

GEOCHEMICAL PROFILES (Cu, Pb, Zn) Maps  
(figures 20, 21, 22) to be used in the  
SHELDON PROJECT REPORT, Jan/67

By: C. L. Smith, July 1-Sept 1/66, June 1 - June 23/67

105 G

GEOCHEMICAL DEVELOPMENT MAP

to be used in the

REPORT ON SHELDON REGION CLAIM GROUPS (excluding PAY) Report  
as Figure 27

105 G

Report by: C.L. Smith November 23, 1967

GEOCHEMICAL SOIL SAMPLING SURVEYS

on

PIKE MINERAL CLAIM GROUP

TRAFFIC MOUNTAIN AREA

Watson Lake Mining Division

Yukon Territory

Long.  $130^{\circ} 40'$  West

Lat.  $62^{\circ} 08'$  North

by

Clyde L. Smith

Atlas Explorations Limited

July 1 - September 15, 1966

and

June 1 - June 23, 1967

TABLE OF CONTENTS

	<u>Page</u>
KEY MAP . . . . .	(i)
LIST OF CLAIMS . . . . .	(ii)
INTRODUCTION . . . . .	1
LOCATION AND ACCESS . . . . .	2
GEOLOGY . . . . .	3
TOPOGRAPHY AND GROUND CONDITIONS . . . . .	4
SURVEY TECHNIQUES . . . . .	4
Line Cutting . . . . .	4
Reconnaissance Lines . . . . .	5
Soil Sampling . . . . .	5
Method of Analysis . . . . .	5
Treatment of Data . . . . .	6
GEOCHEMICAL RESULTS AND CONCLUSIONS . . . . .	7
Copper . . . . .	8
Lead . . . . .	8
Zinc . . . . .	8
APPENDIX I. SUMMARY OF COSTS . . . . .	10
APPENDIX II. AFFIDAVIT . . . . .	11
APPENDIX III. PERSONNEL . . . . .	12

LIST OF CLAIMS

<u>Claim Number</u>	<u>Grant Number</u>	<u>Date Recorded</u>
FIRE 1 - 24	Y13149 - Y13172	July 4, 1966
25 - 88	Y13443 - Y13506	August 10, 1966
89 - 152	Y13682 - Y13745	August 30, 1966
153 - 608	Y13763 - Y16204	September 9, 1966
609 - 776	Y16727 - Y16894	October 17, 1966
PIKE FRACTIONS		
1 - 6		
8 - 9		
14 - 22	Y17243 - Y17259	November 21, 1966

## INTRODUCTION

Atlas Explorations Limited became interested in the Pike Lake area during June, 1966. Interest was prompted primarily by an earlier prospecting discovery by Al Kulan of Cu-Ag mineralization in porphyry, running about 20 ounces Ag, in the area of Pike Lake. An airborne magnetic and electromagnetic survey, under contract to Lockwood Survey Corporation, was conducted in a 35-square mile area west of Traffic Mountain in early June, and prospectors began prospecting, trenching and geochemical silt sampling anomalous magnetic areas.

A 24-claim group was staked in mid-June to cover showings and anomalous geochemical results discovered. The Pike group was increased to 152 claims in mid-July. In mid-August, the decision was made to increase the Pike group to 603 total claims to cover scattered high geochemical results as well as an area of apparently significant structural geology. A 163-claim addition was staked in mid-September, bringing the Pike group total to 776 claims.

Geologic mapping on Pike grid number 1 was done using grid stakes for location. This grid consists of 140,000 feet of cut line with a 10,000-foot long base line and 400-foot spaced cross lines. Cross lines between 80W and 0 run 2,000 feet north and 3,000 feet south of base line. Between 0 and 56E cross lines run 1,000 feet north and 3,000 feet south of base line.

Mapping on Pike grid number 3 was done on 1,000-foot scale air photo blow-ups and was tied to grid stakes in the north half of the grid area. Pike grid number 3 consists of 111,100 feet of cut line with a 14,000-foot long base line and 800-foot spaced cross lines. Cross lines average about 5,000 feet long.

#### LOCATION AND ACCESS

The Pike group is centered roughly at latitude  $62^{\circ} 08'$  North and longitude  $130^{\circ} 40'$  West, and covers much of the north half of topographic sheet 105J-2, and a western portion of sheet 105J-1. The group is elongate in a westerly direction, and extends from the south slopes of Traffic Mountain to a point 15 miles to the west. Three small groups adjoin the Pike claims on the west end: Star 1-40 and Cree 1-32 held by A. Rasicot, and Oxo 1-40 held by C. Poli.

Access to the property is by aircraft from Ross River; air-line mileage is 52 miles. Beavers on floats have been used, and landings made on  $3/4$ -mile long Pike Lake. A temporary camp was established on the north side of Pike Lake, from which supplies were transported to the base camp,  $1\frac{1}{2}$  miles to the west, by helicopter or D6 Cat. Pike Lake is connected with the base camp by a Cat road.

