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REPORT ON THE GEOLOGY AND GEOCHEMISTRY

OF THE

PAD, DOM, BYE and MATT GROUPS

OMINECA MINING DIVISION

(PAD Group; TIDA 1-14, IDA 33-40, 73-80, 117-120, 139-144)

(DOM Group; IDA 7-32, 69-72, 110, 112-116, 137, 138, 145, 146)

(BYE Group; IDA 2-6, 44-68, 106-109, 111, 136, 147, 148, 150, 152)

(MATT Group; IDA 43, 83-105, 122-135, 149, 151)

Manson Creek

124° 30' W, 55° 40' N

By

T. Rodgers, P. Eng.

May 18th to Sept. 13th, 1972

4245

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Manson Creek

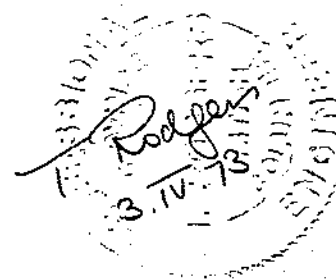
124° 30' W, 55° 40' N

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May 18th to Sept. 13th, 1972

Department of	
Mines and Petroleum Resources	
ASSESSMENT REPORT	
NO. 4245	MAP

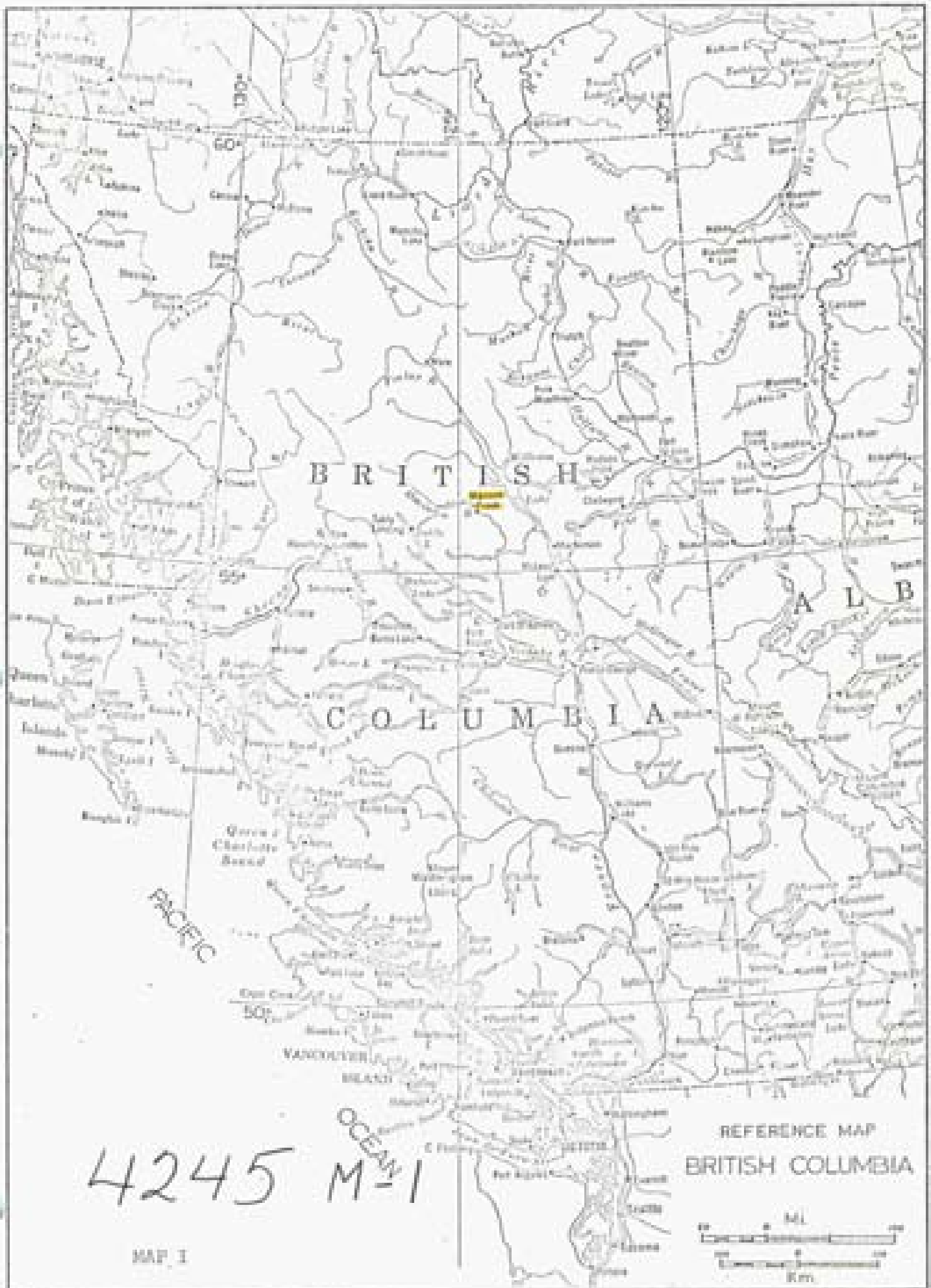


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BRITISH

ALB

COLUMBIA

PACIFIC

OCEAN

4245 M-1

REFERENCE MAP  
BRITISH COLUMBIA



MAP I

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT

NO. 4245 MAP #1

## Introduction

The Pad, Dom, Bye and Matt groups of claims were staked during 1972 on the watershed between the Manson and Germansen river systems to cover the area from which the placer gold in those systems was most likely derived.

