



1980 EXPLORATION (GEOLOGICAL AND
OVERBURDEN DRILLING) OF THE BUR PROPERTY,
YUKON TERRITORY

090655

Claims El 1-8, Jo 1-8, Sue 1-8, Kat 1-8, Nan 1-8,
Jan 1-8, Den 1-8, Wen 1-8, And 1-8, Jy 1-8

Whitehorse Mining District

Geographic Coordinates
61° 22' N
139° 19' W
NTS Sheet 115 G/6

by

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1980 09 08

Work on Property Conducted 1980 07 18 to 1980 08 16

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This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of \$ 12,900.00

[Signature]

Resident Geologist or
Resident Mining Engineer

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

[Signature]

B. R. BAXTER
Supervising Mining Recorder

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Commissioner of Yukon Territory

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1980-04-08

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SECTION 1.0

INTRODUCTION

In August 1978, 80 claims covering the confluence of Burwash and Tatamagouche Creeks in the Kluane Ranges of the western Yukon, were staked for their potential for lode deposits of nickel, and base and precious metals. These 80 claims are termed the Bur property. They were explored in both 1978 and 1979; the exploration consisted of geochemical traverses, geological mapping, measuring sections and sampling, a magnetometer survey, and overburden drilling (Bissonnette and Halferdahl, 1979). This report presents the results of work undertaken in July and August 1980: additional overburden drilling to extend the grid drilled in 1979, and limited geological mapping and sampling in the canyon of Tatamagouche Creek. The abbreviated sections on geographic setting and geology of the property contain mostly new information as these aspects were covered in the 1979 report. Sections on previous mapping and exploration have been omitted as they are fully covered in the 1979 report. An attempt was made to extend the 1979 magnetometer survey to the area covered by the 1980 overburden drilling, but magnetic disturbances prevented this.

The 1980 work was conducted by a two-man crew under the supervision of the writer. Accommodation was in a temporary camp in the valley of Tatamagouche Creek. A four-wheel drive vehicle provided access to the roads along Burwash and Tatamagouche Creeks.

SECTION 2.0

CONCLUSIONS AND RECOMMENDATIONS

2.1 Conclusions

1. Resampling of the rusty-weathering low grade gold-bearing strata of the Volcaniclastic Member of the Station Creek Formation of the Lower Permian Skolai Group in the canyon of Tatamagouche Creek showed one gold assay of 0.34 g/t, the same as those obtained in 1979. Although gold is present in some of the strata exposed in the rusty cliffs, the grades there are too low for further consideration.
2. The Permian-Triassic gabbroic intrusions appear to be sill-like bodies. Much of the area between Burwash and Tatamagouche Creeks comprising the Jo and Wen claims is underlain by only thin erosional remnants of such a sill or sills, which locally have been entirely eroded, permitting strata of the

Skolai Group to subcrop beneath the glacial overburden. Magnetometer surveys are useful in tracing contacts of gabbro sills beneath the overburden.

3. The structure of the area between Burwash and Tatamagouche Creeks is interpreted to consist of a series of anticlines and synclines whose axes trend westerly, and which affect both the gabbro sills and strata of the Skolai Group. Some of the electromagnetic anomalies obtained by Walcott in 1967 coincide or almost coincide with the basal contacts of gabbro sills.
4. Some anomalous nickel and copper concentrations in overburden-drilling samples appear to be present at or downslope from some of the basal contacts of the gabbro sill or sills. Such concentrations of nickel and copper probably have their source from local metal accumulations at or near the base of gabbro sills.
5. Scatter diagrams for selected pairs of the metals determined in the overburden-drilling samples - nickel, copper, zinc, lead, gold, and arsenic - show low or indistinct correlations between nickel and copper, and between lead and zinc, but little or no correlations between gold and any of the others.
6. Anomalous gold concentrations in overburden-drilling samples were obtained at several places within the grid drilled in 1979 and 1980 including samples from lines 2400 E, 3000 E, 3200 E, the north end of 3400 E, and the south end of line 3600 E. The anomalous gold concentrations at 840 N and 850 N on line 3000 E are particularly interesting. Although few of the samples with anomalous gold concentrations coincide with anomalous concentrations of lead and arsenic, anomalous concentrations of lead and arsenic were obtained from samples nearby on the same grid lines with the anomalous gold concentrations.
7. Some or all of the placer gold obtained by others from Burwash and Tatamagouche Creeks has probably originated from a lode deposit in rocks of the Skolai Group between Burwash and Tatamagouche Creeks.

2.2 Recommendations

1. Complete geological mapping of the property.
2. Continue to trace subcrops of gabbro sills by magnetometer surveys.

3. Bulldoze and sample trenches along or near
 - a) line 3000 E from 870 N to 800 N or beyond to the south,
 - b) line 3300 E or 3400 E from 1100 N to 1250 N or beyond to the north, and
 - c) line 2400 E from 980 N to 800 N or beyond to the south.

Alternatively drill lines of percussion drillholes in these three places.

4. As warranted by the preceding recommendations, continue with overburden drilling to guide future trenching and bedrock drilling.

season of 1979, to connect with the previously constructed road which branches off the Alaska Highway at Mile 1112, and extends up Quill Creek, through the pass, and into the upper part of the valley of Tatamagouche Creek.

Elevations on the Bur property range from about 1035 m at the lowest point on Burwash Creek to about 1685 m at the west end of the property on the mountain between Burwash and Tatamagouche Creeks. The property is crossed by the major valleys of Burwash Creek and its tributary, Tatamagouche Creek, which are 200 to 250 m deep, and by minor valleys of small creeks tributary to both. Valley slopes range from locally precipitous as in the lower part of Tatamagouche Creek and along and above the upper canyon of Burwash Creek to steep and moderate elsewhere. Away from the two major valleys, slopes of the upland areas are mostly moderate to gentle. Treeline is at about 1300 m with trees mostly of spruce and poplar. Locally stumps indicate previous logging and a forest fire, both many years ago, but growth since then has resulted in some spruce trees large enough to provide mine timbers. Above the treeline, the ground is covered with moss, grass, and low bushes. Both Burwash and Tatamagouche Creeks can probably provide adequate water for mining and milling purposes; the water in Tatamagouche is generally clear except when placers on it are being mined, whereas that in Burwash is generally cloudy from silt and clay from the Burwash Glacier or from placer mining, or both.

Except along parts of Burwash and Tatamagouche Creeks and locally along a few smaller creeks, outcrops are almost absent, with the valley sides and uplands covered by permanently frozen overburden at depths greater than the few tens of centimetres reached by the summer thaw. Even on the moderate slopes pools of water form in places particularly on parts of the Burwash Uplands south of Burwash Creek.

SECTION 5.0

GEOLOGY OF THE PROPERTY

A stratigraphic column for the Burwash Creek area is in Table 5.1. Of the units in it, only the Paleocene latite porphyry, the Permian-Triassic gabbro, and strata of the Skolai Group have been observed on the Bur property. These units were described in some detail in the 1979 report, so these descriptions are not repeated here. Only new data and additional information are given in this section. They are based partly on additional samples and assays obtained from the rusty cliffs in the canyon of Tatamagouche Creek, and geological mapping

TABLE 5.1 STRATIGRAPHIC COLUMN FOR THE BURWASH CREEK AREA
(modified after Muller, 1967; Smith and MacKevett, 1970;
Campbell, 1976)

Period Epoch or Group Group or Formation	Lithology
Tertiary Paleocene	LATITE, porphyritic
	————— Intrusive Contact —————
St. Clare	BASALT and ANDESITE, red-brown; massive or vesicular agglomerate, breccia, tuff
Paleocene or Eocene Amphitheatre	SANDSTONE, sand, conglomerate, gravel, shale, coal
	————— Angular Unconformity —————
Cretaceous and Later or Earlier	GRANITE, alaskite, granodiorite, diorite, related hybrid rocks
	————— Intrusive Contact —————
Upper Triassic ?	LIMESTONE and SHALE, thin-bedded, dark to black
Chitistone	LIMESTONE, massive
Nikolai	BASALT, purple and dark-green, amygdaloidal; minor interbedded limestone
	————— Disconformity —————
Permian-Triassic	INTRUSIONS, basic and ultrabasic
	————— Intrusive Contact —————
Lower Permian Skolai Group	
Hasen Creek	CHERT, thin-bedded; argillite, limestone, greywacke, conglomerate
Station Creek	
Volcaniclastic	TUFFS and AGGLOMERATES; CARBONATE, fine-grained, rusty-weathering ankerite, siderite, dolomite?, and limestone, in part siliceous or argillaceous
Volcanic Flow	VOLCANICS, intermediate to basic

of a few more outcrops of gabbro farther up the canyon of Tatamagouche Creek, and partly on considerations of previous and 1980 data regarding the gabbroic intrusions and the geological structure.

5.1 Rusty Cliffs

Last year systematic sampling of the rusty cliffs in the canyon of Tatamagouche Creek on claim Wen 5 (Fig. 6.2 and 6.3, 1979 report) showed three intervals with low grade gold assays as follows:

Section T-1

24.0 - 27.3 m	3.3 m	0.34 g/t Au
37.0 - 37.5 m	0.5 m	0.34 g/t Au

Section T-2

117.5 - 122.0 m	4.5 m	0.34 g/t Au
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Because of the well known association of gold with arsenic and lead, the very fine grained nature of the sulfides in these gold-bearing rocks and adjacent strata, and the anomalous arsenic and lead concentrations in nearby samples of soil and overburden, 17 chip samples of bedrock from 1979 were assayed for arsenic and lead. The results (appendix 1) show both arsenic and lead to be less than 0.01 per cent in all samples assayed.

As the 1979 sampling involved collecting chips at intervals of 10 to 40 cm and compositing them, two of the gold-bearing intervals above were resampled in more detail in 1980 with the results in Table 5.2. The one-metre interval from 119.0 to 120.0 m sampled with continuous chips contains the same low concentration of gold as the 4.5-metre interval from 117.5 to 122.0 m sampled at intervals of about 25 cm. It is concluded from this that chips from a layer perhaps 5 to 10 cm thick between 119.0 and 120.0 m were diluted to the same extent by chips beyond the gold-bearing layer in both the 1979 and 1980 sampling. If correct, this thin layer can be expected to have a gold concentration somewhat greater than 0.34 g/t.

5.2 Gabbroic Intrusions

Campbell (1960), Muller (1967), and Campbell (1976) have indicated that the gabbro, peridotite, and dunite intrusions in the Kluane Ranges are mostly sills concordant or nearly concordant with the volcanic and sedimentary strata there. These bodies range in length to 15 km, and in thickness to 800 m. Opinions differ on the age relations between the gabbro and peridotite. It is

TABLE 5.2. RESAMPLING OF PARTS OF THE RUSTY CLIFFS ON CLAIM WEN 5

Section*	Interval* (m)	Length (m)	Sample Number	Type of Sample	Gold Content	Lithology
T-1	24.0- 24.3	0.3	2441	cont.chips	trace	black shale
T-1	24.3- 25.3	1.0	2442	cont.chips	trace	grey siltstone with black shale layers 1 cm thick
T-1	25.3- 25.6	0.3	2443	cont.chips	trace	black shale banded with white siltstone
T-1	25.6- 27.0	1.4	2444	cont.chips	trace	grey siltstone
T-2	97.0- 98.5	0.3	2431	cont.chips	trace	weathered black shale in layers 5, 10, 5 and 10 cm thick
T-2	111.5-113.0	1.5	2439	chips from rubble	trace)	hard, tough, greenish- grey siltstone, locally banded, scarce fine sulfides, local rusty patches, weathers olive grey into very angular fragments
T-2	113.0-115.0	2.0	2438	chips at 30 cm	trace)	
T-2	115.0-117.0	2.0	2437	chips at 20 cm	trace)	
T-2	117.0-118.0	1.0	2436	cont.chips	trace)	
T-2	118.0-119.0	1.0	2435	cont.chips	trace	
T-2	119.0-120.0	1.0	2434	cont.chips	0.34 g/t)	
T-2	120.0-121.0	1.0	2433	cont.chips	trace)	rusty dark-grey silt- stone with minute disseminated sulfides
T-2	121.0-122.0	1.0	2432	cont.chips	trace	rusty silty black shale
T-2	123.5-124.5	1.0	2440	cont.chips	trace	rusty grey argillite with black shale layers 10 cm thick

* From Fig. 6.2 and 6.3 in 1979 report.

clear from Fig. 5.1 and Walcott's (1967) electromagnetic survey that some, possibly even all, of the conductivity anomalies coincide with contacts of gabbroic intrusions. Thus, even though a few outcrops of gabbro and numerous gabbroic boulders are present on the claims in the area between Burwash and Tatamagouche Creeks, important parts of this area are not underlain by gabbro. A likely model is of a once continuous sill-like body of gabbro having been folded and faulted, and then partly eroded, leaving a thin remnant layer in some places, a thicker

body in others, and none at all in still other places. For example the gabbro outcrop on Joyce Creek on claims Jy 7 and 8 is fine-grained and is probably within a contact phase of a gabbroic sill. With this model of the remains of the gabbro sill or sills, an attempt to trace their contacts in the area of the overburden drilling, which is almost barren of outcrops, is included in Fig. 5.1. This attempt is based on the 1979 magnetometer survey, the 1979 and 1980 overburden drilling, lines 1, 2, 3, 4, and 6 of the 1978 geochemical reconnaissance, Seiga's (1972) geochemical survey, and Walcott's (1967) magnetometer and electromagnetic surveys. It is obvious from these records that the highest magnetic responses coincide with some of the most anomalous nickel and copper concentrations. It is likely that some of such regions on claims Jo 1 to 8, and Wen 5 and 7, as well as on the parts of claims Wen 7 and 8 east of Tatamagouche Creek, are the basal remnants or basal layers of gabbroic intrusions in which nickel and copper accumulated. Similar regions with anomalous nickel and copper concentrations in the canyon of Tatamagouche Creek may have the same explanation, or more probably are the result of slumping of eroded material from higher elevations into the canyon of Tatamagouche Creek. Whether any of the anomalous concentrations of nickel and copper in the overburden indicate economic concentrations in the gabbro intrusions can only be determined by trenching or drilling.

5.3 Structure

The major features of the structure of the Burwash Creek area were outlined in the 1979 report and are not repeated here. Available information, however, provides some indications of some structures in the Skolai Group and the gabbroic sill-like intrusions, not previously described. The reversal of dips in the ankeritic unit of the Station Creek Formation on claims Wen 1, Sue 7, and And 6 and 8 indicates an easterly trending anticline almost parallel to Burwash Creek. As already hinted, Walcott's (1967) electromagnetic anomalies A and B coincide or almost coincide with basal contacts of gabbroic intrusions. These contacts are on opposite limbs of the anticline just described. Anomaly C also coincides or almost coincides with the gabbro contact east of Tatamagouche Creek on claims Wen 7 and 8, probably a basal contact. It is likely that anomaly D represents a continuation of this contact. Although not as clear, anomalies E and F may also coincide with basal contacts of gabbro sills. An interpretation of the structure of the gabbro sill between Burwash and Tatamagouche Creeks is shown in Fig. 5.2. It shows an anticlinal axis along

Burwash Creek, a syncline between Walcott's anomalies A and F, an anticline with some flexures between Walcott's anomalies F and D, and a syncline north of anomaly D close to Tatamagouche Creek. The plunges of these folds are uncertain, but if the Volcanic Flow Member of the Station Creek Formation occupies the axial region of one of the anticlines, then the folds plunge westerly. On the other hand, Campbell (1976) indicated a drag fold with an easterly plunge of 22° on the south limb of the anticline along Burwash Creek.

Aeromagnetic map 4299G shows a linear magnetic low coinciding with the valley of Joyce Creek. Two possible explanations are offered:

- 1) thinning of the gabbro sill by erosion in the deep valley of Joyce Creek to permit response from less magnetic rocks of the Skolai Group below, or
- 2) a fault.

SECTION 6.0 OVERBURDEN DRILLING AND SAMPLING

6.1 Equipment and Methods

Overburden-drilling and sampling equipment, designed and manufactured in Finland by Metallisorvaamo, was used for drilling and sampling 174 holes on claims Jo 1, 2, 3, 4, 6, 7, 8, and Wen 3, 5, 7 to extend the grid drilled and sampled in 1979. This equipment was adapted for use with a Cobra drill manufactured by Atlas Copco. Drill rods with bit and sampling tube are driven into the overburden by the Cobra. The bit and sample tube permit the cylinder of overburden within the tube to pass out one side of the tube, so that a sample, about 15 cm long, can be obtained from the last interval penetrated, without manually removing material higher up the hole from the sample tube or rods. Under favorable circumstances samples can be obtained from depths of 20 to 30 m. On the Bur property, however, depths exceeding 1 m were seldom reached because of shallow overburden, large boulders, small rock fragments which blocked the sample tube, and the permafrost. The drillholes were 20 m apart for the most part. The drillholes and samples on line 3000 E from 460 N to 840 N were inadvertently duplicated: only those from the first sampling are shown on Fig. 6.16. The -80 mesh fractions of the samples were analyzed by standard atomic absorption techniques for nickel, copper, zinc, lead, and arsenic, and by standard neutron activation techniques for gold. The five gold analyses from samples 1120 N to 1200 N on line 3200 E were not obtained in time to be included in Fig. 6.3 and 6.7 to 6.11.

6.2 Concentrations of Nickel, Copper, Zinc, Lead, Arsenic, and Gold

The distributions of concentrations of nickel, copper, zinc, lead, arsenic, and gold are shown in Fig. 6.1 to 6.3. The statistical method of presentation is that described by Lepeltier (1969).

6.2.1 Nickel, Copper, and Zinc

The distribution curves for nickel and copper (Fig. 6.1) are similar. That for nickel shows a change in slope at 110 ppm corresponding to about 60 per cent of the samples, and that for copper a change in slope at 75 ppm corresponding to about 40 per cent of the samples. It is likely that these changes in slope indicate samples from two populations: a gabbroic one with the higher concentrations, and a second representing most of the other rock types. Although not shown in Fig. 6.1, another change in slope could have been drawn for both nickel and copper: for nickel at about 550 ppm with about 3½ per cent of the samples, and for copper at about 190 ppm also with about 3½ per cent of the samples. These concentrations may well represent the thresholds of anomalous nickel and copper concentrations in gabbroic areas.

The distribution curve for zinc (Fig. 6.1) shows a change in slope at 105 ppm corresponding to about 3 per cent of the samples. Hence, a concentration of 105 ppm appears to be a realistic threshold concentration for zinc. The change of slope at about 60 ppm corresponding to about 90 per cent of the samples is in the low concentration part of the curve and is not considered further.

6.2.2 Lead and Arsenic

The distribution curve for lead (Fig. 6.2) shows a change in slope at 10 ppm corresponding to about 14 per cent of the samples. Although 14 per cent anomalous samples may be too high, it is considered realistic in light of the fact that galena was detected in some of the heavy mineral concentrates from the 1979 overburden drilling. Therefore, the threshold is set at 10 ppm lead.

The distribution curve for arsenic (Fig. 6.2) shows a change in slope at 11 ppm corresponding to about 15 per cent of the samples. This concentration and this percentage are very close to those for lead, although the two parts of the arsenic curve both have steeper slopes than those for lead. The threshold for arsenic is set at 11 ppm.

6.2.3 Gold

The distribution curve for gold (Fig. 6.3) shows a change in slope at 15 ppb corresponding to about 2½ per cent of the samples. The threshold for gold is accordingly set at 15 ppb. Except for the differences in order of magnitude of the concentrations, the distribution curves for gold and lead are strikingly similar.

6.3 Relations among Nickel, Copper, Zinc, Lead, Arsenic, and Gold

In order to detect any relations between pairs of the metals above more readily, eight scatter diagrams showing concentrations between selected pairs of the metals above have been plotted (Fig. 6.4 to 6.11). Visual inspection of these diagrams shows large scatters of points, with corresponding low correlations; calculation of regression equations is not considered worthwhile. Fig. 6.4 does, however, show a slightly better correlation between nickel and copper, in agreement with the previously suggested sources of those metals. Fig. 6.5 shows almost constant zinc concentrations (with considerable scatter) and apparent independent variation of copper concentrations. Fig. 6.6 probably shows an indistinct correlation of lead and zinc concentrations. As expected, no correlations of gold concentrations with nickel concentrations (Fig. 6.7), nor gold with copper (Fig. 6.8) are apparent. Fig. 6.9 shows almost constant zinc concentrations (with considerable scatter) and apparent independent variation of gold concentrations. In spite of similar curves for lead and gold in Fig. 6.2 and 6.3, no correlation of gold concentrations with lead concentrations (Fig. 6.10) is apparent. Similarly no correlation of gold concentrations with arsenic concentrations (Fig. 6.11) is apparent.

6.4 Results

The results of the analyses of the -80 mesh fractions are shown in Fig. 6.12 to 6.17, one for each metal analyzed. No nickel concentrations as high as those obtained in 1979 were found, but concentrations of more than 300 ppm were obtained in a few places on lines 2600 E, 2800 E, 3200 E, and 3400 E. Some copper concentrations similar in magnitude to the highest obtained in 1979 were found on lines 2800 E, 3000 E, 3200 E, 3400 E, and continuously on the south end of 3600 E. Those higher than 190 ppm may be anomalous. As expected, some of the areas with higher copper concentrations coincide with those with higher nickel concentrations. The highest zinc concentration is at the south end of line 3600 E but is only marginally above the threshold of 105 ppm. The only anomalous lead concentrations were found

at 830 N and 840 N on line 3000 E, just south of the very high gold concentration at 850 N on line 3000 E, obtained in 1979. Except for these two samples, the lead concentrations appear to be much lower than those obtained in 1979. The reason for this is not known. Anomalous gold concentrations were obtained at several places on lines 2400 E, 3000 E, 3200 E, the north end of 3400 E, and the south end of 3600 E, including one adjacent to the very high concentration at 850 N on line 3000 E, obtained in 1979. Scattered anomalous or almost anomalous concentrations of arsenic were obtained on lines 2400 E, 2600 E, 3000 E, the south end of 3200 E, and more continuous higher concentrations on the north ends of lines 3200 E and 3400 E, and the south end of line 3600 E.

