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8/85

ARCHEAN ENGINEERING LTD

GEOPHYSICAL AND GEOCHEMICAL  
REPORT ON THE  
DECEPTION CREEK PROPERTY  
CLINTON MINING DIVISION, B. C.  
N.T.S. 92 P/15E

September 1984

A.G. Troup, P.Eng.

<u>Claim Name</u>	<u>Units</u>	<u>Record No.</u>	<u>Anniversary Date</u>
W-1	20	1094	September 2
W-2	20	1095	September 2
W-3	20	1096	September 2
W-4	20	1097	September 2
C-1	18	1726	April 11
C-2	4	1727	April 11
C-3	2	1728	April 11

LOCATION: 51°55'N, 120°36'W  
OWNER: ARCHEAN ENGINEERING LTD  
OPERATOR: ARCHEAN ENGINEERING LTD

**GEOLOGICAL BRANCH**  
**ASSESSMENT**

12,820

GEOPHYSICAL AND GEOCHEMICAL  
REPORT ON THE  
DECEPTION CREEK PROPERTY  
CLINTON MINING DIVISION  
BRITISH COLUMBIA  
NTS 92P/15E

SUMMARY

The Deception Creek property is a copper-zinc prospect located 55 km northeast of 100 Mile House in central British Columbia. In 1984 follow-up work entailing a VLF-EM survey and geochemical sampling was carried out over the property.

Results of the VLF survey have confirmed and extended several strong conductors discovered by previous surveys. Soil sample results show very high copper and zinc values over and down slope from the conductors, suggesting that they may be due to massive sulphide mineralization.

Additional work entailing trenching and diamond drilling is recommended.

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GEOPHYSICAL AND GEOCHEMICAL  
REPORT ON THE  
DECEPTION CREEK PROPERTY  
CLINTON MINING DIVISION, B.C.

1.0 INTRODUCTION

The Deception Creek property is a copper-zinc prospect located near Canim Lake in central British Columbia. In 1984 a VLF-EM survey and geochemical sampling programme was carried out to assess and extend anomalous areas discovered by previous surveys.

The programme was completed in August of 1984 by a four person crew working from a tent camp on the property. The work was supervised by Mark Management geologist, B. Butterworth under the direction of A. Troup, P.Eng.

1.1 Location and Access

The Deception Creek property is located in central British Columbia approximately 55 km northeast of the community of 100 Mile House (Figure 1). The claims centre on latitude 51°55'N and longitude 120°36'W and cover a 26 km<sup>2</sup> area situated between Deception Creek and the east end of Canim Lake.

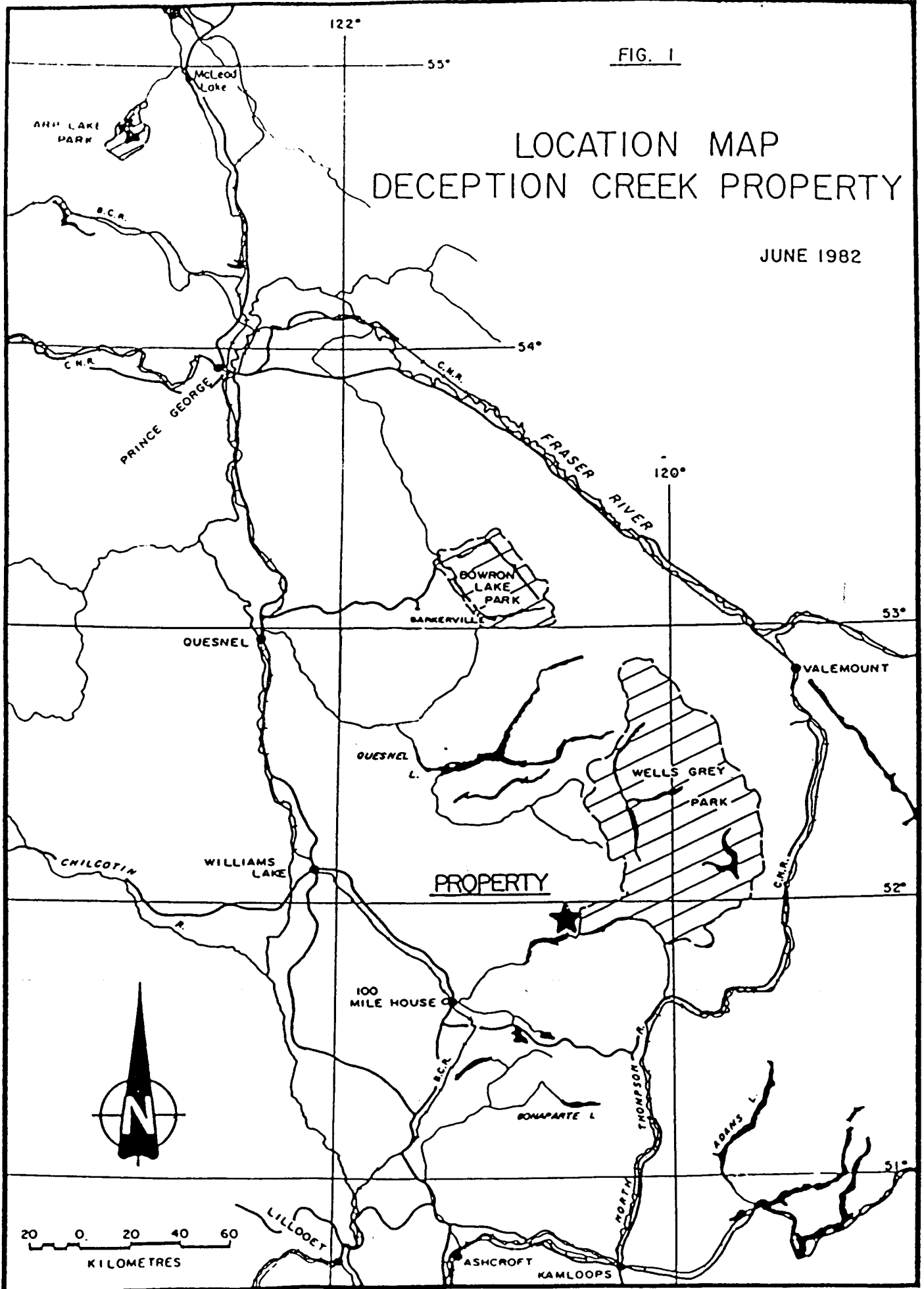
The property is accessible by foot along a 2 km long trail that intersects the Canim Lake Ranch road near the east end of Canim Lake. The closest main road is the Canim Lake - Hendrix Lake road situated 7 km northwest of the property.

