

ASSESSMENT REPORT
GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL SURVEYS

BY
SHELL CANADA RESOURCES LTD.

ON THE
WINDY 2 CLAIMS
LAIRD MINING DIVISION
NIS 104P/5W

Lat. $59^{\circ}18'N$
Long. $129^{\circ}53'W$

CLAIMS OWNED BY: BILL KUHN
UNDER OPTION TO: SHELL CANADA RESOURCES LTD.

8077

Gordon W. Moffat

May 20, 1980

Introduction

On September 17, 1979 Shell Canada Resources Ltd. signed an option agreement with Bill Kuhn of Vancouver for exploration rights to a ten claim property totalling 109 units, situated 4 km north of Cassiar, B.C.

Bulldozer trenching done by Kuhn during August had uncovered disseminated scheelite mineralization within a skarn zone in the Upper Atan Cambrian Carbonate unit.

Between the dates September 25 - October 4, 1979, preliminary geological, pan concentrate geochemical and magnetometer surveys were conducted over a one kilometer square grid covering the Windy 2 and parts of the adjoining Balsam 1 group.

This report summarizes the results of the 1979 Program.

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Property

The McDame Property comprises 10 contiguous claim groups, totalling 109 units which are centered approximately 4 km due north of Cassiar, British Columbia in the Liard Mining Division, NTS 104P/5.

The group names, claim numbers and expiry dates are listed in the Schedule of Lands (Table 1) below:

Table 1: Schedule of Lands - McDame Project

<u>Record No.</u>	<u>Claim Name</u>	<u>Recording Date</u>	<u>Assessment Work Due Date</u>	<u>Units</u>	<u>Hectares</u>
597	Windy 2	Aug. 1, 1978	Aug. 1, 1979	12	300
598	Windy 3	Aug. 1, 1978	Aug. 1, 1979	9	225
599	Windy 4	Aug. 1, 1978	Aug. 1, 1979	12	300
693	Balsam 1	Oct. 20, 1978	Oct. 20, 1979	12	300
694	Balsam 2	Oct. 20, 1978	Oct. 20, 1979	6	150
775	Karhu 1	June 6, 1979	June 6, 1980	18	450
776	Karhu 2	June 6, 1979	June 6, 1980	18	450
777	Karhu 3	June 6, 1979	June 6, 1980	8	200
778	Karhu 4	June 6, 1979	June 6, 1980	8	200
779	Karhu 5	June 6, 1979	June 6, 1980	6	150
				<u>109</u>	<u>2725</u>

* 1 unit = 25 hectares = 6,730 acres.

All ten claim groups are recorded in the name of William Kuhn.

The field programs summarized in this report are being applied as assessment work credits to the following claim groups:

Windy	2
Balsam	1
Karhu	4
Karhu	5

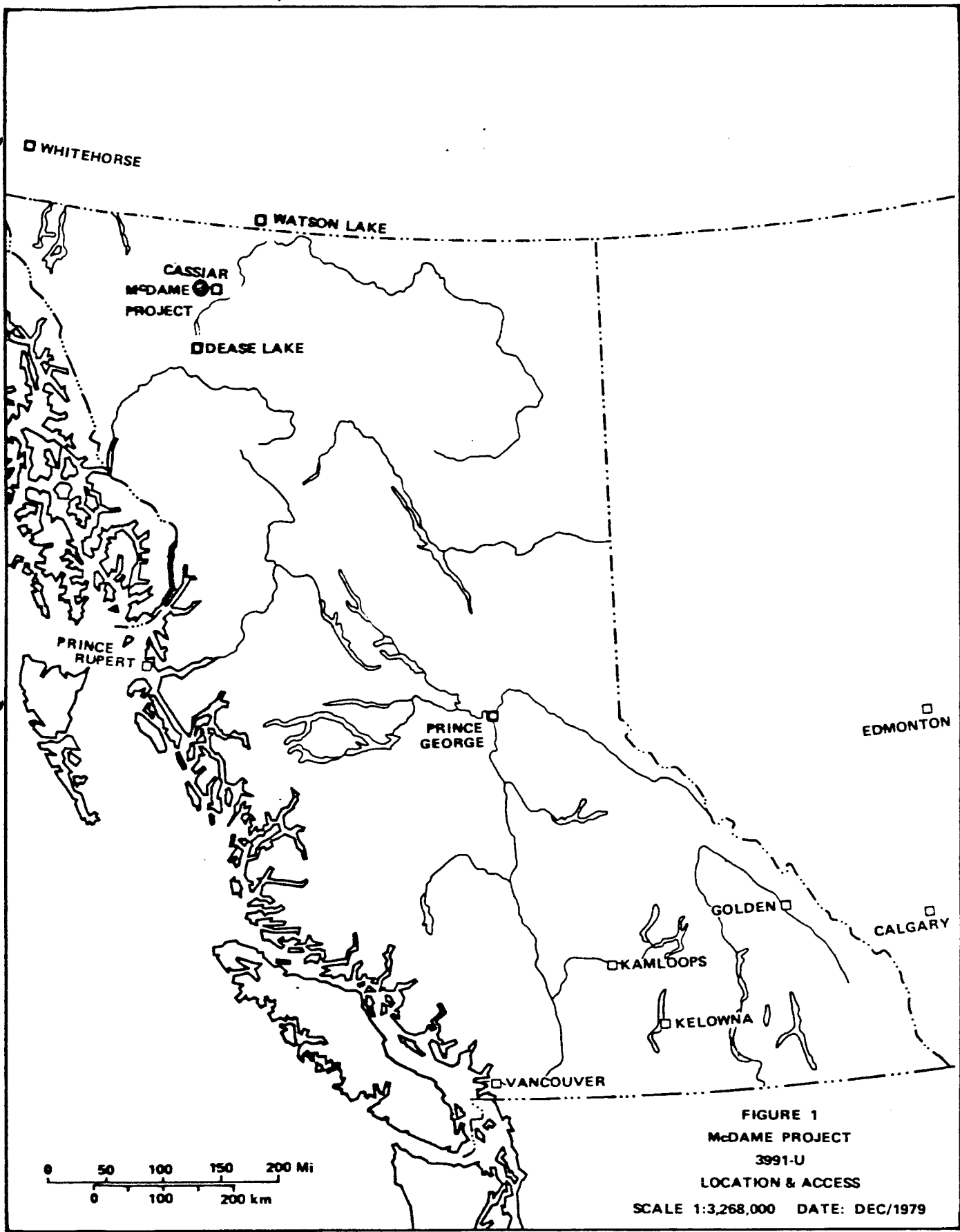


FIGURE 1
McDAME PROJECT
3991-U
LOCATION & ACCESS
SCALE 1:3,268,000 DATE: DEC/1979

Accessibility, Climate, Topography

The McDame Property is situated in Northern British Columbia at Lat. $59^{\circ}20'N$, Long. $129^{\circ}52'W$, approximately 4 km due north of the mining town of Cassiar.

Dease Lake 100 km to the south on the Stewart Highway and Watson Lake on the Alaska Highway 112 km to the North-Northeast are the two other closest communities.

The Balsam 1 and 2 and Windy 2, 3, and 4 groups forming the southern half of the property are readily accessible from the Cassiar Mine via the Mine Valley Road which extends northward along the eastern boundary of the property.

A rough cat road running 2 km west off the Mine Valley Road provides access to the main showing area on the Windy 2 Group.

The Karhu 1, 2, 3, 4, and 5 groups to the north and west can be reached by foot from the Union Carbide drill camp on the Windy 1 (M-1) claims, however helicopter transport is more practical.

The annual precipitation in the Cassiar Mountains ranges between 20 - 30 inches, 7 - 10 of which fall as snow. June, July and August are the warmest and wettest months of the year with average daily maximum temperature between 60° and $70^{\circ}F$.

Snow remains in the mountains above 1525 m (5000') until mid-June and begins falling again around the first of October.

The topography of the property area is very rugged with peaks reaching elevations of 1950 m, a vertical rise of 600 m above the valley floors.

In the vicinity of the Windy 2 Group the alpine slopes are less formidable and are easily traversed on foot.

White spruce and cottonwood are the dominant tree species growing in the valleys below 1525 m.

A number of other promising hard rock mineral prospects exist within a 25 km radius of the Cassiar area. These include:

- 1) Casmo porphyry molybdenum deposit presently under option to Shell,
- 2) Storie Ag, Sn, Pb prospect also being evaluated by Shell,
- 3) Lamb Mountain W, Mo, Cu prospect drilled this year by Union Carbide.