The claims were covered with a primary grid of lines at intervals of 800'. These lines were sampled geochemically at intervals of 200'. A secondary grid of lines at 400' intervals covers areas of interest; these lines were also sampled at 200' intervals. The anomalous areas were then subjected to an induced polarisation survey.

This report describes the geological and geochemical work and presents the data collected; the geophysical results are being reported on separately.

## Location and Access

The claim groups flank the road from Manson Creek to Germansen Landing and are traversed by a road suitable for four wheel drive vehicles branching off at Manson Creek. The area has therefore direct road access from Fort St. James. Manson Creek is also served by a scheduled air service into the nearby Wolverine Lake. This service originates in Prince George.

## Claims

The initial block of 152 claims (Ida 1 - 152 inclusive) were staked in April 1972 and recorded on the 17th day of that month. An additional 14 claims (Tida 1 - 14 inclusive) were staked in August 1972 and recorded on the 14th and 18th of that month. 160 of these claims were grouped in four groups as follows.

Pad Group; Tida 1-14, Ida 33-40, 73-80, 117-120, 139-144

Dom Group; Ida 7-32, 69-72, 110, 112-116, 137, 138, 145, 146

Bye Group; Ida 2-6, 44-68, 106-109, 111, 136, 147, 148, 150, 152

Matt Group; Ida 43, 83-105, 122-135, 149, 151

### Geology

The regional geology is described on Map 876A published by the G.S.C. This shows that the claims are underlain by rocks of the Cache Creek Group. These consist of a thick succession of interbedded sedimentary and volcanic rocks. The sediments are thin bedded argillites and slates, are carbonaceous and exhibit rusty weathering. The volcanics are made up of altered andesitic and basaltic flows, tuffs, breccias and agglomerates.

Outcrop is sparse in the claim area except along Slate Creek. Elsewhere, and particularly in the area of the geochemical and geophysical anomalies, scattered float blocks are so highly albitised and carbonatised that their original nature is not apparent. Thin section work, reported on in the attached appendices, suggests that at least some of the country rock may have been volcanic breccia of trachytic composition. There are also some outcrops of andesites and slate/argillite.

The claim block is supposedly crossed by the Manson Fault, a wide shear zone in which carbonatisation is dominant, but this structure is not anywhere exposed.

### Geochemistry

Soils in the claim area were systematically sampled and analysed for copper, zinc, silver and gold. A line of samples was also analysed for mercury and arsenic to see if these elements could indicate the type and location of the source of the gold found in the area.

Samples were taken from the B1 Horizon with a stainless steel trowel, from holes dug by mattock. They were then placed in kraft sample bags and partly sun-dried. Min-En Laboratories of North Vancouver dried, sieved and analysed the minus eighty mesh fraction. Their exact procedures are described in an appendix.

### Geochemical Results

#### Copper.

This metal's distribution is essentially log normal. The calculated threshold value is 158 p.p.m. and all soils containing more than this amount should be considered anomalous.

#### Zinc.

The threshold value for zinc is 234 p.p.m. Soils containing more than this amount can therefore be considered anomalous.

#### Silver.

So many samples were at or near the detection limit that statistical analysis was not possible. Samples over 3 p.p.m. are, however, probably anomalous.

#### Gold.

Samples over 200 p.p.b. are considered anomalous, and those over 1000 p.p.b. strongly so.

### Conclusions

There is a definite, if indeterminate in detail, correlation between anomalous induced polarisation effects and anomalous metal content in the soils above, in several areas within the claim block. Rock samples, marginally economic in terms of their gold content also correspond loosely with those anomalous areas. Such areas are worthy of further investigation.



DECLARATION OF EXPENSES

Geological and Geochemical Survey 1972

Pad, Dom, Bye and Matt Groups

Men Employed on Survey

E. Bye	May 20 - Oct. 31	100 days @ \$44.88 =	\$ 4,480
P. Phillips	" 18 - "	98 " @ 30.00 =	2,940
D. Syrrette	" 18 - "	87 " @ 22.83 =	2,226
W. Hosak	" 24 - Aug. 31	38 " @ 31.60 =	1,201
G. Priestley	June 1- Oct. 11	39 " @ 18.79 =	733
A. Burton	July 3- Sept. 30	90 " @ 24.42 =	2,198
L. Frantz	June 26- Aug. 31	42 " @ 19.72 =	828
S. Mathews	Sept. 6- Sept. 22	17 " @ 19.73 =	335
		<u>511</u>	<u>\$ 14,941</u>

Field Expenses

Engineering & Camp Supplies	\$2,610
Fuel Oil/Propane	33
Food	1,672
Communications	52
Transportation	1,490
Misc. Travel	2,712
Vehicle Rental	865
Equipment "	538
Misc. expenses	2,612
	12,584

Contract Expenses

Line cutting	8,154
Geophysics (I.P. Survey)	5,005
	13,159

Declared before me at the  
of \_\_\_\_\_, in the  
Province of British Columbia, this  
day of \_\_\_\_\_, A.D.

