83-#282-B # 11189

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ARCHER, CATHRO
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GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,189

GEOCHEMICAL REPORT

ON THE

SAINT 3 AND FLACO CLAIMS

LIARD MINING DIVISION

NTS 94L/1E and 94K/4W

Latitude 58°08'N; Longitude 126°00'W

by

R.C. Carne

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

for

GETTY MINES, LIMITED (Owner)

and

GATAGA JOINT VENTURE (Operator)

Submitted July 22, 1983

1016-510 WEST HASTINGS STREET, VANCOUVER, B.C. V6B 1L8

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LIST OF CLAIMS

Claim	Record Number	Number of Units	Record Date	Expiry Date
Saint 3	285	12	April 28, 1977	April 28, 1986
Flaco	1318	4	June 24, 1980	June 24, 1987

* Expiry date providing this report is accepted for assessment credit applied for earlier.

GEOCHEMICAL REPORT

on the

SAINT 3 AND FLACO CLAIMS

Introduction

The Saint 3 claim was staked for Gataga Joint Venture (GJV) by Castlemaine Exploration Ltd. in 1977 and transferred in 1981 to Getty Mines, Limited, operator of the joint venture. The Flaco claim was staked for GJV by Welcome North Mines Ltd. in 1980 and transferred to Getty in 1981. They were located to cover soil and silt geochemical anomalies from a possible strike extension of stratiform lead-zinc-barite mineralization on the nearby Driftpile Creek property (P, D and Goof claims). Gataga Joint Venture, formed in 1977 to explore for lead-zinc in northeast British Columbia, is a syndicate composed of Kidd Creek Mines Limited, Chevron Canada Limited, Getty Mines, Limited, Welcome North Mines Ltd. and Castlemaine Exploration Ltd. The program was managed by Archer, Cathro & Associates (1981) Limited and was directed in the field for the sixth successive season by R.C. Carne.

Previous work by GJV on the claims and on nearby areas is described in Assessment Reports 2394, 6666, 6896 and 9396.

Location and Access

The Saint 3 and Flaco claim group is located 8 km northwest of Driftpile Creek on map sheets 94L/1E and 94K/4W (Figure 1). The centre of the claim group is located at latitude 58°08'N and longitude 126°00'W.

Access is by wheel-equipped, fixed-wing aircraft from Watson Lake, Yukon Territory, about 275 km to the northwest, to an airstrip located at Driftpile

