



ASSESSMENT REPORT
CAL 1 - 80
MINING CLAIMS
WATSON LAKE MINING DISTRICT
105 - H - 8 W
61° 23' N; 128° 27' W



090780

W. A. MacLeod

March, 1981



This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of \$ 19,500.00

A handwritten signature in black ink, appearing to be "J. W. ...", written over a horizontal line.

Resident Geologist or
Resident Mining Engineer

Considered as representation work under
Section 53 (4) Yukon Quartz Mining Act.

A handwritten signature in black ink, appearing to be "E. R. Baxter", written over a horizontal line.

E. R. BAXTER
Supervising Mining Recorder

A handwritten signature in black ink, appearing to be "C. ...", written over a horizontal line.

Commissioner of Yukon Territory

TABLE OF CONTENTS

	<u>Page</u>
Introduction	(i)
1. Location and Access	1
2. Logistics and Support	1
3. Topographic Base Map	1
4. Road Rehabilitation	1
5. Geology	3
6. Geochemistry	4
7. Expenditures	5
8. Grouping	9
9. Conclusions and Recommendations	9
10. References	13
11. Qualifications and Signature	14
Appendix A (Expenditure Receipts)	

LIST OF FIGURES

Figure 1:	Index Map	Page 2
Figure 2:	Cal Claims - Geology & Silt Sampling	In Pocket

INTRODUCTION

The Cal 1 - 80 claim group located in NTS grid 105-H-8 W was staked by Shell Canada Resources Ltd. in April, 1980. Prior to commencing field operation, a topographic base map of the project area was prepared. Subsequent geological mapping, prospecting, and stream silt sampling surveys were plotted onto the new base map. A pre-existing four wheel drive road to the property was also repaired during the 1980 field season.

The exploration of the Cal group was carried out by Shell Canada Resources as part of our Norquest Project by right of agreement with New Jersey Zinc Exploration Company (Canada) Ltd. The technical surveys were conducted by Shell personnel with the road repair and base map preparation being completed by contracted firms. All work was initiated and supervised by W. A. MacLeod.

The accompanying plan details the work completed.

1. LOCATION AND ACCESS

The Cal claims are located in an area of rugged, mountainous topography immediately west of the Hyland River Valley approximately 150 kilometres north of Watson Lake, Yukon Territories. The camp is situated in an open alpine valley at an elevation of 1,610 metres above sea level. Peak elevations are in the order of 2,000 metres above sea level.

The claimed area is accessible by unimproved four wheel drive road originating from kilometre 94 on the Cantung Highway. Helicopter support is required to mobilize personnel and equipment to the mountainous areas on the property.

The Town of Watson Lake provides an efficient support base for the program. Most goods and services are available locally. The town is served by the Alaska and Stewart-Cassiar Highways and daily scheduled air connections to Whitehorse and all southern Canadian centres are available.

2. LOGISTICS AND SUPPORT

Shell's exploration crew was based from a tent camp established on the Cal 14 claim. An access road from kilometre 94 on the Cantung Highway was utilized for general vehicular support. Food orders and light-weight materials were generally brought into camp via the road. Heavier supplies, for example fuel, etc., were slung in by helicopter from the highway.

All camp supplies, fuel, etc. were purchased in Watson Lake.

Although the newly repaired road afforded access to the claimed area, helicopter support was generally utilized for crew transport. This expedient saved time, facilitated access to the higher elevations, and lessened the maintenance required on the vehicles.

3. TOPOGRAPHIC BASE MAP

Inaccuracies present in existing topographic maps of the Norquest area necessitated the production of a new map. Hardy Associates Ltd. of Calgary were contracted to provide a 1:10,000 scale topographic base map. The map was compiled from recent government airphotos taken in September 1979 and served as a locating base for all phases of the 1980 program.

4. ROAD REHABILITATION

The access road from Mile 58 on the Cantung Highway to the claim group was rehabilitated in June, 1980. The road, allowed to deteriorate through non-use since 1973, was bulldozed in order to remove slide material and fill washouts. The work was contracted to Grant Stewart Construction Ltd. of Watson Lake.

5. GEOLOGY

The Norquest area is situated within the Omenica Tectonic Belt and is underlain by eastwards dipping sediments of Upper Proterozoic to Lower Cambrian age. The sediments have been later intruded by possibly Cretaceous aged granitoids of the Mount Billings Batholith.

Two sedimentary units are recognized on the Ca1 claims. The first of Hadrynian age, consists of cyclic clastics and possibly basinal pelites. These are conformably overlain by a second pelitic sequence of Lower Cambrian or Upper Hadrynian age. The second package consists of banded argillite overlain by undifferentiated pelite.

The bulk of the Hadrynian cyclical clastic unit is composed of fine to medium grained cyclical clastic sediments (Unit 1). Each cycle grades laterally and vertically from a relatively clean quartzite through proto-quartzite and subarkoses to greywacke. Pelitic content increases eastward.

The clastics occur as layered schists of varying composition. Light grey to buff-brown colored quartzite and brown protoquartzite (biotite quartzite) are distinguished on the basis of increased biotite content in the latter. The protoquartzite also contains some feldspar content and is mapped as a quartz-biotite-feldspar schist. Biotite content usually increases vertically upwards and graded beds indicate that the tops are up.

The subarkoses are marked by an increase in feldspar content and are mapped as quartz-feldspar-biotite schist. Textures are similar to the quartzites. The subarkoses grade toward greywacke with a notable increase in biotite at the expense of feldspar and quartz content.

The greywacke is mapped as well foliated, medium grained, dark brown colored, biotite-quartz-feldspar (?) schist.

Undifferentiated wacke-siltstone lithologies outcrop eastwards from the clastics (Unit 2). These occur as well foliated, fine to medium grained schists of varying composition. Quartz, biotite, + chlorite, + andalusite, and + cordierite constitute the mineralogy of this unit. The schists fine further eastwards eventually becoming a metapelite.

The banded argillite (Unit 4) occurs as a very fine grained in part cherty, laminated sediment. It is, in turn conformably overlain by a thicker sequence of pelitic sediments.

The pelites of the second sequence (Unit 6) occur as fine to coarse grained schists of varying composition. Quartz, muscovite, biotite, feldspar, + cordierite, + andalusite, + chlorite, and + garnet comprise the mineralogy. Conformable quartz segregations within the more foliated schists are frequently boudinaged and can form quartz veins of up to 50 cm in width.

The Proterozoic and early Paleozoic sediments have been intruded by

intermediate to felsic apophyses of the Cretaceous Mount Billings Batholith. Massive, fine to coarse grained, crystalline rocks of diorite, quartz monzonite, and granite composition form sills, feeder dykes, and small stocks within the sediments. Pegmatitic phases also occurring as sills, are present but may be indirectly related to the main intrusive complex through anatexis. The pegmatite and to a lesser extent, related quartz-feldspar porphyry and quartz veins have been found to contain pink andalusite.