As in 1979 no attempt has been made to contour the data because of the 200-m spacing between the lines, but the higher concentrations for each metal are shown by stippling. It seems obvious that the higher concentrations on line 3600 E and possibly some of those on line 3400 E are due to slump from topographically higher elevations. As previously indicated the higher nickel and copper concentrations probably are derived from accumulations of these metals in the basal parts of the gabbro sill. In spite of the erratic nature of the anomalous lead, arsenic, and gold concentrations, they are sufficiently numerous, and some sufficiently coincidental to suggest their source or sources within the area in which the overburden has been drilled. Such a source may well be a shear or other zone in strata of the Skolai Group. Such a source cannot be expected to contribute these metals to the overburden, where it is covered by the gabbro sill.

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1980 09 08

Respectfully submitted,

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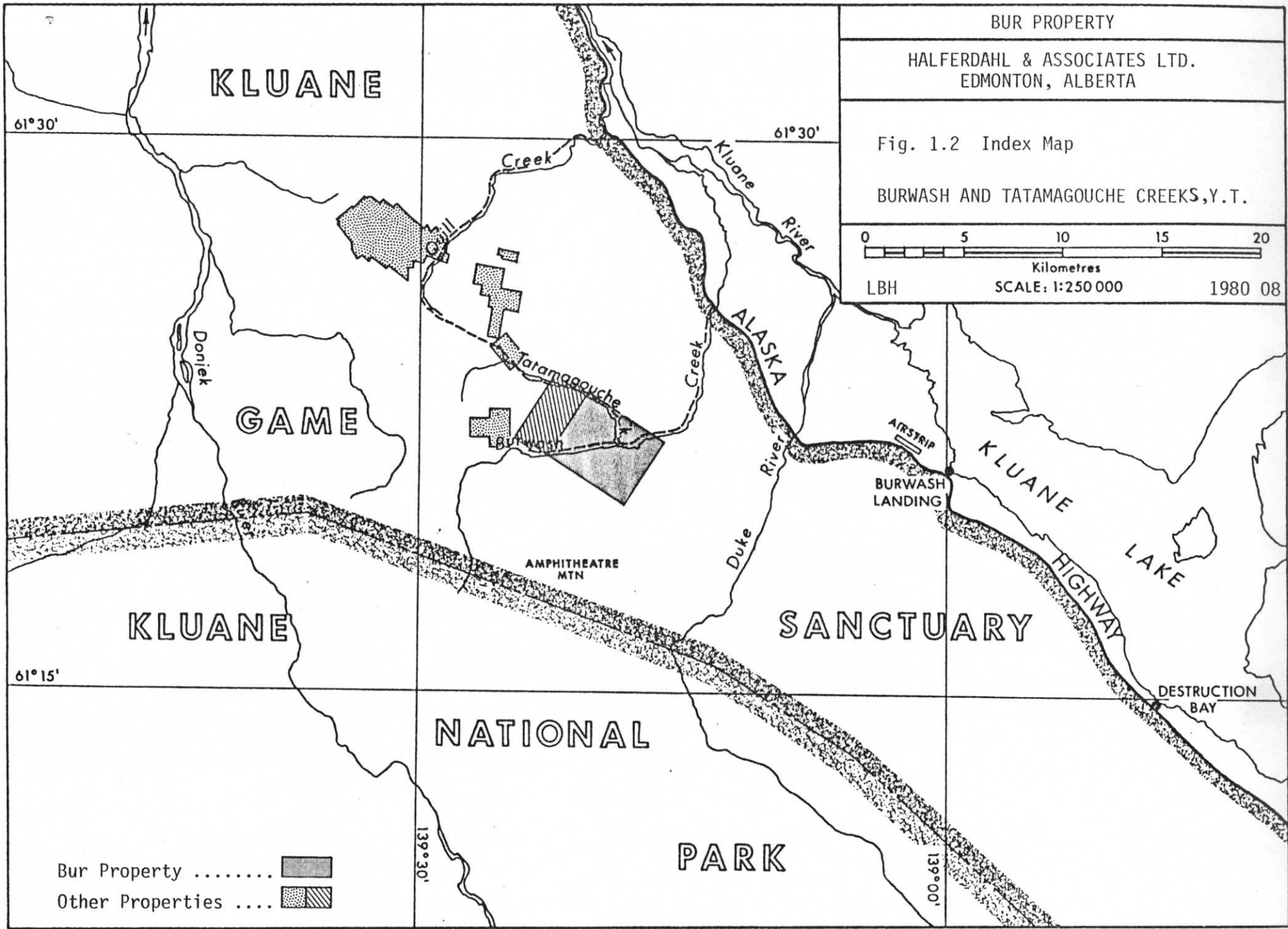
SECTION 7.0

REFERENCES

- Bissonnette, R. and Halferdahl, L.B. (1979) 1978 and 1979 exploration (geological, geochemical, geophysical, overburden drilling) of the Bur property, Yukon Territory; Halferdahl & Associates Ltd., Edmonton, 29 p., 9 appendices, 33 fig., company report.
- Campbell, F.A. (1960) Nickel deposits in the Quill Creek and White River areas, Yukon; Trans. Can. Inst. Min. Met., v. 63, p. 661-667.
- Campbell, S.W. (1967) Nickel-copper sulphide deposits in the Kluane Ranges, Yukon Territory and Geology of the Quill Creek area; Indian and Northern Affairs, open file report EGS 1976-10, 17 p., 5 maps.
- Craig, D.B. and Milner, M.W. (1975) North of 60, mineral industry report 1971 and 1972, volume 1 of 3, Yukon Territory; Indian and Northern Affairs, EGS 1975-6, p. 41-42.
- Findlay, D.C. (1969) The mineral industry of Yukon Territory and southwestern District of Mackenzie 1967; Geol. Surv. Can. Paper 68-68, p. 72-73.
- Geological Survey of Canada (1967) Duke River, Yukon Territory; Map 4299 G, Geophys. Paper 4299.
- Lepeltier, C. (1969) A simplified statistical treatment of geochemical data by graphical representation; Econ. Geol., v. 64, p. 538-50.
- Morrison, L.G. (1967) Report on the Glen mineral claim group of Alice Lake Mines Ltd. N.P.L. at Burwash Creek, Yukon Territory; Alice Lake Mines Limited, Vancouver, 8 p., 2 fig., company report.
- Muller, J.E. (1967) Kluane Lake map-area, Yukon Territory (115G, 115F E $\frac{1}{2}$); Geol. Surv. Can. Mem. 340.
- Rampton, V.N. (1979) Surficial geology and geomorphology Burwash Creek, Yukon Territory; Geol. Surv. Can. Map 6-1978.
- Read, P.B. and Monger, J.W.H. (1975) Operation Saint Elias, Yukon Territory: the Mush Lake Group and Permo-Triassic rocks in the Kluane Ranges in Report of Activities Part A, April to October 1974; Geol. Surv. Can. Paper 75-1 Part A, p.55-59.
- Siega, L.J. (1973) Geological report on Mary mineral claims northwest of Whitehorse, Yukon Territory; Alice Lake Mines Limited, N.P.L., Vancouver, 6 p., 4 maps, company report.
- Sinclair, W.D. and Gilbert, G.W. (1975) North of 60, mineral industry report 1973, Yukon Territory; Indian and Northern Affairs, EGS 1975-7, p. 64-66.
- Smith, J.G. and MacKevett, E.M., Jr. (1970) Skolai Group in the McCarthy B-4, C-4, and C-5 Quadrangles, Wrangell Mountains, Alaska; U.S. Geol. Surv. Bull. 1274-Q.
- Walcott, P.E. (1967) Preliminary report on a ground electromagnetic and magnetometer survey, Glen group, Burwash Creek, Yukon Territory; Alice Lake Mines Limited, Vancouver, 3 p., 2 maps, company report.



Fig.1.1 Location Map, Bur Property, Yukon Territory

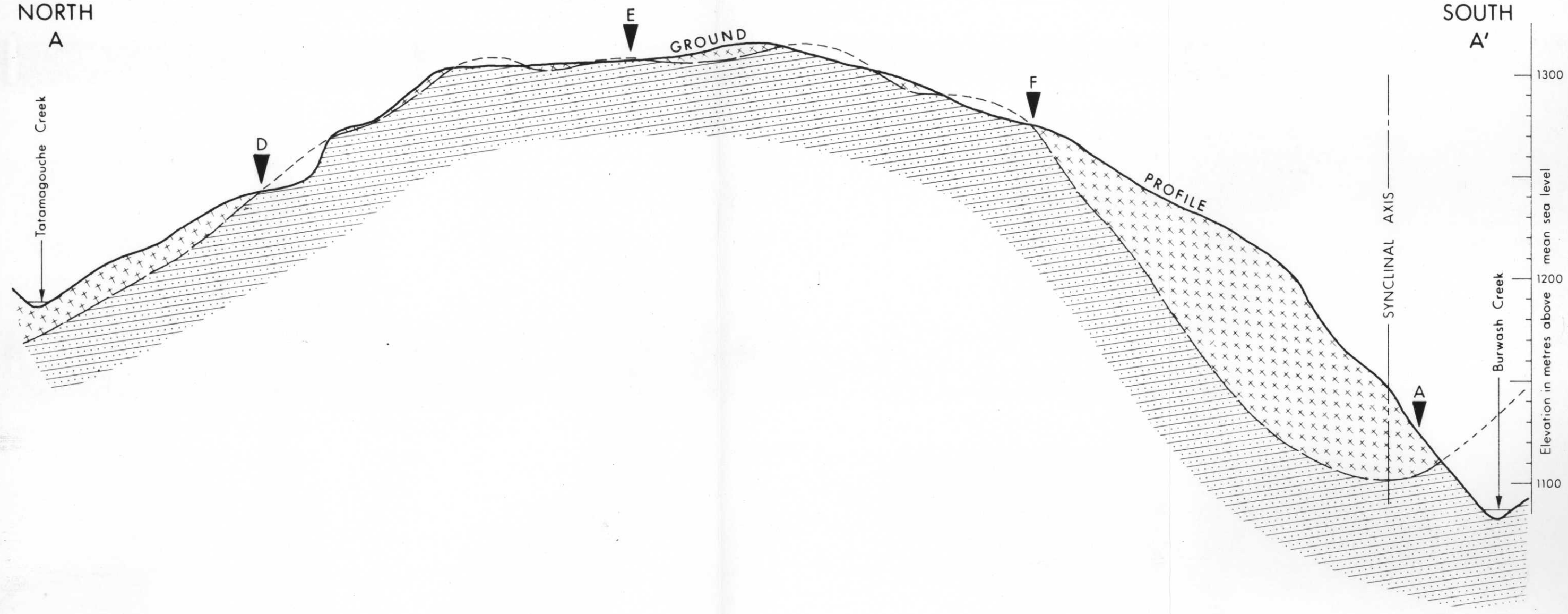


BUR PROPERTY		
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA		
Fig. 1.2 Index Map		
BURWASH AND TATAMAGOUCHE CREEKS, Y.T.		
LBH	SCALE: 1:250 000	1980 08

Bur Property
 Other Properties

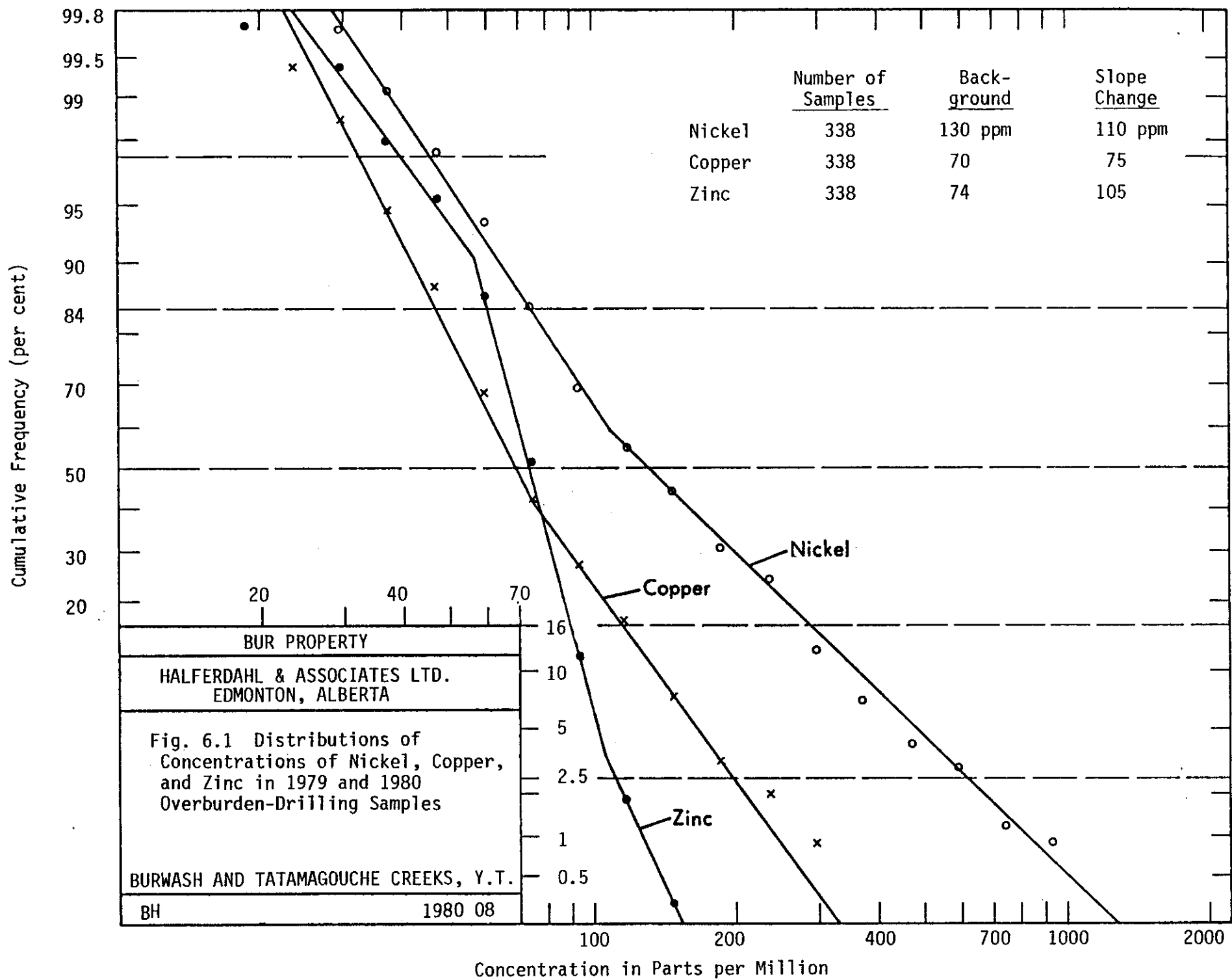
NORTH
A

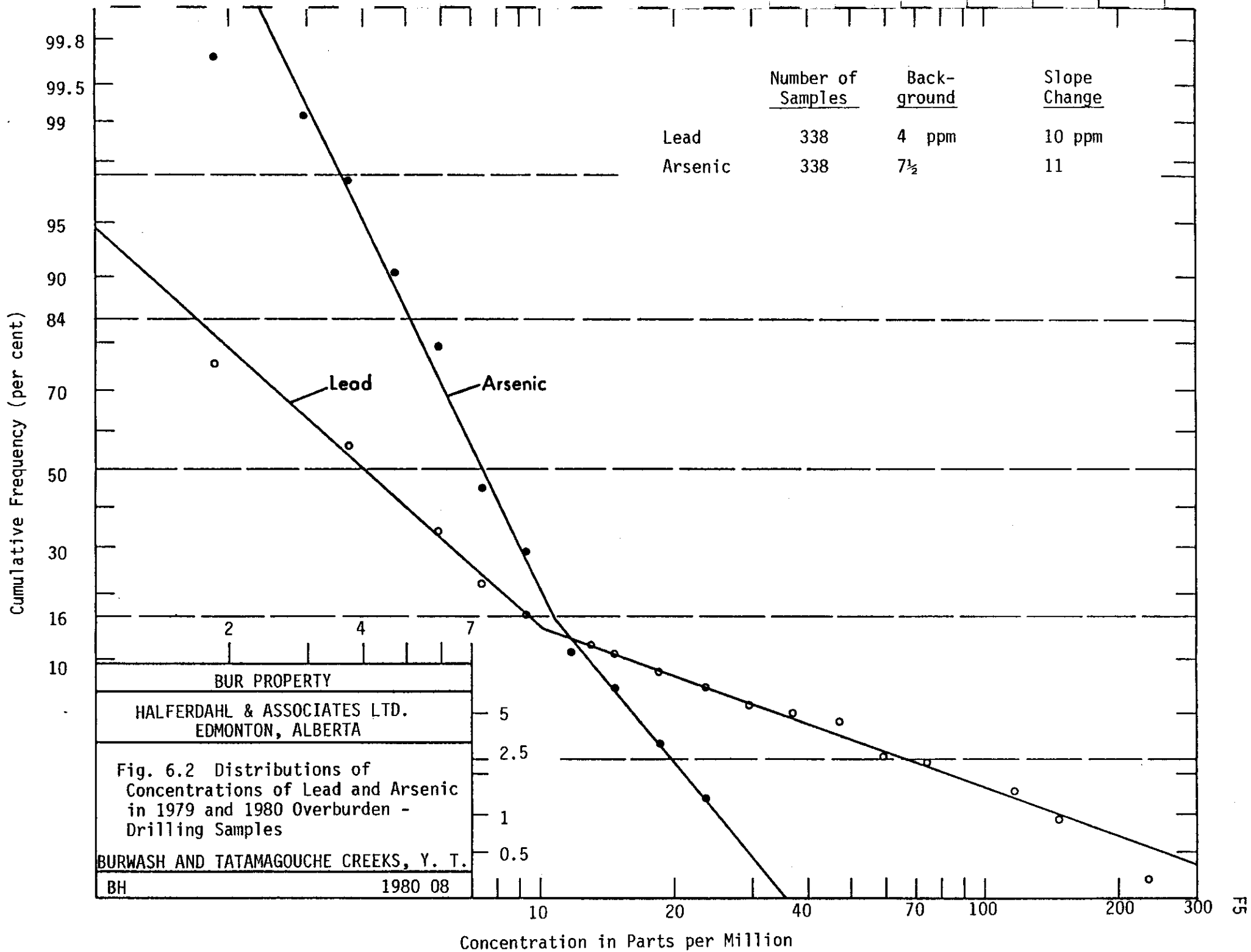
SOUTH
A'