location of previous geochemical surveys

area of Figures 3 to 11

SAINT 3 CLAIM

area of 1982 sampling

LCP

LCP

FLACO CLAIM

N

Saint Cr

Main Cr

Figure 2

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

LOCATION PLAN

SAINT 3 and FLACO CLAIMS

GATAGA JOINT VENTURE

SCALE – 1:20,000

0 500 1000 metres

To accompany report dated July, 1983

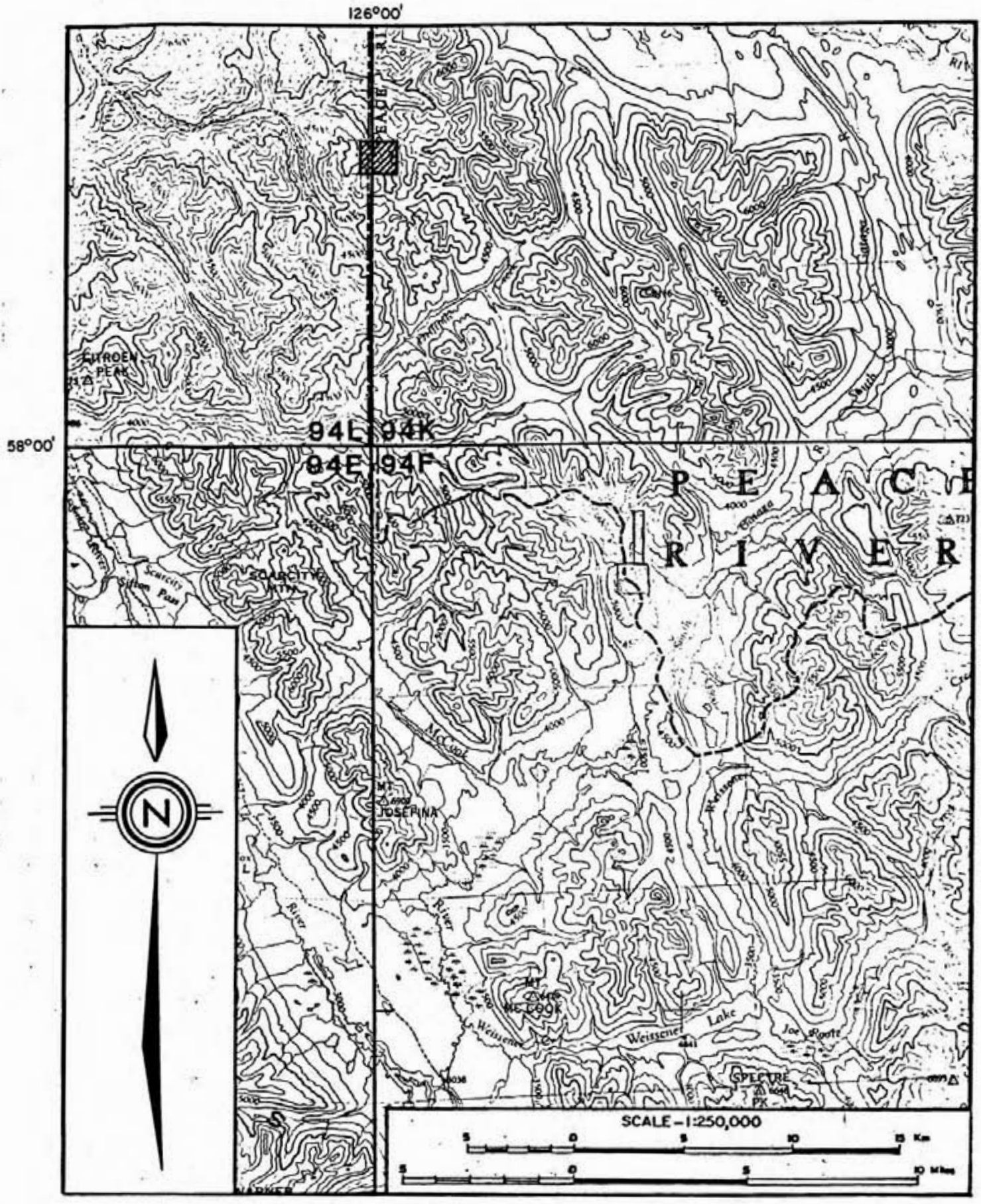


Figure 1: Location of Saint 3 and Flaco claim group

Creek. The nearest large town is Fort Nelson, 200 km to the east. Fuel used for the 1982 program was trucked 250 km from Watson Lake to the Liard Flight Strip No. 5 (Km 812 on the Alaska Highway) and ferried 150 km during mid-July 1982 by wheel-equipped single Otter aircraft to the airstrip located at the headwaters of Driftpile Creek. The field work was conducted from a nearby permanent camp in the Driftpile Creek valley and was supported by a Bell 47G3 helicopter.

Geochemical Survey

Detailed soil sampling on the claims carried out between 1977 and 1982 outlined extensive, well-developed aonomalies in lead, zinc and silver. Prospecting carried out as part of a concurrent geological mapping program failed to discover any base metal showings in the upper Devonian shales underlying the claim group. Several thin baritic shale horizons were mapped but their locations do not correlate well with the locations of the metal-rich soils. Numerous spring-fed, gossanous limonite accumulations were noted in the previous surveys and the lead, zinc and silver soil anomalies were theorized to have resulted from groundwater flow along fault and fracture zones occurring near the base of the west-facing slope which underlies the west-central part of the claims.

The 1982 sampling program was carried out on August 14, 15 and 16. It was designed to determine whether the known soil anomalies are exotic, that is derived from depth by upward groundwater flow, or whether they represent base metal occurrences in the immediately underlying bedrock. Seventy-five samples of spring-fed gossan material were taken, many from replicate sites (Figure 3). A transect across the anomalous zone was sampled with 31 soil samples and 8 rock chip samples (Figure 3). The soil samples were taken from

the "B" soil horizon in areas which were apparently not contaminated by the spring waters.

Sample locations were marked with their pre-numbered kraft bag designation on orange survey flagging. All samples were shipped air freight to Chemex Labs Limited, North Vancouver, B.C. Soil samples were dried, screened to a minus 80 mesh fraction and analyzed routinely for lead, zinc and silver content using a nitric-perchloric acid extraction and atomic absorption spectrometry. Rock samples were pulverized and analyzed similarily.