VANCOUVER, B. C.

APR 3 1973

*[Signature]*  
Sub-Mining Recorder

*[Signature]*

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

C

C

C

Laboratory/Office Expenses

Assaying	6,924	
Drafting & Petrological Studies	450	
		7,354
		<hr/>
Total		<u>\$ 48,058</u>

Declared before me at the  
of  
Prov. of British Columbia, in the  
day of  
VANCOUVER, B. C.  
APR 3 1973, A.D.  
*[Signature]*  
Sub-Mining Recorder

*[Handwritten Signature]*

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

GEOCHEMICAL ANALYSIS BY MIN-EN LABORATORIES LTD.

Samples are processed by Min-En Laboratories Ltd. at 705 W 15th St., North Vancouver Laboratory employing the following procedures.

After drying the samples at 95°C soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed by jaw crusher and pulverized by ceramic plated pulverizer.

1.0 gram of the samples are digested for 6 hours with  $\text{HNO}_3$  and  $\text{HClO}_4$  mixture.

After cooling samples are diluted to standard volume. The solutions are analysed by Atomic Absorption Spectrophotometers.

Copper, lead, zinc, silver, cadmium, cobalt, nickel and manganese are analysed using the  $\text{CH}_2\text{H}_2$ -Air flame combination but the molybdenum determination is carried out by  $\text{C}_2\text{H}_2$ - $\text{N}_2\text{O}$  gas mixture directly or indirectly (depending on the sensitivity and detection limit required) on these sample solutions.

GOLD GEOCHEMICAL ANALYSIS BY MIN-EN LABORATORIES LTD.

Geochemical samples for Gold processed by Min-En Laboratories Ltd. at 705 W. 15th St., North Vancouver Laboratory employing the following procedures.

After drying the samples at 95°C soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed and pulverized by ceramic plated pulverizer.

A suitable sample weight 5.0 or 10.0 grams are pre-treated with  $\text{HNO}_3$  and  $\text{HClO}_4$  mixture.

After pretreatments the samples are digested with Aqua Regia solution, and after digestion the samples are taken up with 25%  $\text{HCl}$  to suitable volume.

At this stage of the procedure copper, silver, and zinc can be analysed from suitable aliquote by Atomic Absorption Spectrophotometric procedure.

Further oxidation and treatment of least 75% of the original sample solutions are made suitable for extraction of gold with Methyl Iso-Butyl Ketone.

With a set of suitable standard solution gold is analysed by Atomic Absorption instruments. The obtained detection limit is 0.01 ppm (10 ppb).

*Logans: J. C. Franky  
P. H. Gumbly  
West Westcott,  
Trench Dodgers ✓*

Mineralogical investigation of rock sample.

158 N. 56 W.

Two polished thin sections were cut from the sample, and subsequent microscope and microprobe examinations were made on these.

The rock consists of albite, carbonate (both calcite and dolomite), muscovite, rutile and pyrite. Estimates of the proportions of the minerals in the samples of the rock are given below, but because of the heterogeneous nature of the rock the figures given are very approximate and the two samples differ significantly.

	Sample 1	Sample 2
Albite	20	50
Muscovite	40	-
Carbonate	30	40
Pyrite	5	10
Rutile	3	1

The pyrite is strongly oxidised along fractures and on the surfaces of the crystals. Rutile is dispersed throughout the rock in small anhedral but ubiquitous grains, and appears to be secondary. The angular nature of some of the felspar crystals suggests a breccia origin to the rock. The rock however has undergone considerable metasomatism resulting in the formation of carbonate, the albitisation of the felspar, and possibly the introduction of titanium. Microprobe measurements showed the albite to be essentially pure sodium plagioclase with no significant calcium or potassium. The carbonate consists of both calcite and ankeritic dolomite in highly variable proportions. The muscovite in the first sample is fine grained, semi-schistose, surrounding the rigid grains of the other minerals. This muscovite is better crystallised than is normal from straight alteration of felspar, but it probably owes its origin to the metasomatism of pre-existing felspar. The table above shows that muscovite and albite in sample 1 together are about equal to the

galbrite in sample 2, and it seems reasonable to suppose that different parts of the rock were subjected to different degrees of metasomatism.

