WELCOME NORTH MINES LTD. (N.P.L.)
1027 - 470 Granville St., Vancouver, B.C. V6C 1V5 Telephone (604) 687-1658

GEOLOGICAL AND GEOCHEMICAL INVESTIGATION

OF THE

KATE MINERAL CLAIMS

MAY 1 - JULY 14, 1975
AND
AUGUST 16 - AUGUST 22, 1975

Latitude 62°15'N Longitude 130°4

N.T.S. 105J2-7

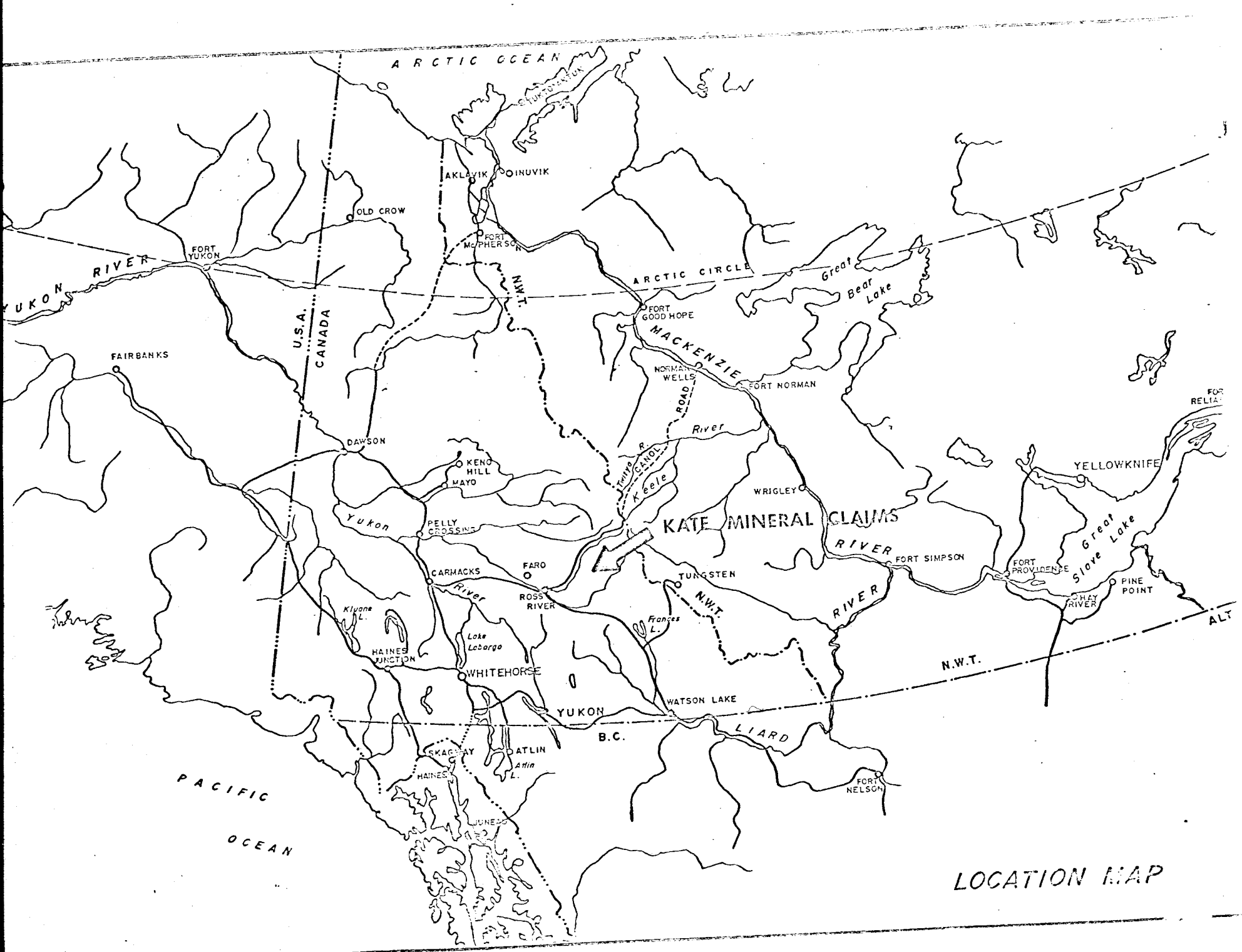
WATSON LAKE MINING DISTRICT
YUKON TERRITORY
CANADA

by

J.S. Brock
and
R. Reid

November 30, 1975

061255


ARCTIC OCEAN
AKLAVIK
INUVIK
OLD CROW
FORT YUKON
FORT McPHERSON
YUKON RIVER
ARCTIC CIRCLE
Great Bear Lake
FORT GOOD HOPE
MACKENZIE
N.W.T.
U.S.A.
CANADA
FAIRBANKS
NORMAN WELLS
FORT NORMAN
ROAD
River
DAWSON
KENO HILL
MAYO
Twiyr R.
CANOL
Keele
YELLOWKNIFE
WRIGLEY
Yukon
PELLY CROSSING
KATE MINERAL CLAIMS
RIVER
FORT SIMPSON
Great Slave Lake
CARMACKS
FARO
River
ROSS RIVER
TUNGSTEN
N.W.T.
RIVER
FORT PROVIDENCE
HAY RIVER
PINE POINT
Kluane L.
Frances L.
Lake Laberge
HAINES JUNCTION
WHITEHORSE
N.W.T.
WATSON LAKE
YUKON
B.C.
LIARD
SKAGWAY
ATLIN
Atlin L.
HAINES
FORT NELSON
PACIFIC OCEAN
JUNEAU
LOCATION MAP

96	94	92	90	88	86	84	82	80	78	76	74	72	70	68	66
95	93	91	89	87	85	83	81	79	77	75	73	71	69	67	65
64	62	60	58	56	54	52	50	48	46	44	42	40	38	36	34
63	61	59	57	55	53	51	49	47	45	43	41	39	37	35	33
32	30	28	26	24	22	20	18	16	14	12	10	8	6	4	2
31	29	27	25	23	21	19	17	15	13	11	9	7	5	3	1

Kate Creek

Stall Creek

MAP SHEET 105 J-7

MAP SHEET 105 J-2

WELCOME NORTH MINES LTD.

KATE 1-96 M.C.

Scale 1" = ¼ M | Date: 10-12-12 | NTS 105 J

Revised ——— | By: R.N.K | Fig. ———

TABLE OF CONTENTS

PLATES

Map Folder 1

1. Geology
2. Geochemical Compilation

Map Folder 2

1. Geochemical Values Map
2. Contoured Copper
3. Contoured Lead
4. Contoured Zinc

Map Folder 3

1. Geochemistry of Basin Project Area

Map Folder 4

1. Basin Traverse Map A-A
2. Basin Traverse Map B-B
3. Basin Traverse Map C-C
4. Basin Traverse Map D-D
5. Basin Traverse Map E-E
6. Basin Traverse Map F-F
7. Basin Traverse Map G-G

LIST OF CLAIMS

CLAIMS	GRANT/TAG NO.	RECORDED	MINING DISTRICT
KATE 1-96	Y83857-Y83952	Feb. 3, 1975	Watson Lake, Y.T.

INTRODUCTION

The KATE Group, comprised of 96 mineral claims, was staked by Welcome North Mines in January, 1975. The property covers known occurrences of copper, lead and zinc mineralization within a thick assemblage of Ordovician and Silurian shales and cherts.

The 'KATE' area has been previously explored by various mining companies and individuals. The copper occurrences were originally discovered in 1956 by Kennco (Northwestern Explorations Ltd.), who subsequently staked the OKE claims. After a brief examination the property was dropped and restaked as the NORKEN and FOOL claims by Yukon Canadian Mining Company in 1959. Yukon Canadian carried out a three-year program of trenching, EM and magnetic surveys and diamond drill testing. In 1966 the property was re-staked as the EM and EMU claims and optioned to Atlas Explorations, who carried out a limited program of soil sampling. Between 1970 and 1973, prior to acquisition by Welcome North, the property was staked and allowed to lapse several times by individuals.

Based on the following points, Welcome North was prompted to carry out further exploration of the claims during the 1975 field season:

- reports of high-grade shale hosted lead-zinc float of a

nature similar to the Howard's Pass deposit were never followed up during the course of previous exploration programs.

- the electromagnetic and magnetic anomalies drilled by Yukon Canadian were not coincident with surface occurrence of copper mineralization, therefore drill testing of the anomalies was inconclusive.

Welcome North carried out a program of grid controlled geochemical soil sampling to further delineate areas of known mineralization. Broad scale geologic mapping and prospecting were also completed to aid in defining specific mineralized zones and their relationship to geochemical anomalies.

SUMMARY AND CONCLUSIONS

Two target areas warranting further exploration have been developed on the KATE Claims.

1) Copper Zone (Copter and Peak Showings)

   Chalcopyrite associated with pyrrhotite and minor sphalerite occurs in selected beds and cross-cutting fractures within limy cherts. The copper mineralization occurs in float and outcrop over a strike length of 10,000 feet. The copper zone of immediate interest is well defined by a 5000 foot long anomalous copper geochemical anomaly.

2) Lead-Zinc Zone

   High-grade shale hosted lead-zinc float was found in one of the formerly established exploration camps in the KATE area. Subsequent discussion with the geologist in charge of the Yukon Canadian program revealed that the lead-zinc float was from the KATE property. Although no further float occurrences of a similar nature were found, several zones of anomalous lead-zinc geochemistry were outlined over Road River shale formations.

Bulldozer trenching of known showings and related geochemical anomalies is recommended as the next phase of exploration. Diamond drilling would be contingent on establishing the continuity of potentially economic mineralization in outcrop exposed through trenching.

In view of the fact that other significant occurrences of zinc-lead have recently been discovered within Ordovician-Silurian shales of the Selwyn Basin, a thorough and complete evaluation of the geochemical anomalies of the KATE property is warranted.

LOCATION AND ACCESS

The KATE Group is situated 60 miles northeast of Ross River, Yukon, N.T.S. 105J-2 and J-7 at 62°15' north latitude and 130°42' west longitude.

Access to the property may be gained from Ross River by float-equipped aircraft to Stall Lake, a 2000 foot long lake located at the northeast corner of the claim group. A base camp has been established at Stall Lake, from which point a two mile long trail provides access to the central portion of the claim group.

REGIONAL GEOLOGY

The KATE property lies within the central region of the Selwyn Basin, a geologic province consisting principally of shallow to deep water 'clastic' stratigraphy. The Selwyn Basin shale succession is underlain by Lower Cambrian phyllite which is in turn underlain by Proterozoic (Windermere) grits.

The Windermere basement, composed of grits, green and maroon shales and quartz-pebble conglomerate, has been uplifted and exposed by Pleistocene erosion throughout the central Selwyn Basin. The Windermere uplift occurs within a few tens of miles east of the KATE.

The 'grit unit' is unconformably overlain by Cambrian phyllites, locally described as 'wavy-banded limestone'. The lower sections of this unit are commonly comprised of Lower Cambrian thickly banded limestone, the upper sections are commonly rich in calcite, while interstitial quartz grains are generally found in lenticular zones parallel to original bedding. The 'wavy-banded' limestone is often isoclinally folded, an apparent product of regional tectonism.

Ordovician-Silurian Road River shales unconformably overlie the 'wavy-banded limestone'. Within the central Selwyn Basin, the Road River shales appear to rarely exceed a thickness of several hundred feet and are an apparent product of a starved basin environment. Overlying the shale is a thick

succession of chert and cherty shale units. The chert units weather differentially and due to greater outcrop exposure are easy to prospect, whereas the Road River is a recessive unit and is somewhat more difficult to trace on a regional basis. Ordovician volcanic rocks, greenstones and diabase, occur in lenses up to several tens of feet thick within the chert units.

Cretaceous plutonism is common throughout the western and central Selwyn Basin. A granodiorite batholith has been mapped within five miles of the property. A minor amount of quartz-monzonite float, probably representing associated intrusive activity, has been found on the claims.