Helicopter support for the 1984 programme was obtained from Northern Mountain Helicopters in Williams Lake.

FIG. 1

# LOCATION MAP DECEPTION CREEK PROPERTY

JUNE 1982



## 1.2 Physiography

The claims overlie a series of low rounded hills situated along the western flank of the Shuswap Highlands. Relief is 1300 feet (395 m) between Canim Lake at 2534 feet (765 m) and the highest ridge at 4200 feet (1280 m). The south, west and central portions of the property are drained by the south-flowing Don Mackay Creek and the east-flowing Canim River. The northeast corner of the claims is drained by Deception Creek which flows southeast into Mahood Lake.

Vegetation consists of dense, mature forest comprised of cedar, spruce, fir and pine. In low-lying areas and along streams, there is a thick undergrowth of alder and young evergreens.

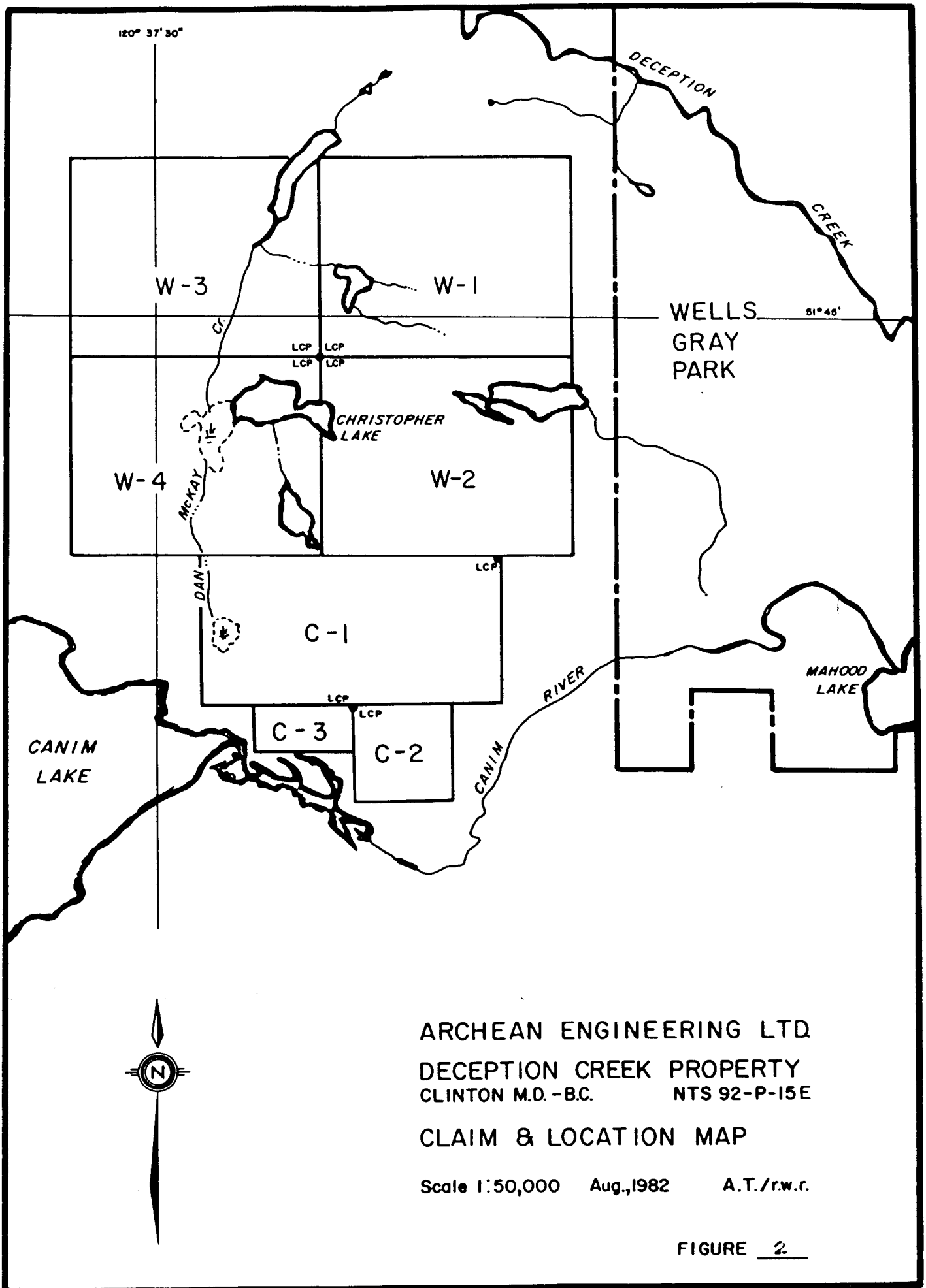