Structural interpretations at Norquest are tenuous at best. The lack of a continuously recognizable marker and extensive overburden cover obscures the structural elements.

The sediments essentially form an eastward dipping monocline. Open folding (flexure) of the strata to define a southeast plunging syncline is suggested by opposing dips across the Copter Creek valley near the camp location.

Tightly folded small scale "s" folds were noted during the regional mapping. The significance of these is uncertain but it is reasonable to assume that they may be parasitic to some large regional deformation.

A zone of highly foliated (sheared?) mylonitized sediments was mapped on the north side of the Fir Tree area. The location of the zone at the head of a long linear stream valley is suggestive of possible faulting.

Other faults, manifest only by other topographic linears may or may not be present. Direct evidence of their existence is lacking.

6. GEOCHEMISTRY

A limited stream silt sampling program was carried out on a reconnaissance basis in conjunction with the regional geological mapping. A total of thirty-four samples were analysed for copper, lead, zinc, and tungsten. The results were plotted on the accompanying regional map.

The tungsten results were non-anomalous.

Anomalous levels for copper, lead and zinc are determined qualitatively without reference to conventional statistical calculations of mean and standard deviation values. The small sample population, some taken from an obviously anomalous environment, negates the usefulness of those calculations. Instead, comparison of the results obtained to background levels set forth for the Omineca Tectonic Belt as a whole by Sinclair et al (1978) forms the basis of determining the anomalies. The anomalous values are taken to be those in excess of twice the published background. The results shown on the regional maps are color coded per the values shown below.

Anomalous Levels - Stream Silts

Table III

(Parts Per Million)

	<u>Copper</u>	<u>Lead</u>	<u>Zinc</u>	
> 4 BG	> 105	> 89	> 237	Red
3BG - 4BG	79 - 104	67 - 88	178 - 236	Purple
2BG - 3BG	52 - 78	44 - 66	118 - 177	Blue
Published Background	26	22	59	

7. EXPENDITURES

Accounting for the expenditures on the Cal claims for assessment work credits necessarily demands that unit costs be computed for all of the foregoing surveys and preparatory work. These are then to be used in determining the actual costs incurred on each claim as a function of the area mapped and, where applicable, the length of road repaired or the number of stream sediment samples collected on each claim.

A. Unit Costs

1. Camp Operation (Average over 1980 Field Season) \$ 30.00/day

2. Fuel

The fuel costs include mobilization costs to the jobsite and are detailed as follows:

Fuel (100/130 Grade)

Purchase Price	\$ 1.78
Barrel Rental 2 mo. @ \$3.00/bbl =	\$ 0.13
Mobilization	
Watson Lake - Mile 58 Cantung Hwy. (126 Miles @ \$2.30/mi for 36 bbl) Helicopter slinging to jobsite on property (.3 hr. @ \$220/hr for 2 bbl.)	\$ 0.18
	\$ <u>0.73</u>
Unit "on site" fuel cost (100/130)	\$ 2.82/gal.

Fuel (Diesel)

Purchase Price	\$ 1.25
Barrel Rental 1 mo @ \$3.00	\$ 0.06
Mobilization	
Watson Lake - Mile 58 Cantung Hwy. (126 miles @ \$2.30/mi for 36 bbl)	\$ 0.18
Unit "on site" fuel cost (diesel)	\$ 1.49/gal.

3. Topographic Base MapDirect Billing

Hardy Associates Ltd. \$7,887.30

Overhead10% of above \$ 788.73

Total: \$8,676.03

Unit CostArea mapped 37,500 acres
Cost/Acre = \$ 0.234. Road RehabilitationContract Services (Bulldozing - Grant
Stewart Construction)

a) Mobilization/demobilization \$1,048.00

b) Road repair 2,244.00

c) Fuel consumed
90 gal. diesel @ \$1.49/gal = 134.10

Total cost Bulldozing = \$3,426.10

Camp CostsGrant Stewart Personnel
2 men x 2 days @ \$30.00/manday = \$ 120.00

Sub-Total: \$3,546.10

Overhead (10% of above) \$ 354.61Overall Total: \$3,900.71Unit CostTotal Road Repaired = 18.0 kilometres
Cost/km \$ 216.71/km

5. Mapping and ProspectingWages and Benefits - Shell Personnel

a)	B. Yamamura (August 9) 1 day @ \$56.40 =	\$ 56.40
b)	D. Knight (August 9, 10, 11, 18, 19, 20, 22, 23, and 24) 9 days @ \$97.15 =	\$ 874.35
c)	T. Setterfield (August 9, 10, 11, 18, 19, 20, 22, and 23) 8 days @ \$82.67 =	\$ 661.36
d)	B. Jago (August 9, 10, 11, 18, 19, 20, 22, and 23) 8 days @ \$82.67 =	\$ 661.36
e)	W. MacLeod (June 25, 26, 28; July 1, 3) 5 days @ \$127.88 =	\$ 639.40
f)	J. C. Ruelle (June 25, 26, 28; July 1, 3) 5 days @ \$127.88 =	\$ <u>639.40</u>
	Total Wages =	\$3,532.27 (1)

Camp Costs

(Includes Shell Personnel and Helicopter Pilot for dates as above)	
45 man days @ \$30.00 =	\$1,350.00 (2)

Helicopter Support

Bell 47 G3 B1 (Frontier Helicopters) for dates as above 34.7 hrs. @ \$220.00 =	\$7,634.00
Fuel consumed 17 gal/hr. x 34.7 hrs @ \$2.82/gal (Unit fuel cost tabled above) =	<u>\$1,663.52</u>
Total Helicopter =	\$9,797.52 (3)

Vehicle Rental

9 days @ \$800.00/mo = \$ 240.00 (4)

Geological Mapping sub-total -
(Figures 1 - 4) \$14,419.79

10% additional overhead
(report preparation, maps, misc.
supplies) - \$ 1,441.98

Overall Total - Geological Mapping \$15,861.77

Unit Cost (Geological Mapping)

Total area mapped & prospected - 3,433.62 acres

Mapping cost/acre = \$ 4.62

6. Geochemical SurveyWages and Benefits - Shell Personnel

a) B. Yamamura
(dates as above)
8 days @ \$56.40 = \$ 451.20

Camp Costs

a) B. Yamamura
(dates as above)
8 days @ \$30.00 = \$ 240.00

Assays

Loring Labs
34 samples @ \$6.45 = \$ 219.30

Sub-total: \$ 910.50

Overhead (10% of above) \$ 91.05

Overall Total \$1,001.55

Unit Cost

\$1,001.55/34 samples \$ 29.46/sample

B. Work Credits

The above determined unit costs are allotted to the claims per the following Table of Expenditures.