Despite a thorough search with a X60 oil immersion objective, only half a dozen minute (around 1 micron) particles were found which might have been gold. Their appearance suggested this as a likely identification, and it is unlikely that they were pyrite, but because of their extreme smallness they eluded positive identification in the microprobe. Nevertheless, I feel that gold, which assay shows to be present, probably exists in a free form as minute particles of native gold rather than in chemical combination in other mineral phases. Further investigation of a wider selection of samples would resolve this point. No tetrahedrite, or indication of silver bearing phases, was found.

Department of Geology,  
University of Toronto

*John Rubidge*

3 rd January 1973

## DATA FROM SECTION OF SPECIMEN 136N72W

Primary Minerals

Oligoclase Determined from extinction angles on albite twins at  $7.5^{\circ}$ ,  $5.0^{\circ}$ ,  $14.0^{\circ}$ ,  $16.0^{\circ}$ ,  $9.5^{\circ}$ ,  $15.0^{\circ}$ ,  $13.0^{\circ}$ ,  $7.0^{\circ}$ . This is the only obvious primary mineral remaining, and is seen to be in various stages of argillic alteration.

Secondary Minerals

Calcite  
Siderite  
Argillic Alteration Products

Secondary minerals are most feasibly a product of hydrothermal activity and alteration. Composition of the clay minerals produced by alteration cannot be resolved optically and would require X-ray analysis.

Opagues

Initial Rock Type

Generally appears to be little or no quartz. Nature of the remnant feldspars suggestive of a very shallow intrusive or flow, and composition of the feldspar indicates that the initial igneous rock likely lay in the trachytic compositional range. Nature of the hand specimen indicates that the sample may even have been a volcanic breccia. With the present state of alteration, this is about as close as one can come to the initial rock type.



DATA ON SECTION FROM SPECIMEN 6V

Primary Minerals

No primary minerals apparent in this highly altered specimen.

Secondary Minerals

Calcite  
Siderite  
Pyrite  
Argillic Alteration Products

Initial Rock Type

Since no characteristic primary minerals occur, the initial rock type is difficult to determine. X-ray analysis of the argillic alteration products could, of course, shed some light on initial rock type. However, clay minerals produced by argillic alteration are similar to those in Specimen 136N72W and may have been produced by hydrothermal alteration of an igneous rock of comparable composition.

DOMINION OF CANADA:  
 PROVINCE OF BRITISH COLUMBIA.

In the Matter of a geophysical survey on behalf of  
 Sullivan and Rodgers

To Wit:

I, Leslie A. Merrifield for Scintrex Surveys Limited

of 750 - 890 West Pender Street, Vancouver

in the Province of British Columbia, do solemnly declare that an induced polarization survey has been executed on some IDA claims in the Monson Creek area, British Columbia between September 11th to September 27th, 1972. The following expenses were incurred:

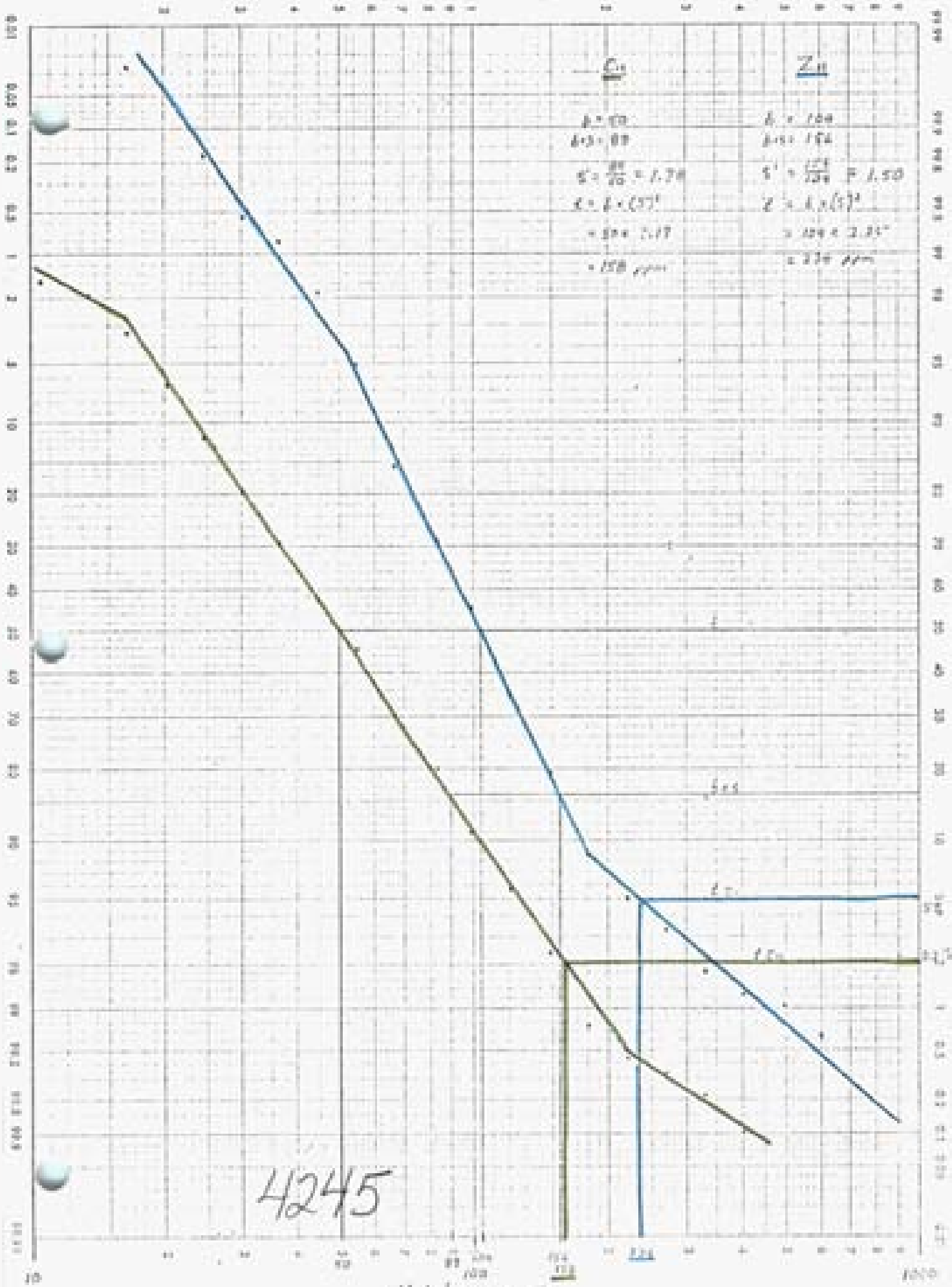
(1) Wages:			
	Ron Gibbins	17 days @ \$35.00/day	\$595.00
	H. Huckson	17 days @ \$27.50/day	467.50
	P. Chew	17 days @ \$27.50/day	<u>467.50</u>
			\$1,530.00
(2)	Transportation & shipping to the job		\$63.60
(3)	Transportation on the job		\$451.20
(4)	Food & Living Expenses		\$706.58
(5)	Use of geophysical equipment		
		17 days @ \$60.00/day	\$1,020.00
(6)	Paid to Scintrex Surveys Limited to cover geophysicist's supervision, calculating, plotting and fairdrawing data and preparation of final reports		\$1,853.62
			<u>\$5,625.00</u>

