

MINERAL RESOURCES BRANCH

ASSESSMENT REPORT



GEOLOGICAL AND DIAMOND DRILLING REPORT

on the

HAGGEN PROPERTY

W.D. 1-16 CLAIMS

Cariboo Mining Division

NTS: 93H/5,6,11,12

Latitude: 53°29'N

Longitude: 121°28'W

for

Kennco Explorations, (Western) Ltd.

by

C.J. Westerman, Ph.D.,
Consulting Geologist,
229 West 27th Street,
North Vancouver, B.C.
V7N 2H3

July 12th, 1982

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SUMMARY

The Hagen (W.D.) property located in the Cariboo Mountains, 95 km southeast of Prince George in east-central B.C., was staked in 1980 as a result of a regional search program for "Sedex" lead-zinc-silver massive sulphide deposits. Geochemical surveys in 1980, 1981 defined three large soil anomalies (Zn, Pb, Ba, Ag) over a strike length of 6.5km. The current program included geological mapping and the drilling of four NQ diamond drill holes totalling 323.4 metres with two holes in each of the central and southern anomalies. The program confirmed that the western half of the property is underlain by black argillites, siltstones and cherts dipping steeply to moderately to the east which are assigned to the Black Stuart Formation of Devonian age. The uppermost Devonian strata are a chert breccia and quartzite sequence which is coincident with a highly silicified easterly dipping, reverse fault containing Cambrian siltstones and limestones in the hanging wall. The immediate footwall of the fault is a tectonic breccia containing pockets of epigenetic sphalerite-galena-barite mineralisation in the vicinity of the central geochemical anomaly. DDH 82-2 intersected 2 metres of 1.3% Zn, 0.1% Pb which represents the only significant sulphides intersected in the drilling program. Two drill holes in the southern geochemical anomaly encountered 40 m of glacial overburden thus ruling out a bedrock source for this anomaly. Mapping of the northern anomaly indicates a strong spatial correlation with the complex chert-quartz-fault breccia suggesting that the geochemical anomaly may be derived from pockets of mineralisation similar to that discovered at the Central anomaly. The currently defined geochemical anomalies have been adequately tested with negative results.

INTRODUCTION

Location, access, topography

The Haggen (W.D.) property is located 95km southeast of Prince George and 24km north of Bowron Lake in east-central British Columbia. The property encompasses a west facing hillside and adjoining relatively flat ground, northeast of Indian point Creek and southwest of Haggen Creek. The property is centred at latitude 53°29'N, and longitude 121°28'W and lies within NTS map areas 93H/5,6,11,12.

The closest road access comes within 4.5km of the property and may be reached by following the Bowron River and Indianpoint Creek logging roads southwards from Purden Lake which is on Highway 16. Final access to the property from the roads is by helicopter, the closest bases being in Prince George.

Topographically, the property includes flat swampy ground of a tributary to Indianpoint Creek and a gentle to steep west facing hillside. Elevations range from 1000 metres to 1800 metres. Elevations below 1700 metres are moderately to thickly forested with mature spruce and pine which is of little commercial value due to infestation by spruce bud worm. Underbush is generally thick consisting of alder, snowbush and devils club.

Property Definition

The property consists of 16 mineral claims containing 195 units covering 11,640 acres. Seventy units were initially staked in August 1980, 10 units were added December 1981, 85 units added April 1982 and 19 units added June 1982. All claims are owned by Kennco Explorations, (Western) Ltd.

Previous Work

The property was staked in August 1980 by Kennco as a result of a regional exploration program. There is no evidence of any previous exploration activity in the claim area. A location grid was established in October 1980 and geochemical soil sampling at 50m intervals undertaken on lines spaced 400m



BRITISH COLUMBIA
Scale 1 7,500,000m.

Figure 1

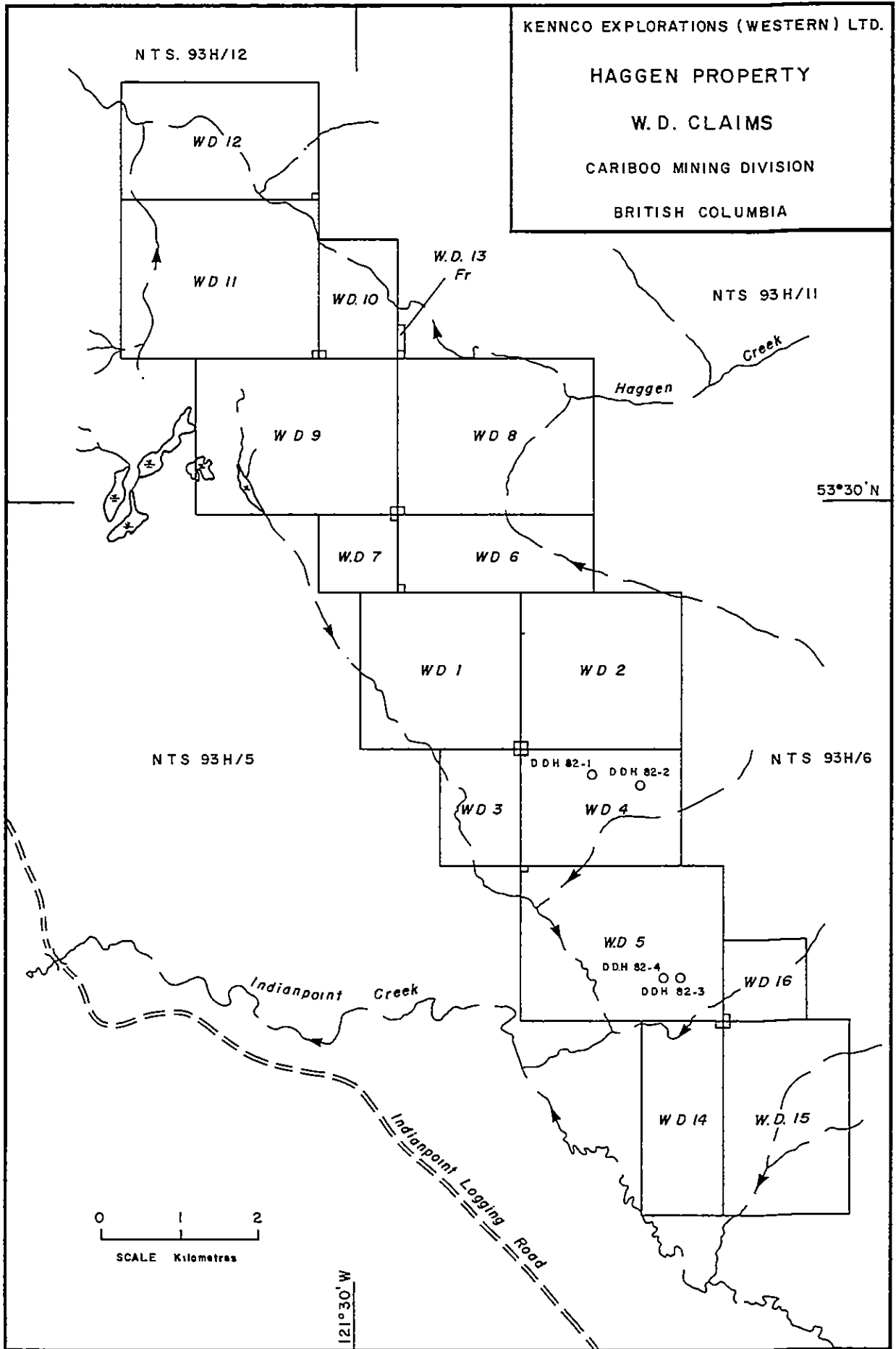


Table I: Property Definition

<u>Name</u>	<u>Units</u>	<u>Record No.</u>	<u>Record date</u>	<u>Last Grouping</u>	<u>Present Expiry</u>
W.D.1	16	1892	Aug 26/80	July 17/81	1984
W.D.2	16	1893	"	"	1985
W.D.3	6	1894	"	"	1984
W.D.4	12	1895	"	"	1985
W.D.5	20	1896	"	"	1984
W.D.6	10	4175	Dec 1/81	-	1982
W.D.7	4	4274	Apr 1/82	-	1983
W.D.8	20	4275	"	-	1983
W.D.9	20	4276	"	-	1983
W.D.10	6	4277	"	-	1983
W.D.11	20	4278	"	-	1983
W.D.12	15	4279	"	-	1983
W.D.13 Fr	1	4280	"	-	1983
W.D.14	10	4350	July 9/82	-	1983
W.D.15	15	4351	"	-	1983
W.D.16	4	4352	"	-	1983

Note: Claims W.D.14-16 staked June 20/21, 1982 prior to commencement of drilling on Group W.D. south.

apart. This survey outlined three geochemical anomalies in Zn and Pb over a strike distance of 6.5km. Check sampling and minor geological mapping were briefly undertaken in May-June 1981 and further detailed soil sampling on lines spaced 100m apart was completed in October 1981 to provide more detail of geochemically anomalous areas.

Current Work Program

The current work program consisted of geological mapping and the drilling of 4 NQ diamond drill holes totalling 323.4 metres. The program was conducted from a base camp established at 83+00N, BL.100+00E within claim W.D.5. The camp and drill were mobilised, moved and supplied by helicopters based in Prince George. Geological mapping and field management of the drilling program were undertaken by the author and a field assistant during the period May 31st-July 2nd, 1982. Geological mapping at a scale of 1:5,000 was undertaken primarily on claims W.D.1-5. A four man contractor crew supplied by Bema Industries Ltd. cleared the camp and four drill sites, assisted in construction of the base camp and constructed four drill platforms and helicopter pads during the period June 5th-22nd, 1982. A four man drilling crew from Connors Drilling Ltd. drilled two holes (60.7 metres) within claim W.D.4 and two holes (262.7 metres) within claim W.D.5 during the period June 11th-July 2nd, 1982.

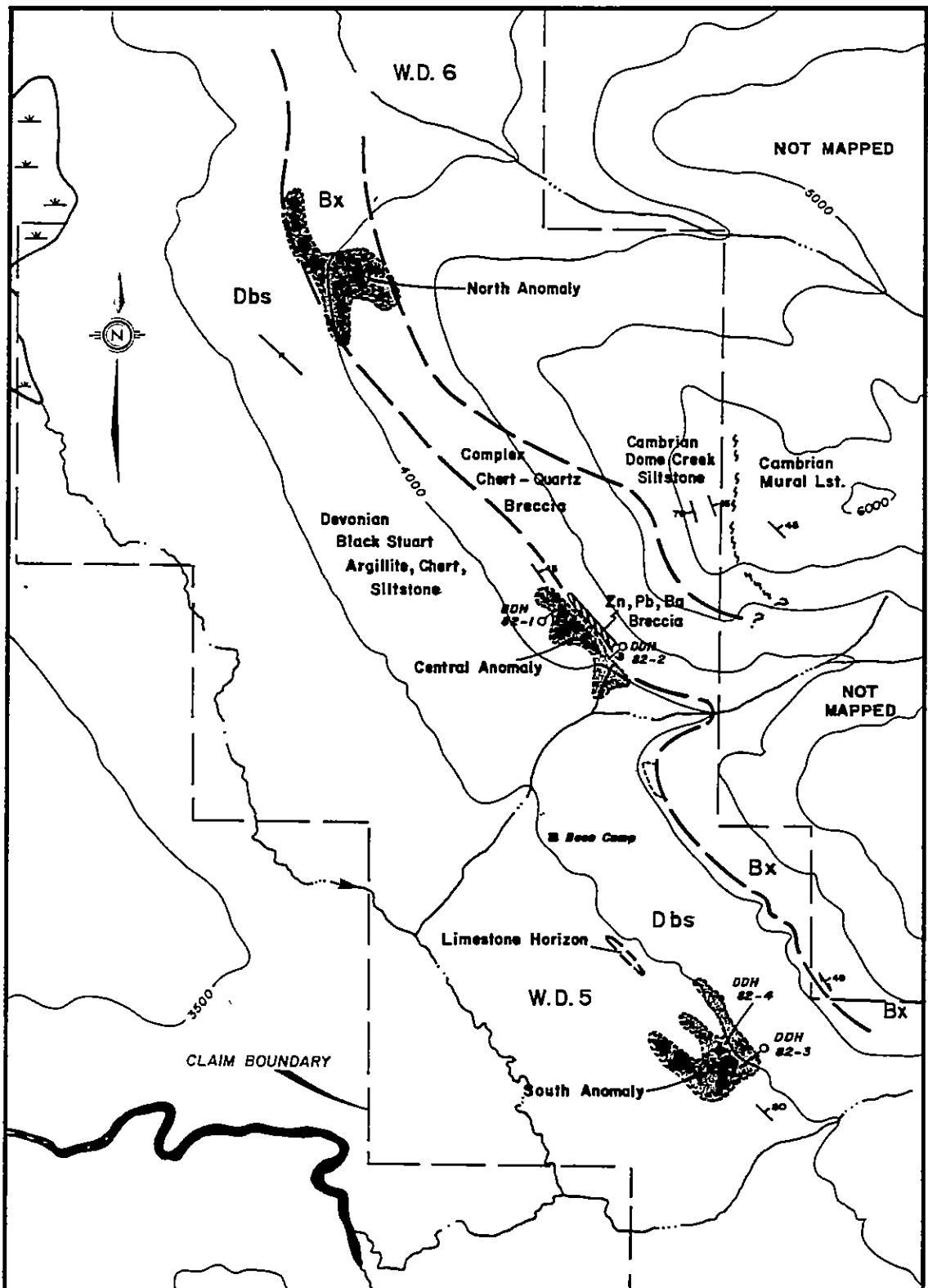
GEOLOGICAL SURVEY

Regional Geology

The Hagen (W.D.) property lies within the Cariboo District at the western margin of the Omineca Belt. The District is underlain by three major tectono-stratigraphic units. The oldest unit comprises Hadrynian and Cambrian grits, quartzites, siltstones and carbonates deposited in a shelf environment along the western margin of the North American craton. This is overlain unconformably by the middle unit comprising a basinal sequence of argillites, cherts, siltstones, minor carbonates and rare basalts of Ordovician to Pennsylvanian age which includes the Black Stuart and Guyet Formations. The youngest tectonostratigraphic unit comprises an allochthonous package of basic volcanic rocks and oceanic chert originally deposited