During April, 1967, a tote road was put in from north of Finlayson Lake on the Watson Lake-Ross River road to the Pike

group. Fuel was trucked over the road to the Pike base camp. It was intended that the road be used for bombardier support but the Pelly River could not be forded with the bombardier and it was not used on the property.

### GEOLOGY

Pike region lies within major northwesterly-striking wrench fault zone and is underlain by steeply-dipping early Paleozoic cherts and shales folded around northwest-southeast striking axes and intruded by a Cretaceous granitic stock.

The north and west parts of Pike #3 grid are underlain by a N70°W-striking, steeply-dipping sequence of black slates, massive-bedded cherts, and carbonaceous shales with interbedded limestone bands. Sediments are cut by quartz monzonite, granite, and four varieties of gray dyke rocks. The area is extensively faulted as indicated by strong N70°W photo-linears.

Portion of Pike #1 grid underlain by steeply-dipping, N70°W-striking, partially chilled biotite granite dyke, ranging from few feet to 500 feet wide, with length of about 2 miles, which appears to be offshoot of underlying Pike stock.

Porphyry Cu-Ag mineralization with minor Pb-Zn veins, occurs throughout much of the hydrothermally altered (silica, chlorite, clay-sericite, and biotite), chilled biotite granite dyke of the Pike grid.

### TOPOGRAPHY AND GROUND CONDITIONS

The Pike grid area covers gently rolling, sluggishly drained terrain underlain by outcrop, residual soils, thin glacial cover, and local swamps. Residual soils vary from 0 - 15 feet thick in areas examined, and the water table is commonly found at depths of a few feet in non-outcrop areas. Soil profiles appear to be normal, with a black A-horizon averaging 6 inches thick, underlain by a brown, orange-brown or red B-horizon which grades abruptly downward into bedrock rubble. The environment in general is one of free oxidation, thorough leaching and limited secondary dispersion in which metal ions are held in clay minerals and hydrous oxides in an upper B-horizon of residual soil.

### SURVEY TECHNIQUES

#### Line Cutting

The soil sampling surveys were conducted over Pike grids numbers 1 and 3. The Pike number 1 grid consists of 140,000 feet of cut line with a 10,000-foot long base line and 400-foot spaced cross lines. Cross lines between 80# and 0 run 2,000 feet north and 3,000 feet south of base line. Between 0 and 56E cross lines run 1,000 feet north and 3,000 feet south of base line. Pike grid number 3 consists of 111,000 feet of cut line with a 14,000-foot long base line and 800-foot spaced cross lines. Cross lines average about 5,000 feet long.

### Reconnaissance Lines

Reconnaissance soil sampling lines were run across large parts of the Pike group. Line spacing is 1,000 feet with samples taken at 300-foot intervals.

### Soil Sampling

The soil sampling survey was carried out in conjunction with the electromagnetic and magnetic survey. One soil sampler was employed for the entire survey.

The samples were obtained by use of a prospector's grub hoe which was found adequate as a tool for cutting through layers of organic material overlying the soil. Samples were taken at 100-foot stations over the same grid area as geophysical data was obtained from.

Due to the inconsistency of specific soil horizons as well as variable depths to favorable horizons, samples were taken from an average depth of approximately one and one-half feet. Soils of the upper B-horizon were usually encountered. Soils of large organic content were not sampled. In areas of immature soils, the C-horizon was sampled. Approximately 100 grams of soil from each sample site were placed in Kraft bags which were then periodically shipped to the soil testing laboratory at Ross River.

### Method of Analysis

All samples were analyzed at a complete testing laboratory at Ross River. When the samples were received, each was dried

while in its Kraft bag, then screened to 80 mesh, weighed out to 0.5 grams and digested in hot aqua regia. Samples were then diluted, clarified for 20 hours and then tested for copper, lead and zinc content on an atomic absorption spectrophotometer. The 'AA' units used were a Perkins Elmer Model 290 (1966) and a Model 320 (1967) and accuracy of the instrument ideally is 1% of the amount of metal present. Individual cathode lamps were used for each element determination, a direct readout is given of the element being tested and two determinations per minute can be made with ease.

#### Treatment of Data

All results of geochemical tests were returned to the field as soon as possible. Results in parts per million (ppm) were plotted on field data sheets kept by the field soil sampler. The field data sheets were kept as a record of each sample taken, noting particulars concerning drainage, topography, physiography, soil type and depth of sample. This information was compiled for use in further detailed geochemical studies.