Local Resources

Cassiar Asbestos Corp. operates an open pit Asbestos mine 2.5 km due east of the Windy 4 Group. The mine has an annual production of 110,000 tons of fiber from 1,600,000 tons of ore averaging 9% asbestos. Four spinning grade and seven industrial grade fibers are produced. The fiber is dry-milled on site and shipped to Vancouver via Stewart, B.C.

The mine supports a work force of 650 on site and a town population of about 1800.

Power requirements for the plant and townsite is supplied by diesel generator.

Open pit reserves as of December 31, 1978 were calculated at 15,315,000 tons. Exploration drilling beneath the south end of the pit has proved up a second zone which is expected to substantially increase the probably underground reserves.

Erickson Gold Mines owned by Nu-Energy Mines operates a 120 ton/day gold mine approximately 15 km southeast of Cassiar. The operation supports a labour force of 30 men.

History of Past Exploration

In 1954 the ground presently covered by the Windy 4 Group was actively prospected for Mo, Cu, Bi, Ag and Sb by the Harvest Queen Mill and Elevator Co. of Plainsview, Texas.

The prospect, known as the Contact showing occurs within a screen of Goodhope hornfelsic sediments and skarnified limestones sandwiched between the Cassiar Batholith on the west and an endocontact quartz monzonite stock on the east.

Three types of mineralization have been recognized (Gabrielse, 1963):

- 1) quartz veins containing Bi, Mo, W within the quartz monzonite stock,
- 2) pyrrhotite lenses associated with garnet-scapolite skarn within marmorized limestone,
- 3) east-west polymetallic veins of magnetite, galena, sphalerite and pyrite with minor arsenides of As, Cu, Bi and Ag.

No assessment work has been recorded on any of the other ground enclosed by the McDame Property.

The Lamb Mountain W-Mo skarn prospect occurs along the contact of a second quartz monzonite stock 7 km north of the Contact showing and within Union Carbide's Windy 1 (M-1) group.

Values of 0.13% WO_3 0.02% Cu 0.02% Zn/4.5 m within a pyrrhotite-rich skarn were reported from drilling by Reliance Minerals (1961).

Geological mapping of the stratigraphy and intrusives east of the Cassiar Batholith has been undertaken by L. L. Price (1949), H. Gabrielse (1950 - 1954) and most recently A. Pantaleyev (1978 - 79).

Gabrielse's work is the most comprehensive coverage to date. Pantaleyev's efforts were directed towards further subdividing intrusive phases of the Cassiar Stock.

Other Activity in Area - Union Carbide Canada Ltd.

Union Carbide Canada Ltd. holds four claim groups totalling 64 units along the north and eastern boundaries of the McDame Property. These claims, optioned from W. Kuhn on April 6, 1979, contain the Lamb Mountain W, Cu, Mo skarn prospect which was drill tested by Union Carbide during the summer of 1979.

The Lamb Mountain mineralization is believed to lie within the same Upper Atan Carbonate Unit hosting the tungsten skarn exposed on the McDame Property.

Work Performed

Tabulated below is an outline of the field work performed on the Windy 2 and Balsam 1 groups by Shell Canada during the September 25 - October 4, 1979 period.

	<u>Survey</u>	<u>No. Line km/Sample Stations</u>	<u>Comment</u>
1)	Grid Est- ablishment	0.9 km Baseline 10.6 km 9.7 km Winglines	25 km stations marked with 2" x 2" x 3' pickets
2)	Geological Mapping	1:1000 Field Mapping	1:2000 final base map
3)	Geochemistry (Pan Concentrates)	29 Talus Fine Samples 6 Stream Silts	100 m sample spacing over grid 250 m sample spacing on outside areas - Windy 2 - Windy 3 - Balsam 1
4)	Total Field Magnetics	776 Readings 12.5 m Station Intervals	Scintrex MF-2 Magnetometer used

The surveys were completed by G. W. Moffat, G. W. Turner, and C. Dolle, employees of Shell Canada Resources Ltd.. P. Slominski of J. P. Geophysics Ltd. also assisted with the grid layout.

General Property Geology

The McDame Property is underlain by a north-northwest trending easterly dipping sequence of Proterozoic to Middle Ordovician carbonate and pelitic sediments.

Lower Cretaceous quartz monzonite-granodiorites, forming the eastern edge of the Cassiar Batholith have intruded the stratigraphy along the west boundary of the property.

Smaller, more highly evolved porphyritic quartz monzonite cupolas have also invaded the sediments.

Gabrielse (1963) has subdivided the stratigraphy into four mappable units. Outcropping from west to east, oldest to youngest, they include:

Goodhope Group (Prot. - L. Cambrian)

- limestone and dolomite predominantly
- "red-bed sediments", consisting of intercalated red and green limestone, slate and shale
- hornfels and skarns

Atan Group (L. Cambrian)

a) Lower Atan

- bedded quartzite, slaty quartzite, pebble conglomerate, slate, siltstone and argillite.

b) Upper Atan

- massive limestone and dolomite, minor slate
- skarns and hornfels

Kechika Group (M. Cambrian - U. Ordovician)

a) Lower Division

- limestone, argillaceous limestone, calcareous phyllites, conglomerates
- intraformational, limestone conglomerate

b) Upper Division

- black laminated pyritic and carbonaceous slate and shale
- minor argillaceous limestone and spotted slates

The Goodhope and Atan Formations were deposited in a shallow water, miogeosynclinal environment during the Proterozoic and Lower Cambrian.

Subsidence during the Middle Cambrian to Middle Ordovician produced a facies change to finer grained argillaceous and calcareous sediments forming the Kechika Group. Lack of fossils and the presence of pyritic and carbonaceous shales is suggestive of a deeper water environment.

A more complete Table of Formations for the entire McDame Map Sheet area (NTS 104P) is presented in Table 2.

The Upper Atan carbonate unit hosts the main scheelite bearing skarn zone exposed on the Windy 2 Group and underlies portions of the Balsam 1 and Windy 3 Groups to the north and south respectively. It extends further to the northwest crossing the M-1 and M-3 groups of Union Carbide (Lamb Mtn Prospect) and the Karhu 1 Group at the extreme north end of the McDame Property.

The Lower Atan clastics conformably underlie the Upper Atan Carbonates and dip easterly at 52 - 65°.

Goodhope clastics and carbonates conformable underlies the Lower Atan further west and lie in contact with the Cassiar Batholith.

The Kechika Group deep water clastics conformably overlie the Upper Atan carbonates to the east and are exposed only on the Windy 2 and Karhu 1 Groups.

Two porphyritic quartz monzonite cupolas have respectively intruded the Windy 2 and 4 Groups to the south and Union Carbide claims to the north.

Latent liquid and vapour phases associated with the emplacement of these cusps are considered to be the source of the W-Cu-Zn-Mo mineralization found within the contact skarn deposits in the area.

The geological mapping survey carried out in October, 1979 covered only the western half of the Windy 2 Group which contains the main tungsten showings.

A detailed description of the grid geology is presented in the following section.

<i>Era</i>	<i>Period or epoch</i>	<i>Formation and thickness (feet)</i>	<i>Lithology</i>
Cenozoic	Pleistocene and Recent		Glacial and glacio-fluvial deposits, lacustrine deposits, stream deposits, felsenmeer, talus, soil
	Disconformable contact		
	Tertiary or Pleistocene		Vesicular basalt
	Relations unknown		
	Tertiary and (?) Earlier	Rapid Formation in part	Conglomerate, sandstone, shale; coal
Mesozoic	Rapid Formation in fault contact with, or overlying unconformably, Cambrian and Precambrian rocks		
	Jurassic or Cretaceous	Cassiar Intrusions	Quartz monzonite, granodiorite, granite, porphyritic granite; aplite, pegmatite
	Cassiar Intrusions not in contact with Nizi Formation are intrusive into Sylvester Group and older rocks		
Palaeozoic	Middle Mississippian	Nizi Formation 1,000 ±	Limestone, cherty limestone, greywacke, pebble-conglomerate; minor slate and quartzite
	Nizi Formation unconformably overlies Sylvester Group between Four Mile and Rapid Rivers and Kechika Group east of Solitary Lake; relations between Nizi Group and ultramafic rocks unknown		
	Mississippian (?)		Peridotite, dunite, pyroxenite, serpentinite
	Intrusive contact		
	Upper Devonian and Lower Mississippian	Sylvester Group 15,000+	Greenstone, chert-quartz arenite, chert, argillite, slate, quartzite; greywacke, limestone, conglomerate
	Conformable (?) contact		
	Middle and (?) Upper Devonian	McDame Group 375-560	Upper division: platy, grey limestone Lower division: grey and black, fetid dolomite
	Disconformable contact		
	Silurian and (?) Devonian	Sandpile Group (?) in part 1,160 ±	Upper division: laminated fine-grained dolomite Middle division: sandstone, quartzite, dolomitic sandstone, sandy dolomite, dolomite; dolomite breccia Lower division: laminated siltstone and dolomite
	Silurian and (?) Devonian strata overlie disconformably rocks of Kechika Group on limbs of the McDame synclinorium; may be in part or entirely, correlative to Sandpile Group		
	Upper Ordovician, Lower and Middle Silurian	Sandpile Group 1,500+	Dolomite, cherty dolomite, sandy dolomite, dolomitic sandstone, quartzite, chert
Disconformable contact			
Middle and (?) Upper Cambrian, Lower and Middle Ordovician	Kechika Group 1,000-2,500+	Upper division: black, laminated, pyritic and carbonaceous shale and slate, minor argillaceous limestone Lower division: limestone, argillaceous limestone, calcareous phyllite, phyllite, conglomerate	
Conformable contact			
Lower Cambrian	Atan Group 3,000	Upper division: limestone, dolomite; minor shale Lower division: quartzite, argillite; slate, shale, siltstone, pebble-conglomerate	
Conformable contact			
Late Precambrian	Good Hope Group 4,000 ±	Limestone, dolomite, quartzite, grit, siltstone, sandy limestone, argillite, slate, red and green slate, shale, limestone	