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the City  
 of Vancouver, in the  
 Province of British Columbia, this 8th  
 day of March, 1973, A.D.

*Leslie A. Merrifield*

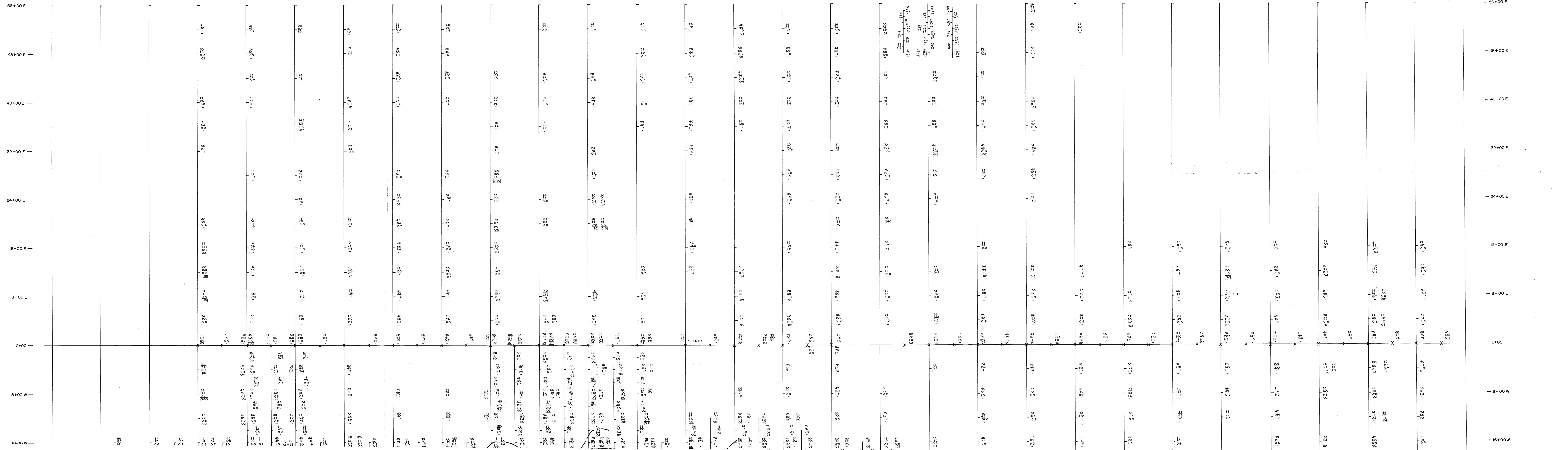
*David Paul* Sub-mining Recorder  
 A Commissioner for taking Affidavits for British Columbia or  
 A Notary Public in and for the Province of British Columbia.