## 1.3 Claim Information

The Deception Creek property is located in the Clinton Mining Division and consists of 104 units in seven modified grid claims as shown in Figure 2. Claim information is given in Table 1.

TABLE 1

CLAIM STATUS

<u>Claim Name</u>	<u>Units</u>	<u>Record No.</u>	<u>Expiry Date</u>
W-1	20	1094	Sept. 2, 1985
W-2	20	1095	Sept. 2, 1985
W-3	20	1096	Sept. 2, 1985
W-4	20	1097	Sept. 2, 1985
C-1	18	1726	April 11, 1986
C-2	4	1727	April 11, 1986
C-3	2	1728	April 11, 1986





#### 1.4 WORK BY ARCHEAN ENGINEERING LTD. IN 1984

Follow-up work was carried out from August 13 to August 31 by a four person crew working from a base camp on the property. The following work was completed.

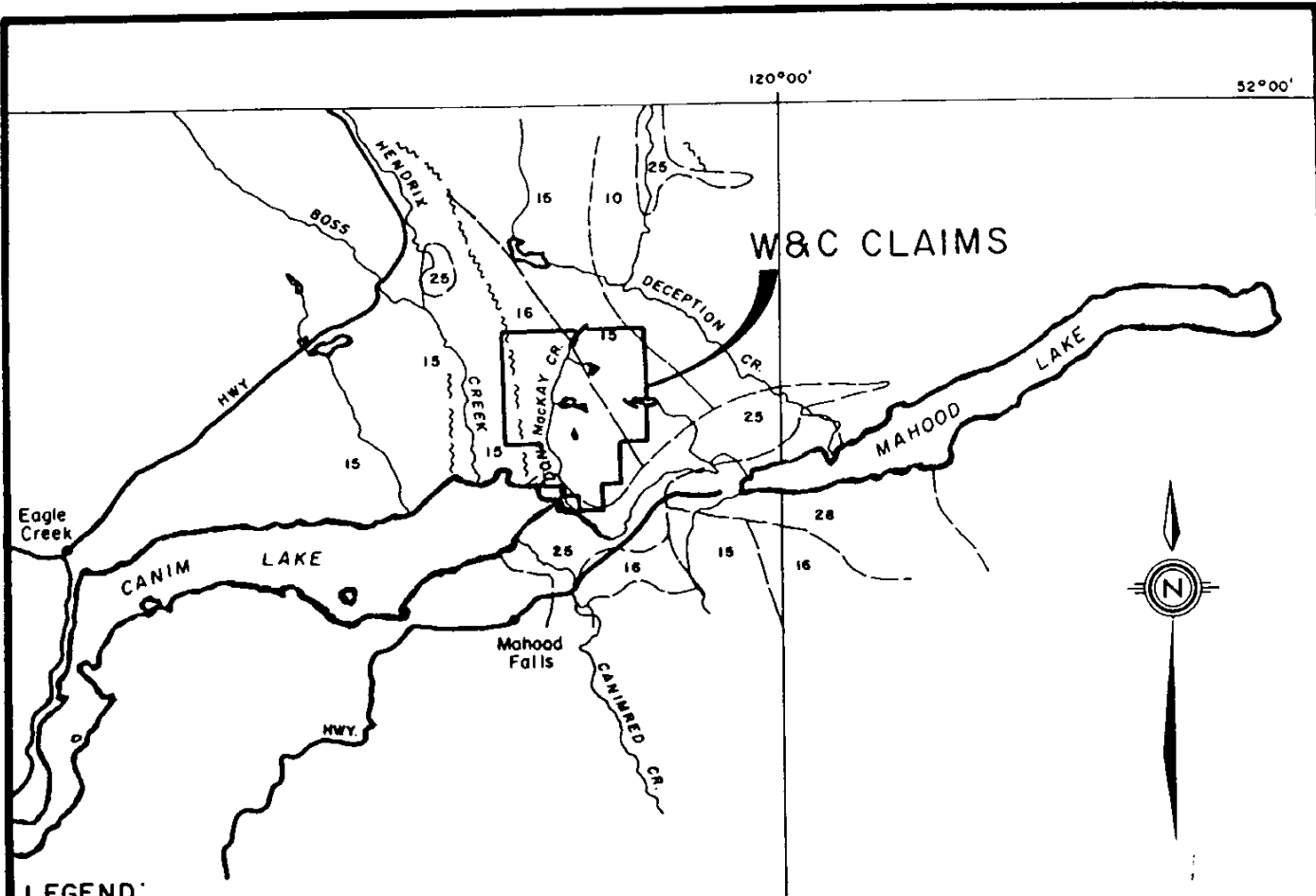
1. Detailed VLF-EM coverage was carried out over two grids on the property.
2. Soil sampling was carried out over all significant conductors detected by the VLF survey.
3. Stream sediment and panned, heavy mineral concentrate samples were taken along all major streams encountered on the property.