(after Gabrielse, 1963)

Grid Geology

Upper Atan Formation (L. Cambrian)

The main tungsten showing, exposed in the West Zone "A" trench occupies a diopside-(garnet)-(pyrrhotite) skarn developed along the Western footwall side of the Upper Atan Carbonate unit which strikes due north and dips $52 - 56^{\circ}$ east.

The unit has an apparent width of 150 m at the south end of the grid (L200S), thinning to 75 m in the north at L400N. (This converts into true widths of 125 m and 50 m respectively).

A medium grained, buff-cream coloured, massive crystalline limestone is the dominant rock type and is best exposed between L100N and L200S.

A more finely banded blue-grey limestone containing argillaceous interbeds is exposed near the western contact. In one locality the bedding has been extensively brecciated and healed with secondary calcite. The true thickness of this unit is estimated to be 3m.

Lenses of diopside-(garnet)-pyrrhotite skarn containing variable amounts of disseminated scheelite, powellite, molybdenite, and sphalerite are randomly exposed across a width of approximately 130 m. The most extensive skarnification has occurred near the western contact with the Lower Atan. Bulldozer trenching in this area has exposed a diopside-garnet skarn lense containing 0.39% WO_3 /10.3 m or 0.67% WO_3 /5.5 m.

A prominent linear magnetic trend was defined by geophysics along the extrapolated contact between the Upper and Lower Atan units. This indicates the pyrrhotite skarn probably persists both north and south of the trench area.

The presence of pyrrhotite within the skarn is not necessarily an indication that scheelite is also present, however it is a useful aid in tracing the zone.

Results of the magnetometer survey are summarized on Page 17 of the report.

Lower Atan Formation (L. Cambrian)

Brown-grey massive, cherty siltstone, argillaceous siltstone and quartzitic to greywacke hornfels outcrop between L100N and L500N forming the top of the Lower Atan Formation.

Bedding measurements vary from 0-15°/54-62°E. Vertical jointing at 100°/90° is evident in exposures along the creek bed.

A single exposure of massive pyrrhotite skarn (?) was mapped within Lower Atan hornfels at 430N 90E (approximately 110 m west of the contact). Assays were surprisingly anomalous in tungsten:

(T-13) 0.29% W₃ 0.21% Cu 0.01% Mo < 0.01 Zn/across 1.2 m.

The persistence of this zone along strike warrants further investigation.

Goodhope Group (Proterozoic - Lower Cambrian)

No exposures of Goodhope Group carbonates were mapped on the Windy 2 grid.

The tungsten-bearing skarn reported by W. Kuhn at the Lower Atan - Goodhope contact was not investigated during the October survey.

Kechika Group (M. Cambrian - M. Ordovician)

Most of the west-facing slope covered by the eastern half of the grid is underlain by Middle Cambrian - Middle Ordovician Kechika Group sediments.

Bedded, buff-coloured cherty and argillaceous siltstone containing disseminations and pods of pyrite and pyrrhotite are the dominant rock types exposed.

A massive matt-black argillite hornfels occurs at L400N 325E, approximately 25 m from the western contact with the Upper Atan carbonates.

Similar evidence of thermal metamorphism produced by a buried intrusive cusp is also present on L500N 325E where molybdenite, scheelite and chalcopyrite occur along silicified fractures within a hornfelsic greywacke.

Upper Atan Carbonates, although not exposed along the contact in this area, have likely been skarnified to some degree.

Highly anomalous tungsten values were obtained in panned talus samples in the downslope area, suggesting the presence of scheelite mineralization.

Limey siltstone beds further upslope on L600N and L700N at 475-500E are also partially skarnified with light green diopside bands alternating with pinkish garnet-rich bands.

Individual skarn lenses were found to average less than 10 cm in width however the area has not been mapped in sufficient detail to dismiss the possible existence of thicker calc-silicate beds.

Grab samples from a massive pyrrhotite pod within Kechika siltstones 75 m upslope from the Atan Contact assayed:

T-14 0.08% WO_3 0.13% Cu < 0.01% Mo, 0.02% Zn

indicating scheelite is present in minor quantities.

Mineralization

Bulldozer trenching by W. Kuhn in the vicinity of 10 0+00 has exposed a zone of diopside garnet-pyrrhotite skarn within the western footwall side of the Upper Atan Limestone unit.

A 10.3 m trench (West Zone "A" Trench) which crosscuts the skarn zone at 90° returned assays of:

0.39% WO_3 < 0.005% MoS_2 across 10.3 m
(0.67% WO_3 0.005% MoS_2 across 5.5 m)

These assays are summarized in the table below.

Table 3: West Zone "A" Trench Sample Results (S1-10)

<u>Sample Interval (m)</u>	<u>Width (m)</u>	<u>WO_3%</u>	<u>MoS_2%</u>
0.0 - 1.0	1.0	0.05	<0.005
1.0 - 2.0	1.0	0.09	0.007
2.0 - 3.0	1.0	0.15	<0.005
3.0 - 4.0	1.0	0.16	<0.005
4.0 - 5.0	1.0	0.44	<0.005
5.0 - 6.0	1.0	0.47	0.005
6.0 - 7.0	1.0	1.04	0.007
7.0 - 8.0	1.0	0.75	0.006
8.0 - 9.5	1.5	0.68	<0.005
9.5 - 10.3	0.8	0.11	<0.005
Total Width		10.8 m	

The scheelite occurs as disseminated white crystal 0.5 to 3.0 mm in size within a dark greenish brown, fine grained diopside-(garnet) calc-silicate matrix.

Under short-wave ultraviolet light scheelite fluoresces a brilliant blue-white.

Erratic accessory molybdenite, powellite (yellowish white under U.V. light) and sphalerite are also present.

Pyrrhotite and pyrite are present in concentrations up to 10% within the skarn developed closer to the Lower Atan Contact, although the scheelite content appears to be more erratic in this area. Very little pyrrhotite was noted within the "A" trench.

Samples taken from mineralized skarn exposures on strike respectively 75 m and 150 m north of the "A" trench within the Upper Atan returned assays of:

T-13 0.30% WO_3 , 0.02 Cu, <0.01 Mo, <0.01 Zn/across 1.4 m (BL 62N)
 T-11 0.26% WO_3 , 0.03 Cu, 0.03 Mo, 0.2 Zn (GRAB) (130N 53E).

A massive pyrrhotite skarn lense outcropping at 430N 90E within Lower Atan hornfels assayed 0.29% WO_3 0.21% Cu 0.01% Mo <0.01 Zn/1.2 m but cannot be correlated with the "A" trench mineralization. This occurrence requires additional investigation.

Geochemistry

A) Sampling Technique

A reconnaissance scale talus fine pan concentrate survey was carried out over the slopes draining the Windy 2, Windy 3 and parts of the Balsam 1 and Balsam 2 groups.

Approximately 3.0 litres of talus material was collected at 250 m station intervals along the 1500 m (5000 ft.) elevation contour. This sample spacing was reduced to 100 m intervals along the west facing slope overlooking the West Zone Showing.

The samples were individually sieved to -20 mesh and the undersized fraction panned to a 5 ml concentrate (approximately 10 grams). This procedure was carried out in water using a Barakso heavy mineral collector.