PROPERTY GEOLOGY

The KATE property was mapped to a scale of 1 inch to 1000 feet. With the exception of chert formations found at higher elevations, outcrop is generally sparse due to the recessive nature of the shales and glacial drift cover.

The area of interest is underlain by wavy banded limestone which strikes 100 degrees and generally dips steeply, 65 degrees to the south. Local structure is complicated by tight isoclinal folding sympathetic to a postulated isoclinal syncline (Kate Syncline) that strikes northwesterly through the central part of the property.

The Road River shale has been mapped, where widely scattered outcrops occur, in low recessive areas on the property.

The shale is mainly black, fine grained, well bedded and graphitic. Calcite filled cross-cutting fractures are common. Mono and diplograptids have been identified within this unit. The shale unit generally strikes 120 to 145 degrees, beds on the northern limb of the 'Kate Syncline' have an average dip of 18 degrees south, beds on the south limb have an average dip of 60 degrees north.

The Ordovician chert unit consists of white, green, purple and brown interbands and contains limy sections. The cherts strike from 105 to 120 degrees and dip steeply 70 degrees north and south to vertical. Local isoclinal folding has also complicated the structural setting of the chert horizons, making correlation of individual beds difficult.

The central region of the 'Kate Syncline' lies within a northwest trending valley bottom, 'Kate Creek', a dominant topographic feature on the property. Vertical faulting in this area has apparently down-dropped the northern section of wavy-banded limestone and Road River. A pronounced northeasterly trending fault lies along the Stall Creek valley, apparent right-lateral displacement of several hundreds of feet has occurred locally.

ECONOMIC GEOLOGY

The principal mineralization at all of the copper

showings (Peak, Copter and Nipple) occurs in fractured siliceous chert and cherty shale. Sulphides occur as fine disseminations and small blebs as well as coatings and seams along fractures. Sulphides identified to date are pyrite, pyrrhotite, chalcopyrite, sphalerite and galena. Patches of secondary copper mineralization, malachite and azurite occur widely, indicating heavy leaching of outcrop. All exposed mineralization is somewhat gossanous, fresh sulphides are not evident until exposed by breaking rock.

Nipple Showing

The Nipple occurrence, located at Line 0 - Baseline on the Kate Grid, is confined to an isolated knob of chert at an approximate elevation of 4200 feet. Mineralized outcrop is exposed over an area of about 8000 square feet. The host is a light grey coloured siliceous chert, thinly bedded and cut by lenses, pods and veinlets of quartz-sericite. The chert contains interbands of crystalline limestone and is similar, lithologically, to the Copter host rocks.

Local strikes vary from 057 to 115 degrees, dips are from 80 degrees south to vertical. A strong system of fractures trend 020/65 northwest, a secondary fracture set trends 130/35 northeast. The showing is open at both ends, the lateral and longitudinal limits are overburden covered.

Showings of more heavily oxidized mineralization were blasted to a depth of four feet by Yukon Canadian, fresh sulphides were not exposed.

Mineralization is exposed over a width of 60 feet where chalcopyrite and pyrrhotite occur as disseminations, fracture fillings and fine bands conformable to original bedding. In places sulphides are preferentially associated with silica-rich zones.

The showing was not sampled due to the leached condition of the mineralized outcrops, grab samples of 'typical' mineralized talus assayed as follows:

	Copper	Gold	Silver	Lead	Zinc
Sample A	0.45	Tr	0.60	Nil	0.2
Sample B	0.53	Tr	0.36	0.1	0.2
Sample C	2.68	Tr	3.62	Nil	0.9

In addition to copper mineralization found on the 'Nipple', minor amounts of galena and sphalerite were also noted. The lead and zinc sulphide mineralization appears to be discontinuous in setting and occurs as fine grained disseminations and blebs.

Copter Showing

The Copter showing occurs in a low saddle, at an elevation of 4500 feet at Line 40E, 8N on the Kate Grid. Sparsely disseminated copper, lead and zinc sulphides are

found with siliceous dark grey cherts, and argillite, limestone and shale interbeds. Mineralization has been traced over an exposed width of approximately 60 feet. Minor amounts of galena and sphalerite occur as fracture fillings.

Attitudes of the host rocks are variable due to local, intense, folding. The chert and shale units in the vicinity of the showing generally strike 110 degrees and dip 80 degrees south. Local folding plunges to the southeast.

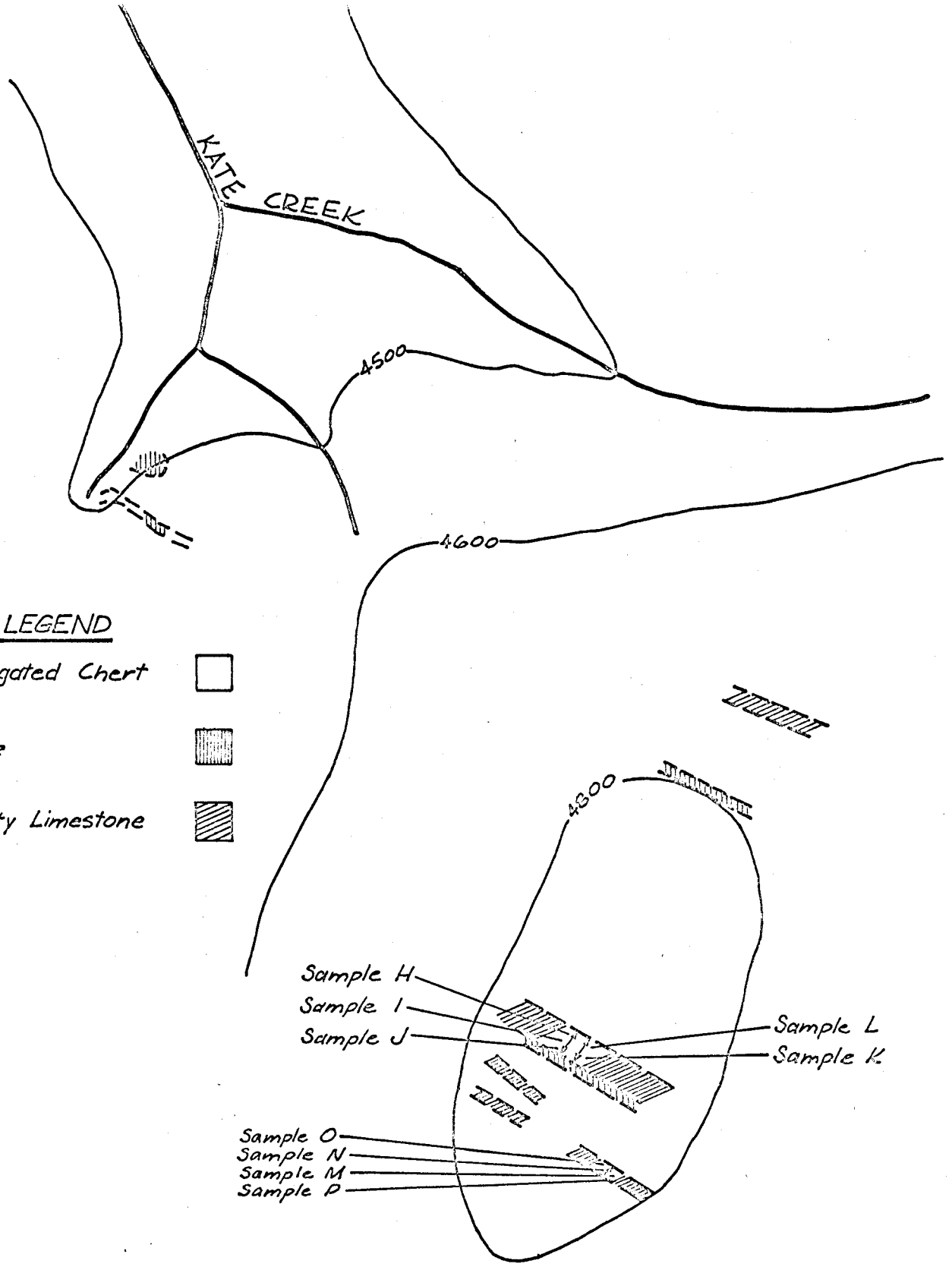
Assays from chip sampling over the Copter gave the following results:

Sample	Section Feet	Gold oz/T	Silver oz/T	Lead %	Zinc %	Copper %
D	30	Tr	0.04	Nil	Tr	0.06
E	30	Tr	0.02	Nil	Tr	0.13
F	20	Tr	0.24	Nil	Tr	0.13
G	20	Tr	Nil	Nil	Tr	Nil

Peak Showing

The Peak Showing is located on the Kate Grid at Line 64E, 8S, on the top section of a high ridge at an elevation of 5500 feet. Outcrop exposure is poor, however abundant felsenmere, derived from frost heaved action, has exposed significant amounts of mineralized float. Several small trenches have been blasted to bedrock, thus exposing mineralization in place.

The central portion of the 'Peak' is underlain by a limy chert horizon. Principal copper mineralization consists



WELCOME NORTH MINES LTD.

KATE CLAIMS

PEAK SHOWING

ASSAY LOCATIONS

of floats of malachite and azurite, fresh sulphides, where found, consist of disseminated chalcopyrite, pyrite and pyrrhotite. Mineralized float has been traced over an approximate width of 100 feet and along strike for approximately 1000 feet.

Grab samples of 'in-place' and float material were taken across strike and gave the following results:

Sample No.	Width in Feet	Copper %	Gold oz/T
H	29	0.30	Tr
I	42	0.07	Tr
J	6	0.75	.005
K	29	0.75	.05
L	42	0.17	Tr

Approximately 300 feet southwest of the main Peak Showing, 30 feet of mineralized limy chert is exposed. Mineralization consists of chalcopyrite and pyrrhotite which occurs as disseminations and stringers conformable to bedding as well as fracture fillings. Sampling of this outcrop gave the following assays:

Sample No.	Width in Feet	Copper %	Gold oz/T
M) continuous	9	0.21	Tr
N) chip	11	0.18	Tr
O)	0	0.38	Tr
P Grab, best seen		0.83	Tr

Northeast of the main Peak Showing at Station 66E on the Kate Baseline, a 300 foot long zone of mineralized

rubble has been hand trenched at three locations. Boulders of massive pyrrhotite mineralizion assayed:

0.3 Cu, 0.6 Pb, 0.4 Zn, 1.6 oz/Ton Ag

Scattered float occurrences of copper mineralization have been found within a 2000 foot radius south and west of the Peak.

Lead-Zinc Zone

Specimens of shale-hosted lead-zinc mineralization were found at the KATE camp. Subsequent discussion with L.K. Lyttle, former exploration geologist with Yukon Canadian, revealed that the lead-zinc specimens were found on the property. To the best of his recollection several large boulders of bedded sphalerite and galena in black shales were located by prospecters within an area east of the Nipple Showing.

It has been assumed that the lead-zinc float occurrences are from the Road River shale, which stratigraphy weathers recessively and is largely overburden covered. Prospecting of the area failed to reveal further similarily mineralized float. In this regard soil sampling was determined to be the best follow-up method to further define lead-zinc target areas.

The table following (TABLE 1) describes typical lead-zinc specimens found and assayed.

TABLE 1.

ASSAYS, LEAD-ZINC FLOAT OCCURRENCE

SAMPLE NO.	HAND SPECIMEN DESCRIPTION	Pb%	Zn%	Ag oz./ton
13041	Deformed layers of siliceous argillite, (1 mm) galena and sphalerite; barren argillite with euhedral pyrite	11.47	8.87	4.45
13042	Massive fine grained pale brown sphalerite appears to have replaced original argillite, shows minor remnant textures, small quartz vein	2.09	39.80	2.03
13043	Deformed layers of galena, sphalerite quartz and siliceous argillite layers 1 mm or less	.74	1.61	.38
13044	1 mm layers of siliceous argillite, galena and sphalerite, shows minor deformation	12.03	6.98	4.42
13045	Fine banded argillite (1 mm) with interlayered sphalerite, galena and pyrite	6.32	11.20	2.63
13046	Greenish black thin bedded argillite with fractures parallel to bedding; visible pyrite and sphalerite along en echelon type fractures	.16	.27	.04

TABLE 2.