Separate maps were prepared using a scale of 1" = 400' and 1" = 1,000', as was used for geophysical data, showing values obtained for copper, lead and zinc, profiles of values and contoured values. Contour intervals varied according to results obtained in parts per million. Maps for each element were compiled separately in order to aid in comparative study of

geophysical, geologic and geochemical results. A development map for each area has also been prepared showing general compilation of geochemical-geophysical data.

#### GEOCHEMICAL RESULTS AND CONCLUSIONS

Frequency distribution curves were plotted for all Cu, Pb, Zn values in the Pike grid area in an attempt to define threshold between background and anomalous values. Although curves suggest that three levels of values exist (regional background level, local background level, and anomalous peaks), the fact that mineralization has been found in nearly all cases in the Pike area immediately beneath geochemical values greater than regional threshold indicates that all values above the established regional threshold for a given metal are significant. Threshold values determined by frequency distribution curves are as follows: 120 ppm for Cu, 90 ppm for Pb, and 250 ppm for Zn. These values are taken at or above three standard deviations of the mean of the curves.

Two anomalous geochemical zones occur in the Pike grid: zone 1 lies between 55W-39W and 1S-6S, and zone 2 between 40W-40E and 8S-26S. Both zones are defined over most of their areas by superimposed anomalous values in Cu, Pb and Zn. Where the zones have been trenched, mineralization has been found immediately beneath zones and commonly throughout the cross-sectional limits of the zones. This feature indicates that very little secondary dispersion has occurred.

### Copper

The largest Cu anomaly occurs in zone 1 in association with more restricted Pb-Zn anomalies. Peak Cu value is 2024 ppm and two others are above 1000 ppm - these are the highest values in the Pike grid. Zone 1 has been thoroughly trenched and it has been found that Cu geochemistry is related to porphyry Cu-Ag mineralization.

### Lead

Zone 2 is composed of a nearly continuous Pb anomaly with peak value of 1200 ppm, and with most anomalous values below 400 ppm. Where high Pb values have been trenched in zone 2, such as 12W and 24E, minor galena mineralization has been found in veins and small shear zone replacements.

### Zinc

Zn geochemical results correspond closely with those of Pb, zone 2 being a nearly continuous Zn anomaly. Peak value is 6200 ppm although most anomalous values are below 1000 ppm. The similarity between Zn and Pb geochemical distribution attests to the unusually limited mobility of Zn.

At this point in the exploration of the Pike area, geochemistry has proved to be the most valuable tool available. Geochemical results accurately reflect locations of near surface, oxidized mineralization. The depth of geochemical detection, however, is questionable; it is entirely possible that where mineralization is covered by barren country rock,

glacial clays, permafrost, or a stable water table, lack of oxidation or ground water flow may drastically restrict dispersion either vertically or laterally.

APPENDIX I

SUMMARY OF COSTS

	<u>Costs</u>
1. <u>Salaries</u> - 6 samplers for 4 weeks 1 party chief for 2 weeks	3,360 500
2. <u>Camp support</u> - total of 8 man/weeks	2,800
3. <u>Helicopter</u> - 12 hours at \$110/hour	1,320
4. <u>Fixed Wing</u> - 4 round trips, Ross River to Pike	1,200
5. <u>Equipment</u>	200
6. <u>Cost of analysis</u> of 4000 samples at \$2.65/ sample	10,600
TOTAL	<u><u>\$19,980</u></u>

APPENDIX II

A F F I D A V I T

Supporting Summary of Costs

I, Clyde L. Smith, Chief Geologist, Atlas Explorations Limited, of Vancouver, B.C., do hereby state that to the best of my knowledge and belief the statement of costs as presented in Appendix I of this report "Geochemical Soil Sampling Surveys on Pike Mineral Claim Group" is both true and correct.

DATED at Pelly Lakes, Yukon Territory, this 6th day of July, A.D. 1967.

SWORN BEFORE ME at  
Pelly Lakes, Yukon  
Territory, this 6th  
day of July, A.D. 1967

---

A Commissioner for taking  
Affidavits in the Yukon  
Territory



---

Clyde L. Smith

### APPENDIX III

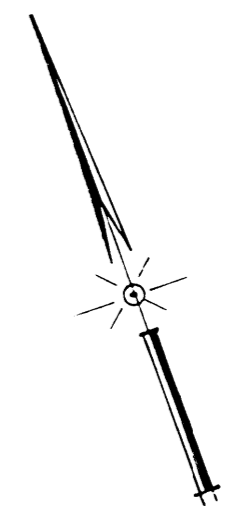
#### PERSONNEL

Paul Sandaluk	Soil Sampler	Mission, B.C.
McLary Acklack	Soil Sampler	Ross River, Y.T.
Gary McPeck	Soil Sampler	Red Deer, Alberta
Wayne Roberts	Soil Sampler	West Vancouver, B.C.
Jerry Hayne	Soil Sampler	Regina, Saskatchewan
Chris Scott	Soil Sampler	West Vancouver, B.C.
Andy Harmon	Party Chief	Vancouver, B.C.
Clyde L. Smith	Party Chief	Vancouver, B.C.