1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT

NO. 4245 MRP



56+00 E

48+00 E

40+00 E

32+00 E

24+00 E

16+00 E

8+00 E

0+00

8+00 W

16+00 W

56+00 E

48+00 E

40+00 E

32+00 E

24+00 E

16+00 E

8+00 E

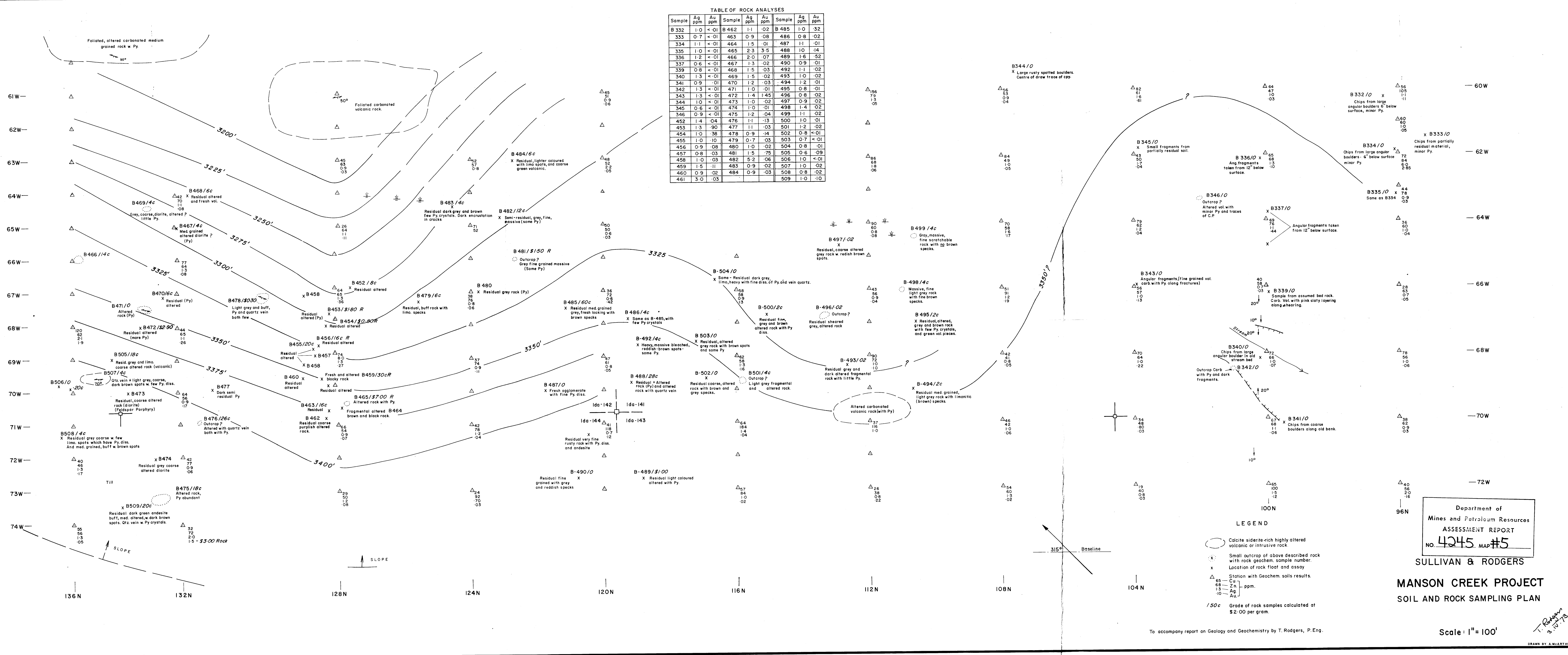
0+00

8+00 W

16+00 W

TABLE OF ROCK ANALYSES

| Sample | Ag ppm | Au ppm | Sample | Ag ppm | Au ppm | Sample | Ag ppm | Au ppm |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| B 332  | 1.0    | < .01  | B 462  | 1.1    | .02    | B 485  | 1.0    | .32    |
| 333    | 0.7    | < .01  | 463    | 0.9    | .08    | 486    | 0.8    | .02    |
| 334    | 1.1    | < .01  | 464    | 1.5    | .01    | 487    | 1.1    | .01    |
| 335    | 1.0    | < .01  | 465    | 2.3    | 3.5    | 488    | 1.0    | .14    |
| 336    | 1.2    | < .01  | 466    | 2.0    | .07    | 489    | 1.6    | .52    |
| 337    | 0.6    | < .01  | 467    | 1.3    | .02    | 490    | 0.9    | .01    |
| 339    | 0.8    | < .01  | 468    | 1.5    | .03    | 492    | 1.1    | .02    |
| 340    | 1.3    | < .01  | 469    | 1.5    | .02    | 493    | 1.0    | .02    |
| 341    | 0.9    | < .01  | 470    | 1.2    | .03    | 494    | 1.2    | .01    |
| 342    | 1.3    | < .01  | 471    | 1.0    | .01    | 495    | 0.8    | .01    |
| 343    | 1.3    | < .01  | 472    | 1.4    | 1.45   | 496    | 0.8    | .02    |
