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1981

**ANMAC PROJECT**

GEOLOGICAL AND GEOCHEMICAL REPORT

ON THE TILL CLAIM GROUP

Watson Lake Mining District, Yukon

N.T.S.            105 A 8

Latitude:        60° 19'

Longitude:      128° 17'

By:

J. W. Mustard

CYPRUS ANVIL MINING CORPORATION

Field work completed during the period

June 1 - July 29, 1981

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T A B L E O F C O N T E N T S

	<u>Page</u>
1.0 SUMMARY .....	1
2.0 INTRODUCTION .....	1
3.0 LOCATION AND ACCESS .....	5
4.0 GEOLOGY .....	5
5.0 GEOCHEMICAL RESULTS .....	7
5.1 Soil Profiles .....	9
6.0 CONCLUSIONS .....	13
7.0 RECOMMENDATIONS .....	14

## LIST OF ILLUSTRATIONS

		<u>Page</u>
Figure 1	LOCATION MAP .....	2
Figure 2	CLAIM AND GRID LOCATION MAP .....	3
Figure 3	REGIONAL GEOLOGY .....	6
Figure 4	GLEYED HUMIC PODZOL PROFILE .....	10
Figure 5	ORTHO FERRIC-HUMIC PODZOL PROFILE .....	11
Figure 6	SOIL PROFILE PLOTS .....	12
Map No. 1	GEOLOGY AND GEOCHEMISTRY	in pocket
Table 1	TILL CLAIM LIST .....	4
Table 2	HIGH TILL GEOCHEMICAL RESULTS .....	8
Appendix I	SOIL PROFILE RESULTS .....	16

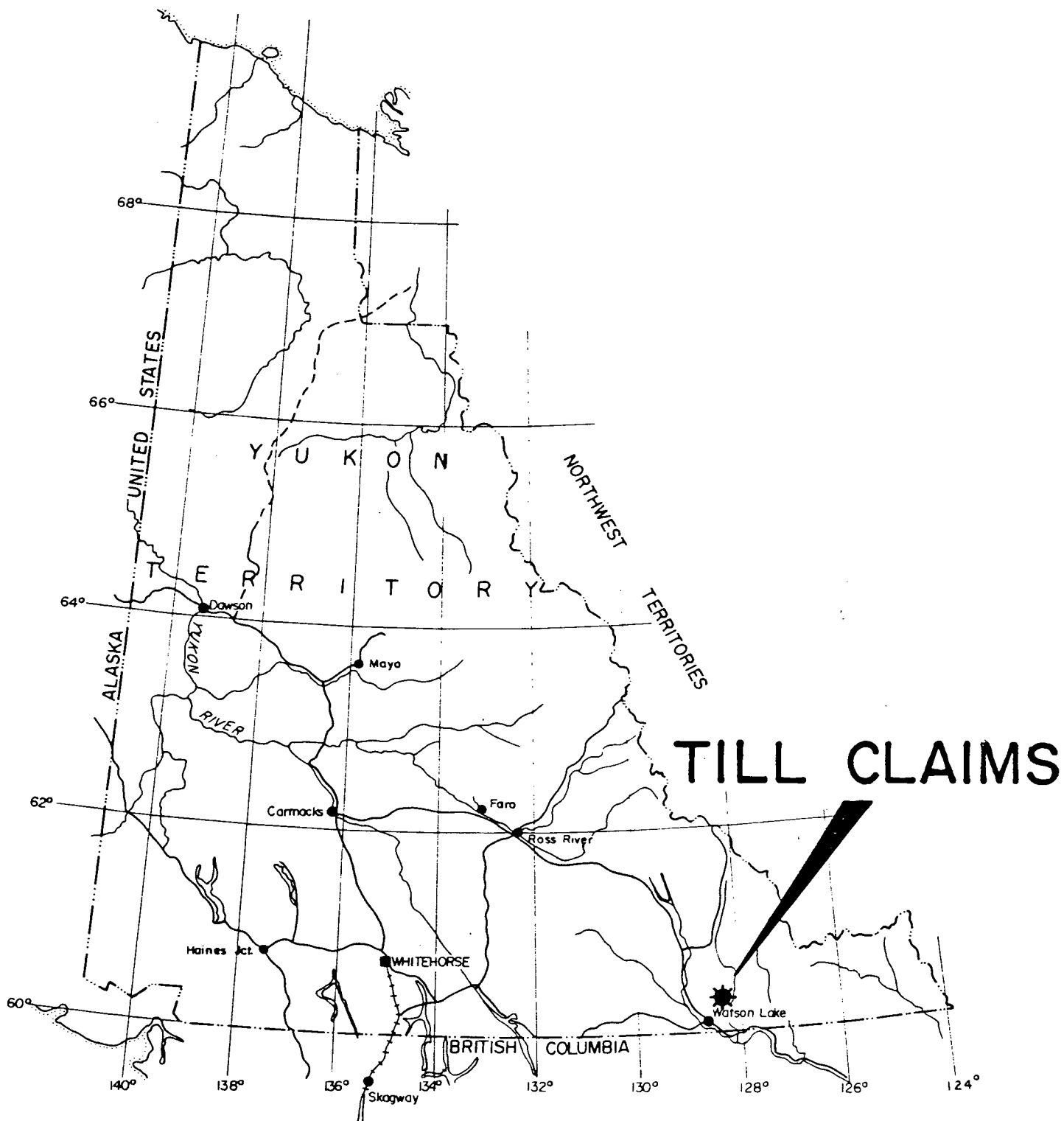
## 1.0 SUMMARY

During 1981 28 km of grid line was cut on the Till claims to provide control for soil sampling and mapping. In addition to a conventional soil sampling program, twenty test pits were dug and sampled at different horizons to gain an understanding of the nature of the overburden. All soil samples were analysed for Cu, Pb and Zn at Acme Analytical Labs. Rocks of Hadrynian age appear to underlie the claim group, but the presence of Devonian--Mississippian lithologies on the western margins indicate a more complex setting which is not fully understood. No further work appears to be warranted at this time. 1981 costs were not filed, allowing the claims to lapse on their anniversary date.

