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COMINCO LTD. Owner/Operator WESTERN CANADA EXPLORATION NTS: 103P/14W,103P/13E,103P/11W

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#### ASSESSMENT REPORT

## GEOLOGY, GEOCHEMISTRY & GEOPHYSICS

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SAULT 1, 3,4 and 5 MINERAL CLAIMS

SKEENA M.D.

FILMED

LATITUDE: 55°**66°74,** LONGITUDE: 129°**294** 45.5' 27.5'

WORK PERFORMED:

AUGUST 1 to 25, 1985; SEPTEMBER 4 to 23, 1985

JULY 1986

GEOLOGICAL BRANCH ASSESSMENT REPORTACKWELL

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COMINCO LTD.

WESTERN CANADA

#### ASSESSMENT REPORT

#### GEOLOGY, GEOCHEMISTRY & GEOPHYSICS OF

#### SAULT 1, 3,4 and 5 MINERAL CLAIMS

#### SUMMARY

The property lies along the northern flexure of a north plunging antiform encompassing a homoclinal sequence of pre-Middle Jurassic age rocks dipping northerly at 15 to 20°. From south to north (and oldest to youngest), these rocks include: (1) wacke, siltstone and conglomerate, (2) maroon and green andesite breccias, (3) calcareous dacite lapilli, limestone, barite and sulphide rock, (4) green andesite breccia and flows and (5) dacite tuff. The pre-Middle Jurassic sequence is overlain unconformably by fossiliferous mid-Jurasic epiclastic breccias, greywacke and mudstone correlated to the Bowser Group. All units are sub-greenschist metamorphic rank and cut by numerous north-west and east trending faults.

A sulphate horizon has been located at four points along a 6.5 km trend corresponding to a epiclastic interval between thick andesite breccia units. Little is known about detailed mineralized stratigraphy or continuity between showings. At one exposure, a sequence comprising over 4 m of pyritic dacite lapilli tuff, 2.5 m of massive laminar pyrite-sphalerite-galena, 2.0 m of sphalerite and pyrite-bearing limestone and 8 m of laminar sphalerite-bearing barite and celestite was noted. Best assays, obtained from 1985 sampling, are 8.5% Zn + Pb over 2.0 m and 12.0% Zn over 0.20 m. Four test lines of horizontal loop Max-Min EM over known mineralized areas failed to detect conductors. Small soil sampling grid, and stream silt sampling have left several unaccounted and open-ended anomalies.

Further geological mapping, prospecting, soil sampling and geophysics is recommended.

#### INTRODUCTION

Located along the southern shore of Kitsault Lake, in NTS 103P/11W, 12E, 13E and 14W. Distance to town of Kitsault is 32 km, Terrace 200 km and Stewart, 40 km. Access by float plane or helicopter. Kitsault River Valley road comes to within 5 km of property, however this access route is in disrepair and no longer serviceable. (Figure 1).

Claim information is summarized as follows and shown on Figure 2.

<u>Claim Name</u>	Units	Record Date				
Sault 1	20	July 9, 1984	July 25, 1984			
Sault 3	6	July 10, 1984	July 25, 1984			
Sault 4	15	August 8, 1985	August 26, 1985			
Sault 5	3	August 7, 1985	August 26, 1985			

The claims are in the Skeena Mining Division.

On March 25, 1985 the Sault 1 and 3 claims were transferred to Cominco Ltd. and on August 26, 1985 the Sault 4 and 5 claims were also transferred to Cominco Ltd., 2200-200 Granville Street, Vancouver, B.C. V6C 1T2.

The Kitsault Valley has a long history of exploration and mining, centred upon silver veins at Torbrit and Dolly Varden. The Sault claims were staked in 1983, 1984 and 1985 to cover barite and realgar mineralization noted by Woodcock and Wychopen in 1966. In late 1984 Cominco optioned the property from Woodcock.

The 1985 programme consisted of a 1:5200 geological mapping exercise by a crew under supervision of J.R. Woodcock, combined with stream silt and rock geochemistry, and soil sampling. Also completed in 1985 was a Cominco programme of additional geological mapping, grid establishment, rock sampling and horizontal loop EM surveys over selected portions of the property.

The following report is based upon both programmes.

#### GEOLOGY

The geology of the property is summarized on Plate 3. An area 4500 m by 1300 m was mapped on foot using compass and topofil lines plotted on a photo enlargement base. The following unit descriptions are after Woodcock.

#### Hazelton Group Sedimentary Rocks

Ha, Hc: The sedimentary rocks of the Hazelton Group occur around Conglomerate Lake south of the mapped area. Conglomerate (Hc) outcrops on the north shore of the lake and float of argillaceous sediments (Ha) or siltstones occurs along the west shore. Dawson and Alldrick (1986) report conglomerate lying to the northeast and east of Conglomerate Lake along with the finer-grained sedimentary rocks.

The Bowser Lake Group

Bs: The Bowser Lake group forms the northwest part of the map area. It is composed of argillites, siltstones and wackestones. The present study included only a few observations on the distribution of these rocks.

The Carbonate Section

For ease of reference descriptions of the rocks will start with the carbonate section as it appears to have some persistent lateral continuity. Most of the observations for this unit have been made in the vicinity of the Discovery as the section in this area appears to be more complete.

Cl: The basal or lowermost unit as mapped (Cl) overlies fine-grained resistant greenish grey tuff (Gf) or the white weathering tuff (Gw). It is a coarse limestone breccia or conglomerate which incorporates a number of underlying lithologies and probably also some contemporary tuffaceous material. Boulders of what appears to be the light greenish grey tuff up to 15 cm long, have been observed. The unit is vey resistant and forms the tops of little hills; however it weathers to a characteristic brownish pock-marked surface probably representing the solution of limestone clasts. Such holes are generally in the order of several centimeters across.

Ct: Overlying this coarse unit and possibly also laterally equivalent to it is a tuffacous black, limy sediment with characteristic white clasts up to two centimetres across (Ct). This rock is generally very friable and disintegrates readily when moistened. Similar rock occurs along the creek east of the Lake Showing and also along the southeast shore of Showing Lake. In places the tuffaceous limy rock can be quite tough, lacking the friable nature. Such a rock occurs at the northwest corner of the Sault 5 claim.

Ca: Another unit has been mapped as shaly black limestone (Ca). This is mainly based on its irregular cleavage and its impure nature. It is quite likely that much of the relatively fine-grained impurities within this limestone horizon are also of a tuffaceous origin. This rock may be a local variation of the coarser friable tuffaceous limestone, merely lacking the coarser clasts. Mapping done to date has failed to indicate its spatial relationship to the tuffaceous limestone. Cs: The sulphate horizon includes the banded barite of the Lake Showing, the West Showing and also some barite-rich brecciated grey limestone, most prominent in three places on the Discovery Grid. Considerable limestone is interlayered with the barite and this weathers out as recessive bands. Such contrasting weathering of bands is very conspicuous in the outcrops that occur at the mouth of Showing Creek.

Cg: A very resistant volcanic breccia is associated with the sulphate horizons in the Discovery Grid. It forms a small sharp ridge just northwest of a little pond on grid line 31 E. It also appears to overlie the barite-rich limestone breccia between lines 32 E and 33 E. Similar rock also lies to the southeast of the Discovery Showing. In this last case it could have also overlain the barite horizon and been slightly displaced downward along a small normal fault. The breccia itself has a grit-like matrix with numerous small clasts of sedimentary and volcanic rocks and also large boulders (up to 20 cm long) of light grey chert and smaller ones of a reddish jasper. In addition some jasper layers appear to occur within this rock unit. Small clasts of fine grained pyrite also occur within the breccia. The breccia contains a number of limestone cobbles (up to 12 cm across) in some places these weather to recessive pits.

Cj: Another rock unit which belongs to the exhalative horizon is the jasper-barite occurrence which is underlain by banded fine tuff-pyrite layers. The jasper-barite has the appearance of solidified colloidal mix whereas the underlying shaley tuff has layers of pyrite which could be syngenetic. Two small exposures of this occur in the bed of Discovery Creek.

Cc: Grey chert of three different types occurs in several localities. That which overlies the barite showing at the Discovery trench has considerable fine-grained pyrite, probably of syngenetic nature and obviously associated with the exhalative rocks of the Discovery area. Another type of greyish chert is found in thin beds (about 10 cm thick) along the Discovery Creek where they dip 45° NW. These beds are associated with an area of limy tuffs however they do not have the abundant fine-grained pyrite.

Another type of chert occurs in a thicker bed where it is cut by a stockwork of quartz veinlets, most of which are parallel. These could be remobilized quartz along shear directions. This chert also lacks the abundant fine-grained pyrite. It apepars to be overlain by a fairly thick sequence of grit sized sediments (Gg); it is not associated with the carbonate horizons. Two occurrences of a very similar nature have been mapped in the eastern part of the map area, one adjacent to the East Boundary Fault and other about 300 metres further west.

The various types of chert are indicated on the geology map by symbols for pyrite (py), quartz stockwork (q) and bedded (b).

Cb: In addition to the limy horizons that are associated with the exhalatives, there are some other limestone horizons that are found in the eastern part of the map area. One such set of beds just east of the East Boundary Fault, could underlie the limy tuffaceous rocks. Similar limestone, but more thinly bedded and darker in colour, hosts the Ian barite showing in the east part of the mapped area. This is exposed in a small window probably on some structural dome where it is surrounded by grey resistant tuffaceous rocks. Other occurrences of limestone occur on the southeast shore of Kitsault Lake near the outlet of Showing Creek.

Cx: Probably closely associated with the bedded limestone east of Boundary Fault is a dark limestone breccia in which the limestone is thinly banded and adjacent blocks have differing orientations. This appears to be a single lithology, probably a pene-contemporaneous breccia. It is exposed in one place as a dip slope along the creek bed.

Cd: A somewhat different lime-rich breccia occurs between the bedded black limestone and the overlying grey tuffs at the Ian showing. The breccia has fragments of tuff, large fragments of thinly banded grey chert and some limestone blocks. This weathers a typical dolomite colour. It is one of the rare dolomitized areas in the map area.

Maroon and Green Tuffs

Several types of maroon coloured or brick-red weathered tuffs have been observed. These underlie and overlie the carbonate rocks.

Mr: A volcanic breccia with many large clasts of brick red tuff and, in places, with a similar matrix is found in two localities. The more extensive is 600 metres southeast of Showing Lake where this rock forms the top of a hill. On the northern part of the hill are some distinct pyroclastic rocks in which many of the clasts are maroon colour or a dark green colour. Therefore the Mr unit could be gradational to or include layers of the coarse breccia of maroon and green volcanic clasts (Mx). A smaller exposure of very similar rock occurs 500 metres southerly from the south corner of the Discovery grid. This is in a subdued area around a small pond. In both places the exposures are characterized by the brick-red weathered surface.

Mx: The coarse breccia of maroon and green volcanic clasts (Mx) occurs in a few places in the mapped area including that southwest of Showing Lake, an exposure in the southeast corner of Kitsault Lake, and some exposures just east of Kitsault Lake. The greatest and most extensive exposures, however, occur to the west of the map area along a line extending southwesterly from the west corner of Kitsault Lake. The stratigraphic position relative to the similar rocks further east is unknown.

Characteristic are the bold cliffs that it forms and the large blocky talus that accumulates along the foot of these cliffs. This is especially evident in the extensive occurrence in the western part of the map area.

The coarse breccia (Mx) in the region south of Kitsault Lake does not form good continuouss horizons. It may grade upward into a green crystal tuff with a purple tint (Mp).

Mg: A dark green crystal tuff is a common rock type throughout the pyroclastic pile and occurs at several horizons. Variations in grain size and amount of lithic clasts can occur. In some places this tuff can form massive resistant layers such as that underlies the brick red tuff 400 metres northeast of the Summit prospect.

Mp: A variation of the dark green crystal tuff is one with a purple tint, which may be emphasized by near surface weathering. This tuff has scattered clasts of brick red tuff, generally under two centimetres across. The rock is associated with the smaller layers of the maroon breccia (Mx) which may be gradational into it.

Mq: Lying south of the Discovery area, and possibly laterally equivalent to the coarse breccia (Mx) is an unusual rock. It has a black matrix and numerous crystal and lithic fragments. It is characterized by the rusty-weathering clasts, both lithic, and crystal, set in a aphinitic black matrix. It is also characterized by numerous small quartz crystals.

Mb: Another black weathering tuff with rusty clasts and rusty crystals has been mapped between the Discovery grid and the East Boundary Fault in a number of places. This type of tuff lacks the abundant quartz crystals. This unit is commonly associated with a grey clastic (cg).

The Grey Rocks

Gw: In a few places, but mainly south of Discovery grid is a light grey tuff that weathers a buff to white colour near surface. Lithic fragments are absent or not readily discernable.