8. GROUPING

Pursuant to Section 52 of the Yukon Quartz Mining Act, Shell is applying for a total of six claim groups. The applications are under separate cover.

9. CONCLUSIONS AND RECOMMENDATIONS

The Cal claims were found to be underlain by two clastic-pelitic sedimentary sequences of Upper Proterozoic to Lower Cambrian age. The sediments were later intruded and substantially altered by Cretaceous aged granitoids of the Mount Billings Batholith.

Structure is, for the time being, assumed to be simple. The sediments are thought to form an openly flexed eastward dipping monocline.

Results from the reconnaissance stream silt sampling exercise are considered to be encouraging. Anomalous copper, lead, and zinc values were located downstream from known mineralization at both the Blackjack and Fir Tree showings.

Continued exploration through closely controlled break of slope soil sampling to be subsequently followed up by diamond drilling, is warranted on the Cal claims. The exploration target would of course be the continuation of the known lead, zinc, and silver mineralization at the Blackjack and Fir Tree showings immediately adjacent to the Cal ground.

TABLE OF EXPENDITURES

Claim	Area (Acres)	No. Silt Samples	Km Road	Proportioned Costs				Total
				Map @ \$0.23/acre	Road @ \$216.71/km	Geol. Mapping @ \$4.62/acre	Silt Sampling @ \$29.46/samp.	
1	51.65	2	0.78	\$ 11.88	\$ 169.03	\$ 238.61	\$ 58.91	\$ 478.43
2	51.65	2	0.14	11.88	30.43	238.61	58.91	339.83
3	51.61	1		11.88		238.61	29.46	279.95
4	51.65		0.15	11.88	32.51	238.61		283.00
5	51.65		0.38	11.88	82.35	238.61		332.84
6	51.65			11.88		238.61		250.49
7	51.65			11.88		238.61		250.49
8	51.65		0.55	11.88	119.19	238.61		369.68
9	51.65			11.88		238.61		250.49
10	51.65		0.55	11.88	119.19	238.61		369.68
11	51.65			11.88		238.61		250.49
12	51.65	2	0.45	11.88	97.52	238.61	58.91	406.92
13	51.65			11.88		238.61		250.49
14	51.65		0.71	11.88	153.86	238.61		404.35
15	51.65			11.88		238.61		250.49
16	51.65		0.37	11.88	80.18	238.61		330.67
17	35.27			8.11		162.93		171.04
18	40.26			9.26		186.00		195.26
19	51.65	1		11.88		238.61	29.46	279.96
20	50.11			11.53		231.47		243.00
21	24.23*			5.57		111.94		117.51
22	11.46*			2.64		52.92		55.56
23	43.48			10.00		200.85		210.85
24	5.53*			1.27		25.55		26.82
25	40.04			9.21		184.95		194.16
26	48.68			11.20		224.90		236.10
27	1.75*			0.40		8.09		8.49
28	51.65	2	0.50	11.88	108.36	238.61	58.91	417.76
29	14.47*		0.27	3.33	58.51	66.85		128.69
30	33.82	1	0.23	7.78	49.84	156.22	29.46	243.30

TABLE OF EXPENDITURES

Claim	Area (Acres)	No. Silt Samples	Km Road	Proportioned Costs				Total
				Map @ \$0.23/acre	Road @ \$216.71/km	Geol. Mapping @ \$4.62/acre	Silt Sampling @ \$29.46/samp.	
Cal 31	5.76*		0.06	\$ 1.32	\$ 13.00	\$ 26.60	\$	\$ 40.92
32	46.34			10.66		214.05		224.71
33	8.23*		0.10	1.89	21.67	38.02		61.58
34	13.13*			3.02		60.66		63.68
35	45.96	1	0.46	10.57	99.69	212.30	29.46	352.02
36	33.20			7.64		153.38		161.02
37	16.06*			3.69		74.20		77.89
38	51.65			11.88		238.61		250.49
39	45.16	2		10.39		208.54	58.91	277.84
40	51.65			11.88		238.61		250.49
41	51.65		0.20	11.88	43.34	238.61		293.83
42	51.65		0.67	11.88	145.20	238.61		395.69
43	51.65	2		11.88		238.61	58.91	309.40
44	25.47			5.86		177.67		123.53
45	36.59			8.42		169.05		177.47
46	31.76		0.25	7.30	54.18	146.73		208.21
47	51.65	2		11.88		238.61	58.91	309.40
48	34.06		0.44	7.83	95.35	157.34		260.52
49	17.70*	1		4.07		81.76	29.46	115.29
50	51.65			11.88		238.61		250.49
51	51.65			11.88		238.61		250.49
52	51.65	1		11.88		238.61	29.46	279.95
53	51.65			11.88		238.61		250.49
54	51.65	1		11.88		238.61	29.46	279.95
55	47.45	2	0.52	10.91	108.36	219.18	58.91	397.36
56	43.91			10.10		202.82		212.94
57	51.65			11.88		238.61		250.49
58	51.65			11.88		238.61		250.49
59	51.65			11.88		238.61		250.49
60	51.65	1		11.88		238.61	29.46	279.95

TABLE OF EXPENDITURES

Claim	Area (Acres)	No. Silt Samples	Km Road	Proportioned Costs				Total
				Map @ \$0.23/acre	Road @ \$216.71/km	Geol. Mapping @ \$4.62/acre	Silt Sampling @ \$29.46/samp.	
61	51.65	1		\$ 11.88	\$	\$ 238.61	\$ 29.46	\$ 279.95
62	51.65	2		11.88		238.61	58.91	309.40
63	51.65	1		11.88		238.61	29.46	279.95
64	51.65	3		11.88		238.61	88.38	338.87
65	51.65			11.88		238.61		250.49
66	51.65	2	0.26	11.88	56.34	238.61	58.92	365.75
67	51.65		0.48	11.88	104.02	238.61		354.51
68	46.28		0.46	10.64	99.69	213.81		324.14
69	21.01*	1	0.52	4.83	112.69	96.80	29.46	243.81
70	51.08			11.75		235.90		247.65
71	51.65			11.88		238.61		250.49
72	51.65			11.88		238.61		250.49
73	45.37			10.44		209.54		219.98
74	51.65			11.88		238.61		250.49
75	40.92			9.41		189.00		198.41
76	51.65			11.88		238.61		250.49
77	50.11			11.53		231.51		243.04
78	42.22			9.71		195.06		204.77
79	37.14			8.54		171.59		180.13
80	27.01			6.21		124.75		130.96
							TOTAL:	\$19,707.57

* Denotes reduced assessment expenditure requirements.