## 2.0 INTRODUCTION

Following a regional mapping and stream sediment sampling program in 1980, Cyprus Anvil staked 42 Till claims to cover a weak to moderate Cu, Pb and Zn anomaly in the creek draining the central portion of the claims. Highest values in the drainage were 64 ppm Cu, 178 ppm Pb and 775 ppm Zn. The claims are situated in a very broad valley in which the Hyland River is located. Elevation is generally flat except towards the northwest where they approach a cluster of small hills.

Work during 1981 consisted of 28 km of cut line, 673 soil samples, 9 test pits and very limited mapping. Mapping was restricted due to lack of outcrop. It was assumed that conventional



# CYPRUS ANVIL MINING CORPORATION LOCATION MAP

Figure 1  
YUKON



Claim No.	Grant No.	No. of Claims	Recording Date	Status
1-8	YA57224-YA57231	8	Nov. 21, 1980	Lapsed
9-16	YA57232-YA57239	8	Nov. 21, 1980	Lapsed
17-24	YA57240-YA57247	8	Nov. 21, 1980	Lapsed
25-32	YA57248-YA57255	8	Nov. 21, 1980	Lapsed
33-40	YA57256-YA57263	8	Nov. 21, 1980	Lapsed
41-42	YA57264-YA57265	2	Nov. 21, 1980	Lapsed

TABLE 1 - TILL CLAIM LIST

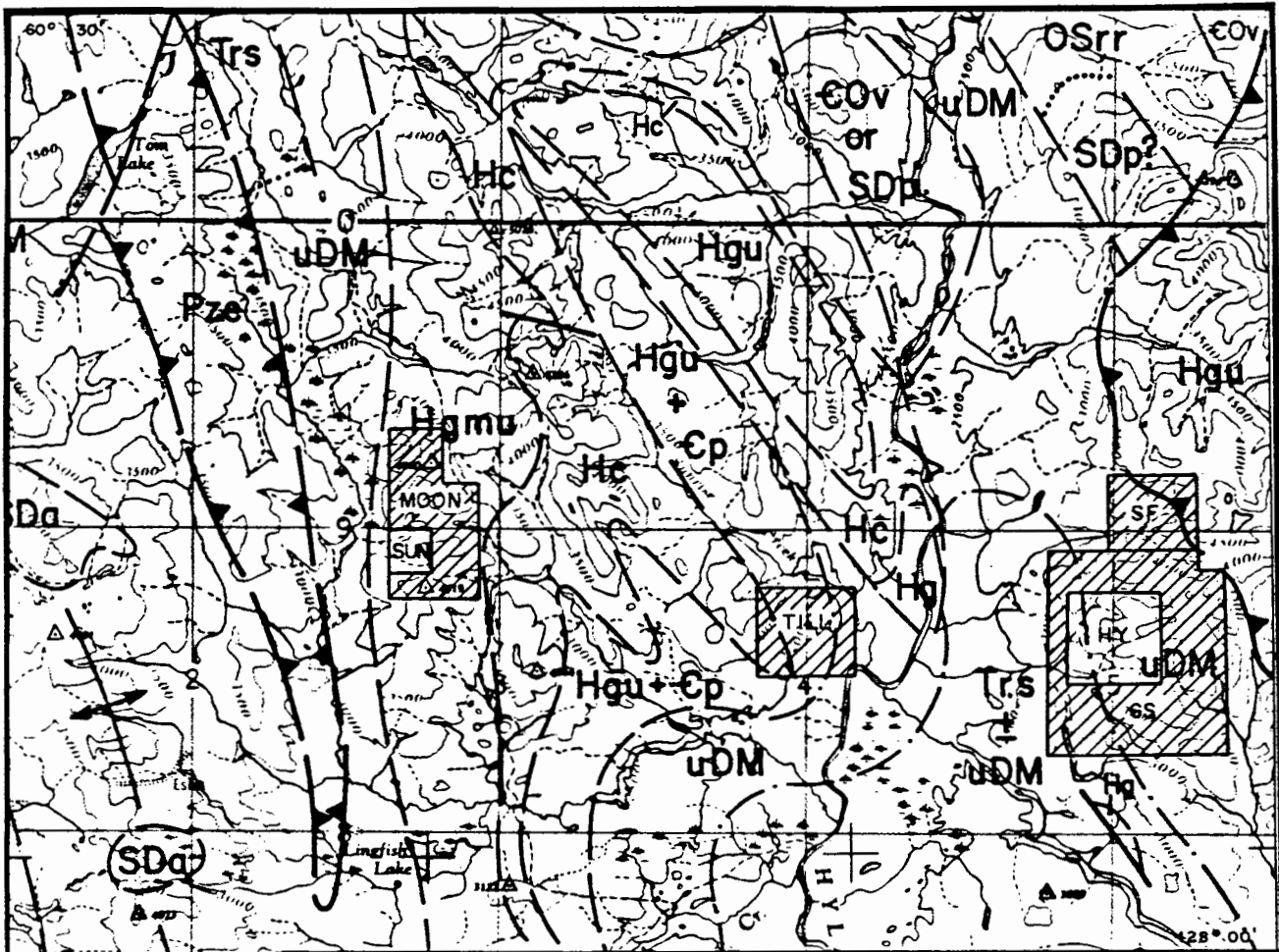
soil sampling would lead to inconclusive results because of the suspected transported nature of the overburden underlying at least 80% of the claim area. With this in mind, several test pits were hand dug and sampled at different horizons to obtain information on geochemical response with depth. Only 9 of 20 such pits were actually sampled owing to a high water table. This report presents the results of this program as well as recommendations for further work. A list of claims with grant numbers is given in Table 1.