Gf: Lying between the white-weathering tuff and the overlying coarse limestone breccia or conglomerate (Cl) is a resistant fine-grained greenish grey tuff. It has been mapped separately south of Discovery grid. Similar rocks are also mapped in other parts of the area but have not been outlined separately.

Gt: Lying both above and especially below the carbonate horizon are a large number of grey rocks that can be tuffs or siltstones or a gradation between the two. They can be very coarse in places forming a breccia. Such rocks are thrown into a catch all group called grey tuff (Gt). Additional sorting or these rocks could reclassify many (e.g. the dense cherty types).

Gs: In some places these are siltstones although they may have a tuffaceous component. Such rocks are associated with the limestone horizon at the southeast corner of Kitsault Lake.

Gx: Some of the very resistant grey tuffs have large clasts (up to 5 cm or more) of a coarser grained grey volcanic, possibly also a tuff. Such rocks may be much more widespread than the number indicated on the map as the large clasts are only evident on a water washed surface or on occasional fresh fractures. Thus many of the specimens included in the category Gt could belong to this category.

Gg: Another tuffaceous horizon has a number of clasts of a gritstone size and great variety of lithologies including tuffaceous material, lithic tuffaceous fragements and angular breccia fragments. Many of these fragments are dark grey and may be a shaly rock. However thin section work will be needed to confirm this. Tentatively this unit is considered a pyroclastic with sedimentary contributions. It may form the matrix of the coarse pyroclastic (Cg) of the carbonate zone.

#### Kitsault Lake Section

Kt: On the islands in the south part of Kitsault Lake and on the peninsula on the shore just to the east are a number of tuffaceous rocks, some of which are very fine grained and may be dust tuffs. These tuffs are characterized by their indefinite zones of lithic clasts, some of which are cherty. The rocks are a light greenish grey colour.

Kc: The light green greenish grey fine-grained tuffs (Kt) were mapped around the campsite where they change easterly into similar tuffs having a large abundance of lithic clasts including many chert clasts (Kc).

Kf: Some grey siltstones are also found in this Kitsault Lake section. Many of these horizons are difficult to differentiate from the coarser types of the greenish grey ash tuff. However in places fossils are present. Belemnites have been observed on the northern exposure of the islands and Pelecipods and Belemnites occur on the south shore of Kitsault Lake at the narrows.

#### Structure

The property lies along the northern fleixure of a north-plunging antiform Dawson and Alldrick, 1986 and units are gently dipping 15 to 20° northerly.

Three faults merit discussion as some of them may have a significant offset. The Ace-Galena Fault on the western part of the map area hosts the quartz veins of the Ace-Galena prospects. These strike parallel to the fault and dip about 60° NNW. The fault strikes northeasterly following a sharp lineament to the northeast corner of the Pacific-Silver claim and could follow one of several linements further to the northeast.

In the central part of the map area and trending north northeast is the Grid Lake Fault which also hosts some minor quartz stringers. In its southern part this fault could have some significant offset however its lineament does seem to peter out to the north.

In the eastern part of the map area a fault has been called the East Boundary Fault as it appears to be a major structural break between differing units of differing attitudes. Particularly noticeable is a change in dip of the units on either side of this fault on the west side of the fault the strata dip gently to the northwest whereas on the east side of the fault most of the dips are to the southeast.

#### GEOCHEMSITRY

The topography consists of boggy meadows separated by ridges and knolls, many of which have rock outcrops. Glacial till underlies most of the soil but is probably not very thick. A deep black organic-rich soil has developed in the wet meadows. Elsewhere a podsol with good zonal development is present. The leached A3 horizon and the rusty B horizon are guite distinct.

In the 1985 sampling program the black organic soils of the meadows were omitted and most of the samples taken are from the B horizon. (227 samples)

Grid lines were established perpendicular to the base line at 100-metre intervals. Both base lines trend at 60° azimuth. Because of topogrpahy (lakes and cliffs) there were limitations on positions of grids. The grid is marked at 50-metre intervals; however the samples were taken at intervals generally between 15 and 25 metres at places wherel suitable sample medium is available.

 $\mathcal{A}^{\mathcal{A}}$  Silt samples were taken from many creeks; however these are not good samples. All the silt is washed out of the creeks leaving a bed of angular to sub angular cobbles and boulders, generally underlain by clay-rich till. The only place silt can accumulate is on the underlying till or amongst the rootlets of the vegetation. Most samples are largely grit; some incorporate some of the clay till, and all have a high organic content. However such samples in the past have indicated the zone of interest with anomalous zinc, molybdenum, and arsenic values.

In addition  $\mathcal{H}$  chip samples were taken for geochemical analyses and the location of these is indicated on the specimen number map. Such samples are followed by the letter "R".

All geochemical samples collected in 1985 were analyzed at the geochemical laboratory of Cominco Ltd. Silts were analyzed for lead, zinc, silver, molybdenum, arsenic, strontium and barium. The rocks were analyzed for the same series of metals and the soils were analyzed for lead, zinc, arsenic and molybdenum. The samples collected in 1984 are also included on the silt sample maps. These samples were analyzed by Vangeochem Lab Ltd. and the results for molybdenum are included. However, the lead, zinc and arsenic have been omitted because of differing analytical procedures. Barium and strontium are not available for the 1984 silt samples.

#### RESULTS OF SILT GEOCHEMISTRY

The silt sampling done in 1985 was a sideline to the geological mapping; samples were collected in most of the streams crossed during the mapping (Plate 4). The six metals have been plotted on three maps, (Figures 5 to 7) with a separate map for the silt sample numbers (Figure 4). These maps are on the same scale as the geological map (1:5200).

Anomalous values of all metals define a zone that trends about N  $60^{\circ}$  E, is about 500 metres wide, and extends for at least 5000 metres in length. It is open to the northeast and, although limited to the southwest, could conceivably be extended with some offset or interruption further to the southwest. In general, this zone can be divided into three separate entities, the Showing Lake area, the Discovery area, and the Ian showing. There is some northerly offset of the Showing Lake area with respect to the other two areas. This could possibly be along Grid Lake Fault where a small amount of vertical displacement, combined with the gentle stratigraphic dips, could create the offset in the zone.

Silt sampling is of insufficient density to accurately define the exact width of the zone. The amount of silt sampling is almost complete around Showing Lake. In the Discovery area, there is insufficient silt sampling to limit the zone on its southeast side and around the Ian showing there is insufficient silt sampling to define any limits.

Although most of the anomalous molybdenum and strontium values come from the mineralized zones, these metals have very little variation and they add little to the picture. The lack of variation in the strontium values is suprising in light of the occurrence of celestite in the baritic beds on the property.

There are variations in the relative importances of the several metals along the 5000-metre length. The Discovery area is reflected by the barium and the arsenic and to a lesser extent by the molybdenum and the strontium. However the values in the Discovery area are not particularly high in lead and zinc. In contrast, the upper part of Discovery Creek is anomalous in lead and zinc; the metals probably come from the area of black bedded limestone and black tuffaceous limestone. The creeks in the vicinity of Showing Lake are anomalous in lead and zinc and somewhat anomalous in arsenic with lesser anomalous values in molybdenum, strontium and barium.

#### RESULTS OF SOIL GEOCHEMISTRY

For each of the small grids, the soil geochemical results are plotted on two separate maps, lead-zinc on one map and molybenum-arsenic on the second map. A third map has the sample numbers. The geochemical results reflect mainly the depth of bedrock and the metal content of that bedrock. A comparison of the grid maps (scale 1:2000) with the geological map (scale L:5200) will help to correlate the anomalous geochemical values with the underlying bedrocks.

Discovery Grid (Plates 8,9 &10)

The anomalous values for lead, zinc, molybdenum, and arsenic correlate with three rock groups. These include the lower limestone breccia (Cl), the black tuffaceous limestones (Ct.Ca), and the sulphate-jasper zone (Cs,Cj,Cg). However in a general way there are differences in metal magnitudes and in metal ratios over these three different rock groups.

The best lead-zinc values occur in the south part of the grid, especially over the limestone breccia and also in the change or transition eastward to the tuffaceous limestone. These two groups of rocks are also anomalous in arsenic.

A number of the highly anomalous arsenic values occur in the sulphate-japser area; which in general has lower lead-zinc values than the two limy goups.

Lake Grid (Plates 11, 12 & 13)

The most continuous and extensive area of anomalous lead-zinc values occurs on Line 18 + 90 E. There has been insufficient mapping and also insufficient exposures to interpret the reason for this wide anomaly; however the black tuffaceous limestone exposed 100 metres west at Sample W85-31R is probably the cause of at least part of the anomaly. This rock sample analyzed 221 ppm Pb, 5050 ppm Zn, 16.5 ppm Ag, 5 ppm Mo, 264 ppm As. The reason for the absence of corresponding anomalous values 100 metres east on Line 20 + 00 E is not known.

Additional anomalous values south of Showing Creek on L 21 + 00 E and possibly also on L 24 + 00 E can also be correlated with black tuffaceous limestone.

Arsenic values correspond with the lead-zinc values south of the creek on L 21  $\pm$  00 E. However other values north of Showing Creek on L 20  $\pm$  00 E and L 21  $\pm$  00 E appear to be more correlative with the sulphate zone.

West Grid (Plates 14, 15 & 16)

Limited sampling was done to try to detect the trend of the mineralization exposed in some old trenches. This trend is still not certain; however it is suspected to be about N 70°; E in spite of the sothwesterly strike of the banded sulphate in Trench 5.

This mineralized zone is also anomalous in lead, zinc, molybdenum, and arsenic. However some of the very high lead land zinc values in the area of the old trenches could be contamination from the trench material.

#### ROCK GEOCHEMSITRY

Table I lists 23 rock samples with a brief description of their type and locality and the analytical results for several metals. Sample locations are plotted on Plate 3A.

TABLE	1

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## ROCK SAMPLES

NOTE: All ana except	lyses in ppm where noted.	Analytical Results									
Field Number	Description and Location	Pb	<u>Zn</u>	Ag	Mo	As	Ba	Sr			
<b>W85-</b> 226R	Grab of grey chert cut by quartz veinlets 400 m west of W85-338R	4	30	.4	2	26	34	209			
284R	Small quartz-carbonate zone in old trench 250 m S of LCP Sault 5	4	125	.4	2	3	1011	252			
289R	Bedded barite at NW corner Sault 5 claim chip sample for 0.4 m	833	1330	.4	10	381	4729	315413			
296R-298R 296R	Bedded barite in old trench N shore Showing Lake Upper 0.3 m grey tuff or siltstone	5	445	.4	4	219	2352	159970			
297R 298R	Central 0.3 m rusty bedded sulphide Lower 1.3 m bedded barite		418 1900	.4 7.2	4 11	301 322	2134 1912	13510 200097			
313R	Black l.s. along creek that drains into SW corner Showing Lake l.5 m vert chip sample	199	2420	20.0	9	145	1039	3347			
316R	Grab of tuffaceous l.s. from S shore of Showing Lake	221	5050	16.5	5	263	1956	1489			
320R	Massive pyrite pockets in quartz in altered volcanics in creek bedalong Grid Lake Fault	26	38	3.6	2	126	1063	78			
334R	White tuff with abundant manganese 50 m SE of SE corner Discovery Grid	5 I	40	1.5	2	2	849	230			
338R	Grey chert with quartz stockwork; no pyrite. Along E Boundary Fault	4	13	2.2	3	370	32	26			
352R	Bedded barite from east shore of Showing Lake under water	323	6700	2.3	33	323	2320	201084			
367R	Limestone conglomerate northeast of outlet of Quartz Eye Lake	4	520	3.1	5	113	3177	57778			
377R-380R	Ian Showing - samples across beddin and proceeding up section										
377R 378R	Lower 1.2 m Central 0.9 m, brecciated	38 40	960 670	$2.8 \\ 2.6$	15 16	80 253	25547 22050	273829 101064			
379R	Next 0.8 m, somewhat rusty	6	278	0.6	2	100	23486	71077			
380R	Upper 0.6 m	7	99	.4	2	98	5786	132563			
<b>4</b> 27R	Pyritic grey tuff from trenches	4	108	.4	2	49	1603	1006			
	near west side map area - grab	8	8	oz/T		98 					
4 <b>41</b> R	West Prospect-grab-see sketch for $\overline{0}$ location	.13	3.30	0.029		0.031	6770	140370			
444R	West Prospect-grab-see sketch for O location	.74	5.50	0.190		0.047	3214	519 <del>6</del>			
445R	West Prospect-grab-see sketch for <u>2</u> location	2.10	8.10	<u>0.012</u>		0.069	1333	2187			
460R	At SE corner of Kitsault Lake - N of Showing Creek-bedded calcite- barite	4	121	.4	2	90	3971	88789			
462R	Same place - rusty pyritic tuff	23	65	.4	6	612	8525	126881			

Fourteen of these samples are from barite-bearing prospects. These include sample 226 from the West Prospect; samples 296, 297, 298 and 352 from the Lake Showing; samples 277 to 380 from the Ian Showing; and samples 460 and 462 from the mouth of Showing Creek. All of the samples are highly anomalous in strontium and anomalous in barium. In addition to the bedded barite from the West Prospect, some limy tuffaceous rocks (441, 444, 445) were collected and these are highly anomalous in lead and zinc with some strontium and barium.