10. REFERENCES

- a) Roots, E.F., Green, L.H., and Roddick, J.A., Blusson, S.L., 1966: Geology of the Frances Lake Map Sheet (105H); Yukon Territory and District of Mackenzie; Geological Survey of Canada; Map 6-1966.
- b) Sinclair, A.J., Wynne-Edwards, H.R., Sutherland Brown, A., 1978: An Analysis of Distribution of Mineral Occurrences in British Columbia; British Columbia Ministry of Mines and Petroleum Resources; Bulletin 68, p. 27.

11. QUALIFICATIONS AND SIGNATURES

I, W. A. MacLeod with business address at 400 - 4th Avenue S.W., Calgary, Alberta, T2P 2H5, do hereby certify that I personally supervised the field work and have assessed the data resulting from the geological and geochemical surveys on Cal 1 - 80 mineral claims.

I also certify that:

- a) I am a graduate of the University of Manitoba; B.Sc.; 1970,
- b) I am a Registered Professional Geologist in the Province of Alberta,
- c) I have practiced my profession for eleven years.

Dated at Calgary, Alberta this 9th day of March, 1981.

Signed:



W. A. MacLeod, P. Geol.
Senior Geologist
Minerals Exploration
Shell Canada Resources Limited

APPENDIX A

EXPENDITURE RECEIPTS

Time-Saver

INVOICE

No 006902

YUKON AVIATION PRODUCTS

BOX 363
WATSON LAKE, YUKON Y0A 1C9
Ph. (403) 538-7801

DATE: Aug. 25/80
TERMS: net 30 days

Watson Lake, YT

SHIPPED TO - if other than Invoice to

Shell Resources

Mile 68 Tungsten Road

YOUR ORDER NO.	OUR ORDER NO.	DATE SHIPPED	SHIPPED VIA	NO. CARTONS	QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
PM 922857	<i>1986</i>	August 25/80	Y.A.P.	32. & 10	CM			
900.0		Gal. Av-gas 100/130	THESE DRUMS MAY BE RETURNED, PROVIDING IN GOOD CONDITION AND FULL CREDIT LESS RENTAL CHARGE OF \$3.00 PER DRUM PER MONTH WILL BE ISSUED. THIS ACCOUNT IS PAYABLE AS PER OUR USUAL TERMS. THIS INVOICE MUST BE PRESENTED UPON RETURN OF DRUMS. MINIMUM CHARGE WILL BE \$3.00 PER DRUM.			\$ 1.72	\$ 1602.00	
540.0		Gal. Diesel				\$ 1.41	\$ 761.40	
20		Lined Drums				\$ 50.00	\$ 1000.00	
12		Unlined Drums				\$ 40.00	\$ 480.00	
		Cartage From Watson Lake to Mile 68 Tungsten Road						
		126. miles at \$ 2.30					\$ 289.80	
		(also shipped 10 propane & Misc. Groc.)				TAX		
							PLEASE PAY THIS AMOUNT	\$ 4133.20

[Handwritten Signature]

PLEASE RETURN DUPLICATE COPY WITH YOUR REMITTANCE OR SHOW INVOICE NUMBER ON YOUR REMITTANCE

Time-Saver

REORDER NO. 82437

© DAY-TIMERS OF CANADA, 4875 Kerr Ave., Niagara Falls, Ont. L2E 8X6

[Handwritten Mark]



HARDY ASSOCIATES (1978) LTD.
CONSULTING ENGINEERING AND PROFESSIONAL SERVICES

H 3651000

PLEASE SUBMIT TO OFFICE INDICATED

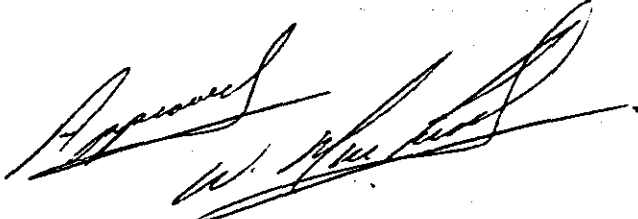
- 4052 GRAVELEY ST., BURNABY, B.C. V5C 3T6 Tel. 294-3811
- 219 - 18 STREET S.E., CALGARY, ALTA. T2E 8J5 Tel. 272-8761
- 4810 - 93 ST., P.O. BOX 746 EDMONTON, ALTA. T5J 2L4 Tel. 436-2152
- 565 ROSEBERRY STREET, WINNIPEG, MAN. R3H 0T3 Tel. 775-3146
- #9 1750 QUINN ST., PRINCE GEORGE, B.C. V2N 1X3 Tel. 582-9281

- Shell Resources Canada Ltd.
- Minerals Dept.
- 400-4 Avenue S.W.
- Calgary, Alberta
- T2P 0J4

DATE August 8, 1980

YOUR PURCH.
ORDER NO.

ORDER NO. M0468

TO	DESCRIPTION	AMOUNT
	Attention: S. McLeod, P. Geologist	
	RE: Francès Lake	
	For Professional Services to July 25, 1980	
	1) Provide two sets of government high and low level photography and diapositives Government invoice 0052	\$ 537.30
	2) Provide pencil manuscript at approximate scale of 1:10,000 with 10 metre form line intervals to cover project area - approximately 37500 acres	6750.00
	3) Detailed mapping just east of project area	450.00
	4) Mosaic of project area	<u>150.00</u>
		\$7887.30
		

27163
INVOICE



TERMS: NET 30 DAYS 1.5% INTEREST PER MONTH ON OVERDUE ACCOUNTS
PLEASE SUBMIT PAYMENT TO OFFICE INDICATED AND REFER TO INVOICE NUMBER

AU-021-78



LORING LABORATORIES LTD.

629 BEAVERDAM RD. N.E. CALGARY, ALTA. T2K 4W2

INVOICE RECEIVED
No. 71980
PURCHASING DEPT.
0071

TO Shell Canada Resources Limited
P O BOX 100,
CALGARY, Alberta T2P 2M7

DATE September 4, 1980

Silt SAMPLES

93	Cu, Pb, Zn, Geochems	@ 2.25	209.25
93	W Geochems	@ 3.70	344.10
93	Silt Sample Preparations	@ 0.50	16.50
		@	
		@	
		@	
		TOTAL	\$ 599.85

THIS IS YOUR INVOICE

PLEASE PAY THE AMOUNT SHOWN

TERMS — 30 DAYS

W27208
NUMBER 15876



6204 - 2nd Street S.E., Calgary, Alberta T2H 1J4
Telephone 253-3151

DATE June 30, 1980

SCHEDULE 'A' NO.

P.O. NO. PM79093

WHEEL-A-WAY UNIT NO. 80117

CUSTOMER UNIT NO.

• Shell Canada Resources Ltd.

• P.O. Box 100

• Calgary, Alberta

• Att: ~~Mr. Frank Schneider~~

		CODE	AMOUNT
LEASE OR RENTAL FROM	June 12 to June 30, 1980	225-403	506.54 ✓
	July 1 to July 31, 1980	225-403	800.00 ✓
OTHER:	1980 Ford Supercab 4x4 s/n X26ZKHA1409		
TOTAL CHARGES THIS INVOICE			1306.54

REC'D
SEP 30 1980
FORD MOTOR CO.