### 3.0 LOCATION AND ACCESS (Figures 1, 2)

The Till claims are in southeastern Yukon, 38 km northeast of Watson Lake. The centre of the group is at 60° 19' north latitude and 128° 17' west longitude. Access to the property was by helicopter from Watson Lake. The claims could be reached by boat using the Hyland River, but this is not recommended.

### 4.0 GEOLOGY

The Till claims are almost completely underlain by glacial till except for a few isolated outcrops on the western margins (see Fig. 3 and Map 1). Regional mapping suggests the presence of Hadrynian lithologies as subcrop to the north and east as well as to the west. For a more detailed discussion of the geology the reader is referred to Mustard, 1982.



LEGEND

- Trs DARK, VARIABLY CALCAREOUS GREY SHALE AND SILTSTONE.
- Pze MAFIC METAVOLCANIC ROCKS, META CHERT, PHYLLITE.
- uDM BLACK SHALE, SILTSTONE, LOCALLY CHERT BEARING.
- SDa MASSIVE DOLOMITE AND ORTHOQUARTZITE.
- SDp NON - CALCAREOUS TO CALCAREOUS PHYLLITE.
- COv CALCAREOUS PHYLLITE AND PHYLLITIC LIMESTONE.
- Cp NON - CALCAREOUS PHYLLITE.
- Hgu NON - CALCAREOUS. PHYLLITE AND VARIABLY CALCAREOUS QUARTZ + FELDSPAR GRIT.
- Hc LIMESTONE, DOLOMITE.
- Hgm VARIABLY CALCAREOUS GRIT AND NON - CALCAREOUS PHYLLITE.

CYPRUS ANVIL MINING CORPORATION

HY, GS, SF, SUN, MOON, TILL CLAIMS  
Watson Lake M.D. Y.T.

REGIONAL GEOLOGY Figure 3

Miles 5 0 5 Miles



Kilometres 0 5 Kilometres

DRAWN BY: C. L. C.

SHEET 105 A

DATE: MARCH 1982

The presence of Devonian-Mississippian siliceous shales within the claim block may indicate that much of the subcrop is lower to mid-Paleozoic, rather than Hadrynian. Excellent exposure of east dipping (and facing?) uDM black shales occur southwest of the Till. These are presumed to the west limb of a major syncline to the south. The mere presence of uDM lithologies proximal to Hc suggests a fault of significant displacement. The Sunrise Creek fault, interpreted to the northeast, may run directly underneath the Till claims. The contact between grit and uDM stratigraphy may be a thrust equivalent to the Green River thrust fault mapped to the east and north. The regional implication of a thrust fault may be a compelling argument against it.

## 5.0 GEOCHEMICAL

During the 1981 field season, 673 soil samples were taken from the Till group as a preliminary survey. Samples were taken from either the B, or in some cases the A, horizon along 500 m spaced cut lines or compass and topofil lines. In many parts of the property difficulty in taking consistent B horizon samples resulted in the inclusion of organic matter, thereby rendering results somewhat inconclusive.

All samples were packaged in Kraft sample bags and sent to the Acme Analytical Laboratory at 852 East Hastings Street, Vancouver, British Columbia. The samples were then dried at 60<sup>o</sup>C, sieved to -80 mesh and weighed to half of a gram. They then were

digested in hot, dilute aqua reagent in a boiling water bath and diluted to 10 ml with demineralized water. Cu, Pb and Zn were determined in the acid solution by Atomic Absorption. All sample pulps are stored at Acme Analytical. Sample results are plotted on the accompanying 1:5000 scale map (Map 1) in ppm.

Results from this program are uniformly low and show no evidence of indicating any type of economic mineralization. Table 2 shows those results which are deemed to be of interest - only because they are the highest values.

<u>Location</u>	<u>Cu</u>	<u>Pb</u>	<u>Zn</u>	(ppm)
L20W, 3930N	68	21	77	
L20W, 3060N	150	25	134	
L30N, 710W	6	20	360	
L10W, 1430N	24	119	103	

TABLE 2 - TILL HIGH SOIL GEOCHEMICAL RESULTS

The high values in Table 2 do not show any trend - they occur only as isolated highs within a uniform background. Overall there appears to be a slight increase in Cu content, decrease in Zn values and constant Pb values as the topography steepens towards the northwest. This may be a result of changing composition of overburden from one of transport dominated to one of residual dominated as elevations increase.

### 5.1 SOIL PROFILES

Of approximately twenty soil profile holes dug on the Till property only nine sites were sampled due to flooding caused by a high water table. All of those sampled were on the hillside, above low-lying areas. The soil profiles on the Till claims are of the podzolic order with the lowland areas usually a gleyed humic podzol (Fig. 4) and hillside areas an ortho ferric-humic podzol (Fig. 5). All soil profiles show an ash layer that is from 3 to 15 centimeters thick and the reddest hues, or highest chromas, occur in the upper part of the B horizon.