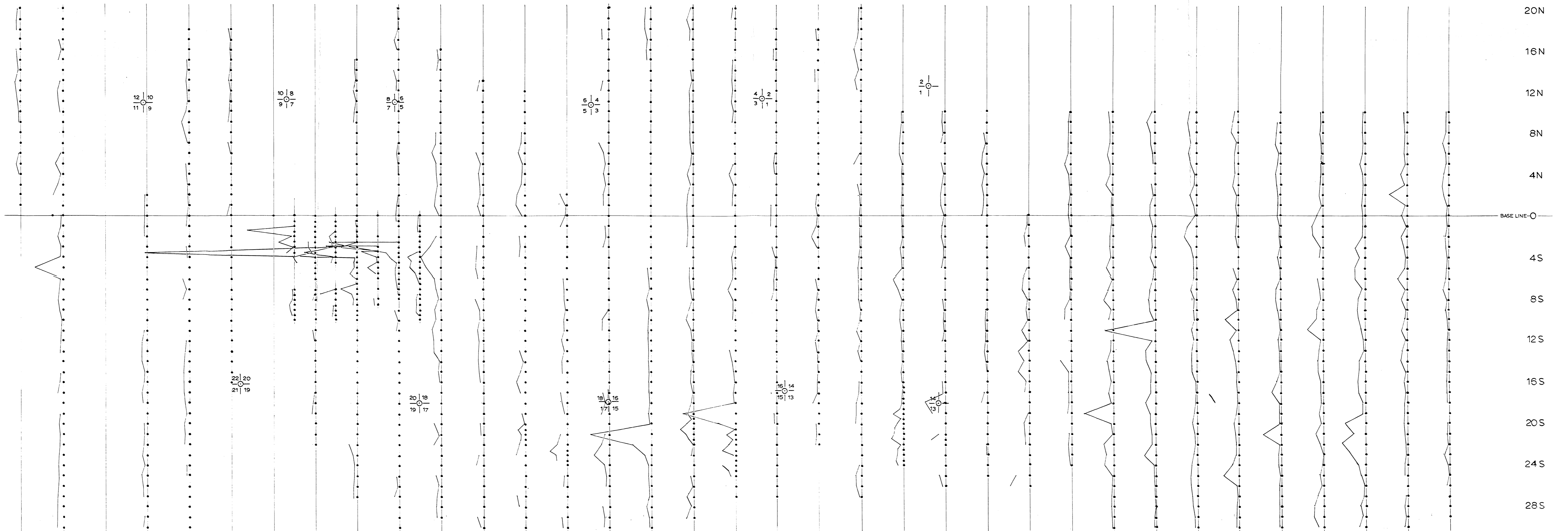


THIS EXPLORATION WAS  
CONDUCTED BY THE  
PACIFIC COAST  
SERIES 1000 Y.M.S.  
C. J. H. J. J. J.  
1910



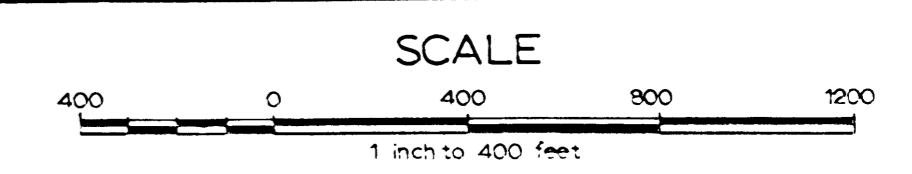


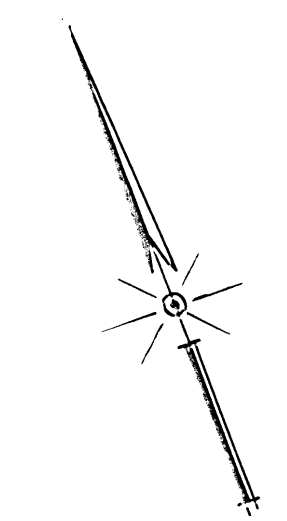
80W 76W 72W 68W 64W 60W 56W 52W 48W 44W 40W 36W 32W 28W 24W 20W 16W 12W 8W 4W 0 4E 8E 12E 16E 20E 24E 28E 32E 36E 40E 44E 48E 52E 56E