INVOICE

CUSTOMER COPY

TERMS: NET ON RECEIPT OF INVOICE



Frontier Helicopters Ltd

FLIGHT TICKET/INVOICE Head Office: P.O. BOX 220, ABBOTSFORD, B.C. V2S 4N9 TEL: 853-5887 VAN: (604) 526-0400 WATSON LAKE (403) 536-7766

CHARTERER		DATE		PILOTS NAME	
ADDRESS		A/C		PRINT	
POSTAL CODE		TYPE		SIGNATURE	
REMARKS		PASS	CARGO	FUEL SUPPLIED BY CUST. <input type="checkbox"/> FRONTIER <input type="checkbox"/> FRONTIER FUEL	
				GALS. FROM	AT PER GAL
				GALS. FROM	AT PER GAL
				GALS. FROM	AT PER GAL
				FUEL COST	
				FLYING HRS. AT	
				EXPENSES	
				AUTHORIZED BY	
				PRINT	
				SIGNATURE	
				TICKET	
				CHEQUE	CASH
				P.O.	
TERMS NET 10 DAYS	TOTALS			TOTAL	\$

By the signing of this flight report I acknowledge that the terms and conditions thereof as set forth in the tariff filed with the A.T.B. are available for examination at Frontier Helicopters Ltd.



Frontier Helicopters Ltd

FLIGHT TICKET/INVOICE Head Office: P.O. BOX 220, ABBOTSFORD, B.C. V2S 4N9 TEL: 853-5887 VAN: (604) 526-0400 WATSON LAKE (403) 536-7766

CHARTERER		DATE		PILOTS NAME	
ADDRESS		A/C		PRINT	
POSTAL CODE		TYPE		SIGNATURE	
REMARKS		PASS	CARGO	FUEL SUPPLIED BY CUST. <input type="checkbox"/> FRONTIER <input type="checkbox"/> FRONTIER FUEL	
Local D/O		2	30	GALS. FROM	AT PER GAL
Local D/O		2	30	GALS. FROM	AT PER GAL
Local D/O		2	30	GALS. FROM	AT PER GAL
Local D/O		2	30	FUEL COST	
Local D/O		2	30	FLYING HRS. AT	
Local D/O		2	30	EXPENSES	
Local D/O		2	30	AUTHORIZED BY	
Local D/O		2	30	PRINT	
Local D/O		2	30	SIGNATURE	
Local D/O		2	30	TICKET	
Local D/O		2	30	CHEQUE	CASH
Local D/O		2	30	P.O.	
Local D/O		2	30	TOTAL	\$
Local D/O		2	30	TOTALS	4.6

By the signing of this flight report I acknowledge that the terms and conditions thereof as set forth in the tariff filed with the A.T.B. are available for examination at Frontier Helicopters Ltd.



Frontier Helicopters Ltd.

FLIGHT TICKET/INVOICE

Head Office: P.O. BOX 220, ABBOTSFORD, B.C. V2S 4N9 TEL. 853-5887

VAN. (604) 526-0400
WATSON LAKE (403) 536-7766

CHARTERER Shell Minerals				DATE 28/6/80		PILOTS NAME	
ADDRESS				A/C RLP		PRINT M. Boissonneault	
POSTAL CODE				TYPE 47 B1		SIGNATURE M. Boissonneault	
REMARKS				PASS	CARGO	FUEL SUPPLIED BY CUST. <input type="checkbox"/> FRONTIER <input type="checkbox"/> FRONTIER FUEL	
Local D/O						GALS. FROM	AT PER GAL.
Local D/O						GALS. FROM	AT PER GAL.
Local P/O						GALS. FROM	AT PER GAL.
Local P/O						FUEL COST \$	
slinging fuel						FLYING HRS. AT \$	
						EXPENSES \$	
						AUTHORIZED BY	
						PRINT	
						SIGNATURE	
PM 922 854						TICKET 5957	
TERMS NET 10 DAYS				TOTALS		CHEQUE	CASH
						P.O.	
						TOTAL \$	

By the signing of this flight report I acknowledge that the terms and conditions thereof as set forth in the tariff filed with the A.T.B. are available for examination at Frontier Helicopters Ltd.



Frontier Helicopters Ltd.

FLIGHT TICKET/INVOICE

Head Office: P.O. BOX 220, ABBOTSFORD, B.C. V2S 4N9 TEL. 853-5887

VAN. (604) 526-0400
WATSON LAKE (403) 536-7766

CHARTERER Shell Minerals Marguest				DATE 1/7/80		PILOTS NAME	
ADDRESS				A/C RLP		PRINT M. Boissonneault	
POSTAL CODE				TYPE 47 B1		SIGNATURE M. Boissonneault	
REMARKS				PASS	CARGO	FUEL SUPPLIED BY CUST. <input checked="" type="checkbox"/> FRONTIER <input type="checkbox"/> FRONTIER FUEL	
Local D/O						GALS. FROM	AT PER GAL.
st 2 to st 3 survey						GALS. FROM	AT PER GAL.
Local P/O						GALS. FROM	AT PER GAL.
survey						FUEL COST \$	
						FLYING HRS. AT \$	
						EXPENSES \$	
						AUTHORIZED BY	
						PRINT	
						SIGNATURE	
PM 922 854						TICKET 5960	
TERMS NET 10 DAYS				TOTALS		CHEQUE	CASH
						P.O.	
						TOTAL \$	

By the signing of this flight report I acknowledge that the terms and conditions thereof as set forth in the tariff filed with the A.T.B. are available for examination at Frontier Helicopters Ltd.



Frontier Helicopters Ltd.

PM 922854

FLIGHT TICKET/INVOICE

Head Office: P.O. BOX 220, ABBOTSFORD, B.C. V2S 4N9 TEL. 853-5887

VAN. (604) 526-0400 WATSON LAKE (403) 536-7766

CHARTERER Small Minerals Norquest			DATE 2/7/80	PILOTS NAME	
ADDRESS			A/C KLP	PRINT M. Boissonneault	
POSTAL CODE			TYPE 27B1	SIGNATURE M. Boissonneault	
REMARKS			PASS	CARGO	TIME
Local D/O					1.6
Local D/O → St 2					.2
Local St 2 - Base					.2
Survey					.4
Survey					1.6
Survey					.4
Local P/O					1.6
Local P/O					.4
Local D/O					1.1
Local P/O					1.1
Survey					.3
TERMS NET 10 DAYS		TOTALS		8.9	

FUEL SUPPLIED BY CUST. <input type="checkbox"/> FRONTIER <input type="checkbox"/> FRONTIER FUEL			
GALS. FROM	AT	PER GAL.	
GALS. FROM	AT	PER GAL.	
GALS. FROM	AT	PER GAL.	
FUEL COST		\$	
FLYING HRS. AT \$	\$		
EXPENSES		\$	
AUTHORIZED BY			
PRINT M. Boissonneault			
SIGNATURE M. Boissonneault			
TICKET	CHEQUE	CASH	CHARGE
5962			
TOTAL		\$	

By the signing of this flight report I acknowledge that the terms and conditions thereof as set forth in the tariff filed with the A.T.B. are available for examination at Frontier Helicopters Ltd.