The hillside pits (numbers 1 through 9) show a normal expression for residual soils. These soils generally have increased metal values towards the bedrock source indicating an absence of transportation of material. Figure 6 shows this trend in all the pits except possibly 3 and 4, which may contain a transported component. Comparison to conventional soils (plotted just below the dashed line) shows the variation possible in this type of soil survey. The majority of plots show a lower trend between conventional soil

# GLEYED HUMIC PODZOL

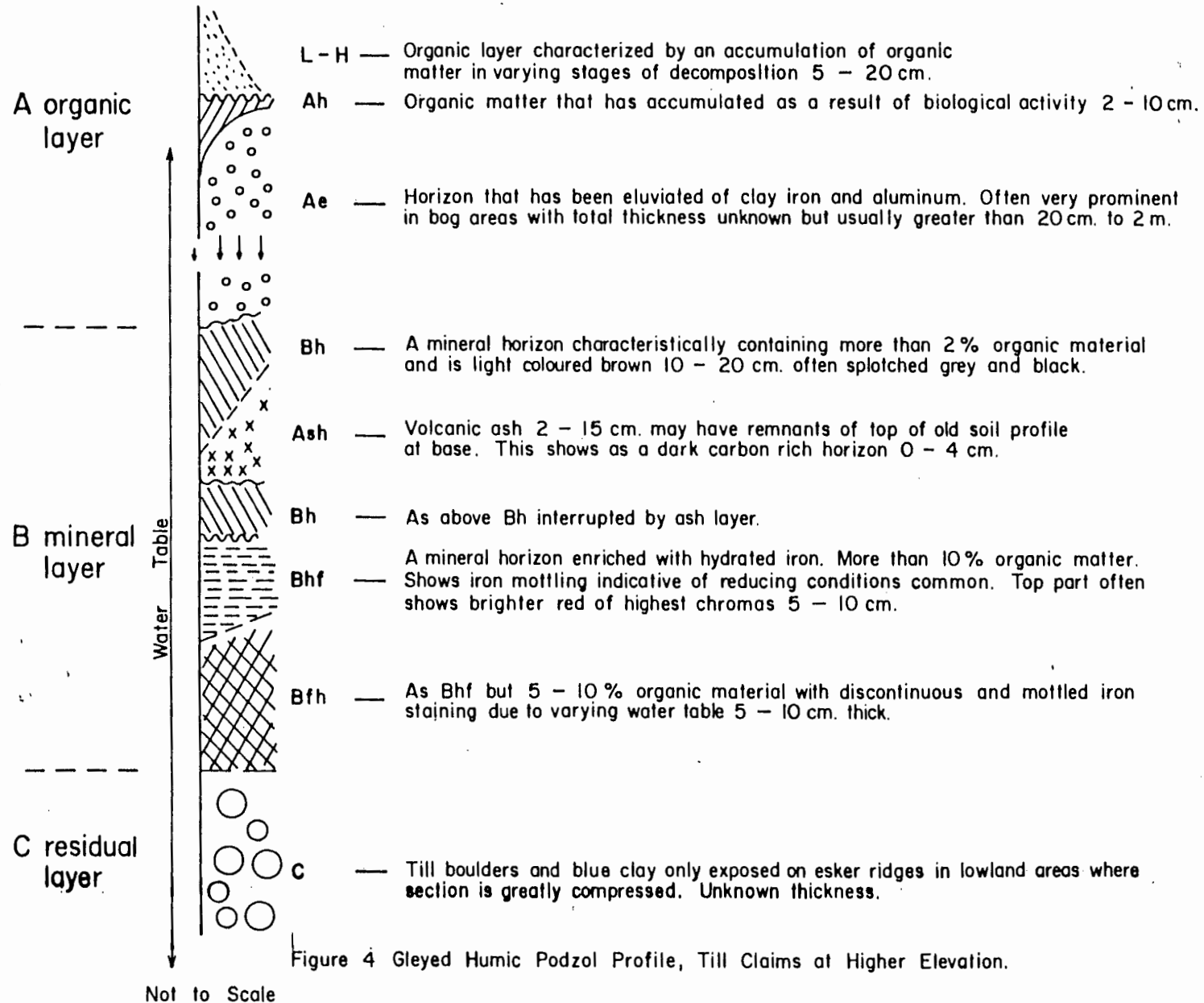


Figure 4 Gleyed Humic Podzol Profile, Till Claims at Higher Elevation.