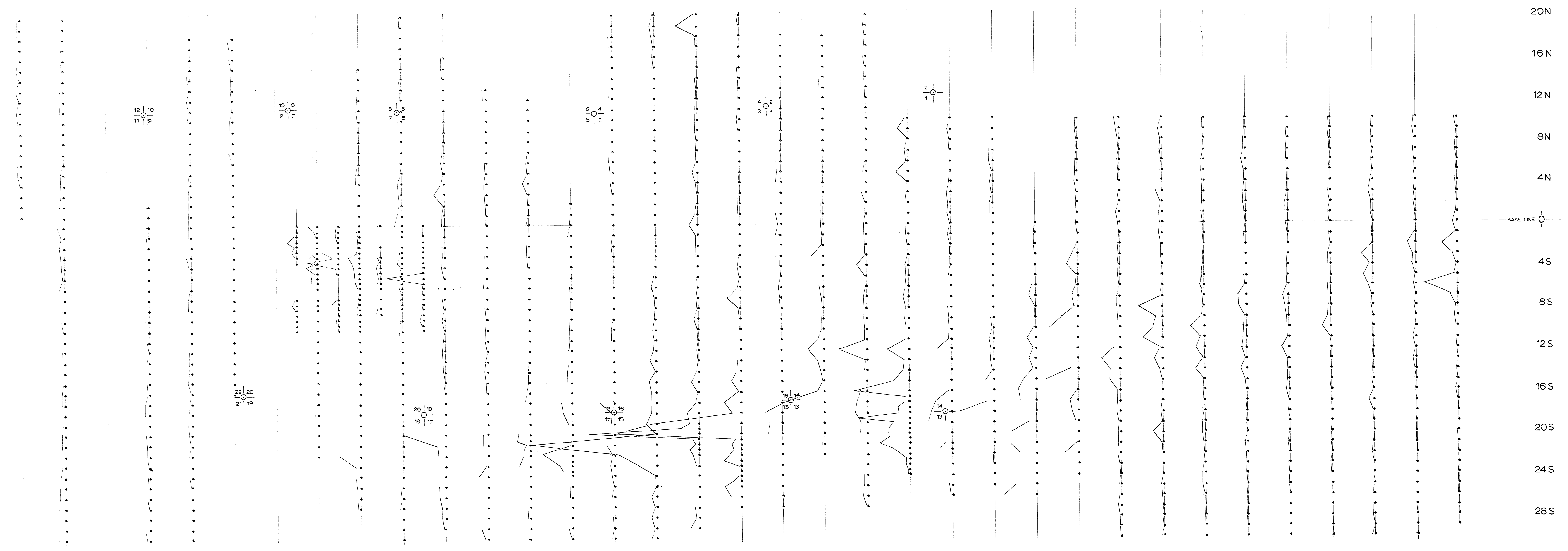
ATLAS EXPLORATIONS LTD.  
ROSS RIVER, YUKON  
SHELDON REGION  
PIKE MINERAL CLAIMS  
**GEOCHEMICAL COPPER PROFILES**

PROFILE ORIENTATION 1" = 400 PPM.  
SOIL SAMPLER : P. PRESTON and P. SANDALUK  
PARTY CHIEF : A. HARMAN and C. SMITH  
DATE : OCT. 1966  
DRAWN BY : P.J.F. VLASVELD  
CHECKED BY : 4 1 2  
3 1 1



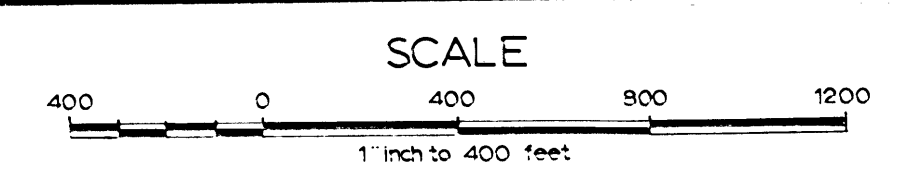


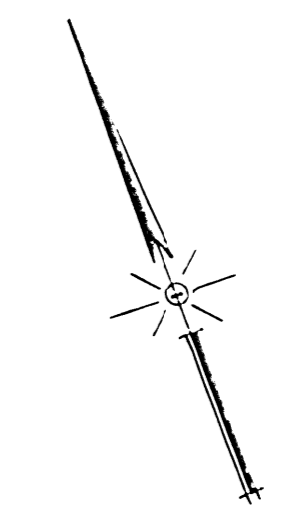
80W 76W 72W 68W 64W 60W 56W 52W 48W 44W 40W 36W 32W 28W 24W 20W 16W 12W 8W 4W -0- 4E 8E 12E 16E 20E 24E 28E 32E 36E 40E 44E 48E 52E 56E