Figure 3 Regional Geology
G.S.C. Map 1356A
Scale 1:250,000



LEGEND		KENNCO EXPLORATIONS (WESTERN) LIMITED	
	Soil Anomaly Zn, Pb, Ag, Ba	HAGGEN PROPERTY	
	Bedding Orientation	WD CLAIMS	
	Foliation Orientation	GEOLOGY	
	Fault	Fig. 4	
	Mineralized Zone	DATA BY C.J. WESTERMAN	NTS 93H/6 PL NO
	Diamond Drill Hole	DRAWN BY	DATE 15/07/82 SCALE
		TRACED BY	DATE
		REVISIONS	0 1000 METRES

CARIBOO MOUNTAINS AND AREA TO WEST

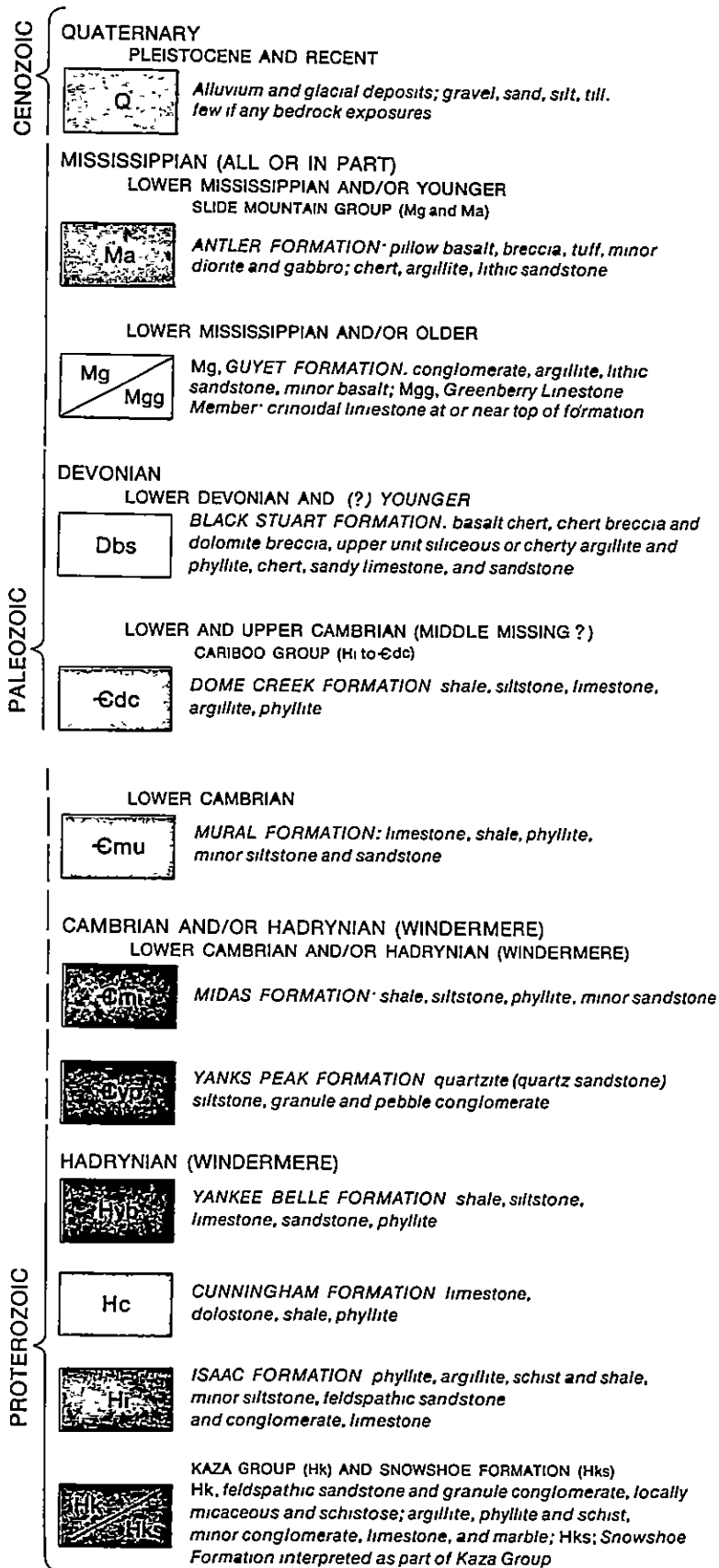


Figure 3 - Legend

further west during Pennsylvanian/Permian times which was thrust eastwards over the North American craton during Jura-Cretaceous time. According to Struik (1981) all three tectono-stratigraphic units have undergone similar post Permian deformation histories but with variable intensity. The primary structural grain of the orogen is NW-SE. Early easterly directed major thrust faults are succeeded by westerly directed thrusts and a major folding event producing folds with subhorizontal axes and subvertical axial planes. Later stage reverse faulting and local right lateral strike slip faulting also occurred.

Property Geology

Geological relationships on the property are obscured by a severe paucity of outcrop below elevations of approximately 1250 metres. The western part of the property (lower elevations) is underlain by a basinal argillite chert sequence of probable Devonian age assigned to the Black Stuart Formation of Struik's (1981) middle tectonostratigraphic unit. Only three outcrops of this sequence were discovered on the property. These occur at station locations 88+20N, 108+60E; 119+10N, 104+40E and in the banks of Haggen Creek within claim W.D.12. From drilling results the Black Stuart is determined to be deformed by minor folds, has a subvertical to steep easterly sheet dip in the western part of the property which rapidly changes to a 45°E sheet dip in the eastern part of the property. A lower sequence of interbedded black argillite and light grey siltstone includes a thin brecciated limestone horizon and a unit in excess of 20 metres thick which contains up to 5% laminated syngenetic pyrite. An upper sequence of interbedded black graphitic argillite and black chert is capped by a grey-black chert breccia unit overlain by a white to grey quartzite.

Higher elevations east of the property are underlain by grey limestone of the Mural Formation and thinly interbedded shales and siltstones of the Dome Creek Formation - both of Cambrian age. The Cambrian strata are deformed by open to tight folds about gently north plunging axes and upright axial planes. Dome Creek siltstones display a prominent axial planar cleavage.

Cambrian strata in the east are thrust westerly over the Devonian succession along a major reverse fault which dips at approximately 40° east. The fault zone has been traced for 6 km through claims W.D. 1-5. and has an outcrop width in excess of 600 metres locally. In central and southern parts of the property, the zone produces a sharp topographic contrast to the

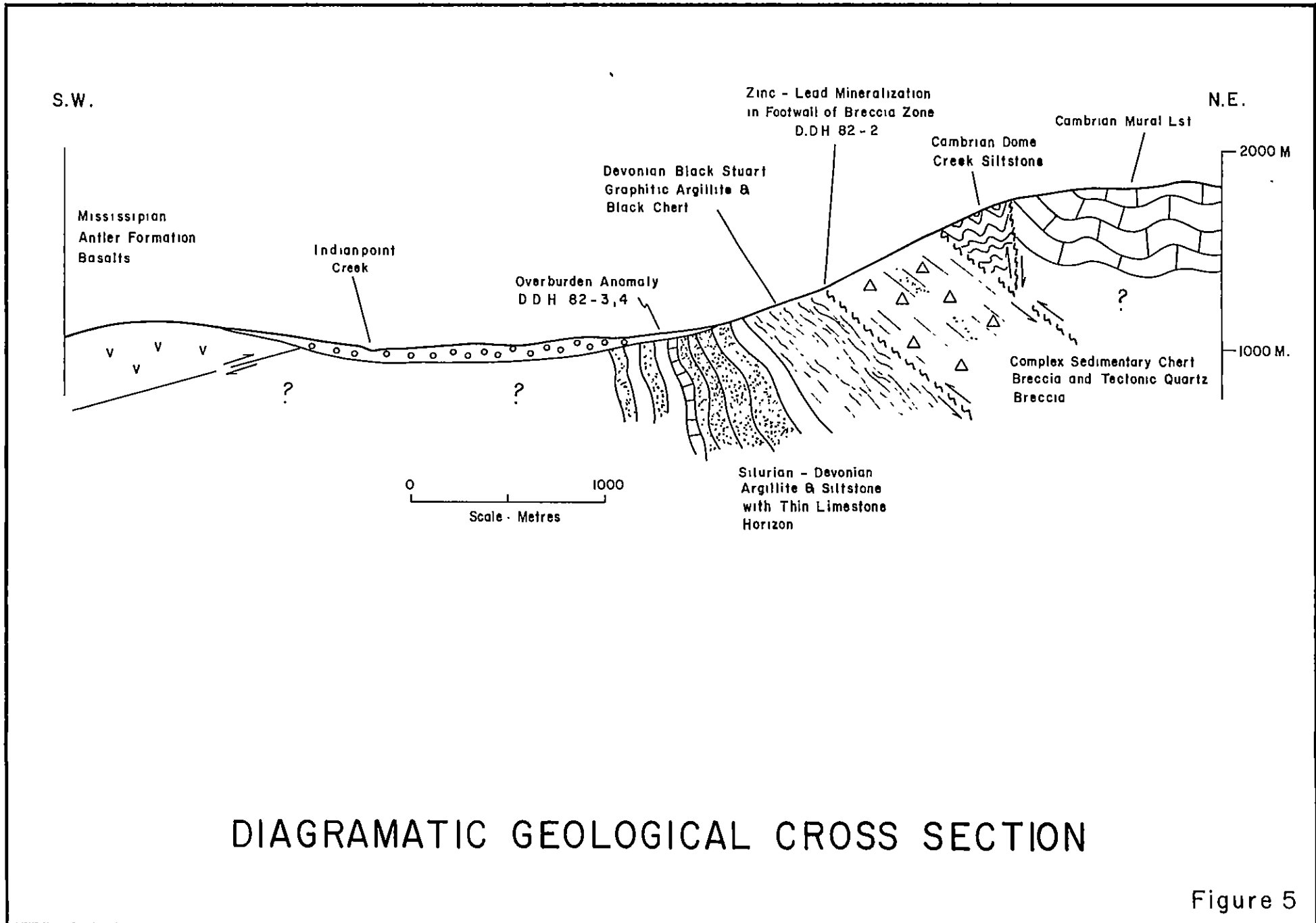


Figure 5

underlying argillites and locally outcrops on slopes of 35°. The fault is actually a zone of intense silicification, brecciation and introduction of abundant vein quartz which occurs selectively within the chert breccia and white quartzite units at the top of the Black Stuart Formation. From the base of the zone to the top there is a progression from sedimentary chert breccia through mixed tectonic quartz-chert breccia to a banded complex chalcedonic vein quartz breccia to coarse quartz vein breccia in a fine grained quartz matrix to sacharoidal textured quartz (or quartzite?) with minor calcite to coarse quartz breccia to hanging wall siltstone of the Dome Creek Formation. Mixed tectonic quartz-breccia at the base of the zone contains pockets of epigenetic barite-sphalerite-galena mineralisation (see below).

The nature of surficial deposits at lower elevations has only been revealed by drilling. Drill holes 82-3 and 82-4 at the 1000 metre elevation encountered 40 metres of bedded sands, varicoloured clays and several boulder beds - the latter consisting primarily of mixed quartz-chert breccia. The thickness of these glaciolacustrine and glaciofluvial deposits was greater than anticipated. The occurrence of poorly defined irregular terraces up to almost the 1200 m elevation - original thought to be controlled by bedrock - may in fact be related to glacial processes or surficial deposits.

Mineralisation (including correlation of soil geochemistry with geology)

Previous geochemical soil surveys on the property had outlined three zones with anomalous Zn, Pb (Ba,Ag) values. (Pegg 1980, Stevenson 1982).

North anomaly - 800m x 400m, zinc highs in the 2000-4000 ppm range, weakly anomalous silver values 2.0-3.0ppm, erratic high lead values at one location 400-600ppm.