## 2.0 GEOLOGY

### 2.1 General Geology

The geology of this area was mapped by R. B. Campbell and H. W. Tipper of the Geological Survey of Canada in 1964-65 and published as Map 1278A in Memoir 363. That work shows the eastern half of the property to be underlain by Jurassic age andesitic arenite and siltstone, overlain on the west by slightly younger porphyritic augite andesite.

Mapping carried out over the property in 1982 by Archean Engineering Ltd suggests that the geology is much more complex than indicated by the G.S.C. work. This recent mapping programme found the property to be underlain by a sequence of andesite agglomerate, andesite tuff and minor andesite flow rocks interbedded with thin rhyolite tuff horizons. The volcanic rocks are overlain by a sequence of fine-grained mudstones and argillites. The rocks have been deformed by large to medium scale folding about fold axes striking approximately 090° and 175°.



**LEGEND:**

**PLEISTOCENE and RECENT**

26 TILL, GRAVEL, SILT, CLAY, ALLUVIUM

**TERTIARY - MIOCENE and/or PLIOCENE**

25 PLATEAU LAVA

**JURASSIC - SINEMURIAN TO (?) MIDDLE JURASSIC**

16 PORPHYRITIC AUGITE ANDESITE BRECCIA AND CONGLOMERATE; MINOR ANDESITE, ARENITE, TUFF, ARGILLITE, AND FLOWS (MAY INCLUDE SOME 11, 16a, ISOLATED AREAS OF HORNBLENDE ANDESITE - MAY BE ALL OR PARTLEY INTRUSIVE) SEE MAP 1278A.

15 ANDESITIC ARENITE, SILTSTONE, GRIT, BRECCIA AND TUFF; LOCAL GRANITE BEARING CONGLOMERATE, GREYWACKE; MINOR ARGILLITE AND FLOWS (MAY INCLUDE SOME 11)

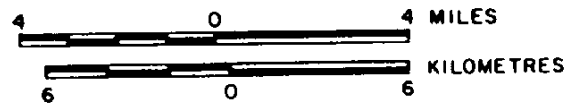
**TRIASSIC - KARNIAN - NORIAN (NICOLA GROUP)**

10 BLACK SHALE, ARGILLITE, PHYLLITE, SILTSTONE AND BLACK LIMESTONE.

**ARCHEAN ENGINEERING LTD.  
DECEPTION CREEK PROPERTY**

W & C M.C., CLINTON MD. - B.C.

**REGIONAL GEOLOGY**



NTS 92-P-15  
DATE

/r.w.r.

FIGURE 3

After GSC MAP 1278A (1964/65)

### 3.0 GEOPHYSICS

#### 3.1 Instrument and Survey Techniques

In completing the present programme two VLF-EM grids, totaling 19 line km of coverage, were surveyed using a Geonics EM-16 instrument. Readings were taken at 25 m intervals along the survey lines.

All lines were run using the submarine transmitting station in Seattle, Washington, U.S.A. (Station 'NLK', 24.8 kHz). In-phase and quadrature readings were taken in a northwesterly direction (293°) to ensure that south and east dips were indicated as negative readings by the instrument. The in-phase readings were later reduced and contoured by use of the Fraser Filtering Technique (Fraser, 1969).