CHEMEX LABS LTD.

...12 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648
AREA CODE: 604

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

CERTIFICATE NO. SP 223
INVOICE NO. 14178
RECEIVED June 25/75
ANALYSED July 8/75

TO: Welcome North Mines Ltd.
Suite 8 - 1161 Melville Street
Vancouver, B.C.

ATTN:

SAMPLE NO. :	Lower Concentration Limit (PPM)	Anvil	Kate #1	Kate #2	Howards Pass #1
Antimony	50	200	200	100	bcl
Arsenic	50	bcl	50	200	bcl
Barium	5	100	> 5000	> 5000	100
Beryllium	5	bcl	bcl	bcl	bcl
Bismuth	5	bcl	bcl	bcl	bcl
Boron	20	bcl	bcl	bcl	bcl
Cadmium	20	100	5000	500	2000
Calcium	0.05%	0.2%	0.05%	0.05%	5%
Chromium	10	100	200	500	20
Cobalt	10	20	50	20	bcl
Copper	1	5000	1000	100	100
Gallium	2	20	10	10	bcl
Germanium	20	bcl	bcl	bcl	bcl
Iron	0.05%	20%	1%	1%	0.05%
Lead	5	> 5000	> 5000	> 5000	> 5000
Magnesium	0.02%	0.2%	bcl	bcl	bcl
Manganese	5	2000	5000	200	200
Molybdenum	10	20	bcl	10	bcl
Nickel	5	50	20	100	50
Niobium	50	bcl	bcl	bcl	bcl
Silver	1	50	100	50	20
Strontium	20	bcl	bcl	20	50
Tantalum	200	bcl	bcl	bcl	500
Tellurium	200	bcl	bcl	bcl	bcl
Thorium	100	bcl	bcl	bcl	bcl
Tin	10	10	100	10	bcl
Titanium	5	200	500	1000	20
Vanadium	10	20	50	100	200
Zinc	50	> 5000	> 5000	> 5000	> 5000
Zirconium	20	50	bcl	50	bcl

Concentration Range

>5000 ppm =>5000 ppm
5000 ppm = 2500-10000 ppm
2000 ppm = 1000-4000 ppm
1000 ppm = 500-2000 ppm
500 ppm = 250-1000 ppm
200 ppm = 100-400 ppm
100 ppm - 50-200 ppm
50 ppm = 25-100 ppm
20 ppm = 10-50 ppm
10 ppm = 5-20 ppm
5 ppm = 2-10 ppm
2 ppm = 1-4 ppm
1 ppm = 0.5-2 ppm
bcl = below concentration limit

Ranges for Iron, Calcium & Magnesium are reported in %

TABLE 2.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 985-0648
AREA CODE: 604

CHEMEX LABS LTD.

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CERTIFICATE OF ANALYSIS

CERTIFICATE NO. SP 223

TO: Welcome North Mines Ltd.
Suite 8 - 1161 Melville Street
Vancouver, B.C.

INVOICE NO. 14178

RECEIVED June 25/75

ANALYSED July 8/75

ATTN:

SAMPLE NO. :	Lower Concentration Limit (PPM)	Howards Pass #2	Tom #1	Tom #2
Antimony	50	bcl	200	100
Arsenic	50	bcl	50	50
Barium	5	100	2000 >	5000
Beryllium	5	bcl	bcl	bcl
Bismuth	5	bcl	bcl	bcl
Boron	20	bcl	bcl	bcl
Cadmium	20	2000	100	50
Calcium	0.05%	5%	2%	0.2%
Chromium	10	50	50	100
Cobalt	10	10	20	bcl
Copper	1	100	50	50
Gallium	2	bcl	5	bcl
Germanium	20	bcl	bcl	bcl
Iron	0.05%	0.05%	2%	0.1%
Lead	5	> 5000	> 5000	> 5000
Magnesium	0.02%	bcl	2%	bcl
Manganese	5	200	2000	100
Molybdenum	10	bcl	bcl	bcl
Nickel	5	50	50	10
Niobium	50	bcl	bcl	bcl
Silver	1	20	200	100
Strontium	20	50	200	200
Tantalum	200	500	bcl	bcl
Tellurium	200	bcl	bcl	bcl
Thorium	100	bcl	bcl	bcl
Tin	10	bcl	50	bcl
Titanium	5	50	100	100
Vanadium	10	200	100	10
Zinc	50	> 5000	> 5000	> 5000
Zirconium	20	bcl	20	bcl

Concentration Range

>5000 ppm =>5000 ppm	50 ppm = 25-100 ppm
5000 ppm = 2500-10000 ppm	20 ppm = 10-50 ppm
2000 ppm = 1000-4000 ppm	10 ppm = 5-20 ppm
1000 ppm = 500-2000 ppm	5 ppm = 2-10 ppm
500 ppm = 250-1000 ppm	2 ppm = 1-4 ppm
200 ppm = 100-400 ppm	1 ppm = 0.5-2 ppm
100 ppm - 50-200 ppm	bcl = below concentration limit

Ranges for Iron, Calcium & Magnesium are reported in %

An attempt was made to geochemically 'finger-print' the lead-zinc mineralization by running comparative analysis with specimens from Howard's Pass, Tam Group and Anvil, TABLE 2 summarizes these results.

GEOCHEMICAL SURVEY

The most effective method of delineating the copper and lead-zinc target areas appeared to be through geochemical methods. Several geochemical anomalies of possible significance were outlined by Atlas Explorations in 1966. The first had coincident copper and zinc values occurring over the southern portion of an aeromagnetic high. The anomaly is about 5,000 feet long and 1,500 feet in width, and can be correlated with the Peak Showing area. It strikes in an easterly direction and does not appear influenced or distorted by drainage or topographic slopes. A second major copper-zinc anomalous area north of Kate Creek was coincident with a well defined aeromagnetic high. The geophysical and geochemical responses here strike for approximately 3,000 feet east and are 1,500 feet in width. Zinc reaches peak values in excess of 1,400 ppm and copper over 360 ppm.

Two 'topofil' chain and compass grids were established over the KATE Claims. Grid "K" as shown on the accompanying maps was established with a 14,400 foot long base line,

cross lines were established at 800 foot intervals, a 200 foot station interval was flagged on each cross line. Grid 'A' was established in the same manner over the southern half of the property. Base line control was referenced to the original base line established by Yukon Canadian.

Soil samples were collected at 200 foot station intervals on all cross lines of the 'A' and 'K' grids, approximately 700 samples were submitted for analysis for copper, lead and zinc. Actual sampling was done with a prospector's grub hoe. An attempt was made to gather 'B' type soil, however permafrost conditions did not permit penetration of the organic horizon for approximately 50 percent of the area sampled.

Analytical work was performed by Acme Analytical Laboratories located at Ross River, Yukon. All determinations were made using a standard hot acid attack and atomic absorption methods.

Soil sample results have been plotted and contoured on the maps accompanying this report. Anomalous results are considered to be in excess of twice the standard deviation which for copper is in excess of 200 ppm, lead in excess of 100 ppm and zinc in excess of 400 ppm.

Along strike discontinuing of geochemical anomalies is attributed to poor sampling conditions brought about by permafrost problems.

TABLE 3

GEOCHEMICAL CHECK
O N
GEOCHEMICAL RESULTS

Sample No.	PPM Cu		PPM Pb		PPM Zn	
	Chemex Geochem	Acme Analytical	Chemex Geochem	Acme Analytical	Chemex Geochem	Acme Analytical
1600-1500	126	140	90	118	344	350
5600E-500	42	34	350	340	375	330
5600E-2300	235	230	195	200	164	144
6400E-00	74	64	390	375	275	220
6400E 400	7	8	1000	950	24	12
6400E 500	20	14	100	98	52	36
7200E 100	44	40	400	380	295	270
7200E 2700	94	86	240	220	184	160
7200E 2800	34	32	174	180	77	62

Key target areas of interest are:

Peak Zone - coincident copper, lead and zinc, found over a strike length of 5,000 feet. Of interest is a pronounced lead anomaly indicating, because of its lack of mobility, persistent along-strike continuance of mineralization to the southeast.

Line 104E, 10S ('A' Grid) - the strongest coincident geochemical response obtained is located around a point 3,800 feet east of the Peak. The anomaly is on-strike with the Peak host rocks and deserves further attention.

Nipple Zone - geochemical response in the vicinity of the Nipple, appears to be limited in areal extent. However, it is felt that depth of overburden and permafrost conditions in this area prevented adequate sampling techniques. DDH 8, which is along strike from the Nipple attests to the continuity and extent of the showing, whereas, based on current geochemical results, the Nipple mineralization appears to be rather locally confined.

Lead-Zinc Zone - the lead-zinc target areas within the Road River shale appear to be well defined geochemically within the central and eastern region of Grid 'K'.

Target areas of immediate interest are:

Line 8W - Baseline - 2 3200 foot long lead anomaly with values in excess of 100 ppm. The sinuous nature of the anomaly is suspected to reflect correlation with a narrow band of Road River shales.

East Grid 'K' - discontinuous lead anomalies occur in an en echelon fashion east of Line 40E on Grid 'K'. This area is of prime interest as the anomalies are in excess of 100 ppm lead, and probably reflect sub-outcrops of tightly isoclinally folded metal-rich Road River shale.

REGIONAL PROGRAM

During the period May 1 - July 16 a regional prospecting program was carried out over 4 claim sheets (105J-1, 2, 7, 8) surrounding the KATE property. The program was considered an integral part of follow-up work required outside the present KATE claims boundaries in order to prospect Road River shales for lead-zinc occurrences.

The main emphasis of the helicopter-supported program, based from the KATE camp, was to locate Road River formation, and prospect such areas by rock breaking and geochemical surveys. The program was not successful in discovering any new lead-zinc occurrences.

RECOMMENDATIONS

It is reasonable to postulate that most lead-zinc sulphide occurrences found to date in the Selwyn Basin have a proximal to distal volcanogenic origin. A sedimentogenic exhalitive origin may also provide a feasible working model for these shale-hosted zinc-rich sulphide deposits.

Widespread mineralization found on the KATE property suggests a distal volcanogenic to basinal facies depositional environment. Based on such a model, chemical precipitation as evidenced by chert and carbonate zones within the shale formation coupled with copper to lead-zinc

zonation indicate that the KATE occurrences could have economic large tonnage potential.

Copper Zone

The Peak showings and related eastward trending geochemical anomalies warrant further exploration. Diamond drilling of geophysical targets performed by Yukon Canadian did not adequately test the zone as the electromagnetic and magnetic anomalies were not reflecting typical copper mineralization. It is important to note that drill holes 4 and 5 did intersect some sulphides of sub-economic grade in spite of the fact they did not adequately test the continuity of known surface occurrences and geochemical anomalies.

DDH 4 Grid Location 65E, 8S
Depth 252 ft.
Drilled Angle -45°/NE

	Width	Ag	Cu	Zn
155.0 - 157.4	2.4'	.26	.97	.35
157.4 - 100.3	2.9	.06	.17	--
160.3 - 164.7	4.4	.06	.18	.30
164.7 - 167.1	2.4	1.22	1.95	2.70
167.1 - 173.7	6.6	.22	.60	.90
AVERAGE GRADE	18.7'	.29	.66	.78
221.0 - 227.0	6.0'	.10	.22	.50
227.0 - 231.8	4.8	.30	.60	.60
231.8 - 236.9	4.2	.30	.52	.80
AVERAGE GRADE	15.0'	.22	.43	.62

DDH 5 Grid Location 69E, 4S
Depth 405 ft.
Drilled Angle -45°/NE

	Width	Au	Ag	Cu
282.2 - 284.4	2.2'	Tr	.40	.52
284.4 - 288.3	3.9	Tr	.10	.18
288.3 - 291.1	2.8	.01	.42	.33
291.1 - 295.6	4.5	.005	Tr	.03
295.6 - 301.3	5.7	Tr	.24	.18
AVERAGE GRADE	19.1'	.003	.20	.21

Bulldozer trenching of the Peak geochemical anomalies is recommended to expose mineralized shallow sub-outcrop. Assaying of fresh mineralization exposed by trenching should help to determine the continuity of higher grade zones.