Central anomaly - 700m x 200m, zinc 2000-4000ppm, lead 200-600ppm, barium highs 10,000ppm

Southern anomaly - 400m x 400m, erratic values, not a coherent anomaly, zinc highs 1500-5500ppm lead highs 100-3000 ppm.

Central Anomaly: High zinc-lead-silver values correspond to a marked break in topographic slope coincident with the footwall contact of the reverse fault zone and the contact between overlying complex chert breccia and underlying black

graphitic shales with black chert. Outcrops and boulders on the steep (33°) topographic slope immediately above the anomaly display patchy smithsonite in the complex breccia matrix. At one locality (88+50N, 108+60E) approximately 5% disseminated orange sphalerite and trace galena with minor vuggy barite occur in the dark grey chert matrix of a complex breccia containing 50% white quartzite fragments. Drill hole 82-2 intersected 6.3 metres of mixed sedimentary and tectonic chert-quartz breccia. The tectonic breccia contains 1-4% fine grained orange sphalerite with minor galena and barite disseminated in a matrix of fine grained white quartz and rimming grey chert fragments. Thin sphalerite-pyrite-quartz veinlets are also present cutting sedimentary chert breccia and a single complex barite-galena vein is present. Mineralisation is clearly epigenetic and related to tectonic brecciation of the reverse faulting event. Black argillites and cherts immediately underlying the breccias are devoid of sulphide mineralisation.

Surficial downslope dispersion of lead and zinc is enhanced by the relatively steep slope and by the spring line formed at the footwall contact of the breccias. Greatest downslope dispersion relates to intermittent creek channels. High lead zinc values in soils on line 86N originally believed to be south of Lynx Creek are actually north of the creek due to errors in compassing on the grid.

Southern Anomaly In view of the erratic distribution of high geochemical values in soils, sample sites were rechecked. Only one site (64+00N, 101+50E) displays swampy conditions, the remainder appear to be good 'B' horizon samples. The presence of limestone outcrop at station 76+00N, 100+00E and of a large limestone boulder at 65+00N, 100+00E suggested that bedrock was relatively close to surface. In fact, however, two diamond drill holes in this area intersected 40 metres of overburden and it is now clear that the geochemical anomalies are not related to a bedrock source. Poorly defined topographic benches in the vicinity of the anomaly were not observed until after vegetation had been cleared during preparation of the drill sites. Overburden consists of thick sequences of ferruginous brown sand, varicoloured clays and several boulder beds. Core samples of boulders indicate that they are primarily mixed chert-quartz breccias. No sulphide mineralisation was observed in the core samples but it is very possible that the geochemical anomaly is related to mineralisation in the boulders similar to that discovered in-situ in the central anomaly. Bedrock beneath the southern anomaly consists of interbedded, subvertically dipping, argillite and siltstone containing minor syngenetic pyrite blebs and minor quartz-pyrite veins which very rarely carry traces of galena. At the top of this sequence, black argillite with thin

quartz laminations contains 2-5% syngenetic pyrite laminae over a thickness of 20 metres.

Northern Anomaly A brief examination of the northern anomaly confirmed previous observations. The anomaly is generally in subdued topography and, on the basis of soil hole chips and rock float, is underlain primarily by black argillite and black chert of the Black Stuart Formation. Higher geochemical soil values, however, correspond to slightly higher topography and are strongly related to outcrop and boulder distribution of mixed chert-quartz breccia. No sulphide mineralisation or secondary zinc minerals were discovered but the most likely explanation of geochemical highs is that they are related to small pockets of epigenetic mineralisation similar to that found in the central anomaly. No diamond drilling was undertaken in the northern anomaly.

DIAMOND DRILLING PROGRAM

During the period June 10th-July 2nd four NQ diamond drill holes totalling 323.4 metres were drilled on the property by Connors Drilling Ltd. utilising a Boyles 25A drill rig. In view of the presence of extensive timber and the necessity to move the drill by helicopter, Bema Industries Ltd. was contacted to provide a four man crew to clear and prepare four drill sites. Drill moves were accomplished using a Bell 205 or a Hughes 500D helicopter chartered from Prince George. All core from the program is stored at the main base camp site at 83+00N, 100+00E.

It was originally intended that four holes be drilled for a total of 610 metres but difficulties encountered with steep topography, attitude of bedding, loss of circulation and deep overburden caused early termination of the program at a point where it was felt that the targets had been adequately tested.

Hole #	Location	Inclination	Azimuth	Collar Elev.	Total depth
82-1	91+75N, 106+43E	-45°	050°T	1228m	31.3m
82-2	88+20N, 108+75E	-60°	210°T	1274m	29.4m
82-3	64+15N, 102+50E	-60°	235°T	1040m	173.1m
82-4	66+10N, 101+00E	-90°	-	998m	89.6m

DDH 82-1 collared downslope and east of the central anomaly was intended to test for a westerly dipping sequence of strata. The hole intersected 31.3m of interbedded black graphitic argillite and black chert devoid of sulphides with bedding dipping easterly subparallel to the hole.

DDH 82-2 was collared upslope and east of the central anomaly to test for an easterly dipping sequence of strata. This is the only natural site available east of the anomaly due to very steep topography. Further drilling east of the anomaly would require extensive and costly blasting and cribbing. Site 2 is located on a 33° topographic slope and the hole was drilled downslope at a -60° angle. Elevation difference from the collar to the drill platform was 3.1 metres. The hole was cased from 0 to 9.7m and intersected a complex mineralised breccia from 9.7m to 16.0m. Primary grey chert breccia with a crude stratification at 90° to the core axis is cut by irregular quartz-sphalerite veinlets and by secondary quartz breccia. The quartz breccia - of tectonic origin - is related to a quartz flooding zone maximizing at 15.1m and contains 1-4% fine grained disseminated orange sphalerite in the matrix with traces of fine grained disseminated galena. At 14.9m the hole intersected a 3cm wide barite vein having a 3mm wide massive fine grained galax margin. The only significant assay results occur between 14.0m and 16.0m depth in the hole totalling 2.0 metres grading 1.3%Zn, 0.1%Pb and 0.07 oz/t Ag.

Below 16.0m the hole intersected interbedded grey laminated argillite and black graphitic argillite devoid of sulphide mineralisation to the bottom of the hole at 29.4m. The hole was stopped at this point due to severe loss of lubricant circulation. In fact, loss of circulation was experienced at depths of 11.5m, 16.0m, 21.3m and 29.3m. Attempts to seal off the hole with mud and polymer additives were unsuccessful. Cementation of the hole was judged likely to be unsuccessful due to the severity of circulation loss and, since the hole had already accomplished its major objective, the extreme expense of continued drilling did not seem warranted.

DDH.82-3 was collared upslope and east of the southern anomaly, drilled -60° west to test for an east dipping succession. The hole encountered an unexpectedly deep overburden totalling 43.6m requiring extensive triconing and additional casing had to be flown into the property. Additional difficulties were presented by the presence of beds of large boulders within a sequence of sands and compacted varicoloured clays. Boulders cored between 18.3m and 28.3m were mixed chert-quartz breccia similar in type to that encountered as bedrock in hole 82-2 but lacking sulphide mineralisation. Similar breccia occurs as

outcrop 750m up slope and east of DDH 83-2. Bedded siltstones and argillites intersected in 82-3 are folded with bedding intersecting the hole at variable angles from 10°-80°. Structural interpretation permits two alternatives - a sheet dip of some 30°W or a sheet dip of some 80°E. (Subsequent drilling of 82-4 confirmed a sheet dip of 80°E). Minor to trace disseminated and thin laminated syngenetic fine grained pyrite occurs throughout the depth of the hole. The only significant concentration of pyrite however occurs in the upper 20m of bedrock where thin laminated cherty siltstones and dark cherty argillites contain 2-5% thin laminated pyrite. Traces of fine grained galena were noted in thin (2mm) veinlets of quartz and pyrite at depths of 73.8m, 87.5m, 91.0m and 91.6m.

DDH 82-4 collared within the southern anomalous zone was intended to test for a westerly dipping succession and to test overburden thickness. The hole confirmed that overburden is continuous at 39.6m but revealed that underlying bedrock, deformed by minor folds, has a sheet dip of approx. 80°East. Bedrock is composed predominantly of massive black cherty argillite (non graphitic and non calcareous) with interbedded light grey siliceous siltstones having highly variable bed thickness (1cm-4.2m). The sediments contain rare pyritic laminations and minor thin veins of quartz and pyrite. Several narrow fault gouge zones were encountered down the hole. Total depth of the hole was 89.6m.

Assay Results

With the exception of the upper section of DDH 82-2, there was insufficient sulphide mineralisation in the core to warrant splitting for sampling. Core from DDH 82-2 was split between 9.7m and 16.0m and sampled for Zn, Pb, Ag assay. The remainder of the core from all holes was telescope sampled in 5m lengths and submitted for geochemical analysis for Zn and Pb.

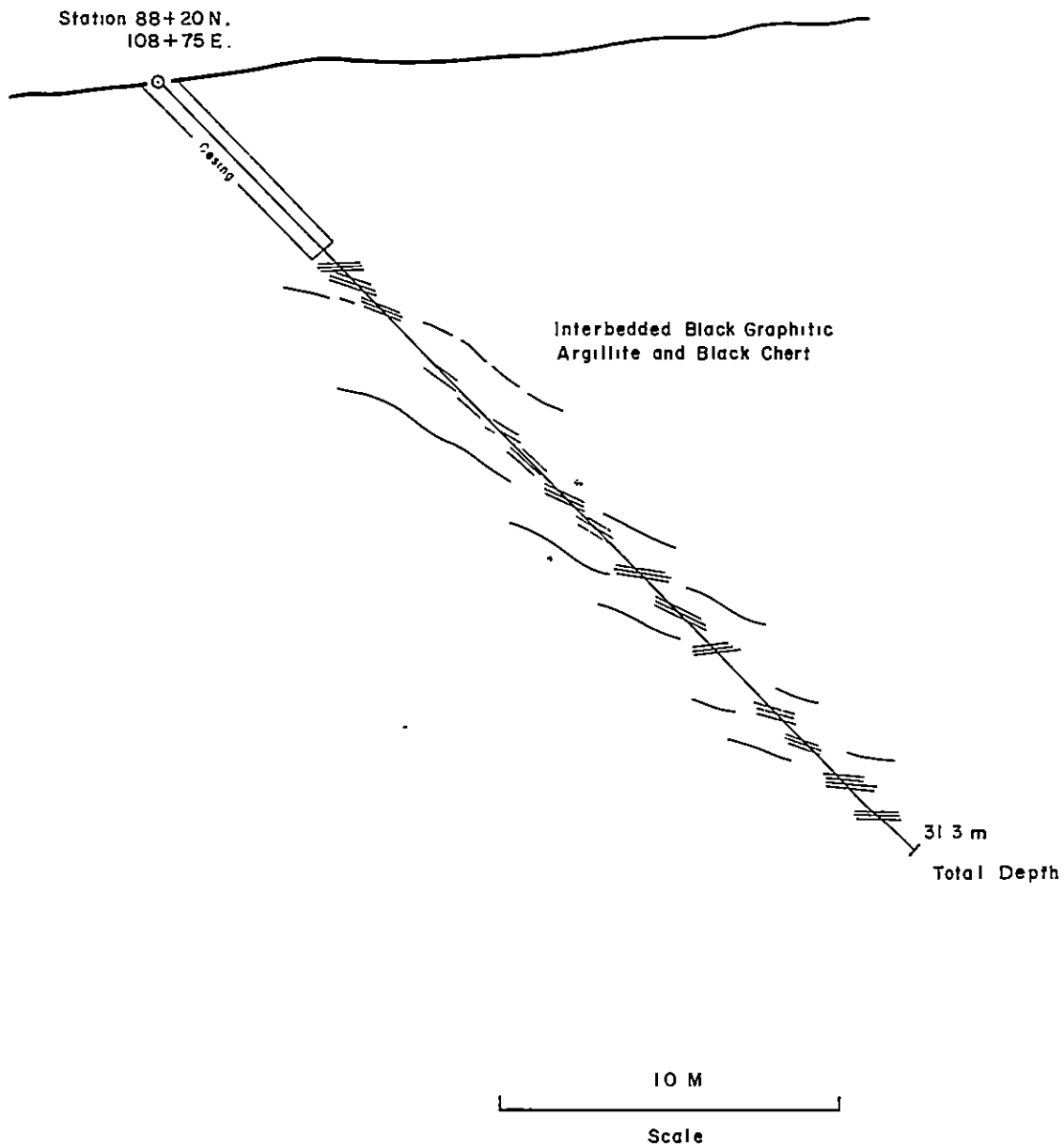
DDH 82-2 intersected 4.0 metres between 10.0m and 14.0m assaying 0.13% Zn, 0.02% Pb, 0.09 oz/t Ag followed by 2.0 metres between 14.0m and 16.0m assaying 1.3% Zn, 0.1% Pb, 0.07 oz/t Ag. All other core samples returned geochemical values in Zn and Pb which were insignificant.

HAGGEN PROJECT

W.D. CLAIMS

D.D.H. 82 - 1

SECTION LOOKING N.W.