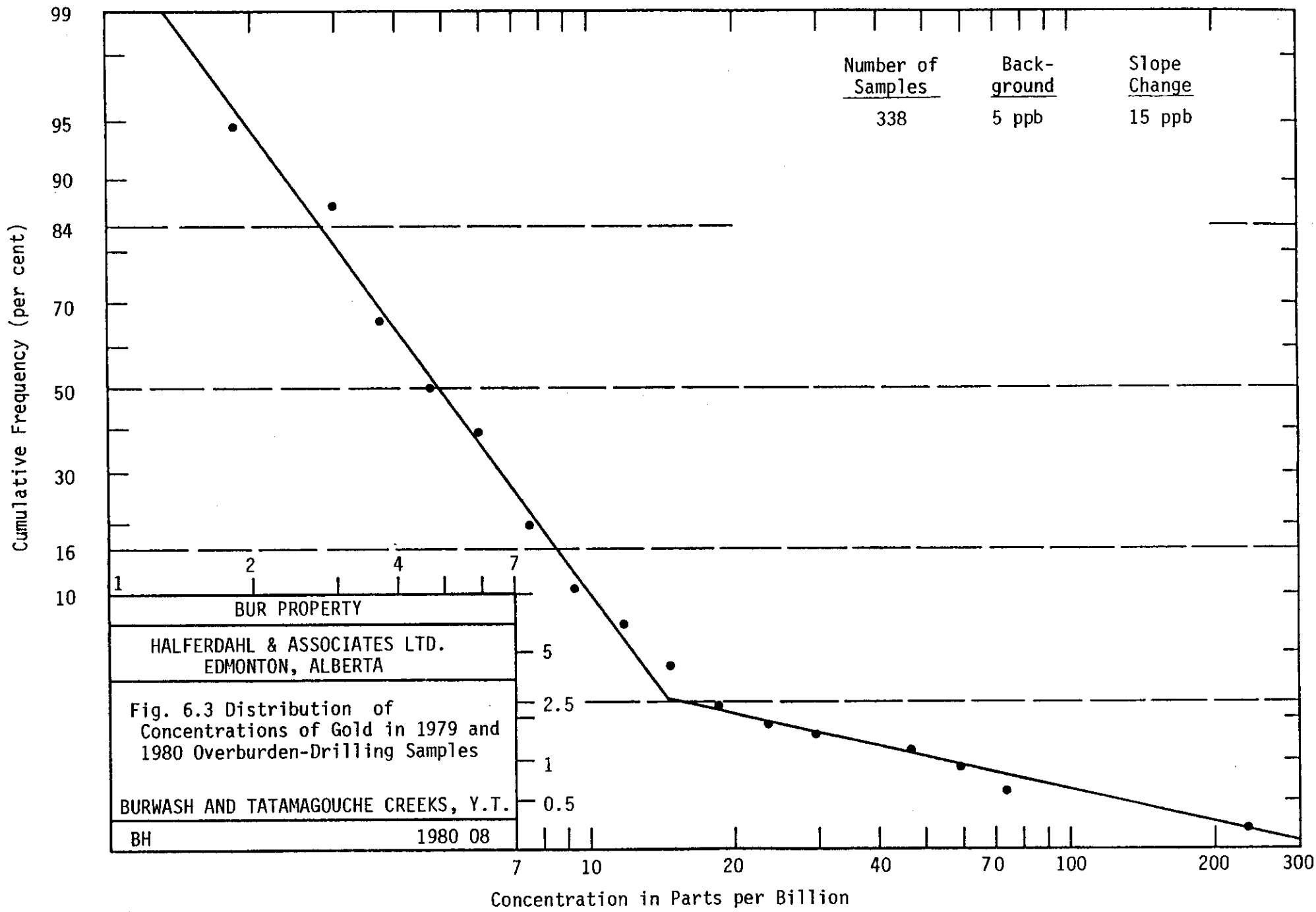


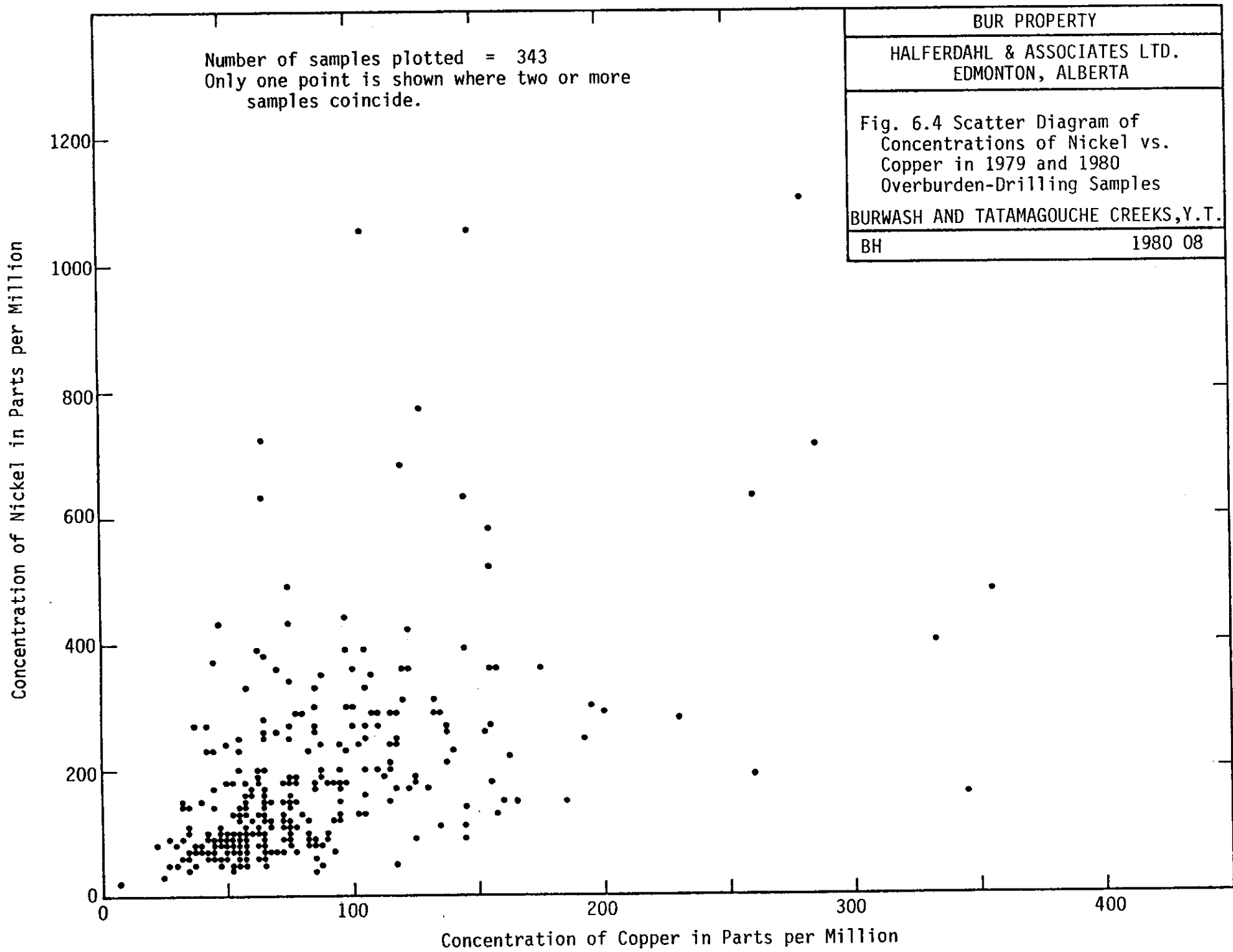
- Skolai Group
- Gabbro
- Walcott's EM anomaly

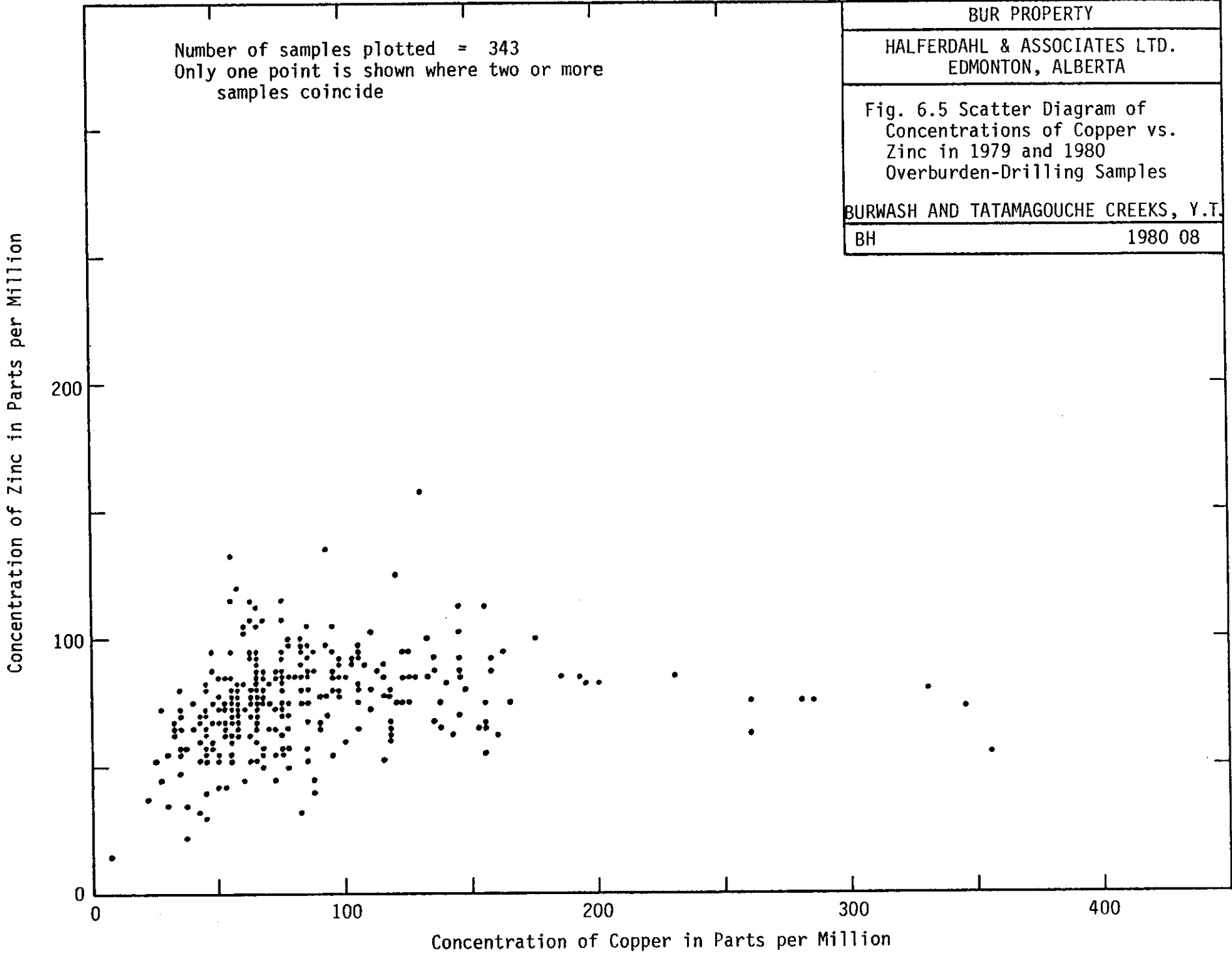
BUR PROPERTY	
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA	
Fig. 5.2 Interpretative Cross Section A-A' from Fig. 5.1	
BURWASH & TATAMAGOUCHE CKS., Y.T.	
0 100 Metres 200 300	1980.08
HORIZONTAL SCALE: 1:5000	
BH	





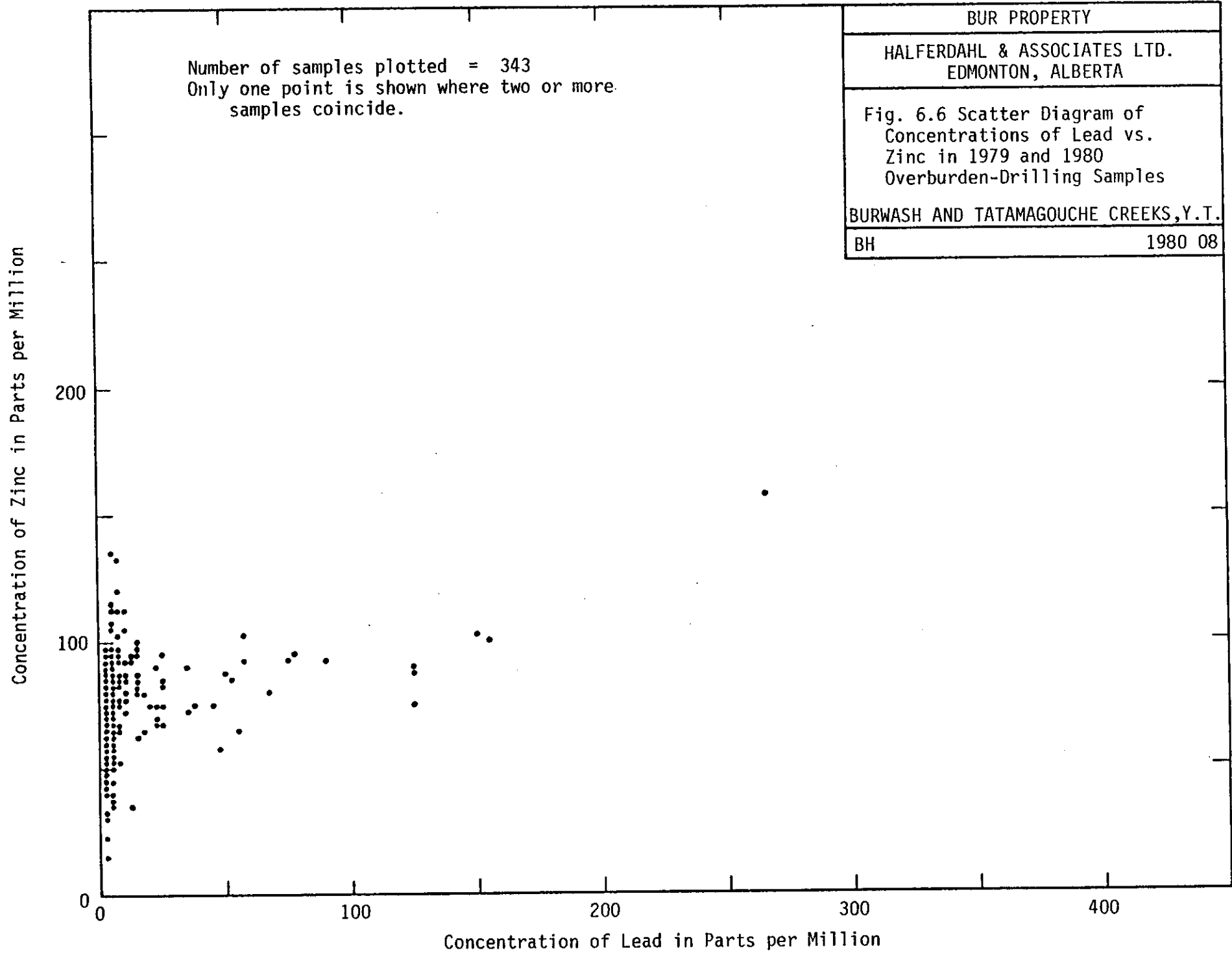


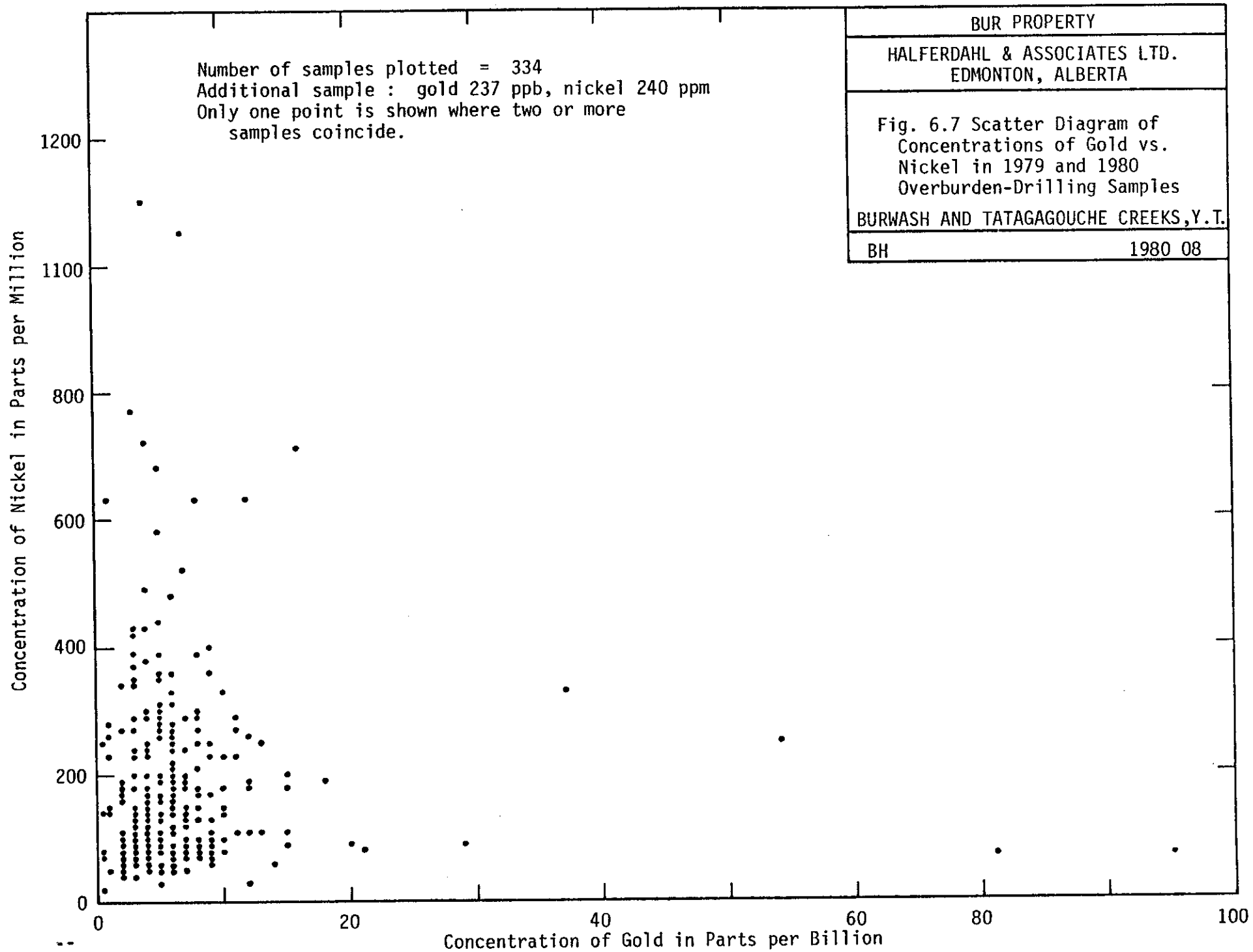


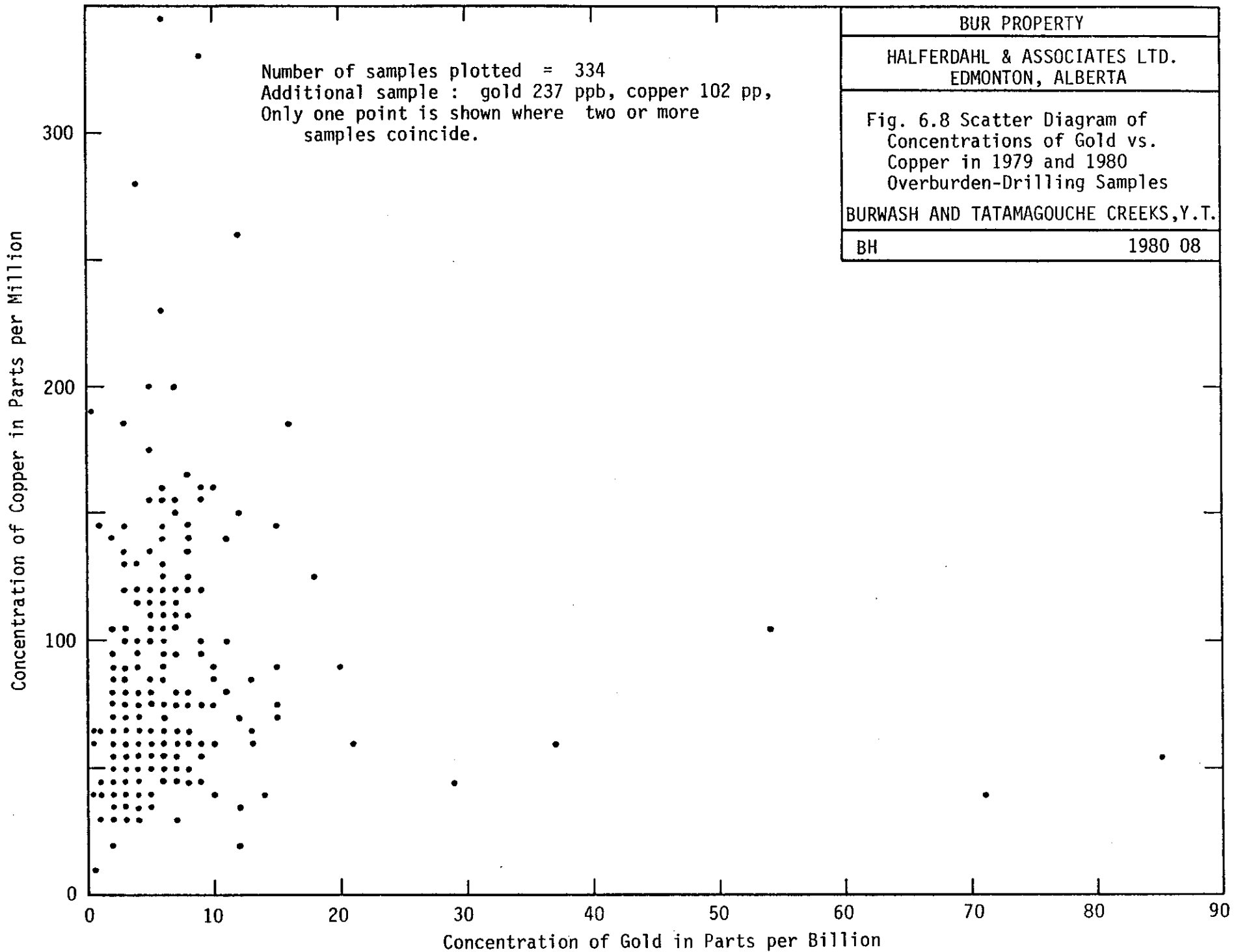


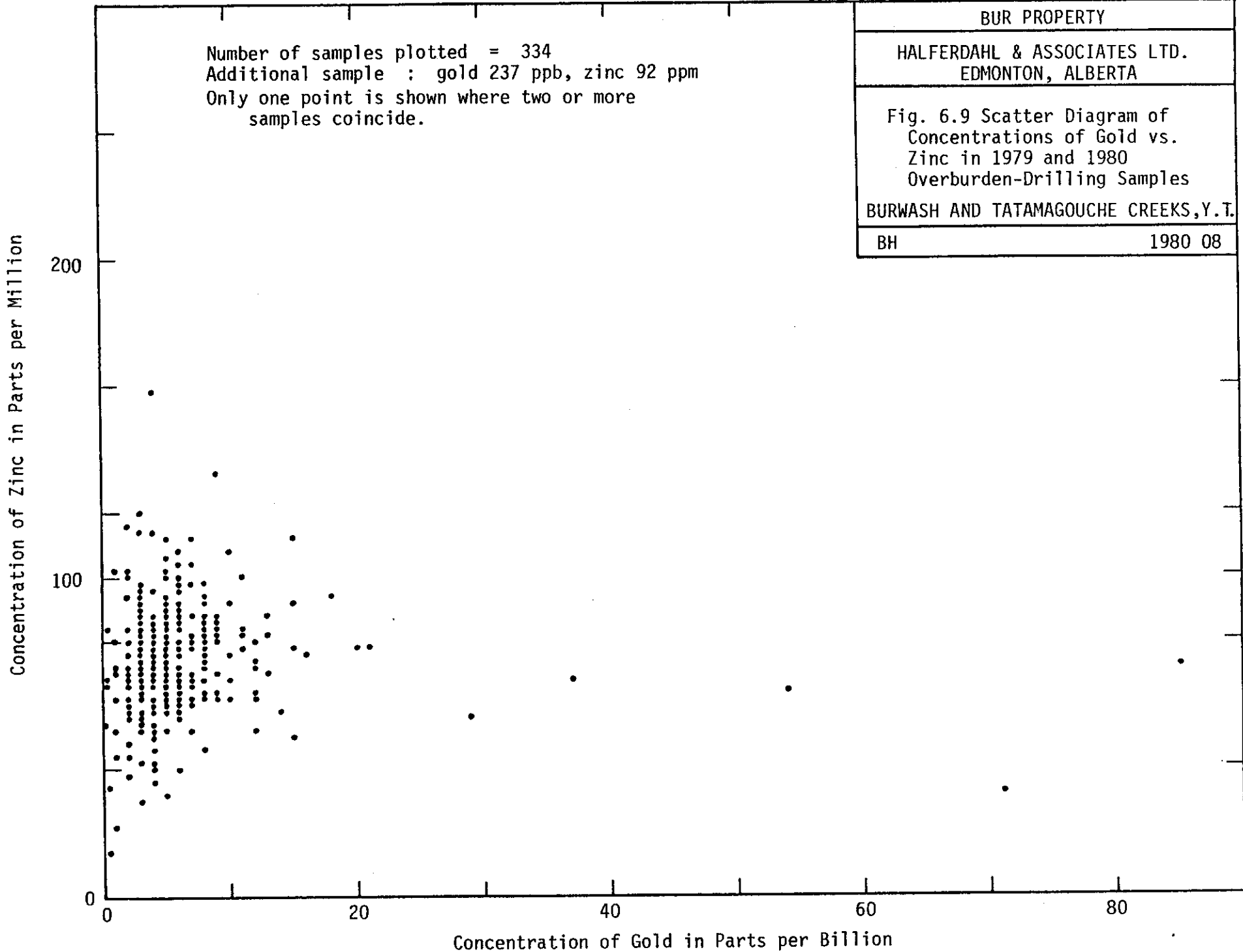
Number of samples plotted = 343
 Only one point is shown where two or more samples coincide