## PLACIC FERRIC - HUMIC PODZOL

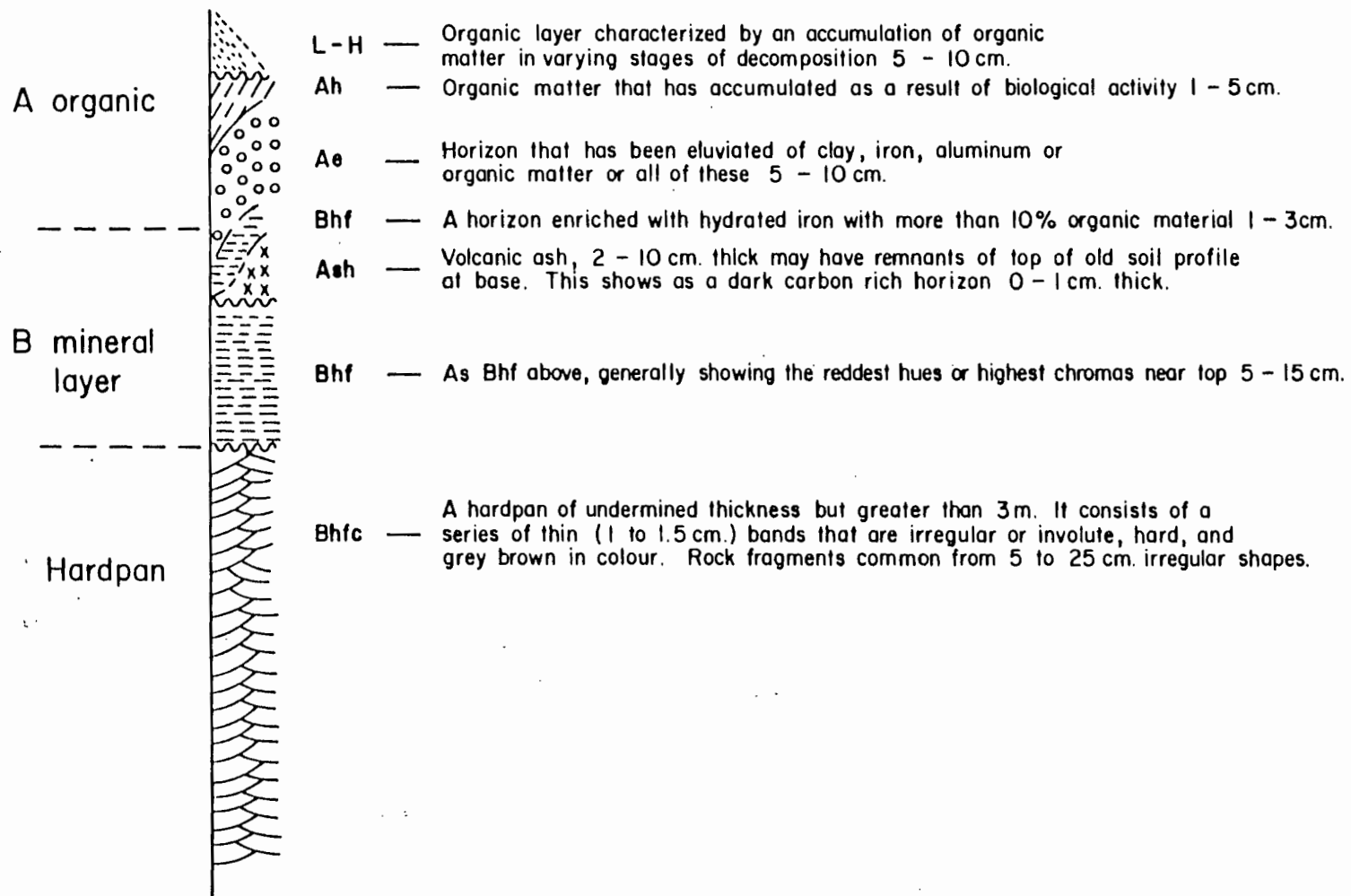
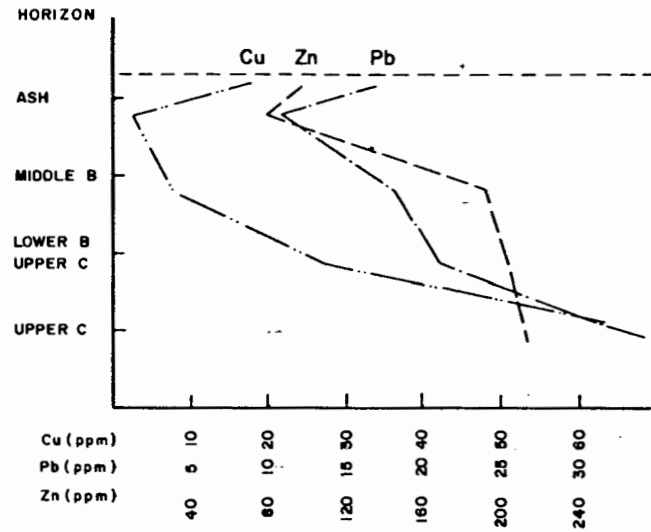


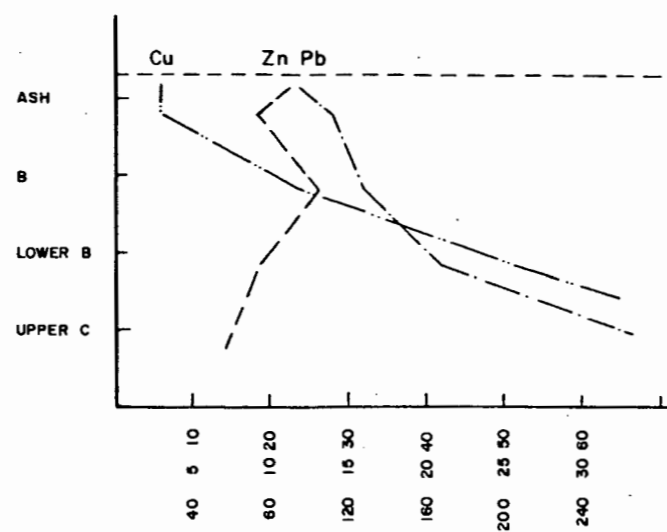
Figure 5 Ortho Ferric - Humic Podzol Profile, Till Claims at Lower Level.