- 1) Initial Sample Volume - 3.0 litres
- 2) Volume of -20 mesh fraction - 0.8 litres
- 3) Final volume of pan concentrate - 10 millilitres
- 4) Concentration Ratio - 1:160

Heavy mineral concentrates were shipped to Chemex Labs - Vancouver for tungsten analysis by Colourimetry.

Sample results are presented on the sample plans Figures 3, 5 and 6.

B) Geochemical Results

A total of 49 talus fine and 6 stream silt samples were collected.

The most concentrated sampling was done along the west facing slope covered by the Windy 2 grid.

Insufficient sampling was done outside the anomalous area to allow the calculation of meaningful background and threshold tungsten numbers. Rough background estimates have, however, been made for each of the four underlying formations by averaging the lowest five sample numbers in each data set.

<u>Formation</u>	<u>Background W. Estimates</u>
Good Hope Group	17 ppm
Upper Atan Unit	150 ppm
Lower Atan Unit	60 ppm
Kechika Group	80 ppm
	<u>65 ppm average</u>

Four areas yielded highly anomalous tungsten numbers of +10X the calculated background averages. Two of the anomalies are in areas of the property where tungsten had not previously been reported.

1) West Skarn Zone (Lower Atan-Upper Atan Contact)

Stream silt pan concentrates from the creek draining the west skarn zone ("A" trench) contained +65X background tungsten near the trench area, dropping off to 6X background 1050 m downstream.

These numbers take on a more meaningful perspective when compared with the tungsten content of a representative chip-channel sample of mineralized skarn from the "A" trench as is presented in Table 4.

Table 4: Tungsten in Stream Silt Pan Concentrates Down Drainage From The West Skarn Zone

<u>Sample No.</u>	<u>WO₃%</u>	<u>W(ppm)</u>	<u>Distance From Mineralization</u>
SI-10 (trench samples)	0.67%/5.5 m	5313	0
	0.39%/10.3 m	3093	0
T-13 (bedrock sample)	0.30% (GRAB)	2379	0
MD-44	0.83%	6582	75 m
MD-43	0.31%	2460	285 m
MD-42	0.31%	2458	560 m
MD-41	0.27%	2205	700 m
MD-29	0.24%	1903	910 m
MD-28	0.08%	634	1050 m

* WO₃% X 7930.3 = W(ppm).

2) East Zone (Upper Atan - Kechika Contact)

Talus fine pan concentrates collected downslope from the assumed Upper Atan (Limestone) - Kechika (Siltstone) contact had the highest tungsten content of any samples collected during the program.

Seven samples MD 8 - 14 take along a strike distance of 300 m produced tungsten numbers which averaged 3370 ppm W (0.425% WO₃) with a peak of 13,798 ppm W (1.74% WO₃). This average is roughly 33X the background.

Table 5: Tungsten in Talus Fine Pan Concentrates From East Zone

<u>Sample No.</u>	<u>WO₃%</u>	<u>W(ppm)</u>	<u>Station</u>	
MD- 8	0.12	952	250N	200E
MD- 9	0.11	872	330N	235E
* MD-10	0.51	4044	380N	250E
* MD-11	1.74	13798	425N	265E
MD-12	0.19	1903	470N	295E
MD-13	0.19	1903	500N	320E
MD-14	<u>0.12</u>	952	550N	350E

Average 0.425% WO₃/300 m strike length.
 0.55% WO₃/200 m strike length.

These samples could easily represent a source bed averaging 0.20 - 0.25% WO₃ if it is assumed that the panning process has doubled the actual tungsten content of the source mineralization. This seemed to be the case for pan concentrates taken within 75 m of the west zone showing.

The Upper Atan - Kechika contact is not well exposed in the sample area although disseminated molybdenite and scheelite were found within hornfelsic greywacke.

The weak skarn bands found within Kechika siltstones further upslope offer a second possible source area.

Pan concentrate sampling is a valuable geochemical tool for enhancing the background to anomaly contrast of heavy minerals in talus fines and stream silts. The strength of the secondary tungsten dispersion pattern downslope and down drainage from the east and west zones on the Windy 2 Group does not require such a rigorous sampling approach.

The collection of -80 mesh talus fines neglecting the concentration process should be adequate to locate similar tungsten skarn bodies on other parts of the McDame Property. This method will be employed during the proposed 1980 program.

3) Cassiar - Goodhope Group Contact (Balsam 1 Claims)

A series of samples collected across the Balsam 1 group produced an anomalous 952 ppm W (0.12% WO_3) number just downslope from the contact between Lower Cretaceous porphyritic quartz monzonites (Cassiar Batholith) and Proterozoic Goodhope carbonates.

This is approximately 56X the estimated background for the Goodhope Group.

Detailed prospecting is required for this area.

4) Goodhope - Lower Atan - Windy Stock Contact

A mountain peak rising along the Goodhope (carbonate) - Lower Atan (Quartzite slate) contact produced three anomalous pan concentrates of 400, 400 and 2696 ppm W (0.34% WO_3).

A mineralized contact skarn or vein system within the thermal halo of the Windy stock is suspected in this area.

The contact showing is situated on the south facing slope approximately 1 km to the south.

Geophysics - Total Field Magnetics

A magnetometer survey was completed over the Windy 2 grid area in an effort to trace the north and south extensions of the West Skarn Zone from its disseminated pyrrhotite content.

Total field readings were taken at 12.5 m station intervals along the grid lines using a Scintrex MF-2 magnetometer. A total of 776 readings were obtained.

Diurnal drift corrections were monitored using a Barringer BM-123 Base Station Recorder at Shell's trailer camp in Cassiar.

For data enhancement, a constant factor of 50,000 gammas was subtracted from each total field reading and the resultant number multiplied by 10. This data was then computer contoured at 100 gamma intervals. (Fig. 4)

The following observations were made:

1) West Contact Zone

Isolated Magnetic anomalies of +1300 gammas above background occur at intervals along the assumed Upper Atan - Lower Atan contact and support a eastward dip to the stratigraphy.

The "A" trench area itself is moderately flat, however 30 m further west a strong anomaly is developed along the contact.

Several magnetic highs along the contact warrant bulldozer trenching.

L100S	75W
L0	40W
L200N	110E
L300N	135E
L400N	70E & 115E
L500N	125E
L600N	62E

2) East Contact Zone

The Upper Atan-Kechika contact does not have a very significant magnetic signature in the grid area.

No magnetic anomalies could be directly associated with the source of the strong W talus fine pan concentrate anomalies.

TABLE 6

SUMMARY OF EXPENDITURES - McDAME PROJECTWINDY 2 CLAIMSSEPTEMBER 25 - OCTOBER 4, 1979Linecutting and Grid Set-Up (Sept. 25 - 28, 1979)1) Wages

Gordon Moffat (Staff Geologist)	3 days @ \$100/day	\$ 300.00
Gordon Turner (Staff Geologist)	4 days @ \$100/day	400.00
Carl Dolle (Temp. Field Help)	4 days @ \$ 85/day	340.00
Pete Slominski (Temp. Field Help)	4 days @ \$ 85/day	340.00

2) Room and Board (Grant Stewart Const. Camp, Cassiar, B.C.)

15 man days @ \$35/day	\$ 525.00
------------------------	-----------

3) Supplies

Grid pickets (2" x 2" x 3') 500 @ \$0.50	\$ 250.00
--	-----------

Sub-Total:	\$2,155.00
------------	------------

Geological Survey and Trench Sampling (Sept. 28 - 31, 1979)1) Wages

Gordon Moffat 4 days @ \$100/day	\$ 400.00
Gordon Turner 2 days @ \$100/day	200.00

2) Room and Board

6 man days @ \$35/day	\$ 210.00
-----------------------	-----------

3) Equipment

Sample Bags	\$ 81.80
-------------	----------

Sub-Total:	\$ 891.80
------------	-----------

Magnetometer Survey (Sept. 31 - Oct. 3, 1979)1) Wages

Gordon Turner 4 days @ \$100/day	\$ 400.00
Carl Dolle 4 days @ \$ 85/day	340.00

2) Room and Board

8 man days @ \$35/day	\$ 280.00
-----------------------	-----------

Magnetometer Survey (Cont'd.)