Frontier Helicopters Ltd.

FLIGHT TICKET/INVOICE

Head Office: P.O. BOX 220, ABBOTSFORD, B.C. V2S 4N9 TEL. 853-5887

VAN. (604) 526-0400 WATSON LAKE (403) 536-7766

CHARTERER SHELL CANADA RESOURCES			DATE August 1980	PILOTS NAME	
ADDRESS			A/C RYDE	PRINT Calvin Voth	
POSTAL CODE			TYPE 1176-3131	SIGNATURE Calvin Voth	
REMARKS			PASS	CARGO	TIME
New Transport					4.0
FUEL SUPPLIED BY CUST. <input type="checkbox"/> FRONTIER <input type="checkbox"/> FRONTIER FUEL					
GALS. FROM		AT	PER GAL.		
GALS. FROM		AT	PER GAL.		
GALS. FROM		AT	PER GAL.		
FUEL COST		\$			
FLYING HRS. AT \$		\$			
EXPENSES		\$			
AUTHORIZED BY					
PRINT Calvin Voth					
SIGNATURE Calvin Voth					
TICKET	CHEQUE	CASH	CHARGE		
7314					
TOTAL		\$			

By the signing of this flight report I acknowledge that the terms and conditions thereof as set forth in the



Frontier Helicopters Ltd.

FLIGHT TICKET/INVOICE

Head Office: P.O. BOX 220, ABBOTSFORD, B.C. V2S 4N9 TEL. 853-5887

VAN. (604) 526-0400
WATSON LAKE (403) 536-7766

CHARTERER SHELL CANADA RESOURCES				DATE <i>August 11/77</i>	PILOTS NAME PRINT <i>Calvin Voth</i>		
ADDRESS				A/C <i>4763BI</i>		SIGNATURE <i>Calvin Voth</i>	
POSTAL CODE				FUEL SUPPLIED BY CUST. <input type="checkbox"/> FRONTIER <input type="checkbox"/>			
REMARKS <i>Crew & Equipment Nouquest Movers</i>				PASS	CARGO	TIME <i>4.0</i>	
				FRONTIER FUEL			
				GALS. FROM	AT	PER GAL.	
				GALS. FROM	AT	PER GAL.	
				GALS. FROM	AT	PER GAL.	
				FUEL COST	\$		
				FLYING <i>4</i> HRS. AT \$	\$		
				EXPENSES	\$		
				AUTHORIZED BY PRINT <i>W. MacLeod</i>			
				SIGNATURE <i>W. MacLeod</i>			
				TICKET NO 7315	CHEQUE	CASH	CHARGE
				P.O.			
TERMS NET 10 DAYS				TOTALS			
				TOTAL	\$		

By the signing of this flight report I acknowledge that the terms and conditions thereof as set forth in the tariff filed with the A.T.B. are available for examination at Frontier Helicopters Ltd.



Frontier Helicopters Ltd.

FLIGHT TICKET/INVOICE

Head Office: P.O. BOX 220, ABBOTSFORD, B.C. V2S 4N9 TEL. 853-5887

VAN. (604) 526-0400
WATSON LAKE (403) 536-7766

CHARTERER SHELL CANADA RESOURCES				DATE <i>August 11/77</i>	PILOTS NAME PRINT <i>Calvin Voth</i>		
ADDRESS				A/C <i>4763BI</i>		SIGNATURE <i>Calvin Voth</i>	
POSTAL CODE				FUEL SUPPLIED BY CUST. <input type="checkbox"/> FRONTIER <input type="checkbox"/>			
REMARKS <i>Crew Transport</i>				PASS	CARGO	TIME <i>2.5</i>	
				FRONTIER FUEL			
				GALS. FROM	AT	PER GAL.	
				GALS. FROM	AT	PER GAL.	
				GALS. FROM	AT	PER GAL.	
				FUEL COST	\$		
				FLYING <i>2.5</i> HRS. AT \$	\$		
				EXPENSES	\$		
				AUTHORIZED BY PRINT <i>W. MacLeod</i>			
				SIGNATURE <i>W. MacLeod</i>			
				TICKET NO 7316	CHEQUE	CASH	CHARGE
				P.O.			
TERMS NET 10 DAYS				TOTALS			
				TOTAL	\$		



Frontier Helicopters Ltd.

FLIGHT TICKET/INVOICE

Head Office: P.O. BOX 220, ABBOTSFORD, B.C. V2S 4N9 TEL. 853-5887

VAN. (604) 526-0400
WATSON LAKE (403) 536-7766

CHARTERER Shell Minerals Norquest Proj.			DATE 20-8-80	PILOTS NAME		
ADDRESS			A/C XDE	PRINT M Boissonneault		
			TYPE 47	SIGNATURE M Boissonneault		
POSTAL CODE			FUEL SUPPLIED BY CUST. <input checked="" type="checkbox"/> FRONTIER <input type="checkbox"/> FRONTIER FUEL			
REMARKS	PASS	CARGO	TIME	GALS. FROM	AT	PER GAL.
Transport crews			6.1	GALS. FROM	AT	PER GAL.
Jaune into Watson				GALS. FROM	AT	PER GAL.
Sling in 3x45's 100/130				FUEL COST \$		
				FLYING HRS. AT \$		
				EXPENSES \$		
				AUTHORIZED BY PRINT		
				SIGNATURE		
				TICKET NO 7006	CHEQUE	CASH
					P.O.	
TERMS NET 10 DAYS	TOTALS			TOTAL	\$	

By the signing of this flight report I acknowledge that the terms and conditions thereof as set forth in the tariff filed with the A.T.B. are available for examination at Frontier Helicopters Ltd.



Frontier Helicopters Ltd.