#### 3.2 Presentation and Discussion of Results

Results of the survey are shown on Figure 4 at a scale of 1:5,000. In all cases the filtered in-phase readings have been contoured at 10% intervals.

The results show several VLF anomalies within the survey areas. Of particular interest is a strong, 1700 m long, north-south trending conductor located immediately southeast of Christopher Lake. This conductor, discovered in 1982-83, was extended 700 m to the south by the present survey. It follows a strong Cu-Zn soil anomaly shown by this and previous surveys and is underlain by a sequence of andesite tuffs. The strike of the conductor is parallel to the local geology suggesting that it may be reflecting a stratigraphically controlled body.

A strong, 700 m long, VLF anomaly situated approximately 1 km northeast of Christopher Lake was discovered in 1983 and extended by the present survey. Soil sample results show zinc values of up to 1,000 ppm over this second conductor suggesting a possible potential for massive sulphide mineralization.

#### 4.0 GEOCHEMISTRY

#### 4.1 SOIL SAMPLING

##### 4.1.1 Sampling Techniques and Analytical Procedures

A total of 108 soil samples were taken along selected lines in order to assess several of the VLF-EM conductors. Samples were taken at 25 m intervals along the geophysical lines. At each sample site an auger was used to collect about 300 g of material from the 'B' soil horizon. The samples were placed in numbered Kraft envelopes and sent to Chemex Laboratories Ltd in North Vancouver. In the laboratory all samples were oven dried at approximately 60°C. The dried samples were sieved to minus 80 mesh and the fine fraction analysed for the elements Cu, Pb and Zn by atomic absorption methods.

##### 4.1.2 Presentation and Discussion of Results

Results of the survey are shown in Figure 5 at a scale of 1:5,000. Because sampling was restricted to areas expected to be anomalous, statistical methods could not be used to assess the data. Inspection of the results shows very high zinc and locally high copper concentrations in the vicinity of the two main conductors.

## 4.2 STREAM SAMPLING

### 4.2.1 Sampling Techniques and Analytical Procedures

In order to determine the potential of yet unexplored areas of the property, stream sediment and panned heavy mineral concentrate samples were collected along all major streams. A total of 23 stream sediment and 9 heavy mineral samples were taken.

At each sample site approximately 300 g of active stream sediment and 500 g of panned concentrate was collected. All samples were placed in numbered kraft envelopes and sent to Chemex Laboratories Ltd in North Vancouver for analysis.

In the laboratory all samples were oven dried at approximately 60°C. The silt samples were sieved to minus 80 mesh and the fine fraction analysed for the elements Cu, Pb and Zn. The heavy mineral samples were sieved to minus 10 mesh and further concentrated by heavy liquid and magnetic mineral separation. The resulting samples were pulverized to minus 100 mesh and analysed for gold by atomic absorption methods.

### 4.1.2 Presentation and Discussion of Results

Results of the survey are shown on Figure 5 at a scale of 1:5,000. The stream sediment results show elevated copper and zinc concentrations along streams draining the two main conductors. Heavy mineral results show only background gold concentrations.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The results of the present EM-16 survey have successfully extended the two main VLF conductors discovered previously. Soil sample results show very high zinc and locally high copper concentrations in the vicinity of the conductors, suggesting potential for massive sulphide mineralization.

Additional work entailing bulldozer trenching and diamond drilling is recommended.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "A. G. Troup". The signature is written in dark ink and is positioned to the right of the typed name below.

A. G. Troup, P.Eng.



## 6.0 REFERENCES

Campbell, R.B., Tipper, H.W., 1971; Geology of Bonaparte Lake map-area (92-P). GSC Memoir 363.

Fraser, D.C., 1969; Contouring of VLF-EM Data. Geophysics v.34, No. 6, pp.958-967.

Troup, A.G., 1982; Geology, Geochemistry and Geophysics of the Deception Creek Property. Engineers report dated August 1982.

Troup, A.G., 1983; Geophysical Report on the Deception Creek Property. Engineers report dated September 1983.

COST STATEMENT  
Deception Creek Claims  
13 - 31 August 1983  
GEOPHYSICAL AND GEOCHEMICAL SURVEYS

SALARIES AND WAGES

4 Pers, 69 mandays @ \$81.73 \$5,639.18

BENEFITS @ 20% 1,127.84

FOOD AND ACCOMMODATION

4 Pers, 69 mandays @ \$20.65 1,425.10

SUPPLIES 234.25

HELICOPTER

Northern Mountain 206B, 15-30 Aug 3.3 hrs @ \$473.88 1,563.82

RENTALS

Gabriel Field Equipment, 69 mandays @ \$6	\$414.00	
EM-16, 18 days @ \$27	486.00	
SBX-11A, 17 days @ \$11	187.00	
Mark 4WD Bronco, 18 days @ \$43	774.00	
U-HAUL Trailer	<u>157.68</u>	2,018.68