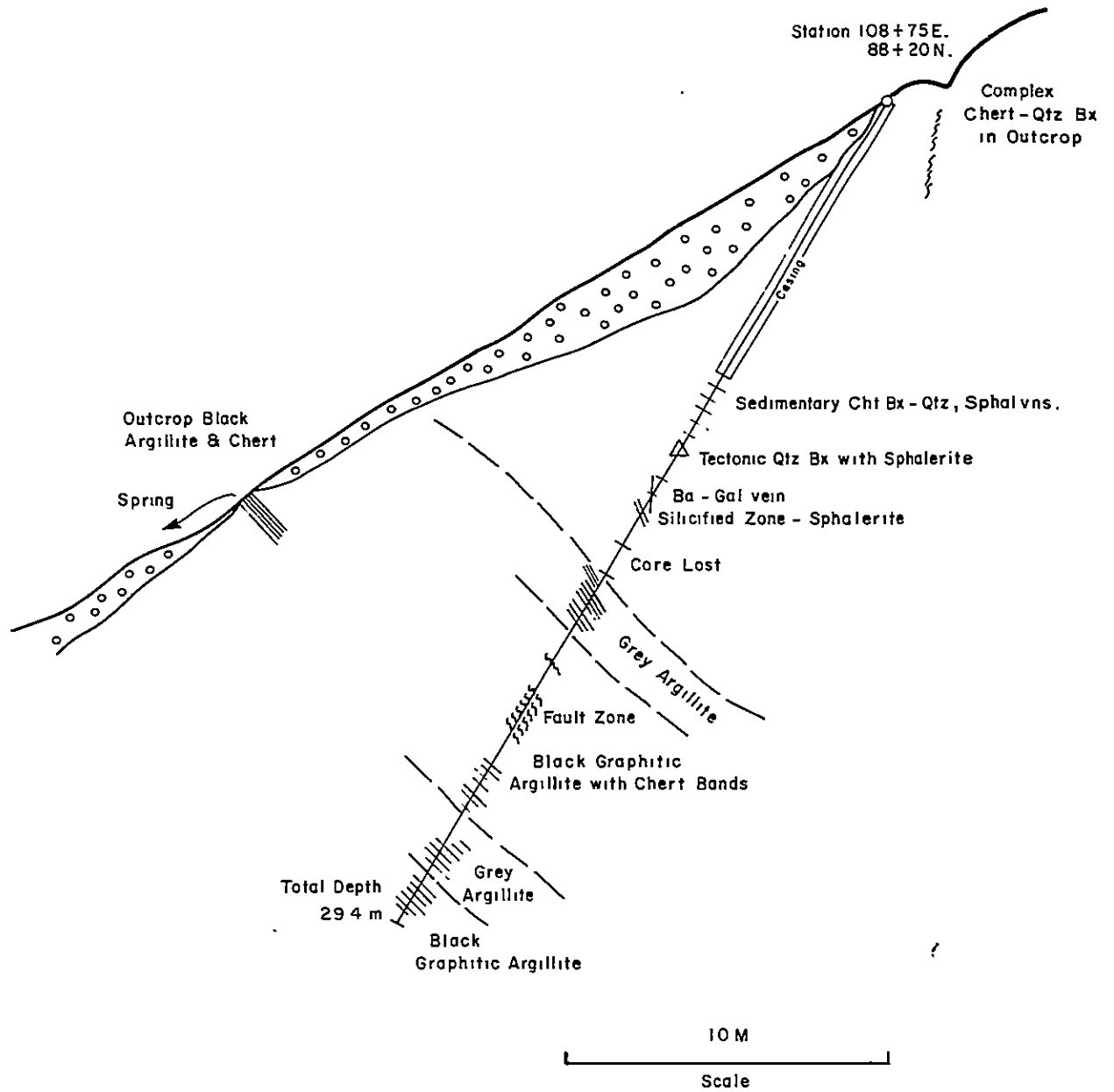


SECTION D.D.H. 82 - 1

Figure 6

HAGGEN PROJECT
W.D. CLAIMS
D.D.H. 82 - 2

SECTION LOOKING N.W.



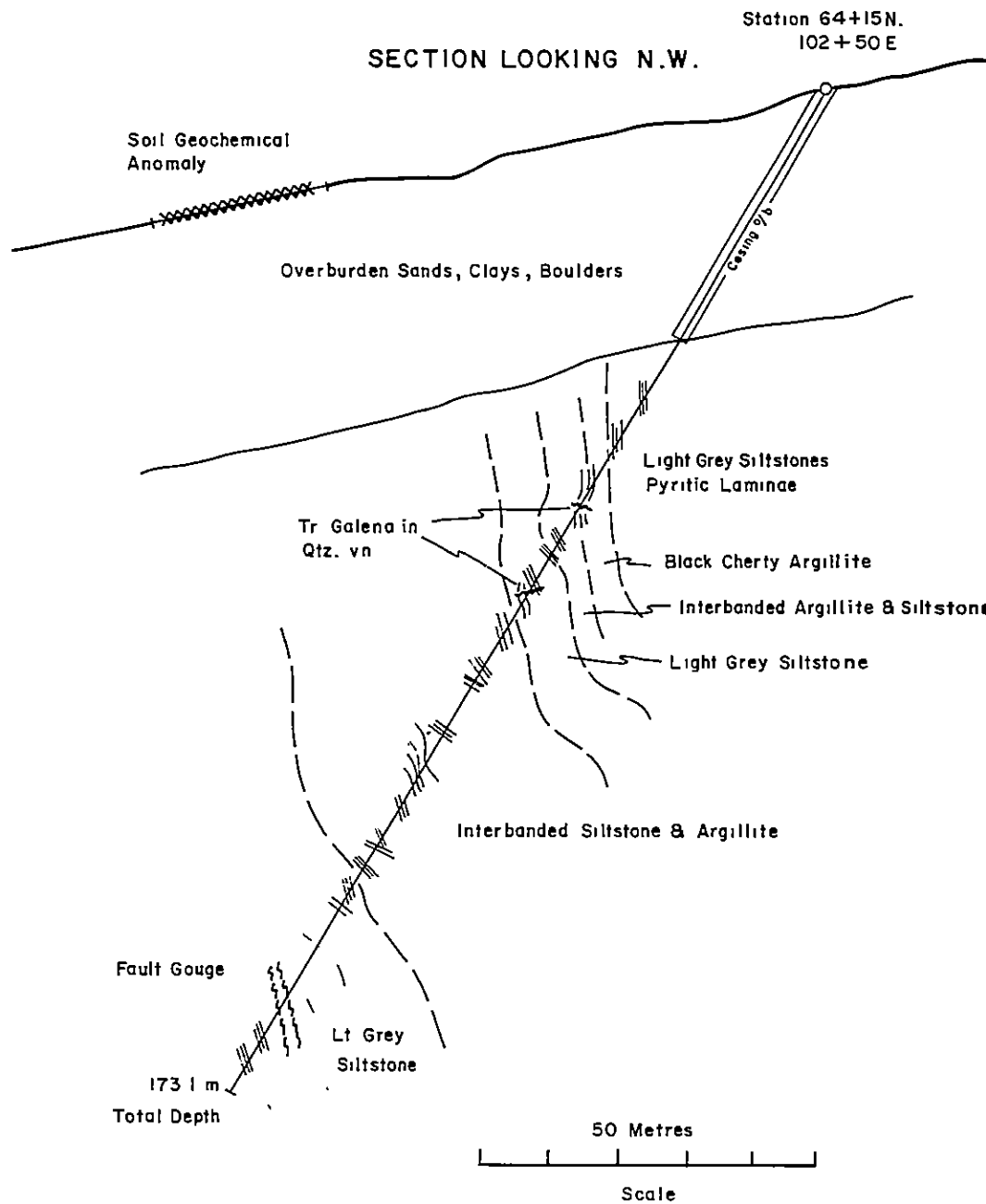
SECTION D.D.H. 82 - 2

Figure 7

HAGGEN PROJECT

W.D. CLAIMS

D.D.H. 82 - 3



SECTION D.D.H. 82 - 3

Figure 8

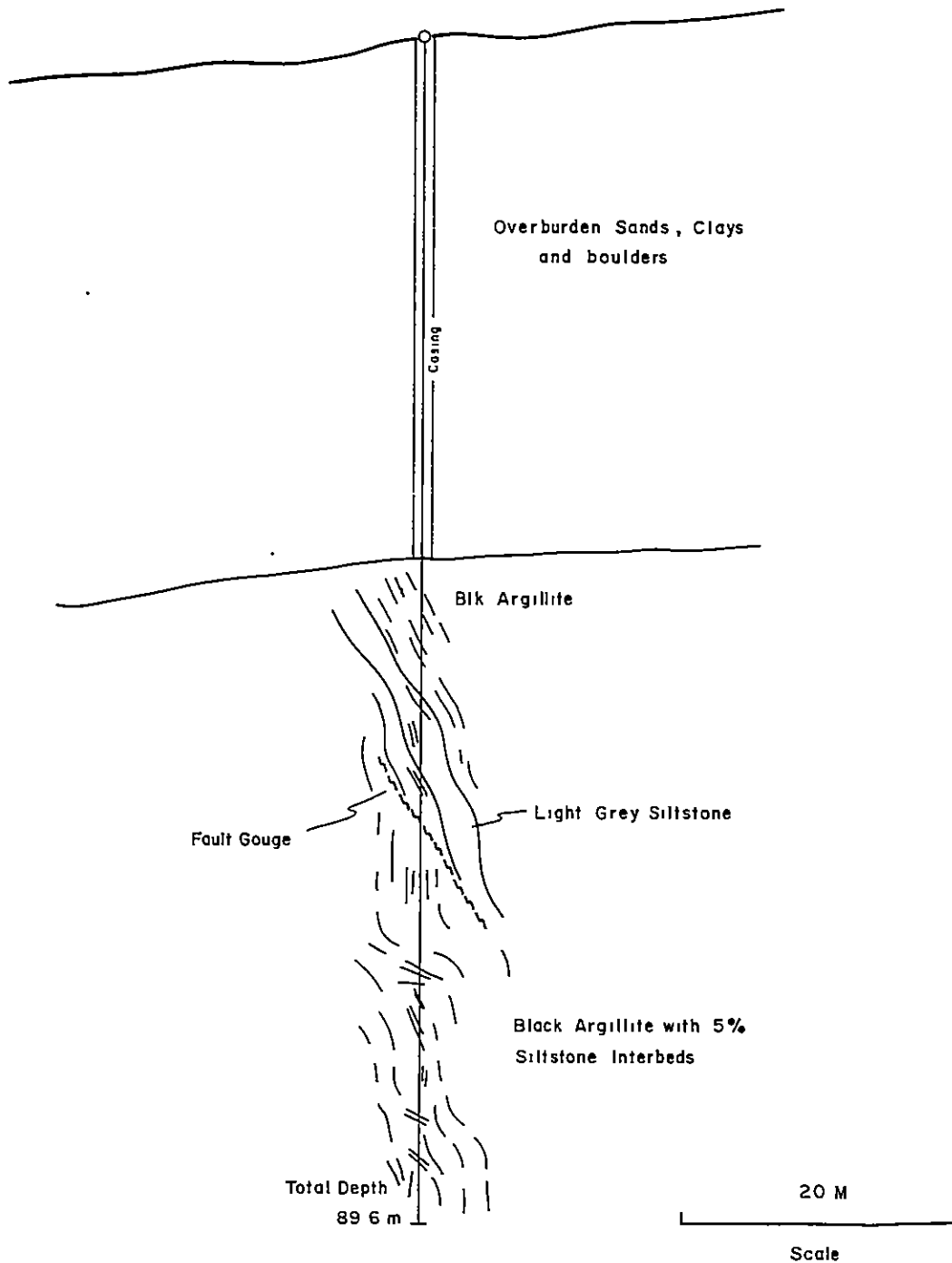
HAGGEN PROJECT

W.D. CLAIMS

D.D.H. 82 - 4

SECTION LOOKING N.W.

Station 66+10 N
101+00 E



SECTION D.D.H. 82 - 4

Figure 9

CONCLUSIONS AND RECOMMENDATIONS

The current work program at the Haggen (W.D.) property has confirmed that the western part of the property is underlain by black argillites, siltstones and black cherts, minor limestone, chert breccia and quartzite of probable Devonian age assigned to the Black Stuart Formation. The eastern part of the property is underlain by siltstones and carbonates of probable Cambrian age assigned to the Mural and Dome Creek Formations. Tightly folded Cambrian strata are thrust over subvertical to easterly dipping Devonian strata by a major reverse fault dipping easterly at approximately 40°. Devonian chert breccias and quartzites within the fault zone have been tectonically brecciated and silicified with the introduction of large volumes of vein quartz. Such breccias in the footwall of the fault contain relatively minor pockets of epigenetic sphalerite-galena-barite mineralisation.

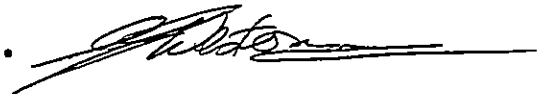
Geochemically anomalous values of Zn, Pb, Ba, Ag in soils of the Central Anomaly are the result of downhill migration of elements derived from pockets of mineralisation in the fault breccia. Diamond drill hole 82-2 intersected 2.0 metres grading 1.3% Zn, 0.1% Pb, 0.07 oz/t Ag.