BUR PROPERTY	
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA	
Fig. 6.5 Scatter Diagram of Concentrations of Copper vs. Zinc in 1979 and 1980 Overburden-Drilling Samples	
BURWASH AND TATAMAGOUCHE CREEKS, Y.T.	
BH	1980 08

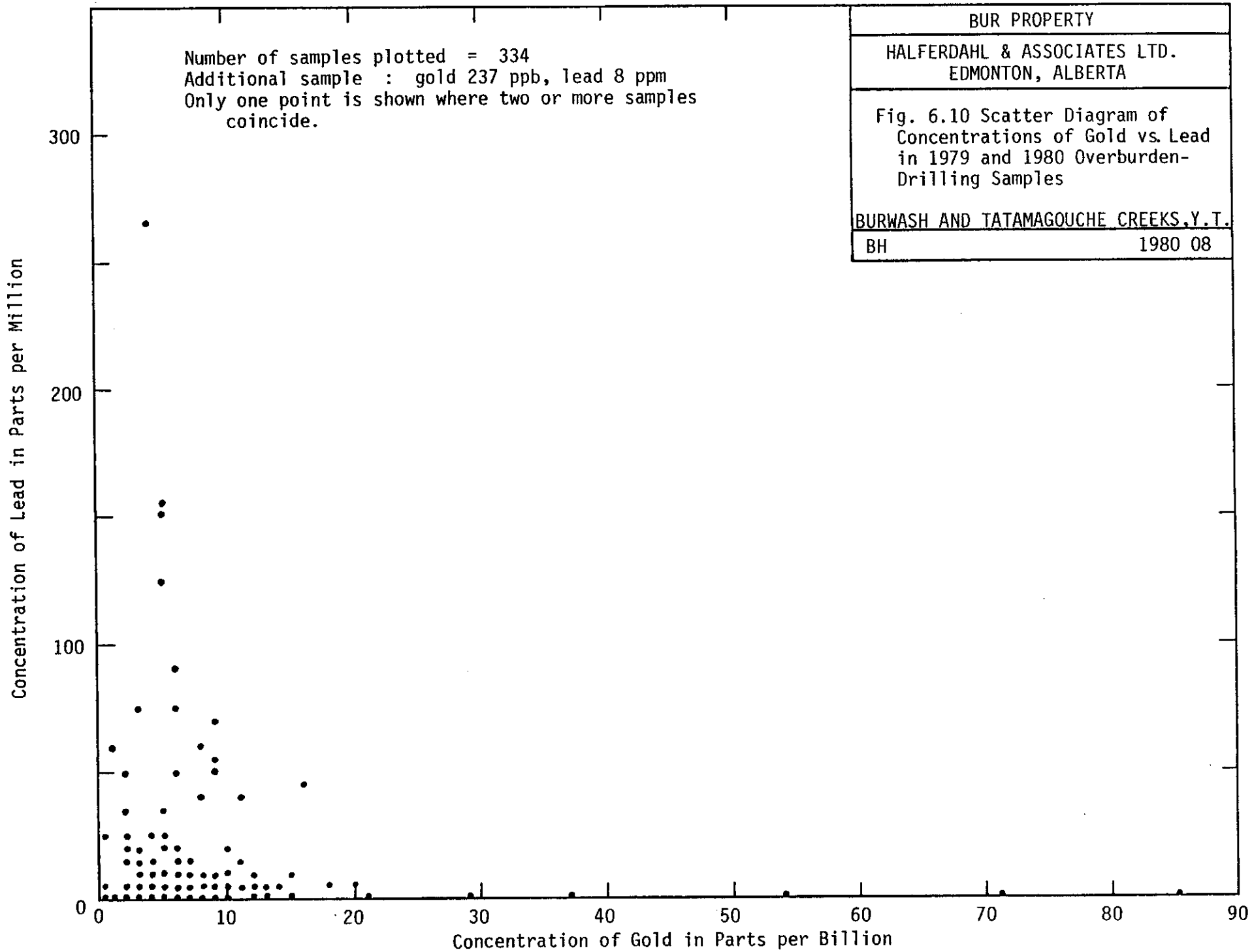


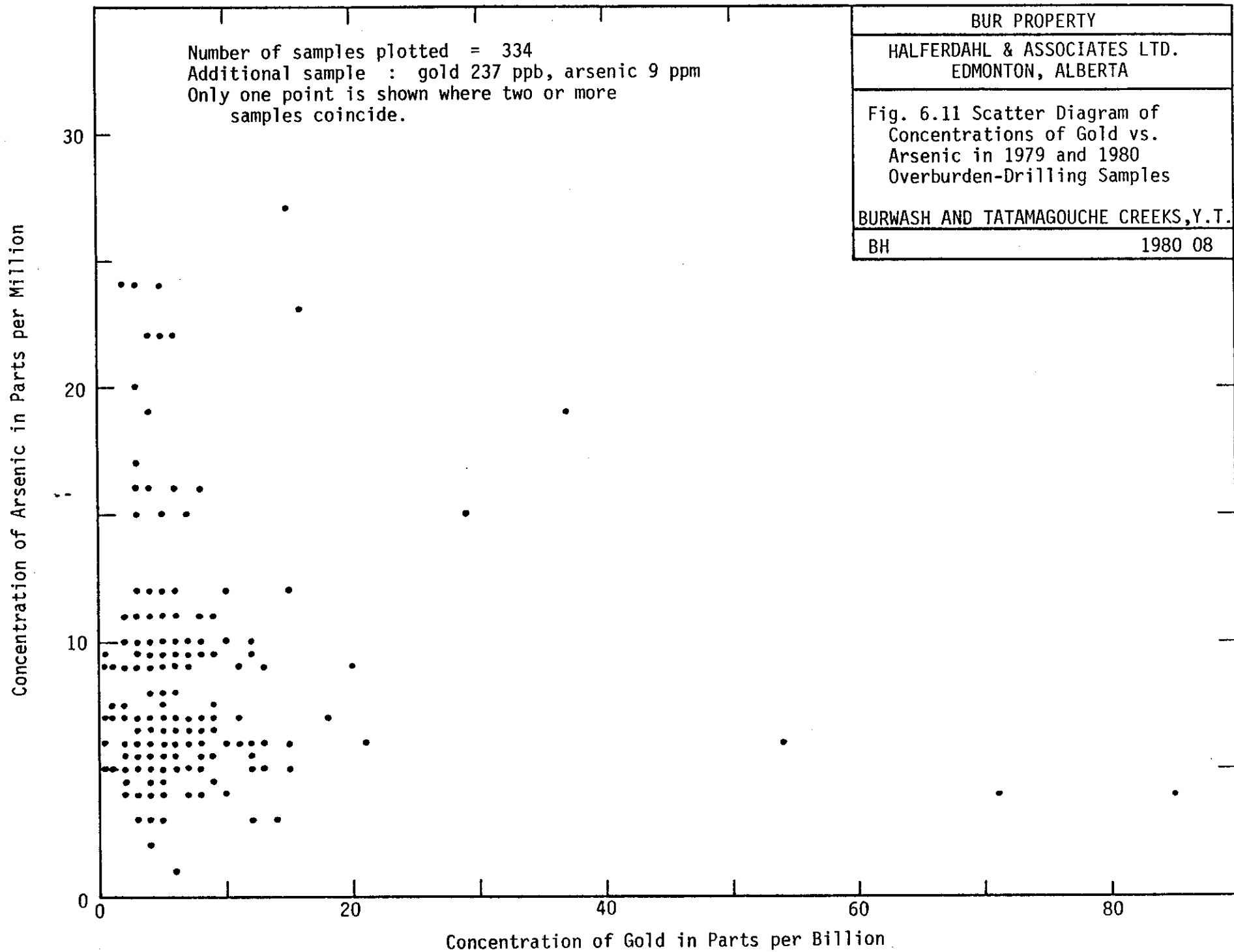






BUR PROPERTY	
HALFERDAHL & ASSOCIATES LTD. EDMONTON, ALBERTA	
Fig. 6.9 Scatter Diagram of Concentrations of Gold vs. Zinc in 1979 and 1980 Overburden-Drilling Samples	
BURWASH AND TATAMAGOUCHE CREEKS, Y.T.	
BH	1980 08





APPENDIX 1: CERTIFICATES OF ANALYSIS FOR CHIP SAMPLES OF BEDROCK



Certificate of Analysis

TO L. B. HALFERDAHL
Halferdahl & Associates
18-10509-81 Avenue, Edmonton, Alberta.

REPORT NO. A-49-69

DATE October, 11, 1979

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

MARKED	%	%							
	Pb	As							
2527	L0.01	L0.01							
2530	L0.01	L0.01							
2538	L0.01	L0.01							
2539	L0.01	L0.01							
2540	L0.01	L0.01							
2541	L0.01	L0.01							
2542	L0.01	L0.01							
2543	L0.01	L0.01							
2545	L0.01	L0.01							
2546	L0.01	L0.01							
2547	L0.01	L0.01							
2548	L0.01	L0.01							
2549	L0.01	L0.01							

BONDAR-CLEGG & COMPANY LTD.

NOTE: L. denotes less than

Rejects retained two weeks
Pulps retained three months
unless otherwise arranged.

Steven Simpson



Certificate of Analysis

Page #2

TO L.B. HALFERDAHL
Halferdahl & Associates
18-10509-81 Avenue, Edmonton, Alberta

REPORT NO. A-49-69

DATE October, 11, 1979

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

MARKED	%	%							
	Au	As							
2550	L0.01	L0.01							
2601	L0.01	L0.01							
2602	L0.01	L0.01							
2603	L0.01	L0.01							

BONDAR-CLEGG & COMPANY LTD.

NOTE: L. denotes less than

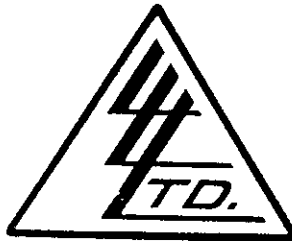
Rejects retained two weeks

Pulps retained three months

unless otherwise arranged.

Steven Simpson

To: HALFERDAHL & ASSOCIATES LTD.,
18, 10509 - 81st Avenue,
Edmonton, Alberta T6E 1X7



File No. 19709
Date July 28, 1980
Samples Rock Chip

ATTN: Dr. L.B. Halferdahl

Certificate of
ASSAY of
LORING LABORATORIES LTD.

SAMPLE No.	OZ./TON GOLD
<u>"Rock Chips"</u> 2431 2432 2433 2434 2435 2436 2437 2438 2439 2440 2441 2442 2443 2444	 Trace Trace Trace .010 Trace Trace Trace Trace Trace Trace Trace Trace Trace Trace
<p>I <i>Hereby Certify</i> THAT THE ABOVE RESULTS ARE THOSE ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES</p>	

Rejects Retained one month.
Pulps Retained one month
unless specific arrangements
made in advance.

[Signature]
Licensed Assayer of British Columbia

APPENDIX 2: OVERBURDEN-DRILLING SAMPLE DESCRIPTIONS

Sample Coord. E N	Slope Azimuth Inclination	Depth m	Sample Description	Terrain
2400 600	165 ⁰ 11 ⁰	0.60	dark-brown clay/humus with light-green areas, rock fragments to ½ cm, frozen	spruce trees, grass, moss
2400 620	165 ⁰ 11 ⁰	0.50	dark-brown clay/humus with roots, rock fragments to ½ cm, frozen	as above
2400 640	160 ⁰ 7 ⁰	0.45	dark-brown clay/humus with roots and light-brown areas, blackish rock fragments to ½ cm, frozen	as above
2400 660	160 ⁰ 16 ⁰	0.60	dark-brown clay/humus with light-colored rock fragments to ½ cm, frozen	spruce trees, grass, moss, shrubs, pools of water
2400 680	156 ⁰ 10 ⁰	0.60	dark-brown to black clay with light-brown streaks, dark-colored rock fragments to 1 cm, frozen	as above
2400 700	164 ⁰ 10 ⁰	0.50	dark-brown clay with light-brown streaks, rock fragments to ½ cm	as above
2400 720	158 ⁰ 11 ⁰	0.50	dark-brown clay with rock fragments to ½ cm, frozen	as above
2400 740	152 ⁰ 14 ⁰	0.40	dark-brown clay/humus with light-colored rock fragments to ½ cm, above volcanic-ash layer	spruce trees, grass, moss, shrubs
2400 760	154 ⁰ 16 ⁰	0.45	grey-green clay with light-green and light-brown areas, frozen	as above
2400 780	150 ⁰ 13 ⁰	0.30	dark-brown humus with roots, frozen, no volcanic ash present	as above
2400 800	149 ⁰ 15 ⁰	0.35	dark-brown to black clay/humus with roots, frozen	as above
2400 820	150 ⁰ 16 ⁰	0.75	dark-brown clay with light-brown areas, frozen	few spruce trees, shrubs, grass, dry sandy areas, steep slope

APPENDIX 2: OVERBURDEN-DRILLING SAMPLE DESCRIPTIONS CONTINUED

Sample Coord. E N	Slope Azimuth Inclination	Depth m	Sample Description	Terrain
2400 840	150 ⁰ 16 ⁰	0.30	dark-brown clay with rusty-brown areas, rock fragments to ½ cm, frozen	as above
2400 860	142 ⁰ 19 ⁰	0.50	dark-brown clay with light-green areas, rock fragments to ½ cm, frozen	as above
2400 880	149 ⁰ 22 ⁰	0.70	dark-brown clay with light-green friable rock fragments to ½ cm, frozen	as above
2400 900	140 ⁰ 20 ⁰	0.70	dark-brown clay with minor volcanic ash, frozen	as above
2400 920	146 ⁰ 21 ⁰	0.65	dark-brown clay with light-brown streaks and minor volcanic ash, frozen	as above
2400 940	148 ⁰ 19 ⁰	0.90	dark-brown clay with rusty-brown areas, some volcanic ash, rock fragments to ½ cm, frozen	as above
2400 960	140 ⁰ 18 ⁰	0.85	dark-brown clay with rock fragments to ½ cm, frozen	as above
2400 980	149 ⁰ 21 ⁰	0.60	dark-brown clay with black rock fragments to 1 cm, frozen	as above
2400 1000	146 ⁰ 25 ⁰	0.55	dark-brown clay with light-brown areas, black rock fragments to 1 cm, frozen	as above
2400 1020	150 ⁰ 26 ⁰	0.50	dark-brown clay with black rock fragments to 1 cm, some volcanic ash, frozen	as above
2400 1040	154 ⁰ 17 ⁰	0.65	dark-brown clay with minor volcanic ash, frozen	as above
2400 1060	141 ⁰ 24 ⁰	0.75	dark-brown clay with green-grey areas, some volcanic ash, rock fragments to 2 cm, frozen	as above
2400 1080	147 ⁰ 26 ⁰	0.65	dark-brown clay with green-grey areas, rock fragments to 1 cm, frozen	as above

APPENDIX 2: OVERBURDEN-DRILLING SAMPLE DESCRIPTIONS CONTINUED

Sample Coord. E N	Slope Azimuth Inclination	Depth m	Sample Description	Terrain
2400 1100	136 ⁰ 24 ⁰	0.90	dark-brown clay with rock fragments to 2 cm, frozen	as above
2600 600	158 ⁰ 11 ⁰	0.50	dark-brown clay mixed with volcanic ash, black rock fragments to ½ cm, frozen	spruce trees, grass, low bush
2600 620	158 ⁰ 15 ⁰	0.70	dark-brown clay mixed with volcanic ash, black rock fragments to ½ cm, frozen	as above
2600 640	160 ⁰ 13 ⁰	0.85	dark-brown to grey-green clay with medium-green-grey rock fragments to 1 cm, not frozen	as above
2600 660	164 ⁰ 15 ⁰	0.60	dark-brown clay with black rock fragments to 1 cm, frozen	spruce trees, high bush, grass, steeper slope
2600 680	148 ⁰ 17 ⁰	0.65	dark-brown clay with medium-brown areas, rusty-brown and medium-green rock fragments to ½ cm, frozen	as above
2600 700	182 ⁰ 28 ⁰	0.70	dark-brown clay mixed with volcanic ash, frozen	high bush, grass
2600 720	160 ⁰ 12 ⁰	0.90	dark-brown clay with green-grey rock fragments, rusty-brown haloes around some fragments, frozen	as above
2600 740	160 ⁰ 10 ⁰	0.60	dark-brown clay with medium-brown areas, green-grey rock fragments to 2 cm, frozen	as above
2600 760	170 ⁰ 13 ⁰	0.65	dark-brown clay with medium-brown areas, green-grey and rusty-white rock fragments to 1 cm, frozen	as above
2600 780	158 ⁰ 9 ⁰	0.40	dark-brown clay with green-grey and black rock fragments to ½ cm, minor volcanic ash, frozen	low bush, moss, grass
2800 500	168 ⁰ 12 ⁰	0.55	dark-brown to grey-green clay with rusty-brown areas, black rock fragments to 1 mm, frozen	spruce trees, grass, low bush

APPENDIX 2: OVERBURDEN-DRILLING SAMPLE DESCRIPTIONS CONTINUED

Sample Coord. E N	Slope Azimuth Inclination	Depth m	Sample Description	Terrain
2800 520	160 ⁰ 14 ⁰	0.50	dark-brown clay with light-brown areas, frozen	as above
2800 540	180 ⁰ 16 ⁰	0.60	grey-green clay with rusty-brown zones, many black rock fragments to 1 mm, frozen	as above
2800 560	166 ⁰ 11 ⁰	0.60	dark-brown to black clay with yellow-brown areas, black rock fragments to ½ cm, frozen	as above
2800 580	160 ⁰ 15 ⁰	0.55	grey-green clay with rusty-brown zones, black rock fragments to ½ cm, frozen	as above
2800 600	170 ⁰ 17 ⁰	0.60	grey-green clay with dark-green rock fragments to 2 cm, some fragments weathered to rust-brown, frozen	as above
2800 620	162 ⁰ 17 ⁰	0.70	dark-brown clay with roots and minor volcanic ash, frozen	as above
2800 640	166 ⁰ 20 ⁰	0.60	grey-green clay with dark-brown areas, black rock fragments to ½ cm, frozen	as above
2800 660	166 ⁰ 16 ⁰	0.60	dark-brown clay with black rock fragments to ½ cm, frozen	spruce trees, low bush, grass
2800 680	162 ⁰ 20 ⁰	0.90	dark-brown clay with dark-green rock fragments to 2 cm	as above
2800 700	150 ⁰ 13 ⁰	0.75	dark-brown clay with rust-brown and yellow-brown zones, frozen	low bush, grass, moss
2800 720	172 ⁰ 24 ⁰	0.70	dark- to light-brown clay with minor volcanic ash, light-green rock fragments to 1 cm, frozen	as above
2800 740	160 ⁰ 15 ⁰	0.70	dark-brown clay with light-brown areas, green-grey rock fragments to ½ cm, frozen	as above
2800 760	158 ⁰ 12 ⁰	0.40	dark-brown clay with roots and volcanic ash, not frozen	as above