FUEL 181.45

CONSULTANT FEES 450.00

GEOCHEMICAL ANALYSES - Chemex Labs

132 Soils for cu,pb,zn @ \$4.50	\$594.00	
6 Rocks & 3 HMS for au @ \$19	<u>171.00</u>	765.00

REPORT PREPARATION 3,750.65

TOTAL COST \$17,155.97

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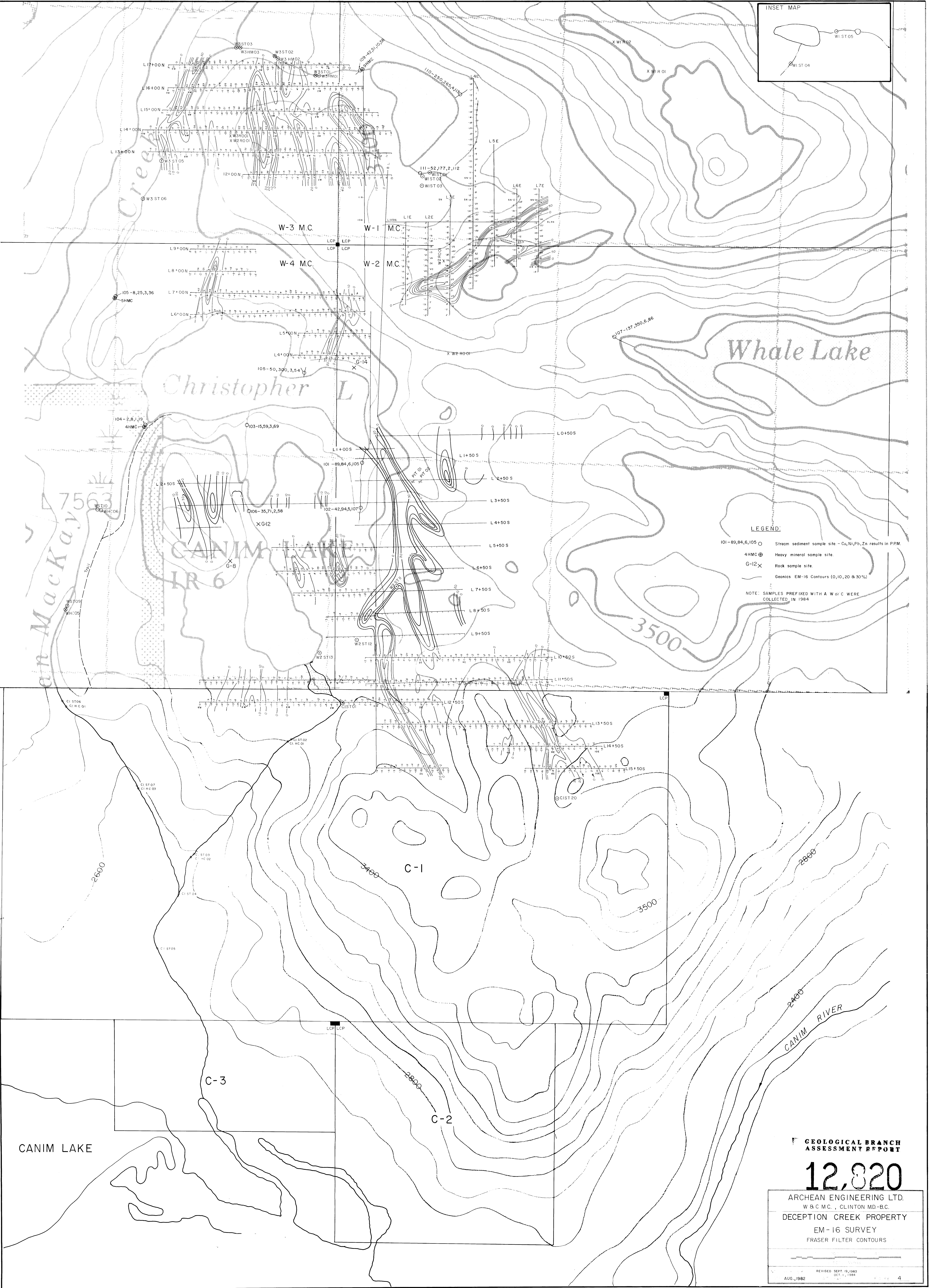
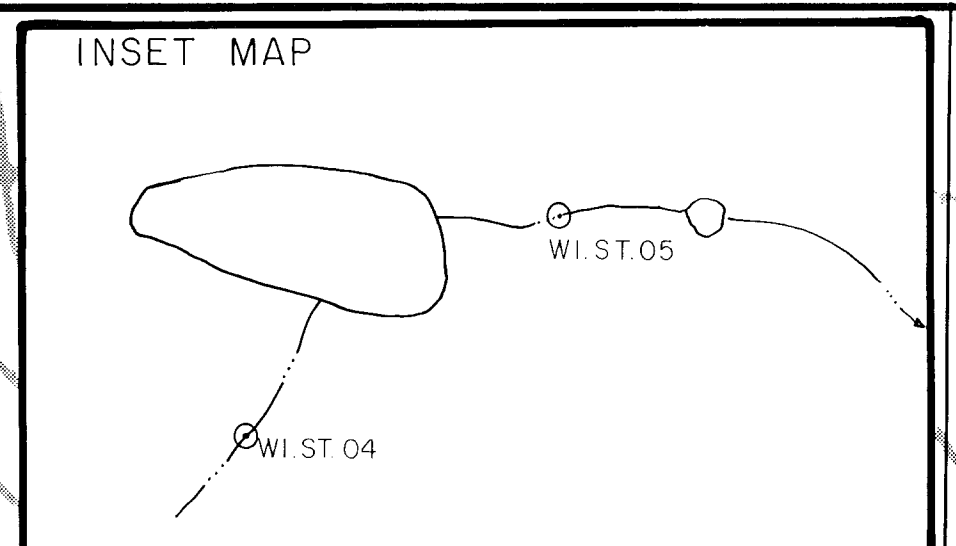
STATEMENT OF QUALIFICATIONS  
A. TROUP, P.ENG.