Geochemically anomalous values of Zn and Pb in soils of the Southern Anomaly are almost certainly not related to bedrock due to the presence of 40m of glacial overburden. It is possible that the geochemical values are related to the presence of mineralised boulders in the overburden (not observed) which may be derived from a distant source.

Geochemically anomalous values of Zn and Pb in soils of the Northern Anomaly are spatially related to outcrop and boulders of tectonic chert-quartz breccia and may be derived from mineralised pockets similar to that discovered in the Central Anomaly.

The sulphide mineralisation discovered to date on the property is not even remotely economically viable. The geochemical anomalies have been adequately tested with negative results and further testing of these anomalies is not warranted.

Signed.

A handwritten signature in cursive script, appearing to read 'C.J. Westerman', written over a horizontal line.

C.J. Westerman, Ph.D.,

July 12, 1982

Vancouver, B.C.

REFERENCES

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2. Stevenson, R.W; (1982) - Progress Report on Haggen Property: Internal report, Kennco Explorations, (Western) Ltd.
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APPENDIX I

STATEMENT OF COSTS

W.D. 1-16 CLAIMS

CARIBOO M.D.

GEOLOGICAL SURVEY

May 29th - July 4th, 1982

Labour

C.J. Westerman, Consulting geologist		
37 days @ \$300/day.....	\$11,100.00	
P. Mordaunt, Geological assistant		
37 days @ \$85/day.....	3,145.00	
	<u> </u>	
Total Labour	\$14,245.00	\$14,245.00

Travel, Accommodation, Meals

Vehicle rental May 29-July 4th.....	\$ 1,208.49	
Gas	195.37	
Hotel 6 days @ \$36.00	216.00	
Meals 14 man days @ \$20.00 per	280.00	
Camp accommodation and meals		
60 man days @ \$30 per	1,800.00	
	<u> </u>	
S/T	3,699.86	\$ 3,699.86

SITE PREPARATION AND CAMP CONSTRUCTION

June 5th - June 22nd

Labour

N. Marcy, Foreman, 17.5 days @ \$200/day	3,500.00	
E. Ackerley, Technician, 15.5 days		
@ \$165/day	2,557.50	
R. Horth, Technician, 18 days		
@ \$150/day	2,700.00	
H. Chaudet, Technician, 18 days		
@ \$150/day	2,700.00	
	<u> </u>	
Total Labour	\$11,457.50	\$11,457.50

Travel, Accommodation and meals

69 man days @ \$30/day	\$ 2,070.00	
Vehicle rental	654.15	
Gas	130.25	
1 return air fare Vancouver - Prince George	226.80	

S/T	\$ <u>3,081.20</u>	\$ 3,081.20
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Construction Materials

352.02

DIAMOND DRILLING PROGRAM

June 11th - July 5th

Mobilisation and demobilisation \$ 4,500.00

Footage Fee

52 ft NW @ \$22.00	\$ 1,144.00	
734 ft NQ @ \$21.50	\$15,781.00	

S/T	<u>\$16,925.00</u>	\$16,925.00
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Field Costs

Labour 486 hrs @ \$25.00	12,150.00	
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Labour e/t 97 hrs @ \$35.00	3,395.00	
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Labour travel 96 hrs @ \$20.00	1,920.00	
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S/T	<u>17,465.00</u>	\$17,465.00
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Rig 71 hrs @ \$20.00	1,420.00	
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52 hrs @ \$25.00	1,300.00	
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S/T	<u>2,720.00</u>	2,720.00
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Standby 56 hrs @ \$75.00	4,200.00	
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Consumables - drill bits, mud, boxes etc 7,723.91

S/T	<u>\$53,533.91</u>	\$53,533.91
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HELICOPTER

Hughes 500D	23.2 hrs @ \$450	\$10,440.00	
Bell 206B	14.0 hrs @ \$450	6,300.00	
Bell 205	11.2 hrs @ \$1,180	13,216.00	
Fuel	48.4 hrs @ \$62.00/hr	3,000.00	
	S/T	\$32,956.00	\$32,956.00

ANALYTICAL

4 rock assay Pb, Zn, Ag @ \$24.75/sample	99.00		
43 rock geochem. Pb, Zn @ \$5.40/sample	23.22		
	S/T	\$ 331.20	\$ 331.20

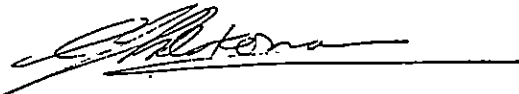
REPORT PREPARATION

Labour, drafting, maps, typing, copying			\$ 2,500.00
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GRAND TOTAL \$ 122,156.69

July 21st 1982
Vancouver, B.C.

Signed



C.J. Westerman
Consulting Geologist

HAGGEN PROPERTY

W.D. CLAIMS

CARIBOO M.D. BRITISH COLUMBIA

ASSESSMENT CREDITS APPLIED JULY 1982

GROUP W.D. NORTH

<u>Claim</u>	<u>Units</u>	<u>Yrs. Applied</u>	<u>\$ Value Applied</u>	<u>\$Fee</u>	<u>New Expiry Date</u>
W.D.2	16	2	6,400	320	Aug 26 1987
W.D.4	12	2	4,800	240	Aug 26 1987
W.D.6	10	4	5,000	250	Dec 1 1986
W.D.8	20	4	10,000	500	Apr 1 1987
W.D.10	6	3	1,800	90	Apr 1 1986
W.D.11	20	4	10,000	500	Apr 1 1987
W.D.12	15	3	6,900	345	Apr 1 1986
W.D.13 (Fr)	1	1	100	5	Apr 1 1984
			<u>\$ 45,000</u>	<u>\$2250</u>	

Note W.D.12 will have a credit of \$2,400

GROUP W.D. SOUTH

<u>Claim</u>	<u>Units</u>	<u>Yrs Applied</u>	<u>\$ Value Applied</u>	<u>\$ Fee</u>	<u>New Expiry Date</u>
W.D.1	16	4	12,800	640	Aug 26 1988
W.D.3	6	4	4,800	240	Aug 26 1988
W.D.5	20	6	22,300	1115	Aug 26 1990
W.D.7	4	5	2,800	140	Apr 1 1988
W.D.9	20	5	14,100	705	Apr 1 1988
W.D.14	10	5	7,000	350	July 9 1988
W.D.15	15	5	10,500	525	July 9 1988
W.D.16	4	5	2,800	140	July 9 1988
			<u>\$77,100</u>	<u>\$3855</u>	

Note W.D.9 will have a credit of \$100
W.D.5 existing credit of \$1,700 utilised in applying
6 yrs.

Total assesment credits \$122,100	Recording Fee \$6,105
	Grouping Fee 20
	<u>TOTAL FEE \$6,125</u>

APPENDIX II

STATEMENT OF QUALIFICATIONS

I, Christopher John Westerman of Vancouver, B.C. do certify that I graduated in Geological Sciences B.Sc. 1967 from London University, M.Sc 1970 from University of British Columbia, Ph.D. 1977 from McMaster University. I am a Fellow of the Geological Association of Canada and a member of the Canadian Institute of Mining and Metallurgy. I have practised my profession since 1967 having been employed by Noranda Exploration 1968, Total Management Resources 1969, Duval Corporation 1970, University of British Columbia 1970-72, Union Carbide Exploration 1971-72, Ontario Division of Mines 1975, Utah Mines Ltd. 1976-79, Kennco Explorations, (Western) Ltd. 1980-82. I am currently a Consulting Geologist based in North Vancouver.

I personally undertook and supervised the work program detailed in this report.



C.J. Westerman Ph.D.

APPENDIX III

DIAMOND DRILL LOGS

DDH 82-1

to

DDH 82-4

Project HAGGEN (W.D.) Location NTS 93II/6 Contractor Connors
 Hole No. 82-1 Page No. 1 of 1 Date Started June 13, 1982
 Coordinates 91+75 N 106 + 43 E KENNCO EXPLORATIONS. (WESTERN) LIMITED Date Finished June 14, 1982
 Collar elev. 1228 metres Bearing 050° T Ref. to Claim Corner Claim W.D. 4
 Inclination -45° Total Depth 31.1 metres Logged by C. J. Westerman

M	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SECTION	ALTERATION		MINERAL	GEOLOGY	COMMENTS	AVE. CORE RECV/HOLE
0			NQ						Overburden. Casing to 6.1m.	N/A
5										
10									Generally blocky broken core with rare 20cm homogenous sections. Thinly interbanded black argillite and black chert, relatively high graphite content which is associated generally with argillite sections. Bedding generally 1-20cm with some black chert beds up to 10cm thick. Section 7.6m - 12.2m influenced by groundwater - weak iron oxide staining.	
15									Rare blebs and streaks of pyrite 2-4mm thick parallel bedding. Minor but consistent quartz streaks 1mm thick parallel bedding. Also irregular tension fractures at 90° to bedding, 1mm wide or less, are quartz-filled.	
20									At 28.7m tensional veinlets of calcite at 90° to bedding.	
25									Core is so broken that measurement of recovery is impossible.	
30									Hole stopped at 31.1m.	

Project HAGGEN Location NTS 93H/6 Contractor Connors
 Hole No. 82-2 Page No. 1 of 2 Date Started June 17, 1982
 Coordinates: 88+20 N 108+75 E KENNCO EXPLORATIONS, (WESTERN) LIMITED Date Finished June 18, 1982
 Celler elev. 1274 metres Bearing 210°T Ref. to Claim Corner Claim W.D. 4
 Inclination -60° Total Depth 29.4m Logged by C.J. Westerman

DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SECTION	ALTERATION			FRACTURING	MINERAL	GEOLOGY	COMMENTS	AVE. CORE REC'Y/HOLE:
0		NQ								0-9.7m Casing.	
5								Casing		9.7-16.0m Grey chert fragment breccia. Recovery in solid runs up to 0.4m in length. Primary "bedding" at 90° to core. Fragments of black & grey chert in a grey fine-grained chert matrix are the "background" lithology, fragment size up to 2 cm, very angular. Variable qtz veinlets increasing steadily to 15.2 m where there is complete qtz flooding and reducing rapidly to 17.0m. Trace pyrite occurs as f.gr. streaky blebs (?syngenetic?) and on hairline fractures. F.gr. salmon pink-orange sphalerite occurs in veinlets, surrounding fragments, rarely as single grains within fragments. Section 9.7m-14.0m contains 1-2% sphalerite. Section 14.0m-16.0m 2-4% sphalerite. F.gr. galena occurs as single grains disseminated sparsely through sphalerite veinlets (approx. 0.5% galena) but galena tends to be independent of sphalerite concentration.	
10										@13.8m milled & broken core over approx. 5cm wide qtz vein with minor barite, trace galena.	
15										@13.9m 10cm long piece of core shows primary sedimentary chert bx with crude compositional banding @ 90° to core. This is cut by secondary tectonic bx - boundary at 10° to core. Secondary bx has random irregular qtz veinlets, qtz flooding, coarser frags to 2cm, 4% disseminated f.gr. orange sphalerite in bx matrix and cement plus <1% f.gr. galena, v.rare sphalerite veinlets penetrate into host rock. The secondary bx continues downhole through heavily silicified zone at 15.1m which coincides with maximum sphalerite concentration to 16.0m contact with blk argillite.	
20										@14.9m a barite vein >3cm wide has a galena-rich margin (3mm wide). The complex vein intersects core at 30° - no sphalerite association.	
										16.0-17.0m Core lost - powdery black graphite in box.	
		NQ								17.0-19.0m Grey laminated soft argillite, rare 1mm wide qtz laminations parallel to bedding which is at 60° to core axis. Core is poker chips to 5cm pieces.	
25										19.0-26.0m Black graphitic argillite with rare chert bands. Core splintered, broken and crumbly - particularly at 20.4m, and between 21.3 & 23.0m. At approx. 23.5m small ground piece of qtz vein - similarly at 25.5m. Limonite graining on fracture planes. Trace hydrozincite at 23.5m.	