Two of the samples are from the black tuffaceous limestone (313, 316) and these are anomalous in lead, zinc and arsenic.

One of the samples (367) is the limestone breccia and it is fairly anomalous in strontium, barium, and arsenic.

Two of the samples (226, 338) of the grey chert with the quartz stockwork.

#### GEOPHYSICS

HLEM (Max-Min II) and Magnetic tests were executed over two small sections of the property. The objectives of the tests were to determine if the sulphides present in outcrops on the test grids are conductive and how well magnetics can be used as a mapping tool.

The Discovery grid consisting of five, 400 metre long lines, 100 metres apart, overlies tuffs, parts of the carbonate section incl. sulphate horizon) and sediments. The western grid (lake) of two longer lines covers similar rock types and more clastics.

The geophysical work was done during September 19 to 23, under contract by Peter Walcott and Associates. The results are shown on Plates 288-85-1 to 4. The HLEM used five frequencies (222 to 3555 Hz) and coil separations of 50- and 100 metres. The magnetics was collected at 25 metre intervals.

The HLEM results after correcting for topography, do not show any signs of conductivity. This is somewhat supported by the single conductivity test which was made on a specimen of one of the two outcrops (> 5 mhos/m). While some of the lines (31E and 32E) are rather short for test lines, and some topographic noise is seen on the other two lines (0+00; and 2E), it is considered unlikely that conductive massive sulphide, if present, would be missed in the survey area.

The magnetic results of the eastern set of lines were complemented by three more lines. The centre of these lines shows no magnetic response of any significance, only weak 50 gamma highs at 2N on 30 El and 1.62N on 31E (near a "sulphate" showing). However, the northern end of the lines show strong magnetic relief, up to 1,000 gammas. This might reflect a different rock type. Plate 3 indicates Maroon tuffs to the north and Grey rocks (sediments land tuffs) to the south. The southern half of lines 00 and 1E is also completely flat. However, the northern half shows much stronger relief which is of a similar nature as that shown on the east grid, and could reflect the same rock (maroon tuffs).

In summary, even though a small amount of data was collected, it can be stated that no conductors were detected. No further HLEM work can be recommended. The magnetic results indicate however, that the use of that technique will be helpful in mapping different lithologies.

#### MINERALIZATION

Four exposures of sulphate/sulphide rock have been located within the "Carbonate" section (Plate 3). From west to east these include the West, Lake, Discovery and Ian zones. The West and Lake showing comprise calcareous tuff overlain by massive pyrite sphalerite and galena up to 2.0 m thick, in turn overlain by sphalerite bearing limestone breccia and banded barite-celestite rock. Occurrences are on isolated hillocks and immediate hangingwall rocks are not preserved. The Discovery area comprises up to 5m of banded barite and celestite with minor pyrite and sphalerite, overlain by a coarse breccia. The Ian showing is a isolated pyrite lens overlain by 1 metre of black calcareous barite.

All prospects were chip channel sampled after outcrop washing by Wajax pump.

The West showings are exposed in old prospect pits, and trenches 5, 6 and 7 were resampled. Three sample traverses were done at West, one at Discovery and 3 at Ian.

WEST		Pb	Zn	Ag	Cd	As
TRENCH 5-1	1 <b>.</b> 3 m	814	12600	<.4	79	397
TRENCH 6-1	0.8 m	3660	18900	3.3	398	267
6-2	1.0 m	1670	15100	1.4	211	262
TENCH 7-1	0.6 m	608	9690	<.4	92	321
7-2	1.0 m	12660	43350	.4	600	379
7-3	1.0 m	13040	48300	1.5	740	492
7-4	1.0 m	9090	26100	.4	510	505
LAKE		РҌ	Zn	Ag	Cd	As
SAMPLE 1-1	0.5 m	1476	6850	2.3	47	1660
1-2	1.6 m	772	13600	1.5	80	427
1-3	0.4 m	2150	19300	<.4	173	1460
1-4	0.7 m	570	8080	0.6	35	253
1-5	0.5 m	892	15600	0.4	68	459
1-6	0.8 m	1258	22600	0.6	98	1720
1-7	0.9 m	2260	31000	0.9	272	1640
1-8	1.1 m	6440	66800	1.1	760	3900
1-9	0.7 m	459	1910	1.0	16	423

Analytical results are summarized as follows; all values are in ppm.

		Pb	Zn	Ag	Cd	As
SAMPLE 2-1	1.0 m	1176	17800	0.5	91	1080
2-2	0.2 m	20400	120000	1.4	860	4340
SAMPLE 3-1	1.5 m	278	2990	0.6	2 <b>4</b>	421
3-2	1.3 m	213	2350	0.5	19	476
DISCOVERY	<u></u>	Pb	Zn	Ag	Cd	As
SAMPLE 1-1	1.0 m	559	1450	0.8	12	1380
1-2	1.0 m	409	1040	1.0	9	1700
1-3	1.0 m	319	10500	0.9	48	1480
1-4	1.0 m	43	2510	0.5	12	274
1-5	1.0 m	9	2140	<0.4	10	202
IAN		Pb	Zn	Ag	Cd	As
SAMPLE 1-1	1.0 m	98	2930	<.4	30	317
2-1	1.3 m	48	1800	<.4	12	579
3-1	1.0 m	124	579	0.5	6	1300
3-2	1.0 m	146	467	0.7	5	1020

#### INTREPRETATION

The property is underlain by a homoclinal sequence which from south to north (oldest to youngest) includes conglomerate and argillite, overlain by massive green and red tuffs, maroon to green crystal tuffs and breccias, limestone sulphate and breccia beds, grey tuffaceous clastic rocks, maroon to green tuff-breccias, siltstone, tuff and ash, followed by Bowser Lake sediments. Mapping of the property is very preliminary and much rock exposure has yet to be mapped.

Silt geochemistry has indicated numerous anomalous sample sites, and ones lying east of Discovery and southwest of Lake remain unexplained. Soil sampling has left several open-ended lead-zinc-arsenic anomalies on the Lake and Discovery grids.

HLEM test surveys failed to discover conductors in the vicinity of known showings.

Mineralization comprises massive sulphide (pyrite-sphalerite-galena) in narrow lenses associated with banded barite/celestite and limestone rock up to 8 m thick. Detailed sampling, trenching and mapping in areas of known mineralization is warranted.

#### REFERENCES

DAWSON, G.L. and ALLDRICK, D.J. (1986): Geology and Mineral Deposits of the Kitsault Valley in Geological Fieldwork 1985 ME, MP; pp 217-224f.

WOODCOCK, J.R. (1985): Geology and Geochemistry Sault 1 and 3; Assessment Report.

Report by:

J.O. BLACKWELL

J2D. BLACKWELL Project Geologist

Approved for Release by:

N. J. Wed

W.J. WOLFE, Manager, Exploration -Western Canada.

JDB/pm 22 July 1986

## APPENDIX A

## KIT PROPERTY

## (SAULT 1, 3,4, & 5)

## STATEMENT OF EXPENDITURES

## For

August 1 to 23, 1985 - September 4 to 23, 1985

Salaries:		8 10 28	days days days	0 0 0	224.40 187.44 176.88 145.20 139.42	= = =	\$ 6,283.20 1,499.52 1,768.80 4,065.60 3,498.00
	1.0. I ICZMAULICE	20	uays	e	199446		\$17,115.12

Communications	\$ 850.00
Geological Supplies & Services	1,250.00
Assays and Analyses	5,300.00
Transportation	7,000.00
Domicile	2,000.00
Expediting	500.00
Geophysical Contractor (Walcott)	3,900.00
Geological Consultant (Woodcock)	30,115.12
-	\$68,115.12

22 July 1986

#### APPENDIX B

#### STATEMENT OF QUALIFICATIONS

I. JERRY D. BLACKWELL of the Village of Lions Bay, in the Province of British Columbia, hereby certify:

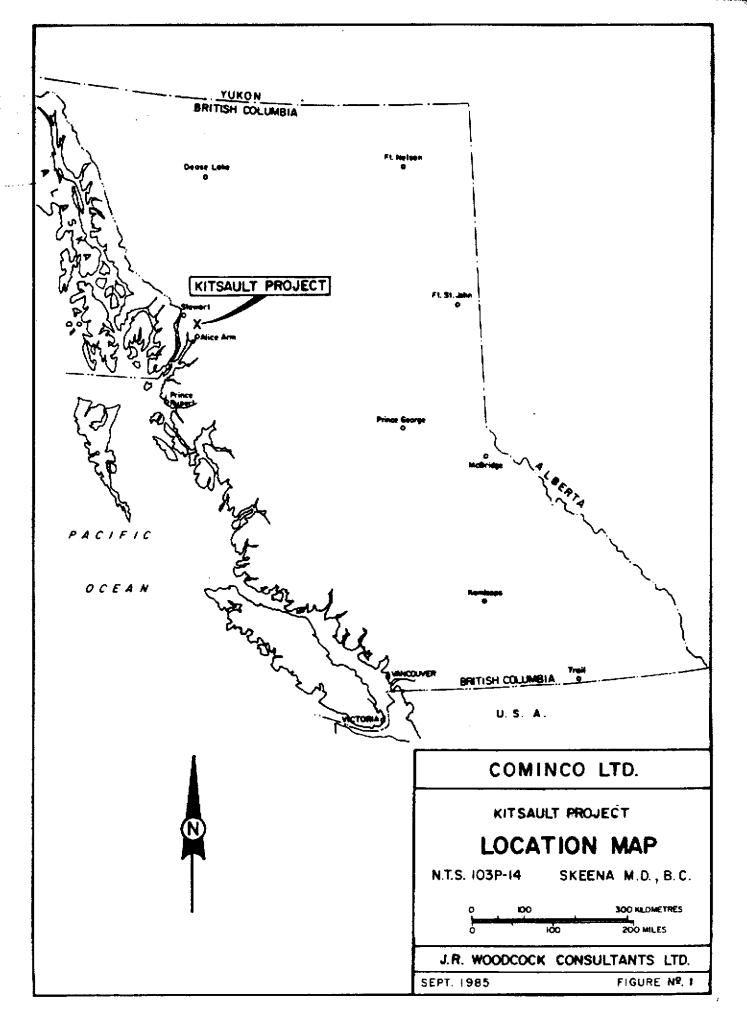
- THAT I am a geologist residing at 253 Stewart Road, Lions Bay, Briitsh Columbia.
- THAT I graduated with an Honours B.Sc. in Geology from the University of Western Ontario in 1974.
- 3. THAT I have practiced Geology with Cominco Ltd. from 1974 to 1986.

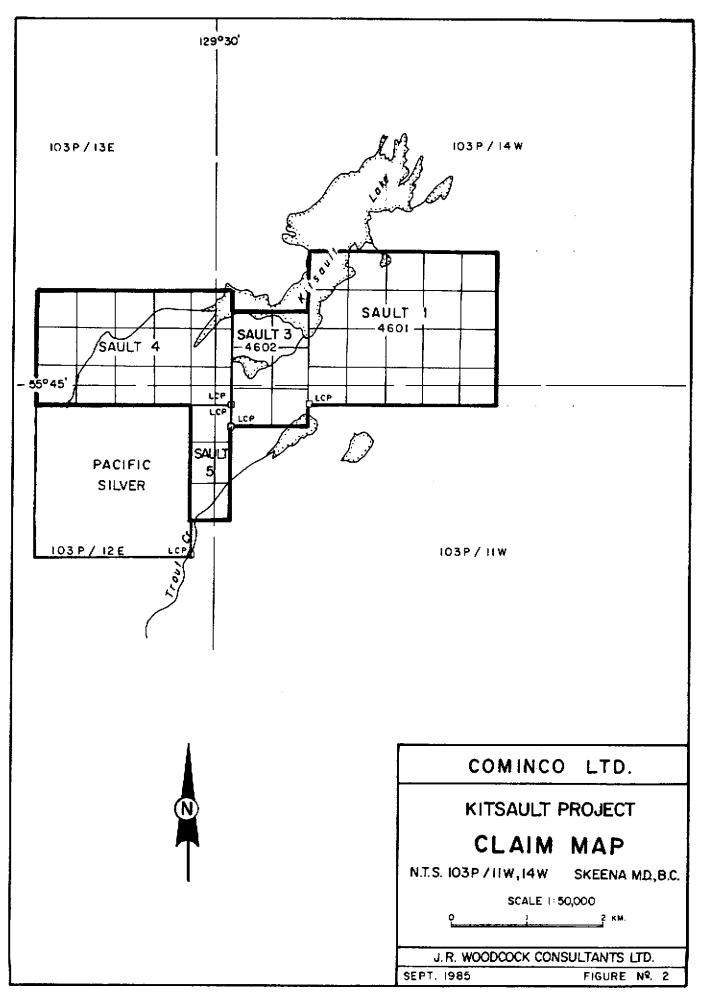
Signed: J. D. BLACKWELL Project Geologist.