APPENDIX 2: OVERBURDEN-DRILLING SAMPLE DESCRIPTIONS CONTINUED

Sample Coord. E N	Slope Azimuth Inclination	Depth m	Sample Description	Terrain
2800 780	172 ⁰ 6 ⁰	0.70	dark-brown clay with roots, frozen	as above
2800 800	165 ⁰ 6 ⁰	0.45	dark-brown clay mixed with volcanic ash, frozen	as above
2800 820	162 ⁰ 6 ⁰	0.65	grey-green clay with rust-brown zones, frozen	as above
2800 840	170 ⁰ 4 ⁰	0.60	grey-green clay with medium-brown streaks, minor volcanic ash, frozen	as above
3000 450	190 ⁰ 16 ⁰	0.80	dark-brown clay with minor volcanic ash, frozen	high bush, spruce trees, grass
3000 460	170 ⁰ 27 ⁰	0.80	grey-green clay with dark-green rock fragments to ½ cm, frozen	as above
3000 480	170 ⁰ 15 ⁰	0.85	dark-brown clay mixed with volcanic ash, frozen	as above
3000 500	164 ⁰ 15 ⁰	0.60	medium- to dark-brown clay, frozen	as above
3000 520	146 ⁰ 12 ⁰	0.70	medium-brown to dark-grey-green clay, frozen	high bush, spruce trees, grass
3000 540	166 ⁰ 11 ⁰	0.60	dark-grey-green clay with dark-green rock fragments to ½ cm, frozen	as above
3000 560	156 ⁰ 17 ⁰	0.70	dark-brown clay with roots, frozen	as above
3000 580	164 ⁰ 10 ⁰	0.40	grey-green clay with dark-rust-brown areas, black rock fragments to ½ cm, frozen	as above
3000 600	164 ⁰ 16 ⁰	0.70	grey-green clay with dark-rust-brown areas, black rock fragments to 2 mm, frozen	as above

APPENDIX 2: OVERBURDEN-DRILLING SAMPLE DESCRIPTIONS CONTINUED

Sample Coord. E N	Slope Azimuth Inclination	Depth m	Sample Description	Terrain
3000 620	150 ⁰ 16 ⁰	0.75	grey-green clay with dark-rust-brown areas and black rock fragments to 2 mm, frozen	as above
3000 640	150 ⁰ 14 ⁰	0.60	grey-green clay with rust-brown and dark-brown areas, black rock fragments to 1 cm, frozen	as above
3000 660	164 ⁰ 12 ⁰	0.60	dark-grey-green clay with dark-brown streaks, black rock fragments to 1 cm, frozen	as above
3000 680	164 ⁰ 13 ⁰	0.65	dark-grey-green clay with roots, frozen	as above
3000 700	156 ⁰ 13 ⁰	0.60	grey-green clay with medium-brown streaks and rock fragments to 2 mm, frozen	as above
3000 720	152 ⁰ 14 ⁰	0.65	grey-green clay with medium-brown areas and rock fragments to 2 mm, frozen	as above
3000 740	148 ⁰ 10 ⁰	0.65	grey-green clay with medium-brown areas, black rock fragments to 2 mm, frozen	as above
3000 760	150 ⁰ 7 ⁰	0.50	grey-green clay with medium-brown areas, black rock fragments to 2 mm, frozen	low bush, moss, grass
3000 780	164 ⁰ 7 ⁰	0.60	dark-brown clay with roots and minor volcanic ash, frozen	low bush, moss, grass, pools of water
3000 800	155 ⁰ 7 ⁰	0.50	dark-brown clay with roots and volcanic ash, frozen	as above
3000 820	160 ⁰ 7 ⁰	0.55	grey-green to dark-brown clay, frozen	low bush, moss, grass
3000 840	150 ⁰ 6 ⁰	0.55	dark-brown clay with roots and volcanic ash	as above
3000 460B	170 ⁰ 27 ⁰	0.90	dark-brown clay with streaks and rock fragments to 2 cm, frozen	spruce trees, grass

APPENDIX 2: OVERBURDEN-DRILLING SAMPLE DESCRIPTIONS CONTINUED

Sample Coord. E N	Slope Azimuth Inclination	Depth m	Sample Description	Terrain
3000 480B	170 ⁰ 15 ⁰	0.80	medium-grey-green clay with rock fragments to 2 cm, frozen	spruce trees, grass, shrubs
3000 500B	164 ⁰ 15 ⁰	0.60	dark-grey-green clay with dark-brown streaks and rock fragments to 1 cm, frozen	as above
3000 520B	146 ⁰ 12 ⁰	0.75	grey-green to dark-brown clay with rock fragments to ¼ cm	as above
3000 540B	166 ⁰ 11 ⁰	0.55	grey-green clay with light-brown streaks and rock fragments to ½ cm, frozen	as above
3000 560B	156 ⁰ 17 ⁰	0.50	dark-brown clay with light-brown areas and light-green streaks, rock fragments to ½ cm, frozen	as above
3000 580B	164 ⁰ 10 ⁰	0.50	grey-green clay with medium-brown areas and rock fragments to 1 cm, frozen	spruce trees, shrubs, moss, pools of water
3000 600B	164 ⁰ 16 ⁰	0.65	medium-brown clay with green-grey areas, frozen	spruce trees, shrubs, grass, moss
3000 620B	150 ⁰ 16 ⁰	0.85	grey-green clay with light-brown areas and rock fragments to ½ cm, frozen	as above
3000 640B	150 ⁰ 14 ⁰	0.60	grey-green clay with light-brown streaks, rock fragments to ½ cm, frozen	as above with thin underbrush
3000 660B	164 ⁰ 12 ⁰	0.60	dark-brown to black clay with green-grey rock fragments to ½ cm, frozen	moss, grass, moderate underbrush
3000 680B	164 ⁰ 13 ⁰	0.70	grey-green clay with medium-brown streaks, rock fragments to 1 cm, frozen	as above
3000 700B	156 ⁰ 13 ⁰	0.60	grey-green clay with light-brown streaks, purplish rock fragments to ½ cm, frozen	as above
3000 720B	152 ⁰ 14 ⁰	0.60	grey-green clay with light-brown streaks, frozen	grass, moss, shrubs, moderate underbrush

APPENDIX 2: OVERBURDEN-DRILLING SAMPLE DESCRIPTIONS CONTINUED

Sample Coord. E N	Slope Azimuth Inclination	Depth m	Sample Description	Terrain
3000 740B	148 ⁰ 10 ⁰	0.50	grey-green clay with light-brown streaks	grass, shrubs, underbrush
3000 760B	150 ⁰ 7 ⁰	0.60	grey-green clay with rock fragments to 2 cm, frozen	grass, shrubs, pools of water
3000 780B	164 ⁰ 7 ⁰	0.70	dark-green-brown clay, frozen	as above
3000 800B	155 ⁰ 7 ⁰	0.60	medium-brown clay, frozen	as above
3000 820B	160 ⁰ 7 ⁰	0.60	grey-green clay, frozen	as above
3000 830B	150 ⁰ 6 ⁰	0.90	dark-brown clay, frozen	as above
3000 840B	150 ⁰ 6 ⁰	0.85	grey-green clay, frozen	as above
3200 300	138 ⁰ 14 ⁰	0.70	dark-brown clay with many black and dark-green rock fragments to ½ cm, not frozen	spruce trees, high bush, grass
3200 320	140 ⁰ 16 ⁰	0.90	grey-green clay with black and dark-green rock fragments to 1 cm, not frozen	as above
3200 340	134 ⁰ 15 ⁰	0.70	dark-brown clay with black streaks and medium-brown areas, minor volcanic ash, frozen	as above
3200 360	140 ⁰ 12 ⁰	0.55	grey-green clay with dark-brown areas, black rock fragments to 1 cm	as above
3200 380	176 ⁰ 13 ⁰	0.70	dark-brown clay with green-grey areas, black rock fragments to 1 mm	as above
3200 400	142 ⁰ 16 ⁰	0.60	dark-brown clay with medium-brown areas, many dark-green and black rock fragments to 1 cm	as above

APPENDIX 2: OVERBURDEN-DRILLING SAMPLE DESCRIPTIONS CONTINUED

Sample Coord. E N	Slope Azimuth Inclination	Depth m	Sample Description	Terrain
3200 420	122 ⁰ 18 ⁰	0.60	dark-brown clay with medium-brown areas, light- to dark-green rock fragments to 1 cm	as above
3200 440	122 ⁰ 17 ⁰	0.75	dark-brown clay with roots and light-brown areas, dark-green rock fragments to 1 mm	as above
3200 460	156 ⁰ 17 ⁰	0.70	dark-brown clay with light-grey areas	as above
3200 480	154 ⁰ 17 ⁰	0.65	dark-brown clay with dark-green rock fragments to 1 cm	as above
3200 500	138 ⁰ 25 ⁰	0.70	dark-brown clay with dark-green rock fragments to 2 mm, minor volcanic ash	as above
3200 520	138 ⁰ 21 ⁰	0.60	dark-brown clay with black rock fragments to 1 mm, minor volcanic ash	as above
3200 540	96 ⁰ 20 ⁰	0.80	grey-green clay with light-brown and dark-rust-brown volcanic-ash layers, dark-green and black rock fragments to 2 mm	as above
3200 560	74 ⁰ 25 ⁰	0.60	dark-brown clay mixed with volcanic ash, light-green rock fragments to 1 cm	as above
3200 580	106 ⁰ 25 ⁰	0.65	dark-brown clay mixed with volcanic ash, light-green rock fragments to 2 cm	as above
3200 600	122 ⁰ 18 ⁰	0.65	dark-brown to green-grey clay with roots, black and dark-green rock fragments to ¼ cm	spruce trees, high bush, grass
3200 620	120 ⁰ 15 ⁰	0.65	dark-brown clay/humus with black and light-green rock fragments to 3 cm	as above
3200 640	144 ⁰ 15 ⁰	0.80	dark-brown clay	spruce trees, grass, running water
3200 660	138 ⁰ 15 ⁰	0.90	dark-brown clay with minor volcanic ash, black rock fragments to 1 mm	spruce trees, high bush, grass

APPENDIX 2: OVERBURDEN-DRILLING SAMPLE DESCRIPTIONS CONTINUED

Sample Coord. E N	Slope Azimuth Inclination	Depth m	Sample Description	Terrain
3200 680	152 ⁰ 15 ⁰	0.60	grey-green clay with many black and dark-green rock fragments to ½ cm	as above
3200 700	162 ⁰ 13 ⁰	0.80	grey-green clay with black and dark-green rock fragments to 1 cm	as above
3200 720	144 ⁰ 13 ⁰	0.60	dark-brown clay with black and dark-green rock fragments to 2 mm	spruce trees, high bush, grass
3200 740	150 ⁰ 17 ⁰	0.60	dark-brown clay mixed with volcanic ash, black rock fragments to 1½ cm	as above
3200 760	148 ⁰ 18 ⁰	0.70	grey-green clay with dark-green and black rock fragments to 2 cm	as above
3200 780	142 ⁰ 12 ⁰	0.95	grey-green to dark-brown clay with rust-brown inclusions, dark-green rock fragments to 1 mm	as above
3200 1120	87 ⁰ 14 ⁰	0.80	green-grey clay with medium-brown streaks, light-green rock fragments to ½ cm	low bush, grass, moss
3200 1140	88 ⁰ 16 ⁰	0.75	dark-brown humus with roots, light- to dark-green rock fragments to ½ cm	as above
3200 1160	84 ⁰ 13 ⁰	0.65	dark- to medium-brown clay/humus with light-brown streaks, light- to dark-green rock fragments to 2 mm	as above
3200 1180	85 ⁰ 15 ⁰	0.60	dark- to medium-brown clay/humus with rust-brown streaks, light-brown rock fragments to ½ cm	as above
3200 1200	82 ⁰ 14 ⁰	0.65	dark-brown clay/humus with dark-green rock fragments to ½ cm	as above
3200 1220	88 ⁰ 13 ⁰	0.60	dark-brown humus with roots and volcanic ash	low bush, grass, moss
3200 1240	90 ⁰ 13 ⁰	0.35	dark-brown clay/humus with black, dark-green, and light-green rock fragments to ½ cm	as above

APPENDIX 2: OVERBURDEN-DRILLING SAMPLE DESCRIPTIONS CONTINUED

Sample Coord. E N	Slope Azimuth Inclination	Depth m	Sample Description	Terrain
3200 1260	76 ⁰ 12 ⁰	0.40	dark-brown humus mixed with roots and volcanic ash	as above
3200 1280	68 ⁰ 15 ⁰	0.50	grey-green clay with medium-green rock fragments to ½ cm	as above
3200 1300	74 ⁰ 15 ⁰	0.50	grey-green clay with black rock fragments to ½ cm	as above
3200 1320	68 ⁰ 14 ⁰	0.20	dark-brown clay with dark-green rock fragments to 3/4 cm	as above
3200 1340	76 ⁰ 13 ⁰	0.55	dark-brown clay with light-brown areas, black rock fragments to ½ cm	as above
3200 1360	64 ⁰ 12 ⁰	0.50	dark-brown clay with dark-breen rock fragments to 2 cm	as above
3200 1380	62 ⁰ 15 ⁰	0.55	dark-brown clay/humus with roots, black rock fragments to ½ cm	as above
3200 1400	70 ⁰ 12 ⁰	0.60	dark-brown clay with roots	as above
3200 1420	66 ⁰ 15 ⁰	0.60	dark-brown clay with roots, black rock fragments to 3/4 cm	spruce trees, low bush, grass, moss
3200 1440	76 ⁰ 16 ⁰	0.40	dark-brown clay with roots, black rock fragments to ½ cm	as above
3200 1460	76 ⁰ 14 ⁰	0.50	dark-brown clay with medium-green and black rock fragments to ¼ cm	as above
3200 1480	76 ⁰ 13 ⁰	0.45	dark-rust-brown to green-grey clay with black rock fragments to 3/4 cm	as above
3200 1500	60 ⁰ 17 ⁰	0.50	grey-green clay with black rock fragments to 2 cm	as above

APPENDIX 2: OVERBURDEN-DRILLING SAMPLE DESCRIPTIONS CONTINUED

Sample Coord. E N	Slope Azimuth Inclination	Depth m	Sample Description	Terrain
3200 1520	75 ⁰ 18 ⁰	0.40	dark-brown clay with black and dark-green rock fragments to 2 cm	as above
3200 1540	68 ⁰ 14 ⁰	0.50	dark-brown clay with black rock fragments to ½ cm	spruce trees, low bush, grass, moss, running water
3400 760	86 ⁰ 28 ⁰	0.40	dark-brown clay with roots	high bush, grass, steep slope
3400 780	82 ⁰ 31 ⁰	0.55	dark-brown to grey-green clay with roots and minor volcanic ash	as above
3400 800	65 ⁰ 34 ⁰	0.65	dark-grey-green clay with medium-green rock fragments to 1 cm	tall spruce trees, grass, moss
3400 820	44 ⁰ 32 ⁰	1.00	dark-grey-green clay with roots, green and black rock fragments to 2 cm	as above
3400 840	106 ⁰ 26 ⁰	0.60	dark-brown clay with medium-green rock fragments to 2 cm	as above
3400 860	120 ⁰ 31 ⁰	0.65	grey-green clay with dark-green rock fragments to ½ cm	as above
3400 880	96 ⁰ 34 ⁰	1.00	dark-brown clay with medium-green areas, dark-green rock fragments to 1 cm	as above
3400 1120	96 ⁰ 22 ⁰	0.60	dark-brown clay with light-brown areas, dark-green rock fragments to 2 mm	spruce trees, grass, moss
3400 1140	104 ⁰ 17 ⁰	0.55	dark-brown clay with volcanic ash, brown rock fragments to 1 cm	spruce trees, high bush, grass, moss, running water
3400 1160	84 ⁰ 12 ⁰	0.50	grey-green clay with dark-green rock fragments to 2 cm	spruce trees, high bush, grass, moss

APPENDIX 2: OVERBURDEN-DRILLING SAMPLE DESCRIPTIONS CONTINUED

Sample Coord. E N	Slope Azimuth Inclination	Depth m	Sample Description	Terrain
3400 1180	82 ⁰ 16 ⁰	0.50	dark-brown clay with black rock fragments to 2 mm	as above
3400 1200	82 ⁰ 14 ⁰	0.55	grey-green clay with brown-green areas, dark-green rock fragments to 2 mm	as above
3400 1220	72 ⁰ 8 ⁰	0.45	dark-brown clay with black rock fragments to 2 mm	as above
3400 1240	70 ⁰ 6 ⁰	0.50	dark-brown to grey-green clay with dark-green rock fragments to ¼ cm	as above
3400 1260	44 ⁰ 9 ⁰	0.40	dark-brown humus mixed with volcanic ash	spruce trees, low bush, grass
3400 1280	40 ⁰ 9 ⁰	0.50	dark-brown clay/humus with roots	as above
3400 1300	40 ⁰ 10 ⁰	0.55	dark-brown clay/humus with roots	as above
3400 1320	62 ⁰ 10 ⁰	0.50	grey-green clay with dark-green and black rock fragments to 2 cm	as above
3400 1340	58 ⁰ 12 ⁰	0.50	grey-green clay with black rock fragments to 2 mm	as above
3400 1360	52 ⁰ 12 ⁰	0.45	grey-green clay with dark-green rock fragments to ½ cm	as above
3400 1380	56 ⁰ 16 ⁰	0.40	grey-green clay with black and dark-green rock fragments to ¾ cm	as above
3400 1400	70 ⁰ 18 ⁰	0.40	dark-brown to grey-green clay with black rock fragments to ¼ cm	as above
3600 720	168 ⁰ 24 ⁰	0.90	dark- to medium-brown clay/humus with rust-brown areas, black rock fragments to 2 mm	spruce trees, high bush, grass

APPENDIX 2: OVERBURDEN-DRILLING SAMPLE DESCRIPTIONS CONTINUED

Sample Coord. E N	Slope Azimuth Inclination	Depth m	Sample Description	Terrain
3600 740	154 ⁰ 28 ⁰	0.90	dark-brown clay with rust-brown areas, light-green rock fragments to 2 mm	as above
3600 760	160 ⁰ 28 ⁰	0.90	dark-brown to black clay with rust-brown areas, dark-green and dark-red-brown rock fragments to ½ cm	as above
3600 780	104 ⁰ 30 ⁰	0.85	dark-brown clay with rust-brown areas, light- to medium-green rock fragments to 2 cm	slumping is present in area, terrain as above
3600 800	96 ⁰ 15 ⁰	0.65	dark-brown clay with rust-brown areas, light-green and whitish rock fragments to 2 cm, not frozen	as previously noted
3600 820	64 ⁰ 27 ⁰	0.70	dark-brown clay with black and dark-green rock fragments to 2 mm, wood pieces present, not frozen	as previously noted
3600 840	114 ⁰ 30 ⁰	0.80	medium-grey-green to dark-brown clay, black and dark-green rock fragments to 2 cm, not frozen	as previously noted
3600 860	104 ⁰ 27 ⁰	0.75	medium-grey-green to dark-brown clay, black and dark-green rock fragments to 2 mm, not frozen	as previously noted
3600 880	104 ⁰ 32 ⁰	1.00	medium-grey-green clay with many black and dark-green rock fragments to 2mm, not frozen	as previously noted

APPENDIX 3: CERTIFICATES OF ANALYSIS FOR OVERBURDEN-DRILLING SAMPLES



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
 NORTH VANCOUVER, B.C.
 CANADA V7J 2C1
 TELEPHONE: 984-0221
 AREA CODE: 604
 TELEX: 04-352597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO: Halferdahl & Assoc. Ltd.
 Dept. 18
 10509 - 81st Ave.
 Edmonton, Alta. T6E 1X7

ATTN:

CERTIFICATE NO. 54988
 INVOICE NO. 37611
 RECEIVED July 27/80
 ANALYSED Aug. 8/80

SAMPLE NO. :	PPM Cu	PPM Pb	PPM Zn	PPM Ni	PPM As
2400E 600N	78	2	84	114	3
620	92	4	70	72	5
640	46	2	62	86	9
660	40	4	66	74	9
680	72	2	88	114	22
700	64	4	76	74	5
720	8	1	14	22	5
740	42	2	70	86	5
760	62	1	70	128	4
780	30	1	54	84	4
800	54	2	72	70	4
820	52	2	42	42	9
840	58	1	68	76	6
860	64	2	72	78	5
880	50	1	56	60	4
900	64	1	70	52	7
920	56	4	52	42	5
940	66	1	64	66	7
960	90	4	78	94	9
980	60	2	82	102	10
1000	42	1	60	64	6
1020	24	1	52	32	5
1040	70	2	82	68	9
1060	68	2	84	70	6
1080	64	1	72	275	7
2400E 1100N	52	1	72	128	9
3000E 460N	76	1	84	106	9
480	82	4	90	82	11
500	66	4	92	60	7
520	58	1	62	54	24
540	68	2	88	72	10
560	54	1	76	80	6
580	66	4	72	80	6
600	64	1	78	82	5
620	74	1	76	136	6
640	58	2	78	66	9
660	54	4	54	52	6
680	52	1	72	56	6
700	56	2	78	76	10
3000E 720N	58	1	80	78	9

Also on #69327.