ACADEMIC

1967	B.Sc. Geology	McMaster University, Ontario
1969	M.Sc. Geochemistry	McMaster University, Ontario

PRACTICAL

1981 -	3605 Creery Ave., W. Vancouver, B.C.	Consulting Geologist with Archean Engineering Ltd.
1977 - 1980	Geological Survey of Malaysia	Project Manager on a CIDA supported mineral explora- tion survey over peninsular Malaysia.
1969 - 1977	Rio Tinto Canadian Exploration Ltd. Vancouver, B.C.	Geologist involved in all aspects of mineral explora- tion in B.C., the Yukon and N.W.T.
1968	McMaster University Dept. of Geology Hamilton, Ontario	M.Sc. thesis work. Reconnaissance mapping and geochemical study, Lake Shubenicadia area, Nova Scotia.
1967 (summer)	Canex Aerial Exploration Ltd. Toronto, Ontario	Geologist in charge of detailed mapping and reconnaissance geochemical program in Gaspé, Quebec
1966 (summer)	McMaster University Dept. of Geology Hamilton, Ontario	Detailed and reconnaissance mapping in Northern Ontario.
1965 (summer)	International Nickel Co. of Canada Thompson, Manitoba	Detailed mapping in the Thompson area, Manitoba.
1964 (summer)	Geological Survey of Canada Ottawa, Ontario	Regional geochemical survey in the Keno Hill area, Yukon.



Whale Lake

Christopher L

CANIM LAKE  
IR 6

an Mackay

**LEGEND:**

- 101-89,84,6,105 ○ Stream sediment sample site - Cu, Ni, Pb, Zn results in P.P.M.
- 4HMC ⊕ Heavy mineral sample site.
- G-12X ✕ Rock sample site.
- Geonics EM-16 Contours (0,10,20 & 30%)