22 July 1986









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#### SUPPLEMENT TO: ASSESSMENT REPORT, SAULT 1,3,4, AND 5 MINERAL CLAIMS

#### JULY 1986

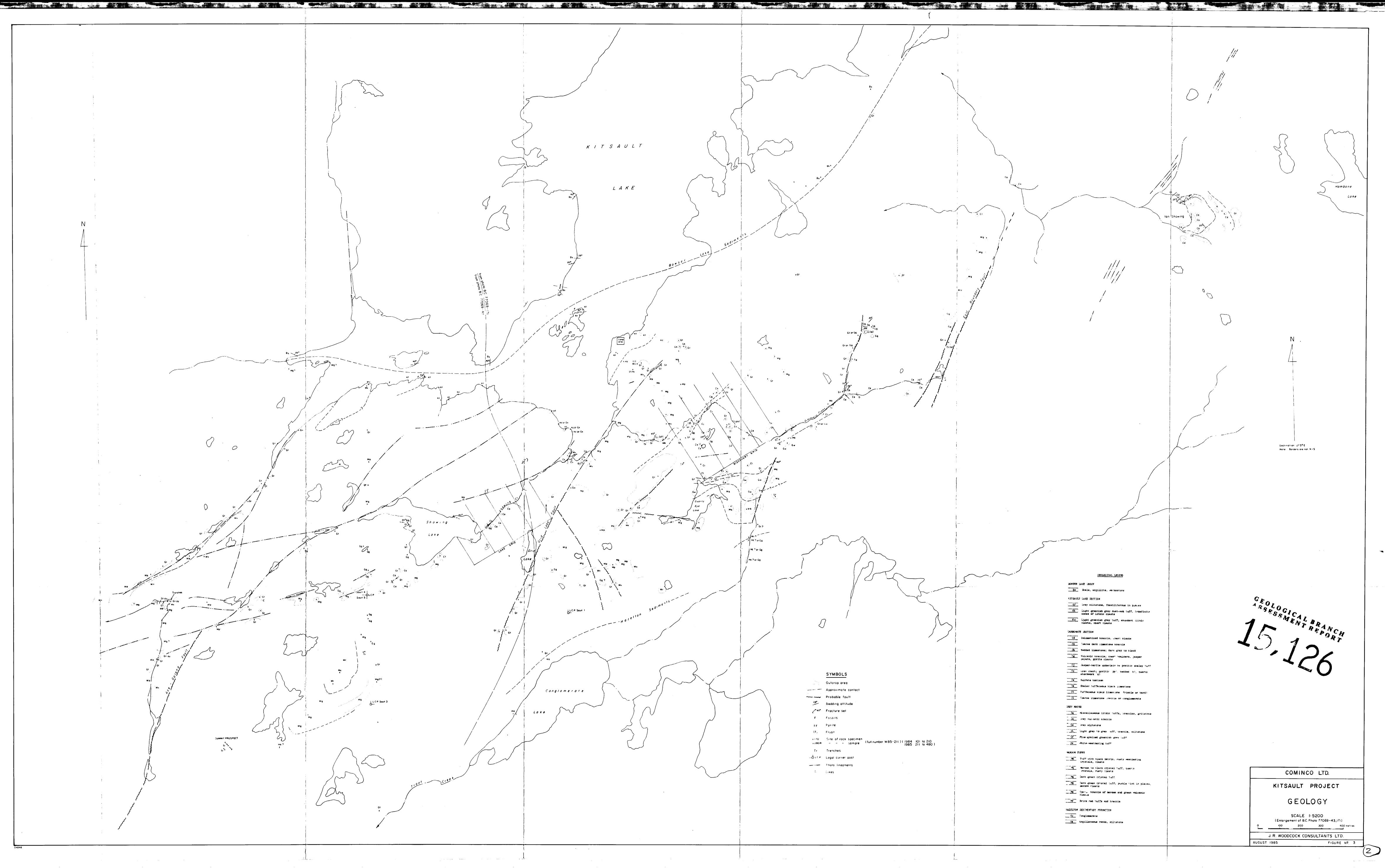
#### ANALYTICAL PROCEDURE

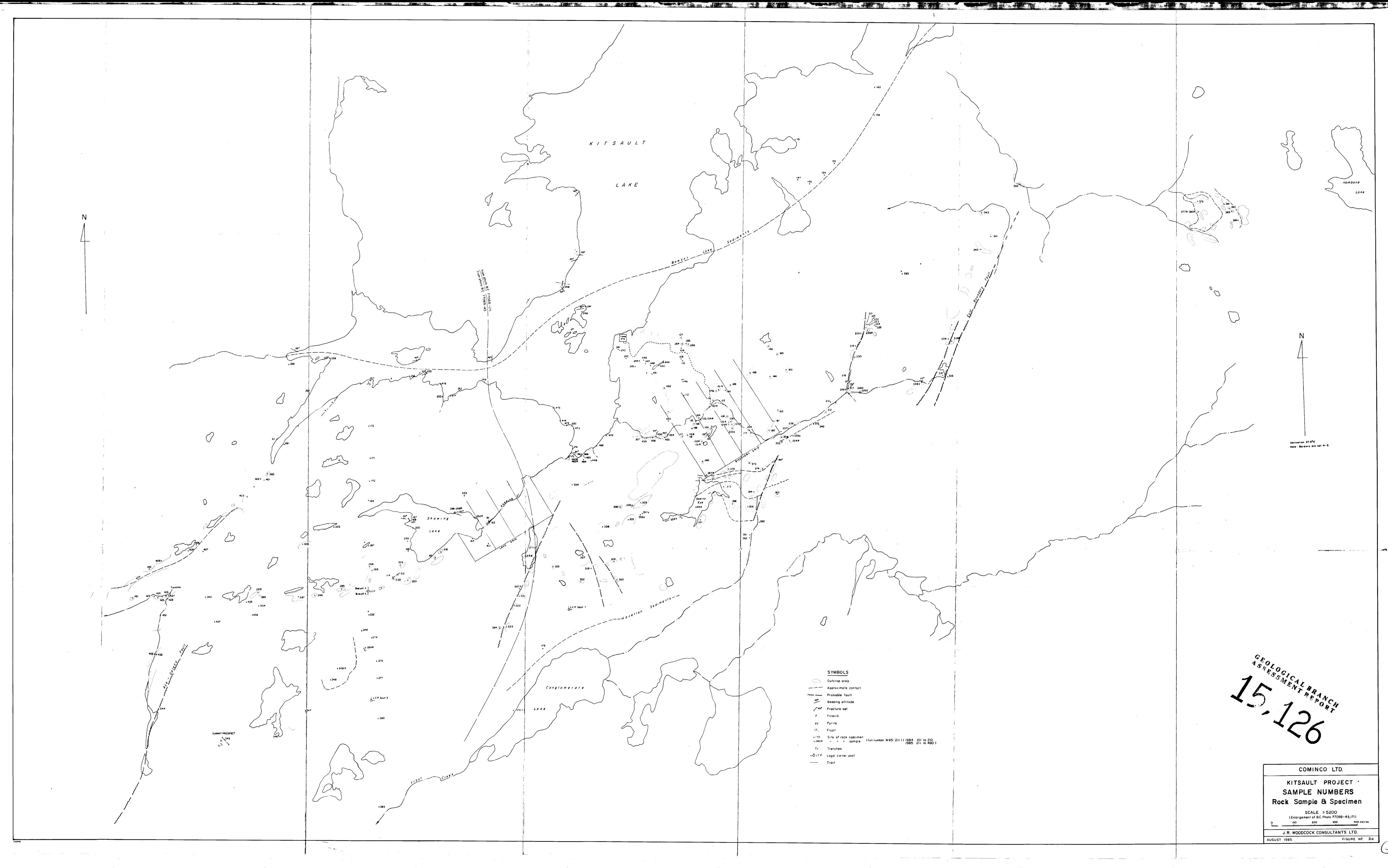
Soil and silt samples are oven-dried in their kraft paper envelopes, then sieved through an 80 mesh stainless steel sieve. The coarse fraction is rejected, fines saved for geochemical analysis. Rock samples are passed through a coarse then fine jaw crusher, producing a 1/4" product, then split on a riffle sampler (200 g sample product) and pulverised to 200 mesh in a swing mill. Samples for assay are passed through a gyro crusher prior to pulverizing.

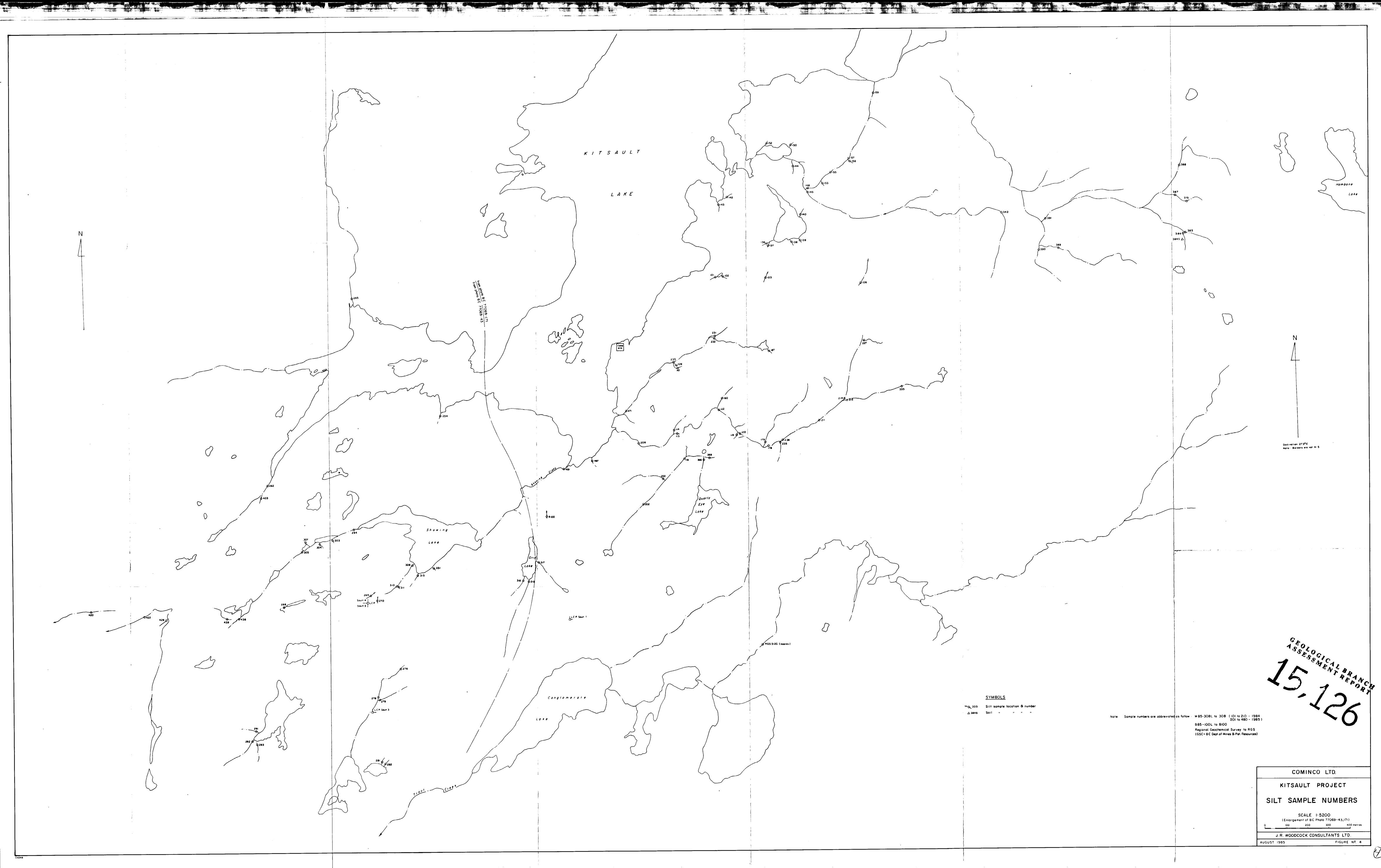
Soil and silt samples were analysed for Pb,Zn,As,Mo and Pb,Zn,Ag,Mo,As,Sr,Ba respectively. Pb Zn Ag analyses involve hot 20%,  $HNO_3$  digestion followed by Atomic Absorption analysis. No analysis involves an aqua-regia decomposition followed by AAS. As analysis involves a pyrosulphate fusion followed by a colourimetric determination. Ba and Sr is done by XRF on a pressed pellet. Detection limits are: Pb -4 ppm, Zn -2 ppm, Ag -0.4 ppm, Mo -2 ppm, As -2 ppm, Ba -20 ppm. Sr -2 ppm.