Project HAGGEN (W.D.) Location NTS 93H/6 Hole No. 82-2 Page No 2 of 2

DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SECTION	ALTERATION			FRACTURING	MINERAL	GEOLOGY	COMMENTS:	AVE. CORE REC'Y/HOLE:
		NQ								<p><u>26.0-28.3m</u> Soft grey black laminated argillite with minor white qtz laminations parallel to bedding at 70° to core. Hematite on fracture planes ⊥ to core. Core is poker chips. Non calcareous.</p> <p><u>28.3-29.4m</u> Soft black graphitic argillite. Core broken-crumby. Strong hematite staining on fractures.</p>	

- END OF HOLE -

Project HAGGEN (W.D.) Location NTS 93H/6 Contractor Connors
 Hole No. 82-2 Page No. 1 of 1 Date Started June 17, 1982
 Coordinates: 88+20 N 108+75 E KENNCO EXPLORATIONS. Date Finished June 18, 1982
 Caller elev. 1274m Bearing 210°T (WESTERN) LIMITED Ref. to Claim Corner Claim W.D. 4
 Inclination -60° Total Depth 29.4m Logged by C.J. Westerman

Depth Interval M		CORE							Depth Interval		SLUDGE				
From	To	Sample No.	WET Wt Rec.	% Rec.	Assay			From	To	Sample No.	Lbs. Rec.	% Rec.	ASSAY		
					Pb	Zn	Ag								
9.7	11.0	14505	1.1	84.6	.02	.15	.08	Sample marked	10-11m.						
11.0	14.0	14506	1.0	33.3	.02	.12	.09	Sampled	11-14m.						
14.0	14.9	14507	0.23	92.2	.09	1.34	.06	Sampled	14-15m.						
14.9	16.0	14508	1.10	100.0	.10	1.30	.08	Sampled	15-16m (lost 1m core 16-17m).						
					Geochem										
16.0	17.1		0.12	10.9											
17.1	18.7		0.61	33.9											
18.9	19.8	14509	0.33	36.7	660	2880		Sampled	16-20m.						
19.8	20.3		0.39	78.0											
20.3	21.3		1.08	108.0											
21.3	22.4		0.47	42.7											
22.4	22.7	14510	0.22	73.3	175	630		Sampled	20-25m.						
22.7	24.1		0.15	10.7											
24.1	25.0		0.07	7.7											
25.0	26.0		0.20	20.0											
26.0	26.5		0.51	100.0											
26.5	28.3	14511	1.88	100.0	28	870		Sampled	25-29.4m						
28.3	29.3		0.74	14.0											
29.3	29.4		0.18												

Project HAGGEN (W.D.) Location NTS 93H/6 Contractor Connors
 Hole No. 82-3 Page No. 1 of 3 Date Started June 21, 1982
 Coordinates: 64+15 N 102+50 E KENNCO EXPLORATIONS, (WESTERN) LIMITED Date Finished June 29, 1982
 Collar elev. 1040m Bearing 235°T Ref. to Claim Corner Claim W.D. 5
 Inclination -60° Total Depth 173.1m Logged by C.J. Westerman

DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SECTION	ALTERATION		FRACTURING	MINERAL	GEOLOGY	COMMENTS	AVE. CORE REC'Y/HOLE
				Bedding	Fracturing					
		NQ							Casing and overburden to 43.6m. o/b mixed sands, varved clays, boulder beds. Boulder beds cored 18.3-28.3m - grey chert breccia.	
50									43.6-62.8m Thin laminated light grey cherty siltstones with thin dark cherty argillite laminations. Variably pyritic - pyrite in 1mm laminations parallel to bedding or as syngenetic blebs (2-5% pyrite). 53.6-54.5 1mm laminations of white qtz parallel to bedding. 55.5-56.4 No core. @59.7 Black clay gouge (50cm) parallel to bedding contains 7% angular frags pyrite, 25% angular siltstone frags & 10% angular white qtz frags.	
60									62.8-69.8m Black cherty argillite - thick bedded, rare 1cm beds of light grey cherty siltstone. Synsed slump structures, flame structures, mud balls. Rare 1-2,, pyrite-chert laminations, 5-6mm pyrite-chert blebs. Minor remobilized subhedral pyrite-qtz veins on fractures.	
70									69.8-72.2m Pale cream-grey, massive bedded cherty mudstone to siltstone. Trace dissem. f.gr. pyrite. Rare secondary pyrite-qtz veins on irregular, discontinuous fractures.	
									72.2-73.6m Black cherty argillite. Trace dissem. pyrite.	
									73.6-74.0m Pale cream-grey siltstone. 2mm veinlets of white qtz contain 10% pyrite, trace f.gr. galena. Two veinlets are at 15° to core but third is irregularly folded. Host rock has 1% dissem. f.gr. pyrite.	
80									74.0-77.3m Massive black cherty argillite. 0.5% dissem. pyrite. Rare light grey silt laminations.	
									77.3-79.7m Interbedded black cherty argillite and buff-grey coloured siltstones with minor dissem. pyrite. Bedding 1-10cm. Thinner silt beds disrupted by slump folds.	

DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SECTION	ALTERATION		Bedding ∇	FRACTURING	MINERAL	GEOLOGY	COMMENTS:	AVE CORE REC'Y/HOLE:
80		NQ				80°				<p><u>79.7-88.2m</u> Pale cream-grey, cherty mudstone-siltstone - becomes softer down section. Massive bedded. Tr to 0.5% disse. pyrite. Rare qtz filled fractures parallel to core.</p> <p>82.6-83.4 Clay gouge zone.</p> <p>87.4-87.7 Four 3mm wide black-grey veinlets at 50° to core axis are f.gr. qtz with f.gr. pyrite and minor f.gr. galena.</p>	
90						85° 90° 95°				<p><u>88.2-92.8m</u> Dark grey to black argillite with minor buff-grey siltstone seams. 0.5% disse. f.gr. pyrite. 2mm thick distorted qtz-pyrite veinlets at 9.10m and 91.6m contain minor f.gr. galena.</p>	
100						85° 90°				<p><u>92.8-94.5m</u> Interbanded blk argillite & buff-grey siltstone - bedding 2.5cm thick. Siltstone units disrupted by slumping.</p>	
110						85° 90°				<p><u>94.5-95.8m</u> Dark grey mottled sandstone, massive bedded. Minor disse. pyrite <0.5%, trace disse. galena, rusty spots indicate groundwater penetration.</p>	
120						85° 90° 95° 100°				<p><u>95.8-97.5m</u> Pale buff-grey siltstone, 0.5% disse. pyrite, irregular qtz pyrite veinlets.</p>	
						65° 70° 75° 80°				<p><u>97.5-113.3m</u> Interbanded to interlaminated black argillite and cream-grey siltstone. Bed thickness 2cm-10cm. Abundant soft sediment deformation - slump folds, minor faults, etc. Minor blebby f.gr. pyrite, minor laminated f.gr. pyrite - mainly in argillite. @106.8 & 108.3 - two buff-grey siltstone beds, 25cm thick.</p>	
						60°				<p><u>113.3-125.8m</u> Interbanded light grey siltstone (70%) & black argillite (30%). Bed thickness varies 2cm-30cm. Trace disse. f.gr. pyrite associated with siltstone units, also rare f.gr. pyrite blebs. @114.5 - 5 cm wide clay gouge zone.</p>	

DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SECTION	ALTERATION		Bedding Fracturing	MINERAL	GEOLOGY	COMMENTS	AVE CORE REC'Y/HOLE
125		NQ							<u>125.8-131.7m</u> Black argillite (80%) white thin siltstone laminations (20%) irregularly spaced. Minor to trace f.gr. disseminated and blebby pyrite associated with siltstone laminations. @128.6 - 20cm gouge zone @ 45° to core axis.	
130						66			<u>131.7-135.4m</u> Massive light grey sst becoming finer grained down section. Short sections (10-20cm) have very indistinct argillaceous laminations. Minor blebs of f.gr. pyrite.	
140						75 15 45 35 8 8*			<u>135.4-156.4m</u> Light grey siltstone with 10% very fine black argillite laminations. No sulphides. @141.5 - 3cm qtz vein parallel to bedding 80° to core. @142.7 - 5cm clay gouge zone. [sheared, brecciated, milled pieces of light grey @142.8 - 10cm clay gouge zone. [siltstone in a white-grey mud. @148.2-153.0 - clay gouge zone [
150									<u>156.4-160.6m</u> Mixed gouge. Black argillite with 2mm qtz laminations parallel to bedding. Trace blebby pyrite. Black-dark grey clay gouge constitutes 80% of section.	
160						47			<u>160.6-173.1m</u> Light to medium grey siliceous siltstone with rare black argillite laminations (2%). Black argillite has trace pyrite.	
170						52				

- 173.1m END OF HOLE -

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Project HAGGEN (W.D.) Location NTS 93H/6 Contractor Connors
 Hole No. 82-3 Page No. 1 of 4 Date Started June 21, 1982
 Coordinates: 64+15 N 102+50 E KENNCO EXPLORATIONS, Date Finished June 28, 1982
(WESTERN) LIMITED
 Celler elev. 1040m Bearing 235°T Ref. to Claim Corner Claim W.D. 5
 Inclination -60° Total Depth 173.1m Logged by C.J. Westerman

Depth Interval M		CORE						Depth Interval		SLUDGE					
From	To	Sample No.	metres Interval Rec.	% Rec.	Geochem ppm			From	To	Sample No.	Lbs. Rec.	% Rec.	ASSAY		
					Pb	Zn									
43.6	44.8		0.47	39											
44.8	46.3		1.00	67											
46.3	47.7		0.29	21											
47.7	49.4	14512	1.01	59		32	72		Sampled 45-50m.						
49.4	50.3		0.45	50											
50.3	52.0		1.44	85											
52.0	53.6	14513	0.53	33		130	795		Sampled 50-55m.						
53.6	55.5		1.30	68											
55.5	56.4		no core	-											
56.4	59.7	14514	0.30	6		52	94		Sampled 55-60m.						
59.7	60.9		0.87	72											
60.9	62.8		1.10	58											
62.8	64.0	14515	0.72	60		54	215		Sampled 60-65m.						
64.0	65.8		1.14	63											
65.8	66.8		0.29	24											
66.8	68.0		1.70	141											
68.0	68.9		0.83	92											
68.9	69.8	14516	1.01	112		46	280		Sampled 65-70m.						

Depth Interval		C O R E						Depth Interval		S L U D G E			
From	To	Sample No	metres Inches Rec	% Rec	Geochem ppm		From	To	Sample No.	Lbs Rec.	% Rec.	A S S A Y	
					Pb	Zn							
69.8	71.0		1.10	92	46	280							
71.0	72.2		1.24	103									
72.2	73.1	14524	0.75	83	78	88							
73.1	74.7		1.47	92									
74.7	75.3		0.52	87									
75.3	76.7		1.49	106									
76.7	77.3		0.72	120									
77.3	79.2	14517	2.12	235	40	71							
79.2	79.6		0.47	117									
79.6	82.4		3.14	112									
82.4	83.5		0.84	76									
83.5	84.9	14518	0.98	70	140	172							
84.9	85.6		0.79	112									
85.6	86.7		1.13	103									
86.7	88.1	14519	1.02	73	40	55							
88.1	89.5		1.44	103									
89.5	90.2		0.70	100									
90.2	91.6		1.28	91									
91.6	92.7	14520	0.87	79	36	49							
92.7	93.9		1.16	97									
93.9	95.7		1.96	108									
95.7	97.5		1.24	69									
97.5	99.4	14521	1.25	66	130	328							
99.4	100.9		1.33	88									

Depth Interval M		CORE							Depth Interval		SLUDGE			
From	To	Sample No	Moisture Rec	% Rec	Geochemistry ppm			From	To	Sample No	Lbs. Rec.	% Rec	ASSAY	
					Pb	Zn								
100.9	102.4	14522	1.31	87	78	140		Sampled	100-105m.					
102.4	105.5		1.14	37										
105.5	106.4		0.60	67										
106.4	108.5	14523	1.66	79	50	65		Sampled	105-110m.					
108.5	110.3		1.35	75										
110.3	113.4		2.86	92										
113.4	114.6	14525	1.36	77	20	46		Sampled	110-115m.					
114.6	117.6		3.14	104										
117.6	120.1	14526	2.67	106	40	40		Sampled	115-120m.					
120.1	121.9		1.61	89										
121.9	122.8	14527	0.67	74	80	110		Sampled	120-125m.					
122.8	125.3		2.60	104										
125.3	126.6		1.16	89										
126.6	128.5	14528	0.97	51	38	131		Sampled	125-130m.					
128.5	129.8		1.12	86										
129.8	131.7		1.87	98										
131.7	133.5	14529	1.84	102	78	1220		Sampled	130-135m.					
133.5	135.0		1.14	76										
135.0	137.0		1.91	95										
137.0	138.7	14530	1.34	79	32	398		Sampled	135-140m.					
138.7	141.2		2.45	98										
141.2	142.6	14531	1.20	86	38	107		Sampled	140-145m.					
142.6	145.1		1.08	43										

-04-

Depth Interval M		CORE							Depth Interval		SLUDGE				
From	To	Sample No	Moisture Rec.	% Res	Geochemistry ppm			From	To	Sample No.	Lib. Res.	% Res	ASSAY		
					Pb	Zn									
145.1	148.1	14532	0.62	20	34	575		Sampled	145-150m.						
148.1	151.2		2.08	67											
151.2	153.0		0.69	38											
153.0	154.7	14533	0.65	38	30	98		Sampled	150-155m.						
154.7	156.4		0.68	40											
156.4	157.6		0.23	19											
157.6	158.8	14534	0.89	74	26	100		Sampled	155-160m.						
158.8	160.6		0.64	36											
160.6	161.8		0.65	54											
161.8	163.4	14535	0.55	34	28	42		Sampled	160-165m.						
163.4	165.2		0.42	23											
165.2	166.6		0.68	48											
166.6	167.6	14536	0.52	52	22	33		Sampled	165-170m.						
167.6	169.6		0.41	20											
169.6	171.3		0.43	25											
171.3	172.5	14537	0.09	7	26	34		Sampled	170-173.1m.						
172.5	173.1		0.52	87											