Not to Scale

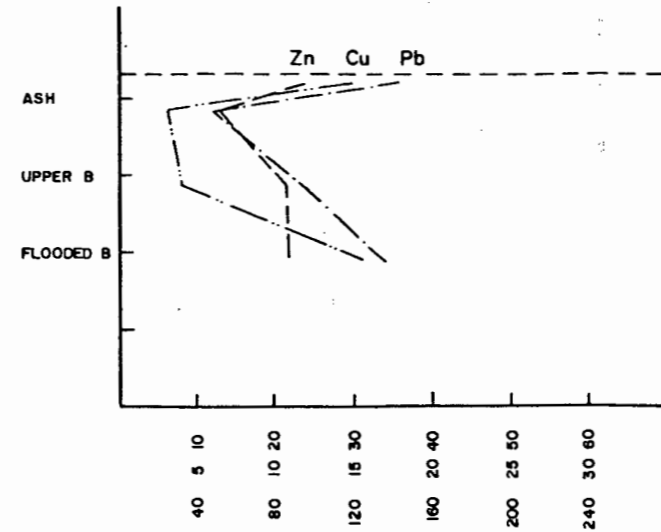
**PIT. 9**  
LOCATION 1960W



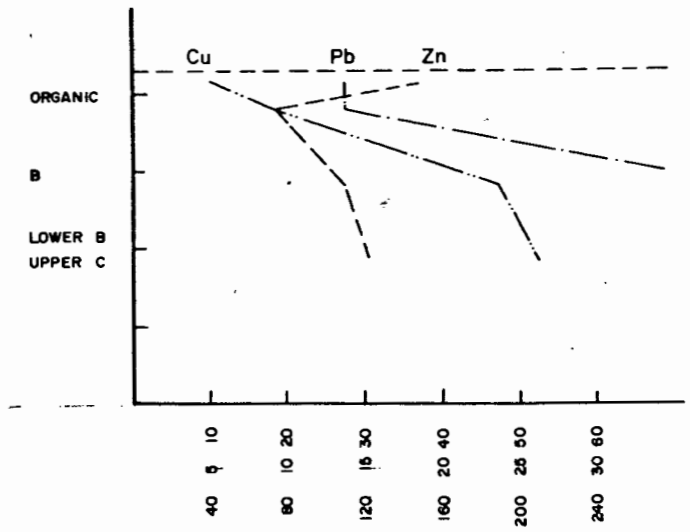
**PIT 8**  
LOCATION 1860W



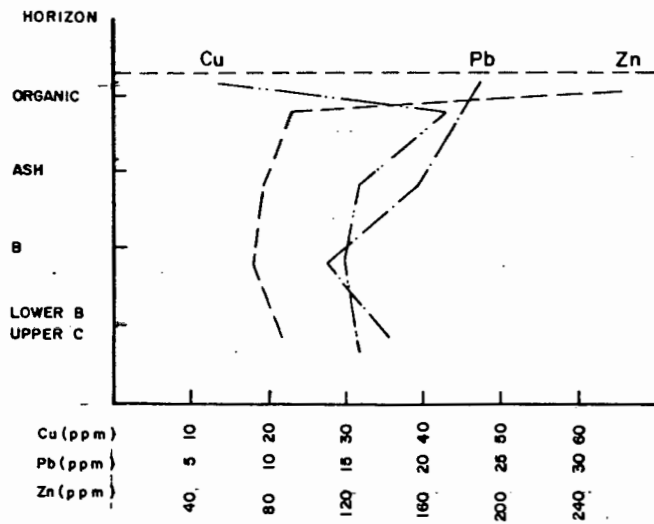
**PIT 7**  
LOCATION 1740W



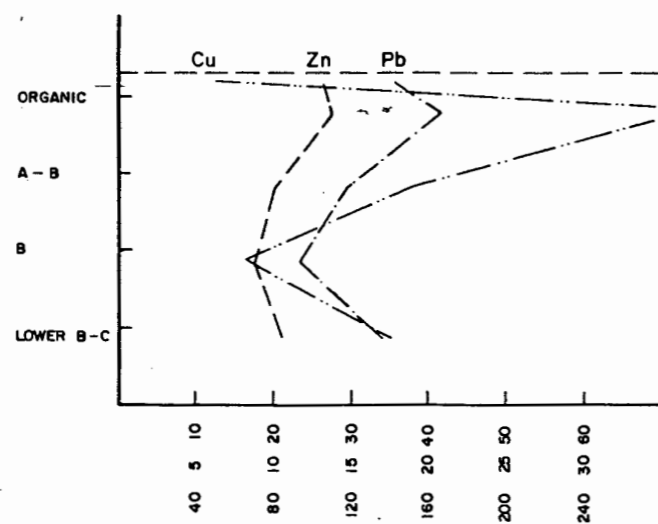
**PIT 6**  
LOCATION 1620W



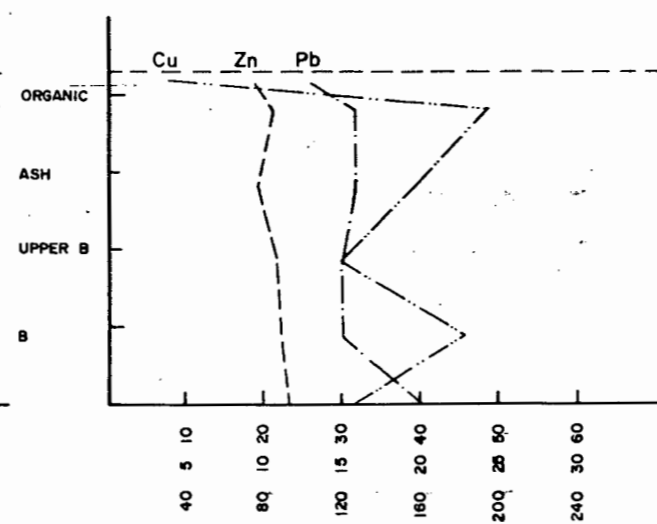
**PIT 5**  
LOCATION 1500W



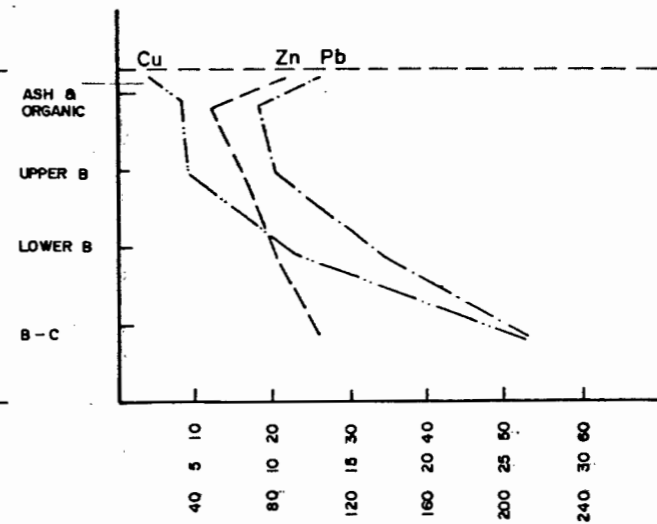
**PIT 4**  
LOCATION 1380W



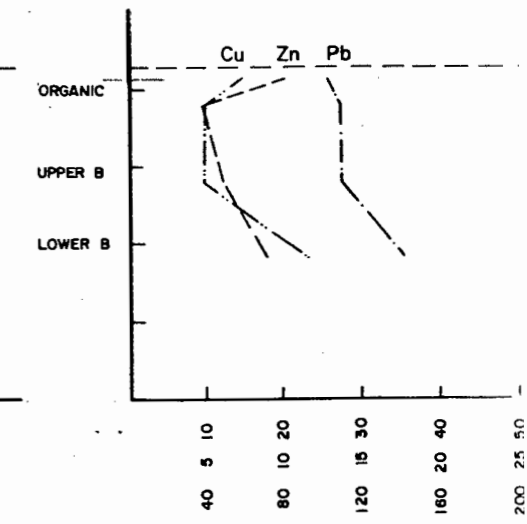
**PIT 3**  
LOCATION 1260W



**PIT 2**  
LOCATION 1140W



**PIT 1**  
LOCATION 1020W



Till Soil Profile Plots

All pits are on line 20N, between 10W and 20W

results and the first sampled horizon in the pit. This variation may be due to a number of causes: the exact location was not re-sampled (the profiles were dug in easier digging - away from trees), sampling by conventional methods may have sampled the upper more variable organic layer in the A horizon and possibly the B as well or sampling of the pits did not coincide with the same level as that of conventional soil sampling.

The lowland soil profile holes were flooded by a fluctuating water table almost immediately after digging. Visual inspection of the holes before flooding indicated that the fluctuating water table would give a generally weakened geochemical response with results not often being repeatable due to sporadic iron mottling of the lower B horizon. Also, many glacial features, such as eskers and blue clay, suggest a glacial masking of this area. These features suggest that the data from the geochemical soil program, as carried out, may have been influenced by more of a transported component rather than in-situ. Sampling of the profile holes in the lower part of the Till property may substantiate this if they had relatively random metal values.