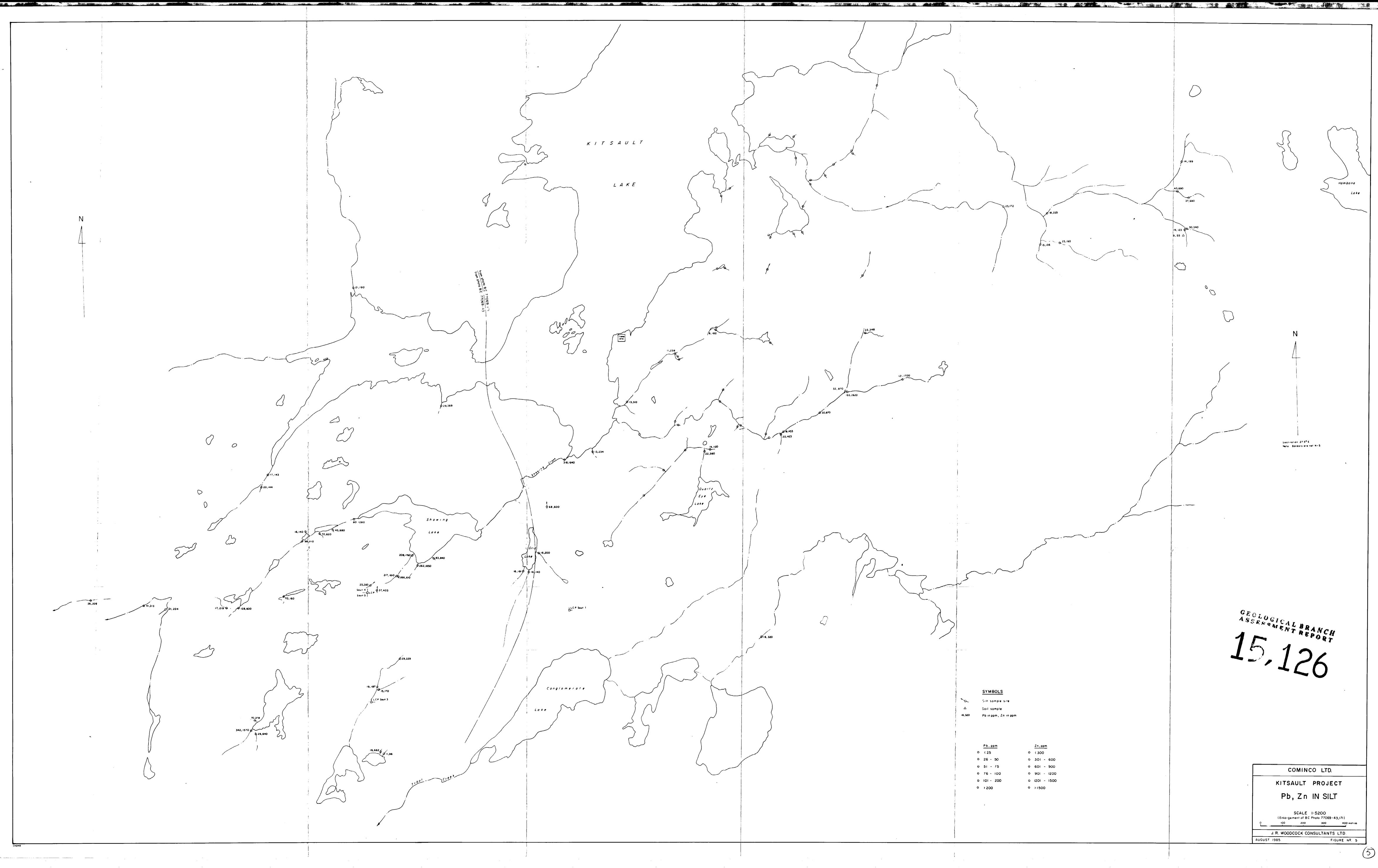
Rock samples were analysed for Pb,Zn,Ag,As,Mo,Sr,Ba and Cd. A hot aqua-regia decomposition followed by AA analysis is done for Pb Zn Ag and Cd. Mo analysis involves HNO3-HCLO4 decomposition followed by AA. Arsenic is a pyrosulphate fusion then colourimetric analysis. Sr and Ba are done by XRF on a pressed pellet. Detection limits are Pb -4ppm, Zn -2 ppm, Ag -0.4 ppm, Cd -1 ppm, Mo -2 ppm, Ba -20 ppm and Sr -2 ppm.