| 344    | 1.0    | < .01  | 473    | 1.0    | .02    | 497    | 0.9    | .02    |
| 345    | 0.6    | < .01  | 474    | 1.0    | .01    | 498    | 1.4    | .02    |
| 346    | 0.9    | < .01  | 475    | 1.2    | .04    | 499    | 1.1    | .02    |
| 452    | 1.4    | .04    | 476    | 1.1    | .13    | 500    | 1.0    | .01    |
| 453    | 1.3    | .90    | 477    | 1.1    | .03    | 501    | 1.2    | .02    |
| 454    | 1.0    | .38    | 478    | 0.9    | .14    | 502    | 0.8    | < .01  |
| 455    | 1.0    | .10    | 479    | 0.7    | .03    | 503    | 0.7    | < .01  |
| 456    | 0.9    | .08    | 480    | 1.0    | .02    | 504    | 0.8    | < .01  |
| 457    | 0.8    | .03    | 481    | 1.5    | .75    | 505    | 0.6    | .09    |
| 458    | 1.0    | .03    | 482    | 5.2    | .06    | 506    | 1.0    | < .01  |
| 459    | 1.5    | .11    | 483    | 0.9    | .02    | 507    | 1.0    | .02    |
| 460    | 0.9    | .02    | 484    | 0.9    | .03    | 508    | 0.8    | .02    |
| 461    | 3.0    | .03    |        |        |        | 509    | 1.0    | .10    |

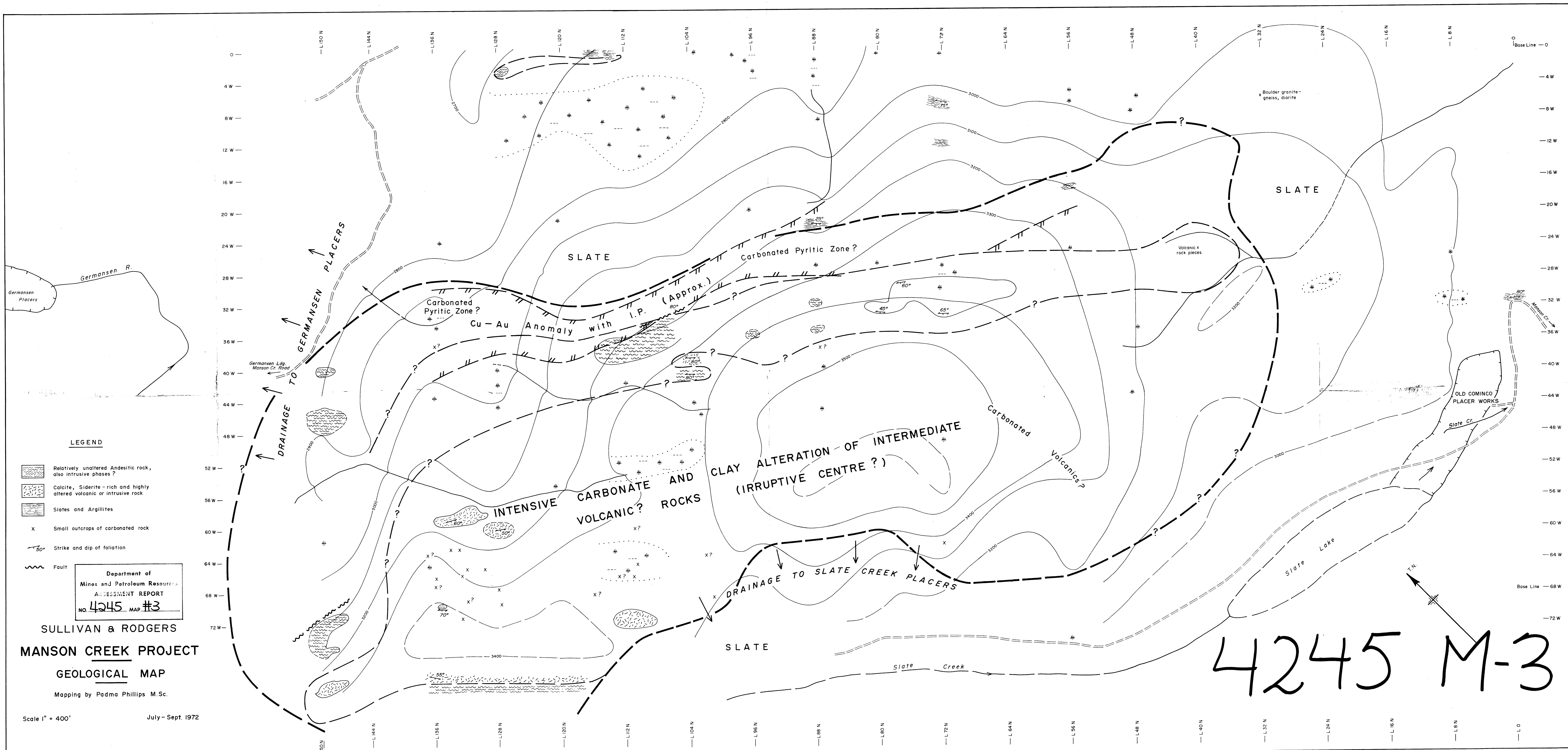


Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 4245 MAP #5  
SULLIVAN & RODGERS  
MANSON CREEK PROJECT  
SOIL AND ROCK SAMPLING PLAN  
Scale: 1" = 100'

To accompany report on Geology and Geochemistry by T. Rodgers, P.Eng.