Limonitic gossan samples were collected in pre-numbered kraft bags and their locations were marked by orange survey tape. In most cases, several samples were taken from each spring deposit to accomodate any local variations in metal content. They were also shipped air freight to Chemex Labs, North Vancouver where they were analyzed for 16 elements by Inductively Coupled Plasma (ICP) technique following drying and grinding to a minus 60 mesh size. The pH of the metalliferous springs was measured in the field with litmus paper. All were found to have a neutral pH (7) or very slightly acidic pH (6÷7). Multi-element values of the gossan samples and sample locations are given on maps which accompany this report.

Results and Discussion

Copper - Copper values are documented on Figure 4. Two areas of mildly anomalous copper values in soils are evident from earlier surveys. A group of moderately to strongly anomalous limonitic spring deposits are spacially associated with the earlier soil anomalies while the second area of soil anomalies was not tested by the gossan sampling program. There is no apparent association of elevated copper values in soils or gossans with exposures of baritic shale

(Figures 4 and 11).

Lead - Lead soil anomalies form a broad northwest-trending band passing through the west-central part of the claims (Figure 5). Soil samples collected in 1982 confirmed the trend of the anomaly although direct correlation with earlier sampling is not evident. Scattered lead-rich spring deposits occur within the belt of anomalous soil values. No obvious direct relationship exists between exposures of baritic shale and elevated lead values in soils and limonitic spring deposits (Figures 5 and 11).

Zinc - Zinc soil anomalies from previous sampling programs on the claims form a narrow, northwest-trending belt in the west-central part of the claim (Figure 6). Soil samples collected in 1982 confirm the earlier results. Rock samples are not significantly mineralized. Zinc-rich limonitic spring deposits occur within or in proximity to the areas of zinc-rich soil. There is no direct correlation between mapped exposures of baritic shale and zinc-rich soils or gossans (Figures 6 and 11).

Silver - Results of previous soil sampling surveys show very good correspondence between lead anomalies and moderately anomalous silver values (Figure 7). Resampling in 1982 confirmed the anomalous trend. Silver values in bedrock samples taken from the anomalous area are within background variation for the upper Devonian shales in the area. Silver determinations of the gossanous material by the ICP method are not considered to be reliable (all were 0.1 ppm or less). There is no obvious correlation between silver values in soil and exposures of baritic shale.

Manganese - Soil and rock samples from the 1982 and earlier sampling programs were not analyzed for manganese. Spring-fed exotic gossans show

significant manganese enrichment along a northwest-trending belt (Figure 8) that parallels the lead, zinc and silver anomalous zone.

Arsenic and Molybdenum - Soil and rock samples from the 1982 and earlier sampling programs were not analyzed for arsenic and molybdenum. Significant arsenic enrichment occurs in spring-fed exotic gossans located in the west-central part of the property (Figure 9). Molybdenum anomalies in exotic gossans occur at the southerly end of the base metal enriched zone and overlap slightly with the arsenic-rich spring deposits.

Cobalt and Nickel - Cobalt to nickel values have been used to discriminate between pyrite from massive sulphide mineralization and pyrite disseminated in country rocks in volcanogenic base metal districts in Scandinavia, Australia and Japan. In these areas, the relative enrichment of cobalt with respect to nickel in mineralizing exhalite brines is reflected in high Co/Ni ratios in pyrite formed from those fluids while diagenetic pyrite is not significantly enriched in cobalt.

Cobalt/nickel ratios from over 100 limonitic spring deposits sampled elsewhere in the Driftpile Creek district are less than 0.5. These deposits do not contain anomalous metal contacts and are not considered to have been derived from massive sulphide deposits in the underlying shales. A belt of exotic spring gossans whose cobalt/nickel ratios exceed 0.5 extends across the south end of the area sampled. Anomalous values range from 0.5 to 1.7.

Summary - Geochemical results are summarized on Figure 11. Exotic, limonitic spring gossans anomalous in base metals, manganese, arsenic, molybdenum and cobalt/nickel ratio form a broad belt passing through the southwest-central part of the claim group. Previously detected copper, lead, zinc and silver anomalies in soil samples taken from the property appear to reflect this

source rather than accumulation from elevated values in underlying upper Devonian shales.