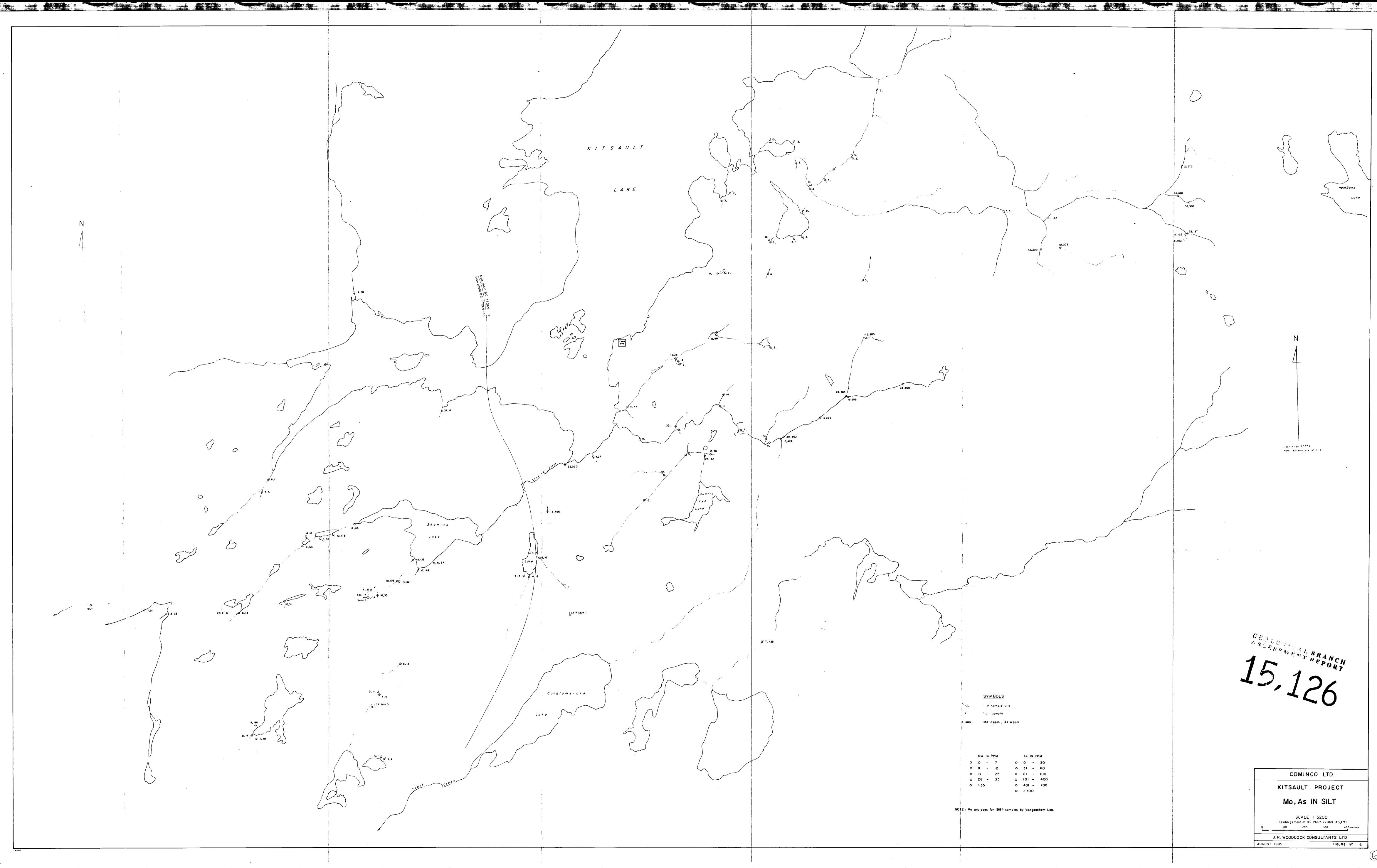
JDB/pm 19 December 1986

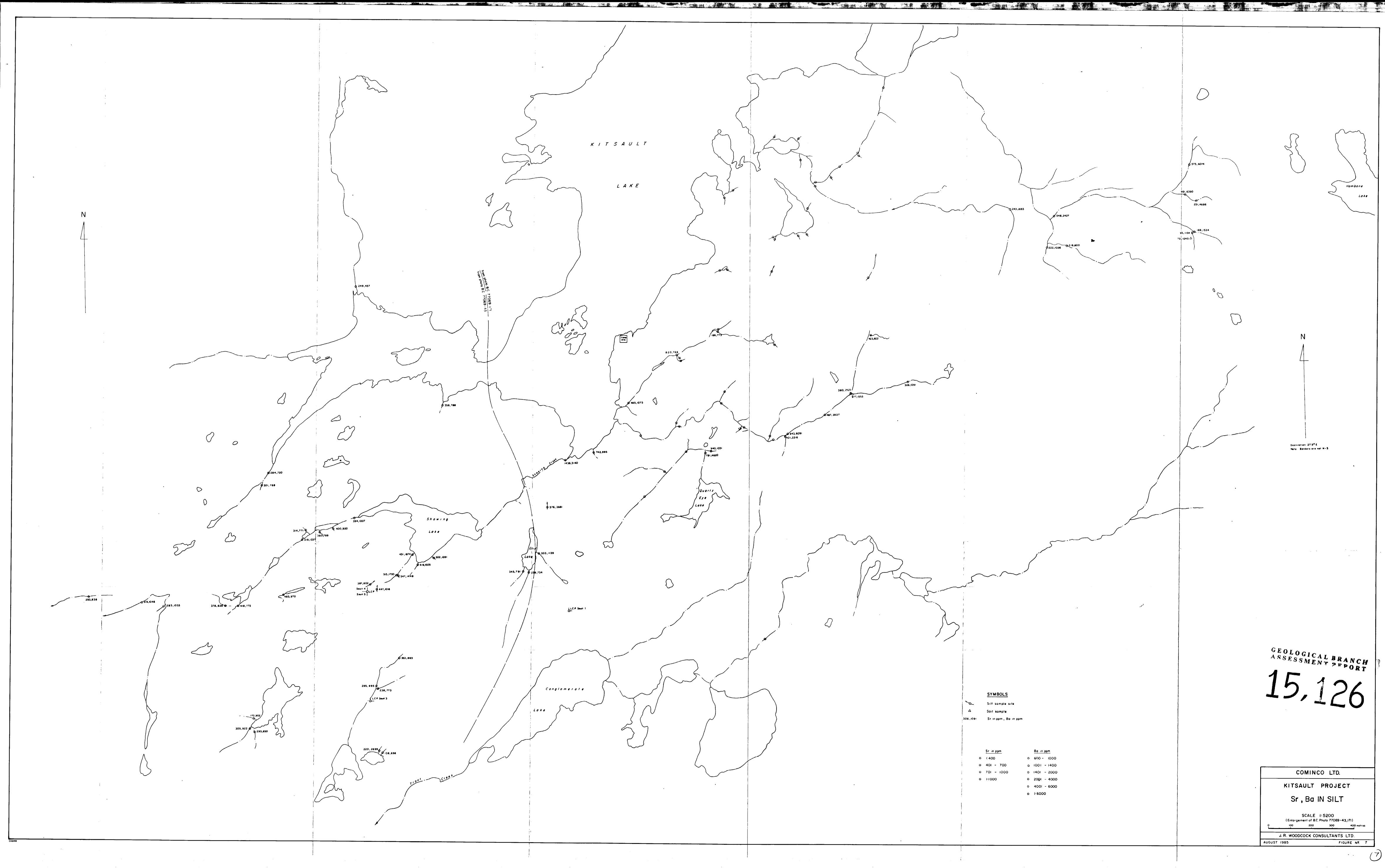


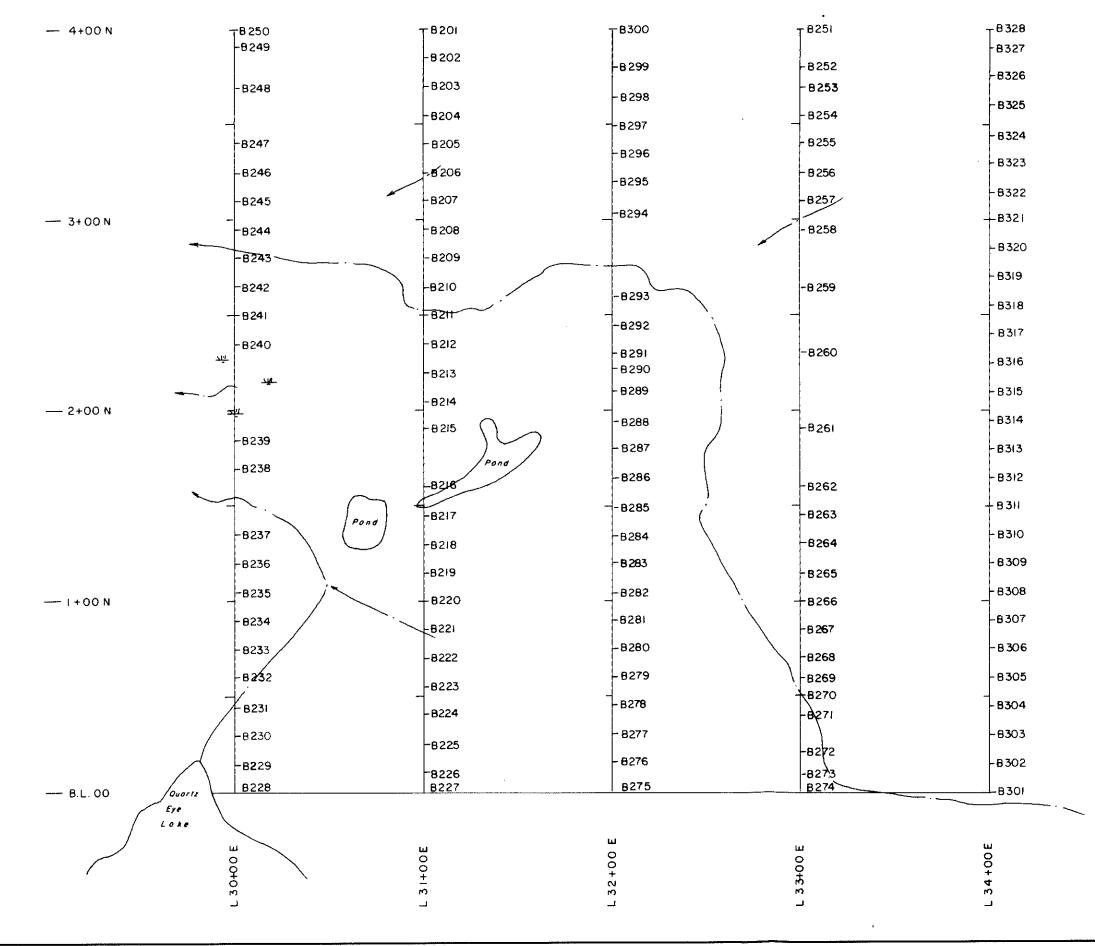


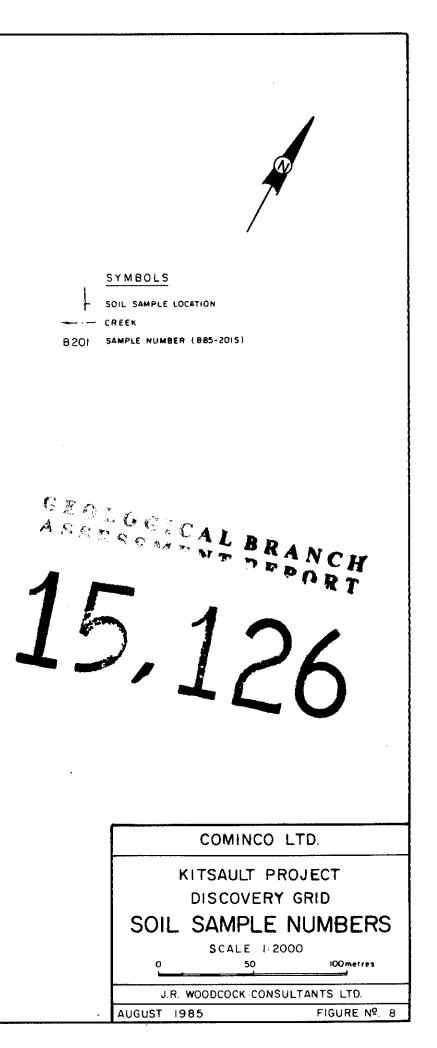


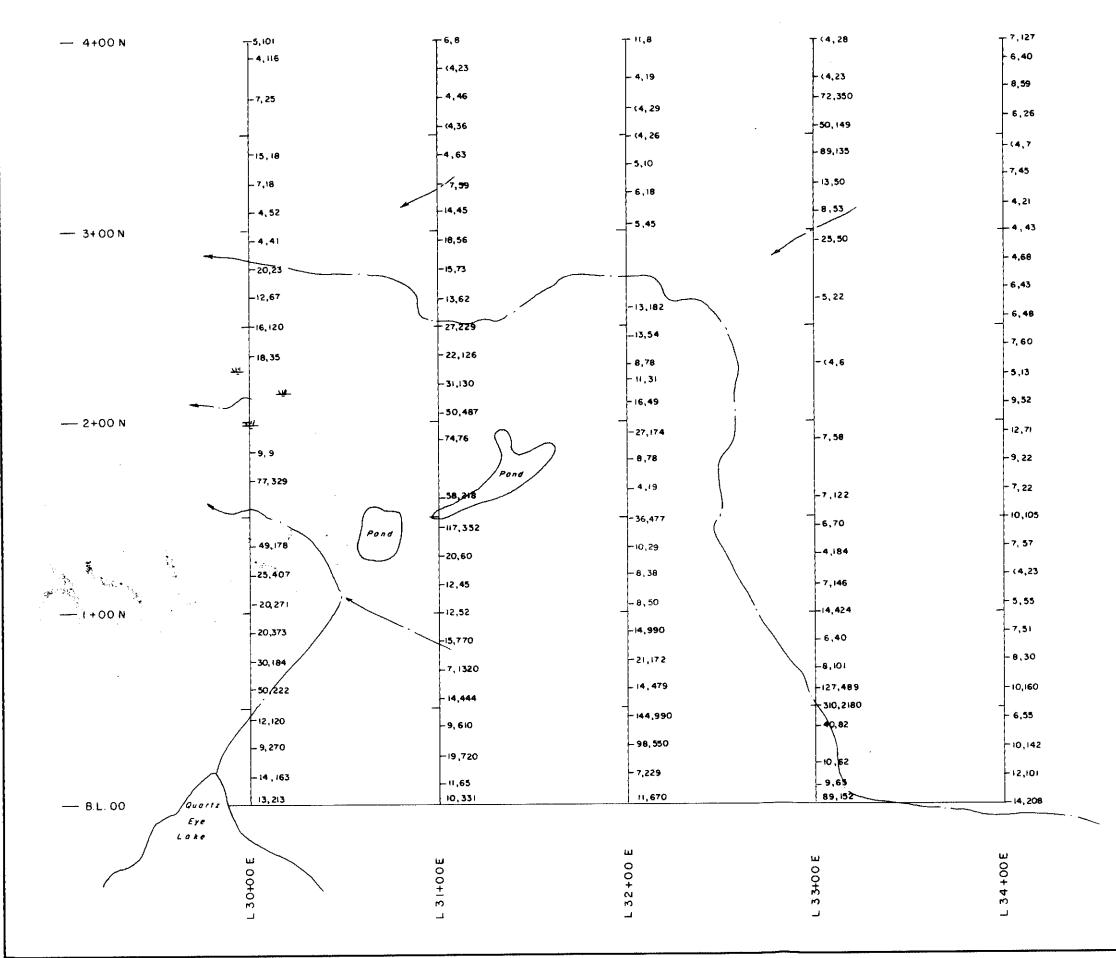






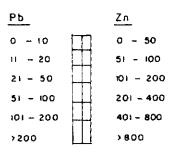








SYMBOLS



# GEOLOGICAL BRANCH ASSESSMENT REPORT

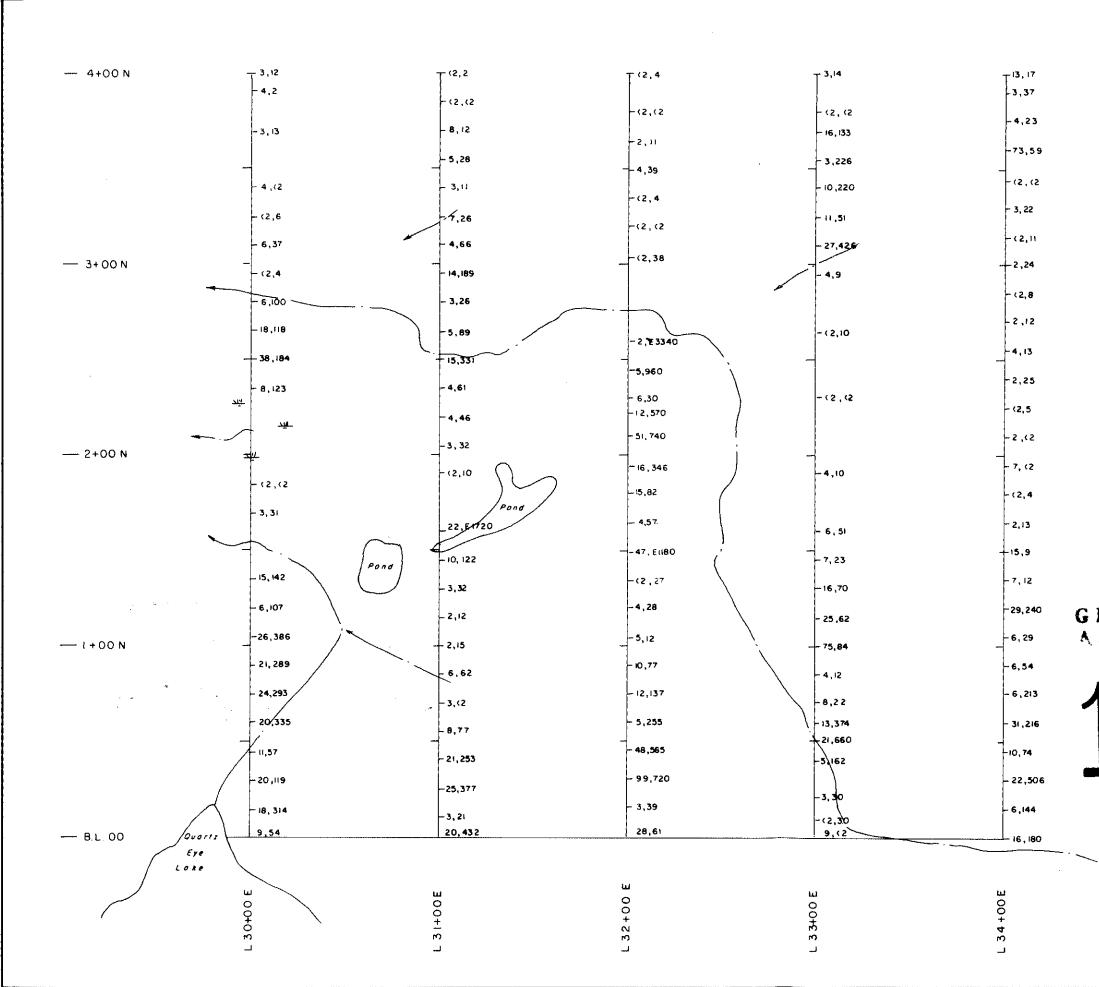


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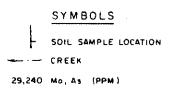
J.R. WOODCOCK CONSULTANTS LTD.