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Project HAGGEN (W.D.) Location NTS 93H/6 Contractor Connors
 Hole No. 82-4 Page No. 1 of 3 Date Started June 29, 1982
 Coordinates: 66+10 N 101+00 E KENNCO EXPLORATIONS, Date Finished July 1, 1983
 Celler elev. 998 metres Bearing _____ (WESTERN) LIMITED Ref. to Claim Corner Claim W.D. 5
 Inclination Vertical Total Depth 89.6 metres Logged by C.J. Westerman

DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SECTION	ALTERATION			GEOLOGY	COMMENTS	AVE. CORE REC'Y/HOLE:	
				Bedding	FRACTURING	MINERAL				
M			M						<p><u>0-39.6m</u> Overburden consisting of several alterations of thick rusty weathering sands, varicoloured varved clays and boulder beds.</p> <p><u>39.6-48.8m</u> Homogeneous black cherty argillite, unbanded, trace pyrite cubes. Fractures at 35° to core axis are occupied by quartz-pyrite veins. Good drilling - continuous core produced in lengths up to 2 metres. @46.6 - 2cm wide light grey siltstone bed at 25° to core axis.</p> <p><u>48.8-53.0m</u> Light grey coloured, fine-grained siliceous siltstone, very poorly defined or non-existent compositional banding except for very rare 1mm thick black argillite laminations. Siltstone becomes coarser grained downhole until at 53.0m it is almost a sandstone. @49.7 - qtz vein - rusty, vuggy 60° to core axis, 2cm wide. @50.3 - 2mm wide pyrite-qtz veins on fractures at 50° to axis are fresh, slightly vuggy. - 1cm wide pyrite-qtz vein on fracture @ 05° to axis is rusty weathered. @51.5 - fractured rusty zone at 15° to core axis coincides with more abundant black argillite laminations.</p> <p><u>53.0-58.5m</u> Black cherty argillite with increasing light grey siltstone laminations downhole. @56.7 - siltstone bed 4cm thick has 0.5% f.gr. disseminated pyrite.</p> <p><u>58.5-59.4m</u> Rusty black fault gouge.</p> <p><u>59.4-89.6m</u> 95% of core is a massive black cherty argillite which is non-calcareous and non-graphitic. Rare laminations of syngenetic f.gr. pyrite up to 1cm thick are deformed by slump? folds and boudinaged. @60.5 - black fault gouge 20cm followed by broken core to 61.9m where there is another 20cm thick black fault gouge (clay seam).</p>	
40							p/b			
50							Siltstone			
60							Argillite			

M	DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SECTION	ALTERATION			MINERAL	GEOLOGY	COMMENTS	AVE. CORE REC'Y/HOLE
					Bedding	Fracturing					
60										@63.1m - 10cm of thin laminated light grey siltstone.	
										@64.9 - 10cm thick siltstone bed.	
										@69.5 - 10cm thick siltstone bed.	
										@71.0 - 2cm thick siltstone bed.	
										@71.8 - 4cm thick siltstone bed.	
70										@72.3 - very faint silty laminations 1-2cm thick in black argillite.	
										@74.3 - 2cm thick siltstone bed followed by a 10cm thick black mud seam - probably fault gouge.	
										74.5-75.7 - blocky core in black siliceous argillite with rusty fractures at 40° to core axis.	
										@77.7 - faint silty banding, 1cm bed thickness, parallel to core axis, trace disseminated pyrite cubes up to 2mm.	
80										@78.7 - 3cm thick fault gouge at 60° to core axis, grey clay with 2-3mm black argillite fragments and 1% pyrite cubes up to 3mm.	
										78.8-81.8 - blocky core, rusty fractures and 2mm wide quartz-pyrite veins at 40°, 15° and 90° to core axis.	
										@81.7 - faint silty laminations 5-10mm thick parallel to core axis.	
										81.8-82.7 - fault gouge grey clay with black argillite fragments.	
										@83.0 - 10cm thick light grey siltstone bed.	
90										@84.4 - two 4cm thick grey siltstone beds at 20° to core axis disrupted by small faults at 30° to core axis - offsets less than 1cm.	

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DRILLING INTERVAL	% CORE RECOVERED	CORE SIZE	SECTION	ALTERATION			FRACTURING	MINERAL	GEOLOGY	COMMENTS	AVE. CORE REC'Y/HOLE
										<p>@86.2 - 2cm thick grey siltstone bed.</p> <p>@86.5 - broken core, black cherty argillite with trace pyrite cubes.</p> <p>@87.8 - faint silty laminations 5-8mm thick parallel to core axis.</p> <p>88.1-88.5 - broken core, rusty fractures at 35°, 80° and 05° to core axis.</p> <p>@88.8 - 2cm thick black clay gouge zone bordered by 2cm thick fault breccia at 25° to core axis. Bedding parallel to core axis.</p>	

- 89.6m END OF HOLE -

-44-

Project HAGGEN (W.D.) Location NTS 93II/6
 Hole No. 82-4 Page No. 1 of 2
 Coordinates: 66+10 N 101+00 E
 Collar elev. 998 metres Bearing _____
 Inclination Vertical Total Depth 89.6 metres

Contractor Connors
 Date Started June 29, 1982
 Date Finished July 1, 1982
 Ref. to Claim Corner Claim W.D. 5
 Logged by C.J. Westerman

Depth Interval M		CORE					Depth Interval		SLUDGE						
From	To	Sample No.	metres Interval Rec.	% Rec.	Geochemistry ppm			From	To	Sample No.	Lbs. Rec.	% Rec.	ASSAY		
					Ph	Zn									
0	39.6	0/B													
39.6	41.6		1.61	80											
41.6	44.6	14538	2.35	78	105	337		Sampled	39.6-45m.						
44.6	47.2		2.56	98											
47.2	50.3	14539	2.17	72	25	48		Sampled	45-50n.						
50.3	51.8	14540	1.61	107	30	90		Sampled	50-55n.						
51.8	53.6		1.64	91											
53.6	56.7		3.01	97											
56.7	59.4	14541	2.28	88	27	103		Sampled	55-60n.						
59.4	62.2		2.14	76											
62.2	62.8	14542	0.88	146	28	105		Sampled	60-65n.						
62.8	64.3		1.39	93											
64.3	65.8		1.08	72											
65.8	66.7		0.93	103											
66.7	67.3	14543	0.74	123	42	132		Sampled	65-70n.						
67.3	68.8		1.21	80											
68.8	69.5		2.67	96											
69.5	72.2		2.68	99											
72.2	73.4	14544	1.16	97	32	95		Sampled	70-75n.						
73.4	74.5		1.04	95											
74.5	75.7		1.12	93											

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APPENDIX IV

Geochemical and Assay Results

COMPAN Kennco Explorations

GEOCHEMICAL ANALYSIS DATA SHEET

F to 2-298

PROJECT No Haggen

MIN-EN Laboratories Ltd.
705 WEST 15th ST., NORTH VANCOUVER, B.C. V7M 1T2
PHONE (604) 980-5814

DATE: July 14

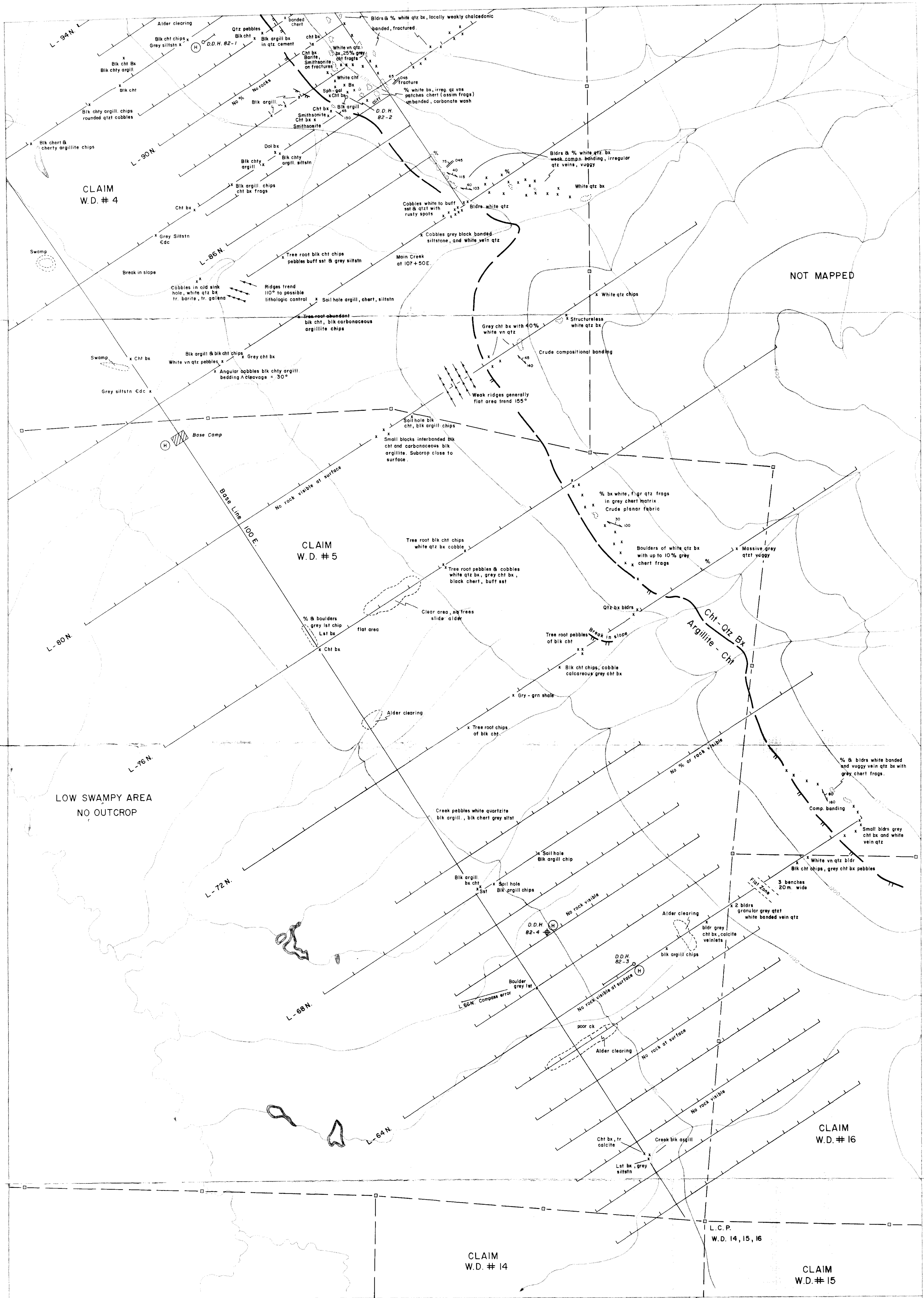
ATTENTION C. Westerman

1982

Sample Number	6 86	10 90	15 95	20 100	25 105	30 110	35 115	40 120	45 125	50 130	55 135	60 140	65 145	70 150	75 155	80 160
	Me ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	Co ppm	Ag ppm	Fe ppm	Hg ppb	As ppm	Mn ppm	Au ppb				
14501			17	580												
02			40	950												
03			18	1080												
14504			25	1780												
14509			660	2880												
10			175	630												
11			28	870												
12			32	72												
13			130	795												
14			52	94												
15			54	215												
16			46	280												
17			40	71												
18			140	172												
19			40	55												
20			36	49												
21			130	328												
22			78	140												
23			50	65												
24			78	88												
25			20	46												
26			40	40												
27			80	110												
28			38	131												
29			78	1220												
30			32	398												
31			38	107												
32			34	575												
33			30	98												
14534			26	100												

*Some of these samples should have been requested for assay.

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2	1						
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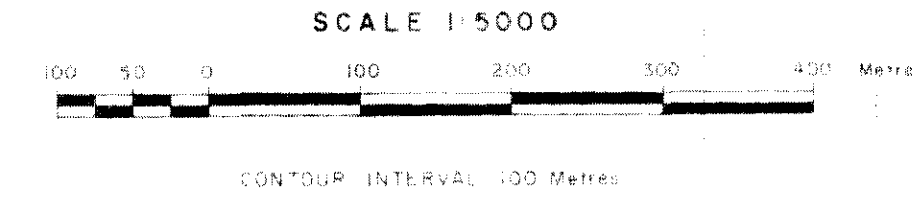
KENNCO EXPLORATIONS (WESTERN) LTD.