The Nipple showing is considered to be of lower priority, although mineralization intersected in DDH 9 suggests that some on-strike potential may exist in spite of the fact that it is not represented geochemically.

DDH 9 Grid Location 12E, 2N
Depth 351 ft.
Drilled Angle -45°/NE

	Width	Au	Ag	Cu	Zn
41 - 47	6'	.01	.20	.81	.20
314 - 317	3	.01	1.10	1.14	.50
319.3 - 321.4	1.6	.01	1.74	4.52	--

Limited bulldozer trenching, across the prospected zone in the vicinity of Line 8E is recommended.

Lead-Zinc Zone

Trenching of lead geochemical anomalies on Grid 'K' is recommended with priority being given to those zones east of Line 48E.

Extension of soil sampling is required to the east of Grids 'A' and 'K' in order to fully complete coverage of 'open' geochemically anomalous areas.

Respectfully submitted

John S. Brock

November 25, 1975.

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(Private report to Atlas Exploration Ld.) by C.L. Smith

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(Private report Atlas Exploration Ltd.) J.S. Brock

APPENDIX I

KATE PROJECT

STATEMENT OF EXPENDITURES

APPENDIX I

KATE MINERAL CLAIMS

STATEMENT OF EXPENDITURES, 1975

FOR THE PERIOD

MARCH 1 - NOVEMBER 30, 1975

	ON PROPERTY COSTS $
GEOLOGY	4,586.68
GEOCHEMISTRY	4,708.09
PROSPECTING	64.08
LINECUTTING	64.08
AIR & GROUND TRANSPORTATION	14,706.99
CAMP OPERATIONS	9,045.84
EXPEDITING	233.86
ADMINISTRATION	3,341.00
	36,750.62

LIST OF PERSONNEL AND DATES WORKED

KATE MINERAL CLAIMS, 1975

1)	R.W. Reid, Party Chief Vancouver, B.C.	May 5-18, 20-22 June 4-20 July 6, 8, 20 August 16-22, 25-29
2)	John Buckler, Field Asst. Vancouver, B.C.	June 1-11, 15, 24 July 1-14 August 16-22
3)	Thomas Muirhead, Field Asst. Victoria, B.C.	June 1-11, 15, 18, 25 July 1-14 August 16-22
4)	Rod McClelland, Field Asst. General Delivery Ross River, Yukon	July 3-10
5)	Lloyd Etzerza General Delivery Ross River, Yukon	July 3-10
6)	Charmaine Klippert, Cook General Delivery Mayo, Yukon	May 12-21 June 4 - July 14
7)	Pete Risby, Prospector General Delivery Ross River, Yukon	May 15 - 21
8)	Esau Dick, Prospector General Delivery Ross River, Yukon	May 15 - 21
9)	Robert Etzel, Prospector General Delivery Ross River, Yukon	May 15 - 21
10)	Art John, Prospector General Delivery Ross River, Yukon	May 15 - 21
11)	Martha McArthur, Geologist Vancouver, B.C.	May 15 - 21
12)	Gerald McArthur, Geologist Vancouver, B.C.	May 15 - 21

13) Martin Slabchuk
General Delivery
Elsa, Yukon

May 15 - 21

14) Joan Stickney, Cook
General Delivery
Whitehorse, Yukon

May 12 - 21

APPENDIX II

I, John S. Brock, of the City of Vancouver in the Province of British Columbia, Geophysicist and President of Welcome North Mines Ltd., N.P.L.,

DO SOLEMNLY DECLARE

1. I am the President of Welcome North Mines Ltd. (N.P.L.) the applicant named in the annexed materal, and have knowledge of the matters contained in that material.

2. The statements made within the report GEOLOGICAL AND GEOCHEMICAL INVESTIGATION OF THE KATE MINERAL CLAIMS, November 30, 1975, are true.

3. The statement of expenditures appendixed to the report "GEOLOGICAL AND GEOCHEMICAL INVESTIGATION OF THE KATE MINERAL CLAIMS, November 30, 1975" is true.

AND I MAKE THIS solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath and by virtue of the Canada Evidence Act.

DECLARED before me)
at the City of Vancouver in the)
Province of British Columbia)
This 30th day of January, 1976)

A Notary Public in and for the)
Province of British Columbia.)

My Commission Expires at death)

John S. Brock

Cat Road

Nipple

Copter

Peak

GRID K

GRID A

N

LEGEND

Dykes	
Chert	4
Black Shale	3
Wavy Banded	2
Volcanic	1
Diamond drill hole	DDH
Trench	
Strike--Dip	75°
Contact	
Fault	

Welcome North Mines Ltd. (N.P.L.)

Kate Group

GEOLOGY

Date:	Scale: 1 in = 400 ft.
Drawn by:	N.T.S. 103 J/2, 7 Fig

N

GRID K

GRID A

Nipple

Copter

Peak

ZINC
LEAD
COPPER

Welcome North Mines Ltd. (N.P.L.)

Kate Group

GEOCHEMICAL COMPILATION

Date:	Scale: 1 in : 400 ft
Drawn by:	N.T.S. 105 J/2,7 Fig

GRID K

GRID A

N

Cu Pb Zn
I-98-76-190

Welcome North Mines Ltd. (N.P.L.)

Kate Group

GEOCHEMICAL VALUES MAP

Date:	Scale: 1 in = 400 ft
Drawn by:	N.T.S. 103 J/2, 7 Fig.

N

GRID K

GRID A

NOTE : READINGS ARE IN ppm.
CONTOUR INTERVAL IS 100 ppm.

Welcome North Mines Ltd. (N.P.L.)

Kate Group

GEOCHEMICAL SOIL SAMPLING SURVEY
CONTOURED COPPER

Date:	SEPT. 11, 1975	Scale:	1" = 400'
Drawn by:	P.P.	N.T.S.	105 J/2,7 Fig.

GRID K

GRID A

NOTE : READINGS ARE IN ppm
CONTOURS — 60 ppm , 100 ppm

Welcome North Mines Ltd. (N.P.L.)

Kate Group

GEOCHEMICAL SOIL SAMPLING SURVEY
CONTOURED LEAD

Date: SEPT. 11, 1975	Scale: 1" = 400'
Drawn by: P.P.	N.T.S. 105 J/2,7 Fig.

N

GRID K

GRID A

NOTE : READINGS ARE IN ppm

Welcome North Mines Ltd. (N.P.L.)

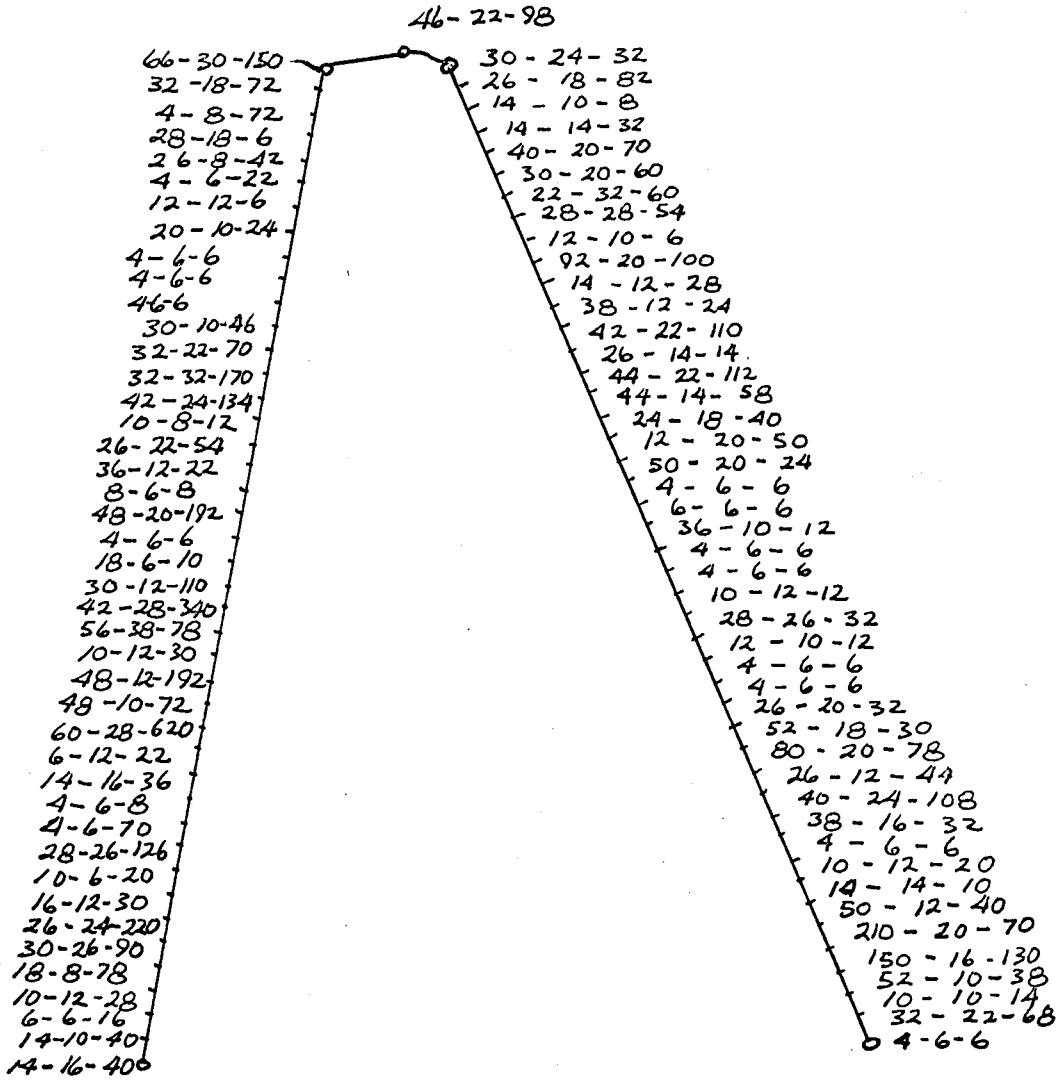
Kate Group

GEOCHEMICAL SOIL SAMPLING SURVEY

CONTOURED ZINC

Date:	Scale: 1" = 400'
Drawn by:	N.T.S. 105 J/2, 7 Fig.

WELCOME NORTH MINES LTD.
GEOCHEMISTRY
BASIN PROJECT AREA
Scale: 1:50,000
Date: 21-11-75
N.T.S. 105 J
Revised:
By: R.W. REID
Plate
LEGEND
Cu - Pb - Zn
98- 16 - 930 p.p.m.
105 J-7
105 J-8
105 J-2
105 J-1
See Map G-G
See Geochemical Map A-A
See Geochemical Map F-F
See Geochemical Map B-B
See Geoch Map D-D
See Geochem Map C-C
See Geochem Map E-E
113 - 30-14-80
114 - 20-12-52
115 - 30-8-54
116 - 4-6-6
117 - 4-6-6
118 - 20-10-28
119 - 46-16-60
120 - 40-28-6
121 - 90-10-152
124 - 40-14-100
125 - 24-8-22
126 - 14-12-6
127 - 32-10-30
128 - 12-8-22
10-20-72
12-20-40
26-22-112
8-20-30
10-22-62
4-12-112
28-44-160
14-32-100
20-20-112
24-20-120
14-20-92
30-22-122
30-20-60
34-30-60
12-20-88
12-12-54
6-10-22
8-12-68
36-20-120
60-22-158
60-20-180
80-16-160
30-20-90
120-16-10
26-12-104
26-10-120
18-12-78
24-20-148
18-16-100
14-10-72
26-20-94
102-20-340
76-22-180
94-24-140
12-8-38
66-22-130
78-18-20
24-6-1360
34-16-1400
68-12-530
56-18-140
24-16-660
70-20-1580
34-12-90
30-14-40
88-20-640
76-12-140
14-6-200
64-20-390
78-10-150
90-22-500
20-10-60
58-20-290
30-52-140
10-20-42
12-12-52
16-16-44
18-14-28
14-74-78
36-62-100
110-36-300
94-36-260
60-20-200
38-20-200
100-10-14
100-18-82
210-10-22
62-12-102
102-20-340
104-20-200
8-20-290
50-10-135
106-20-480
72-14-270
46-16-360
100-18-530
82-16-320
56-10-130
60-12-250
20-8-80
32-10-60
56-12-160
78-10-620
38-16-930
30-32-40
70-60-380
100-60-340
42-12-84
56-14-150
70-16-150
72-14-570
60-12-162
76-14-530
52-10-140
54-10-120
48-20-210
100-22-280
68-12-250
66-16-210
22-10-122
4-8-6
48-174-106
112-10-96
12-6-10
54-12-140
28-30-102
18-14-66
24-44-108
8-38-52
58-72-110
18-6-30
32-12-90
76-32-230
84-60-152
4-10-10
54-22-110
68-22-260
50-28-134
34-26-82
56-22-82
54-18-106
44-20-122
94-42-870
16-40-18
46-22-134
74-40-920
26-70-260
22-54-210
24-46-122