## 6.0 CONCLUSIONS

The geochemical program did not outline any anomalous areas. Several soil profiles indicate a residual soil development, but much of the claim group is suspected to be underlain by overburden that has a significant transported component. Soil geochemical

values do not have the same magnitude as the original stream sediment samples, even though there are several isolated high occurrences of Cu, Pb and Zn.

Geologically, there is a possibility of Devono-Mississippian lithologies underlying at least part of the claim group. The presence of a major fault should not be discounted, which may be a cause for some isolated high geochemical values.

## 7.0 RECOMMENDATIONS

It is recommended that no further work be carried out on the property at this time. If further work is undertaken in the area (Hy, Sun-Moon) then an attempt should be made to map the geology in more detail just to the west of the claim group to determine the nature of Devono-Mississippian strata proximal to Hadrynian strata.

References:

- MUSTARD, J.W. - Geological and Geochemical Report on the  
Hy-SF-GS Claim Group, 1982.

TILL SOIL PROFILES

Soil Type

<u>Sample</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
1	Org.	upper B	lower B		
2	Ash&Org.	upper B	lower B		
3	Org.	Ash	B	B	B
4	Org.	A-B	B	lower B-C	
5	Org.	Ash	B	lower B-C	
6	Org.	B	lower B-C		
7	Ash	B	flooded B		
8	Ash	B	lower B	C	
9	Ash	B	lower B-C	C	