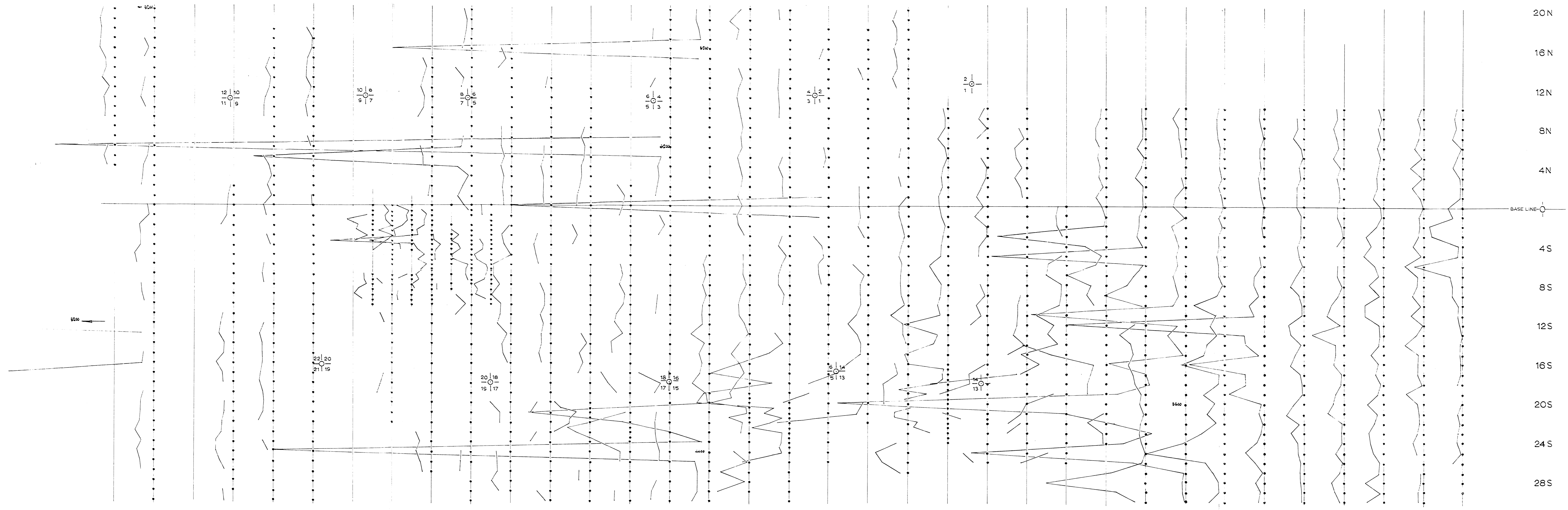
ATLAS EXPLORATIONS LTD.  
ROSS RIVER, YUKON  
SHELDON REGION  
PIKE MINERAL CLAIMS  
GEOCHEMICAL LEAD PROFILES

PROFILE ORIENTATION : 1" = 400 PPM.  
SOIL SAMPLER : P.PRESTON and P.SANDALUK  
PARTY CHIEF : A.HARMAN and C.SMITH  
DATE : OCT. 1966  
DRAWN BY : P.J.F.VLASVELD  
CHECKED BY :  
CLAIM POST: PIKE  $\frac{4}{3} \frac{2}{1}$





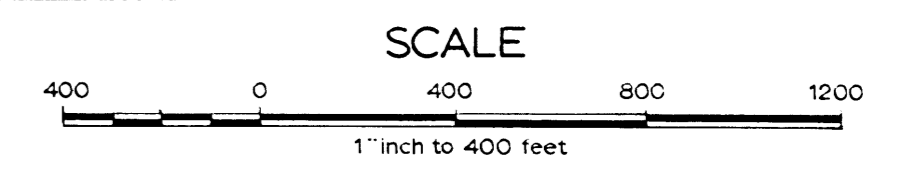
80W 76W 72W 68W 64W 60W 56W 52W 48W 44W 40W 36W 32W 28W 24W 20W 16W 12W 8W 4W -0- 4E 8E 12E 16E 20E 24E 26E 32E 36E 40E 44E 48E 52E 56E