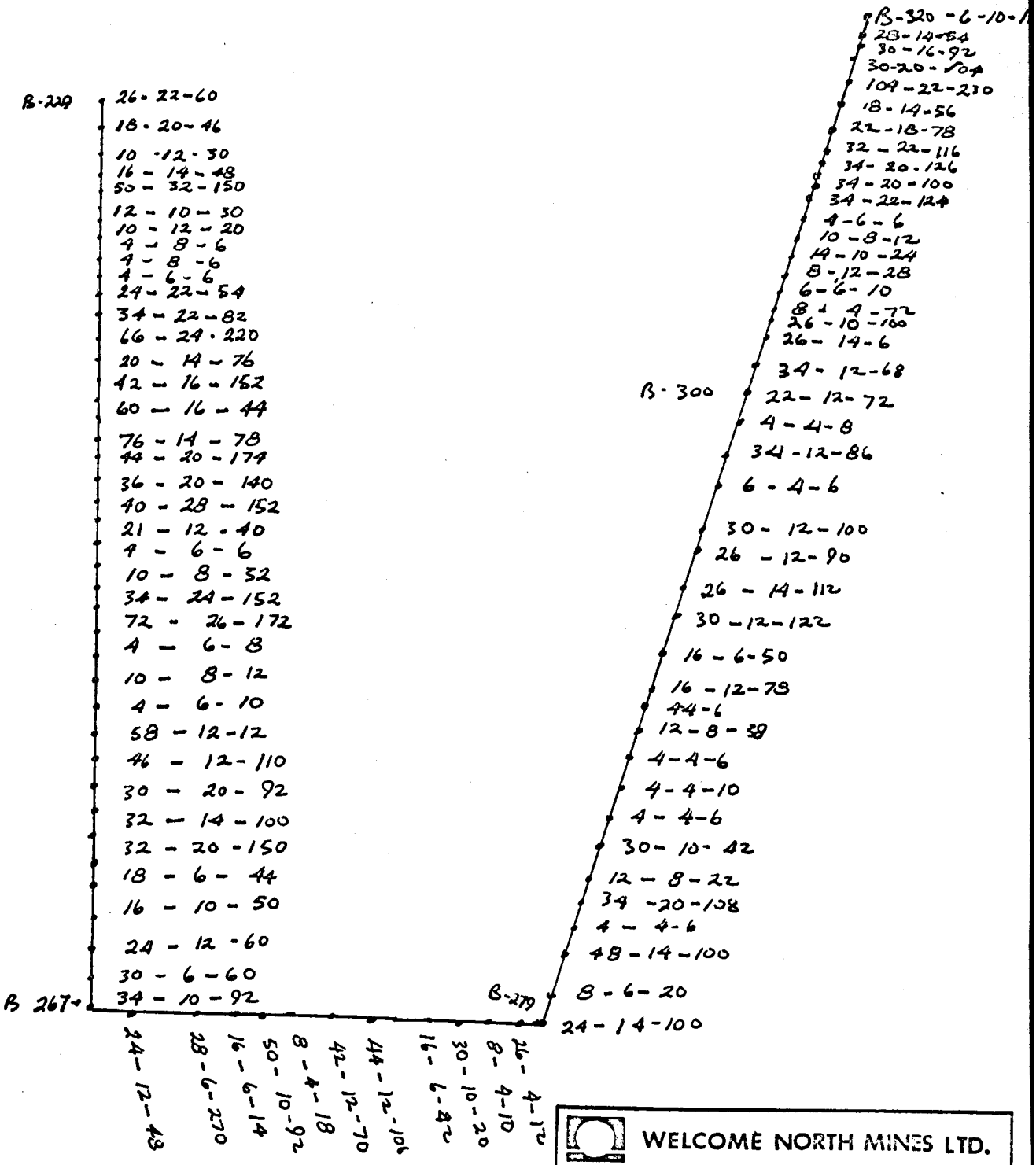
Cu - Pb - Zn
66 - 30 - 150

WELCOME NORTH MINES LTD.		
BASIN Project		
MAP A-A		
Scale: 1" = 2600'	Date: 21-11-75	N.T.S. 105-5
Revised:	By: RWR.	Fig. 3

SHEET NO. ____ OF ____

JOB NO. ____

Samples B-229 → B-320



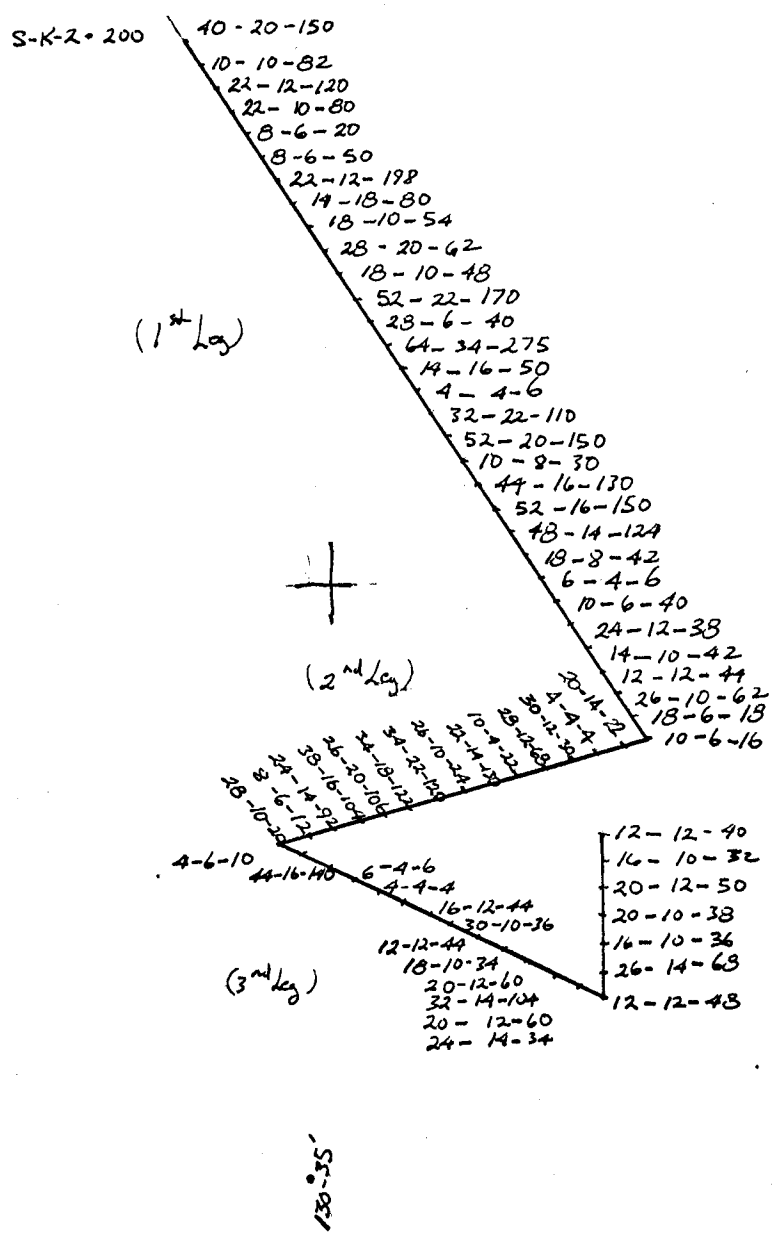
Cu - Pb - Zn
104 - 22 - 230

WELCOME NORTH MINES LTD.

BASIN PROJECT

Map B-B

Scale:	Date: 21-11-75	N.T.S. 105-I
Revised:	By: R.W.K.	Fig.