MEMBER
 CANADIAN TESTING
 ASSOCIATION

CERTIFIED BY: *Harry Biddle*



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 55348
INVOICE NO. 37947
RECEIVED Aug. 6/80
ANALYSED Aug. 18/80

TO: Halferdahl & Assoc. Ltd.
Dept. 18
10509 - 81st Ave.
Edmonton, Alberta

ATTN:

SAMPLE NO. :	PPM Cu	PPM Pb	PPM Zn	PPM As	PPM Ni
2600E 600N	46	1	62	24	136
620	46	1	80	9	230
640	56	2	78	7	200
660	98	4	78	9	295
680	52	2	64	9	176
700	82	4	32	4	285
720	74	6	76	7	176
740	58	4	64	12	158
760	66	4	80	9	250
2600E 780N	64	4	72	7	375
2800E 500N	70	2	64	6	260
520	62	2	52	5	196
540	94	2	80	9	235
560	118	1	78	5	250
580	106	2	74	3	385
600	104	2	82	6	325
620	86	6	68	5	270
640	128	1	84	7	765
660	74	4	80	6	240
680	78	2	70	9	285
700	108	2	74	6	290
720	36	2	58	7	96
740	58	4	72	7	154
760	42	1	68	5	96
780	76	4	56	5	148
800	66	2	52	6	156
820	64	6	72	7	126
2800E 840N	74	4	72	9	118
3000E 450N	50	2	68	10	74
3000E 460N	58	2	80	11	96
480	46	1	72	9	84
500	54	2	86	7	98
520	66	2	80	17	104
540	74	1	86	11	108
560	68	2	54	6	114
580	52	1	74	10	94
600	68	1	76	6	118
620	64	1	74	11	104
640	46	2	70	7	76
3000E 660N	52	1	62	9	94



MEMBER
CANADIAN TESTING
ASSOCIATION

CERTIFIED BY: *Hart Bielle*



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO: Halferdahl & Assoc. Ltd.
Dept. 18
10509 - 81 st Ave.
Edmonton Alta.

ATTN: %6E 1X7

CERTIFICATE NO. 55349
INVOICE NO. 37947
RECEIVED Aug. 6/80
ANALYSED Aug. 18/80

SAMPLE NO. :	PPM Cu	PPM Pb	PPM Zn	PPM As	PPM Ni
3000E 680N	54	2	76	6	86
700	52	2	76	7	96
720	50	1	78	6	98
740	56	2	62	6	98
760	58	1	72	11	110
780	38	1	22	6	46
800	44	1	40	6	86
820	66	1	60	7	168
3000E 840N	68	1	50	5	200
3200E 300N	68	2	78	7	122
320	44	1	62	5	92
340	50	1	42	6	84
360	58	1	78	7	86
380	58	2	78	6	84
400	124	4	84	12	92
420	86	4	80	10	78
440	52	6	68	9	74
460	72	4	72	11	72
480	118	4	60	15	54
500	64	1	64	11	64
520	56	2	62	9	56
540	44	2	62	10	56
560	34	1	48	10	44
580	76	6	72	6	88
600	78	4	50	4	146
620	118	4	62	7	166
640	96	4	80	6	154
660	44	2	58	6	142
680	56	2	60	7	126
700	138	1	64	4	265
720	136	6	68	7	214
740	116	4	52	7	235
760	74	1	58	7	250
3200E 780N	78	2	66	12	186
3200E 1220N	22	4	38	4	76
1240	44	2	52	5	144
1260	42	2	52	7	62
1280	58	1	82	4	182
1300	32	2	68	6	140
3200E 1320N	40	1	74	9	154

Also on 69539



MEMBER
CANADIAN TESTING
ASSOCIATION

CERTIFIED BY:

Hart Biddle



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO: Halferdahl & Assoc. Ltd.
Dept. 18
10509 - 82st Ave.
EDMONTON, Alta.
ATTN: T6E 1X7

CERTIFICATE NO. 55350
INVOICE NO. 37947
RECEIVED Aug. 6/80
ANALYSED Aug. 18/80

SAMPLE NO. :	PPM Cu	PPM Pb	PPM Zn	PPM As	PPM Ni
3200E 1340N	36	2	72	12	136
1360	64	1	66	6	720
1380	66	1	64	15	154
1400	78	1	58	9	148
1420	54	1	64	16	132
1440	42	1	68	10	225
1460	50	1	52	5	184
1480	32	1	62	7	150
1500	56	1	60	6	225
1520	44	1	56	5	170
3200E 1540N	60	1	46	4	168
3400E 760N	94	1	54	8	124
780	74	1	62	9	136
800	46	4	66	7	72
820	88	1	44	6	54
840	156	1	56	10	176
860	355	1	56	9	475
3400E 880B	72	1	56	7	134
3400E 1120N	106	1	64	6	250
1140	36	1	66	6	96
1160	28	1	72	9	92
1180	68	1	58	6	114
1200	54	1	80	9	134
1220	42	1	32	4	70
1240	34	1	70	7	62
1260	32	1	62	10	64
1280	48	1	60	6	60
1300	46	1	56	15	90
1320	36	1	54	19	74
1340	32	1	66	10	86
1360	28	1	44	9	54
1380	58	1	68	19	325
3400E 1400N	36	1	80	10	106
3600E 720N	144	10	112	27	94
740	136	4	88	12	110
760	146	4	88	22	108
780	114	6	78	9	148
800	160	2	62	6	154
820	166	1	74	11	146
3600E 840N	184	2	86	15	146

Also on 69540



MEMBER
CANADIAN TESTING
ASSOCIATION

CERTIFIED BY: *Hart Biddle*



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 55351
INVOICE NO. 39747
RECEIVED Aug. 6/80
ANALYSED Aug. 18/80

TO: Halferdahl & Assoc. Ltd.
Dept. 18
10509 - 81st Ave.
Edmonton, Alta.
ATTN:

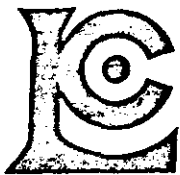
SAMPLE NO. :	PPM Cu	PPM Pb	PPM Zn	PPM As	PPM Ni
3600E 860N	345	6	72	9	156
3600E 880N	260	2	62	6	190

Also on 69541



MEMBER
CANADIAN TESTING
ASSOCIATION

CERTIFIED BY: *Hart Bielle*



CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 984-0221
AREA CODE: 604
TELEX: 04-352597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. 55584

TO: Halferdahl & Assoc. Ltd.,
Dept. 18
10509 - 81st Ave.,
Edmonton, Alta.

INVOICE NO. 38143

ATTN: T6E 1X7

RECEIVED August 15, 1980

ANALYSED August 25, 1980

SAMPLE NO. :	PPM Cu	PPM Pb	PPM Zn	PPM As	PPM Ni
20-1680 *	44	8	96	11	38
1720	50	6	110	12	34
1760	50	4	108	15	32
1800	44	4	84	9	30
1840	74	2	76	7	36
1880	32	2	70	5	28
1920	36	4	106	7	30
1960	46	2	64	4	28
2000	44	2	62	4	56
2040	22	6	80	14	32
2080	40	10	98	15	34
2120	44	8	80	11	34
20-2160	42	14	86	11	36
3200 E 1120 N	92	6	134	12	78
1140	68	2	88	5	70
1160	54	2	94	5	82
1180	52	4	76	7	54
3200 E 1200 N	64	4	88	5	70

* Samples prefixed 20 are not part of this report.

Also on #69742 for Combo Au - NAA



MEMBER
CANADIAN TESTING
ASSOCIATION

CERTIFIED BY: *Hart Biddle*

4004 WESBROOK MALL
UNIVERSITY OF B.C. CAMPUS
VANCOUVER B.C. V6T 2A3
TELEPHONE (604) 224-2388

CERTIFICATE OF ANALYSIS

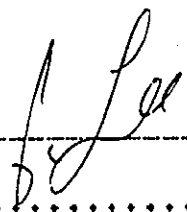
CERTIFICATE # A8002009

CLIENT : HALFERDAHL & ASSOCIATES

1415
SAMPLES RECEIVED : 25-AUG-80
ANALYSIS COMPLETED : 27-AUG-80
NUMBER OF SAMPLES : 40
CLIENT P.O. NUMBER : 69327
INVOICE NO. : 38355

ATTN. :

SAMPLE ID	AU PPB
2400E-600N	N.S.S.
2400E-620N	4.
2400E-640N	4.
2400E-660N	< 1.
2400E-680N	4.
2400E-700N	6.
2400E-720N	< 1.
2400E-740N	3.
2400E-760N	3.
2400E-780N	3.
2400E-800N	85.
2400E-820N	3.
2400E-840N	< 1.
2400E-860N	3.
2400E-880N	2.
2400E-900N	2.
2400E-920N	3.
2400E-940N	3.
2400E-960N	20.
2400E-980N	4.
2400E-1000N	2.
2400E-1020N	12.
2400E-1040N	3.
2400E-1060N	2.
2400E-1080N	1.
2400E-1100N	5.
3000E-460N	2.
3000E-480N	3.
3000E-500N	3.
3000E-520N	5.
3000E-540N	3.
3000E-560N	3.
3000E-580N	5.
3000E-600N	6.
3000E-620N	10.
3000E-640N	6.
3000E-660N	N.S.S.
3000E-680N	3.
3000E-700N	4.
3000E-720N	2.



CERTIFIED BY

4004 WESBROOK HALL
UNIVERSITY OF B.C. CAMPUS
VANCOUVER B.C. V6T 2A3
TELEPHONE (604) 224-2388

CERTIFICATE OF ANALYSIS

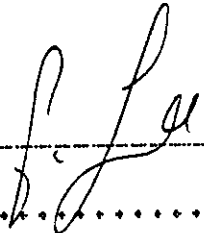
CERTIFICATE # A8002010

CLIENT : HALFERDAHL & ASSOCIATES

1415
SAMPLES RECEIVED : 25-AUG-80
ANALYSIS COMPLETED : 27-AUG-80
NUMBER OF SAMPLES : 7
CLIENT P.O. NUMBER : 69328
INVOICE NO. : 38355

ATTN. :

SAMPLE ID	AU PFB
3000E-740N	2.
3000E-760N	3.
3000E-780N	4.
3000E-800N	3.
3000E-820N	5.
3000E-830N	N.S.S.
3000E-840N	4.

CERTIFIED BY 

4004 WESBROOK HALL
 UNIVERSITY OF B.C. CAMPUS
 VANCOUVER B.C. V6T 2A3
 TELEPHONE (604) 224-2388

CERTIFICATE OF ANALYSIS

CERTIFICATE # A8002002

CLIENT : HALFERDAHL & ASSOCIATES

SAMPLES RECEIVED : 25-AUG-80
 ANALYSIS COMPLETED : 27-AUG-80
 NUMBER OF SAMPLES : 40
 CLIENT P.O. NUMBER : 69538
 INVOICE NO. : 38360

ATTN. :

SAMPLE ID	AU PPB
2600E-600N	3.
2600E-620N	1.
2600E-640N	6.
2600E-660N	11.
2600E-680N	3.
2600E-700N	5.
2600E-720N	4.
2600E-740N	5.
2600E-760N	4.
2600E-780N	4.
2800E-500N	6.
2800E-520N	< 1.
2800E-540N	6.
2800E-560N	8.
2800E-580N	5.
2800E-600N	6.
2800E-620N	3.
2800E-640N	3.
2800E-660N	4.
2800E-680N	4.
2800E-700N	8.
2800E-720N	5.
2800E-740N	3.
2800E-760N	5.
2800E-780N	3.
2800E-800N	4.
2800E-820N	8.
2800E-840N	4.
3000E-450N	7.
3000E-460N	3.
3000E-480N	4.
3000E-500N	5.
3000E-520N	3.
3000E-540N	9.
3000E-560N	3.
3000E-580N	4.
3000E-600N	3.
3000E-620N	4.
3000E-640N	9.
3000E-660N	3.

CERTIFIED BY *Hart Biddle*

4004 WEBBROOK MALL
UNIVERSITY OF B.C. CAMPUS
VANCOUVER B.C. V6T 2A3
TELEPHONE (604) 224-2388

CERTIFICATE OF ANALYSIS

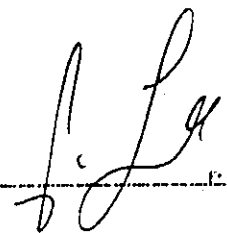
CERTIFICATE # A8002003

CLIENT : HALFERDAHL & ASSOCIATES

1415
SAMPLES RECEIVED : 25-AUG-80
ANALYSIS COMPLETED : 27-AUG-80
NUMBER OF SAMPLES : 40
CLIENT P.O. NUMBER : 69539
INVOICE NO. : 38360

ATTN. :

SAMPLE ID	AU PFB
3000E-680N	4.
3000E-700N	4.
3000E-720N	3.
3000E-740N	3.
3000E-760N	4.
3000E-780N	1.
3000E-800N	4.
3000E-820N	6.
3000E-840N	15.
3200E-300N	3.
3200E-320N	4.
3200E-340N	4.
3200E-360N	7.
3200E-380N	21.
3200E-400N	6.
3200E-420N	6.
3200E-440N	3.
3200E-460N	4.
3200E-480N	7.
3200E-500N	3.
3200E-520N	4.
3200E-540N	2.
3200E-560N	2.
3200E-580N	6.
3200E-600N	4.
3200E-620N	8.
3200E-640N	6.
3200E-660N	6.
3200E-680N	4.
3200E-700N	8.
3200E-720N	8.
3200E-740N	7.
3200E-760N	6.
3200E-780N	5.
3200E-1220N	2.
3200E-1240N	1.
3200E-1260N	5.
3200E-1280N	7.
3200E-1300N	3.
3200E-1320N	4.



CERTIFIED BY

4004 WESBROOK HALL
 UNIVERSITY OF B.C. CAMPUS
 VANCOUVER B.C. V6T 2A3
 TELEPHONE (604) 224-2388

CERTIFICATE OF ANALYSIS

CERTIFICATE # A8002004

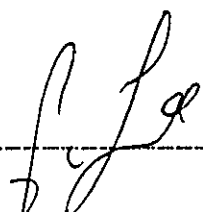
CLIENT : HALFERDAHL & ASSOCIATES

1415
 SAMPLES RECEIVED : 25-AUG-80
 ANALYSIS COMPLETED : 27-AUG-80
 NUMBER OF SAMPLES : 40
 CLIENT P.O. NUMBER : 69540
 INVOICE NO. : 38360

ATTN. :

SAMPLE ID	AU PFB
3200E-1340N	3.
3200E-1360N	4.
3200E-1380N	3.
3200E-1400N	3.
3200E-1420N	3.
3200E-1440N	10.
3200E-1460N	3.
3200E-1480N	1.
3200E-1500N	4.
3200E-1520N	2.
3200E-1540N	8.
3400E-760N	4.
3400E-780N	7.
3400E-800N	7.
3400E-820N	2.
3400E-840N	6.
3400E-860N	6.
3400E-880N	3.
3400E-1120N	54.
3400E-1140N	2.
3400E-1160N	2.
3400E-1180N	3.
3400E-1200N	7.
3400E-1220N	71.
3400E-1240N	2.
3400E-1260N	3.
3400E-1280N	5.
3400E-1300N	29.
3400E-1320N	4.
3400E-1340N	7.
3400E-1360N	1.
3400E-1380N	37.
3400E-1400N	12.
3600E-720N	15.
3600E-740N	5.
3600E-760N	6.
3600E-780N	7.
3600E-800N	10.
3600E-820N	8.
3600E-840N	3.

CERTIFIED BY



4004 WESBROOK MALL
UNIVERSITY OF B.C. CAMPUS
VANCOUVER B.C. V6T 2A3
TELEPHONE (604) 224-2388

CERTIFICATE OF ANALYSIS

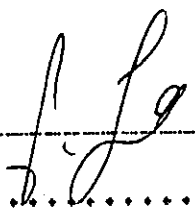
CERTIFICATE #: A8002005

CLIENT : HALFERDAHL & ASSOCIATES

1415
SAMPLES RECEIVED : 25-AUG-80
ANALYSIS COMPLETED : 27-AUG-80
NUMBER OF SAMPLES : 2
CLIENT P.O. NUMBER : 69541
INVOICE NO. : 38360

ATTN. :

SAMPLE ID	AU PPB
3600E-860N	6.
3600E-980N	12.

CERTIFIED BY 

APPENDIX 4: FIELD AND OFFICE PERSONNAL

Field

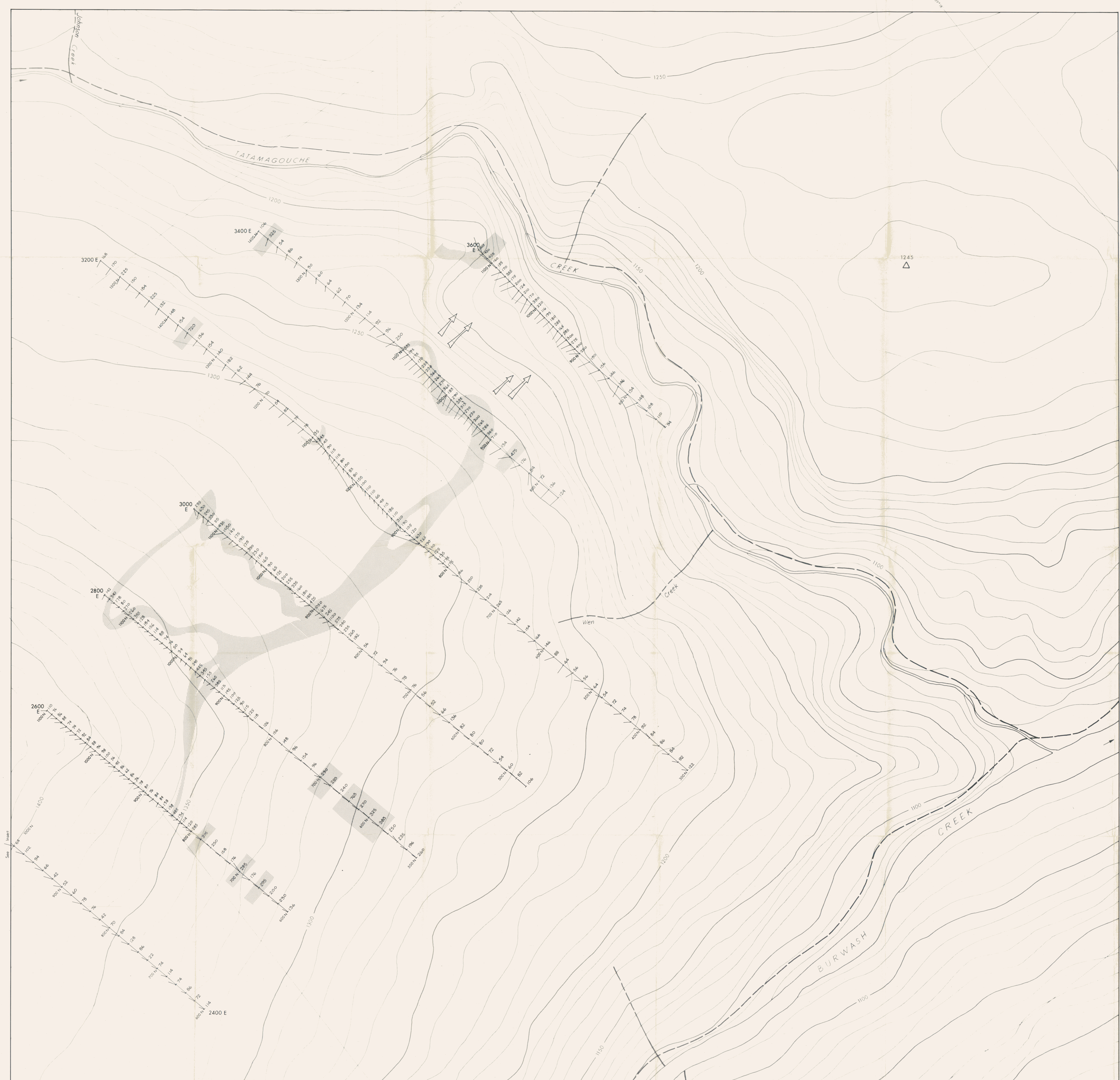
L. B. Halferdahl - Engineer 11539 - 73 Avenue Edmonton, Alberta T6G 0E2	8 days in July and August 1980
B. Hogue - Geological Assistant 11042 - 155 Street Edmonton, Alberta T2P 2N3	13½ days in July and August 1980
S. J. Malone - Assistant and Driller Apt. 110, 10735 - 105 Street Edmonton, Alberta T5H 2X3	13½ days in July and August 1980

Office

L. B. Halferdahl - Engineer address above	7½ days in August 1980
B. Hogue - Geological Assistant address above	12 days in August 1980
W. D. K. McGuire - Draftsman 11314 - 69 Street Edmonton, Alberta T5B 1R7	52 hours in August 1980