3) Equipment Rental

Barringer BM-120 Base Station Recorder
(1 week) @ \$1200/mo. \$ 300.00

Sub-Total: \$1,320.00

Geochemical Survey (Oct. 1 - 4, 1979)

1) Wages

Gordon Moffat 4 days @ \$100/day \$ 400.00

2) Room and Board

4 man days @ \$35/day \$ 140.00

3) Laboratory Costs (Chemex Labs - Vancouver)
(Bondar Clegg - Whitehorse)

28 Tungsten Assays @ \$6.95 ea. \$ 194.60

10 Molybdenum Assays @ \$9.50 ea. 95.00

4 Mo, Cu, Zn, W_3 Assays @ \$20.80/set 83.20

55 Tungsten Analysis (Geochem) @ \$3.60/ea. 198.00

Sub-Total: \$1,110.80

Report Writing and Map Preparation (Oct. 8 - 12, 1979)

Gordon Moffat 5 days @ \$100/day \$ 500.00

Transportation

20% of Total (0.20 x \$5,977.60) \$1,195.52

TOTAL EXPENDITURES: \$7,173.12

Report Writing, Map Preparation and Transportation costs have been applied to Section D of the Statement of Exploration and Development Work on a proportionate basis according to the amount of work done. Also, the expenditures on Line Cutting and Grid Set-up have been applied to the technical assessment as per Section 11(1) of the B.C. Mineral Act Regulations.

Conclusions

Geochemical, Geological and Magnetic Field data collected to date over the Windy 2 Tungsten Prospect show favourable indications that one and possibly two significant scheelite bearing skarn zones underlie the property.

1) West Zone (BL 0±00)


- developed along the Lower Atan (quartzite - siltstone) and Upper Atan (limestone) contact.
- surface trenching returned assays of:
 - 0.39% WO_3 across 10.3 m. or,
 - 0.67% WO_3 across 5.5 m
- lower values of Mo, Zn, Cu are associated with W.
- the zone is well defined by total field magnetics and was traced in excess of 900 m to the north and south boundaries of the property.

2) East Zone (L250N - 550N)

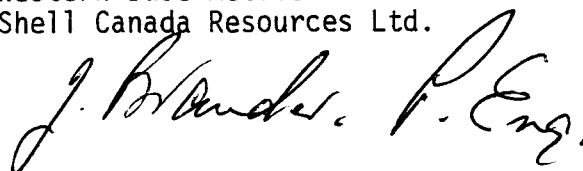
- located by panned talus fine geochemistry but exact bedrock source still not defined
- appears to be developed along the Upper Atan (limestone) - Kechika (siltstone) contact.

Other pan concentrate tungsten anomalies defined near the Cassiar Stock - Goodhope Limestone - Dolomite contact on the Windy 3 and Balsam 1 ground also warrant further investigation.

Respectfully submitted,



Gordon W. Moffat
Geologist
Western Base Metals
Shell Canada Resources Ltd.



Statement of Qualifications of Author

I, Gordon W. Moffat, state that I am a Geologist with the Western Base Metals Department of Shell Canada Resources Ltd. of Calgary, Alberta.

I obtained a B.A.Sc. Degree in Geological Engineering from the University of Toronto (1974) and have practiced my profession for the past six years.

I am a Registered Professional Engineer of the Province of Ontario.

I personally supervised the field work summarized in this report.

References

Gabrielse, H.

1963: McDame Map Area, Cassiar District
British Columbia
GSC Memoir 319

Panteleyev, A.

1979: Cassiar Map Area in Summary of Field Work - 1978
BCDOM Pg. 51 - 68

Dawson, K. M. & Dick, L. A.

1978: Regional Metallogeny of the Northern Cordillera:
Tungsten and Base Metal-Bearing Skarns in Southeastern
Yukon and Southwestern Mackenzie,
GSC Paper 78-1A Pg. 287-292



Certificate of Analysis

TO Shell Canada Resources
Box 100
Calgary, Alberta

REPORT NO. A-49-142

DATE October 30, 1979

I hereby certify that the following are the results of analyses made by us upon the herein described rock samples

MARKED	\bar{x}	\bar{x}							
	MoS ₂	hO ₃							
0.0 - 1.0	LO.005	0.05							
1.0 - 2.0	0.007	0.09							
2.0 - 3.0	LO.005	0.15							
3.0 - 4.0	LO.005	0.16							
4.0 - 5.0	LO.005	0.44							
5.0 - 6.0	0.05	0.47							
6.0 - 7.0	0.07	1.04							
7.0 - 8.0	0.06	0.75							
8.0 - 9.5	LO.05	0.68							
9.5 -10.3	LO.05	0.11							

BONDAR-CLEGG & COMPANY LTD.

NOTE:

Rejects retained two weeks
Pulps retained three months

Steven Lempp



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
 NORTH VANCOUVER, B.C.
 CANADA V7J 2C1
 TELEPHONE: 954-0221
 AREA CODE: 604
 TELEX: 043-52597

ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 51077

TO: Shell Canada Resources Ltd.
 Minerals Dept.
 P.O. Box 100
 Calgary, Alta T2P 2H5

INVOICE NO. 33452
 RECEIVED Oct. 12/79
 ANALYSED Oct. 26/79

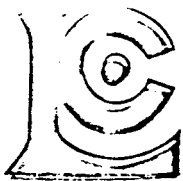
ATTN: PROJ: McDame
 cc: G. Moffat

SAMPLE NO. :	PPM W
MP - 1	350
2	275
3	175
4	> 400
5	350
6	400
7	150
8	> 400
9	> 400
10	> 400
MD - 11 P.C.	> 400
MP - 12	> 400
13	> 400
14	> 400
15	225
MP - 16	400
MD - 19	400
MP - 20	125
MD - 21	30
MP - 22	13
23	150
24	200
25	400
26	175
27	50
28	> 400
29	> 400
30	> 400
31	> 400
32	> 400
33	75
34	45
35	20
36	100
37	125
38	30
39	> 400
40	> 400
MP - 41	> 400



MEMBER
 CANADIAN TESTING
 ASSOCIATION

CERTIFIED BY:



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
 NORTH VANCOUVER, B.C.
 CANADA V7J 2C1
 TELEPHONE: 6-2-2-221 964-0221
 AREA CODE 604
 TELEX: 043-52597

ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

CERTIFICATE NO. 66848

TO: Shell Canada Resources Ltd.,
 Minerals Dept.
 P.O. Box 100
 Calgary, Alta.
 ATTN: T2P 2H5

INVOICE NO. 33657
 RECEIVED November 1, 1979
 ANALYSED November 5, 1979

PROJECT McDame

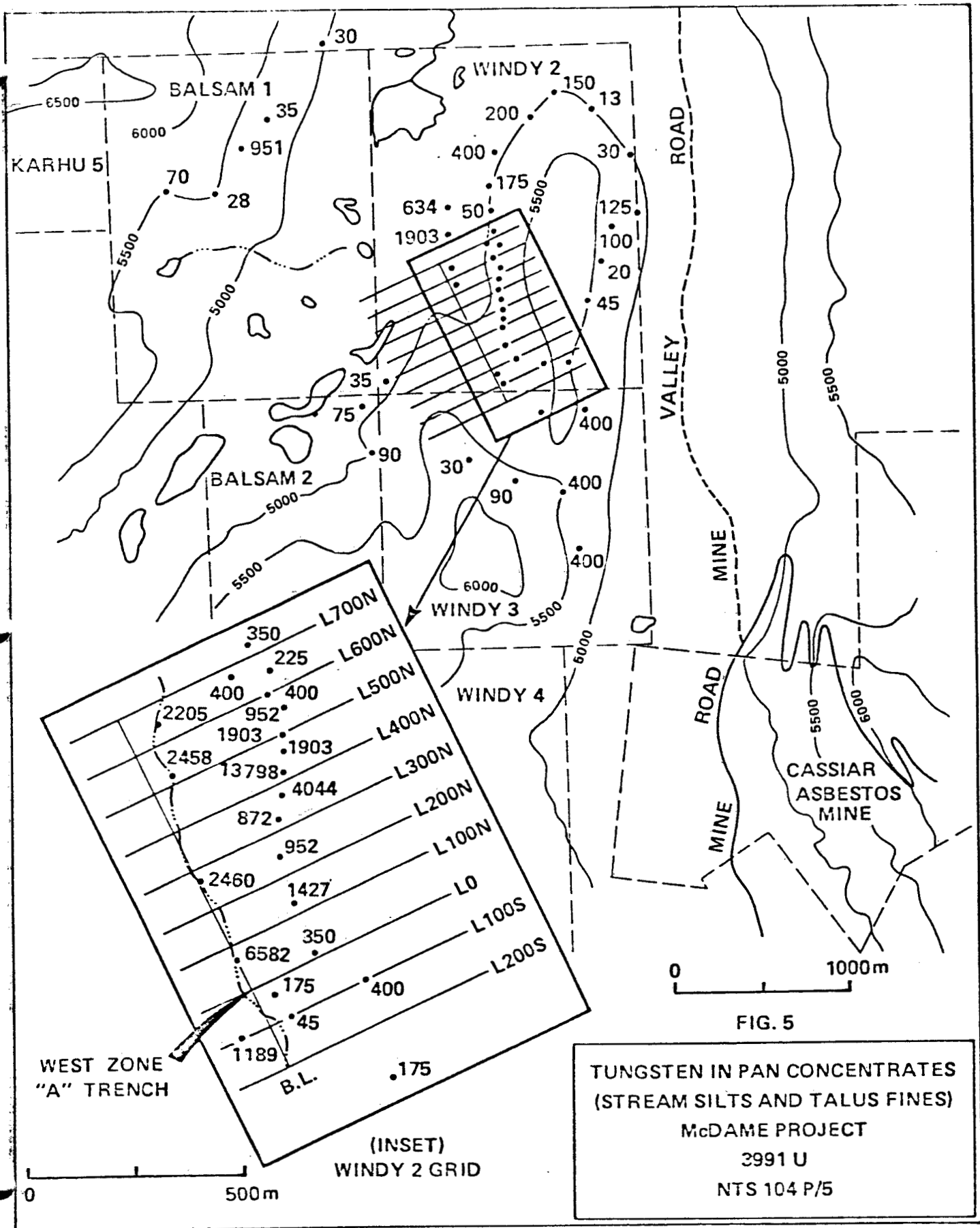
SAMPLE NO. :	% W _{O₂}	W(ppm)
MP 4	0.18	1427
8	0.12	952 See also Geochem Certificates #51077 & #51078
9	0.11	872
10	0.51	4044
MD 11 P.C.	1.74	13,798
12	0.24	1903
13	0.24	1903
14	0.12	952
28	0.08	632
29	0.24	1903
39	0.34	2696
42	0.31	2458
47	0.15	1189
MD 64	0.12	952



