Geochemical analysis - 1337 @ 150.00	2,005.50
Mapping and report	800.00
Engineering fees	300.00
	<hr/>
TOTAL	\$ 5,875.50

Declared before me at the *City*
of *Amoune*, in the
Province of British Columbia, this *14th*
day of *May*, 1973.

G. Phillips
A Commissioner for taking Affidavits within British Columbia or
A Notary Public and for the Province of British Columbia.



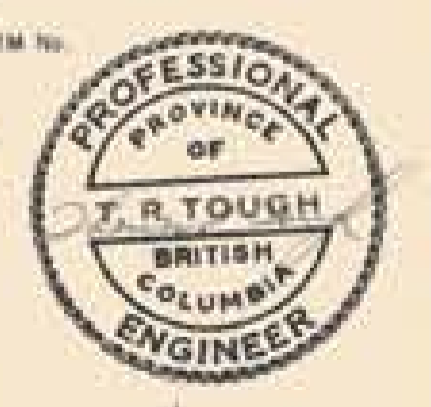
4336 M-5

NOTE: READINGS ARE IN PPM
 CONTOURS: 10 ppm, 20 ppm, 30 ppm, 40 ppm, 50 ppm, 60 ppm, 70 ppm, 80 ppm, 90 ppm, 100 ppm, 110 ppm, 120 ppm, 130 ppm, 140 ppm, 150 ppm, 160 ppm, 170 ppm, 180 ppm, 190 ppm, 200 ppm, 210 ppm, 220 ppm, 230 ppm, 240 ppm, 250 ppm, 260 ppm, 270 ppm, 280 ppm, 290 ppm, 300 ppm, 310 ppm, 320 ppm, 330 ppm, 340 ppm, 350 ppm, 360 ppm, 370 ppm, 380 ppm, 390 ppm, 400 ppm, 410 ppm, 420 ppm, 430 ppm, 440 ppm, 450 ppm, 460 ppm, 470 ppm, 480 ppm, 490 ppm, 500 ppm, 510 ppm, 520 ppm, 530 ppm, 540 ppm, 550 ppm, 560 ppm, 570 ppm, 580 ppm, 590 ppm, 600 ppm, 610 ppm, 620 ppm, 630 ppm, 640 ppm, 650 ppm, 660 ppm, 670 ppm, 680 ppm, 690 ppm, 700 ppm, 710 ppm, 720 ppm, 730 ppm, 740 ppm, 750 ppm, 760 ppm, 770 ppm, 780 ppm, 790 ppm, 800 ppm, 810 ppm, 820 ppm, 830 ppm, 840 ppm, 850 ppm, 860 ppm, 870 ppm, 880 ppm, 890 ppm, 900 ppm, 910 ppm, 920 ppm, 930 ppm, 940 ppm, 950 ppm, 960 ppm, 970 ppm, 980 ppm, 990 ppm, 1000 ppm

Department of
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 ASSESSMENT REPORT
 NO. 4336 MAP #5

LEGEND

- SURVEY LINE
- CLAIM POST (LOCATED, ASSUMED)
- CLAIM LINE
- SWAMP
- HIGHWAY NO. 5
- STREAM
- LAKE EDGE
- HILL TOP
- DOR CLAIM NO.
- SHAFT



TO ACCOMPANY GEOCHEMICAL REPORT BY D.S. MARK, GEOPHYSICIST GEOTRONICS SURVEYS LTD.				
TANJO MINES LIMITED (NPL) DOR CLAIM GROUP ASPEN GROVE AREA, NICOLA M.D.C.				
GEOCHEMISTRY SOIL SAMPLING - Cu DATA B CONTOURS				
SCALE 1" = 400'	DATE AUGUST 1972	JOB No. 72-54	SHEET 1	DRAWN BY POT

N.T.S. MAPS
 92-1/2"E AND 93-WIDE