APPENDIX 5: QUALIFICATIONS

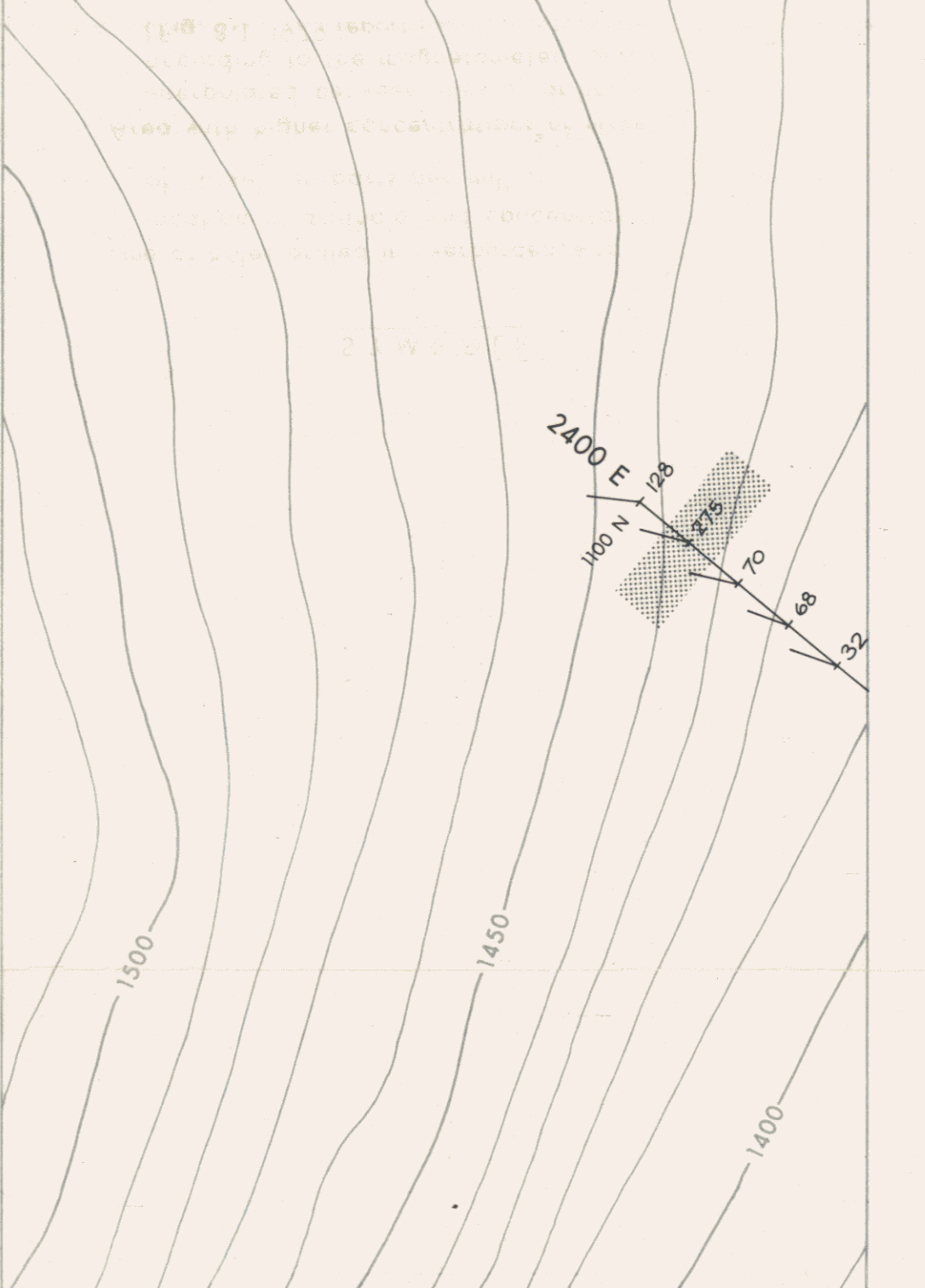
L. B. Halferdahl obtained degrees in geological engineering and geology from Queen's University and The Johns Hopkins University. He has had more than 25 years' experience as a practising engineer and geologist in research and mining exploration, including consulting since 1969. He is a member of the Canadian Institute of Mining and Metallurgy, and is registered as P. Eng. and P. Geol. in the Association of Professional Engineers, Geologists, and Geophysicists of Alberta, and licensed as P. Eng. in the Association of Professional Engineers of British Columbia.



SYMBOLS

- Line of holes drilled in overburden, with location of drillhole and concentration of Nickel in parts per million
- Area with higher concentrations of nickel interpolated between lines of drillholes according to the magnetometer survey (Fig. 8.1, 1979 report)
- Direction of downslope creep of higher concentrations of Nickel
- Contour line with elevation in metres above sea level (interval 10 metres)
- Direction and amount of surface slope with length of arrow proportional to slope: 40°, 20°, 0°

* Higher concentrations have been chosen arbitrarily as the spacing of the lines of drillholes and the erratic nature of the sampling method do not readily permit contouring of concentrations.



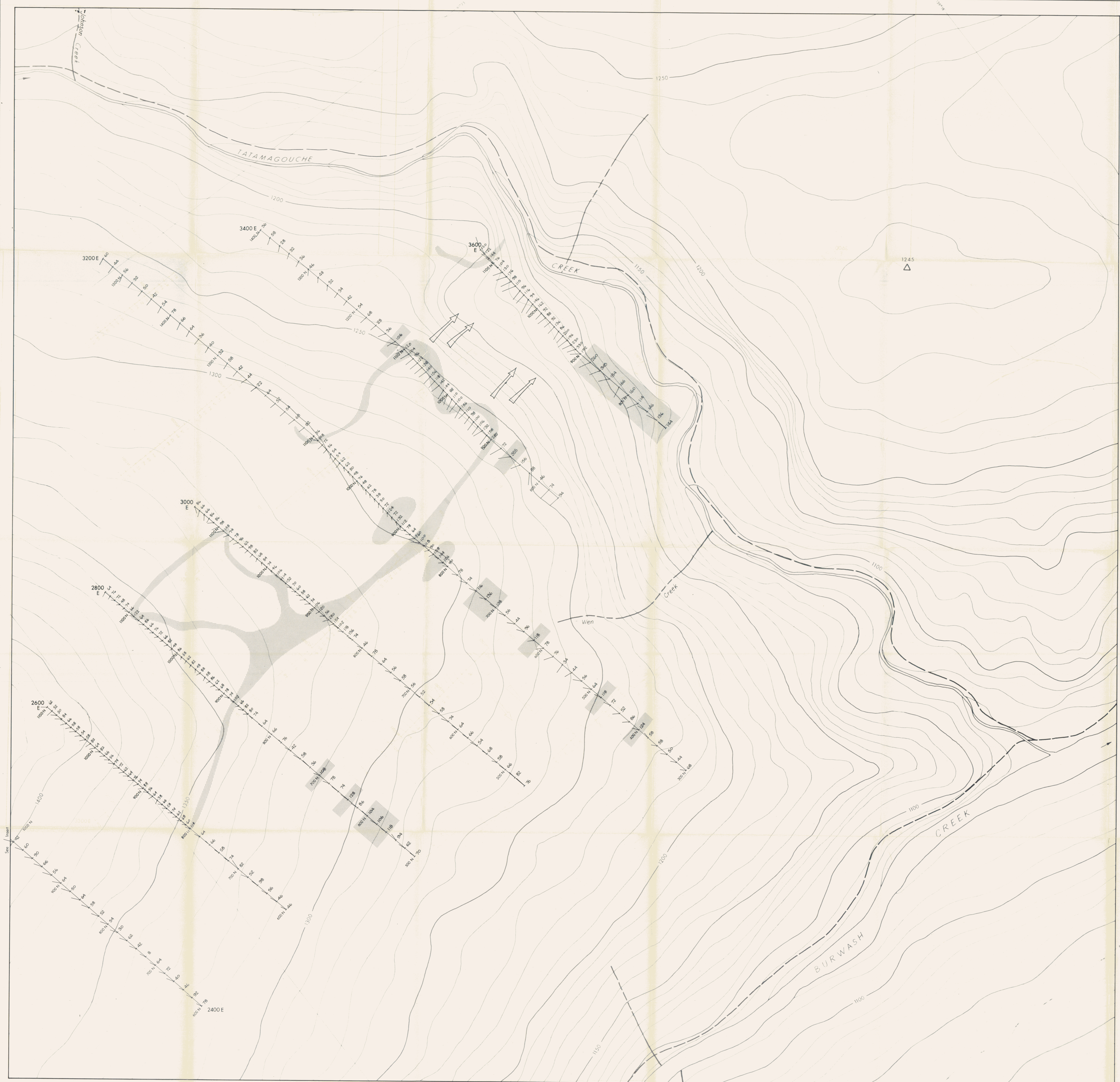
INSERT MAP

REVISIONS					
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
BH	1980-08				

BUR PROPERTY
HALFERDAHL & ASSOCIATES LTD.
EDMONTON, ALBERTA

Fig. 6.12 Nickel in Overburden-Drilling
Samples on Claims Jo 1 - Jo 8,
and Wen 3, Wen 5, and Wen 7.

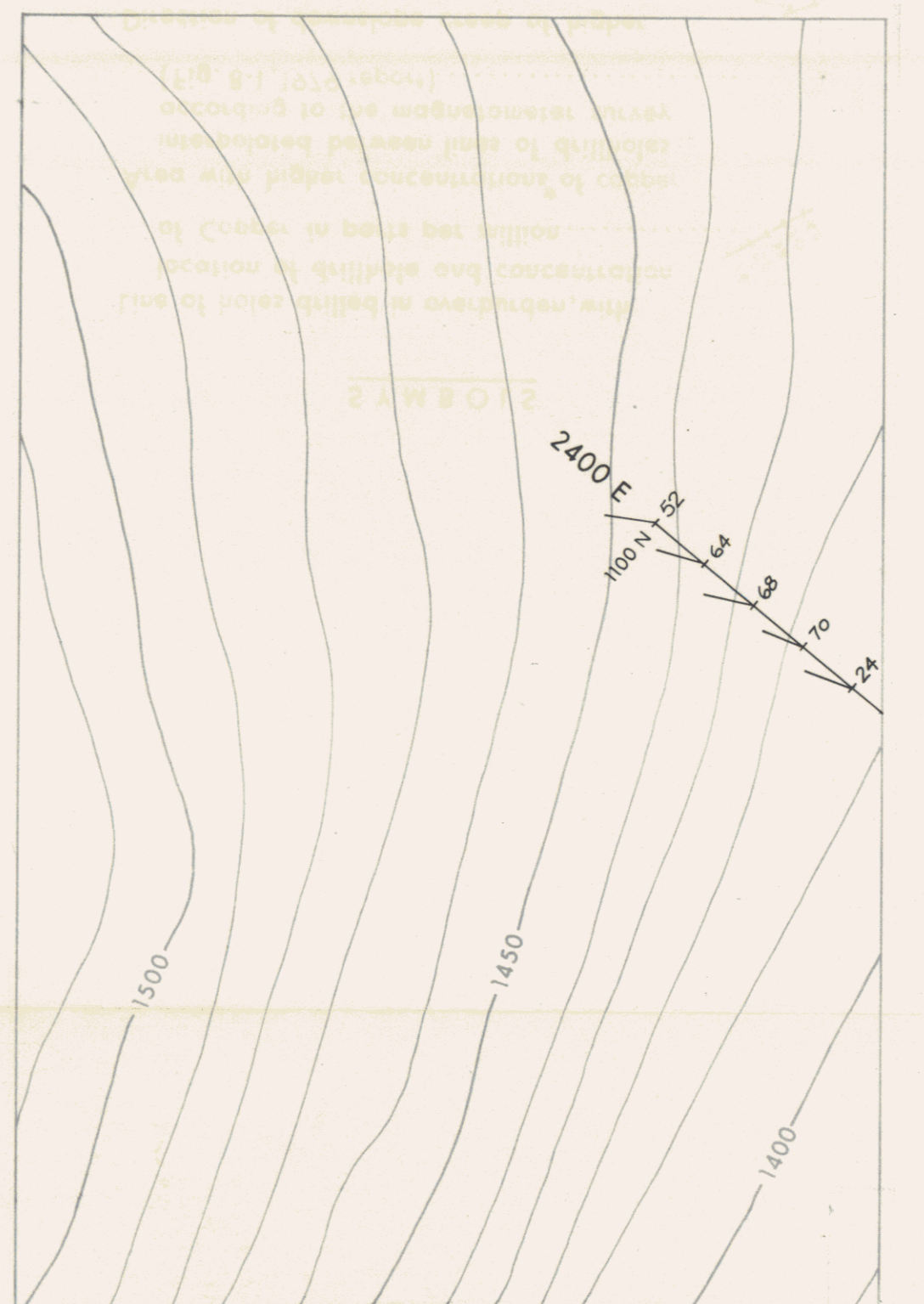
BURWASH AND TATAMAGOUCHE CREEKS, Y.T.



SYMBOLS

- Line of holes drilled in overburden, with location of drillhole and concentration of Copper in parts per million
- Area with higher concentrations of copper interpolated between lines of drillholes according to the magnetometer survey (Fig. 6-1, 1979 report)
- Direction of downslope creep of higher concentrations of Copper
- Contour line with elevation in metres above sea level (interval 10 metres)
- Direction and amount of surface slope with length of arrow proportional to slope: 40°, 20°, 0°

* Higher concentrations have been chosen arbitrarily as the spacing of the lines of drillholes and the erratic nature of the sampling method do not readily permit contouring of concentrations.



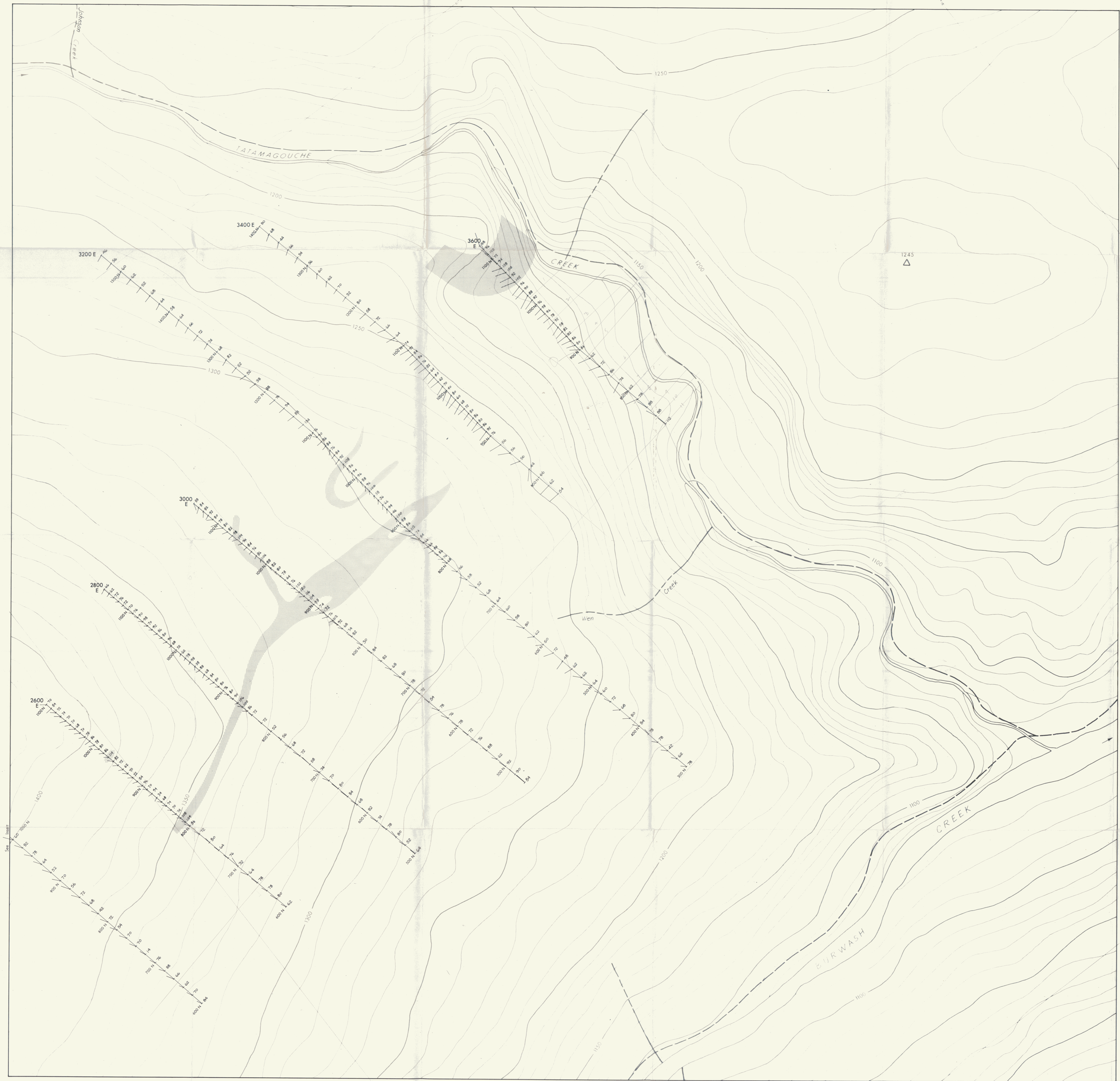
INSERT MAP

REVISIONS					
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
BH	1980.08				

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HALFERDAHL & ASSOCIATES LTD.
EDMONTON, ALBERTA

Fig. 6.13 Copper in Overburden-Drilling Samples on Claims Jo 1 - Jo 8, and Wen 3, Wen 5, and Wen 7.

BURWASH AND TATAMAGOUCHE CREEKS, Y.T.
SCALE: 1:2000
1979.08



SYMBOLS

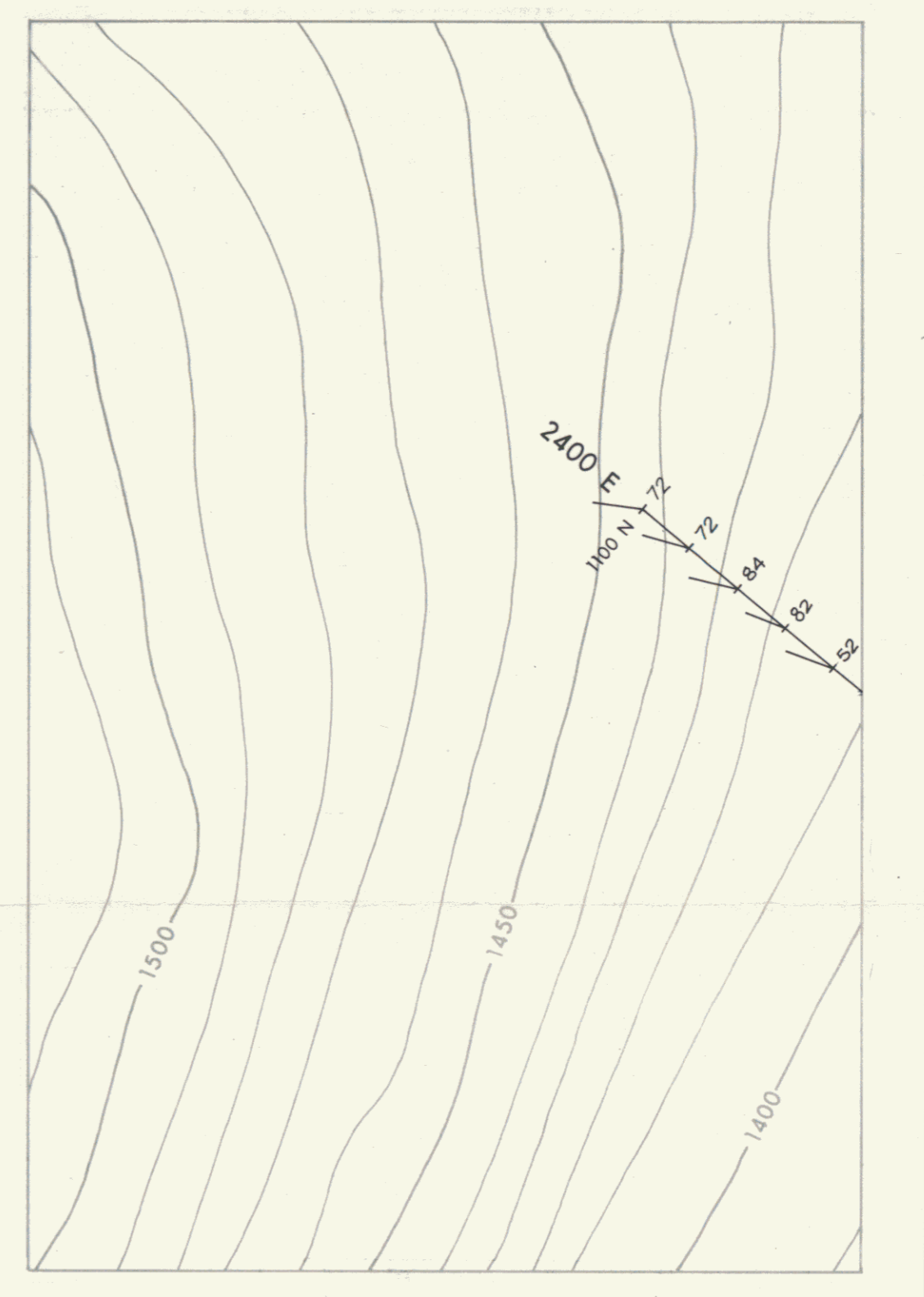
Line of holes drilled in overburden, with location of drillhole and concentration of Zinc in parts per million

Area with higher concentrations of zinc interpolated between lines of drillholes according to the magnetometer survey (Fig. 8-1, 1979 report)

Contour line with elevation in metres above sea level (interval 10 metres)

Direction and amount of surface slope with length of arrow proportional to slope: 40°, 20°, 0°