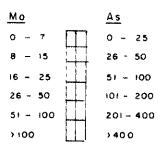
AUGUST 1985

FIGURE Nº, 9

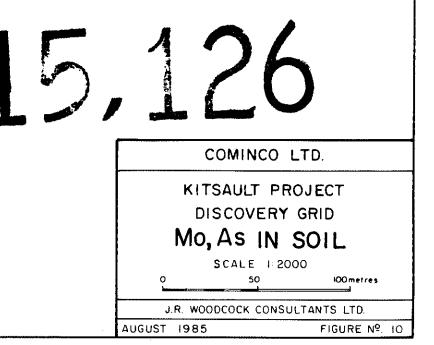


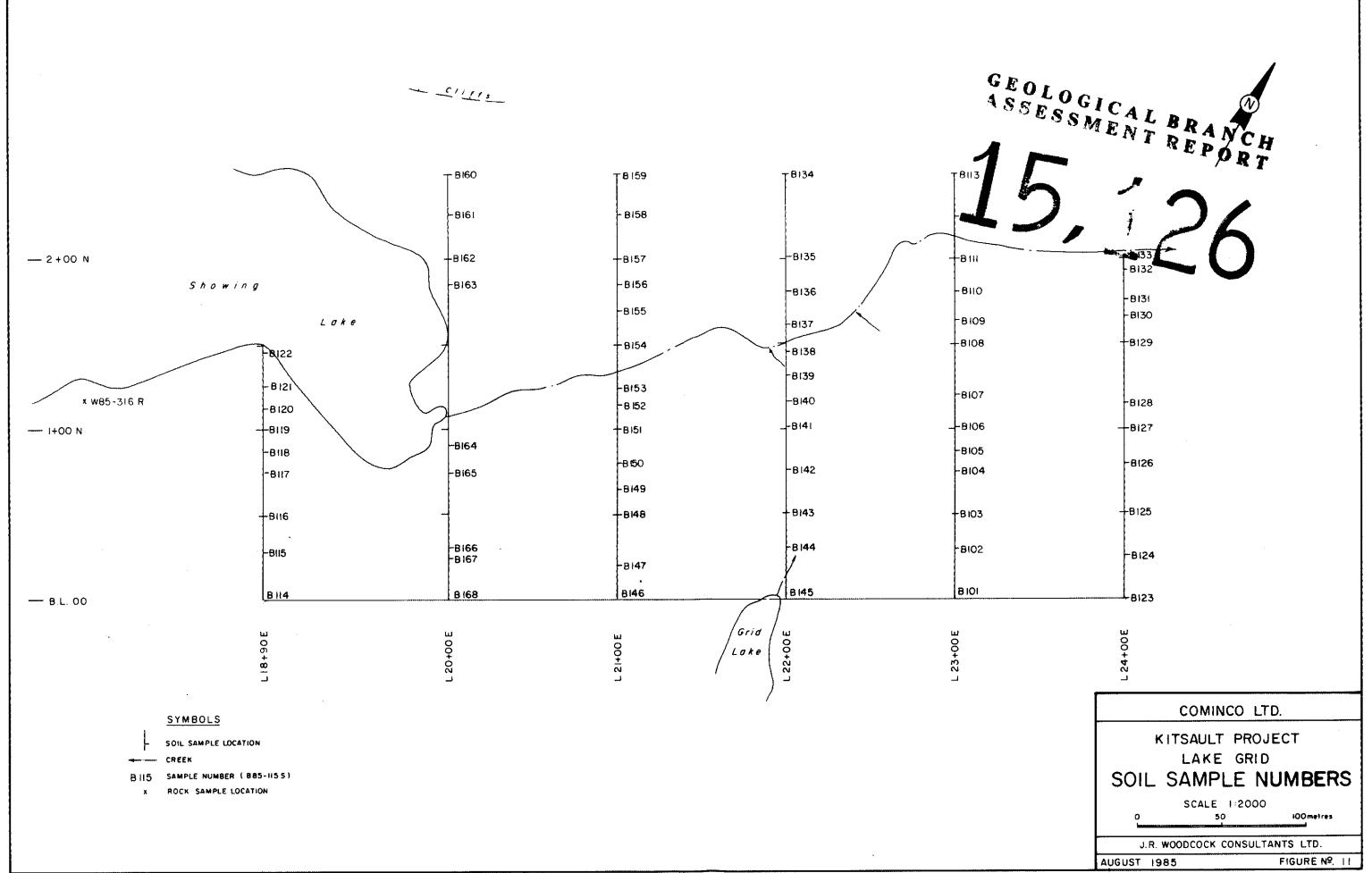




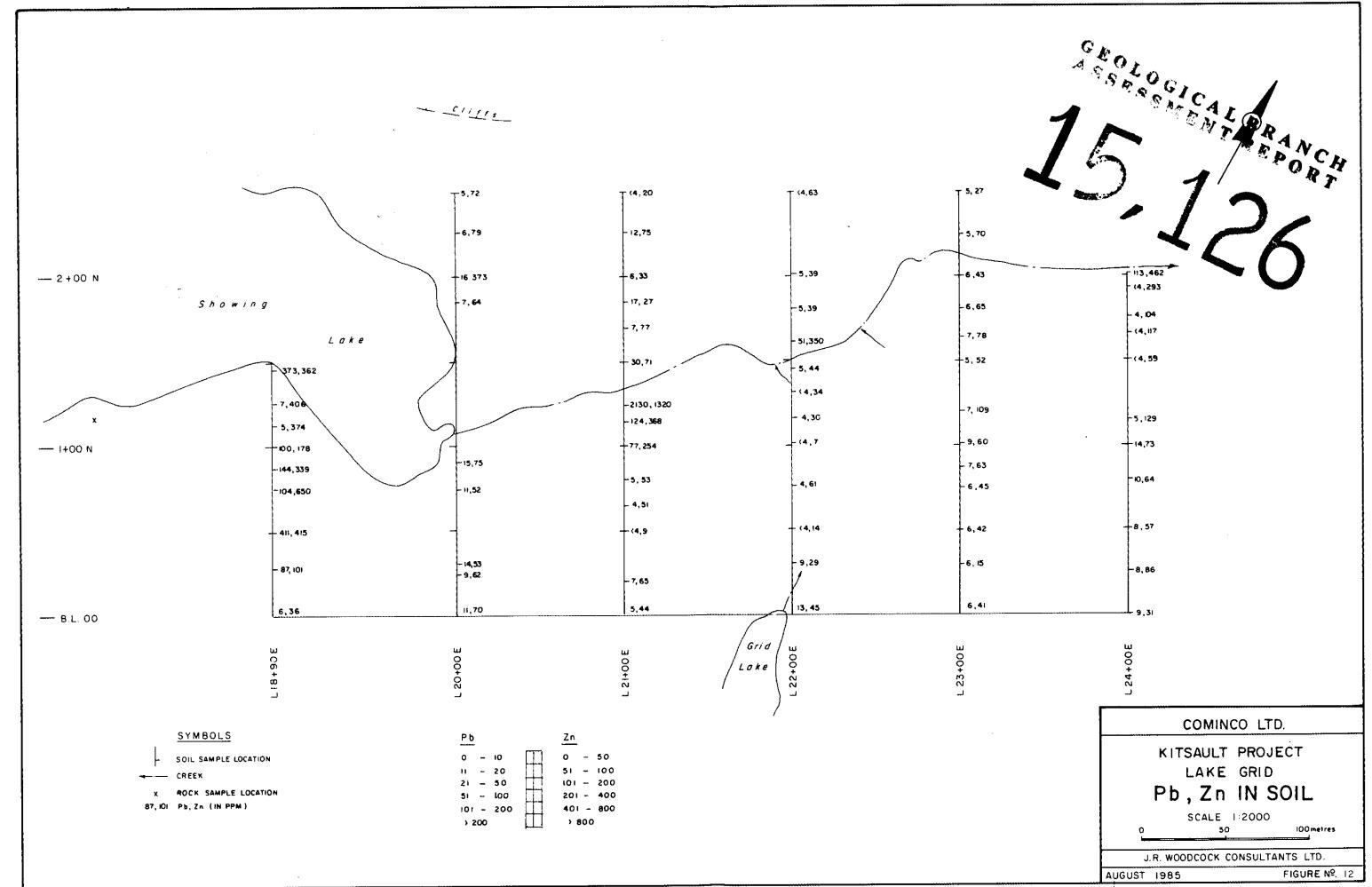


## GEOLOGICAL BRANCH ASSESSMENT REPORT

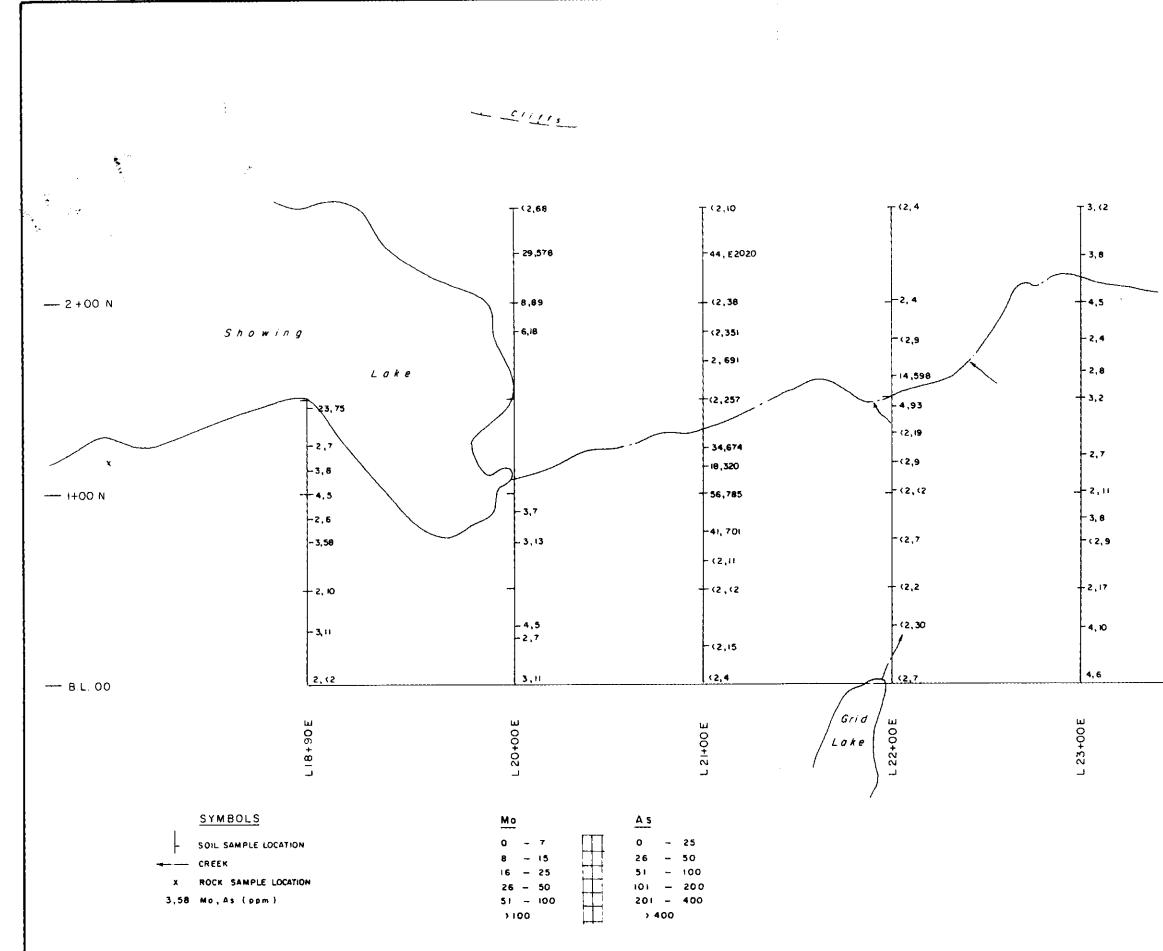




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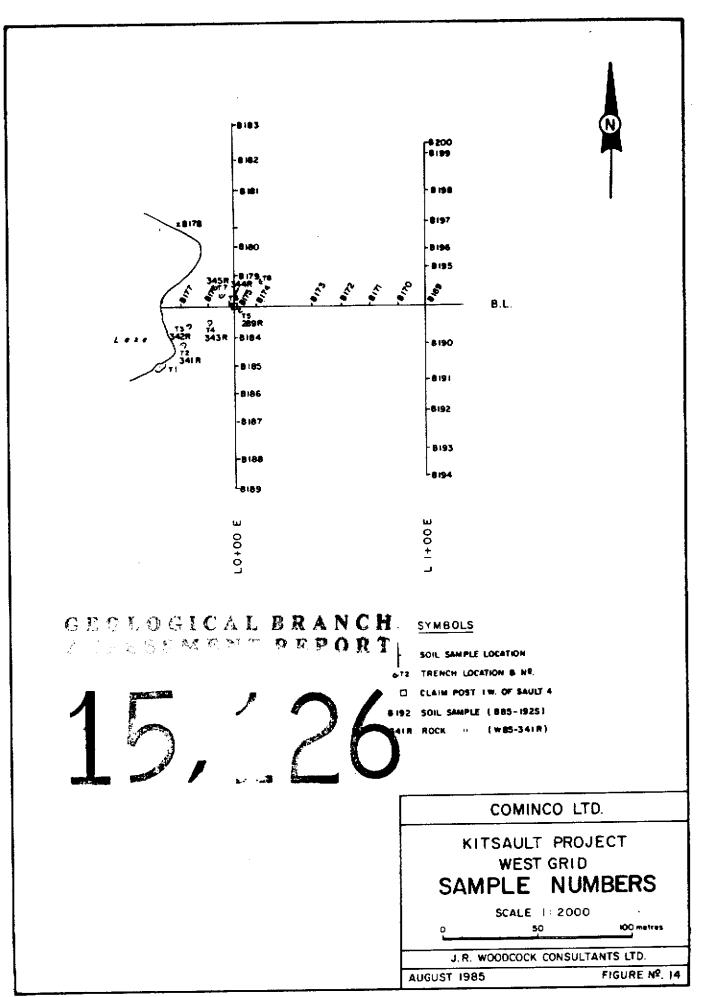