FLIGHT-TICKET/INVOICE

Head Office: P.O. BOX 220, ABBOTSFORD, B.C. V2S 4N9 TEL. 853-5887

VAN. (604) 526-0400
WATSON LAKE (403) 536-7766

CHARTERER Shell Minerals Norquest Proj.			DATE 22/8/80	PILOTS NAME		
ADDRESS			A/C XDE	PRINT M Boissonneault		
			TYPE 47	SIGNATURE M Boissonneault		
POSTAL CODE			FUEL SUPPLIED BY CUST. <input checked="" type="checkbox"/> FRONTIER <input type="checkbox"/> FRONTIER FUEL			
REMARKS	PASS	CARGO	TIME	GALS. FROM	AT	PER GAL.
Geo crews			8.2	GALS. FROM	AT	PER GAL.
cleanup drill sites				GALS. FROM	AT	PER GAL.
move in drillers (Coutis)				FUEL COST \$		
Sling Fuel				FLYING HRS. AT \$		
				EXPENSES \$		
				AUTHORIZED BY PRINT		
				SIGNATURE		
				TICKET NO 7008	CHEQUE	CASH
					P.O.	
TERMS NET 10 DAYS	TOTALS		8.2	TOTAL	\$	



Frontier Helicopters Ltd.

FLIGHT TICKET/INVOICE

Head Office: P.O. BOX 220, ABBOTSFORD, B.C. V2S4N9 TEL. 853-5887

VAN. (604) 526-0400
WATSON LAKE (403) 536-7766

CHARTERER Shell Minerals Norquest Pro.				DATE 23/6/80		PILOTS NAME	
ADDRESS				A/C XDE		PRINT M. Boissonneault	
				TYPE 47		SIGNATURE M. Boissonneault	
				BASE Watson			
POSTAL CODE				FUEL SUPPLIED BY CUST. <input checked="" type="checkbox"/> FRONTIER <input type="checkbox"/> FRONTIER FUEL			
REMARKS				PASS	CARGO	TIME	GALS. FROM _____ AT _____ PER GAL.
Assist 205 (FHM)						9.6	GALS. FROM _____ AT _____ PER GAL.
in Drill Move							GALS. FROM _____ AT _____ PER GAL.
Sling fuel & equip							FUEL COST \$
Ferry crews							FLYING HRS. AT \$
							EXPENSES \$
							AUTHORIZED BY
							PRINT M. Boissonneault
							SIGNATURE M. Boissonneault
							TICKET
							7009
							CHEQUE CASH CHARGE
							P.O.
TERMS NET 10 DAYS				TOTALS		9.6	TOTAL \$

By the signing of this flight report I acknowledge that the terms and conditions thereof as set forth in the tariff filed with the A.T.B. are available for examination at Frontier Helicopters Ltd.



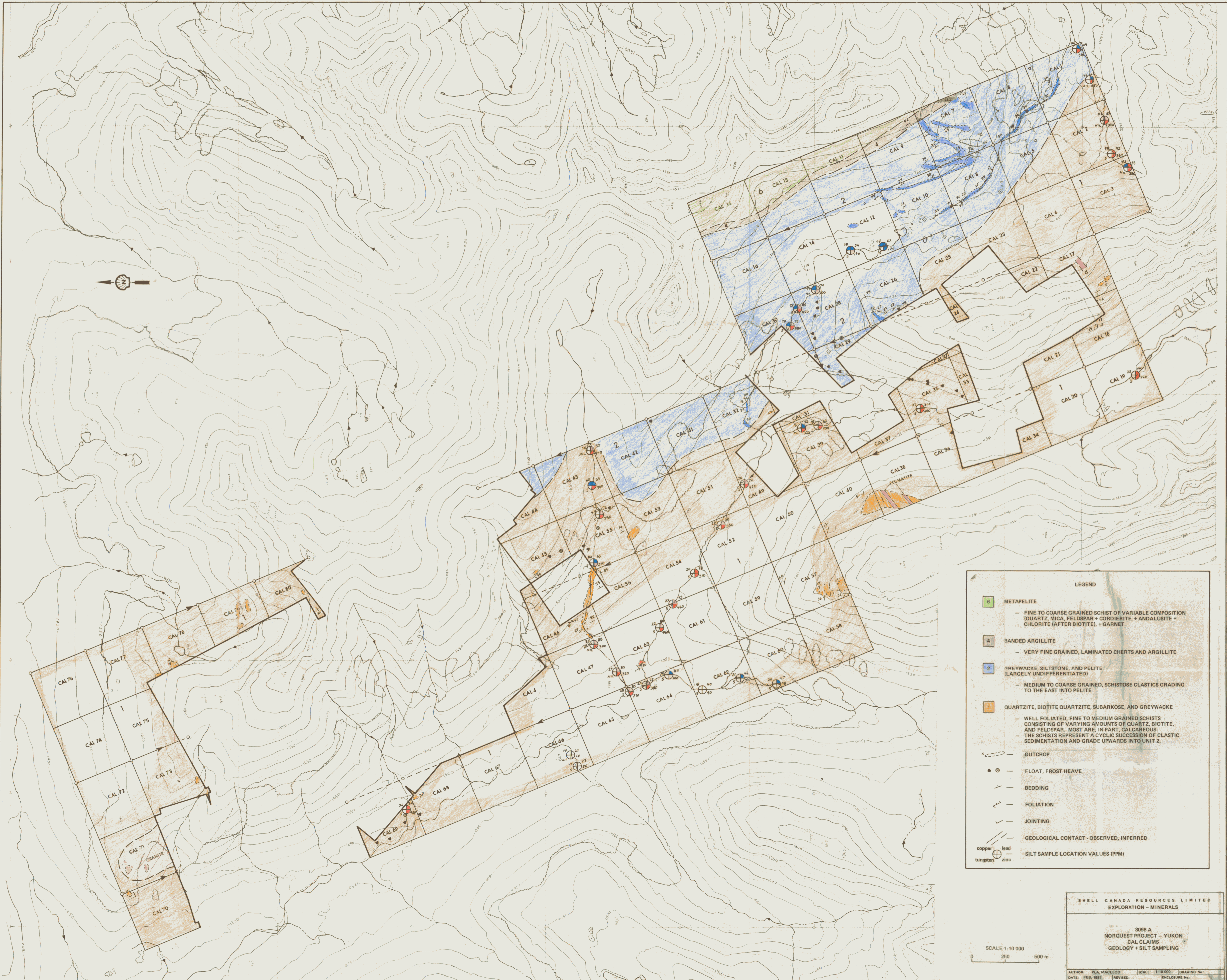
Frontier Helicopters Ltd.