ATLAS EXPLORATIONS LTD.  
 ROSS RIVER, YUKON  
 SHELDON REGION  
 PIKE MINERAL CLAIMS  
GEOCHEMICAL ZINC PROFILES

---

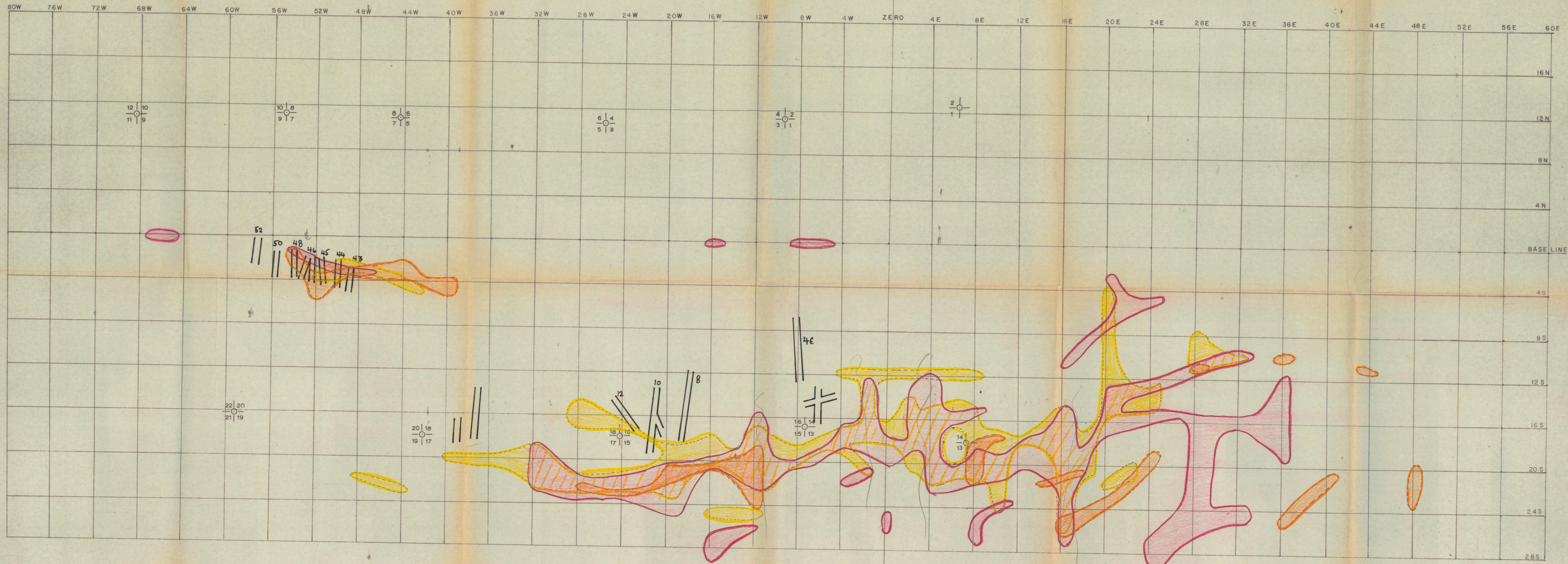
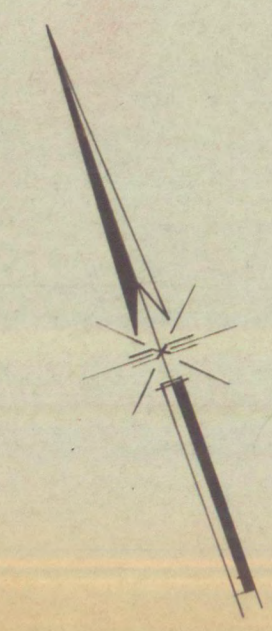
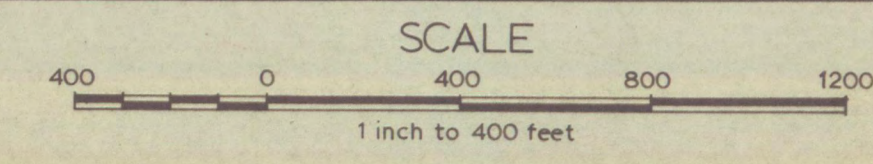
PROFILE ORIENTATION : 1" = 400 PPM.  
 SOIL SAMPLER : P. PRESTON and P. SANDALUK  
 PARTY CHIEF : A. HARMAN and C. SMITH  
 DATE : OCT. 1966  
 DRAWN BY : P.J.F. VLASVELD  
 CHECKED BY :  
 CLAIM POST : PIKE 3/1