MEMBER
 CANADIAN TESTING
 ASSOCIATION

[Handwritten Signature]

REGISTERED ASSAYER, PROVINCE OF BRITISH COLUMBIA



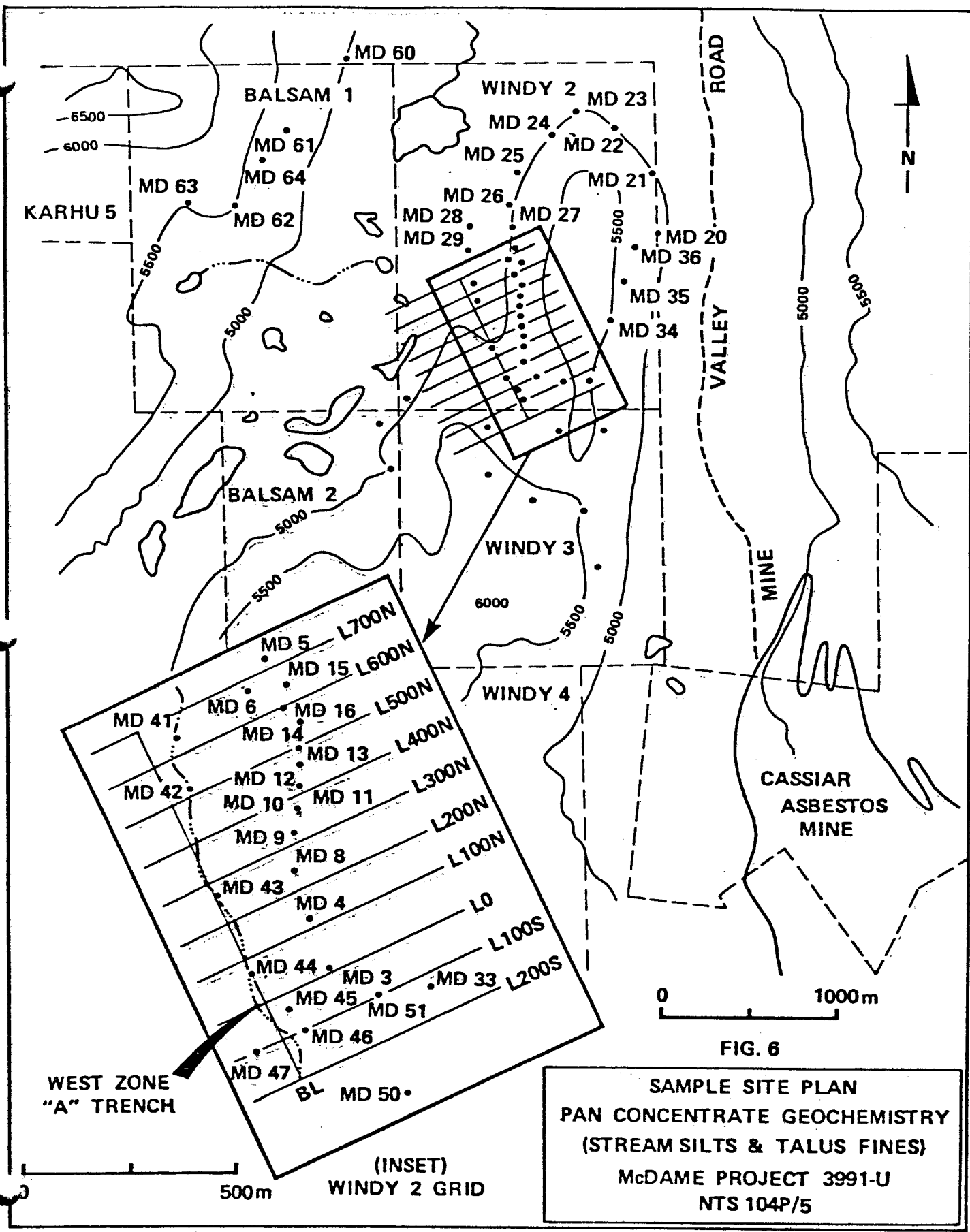


FIG. 6

SAMPLE SITE PLAN
 PAN CONCENTRATE GEOCHEMISTRY
 (STREAM SILTS & TALUS FINES)
 McDAME PROJECT 3991-U
 NTS 104P/5

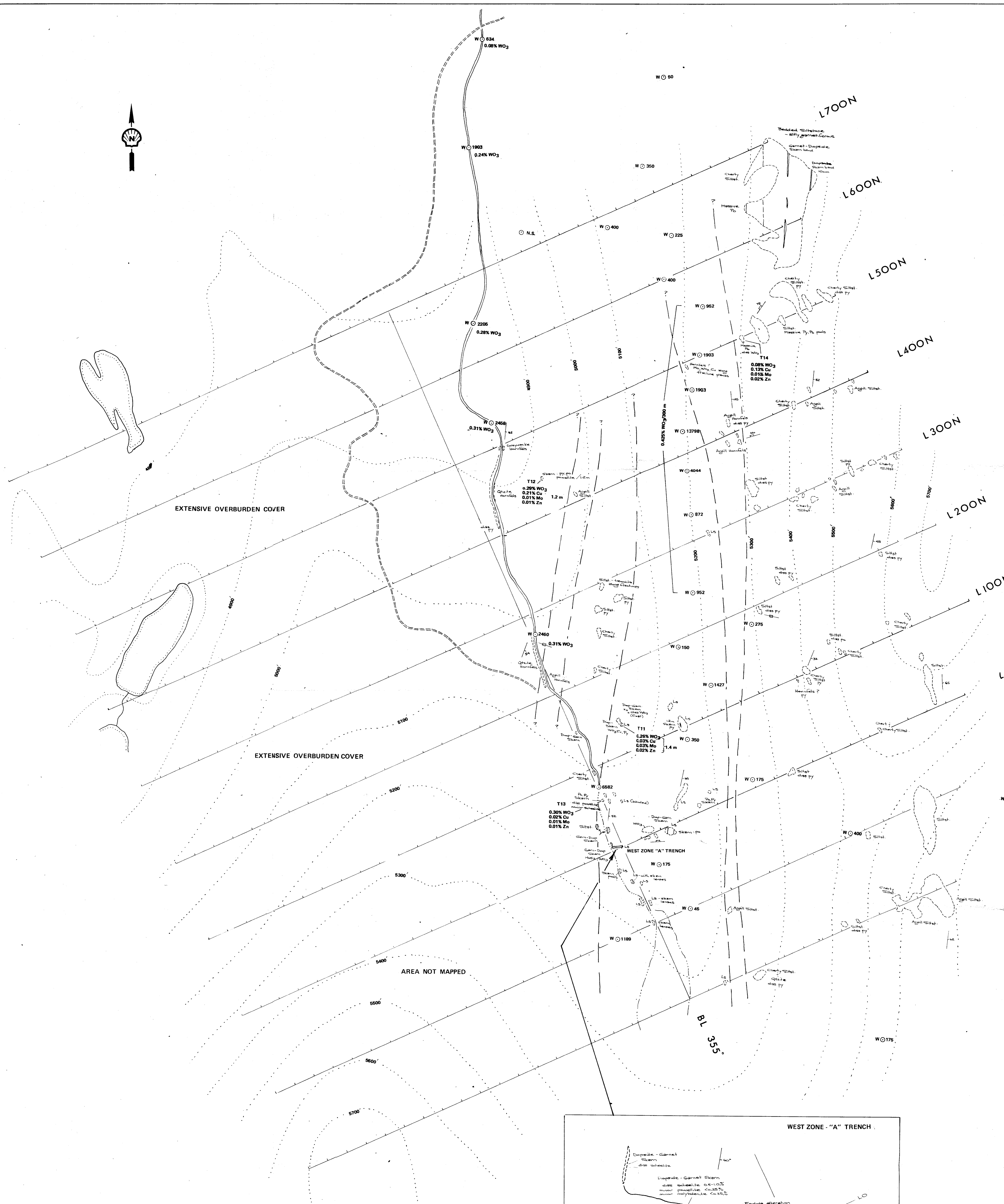
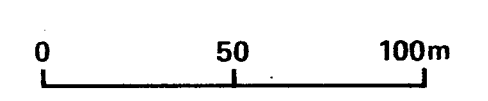
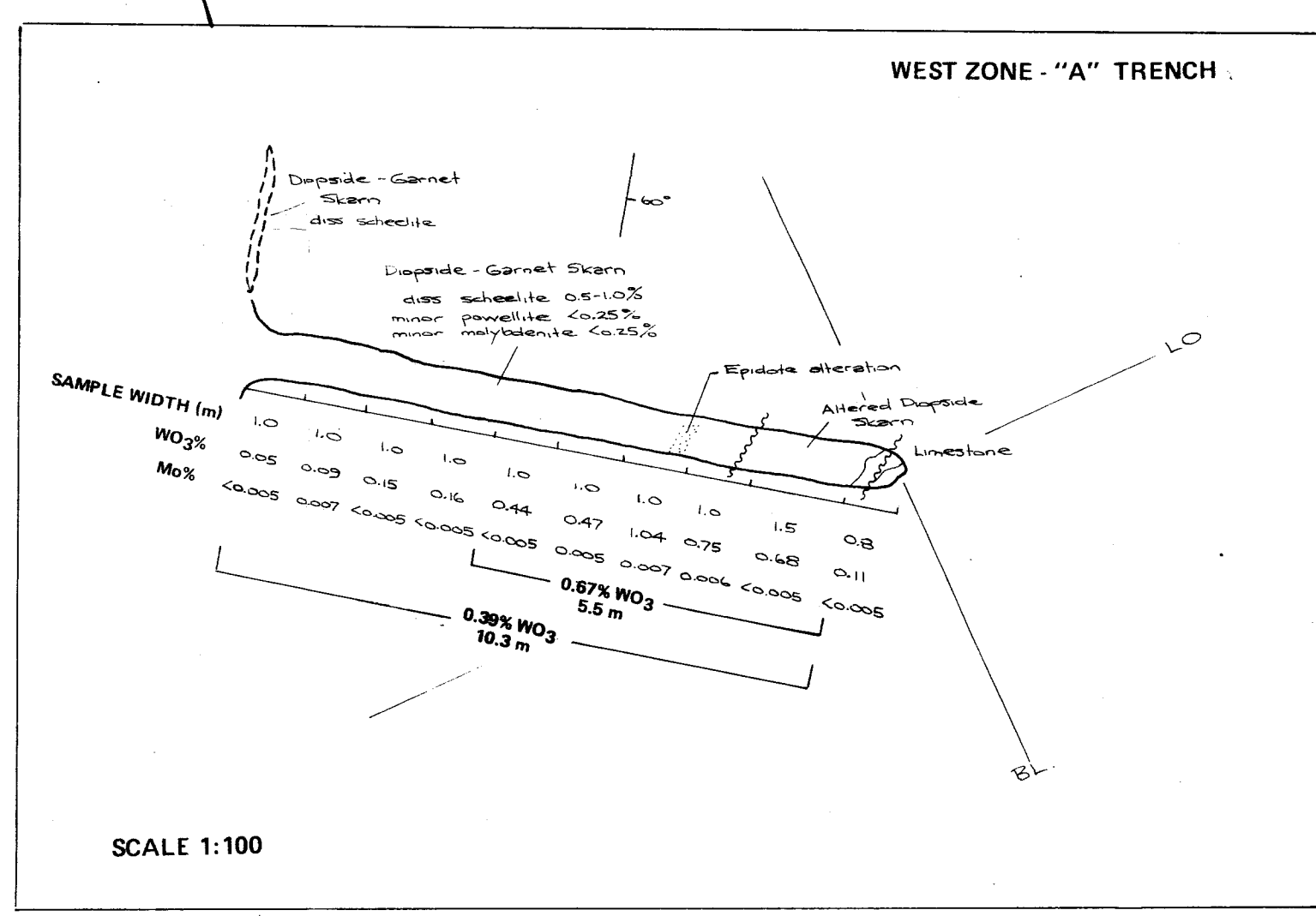


TABLE OF FORMATIONS

MIDDLE CAMBRIAN - MIDDLE ORDOVICIAN KECHIKA GROUP	cherty siltstone argillaceous hornfels