Conclusions and Recommendations

The 1982 geochemical program on the Flaco and Saint 3 claims was undertaken to evaluate the source of anomalous, coincident copper, lead, zinc and silver values in soil samples collected from 1977 to 1981 exploration on the property. Two soil and rock chip lines were sampled perpendicular to the orientation of the coincident soil anomalies, taking care to sample material not contaminated by precipitate from numerous iron-rich cold springs in the area. In addition, limonitic precipitate was sampled from 30 springs in the area of the previous anomalies.

Assays of soil samples confirmed the previously located Cu, Pb, Zn and Ag anomalies. Rock chip samples from underlying upper Devonian shale bedrock contain only expected background concentrations of Cu, Pb, Zn and Ag.

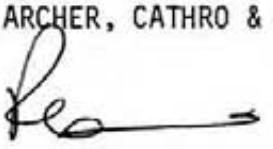
A broad belt of limonitic spring deposits is anomalous in some or all of the metals analyzed for including Cu, Pb, Zn, Ag, As, Mo, Mn and Co/Ni. Similar limonitic cold spring deposits associated with the nearby Driftpile Creek and Bear shale-hosted massive sulphide-barite deposits contain elevated values for the same suite of elements. Limonitic cold spring deposits draining pyritic black shales are common in the area and generally contain elevated zinc and copper values but are typified by low values of lead, arsenic, molybdenum, manganese and cobalt-nickel ratios. The Saint 3 and Flaco springs drain the extrapolated stratigraphic horizon of numerous unmineralized bedded barite deposits located elsewhere on the property.

Baseline geochemical studies carried out by GJV in the Driftpile Creek

area demonstrate that cold spring deposits with near neutral pH will only carry sufficient quantities of most metals to form anomalies when the source contains significantly elevated values of those metals and when the subsurface source is relatively proximal to the eventual site of surface re-precipitation. The suite and tenor of anomalous Cu, Pb, Zn, Ag, Mn, Mo, As and Co/Ni values from the Saint 3 and Flaco claims are similar to those from the nearby Driftpile Creek and Bear properties that have been shown by diamond drilling to originate from massive sulphide-barite deposits. This relationship should be tested by diamond drilling on the Saint 3 and Flaco claims.

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED,



/mjm

R.C. Carne

APPENDIX I - STATEMENT OF QUALIFICATIONS

APPENDIX I

STATEMENT OF QUALIFICATIONS

I, Robert C. Carne, geologist, with business addresses in Whitehorse, Yukon Territory and Vancouver, British Columbia and residential address in Burnaby, British Columbia, hereby certify that:

1. I graduated from the University of British Columbia in 1974 with a B.Sc. and in 1979 with an M.Sc. majoring in Geological Sciences.
2. I am a member of the Geological Association of Canada.
3. From 1974 to the present, I have been actively engaged as a geologist in mineral exploration in British Columbia and Yukon Territory and on June 1, 1981 became a partner of Archer, Cathro & Associates (1981) Limited.
4. I have personally participated in or supervised the field work reported herein and have interpreted all data resulting from this work.

Robert C. Carne, B.Sc., M.Sc.

APPENDIX II - SUMMARY OF COSTS

APPENDIX II

SUMMARY OF COSTS

on work performed on the

SAINT 3 AND FLACO CLAIMS

on August 14, 15 and 16, 1982

Salaries and Wages			
D. Billard (Sr. ass't)	- August 14, 15 and 16 at $127/day	- $381.00	
C. Greig (Sr. ass't)	- August 14, 15 and 16 at $110/day	- 330.00	
K. Opsetmoen (Jr. ass't)	- August 15 at $100/day	- 100.00	
B. McDaniel (Jr. ass't)	- August 15 and 16 at $94/day	- 188.00	$ 999.00
Geochemical Analyses			
77 ICP samples and 44 rock and silt samples			979.10
Camp Maintenance (includes fixed-wing aircraft costs)			
9 mandays at $60/day			540.00
Helicopter (includes fuel costs on site)			
Trans North Air Bell 47G3/B2 - 3.35 hours at $465/hr			1,560.00
			4,078.10
Report Preparation (at 10% of field costs)			407.80
			$4,485.90