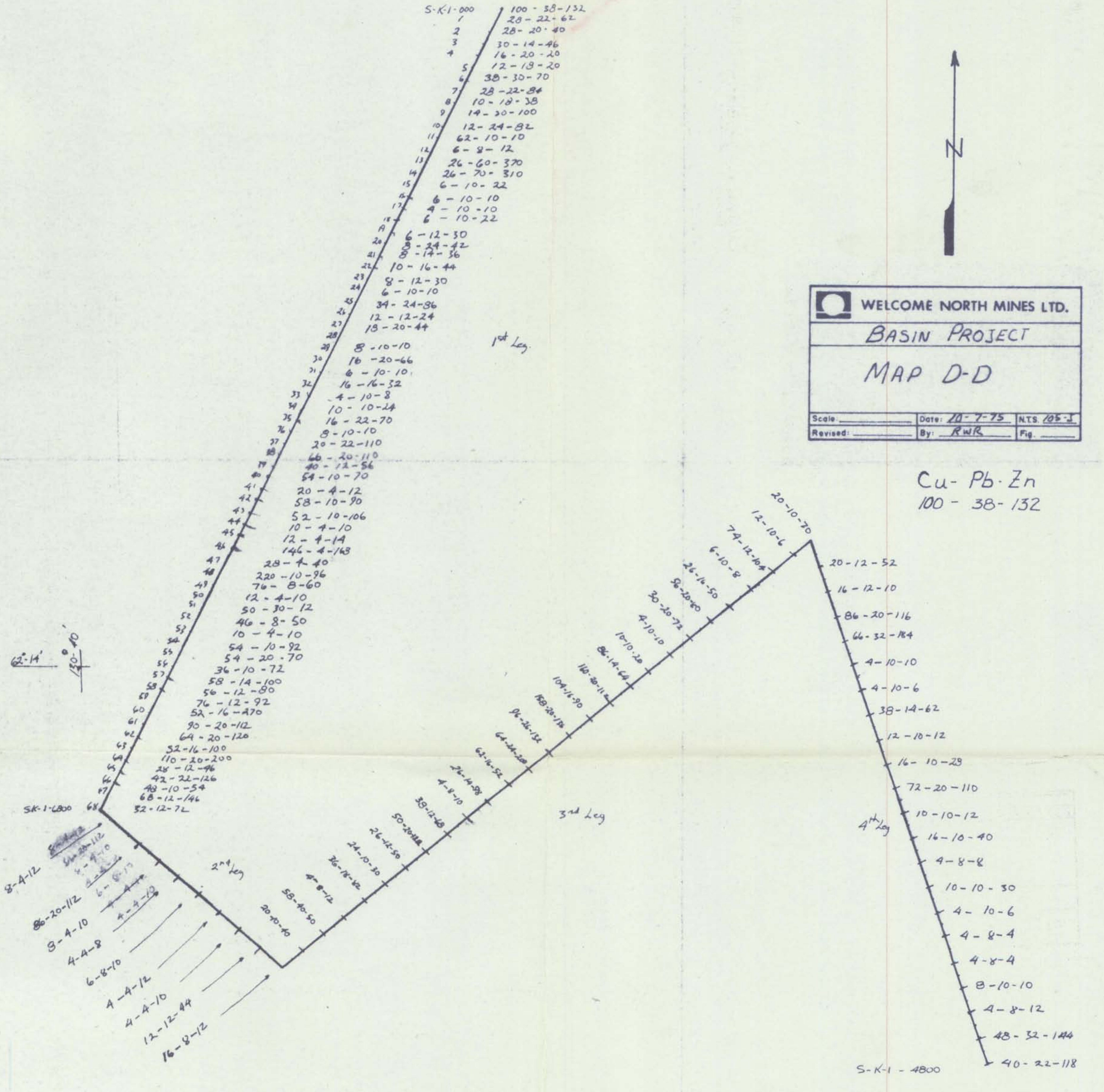


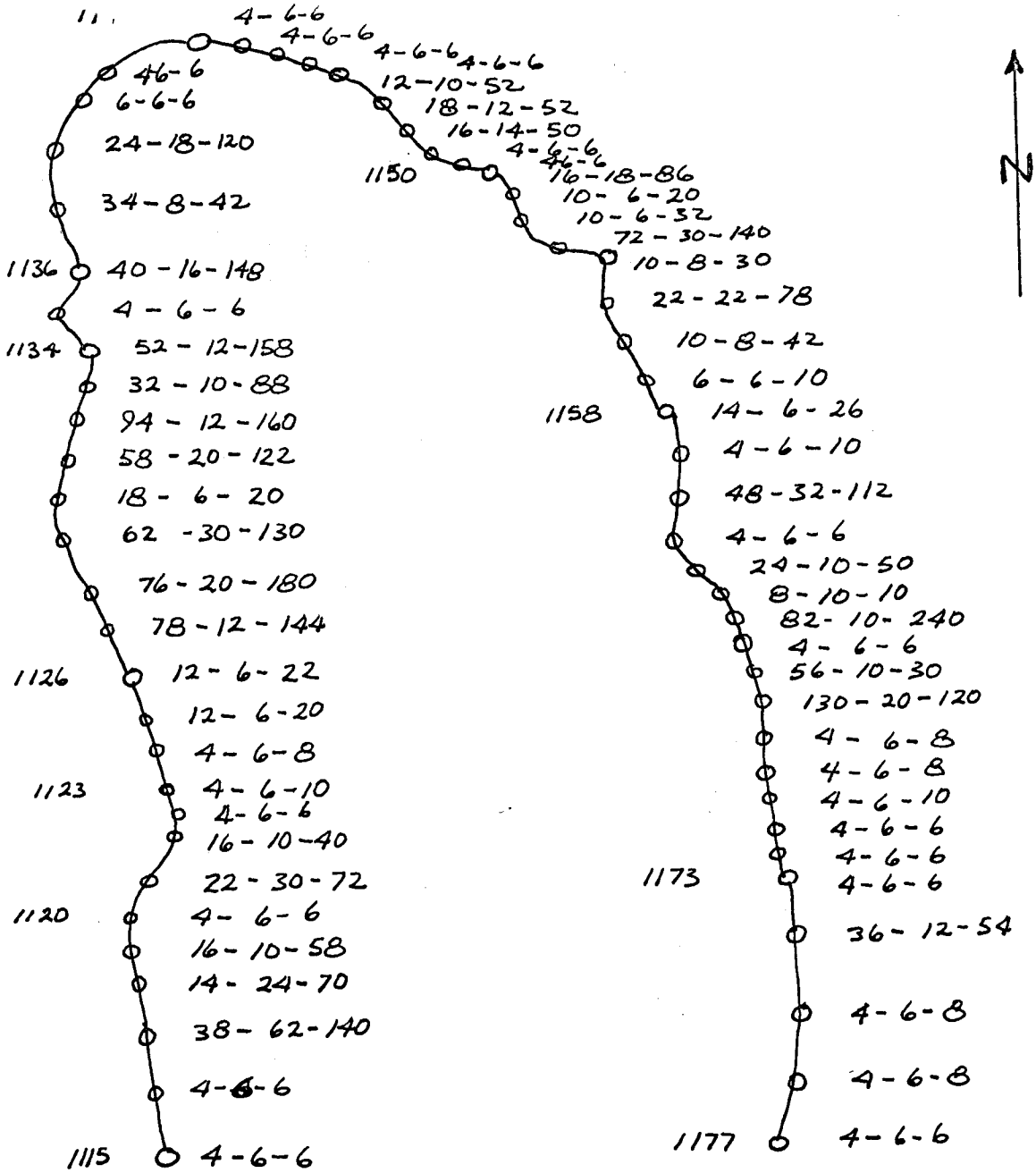
WELCOME NORTH MINES LTD.

BASIN PROJECT

MAP C-C

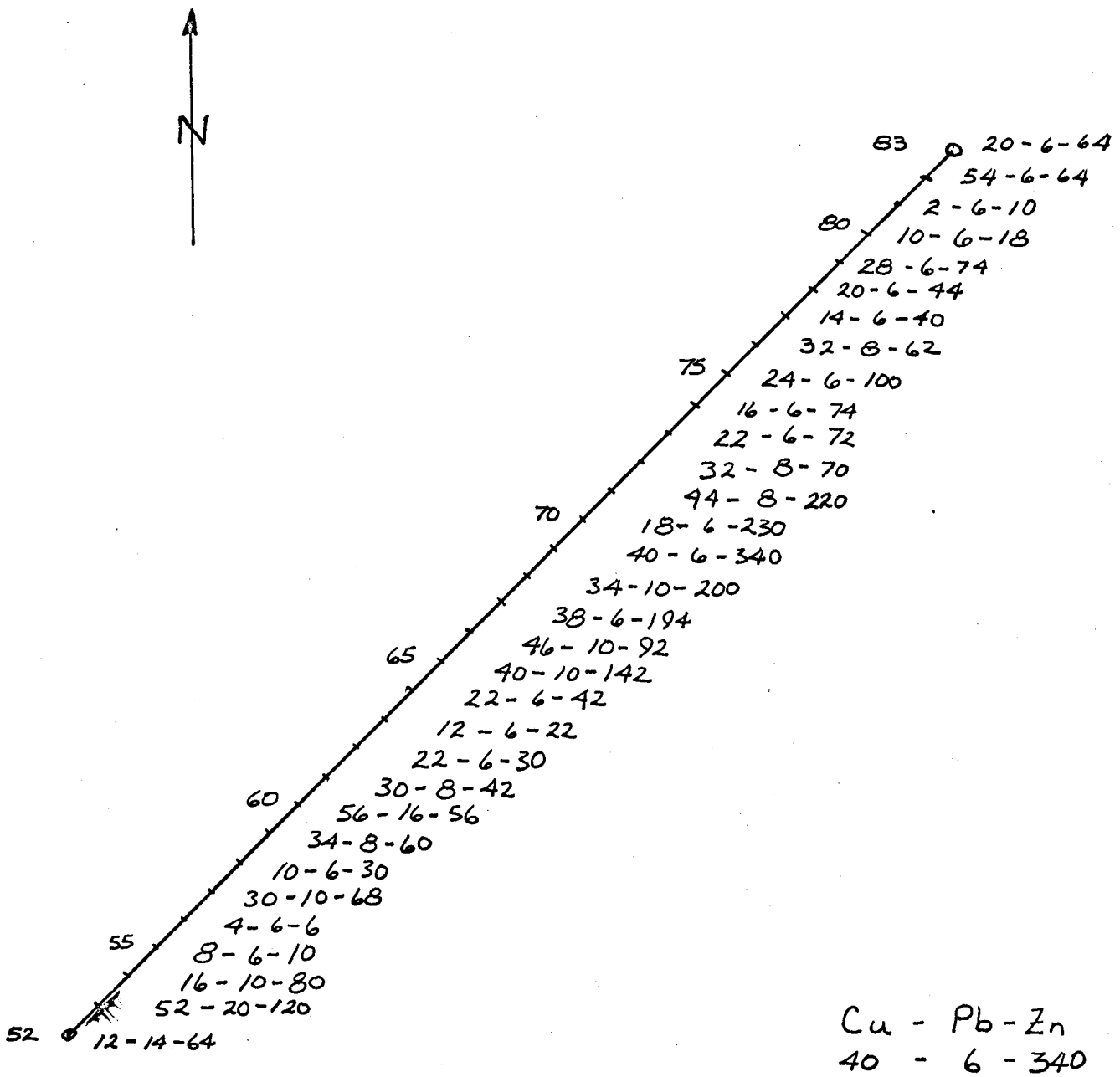
Scale:	Date: 21-11-75	N.T.S. 105-5
Revised:	By: RWB	Fig.


WELCOME NORTH MINES LTD.
BASIN PROJECT
MAP D-D
Scale:
Date: 20-7-75
N.T.S. 105-J
Revised:
By: RWR
Fig.
N
Cu-Pb-Zn
100 - 38 - 132
S-K-1-000
1st Leg
2nd Leg
3rd Leg
4th Leg
SK-1-L800
S-K-1 - 4800
62°14'
130°10'



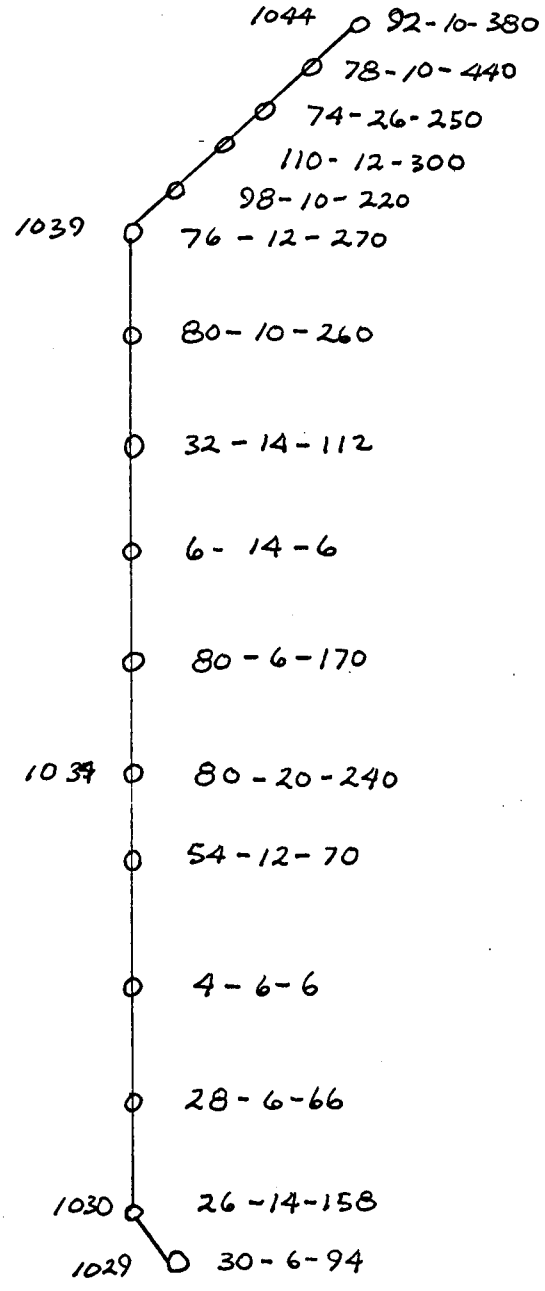
Cu - Pb - Zn
82 - 10 - 240

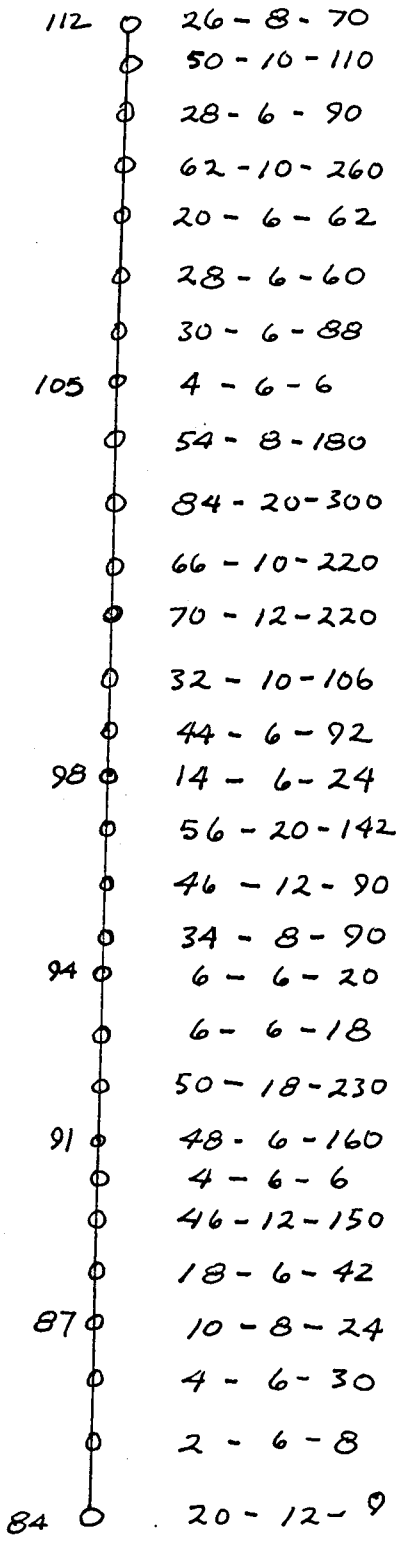
WELCOME NORTH MINES LTD.		
BASIN PROJECT		
Map E-E		
Scale:	Date: 21-11-75	N.T.S. 105 J
Revised:	By: RWR.	Fig. 5



Cu - Pb - Zn
40 - 6 - 340

WELCOME NORTH MINES LTD.		
BASIN PROGECT		
MAP F-F		
Scale:	Date: 21-11-75	N.T.S. 105 I
Revised:	By: RWR	Fig.