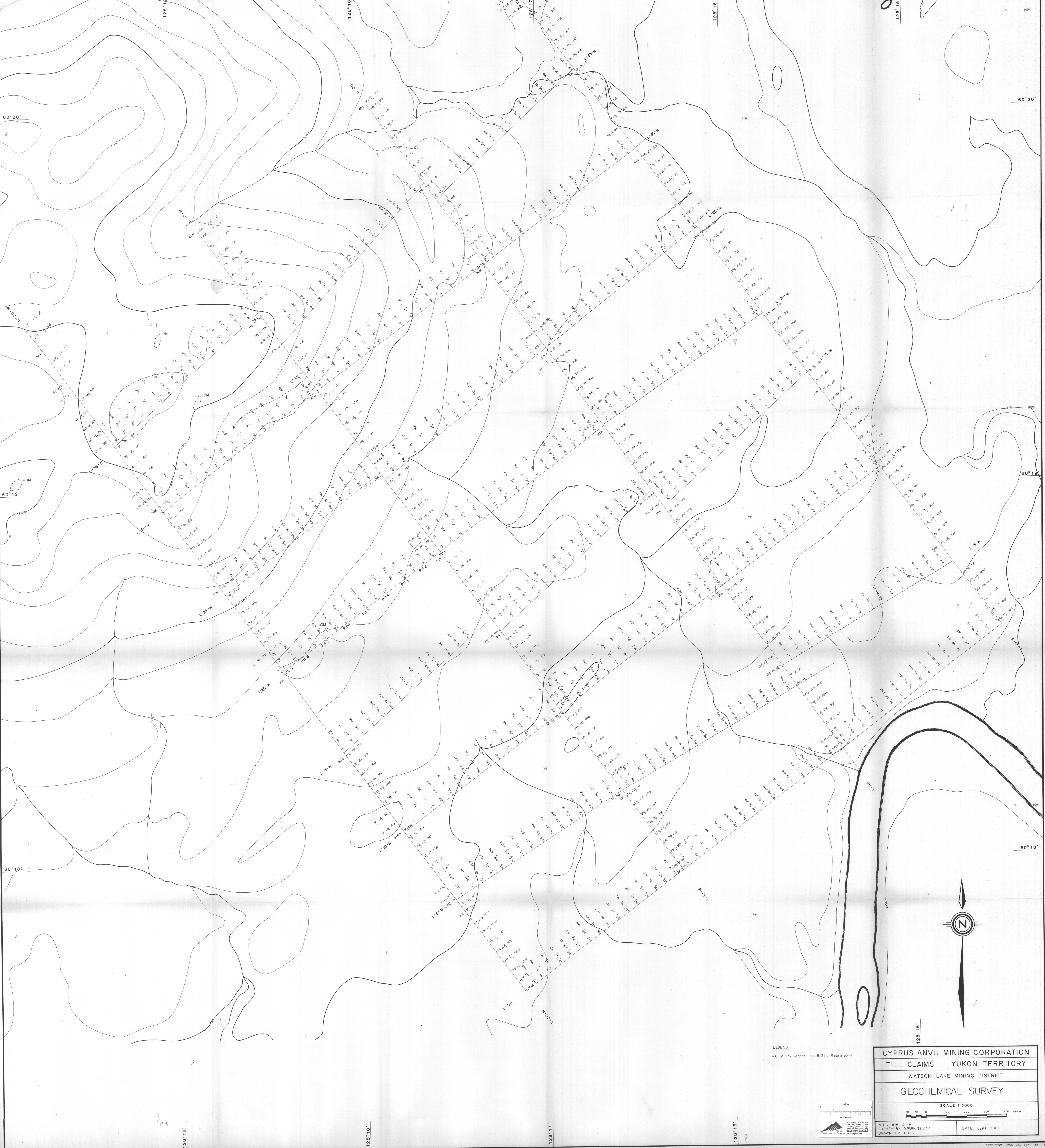
<u>Copper</u> ppm	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
1	10	10	23		
2	8	9	23	50	
3	49	40	30	30	40
4	88	38	17	35	
5	44	32	30	32	
6	19	48	53		
7	6	8	31		
8	6	24	52	128	
9	3	8	27	190	

<u>Lead</u> (ppm)	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
1	14	14	18		
2	9	10	17	26	
3	16	16	15	23	16
4	21	15	12	17	
5	23	20	14	18	
6	14	53	35		
7	6	12	17		
8	14	16	21	41	
9	11	18	21	37	

<u>Zinc</u> (ppm)	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
1	39	49	72		
2	47	66	80	103	
3	86	78	86	89	92
4	112	83	72	86	
5	92	80	73	88	
6	39	112	124		
7	50	85	86		
8	74	105	75	60	
9	80	192	205	215	

Ordinary Soil Sample (Previously Taken)

	<u>Cu</u> (ppm)	<u>Pb</u> (ppm)	<u>Zn</u> (ppm)
1	15	13	87
2	4	13	86
3	8	13	75
4	13	18	108
5	14	24	360
6	10	14	150
7	30	18	96
8	6	12	90
9	17	17	98



60°20'

60°19'

60°18'

60°20'

60°19'

60°18'

128°19'

128°18'

128°17'

128°16'

128°15'

128°19'

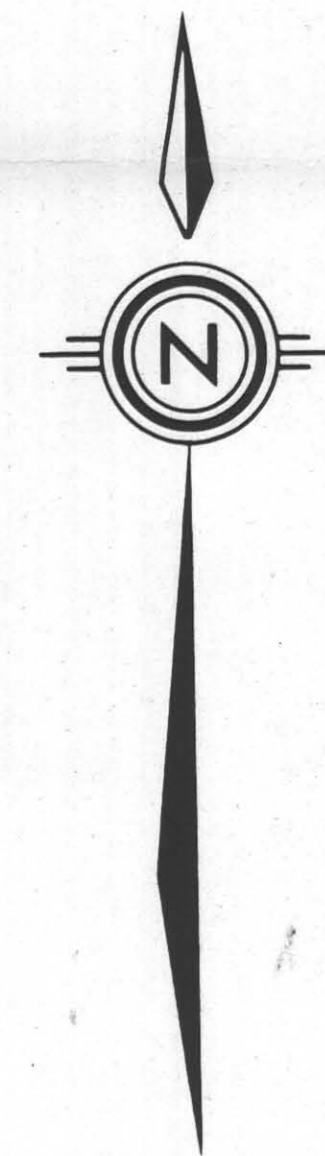
128°18'

128°17'

128°16'

128°15'

LEGEND  
46, 12, 17 - Copper, Lead & Zinc Results ppm



CYPRUS ANVIL MINING CORPORATION	
TILL CLAIMS - YUKON TERRITORY	
WATSON LAKE MINING DISTRICT	
GEOCHEMICAL SURVEY	
SCALE 1:5000	
NTS 105-A-8 SURVEY BY DRINKINS / 1n DRAWN BY E.D.S.	DATE SEPT 1981