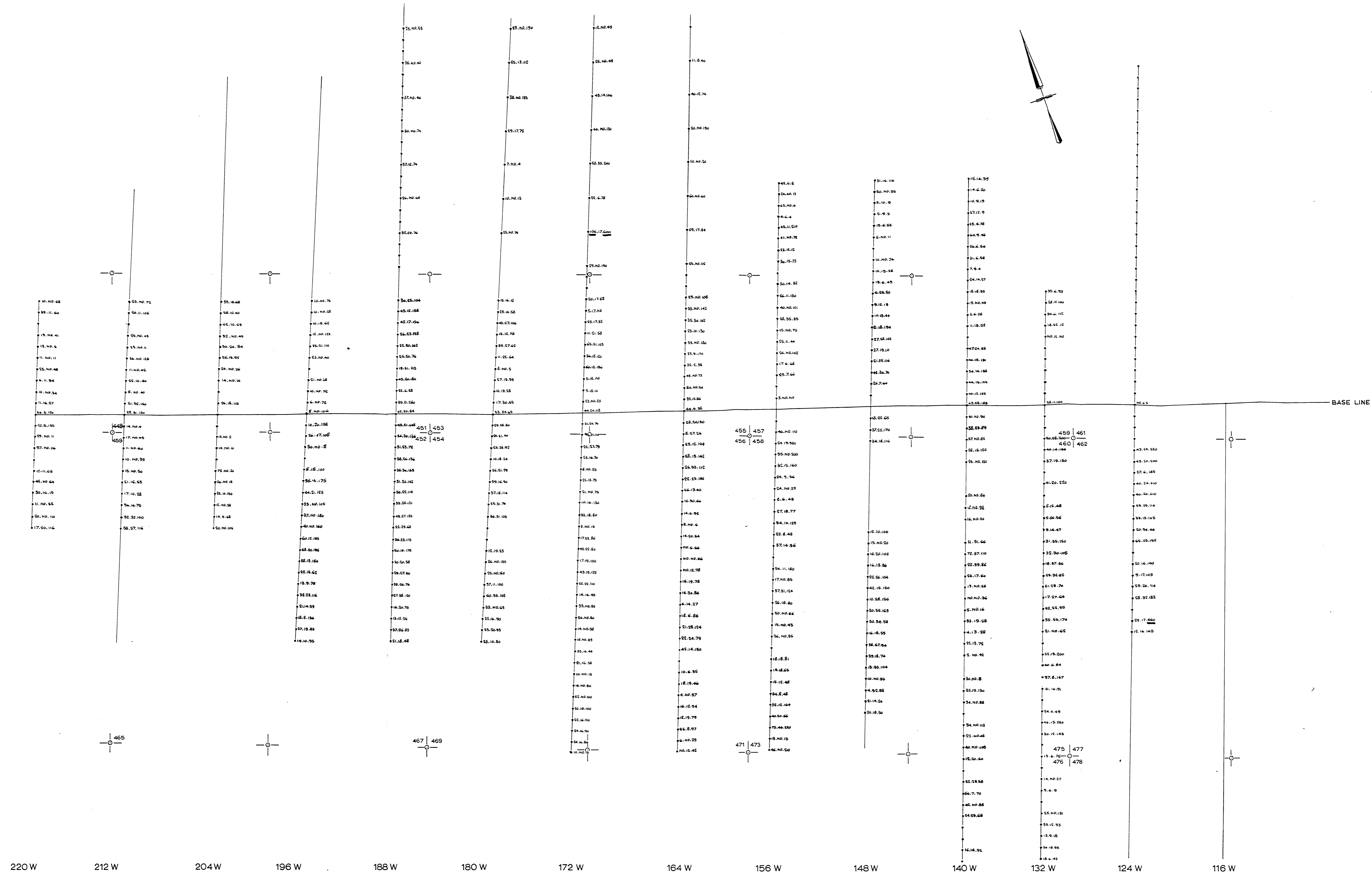
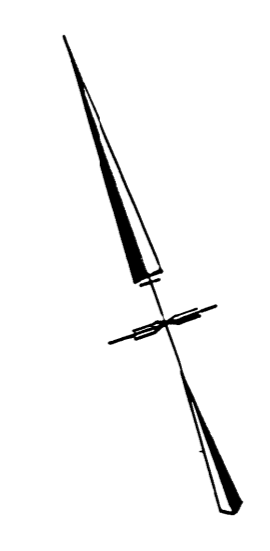


ATLAS EXPLORATIONS LTD  
 VANCOUVER, B.C  
 PIKE MINERAL CLAIMS  
 GEOCHEM. ANOMALOUS ZONES

FIG. 16

INSTRUMENT USED FOR ANALYSIS : A. A. S. UNIT  
 COPPER VALUES OVER 120 p.p.m  
 LEAD " " 90 p.p.m  
 ZINC " " 250 p.p.m  
 SCALE : 1" = 400'  
 DATE : NOV. 17, 1966  
 DRAWN BY : J.N.B.  
 CLAIM POST: PIKE  $\frac{4}{3} \frac{2}{1}$





220 W      212 W      204 W      196 W      188 W      180 W      172 W      164 W      156 W      148 W      140 W      132 W      124 W      116 W

**ATLAS EXPLORATIONS LIMITED**  
 ROSS RIVER (Y.T.)  
 SHELDON REGION  
 PIKE MINERAL CLAIMS  
 GEOCHEMICAL SOIL SAMPLING SURVEY, COPPER, LEAD & ZINC  
 RESULTS BY ATOMIC ABSORPTION  
 SPECTROPHOTOMETER ANALYSIS GRID # 3

---

SOIL SAMPLERS: G.HAYNE, C.WICKS, F.CHARLIE, W.ROBERTS      DATE: JUNE 1967  
 PARTY CHIEF: C.L. SMITH      DRAWN BY: P.J.F. VLASVELD

400      0      400      800  
 Scale in Feet