WELCOME NORTH MINES LTD.

BASIN PROGECT

MAP G-G

Scale:	Date: 21-11-75	N.T.S. 105-J
Revised:	By: RWR	Fig.

APPENDIX "A" TO ACCOMPANY
APPLICATION FOR NORTHERN MINERAL
EXPLORATION ASSISTANCE GRANT -
KATE CLAIMS - MARCH 30, 1975.

WELCOME NORTH MINES LTD. (N.P.L.)
Suite 8, 1161 Melville St., Vancouver, B.C. V6E 2X7 Telephone (604) 687-1658

SELWYN BASIN PROJECT

PROPOSED EXPLORATION
ON THE
KATE MINERAL CLAIMS

Latitude 62°15'N Longitude 130°41'W

N.T.S. 105-J-2/7

WATSON LAKE MINING DISTRICT
YUKON TERRITORY
CANADA

by

J.S. Brock
and
G. McArthur

March 30, 1975

TABLE OF CONTENTS

ACCOMPANYING MAPS

LIST OF CLAIMS

CLAIMS	GRANT/TAG NO.	RECORDED	MINING DISTRICT
KATE 1-96	Y83857-Y83952	Feb. 3, 1975	Watson Lake, Y.T.

All of the above claims are recorded in the name of the stakers. Transfer documents are held on file awaiting receipt of processed recording forms.

MAP SHEET 105 J-7
MAP SHEET 105 J-2

96	94	92	90	88	86	84	82	80
95	93	91	89	87	85	83	81	79
64	62	60	58	56	54	52	50	48
63	61	59	57	55	53	51	49	47
32	30	28	26	24	22	20	18	16
31	29	27	25	23	21	19	17	15

78	76	74	72	70	68	66
77	75	73	71	69	67	65
46	44	42	40	38	36	34
45	43	41	39	37	35	33
14	12	10	8	6	4	2
13	11	9	7	5	3	1

WIT 200' E.

MAP SHEET 105J2 & 105J7

STAKING SKETCH SHOWING:

KATE 1-96 M.C.

SCALE	1"=½mi	Hoefford, Impey And Weller Ltd.
DRAWN		Box 4418
DATE	JAN 29 1976	Whitehorse, Yukon
NO		

1007-75

INTRODUCTION

The Kate Group (comprised of 96 mineral claims) was staked by Welcome North Mines in January, 1975. The property covers several known occurrences of copper, zinc and lead sulphides which are thought to occur within Road River shales of Ordovician-Silurian age. In spite of the fact that the property has a prior history of exploration during the period 1959 to 1962, it appears that the main target was copper mineralization and that the property's potential for occurrence of zinc and lead were largely ignored. Other significant occurrences of zinc-lead have recently been discovered within Ordovician-Silurian shales of the Selwyn Basin, in this regard a complete re-evaluation of the Kate property is warranted.

LOCATION AND ACCESS

The Kate 1-96 mineral claim group is located on the Sheldon Lake 4-mile topographic map, sixty miles east-northeast of Ross River and twelve miles northwest of Traffic Mountain. The claims are shown on Claim Sheet 105J-2, at $62^{o}15'$ north latitude and $130^{o}42'$ west longitude.

The group lies over a south-southwest slope above timberline between 4000 and 5000 feet above sea level.

Access to the property is available by helicopter from two small lakes. Fixed-wing float equipped aircraft may land at Pike Lake 7 miles to the south or Stall Lake 2 miles to the north of the property for support purposes. Expediting is available from Ross River.

TOPOGRAPHY AND SOIL CONDITIONS

The property is generally above timberline and is situated in typical Yukon sub-alpine terrain. Drainage is well defined, and flows year-round to the southwest from tributaries at the north and south sides of the claim group. Glaciation has been generally from the northwest and deposition of remnant till and overburden is negligible near higher elevations but increases in depth downslope and in valley bottoms. Soils are generally of the lower "B" and "C" horizons. In local depressions there is some organic soil development.

PREVIOUS WORK

The showings were formerly staked by Kennco Exploration Limited, in 1956, as the OKE Group. They were later restaked as the Norken and Fool claims and acquired by Canadian Yukon Mining Company Limited in 1959. Subsequent exploration between 1959 and 1962 consisted of geological mapping, prospecting, trenching, sampling, and diamond drilling. In 1960 work consisted of linecutting followed by electromagnetic and magnetic ground surveys; prospecting, trencing, and sampling of anomalous areas followed. In 1961 five holes totalling 1,800 feet were drilled to test geophysical anomalies delineated in 1960. In 1962 eight holes totalling 2,800 feet were drilled and additional electromagnetic and magnetic surveys were carried out, some follow-up prospecting and trenching was also done.

In 1966 the showings were re-staked as the EM and EMU groups and subsequently optioned to Atlas Explorations. Exploration by Atlas consisted of a regional geological and geochemical survey. The area was also partially surveyed by aeromagnetic methods under contract by Lockwood Survey Corporation on behalf of Atlas Explorations. In 1970 the property was re-staked as the Bill

group and again in 1973 as the Cere group. In both cases the claims were allowed to lapse and no assessment work was recorded.

GEOLOGY

Aside from the scattered showings there is little outcrop on the claim group. The rocks of the area are reported to consist principally of rusty weathering, thinly bedded argillites, and quartzites which strike northwesterly and dip steeply to the south. These rocks are of Ordovician to Silurian age as determined from graptolite fossils (diplograptids). The most common rock types as determined from logs of drill cores are purplish-brown and green finely banded hornfels and a dark grey to black argillite. Sulphide mineralization as reported in drill cores consists of sphalerite, galena, chalcopyrite, pyrrhotite, and pyrite, and occurs both as concentrations along fine banding and in crosscutting veinlets.

Five mineralized areas have been located to date. Two of the more important showings, the "Nipple" at an approximate elevation fo 4,200 feet, and the "Copter" at an approximate elevation of 4,900 feet and situated 4,200 feet east of the former, carry disseminated pyrrhotite, pyrite, and chalcopyrite. Elsewhere float carrying encouraging values in copper, silver, lead, and zinc, in zones up to 100 feet wide, have been traced for 10,000 feet corresponding to a continuous geophysical anomaly. The principal mineralization at all the showings is reported to occur in fractured quartzite which is quite fine grained and varies from light to dark grey in colour.

GEOCHEMISTRY

Several geochemical anomalies of possible significance were outlined by Atlas Explorations. The first has coincident copper and zinc values that occur over the southern portion of an aeromagnetic high. The anomaly is about 5,000 feet long and 1,500 feet in width. It strikes in an easterly direction and does not appear influenced or distorted by drainage or topographic slopes. A second major copper-zinc anomalous area is coincident with a well defined aeromagnetic high. The geophysical and geochemical responses here strike for approximately 3,000 feet east and are 1,500 feet in width. Zinc reaches peak values in excess of 1,400 ppm and copper over 360 ppm.

Two isolated geochemical responses between the two above mentioned have been delineated - however they are not coincident and are low in responses.

SUMMARY AND CONCLUSIONS

In light of new geological information concerning the Selwyn Basin, and the discovery of major lead-zinc mineralization at Summit Lake, it is thought that the Kate property lies within a transitional facies zone between deeper water facies with more abundant chert to the southwest and shallower shelf facies with more abundant limy beds to the northeast.

Zinc-lead mineralization at Summit Lake appears to be located with this transitional zone.

Specimens of lead-zinc sulphides were collected by Welcome North personnel from an abandoned

camp-site on the property. Heavy snow cover at the time the camp was visited did not permit an examination of the known mineral occurrences.

Analyses of the specimens collected are presented on the following page.

From records of previous work, two major geochemical anomalies occur near areas of known sulphide mineralization. It is probable that the magnetic anomalies can be attributed to pyrrhotite mineralization, however the geochemical anomalies appear to be well enough defined to warrant further investigation.

It also appears that the occurrence of fine grained sphalerite and galena in thin bedded black argillites may not have been recognized by those who were formerly looking for copper mineralization on the property. It is therefore recommended that a detailed exploration program directed toward the search for zinc and lead be initiated.

SAMPLE NO.	HAND SPECIMEN DESCRIPTION	Pb%	Zn%	Ag oz./ton
13041	Deformed layers of siliceous argillite, (1 mm) galena and sphalerite; barren argillite with euhedral pyrite	11.47	8.87	4.45
13042	Massive fine grained pale brown sphalerite appears to have replaced original argillite, shows minor remnant textures, small quartz vein	2.09	39.80	2.03
13043	Deformed layers of galena, sphalerite quartz and siliceous argillite layers 1 mm or less	.74	1.61	.38
13044	1 mm layers of siliceous argillite, galena and sphalerite, shows minor deformation	12.03	6.98	4.42
13045	Fine banded argillite (1 mm) with interlayered sphalerite, galena and pyrite	6.32	11.20	2.63
13046	Greenish black thin bedded argillite with fractures parallel to bedding; visible pyrite and sphalerite along en echelon type fractures	.16	.27	.04

RECOMMENDATIONS

In view of known exploration results to date on the property coupled with the possibility of extensive zones of zinc-lead mineralization, the following program of exploration is recommended for 1975.

Phase I - Initial Program

1) A detailed compilation of available exploration data for the Traffic Mountain area of the Selwyn Basin to further define other areas of geologic interest in relation to the Kate property.

2) Commencement of field activities during the month of May, 1975 to initially establish the geologic setting of the Kate Group and immediate surrounding area. Emphasis will also be placed on prospecting and stream sediment surveys.

3) Contracts for linecutting a survey grid over the Kate property will be let during the month of May. Line spacing will be 800 feet with 100-foot station intervals. Control should be through 3,000-foot spaced baselines.

4) Upon completion of the survey grid, detailed geologic mapping and prospecting of the property should be carried out.

5) Geochemical soil sampling surveys of the grid at 100-foot station intervals is proposed, anomalous areas will be further defined with 400-foot spaced "fill-in lines".

6) All drill core located on the property will be re-logged and re-assayed. All known mineral occurrences will be re-mapped and investigated in detail.

Phase II - Contingent Program

Encouraging results from the initial evaluation (Phase I) will determine the scope of the Phase II program, which should, if warranted, commence during July, 1975.

1) Areas of known mineralization and related geochemical anomalies would first be further defined by gravity surveys, other geophysical techniques with the possible exception of magnetometer surveys are probably not warranted due to the conductive nature of the host rocks.

2) Subject to "land-use" restrictions a program of bull-dozer trenching of known mineralized outcrops and geochemical-geophysical anomalies is recommended to expose the extent of near-surface sulphide occurrence.

Phase III - Contingent Program

1) Diamond drilling will be recommended subject to results obtained from the Phase II program.