LOWER - MIDDLE CAMBRIAN UPPER ATAN GROUP	limestone (massive crystalline to finely bedded) garnet - diopside skarn pyrrhotite skarn
LOWER CAMBRIAN LOWER ATAN	cherty siltstone greywacke & quartzitic hornfels

LEGEND

W 300	W(ppm) in -20 mesh two pan concentrate (Barakso Pan) Initial sample volume 3.0 Litres Volume of -20 Mesh Fraction 0.8 Litres Final Volume of Pan Concentrate 5 millilitres Concentration Ratio 1:160
T11-14	Rock Sample Assays



MINERAL RESOURCES BRANCH
ASSESSMENT REPORT

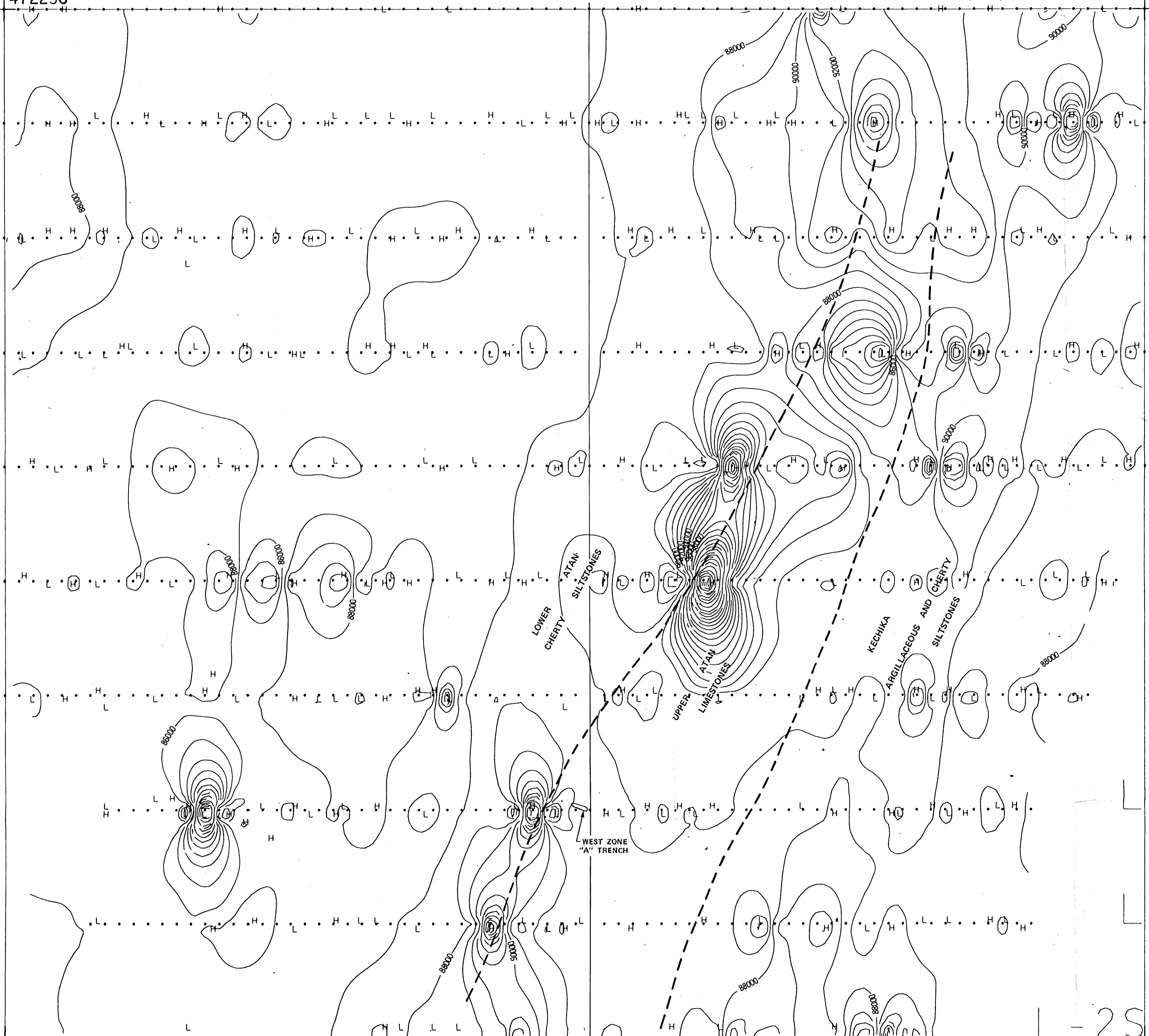
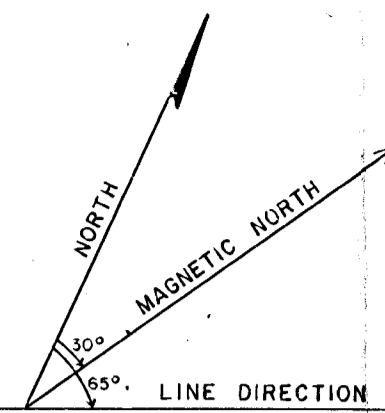
8077