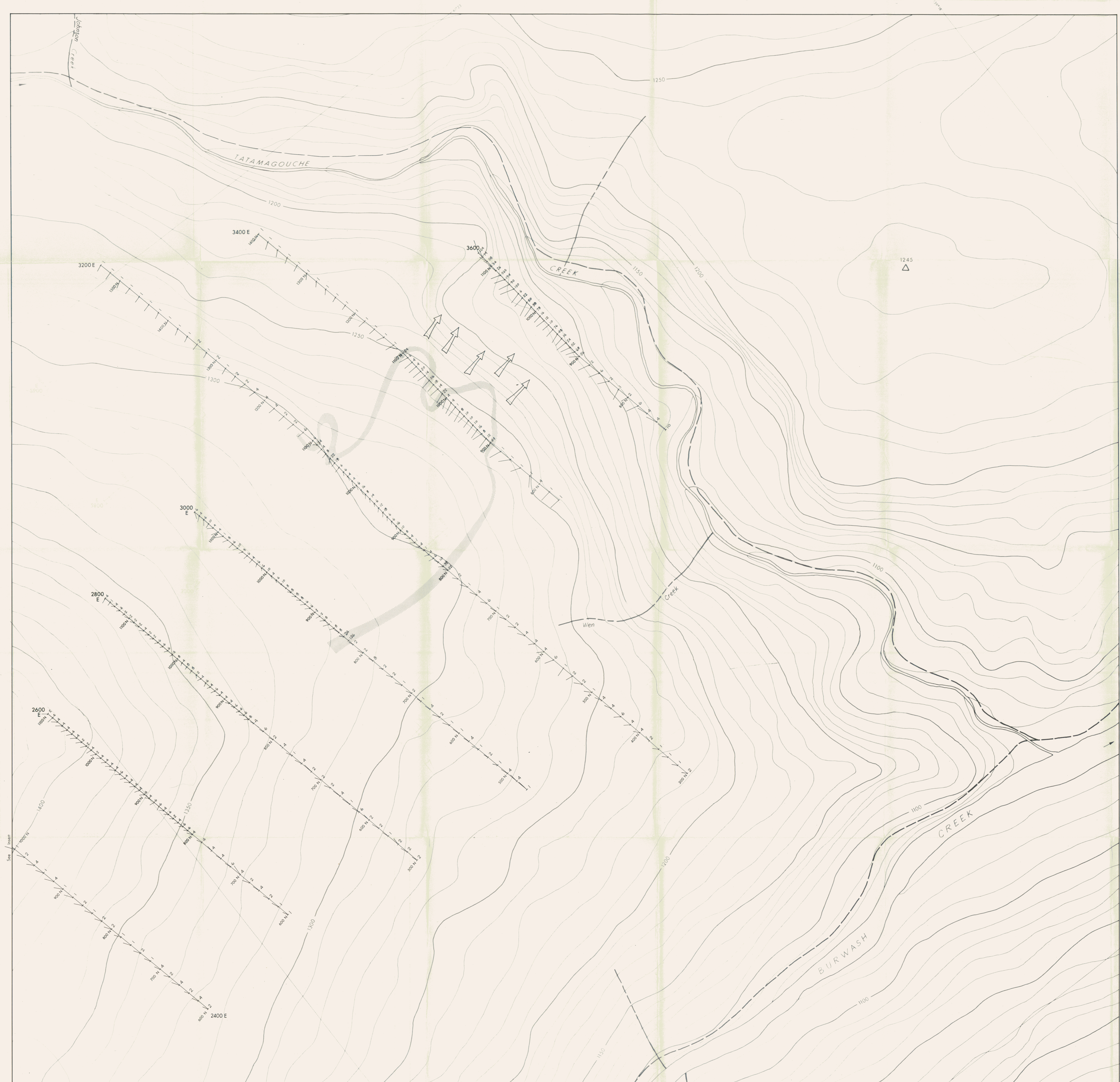
* Higher concentrations have been chosen arbitrarily as the spacing of the lines of drillholes and the erratic nature of the sampling method do not readily permit contouring of concentrations.



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BH	1980.08				

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EDMONTON, ALBERTA

Fig. 6.14 Zinc in Overburden-Drilling Samples on Claims Jo 1 - Jo 8, and Wen 3, Wen 5, and Wen 7.



SYMBOLS

- Line of holes drilled in overburden, with location of drillhole and concentration of Lead in parts per million
- Area with higher concentrations of lead interpolated between lines of drillholes according to the magnetometer survey (Fig. 6-1, 1979 report)
- Direction of downslope creep of higher concentrations of Lead
- Contour line with elevation in metres above sea level (interval 10 metres)
- Direction and amount of surface slope with length of arrow proportional to slope: 40°, 20°, 0°

* Higher concentrations have been chosen arbitrarily as the spacing of the lines of drillholes and the erratic nature of the sampling method do not readily permit contouring of concentrations.

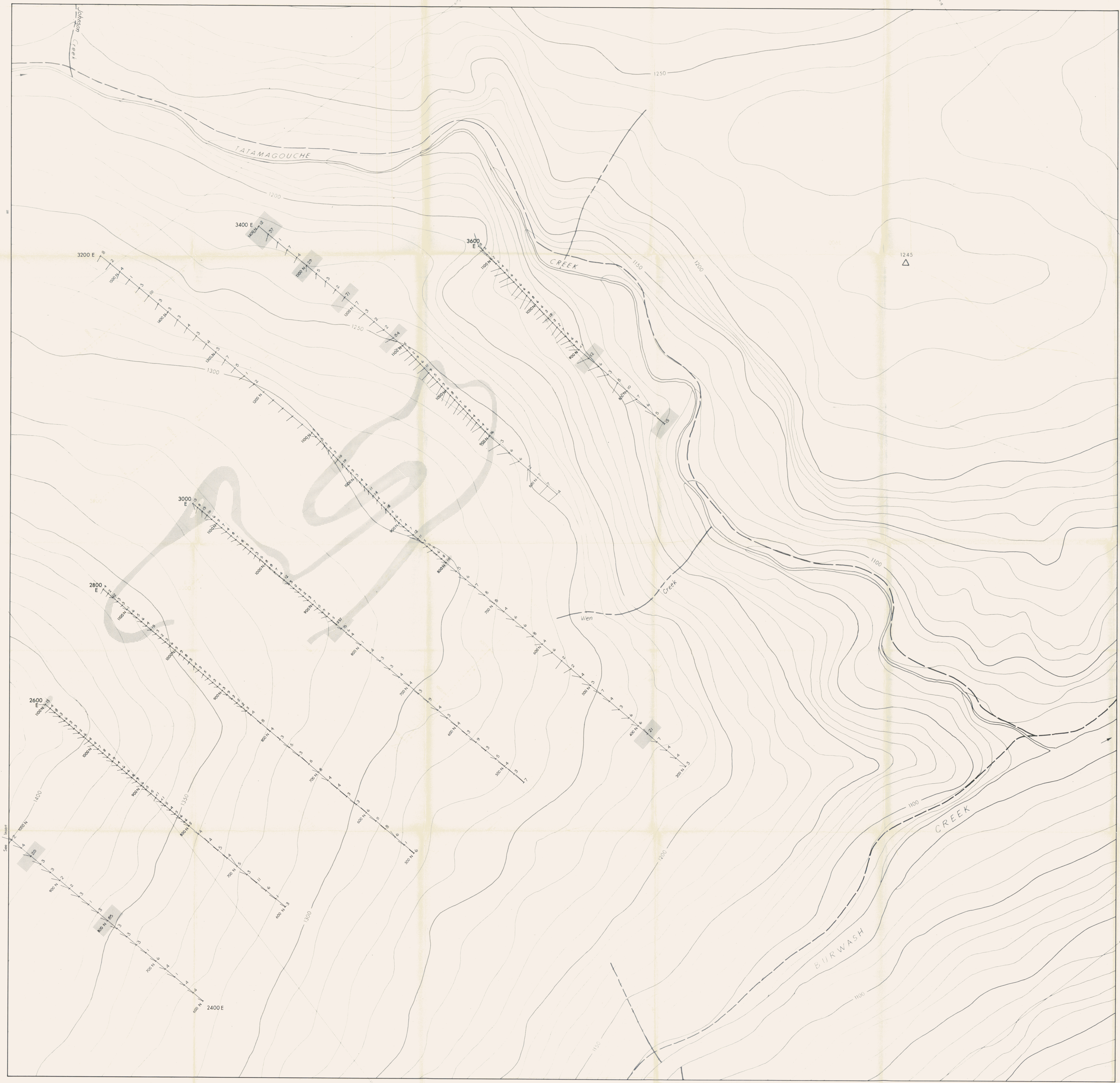


REVISIONS					
INTLS.	DATE	INTLS.	DATE	INTLS.	DATE
BH	1980-08				

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HALFERDAHL & ASSOCIATES LTD.
EDMONTON, ALBERTA

Fig. 6.15 Lead in Overburden-Drilling Samples on Claims Jo 1 - Jo 8, and Wen 3, Wen 5, and Wen 7.

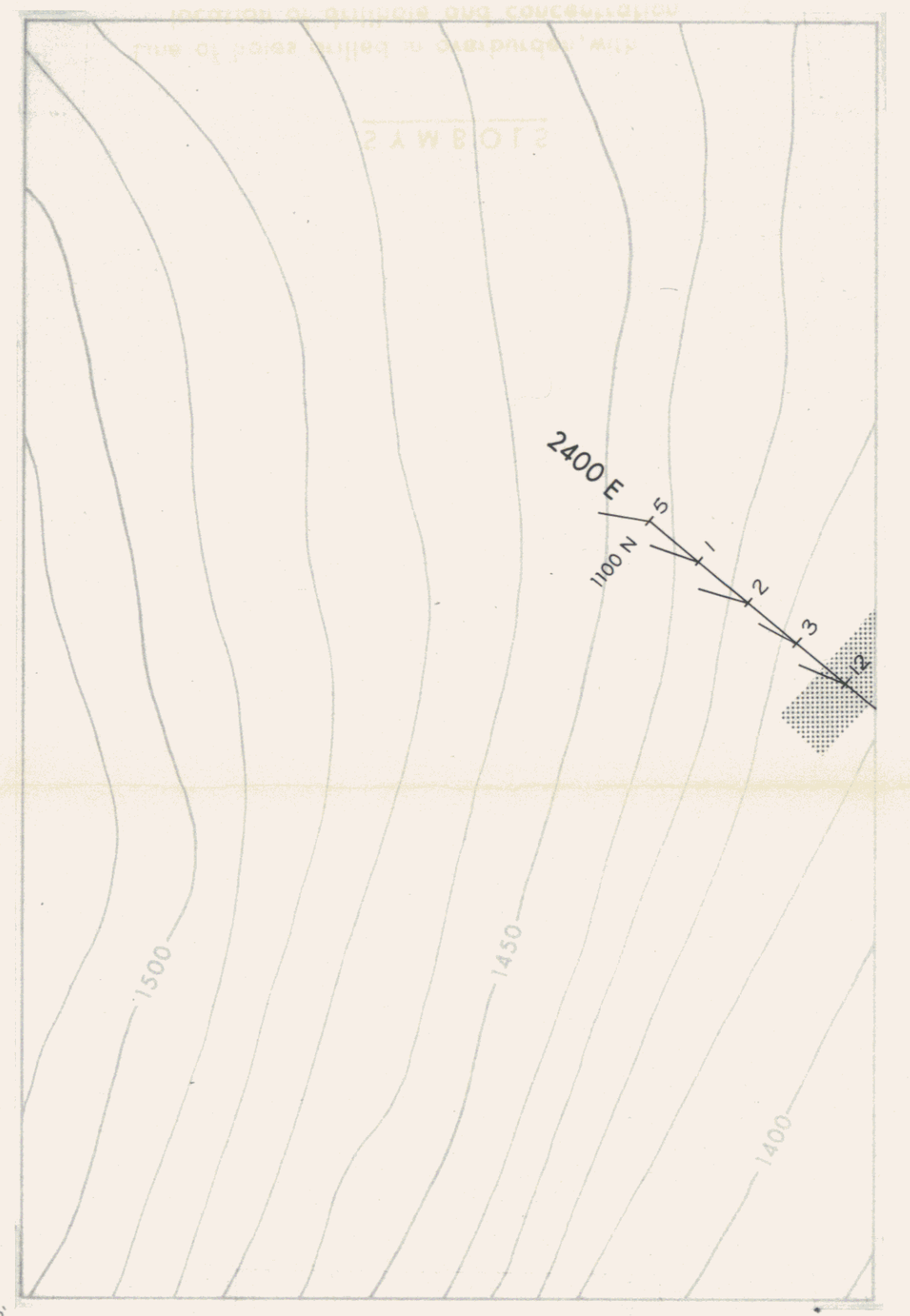
BURWASH AND TATAMAGOUCHE CREEKS, Y.T.



SYMBOLS

- Line of holes drilled in overburden, with location of drillhole and concentration of Gold in parts per billion
- Area with higher concentration of gold interpolated between lines of drillholes according to the magnetometer survey (Fig. 8-1, 1979 report)
- Contour line with elevation in metres above sea level (interval 10 metres)
- Direction and amount of surface slope with length of arrow proportional to slope: 40°, 20°, 0°

* Higher concentrations have been chosen arbitrarily as the spacing of the lines of drillholes and the erratic nature of the sampling method do not readily permit contouring of concentrations.



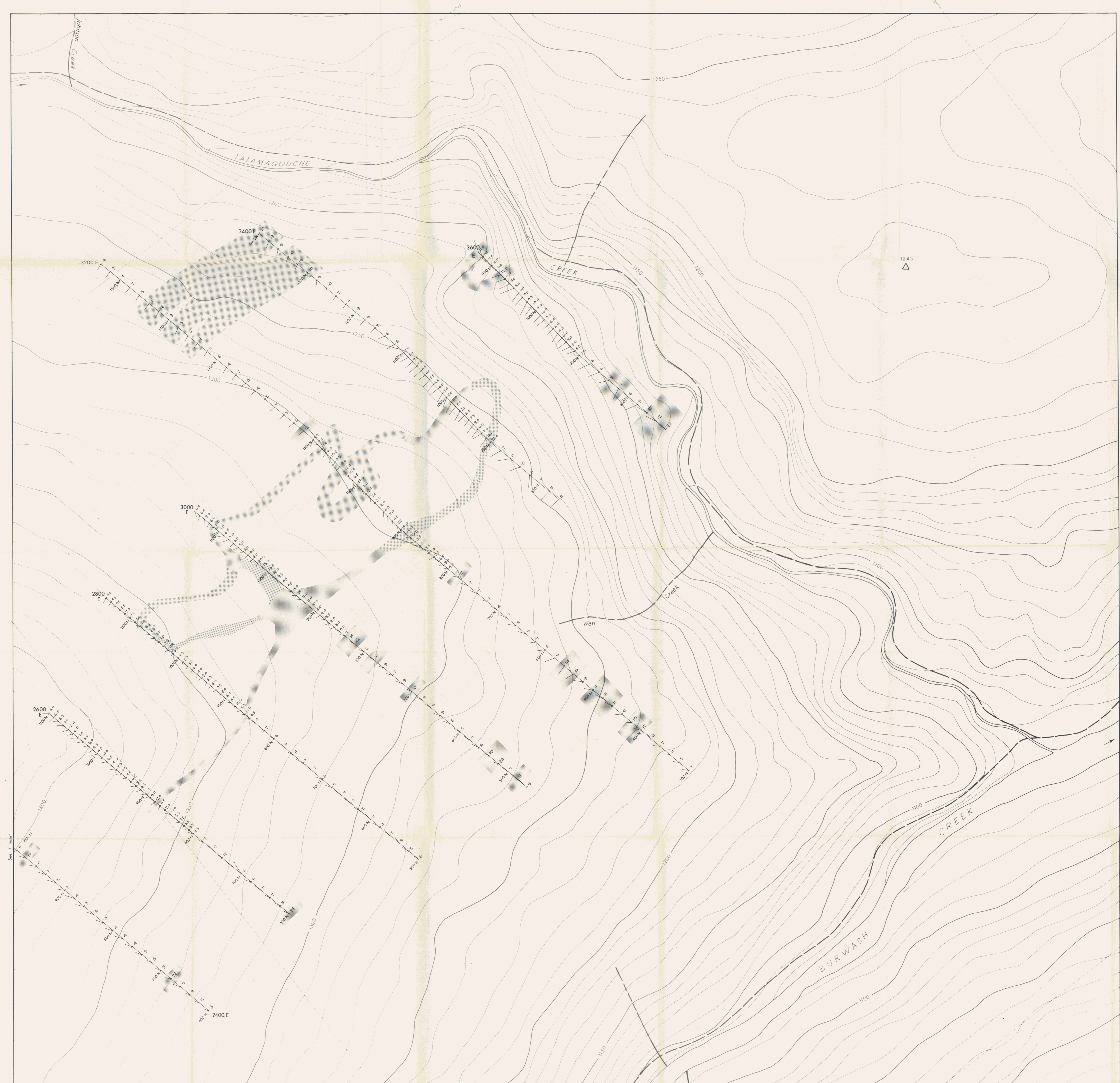
REVISIONS					
INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
BH	1980.08				

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Fig. 6.16 Gold in Overburden-Drilling
Samples on Claims Jo 1 - Jo 8,
and Wen 3, Wen 5, and Wen 7.

BURWASH AND TATAMAGOUCHE CREEKS, Y.T.

0 50 100 150 200
 Metres
 SCALE: 1:2000



SYMBOLS

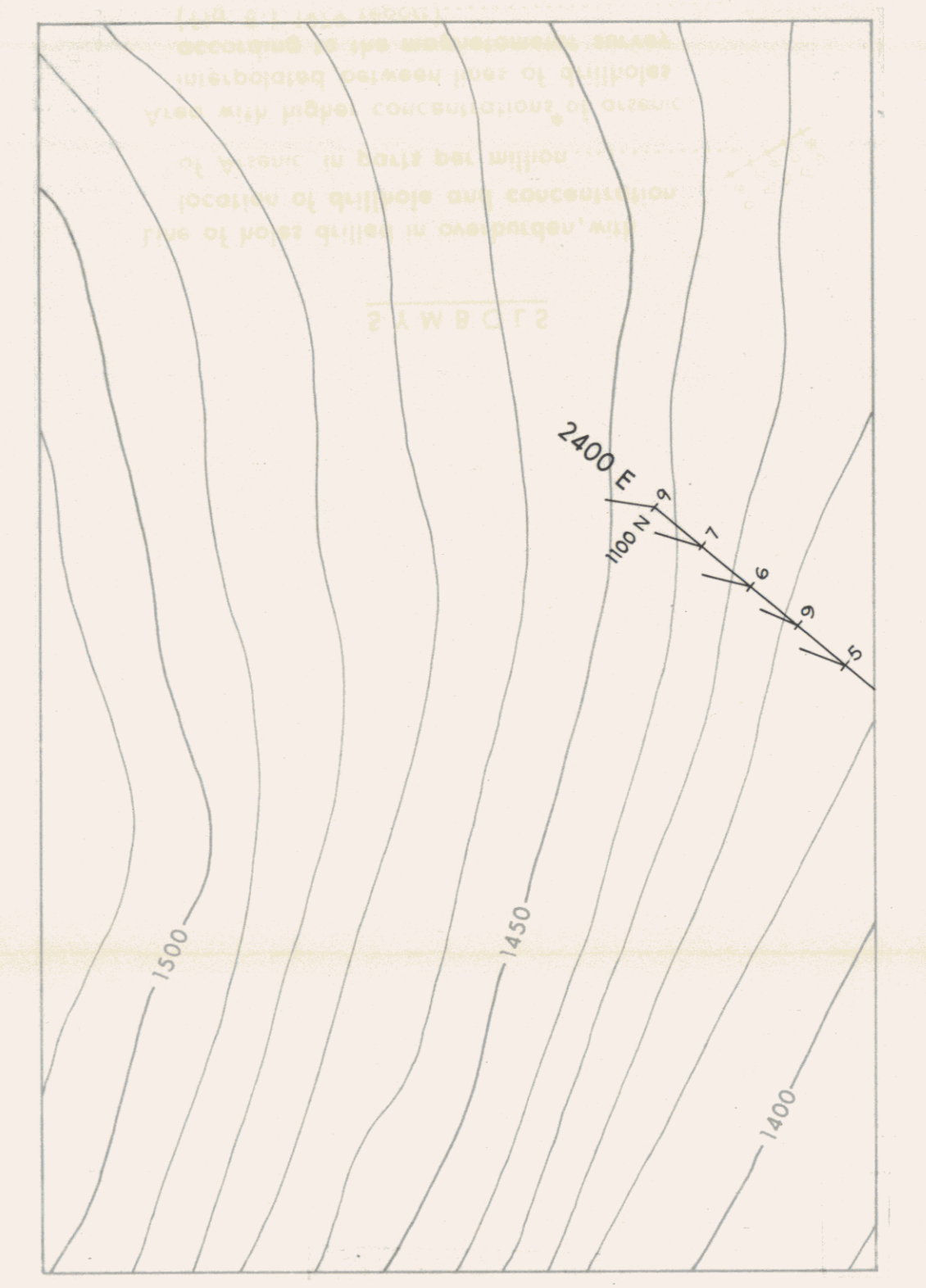
Line of holes drilled in overburden, with location of drillhole and concentration of Arsenic in parts per million.....

Area with higher concentrations of arsenic interpolated between lines of drillholes according to the magnetometer survey (Fig. 8-1, 1979 report).....

Contour line with elevation in metres above sea level (interval 10 metres).....

Direction and amount of surface slope with length of arrow proportional to slope: 40°..... 20°..... 0°.....

* Higher concentrations have been chosen arbitrarily as the spacing of the lines of drillholes and the erratic nature of the sampling method do not readily permit contouring of concentrations.



REVISIONS					
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BH	1980-08				

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HALFERDAHL & ASSOCIATES LTD.
EDMONTON, ALBERTA

Fig. 6.17 Arsenic in Overburden-Drilling
Samples on Claims Jo 1 - Jo 8,
and Wen 3, Wen 5, and Wen 7.

BURWASH AND TATAMAGOUCHE CREEKS, Y.T.

0 50 100 150 200
 Metres
 SCALE: 1:2000