DRAWN BY A. MARTIN





**LEGEND**

- Relatively unaltered Andesitic rock, also intrusive phases?
- Calcite, Siderite - rich and highly altered volcanic or intrusive rock
- Slates and Argillites
- Small outcrops of carbonated rock
- Strike and dip of foliation
- Fault

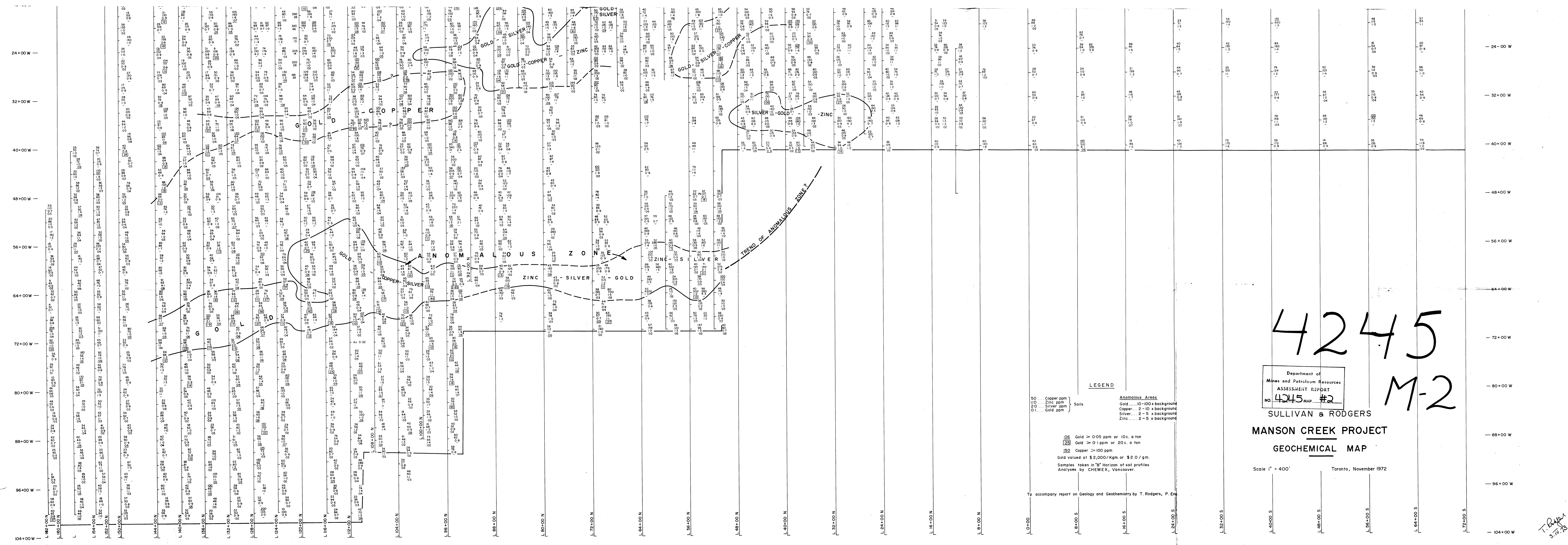
Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 4245 MAP #3

**SULLIVAN & RODGERS**  
**MANSON CREEK PROJECT**  
**GEOLOGICAL MAP**  
Mapping by Padma Phillips M.Sc.

Scale 1" = 400' July - Sept. 1972

To accompany Report on Geology and Geochemistry by T. Rodgers P. Eng

4245 M-3



**LEGEND**

50 ... Copper ppm  
 100 ... Zinc ppm  
 200 ... Silver ppm  
 150 ... Gold ppm

**Anomalous Areas**  
 Gold ... 10-100 x background  
 Copper ... 2-10 x background  
 Silver ... 2-5 x background  
 Zinc ... 2-5 x background

Gold valued at \$2,000/Kgm or \$2.0 / gm.  
 Samples taken in "B" Horizon of soil profiles  
 Analyses by CHEMEX, Vancouver.

Department of  
 Mines and Petroleum Resources  
 ASSESSMENT REPORT  
 NO. 4245 MAP #2

**SULLIVAN & RODGERS**  
**MANSON CREEK PROJECT**  
**GEOCHEMICAL MAP**

Scale 1" = 400'  
 Toronto, November 1972

To accompany report on Geology and Geochemistry by T. Rodgers, P. Eng.

4245  
 M-2

T. Rodgers  
 3.11.78