SHELL CANADA RESOURCES LIMITED
EXPLORATION - MINERALS

GEOLOGY & PAN CONCENTRATE
GEOCHEMISTRY
WINDY 2 GROUP
McDAME PROJECT
3991-U
NTS 104 P/5
FIG. 3

AUTHOR: G.W. MOFFAT DATE: OCT. 1978 SCALE: 1:2000 DRAWING No. 42085-5
To Accompany To be Revised To be Enclosed

472256



L-7N

L-6N

L-5N

L-4N

L-3N

L-2N

L-1N **8077**

--- GEOLOGICAL CONTACT

CONT. INT: 100 GAMMAS
(FINAL CONTOUR VALUES: 50 000 GAMMAS
SUBTRACTED FROM FIELD READINGS AND
MULTIPLIED BY TEN)

L-0

L-1S

L-2S

MAG CONTOUR OF MCDAME SCA:1/2000

B.L.

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT

SHELL CANADA RESOURCES LIMITED
EXPLORATION - MINERALS

MCDAME PROJECT
No. 3991-U

CONTOUR OF TOTAL FIELD MAGNETICS

FIG. 4

472256

AUTHOR: S. SAYOAM	SCALE: 1:2000	DRAWING No.: VA081-K
DATE: OCT 1977	REVISED:	ENCLOSURE No.:

To Accompany

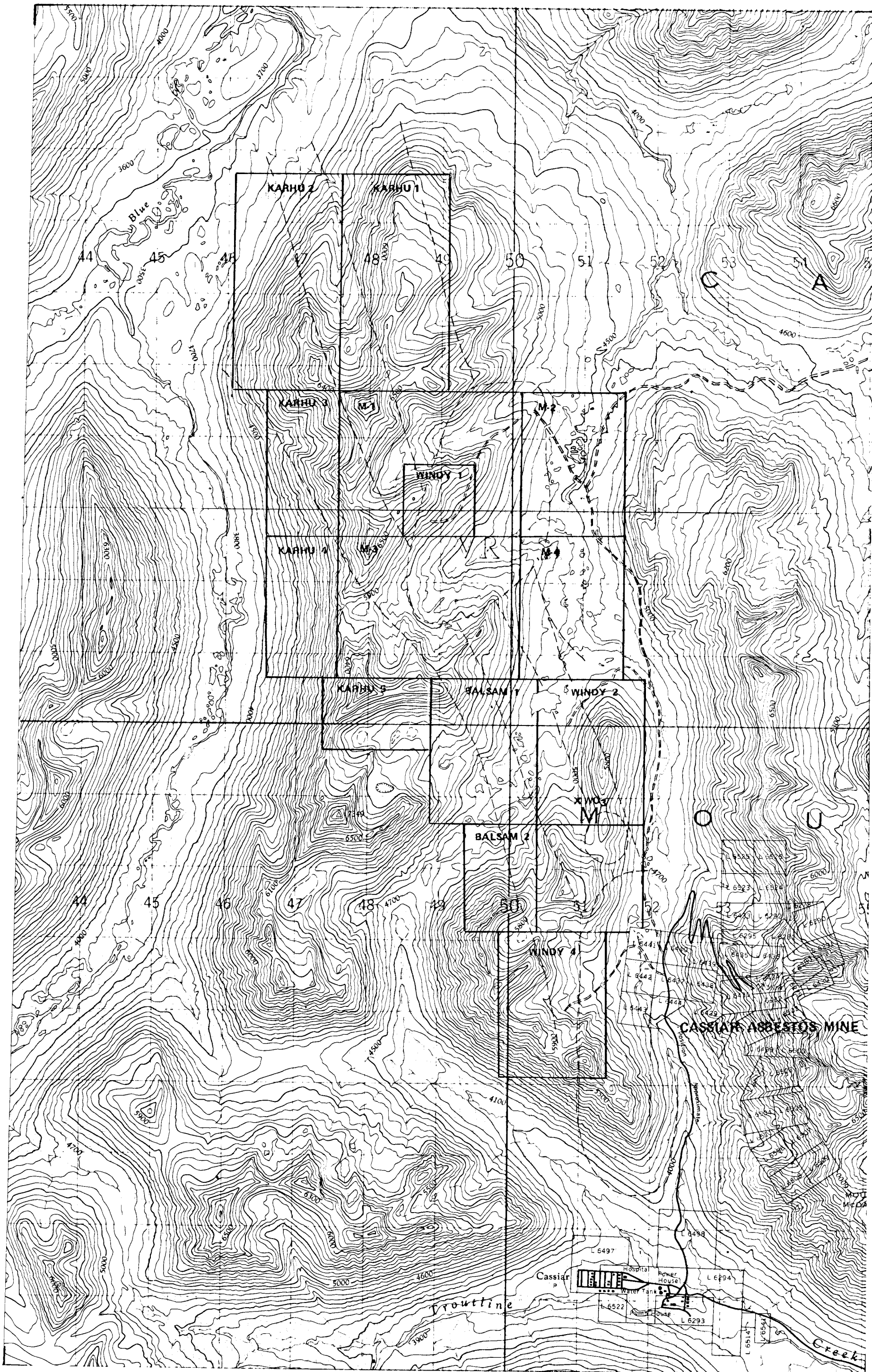


TABLE OF FORMATIONS

- LOWER CRETACEOUS
 - CASSIAR INTRUSIVES
- QUARTZ MONZONITE, GRANODIOTE
 - UPPER DEVONIAN - LOWER MISSISSIPPIAN
 - SYLVESTER GROUP
- GREENSTONE, CHERT, ARGILLITE
 - MIDDLE - UPPER DEVONIAN
 - McDAME GROUP
- LIMESTONE, DOLOMITE
 - MIDDLE CAMBRIAN - MIDDLE ORDOVICIAN
 - KECHIKA GROUP
- LIMESTONE, SILTSTONE, SLATE
 - LOWER CAMBRIAN
 - UPPER ATAN GROUP
- LIMESTONE, DOLOMITE, SHALE
 - LOWER ATAN GROUP
- QUARTZITE, SHALE, SLATE
 - PROTEROZOIC - LOWER CAMBRIAN
 - GOOD HOPE GROUP
- LIMESTONE, DOLOMITE, SLATE, ARGILITE
- SHELL CANADA CLAIMS
(KUHNS OPTION)
- UNION CARBIDE CLAIMS

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
8077



SHELL CANADA RESOURCES LIMITED
EXPLORATION - MINERALS

**LOCATION PLAN
McDAME PROJECT
3991-U
(KUHNS OPTION)
NTS 104 P/6
FIG. 2**

AUTHOR: G.W. MOFFAT	SCALE: 1:50 000	DRAWING No.: V1080-B
DATE:	REVISED:	ENCLOSURE No.:
To Accompany		