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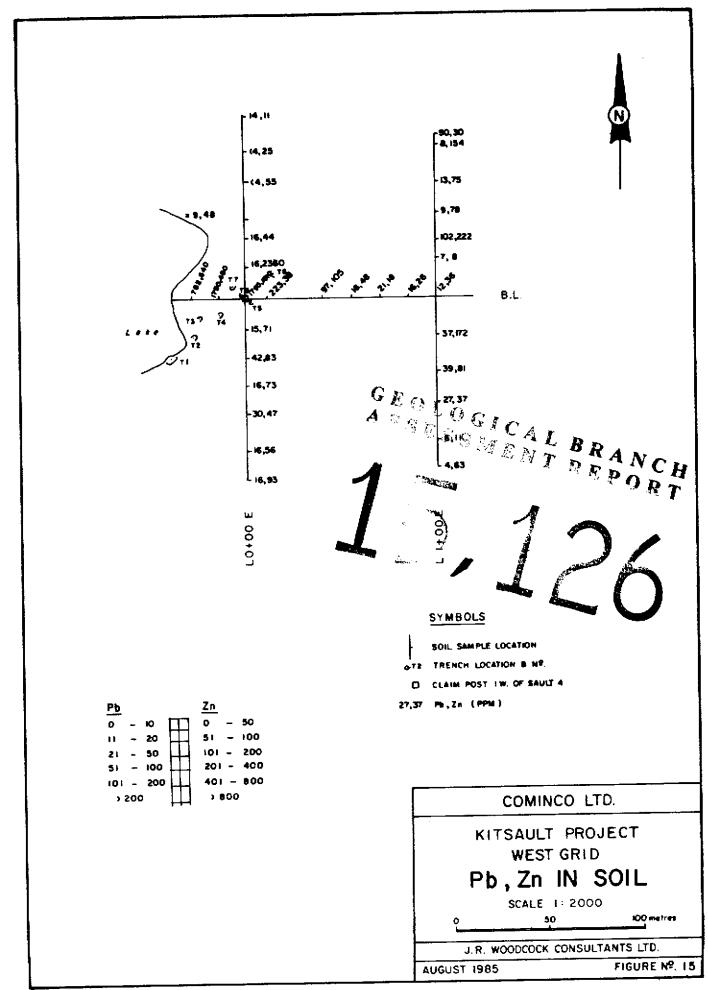
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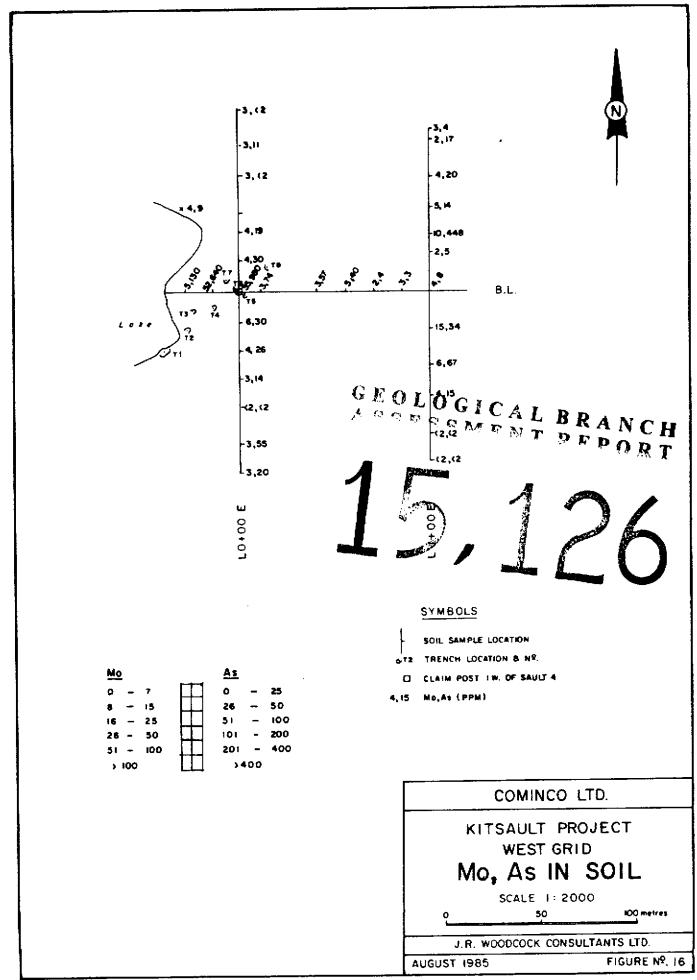
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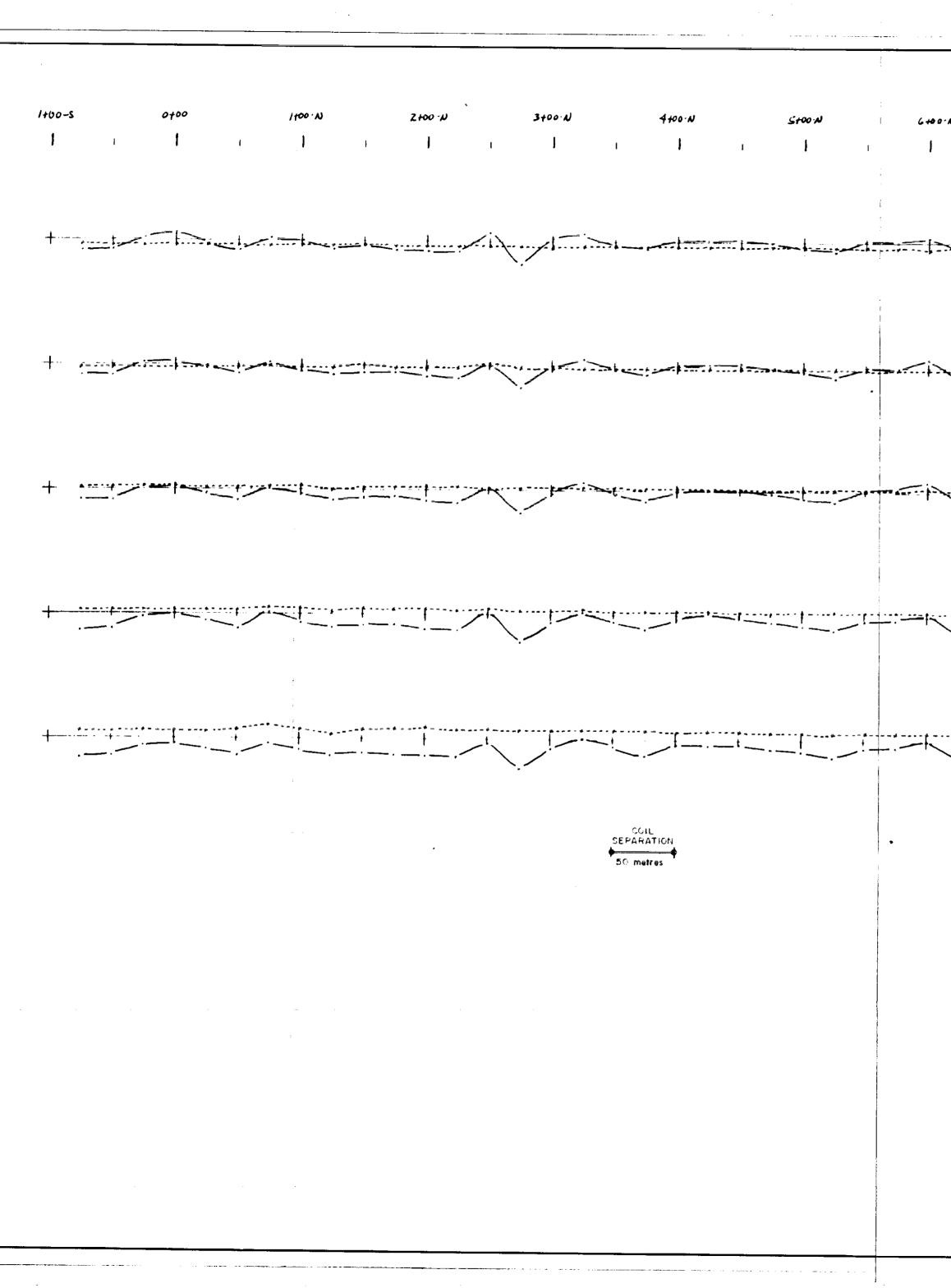


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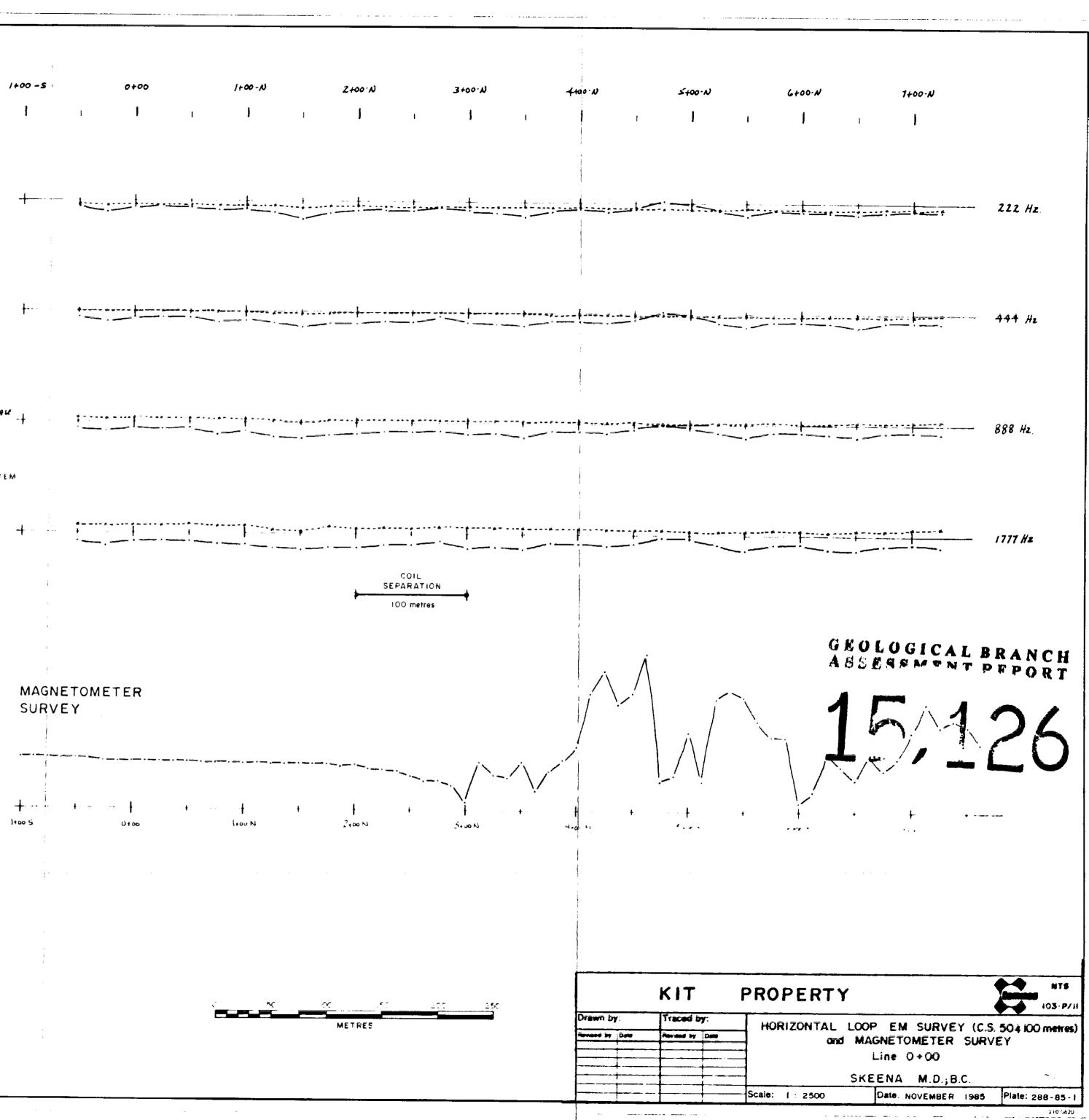
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