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Sheldon Project Report, January 1967
(Private report to Atlas Exploration Ld.) by C.L. Smith

Norken Fool Report Sept. 1960
(Private report for Assessment) by L.K. Lytle

Geochemical and Geophysical Report Sept. 1966
(Private report Atlas Exploration Ltd.) J.S. Brock

APPENDIX I

KATE PROJECT

BUDGET AND WORK PLAN

WELCOME NORTH MINES LTD. (N.P.L.)
Suite 8, 1161 Melville St., Vancouver, B.C. V6E 2X7 Telephone (604) 687-1658

KATE PROJECT

BUDGET AND WORK PLAN

MARCH 1 - DEC. 31, 1975

Latitude 62°15'N Longitude 130°41'W

N.T.S. 105-J-2/7

WATSON LAKE MINING DISTRICT
YUKON TERRITORY
CANADA

March 1, 1975

KATE PROJECT SCHEDULE - 1975

MARCH
- continuation of research by geological personnel, including search of "open file" material in Whitehorse and Ottawa.
- finalization of hiring of seasonal personnel.

APRIL
- application for Land Use Permits.
- completion of 'base map' compilation.
- finalization of casual charter helicopter support requirements.

MAY
- commencement of field season. 2 weeks planned orientation around immediate vicinity of KATE property.
- commencement linecutting.

JUNE
- completion mapping, prospecting, linecutting.

JULY
- completion geochemical surveys.
- contingent - commencement of gravity surveys.

AUGUST
- contingent - commencement bulldozer trenching.

SEPTEMBER
- field work contingent on results to date.

OCTOBER
- anticipated end of field season.

NOVEMBER
DECEMBER
- field data compilation and finalization of 1976 program proposals.

KATE PROJECT

CUMULATIVE TOTAL MONTHLY EXPENDITURES

	MONTHLY	MONTHLY ACCUMULATED	
FEBRUARY	14,000	14,000	
MARCH	3,020	17,020	
APRIL	5,127	22,147	PHASE I
MAY	31,659	53,806	
JUNE	23,777	77,583	
JULY	22,327	99,910	
AUGUST	33,077	132,987	PHASE II
SEPTEMBER	37,777	170,764	
OCTOBER	33,896	204,660	PHASE III
NOVEMBER	2,220	206,880	
DECEMBER	4,220	211,100	

KATE PROJECT - JOB COST SUMMARY

1)	GEOLOGY	$ 22,600	
2)	GEOCHEMISTRY/ GEOPHYSICS	24,200	
3)	LINECUTTING	7,900	
4)	FREIGHT	28,900	
5)	TRENCHING	15,000	
6)	DIAMOND DRILLING	60,000	
7)	STAKING	19,000	*
8)	PROPERTY MAINTENANCE	2,000	*
9)	CAMP OPERATIONS	11,000	
10)	EXPEDITING	2,600	
11)	ADMINISTRATION	17,900	
		$211,100	

ALLOWABLE COSTS, NORTHERN MINERAL GRANT.

* (TOTAL COSTS LESS STAKING AND PROPERTY MAINTENANCE COSTS)	$190,100

KATE PROJECT

TOTAL EXPENDITURES, JOB COST BASIS/MONTHLY

	GEOLOGY $	GEOPHYS. GEOCHEM. $	LINECUTTING $	TRANSPORT. $	TRENCHING $	DRILLING $	STAKING $	PROP. MAINT. $	CAMP OP. $	EXPEDIT. $	ADMIN. $	TOTAL $
JAN.	-	-	-	-	-	-	-	-	-	-	-	-
FEB.	-	-	-	-	-	-	14,000	-	-	-	-	14,000
MAR	610	220	-	400	-	-	-	-	-	-	1,790	3,020
APRIL	2,267	720	-	350	-	-	-	-	-	-	1,790	5,127
MAY	4,024	3,220	3,950	12,775	-	-	2,500	-	2,750	650	1,790	31,659
JUNE	3,792	4,220	3,950	4,125	-	-	2,500	-	2,750	650	1,790	23,777
JULY	3,792	9,220	-	4,125	-	-	-	-	2,750	650	1,790	22,327
AUG.	3,542	5,220	-	4,125	15,000	-	-	-	2,750	650	1,790	33,077
SEPT.	2,267	720	-	3,000	-	30,000	-	-	-	-	1,790	37,777
OCT.	1,886	220	-	-	-	30,000	-	-	-	-	1,790	33,896
NOV.	210	220	-	-	-	-	-	-	-	-	1,790	2,220
DEC.	210	220	-	-	-	-	-	2,000	-	-	1,790	4,220
	22,600	24,200	7,900	28,900	15,000	60,000	19,000	2,000	11,000	2,600	17,900	211,100

GEOLOGY

Breakdown	Notes	Term	Unit Cost $	Cost for Program $	Total to Nearest $100.00 $	TOTAL $
Salaries	1. Party Chief	7 mo.	1,500 + 150	11,550	11,600	
	2. Field Asst.	4 mo.	1,000 + 80	4,320	4,300	15,900
Contract Payments	(nil)			-	-	
Field Supplies	Est.	4 mo.	200	800	800	
Maps/Prints Drafting	Reporting	7 mo.	400	2,800	2,800	
Assays & Analysis	Estimate only			1,000	1,000	
Contingency @ 10%					2,100	22,600

Geology Notes:

1) Salaries and wages include non-wage labour costs of 8% to cover employer portion of UIC-2%, CPP-1.5%, Holiday Pay-4.5%.

2) Workmen's Compensation @ 5% is included in Camp Costs, as for accounting purposes this item is pro-rated at end of season.

GEOCHEMISTRY/GEOPHYSICS

Breakdown	Notes	Term	Unit Cost $	Cost for Program $	Total to Nearest $100.00 $	TOTAL $
Salaries & Wages	Field Asst.	3.5 mo.	800 + 64	3,024	3,000	
Contracts					10,000	
Field Supplies	Included under "GEOLOGY"			-	-	
Maps/Prints Drafting	Estimate only			1,000	1,000	
Assays & Analyis	(5,000 Samples)					
	Est. based on	Pb	$1.00			
		Zn	0.35			
		Prep	0.20			
		Bag	0.05			
	Per Sample		$1.60	8,000	8,000	
					12,000	
Contingency @ 10%					2,200	24,200

Geochemistry Notes:

1) Salaries & Wages - see notes under "GEOLOGY".

2) Geochemistry coupled with geophysics to account for split in labour if field assistant required for geophysical surveys.

3) Contracts for contingent gravity survey based on estimated 50 line miles at $200/line mile.

LINECUTTING

Breakdown	Notes	Term	Unit Cost $	Cost for Program $	Total to Nearest $100.00 $	TOTAL $
Salaries & Wages			-	-	-	
Contract Payments	(see notes)		-	-	7,200	
Contingency @ 10%					700	7,900

Linecutting Notes:

All linecutting will be performed on a contractual basis by local, Yukon-based contractors. Estimates to date range from $100 to $140/line mile, all inclusive except for mob and de-mob charges.

The following assumptions have been made:

Baselines - 3000' spacing
Crosslines - 800' spacing, 100' picket interval.
Line miles/claim = 1
Cost/claim (using average contract) = $120
Assume grid lines required on 60% of claims
Holdings = 100 x 60% = 60 miles
Cost 60 miles x $120 = $7,200

FREIGHT AND TRANSPORTATION

Breakdown	Notes	Term	Unit Cost $	Cost for Program $	Total to Nearest $100.00 $	TOTAL $
Helicopter	Casual Charter	1 mo. @ 100 hr./mo. @ 180/hr.		18,000	18,000	
Fixed Wing				4,488	4,500	
Fuel	Cost included in casual charter rate.					
Misc. Travel & Frt.				3,800	3,800	
					26,300	
Contingency @ 10%				2,630	2,600	$28,900

Freight & Transportation Notes:

1) Helicopter charges are for initial exploration of the property and surrounding area, utilizing a helicopter on a casual charter basis from Ross River.

2) Fixed wing charges for the 4-month field season are based on 1 trip/5 days during 110 day season = 22 trips x 120 miles return = 2,640 miles x $1.70/mile = $4,488

3) Misc. Travel and Freight includes:

March	Whitehorse Research	$ 400.00
April	Ottawa Research	350.00
May	Field mob	1,000.00
June-August	Supervision mob & travel @ 350/mo.	1,050.00
September	Field de-mob	1,000.00
		$3,800.00

TRENCHING

Breakdown	Notes	Term	Unit Cost	Cost for Program	Total to Nearest $100.00	TOTAL
			$	$	$	$
Contract Payments					15,000	15,000

Trenching Notes:

Bulldozer trenching costs estimated @ total 300 hr. @ overall cost of $50/hr. all inclusive.

DIAMOND DRILLING

Breakdown	Notes	Term	Unit Cost $	Cost for Program $	Total to Nearest $100.00 $	TOTAL $
Contract Charges	2000 ft.		30/ft.		60,000	60,000

Diamond Drilling Notes

Diamond drilling charges have been estimated on an "all inclusive" basis at $30/ft.

STAKING & PROPERTY ACQUISITION

Breakdown	Notes	Term	Unit Cost $	Cost for Program $	Total to Nearest $100.00 $	TOTAL $
Staking	Contract, Kate 1-100				14,000	
Contingency	Staking for contingent Claims on new finds, say, 100 claims @ $50/claim			5,000	5,000	$19,000

Staking Notes:

All contingent staking will be done by company personnel; $50/claim is estimated as costs over and above costs for Personnel/Camp/Aircraft already budgeted for in other areas.

PROPERTY MAINTENANCE

Breakdown	Notes	Term	Unit Cost $	Cost for Program $	Total to Nearest $100.00 $	TOTAL $
Assessment Fees	Assume total holdings after allowing certain claims to lapse in 1975 -					
	200 claims for 2 years @ average $5/claim for 1 year's work			2,000	2,000	2,000

Property Maintenance Notes:

Filing fees, average $5 per claim per year for one year's work per claim. Assume 200 claims (estimated holdings as of Dec. 31/75), two years' work.

CAMP OPERATIONS

Breakdown	Notes	Term	Unit Cost $	Cost for Program $	Total to Nearest $100.00 $	TOTAL $
Personnel List		Man Days in Field				
1) Party Chief/Geologist			110			
2) Field Assistant			110			
3) Field Assistant			110			
4) Cook			110			
		Total Man Days -	440			
		@ $25/man/day			11,000	11,000

Camp Operations Notes:

Note that the figure of $25/man/day/ is based on estimated Workmen's Compensation costs; all cooks' wages; camp labour costs; groceries; supplies and field equipment. Aircraft support charges are not included above but are covered under "Transporation".

EXPEDITING

Breakdown	Notes	Term	Unit Cost $	Cost for Program $	Total to Nearest $100.00 $	TOTAL $
Contract Payments	(1)	4 mo.	500	2,000	2,000	
Field Supplies	Radio Rental					
1	Radio	4 mo.	100	400	400	
Contingency @ 10%				240	200	2,600

Notes:

Contract payments - Sterling Expediting Services @ $500/month.

ADMINISTRATION

Breakdown	Notes	Term	Unit Cost $	Cost for Program $	Total to Nearest $100.00 $	TOTAL $
General	Welcome North (@10% of overall cost of $179,200)	10 mo.	1,790	17,900	17,900	17,900

Administration Notes:

General Administration Cost to Welcome North is based on 10% of overall project costs of $179,200.


Legend
claim group boundary
outcrop
mineralized outcrop
diamond drill hole and hole number
DDH 7
contour of ppm copper in soil
contour of ppm zinc in soil
aeromagnetic contour (gammas)
elevation contour (feet)
stream
fossil locality
130°45'W
62°15'N
Nipple Showing
Chopper Showing
Peak Showing
Base line
DDH 13
DDH 11
DDH 1
DDH 12
DDH 9
DDH 7
DDH 8
DDH 6
16W
20E
40E
72E
1700
2000
2500
4000
4500
5000
6000
1000
100
200
40
Welcome North Mines Ltd. (N.P.L.)
Kate Group
Geology
Geochemistry and Geophysics
Date: March, 1975
Drawn by: GMcA
Scale: 1 inch to 1000 feet
N.T.S. 105 J/2,7
Fig. 2