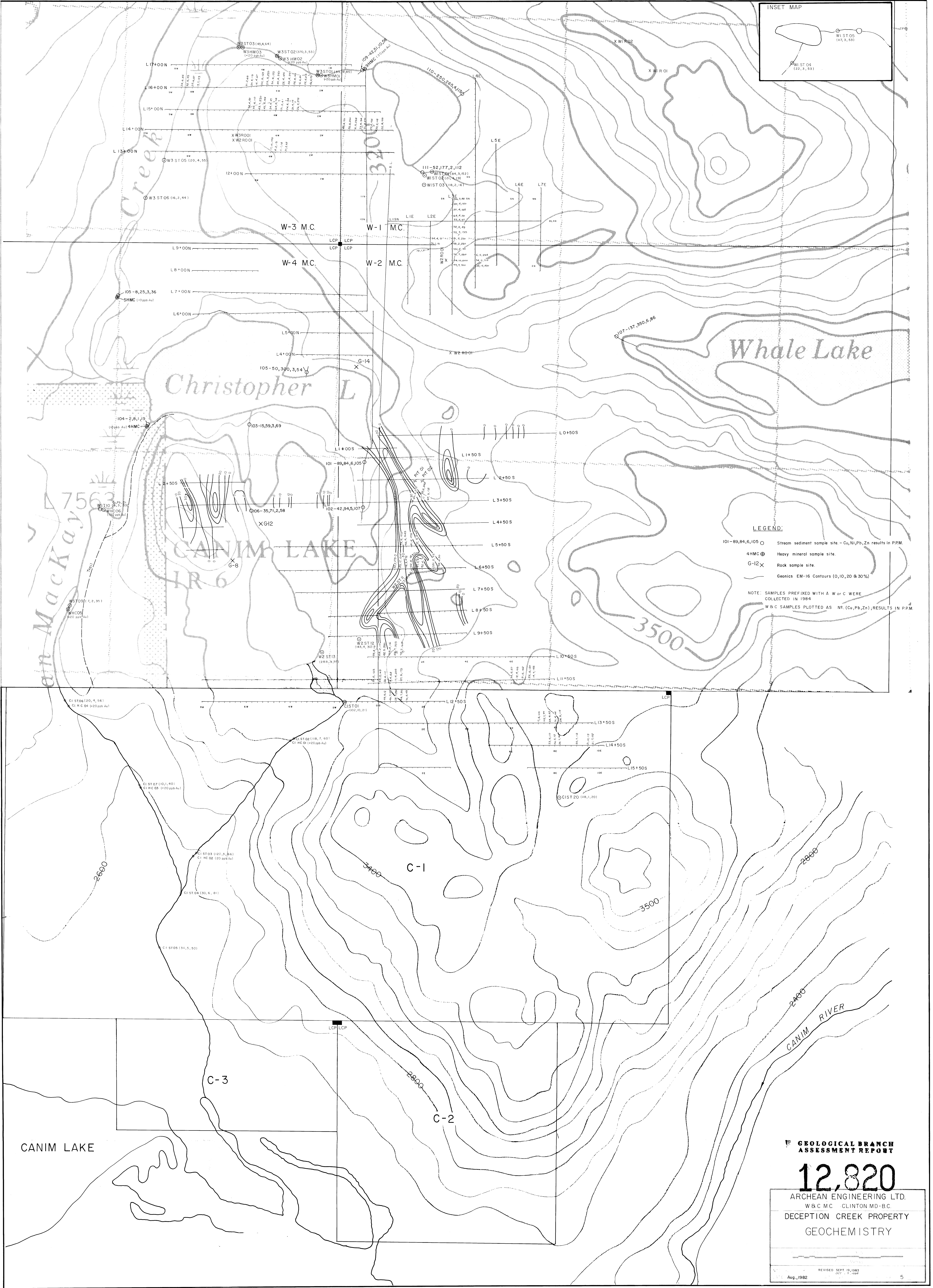
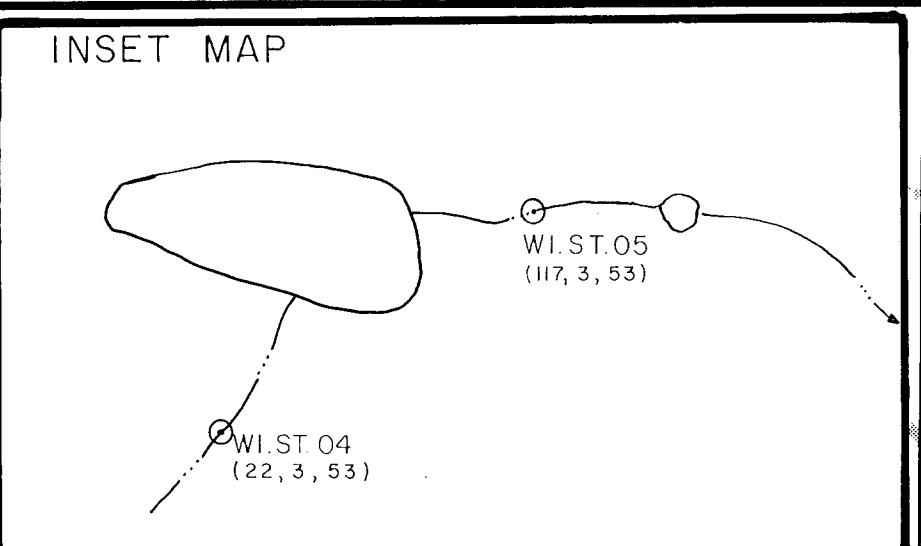
NOTE: SAMPLES PREFIXED WITH A W or C WERE COLLECTED IN 1984

GEOLOGICAL BRANCH ASSESSMENT REPORT

12,820

ARCHEAN ENGINEERING LTD.  
W B C M.C., CLINTON MD.-B.C.  
DECEPTION CREEK PROPERTY  
EM-16 SURVEY  
FRASER FILTER CONTOURS

REVISED SEPT. 19, 1983  
OCT. 1, 1984  
AUG. 1982



**LEGEND:**

- IOI-89,84,6,105 ○ Stream sediment sample site - Cu, Ni, Pb, Zn results in PPM.
- 4HMC ⊕ Heavy mineral sample site.
- G-12 × Rock sample site.
- Geonics EM-16 Contours (0,10,20 & 30%)

NOTE: SAMPLES PREFIXED WITH A W or C WERE COLLECTED IN 1984  
W & C SAMPLES PLOTTED AS Ni, (Cu, Pb, Zn), RESULTS IN PPM

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**12,820**

ARCHEAN ENGINEERING LTD.  
W & C M.C. CLINTON MD-BC  
DECEPTION CREEK PROPERTY  
GEOCHEMISTRY