HAGGEN CREEK

GEOLOGY

SHEET 1 OF 4

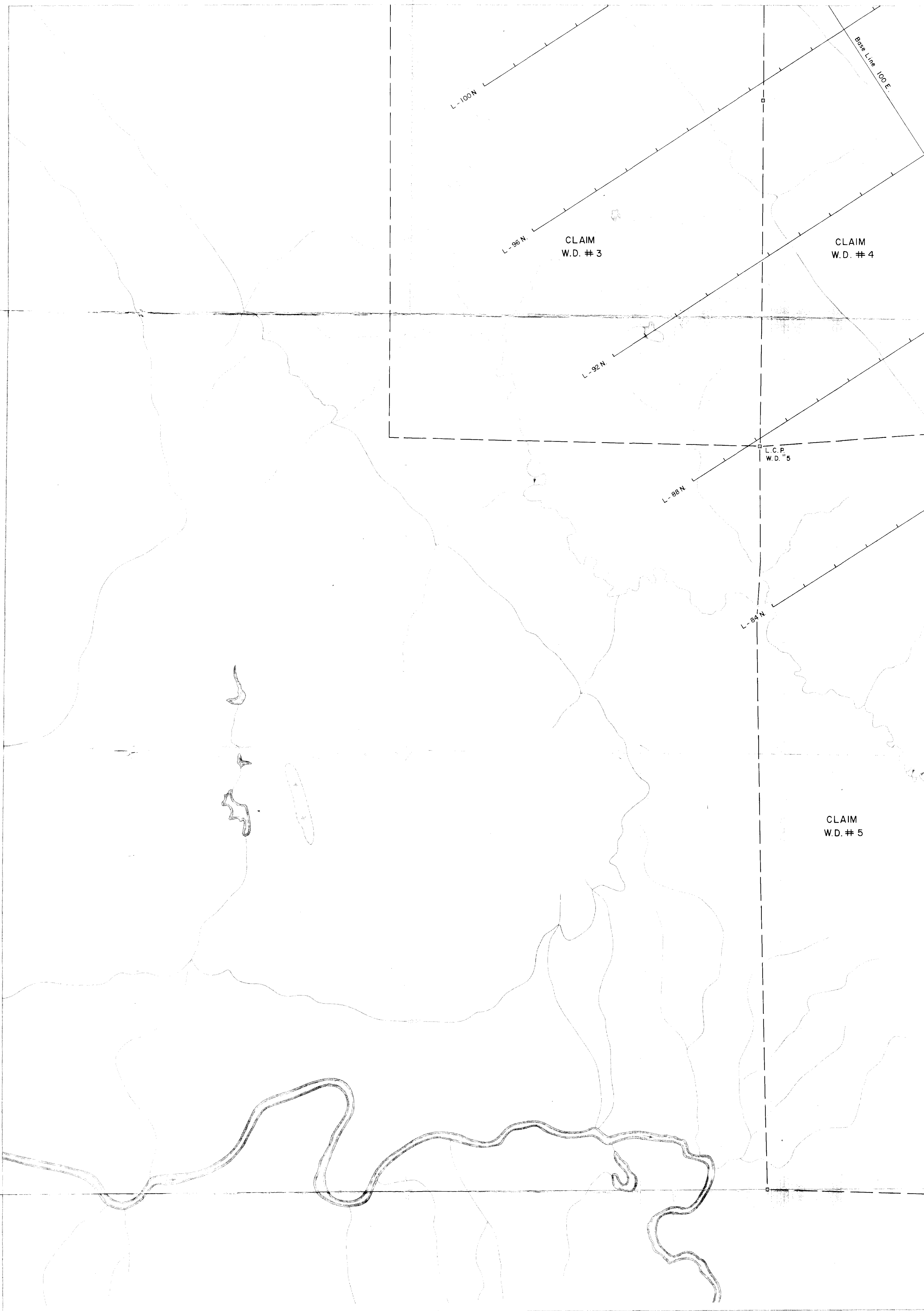
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ASSESSMENT REPORT

10607

[Signature]



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 HAGGEN CREEK

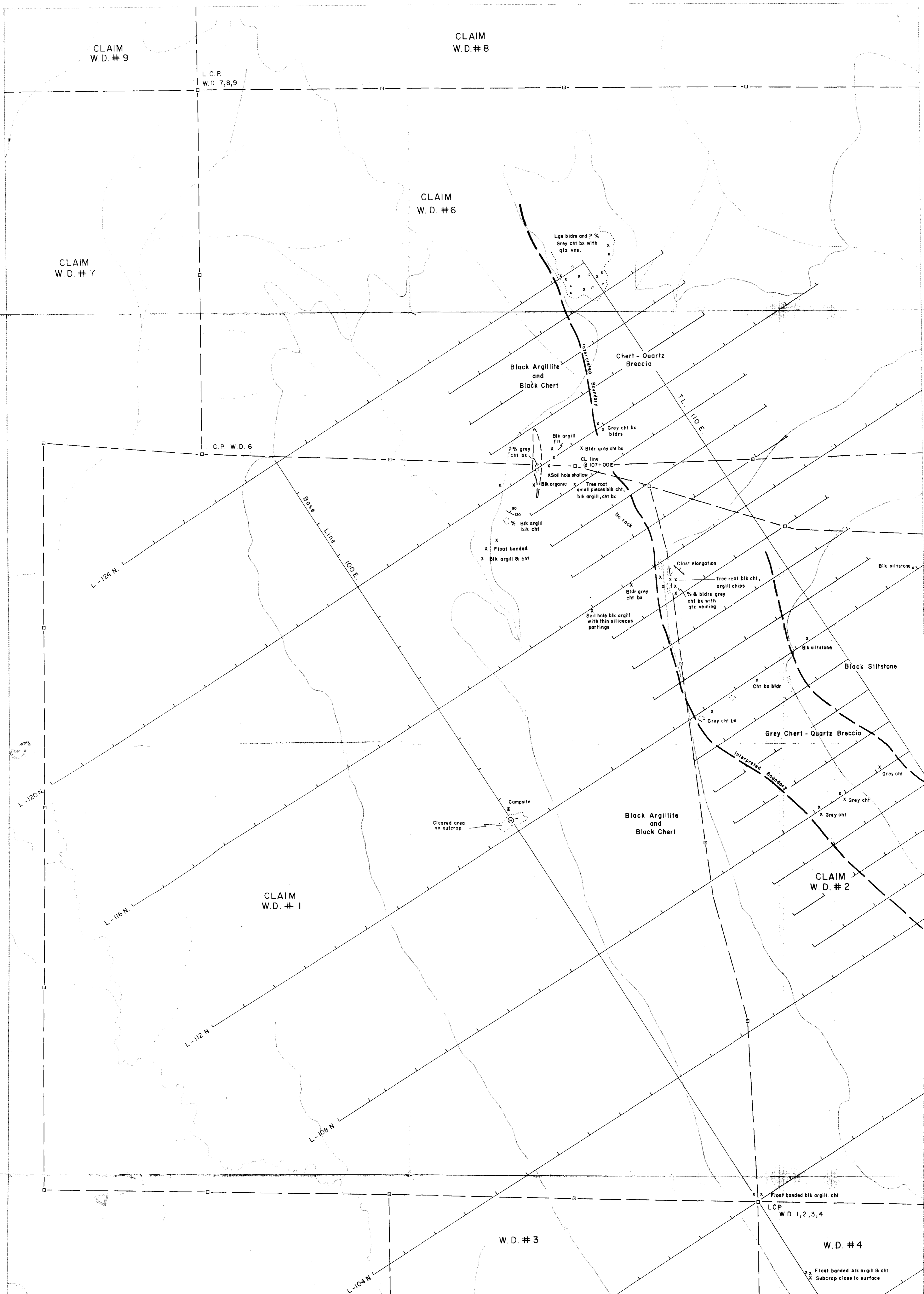
GEOLOGY

SHEET 2 OF 4

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CHECKED BY	DATE	1 5/80			
REVISED BY					

MINERAL RESOURCES BRANCH
 ASSOCIATION REPORT
10607

[Handwritten Signature]



LEGEND

	Claim Line, Post		Bedding Orientation
	Survey Grid Line, Station		Foliation Orientation
	Outcrop		Topographic Break in Slope
	Rock Float		Helicopter Pad
	Geological Boundary		

SCALE 1:5000

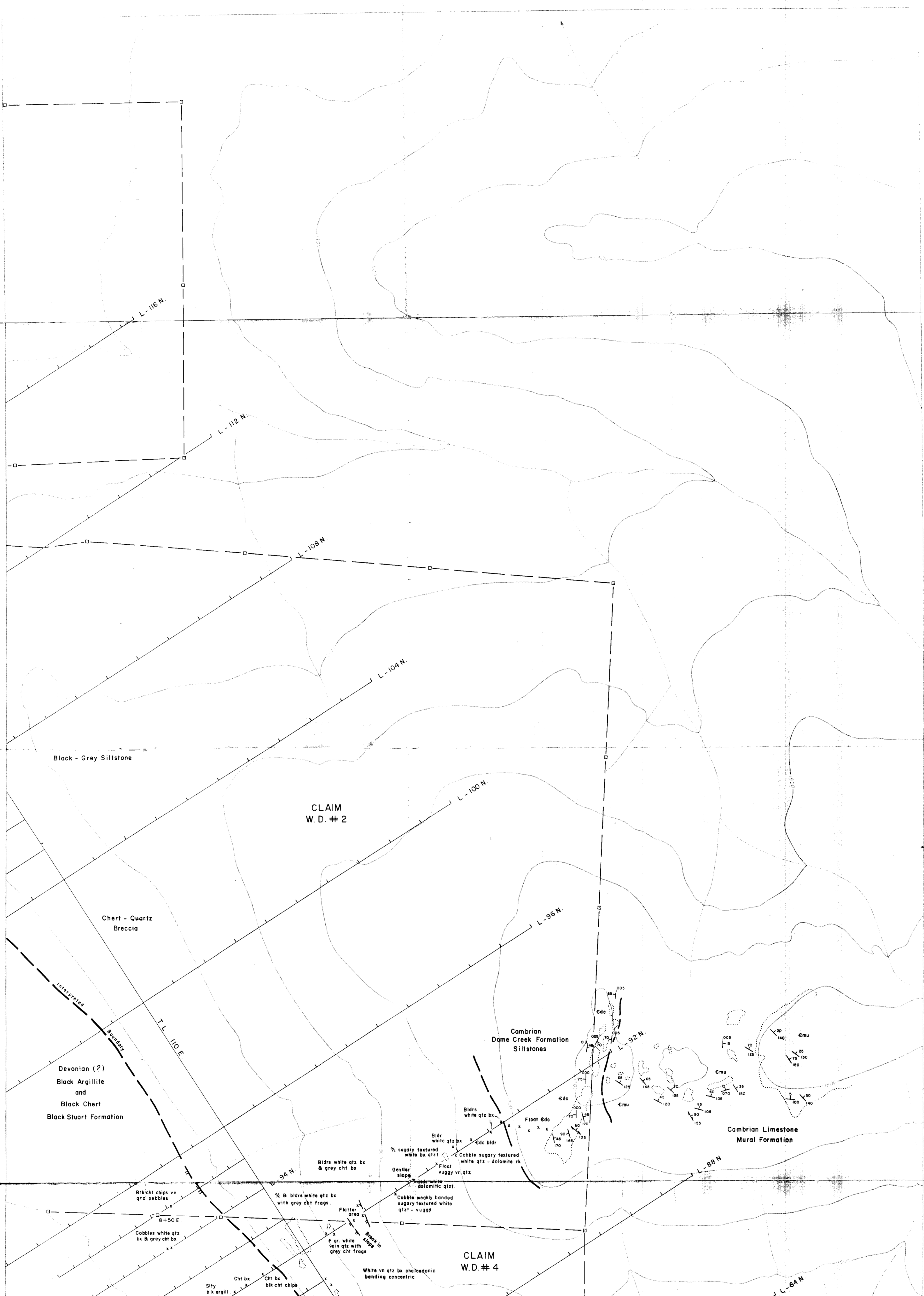
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KENNCO EXPLORATIONS (WESTERN) LTD
 HAGGEN CREEK
GEOLOGY
 SHEET 3 OF 4

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TRACED BY:	DATE:		
REVISIONS:			

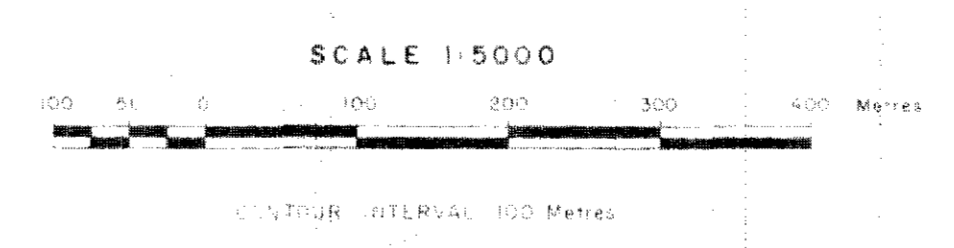
MINERAL SERVICES BRANCH
 ALBERTA REPORT

10609



LEGEND

	Claim Line, Post		Bedding Orientation
	Survey Grid Line, Station		Foliation Orientation
	Outcrop		Topographic Break in Slope
	Rock Float		Helicopter Pod
	Geological Boundary		



3	4
2	1

KENCO EXPLORATIONS (WESTERN) LTD.

HAGGEN CREEK

GEOLOGY

SHEET 4 OF 4

DATA BY: C. J. WESTERMAN	NTS: 93 N/6	PL NO: 4
DRAWN BY: J. S.	DATE: JULY 1982	SCALE: 1:5000
TRAPED BY:	DATE:	
REVISIONS:		

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT

10607