FLIGHT TICKET/INVOICE

Head Office: P.O. BOX 220, ABBOTSFORD, B.C. V2S4N9 TEL. 853-5887

VAN. (604) 526-0400
WATSON LAKE (403) 536-7766

CHARTERER Shell Minerals Norquest Pro.				DATE 24/8/80		PILOTS NAME	
ADDRESS				A/C YDE		PRINT M. Boissonneault	
				TYPE 47		SIGNATURE M. Boissonneault	
				BASE Watson			
POSTAL CODE				FUEL SUPPLIED BY CUST. <input checked="" type="checkbox"/> FRONTIER <input type="checkbox"/> FRONTIER FUEL			
REMARKS				PASS	CARGO	TIME	GALS. FROM _____ AT _____ PER GAL.
Sling drill supplies & equip						7.1	GALS. FROM _____ AT _____ PER GAL.
drift crews							GALS. FROM _____ AT _____ PER GAL.
geology crews							FUEL COST \$
							FLYING HRS. AT \$
							EXPENSES \$
							AUTHORIZED BY
							PRINT M. Boissonneault
							SIGNATURE M. Boissonneault
							TICKET
							7010
							CHEQUE CASH CHARGE
							P.O.
TERMS NET 10 DAYS				TOTALS		7.1	TOTAL \$



LEGEND

- 6 METAPELITE
 - FINE TO COARSE GRAINED SCHIST OF VARIABLE COMPOSITION (QUARTZ, MICA, FELDSPAR + CORDIERITE, + ANDALUSITE + CHLORITE (AFTER BIOTITE), + GARNET.
- 4 BANDED ARGILLITE
 - VERY FINE GRAINED, LAMINATED CHERTS AND ARGILLITE
- 2 GREYWACKE, SILTSTONE, AND PELITE (LARGELY UNDIFFERENTIATED)
 - MEDIUM TO COARSE GRAINED, SCHISTOSE CLASTICS GRADING TO THE EAST INTO PELITE
- 1 QUARTZITE, BIOTITE QUARTZITE, SUBARKOSE, AND GREYWACKE
 - WELL FOLIATED, FINE TO MEDIUM GRAINED SCHISTS CONSISTING OF VARYING AMOUNTS OF QUARTZ, BIOTITE, AND FELDSPAR. MOST ARE, IN PART, CALCAREOUS.
 - THE SCHISTS REPRESENT A CYCLIC SUCCESSION OF CLASTIC SEDIMENTATION AND GRADE UPWARDS INTO UNIT 2.
- OUTCROP
- FLOAT, FROST HEAVE
- BEDDING
- FOLIATION
- JOINTING
- GEOLOGICAL CONTACT - OBSERVED, INFERRED
- SILT SAMPLE LOCATION VALUES (PPM)

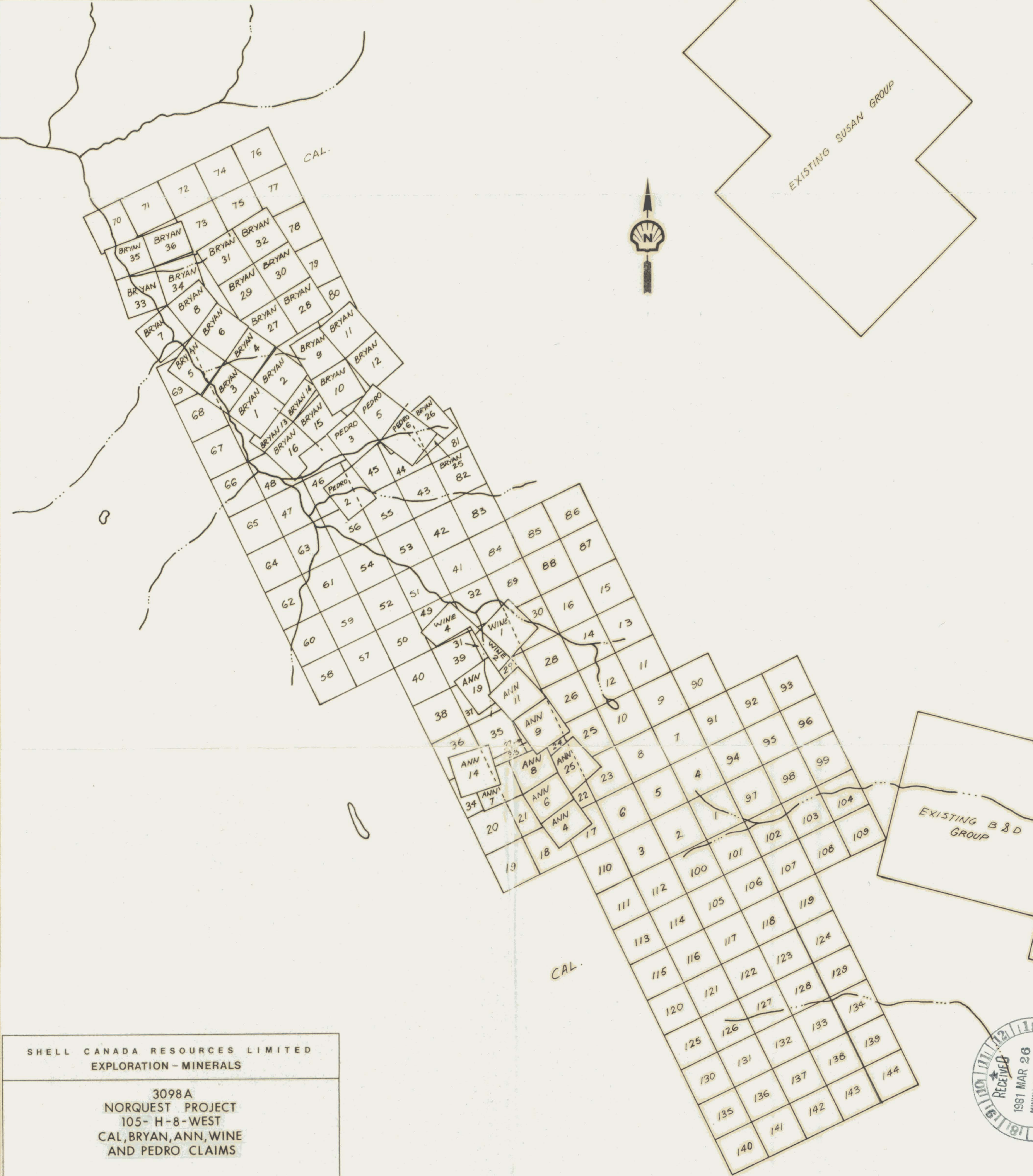
copper
 lead
 tungsten
 zinc

SHELL CANADA RESOURCES LIMITED
EXPLORATION - MINERALS

3098 A
NORQUEST PROJECT - YUKON
CAL CLAIMS
GEOLOGY + SILT SAMPLING

SCALE 1:10 000
0 250 500 m

AUTHOR: W.A. MACLEOD SCALE: 1:10 000 DRAWING No.:
 DATE: FEB. 1981 REVISED: ENCLOSURE No.:
 To Accompany



SHELL CANADA RESOURCES LIMITED
EXPLORATION - MINERALS

3098A
NORQUEST PROJECT
105- H-8-WEST
CAL, BRYAN, ANN, WINE
AND PEDRO CLAIMS

AUTHOR: W. M. McLEOD SCALE: 1" = 1/2 MILE DRAWING No.:
DATE: MARCH '81 REVISED: ENCLOSURE No.:
To Accompany