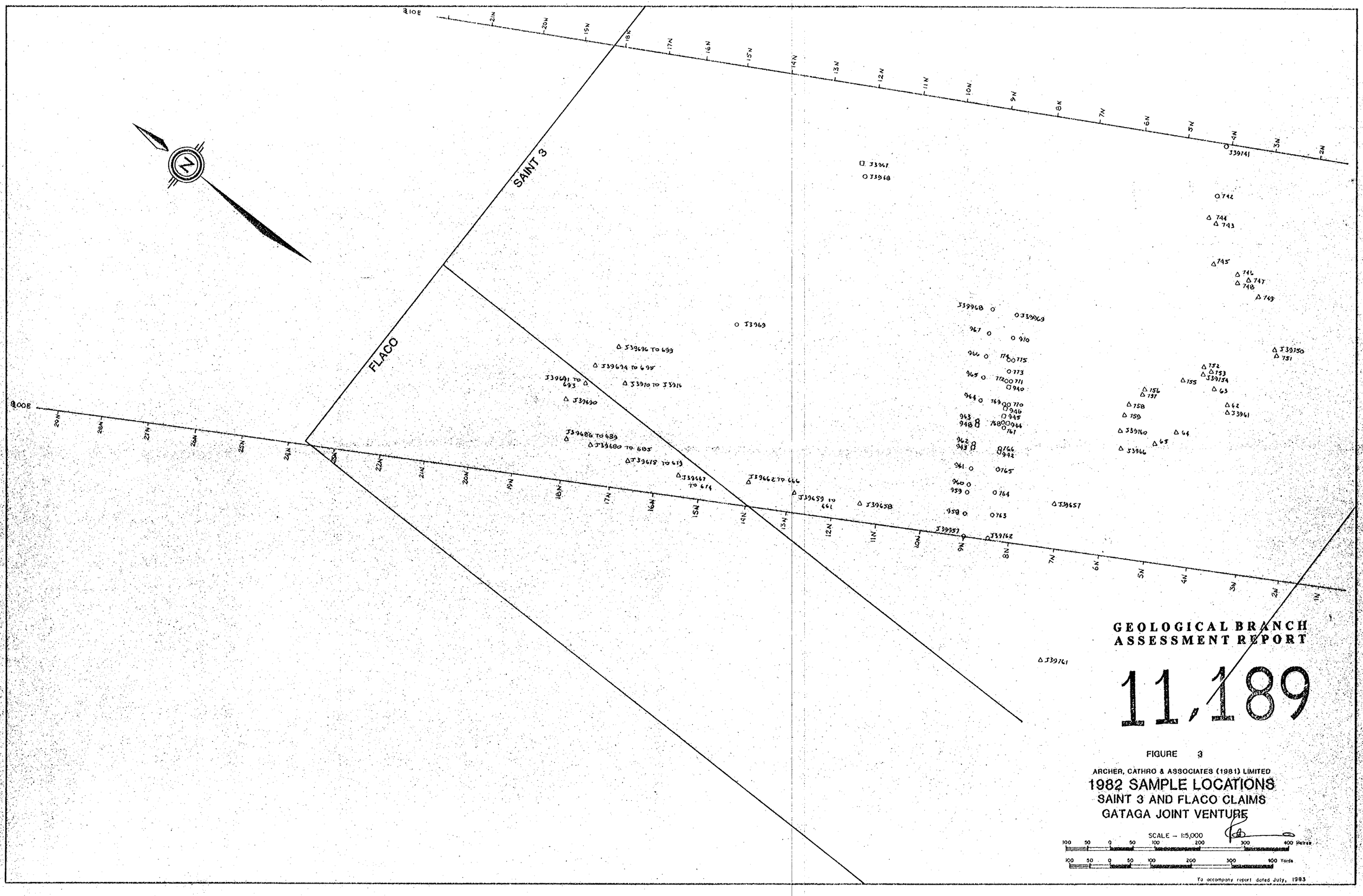


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FIGURE 3

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

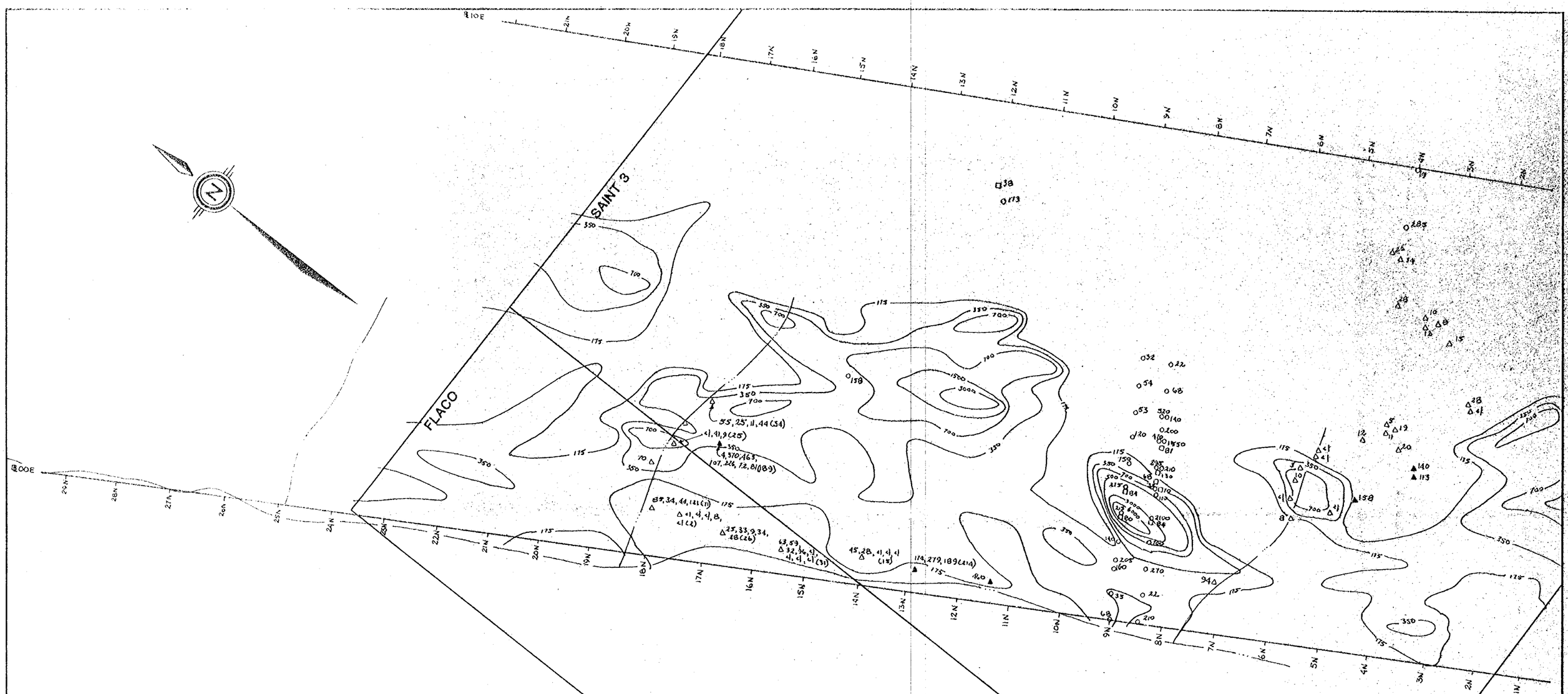
1982 SAMPLE LOCATIONS
SAINT 3 AND FLACO CLAIMS
GATAGA JOINT VENTURE

SCALE – 1:5,000

100 50 0 50 100 200 300 400 Metres

100 50 0 50 100 200 300 400 Yards

To accompany report dated July, 1983



o soil sample (ppm Pb)

□ rock sample (ppm Pb)

△ gossan sample (< 100 ppm Pb)

▲ gossan sample (≥ 100 ppm Pb)

numbers in brackets are averages of more than one sample from the same location

—15— contoured soil sample values (ppm Pb) from previous surveys

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FIGURE 6

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

LEAD GEOCHEMISTRY
SAINT 3 AND FLACO CLAIMS
GATAGA JOINT VENTURE

SCALE – 1:5,000

100 50 0 50 100 200 300 400 Metres

100 50 0 50 100 200 300 400 Yards

To accompany report dated July, 1983

SAINT 3

FLACO

o soil sample (ppm Zn)

□ rock sample (ppm Zn)

△ gossan sample (< 10,000 ppm Zn)

▲ gossan sample (≥ 10,000 ppm Zn)

—700— contoured soil sample values (ppm Zn) from previous surveys

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FIGURE 6

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

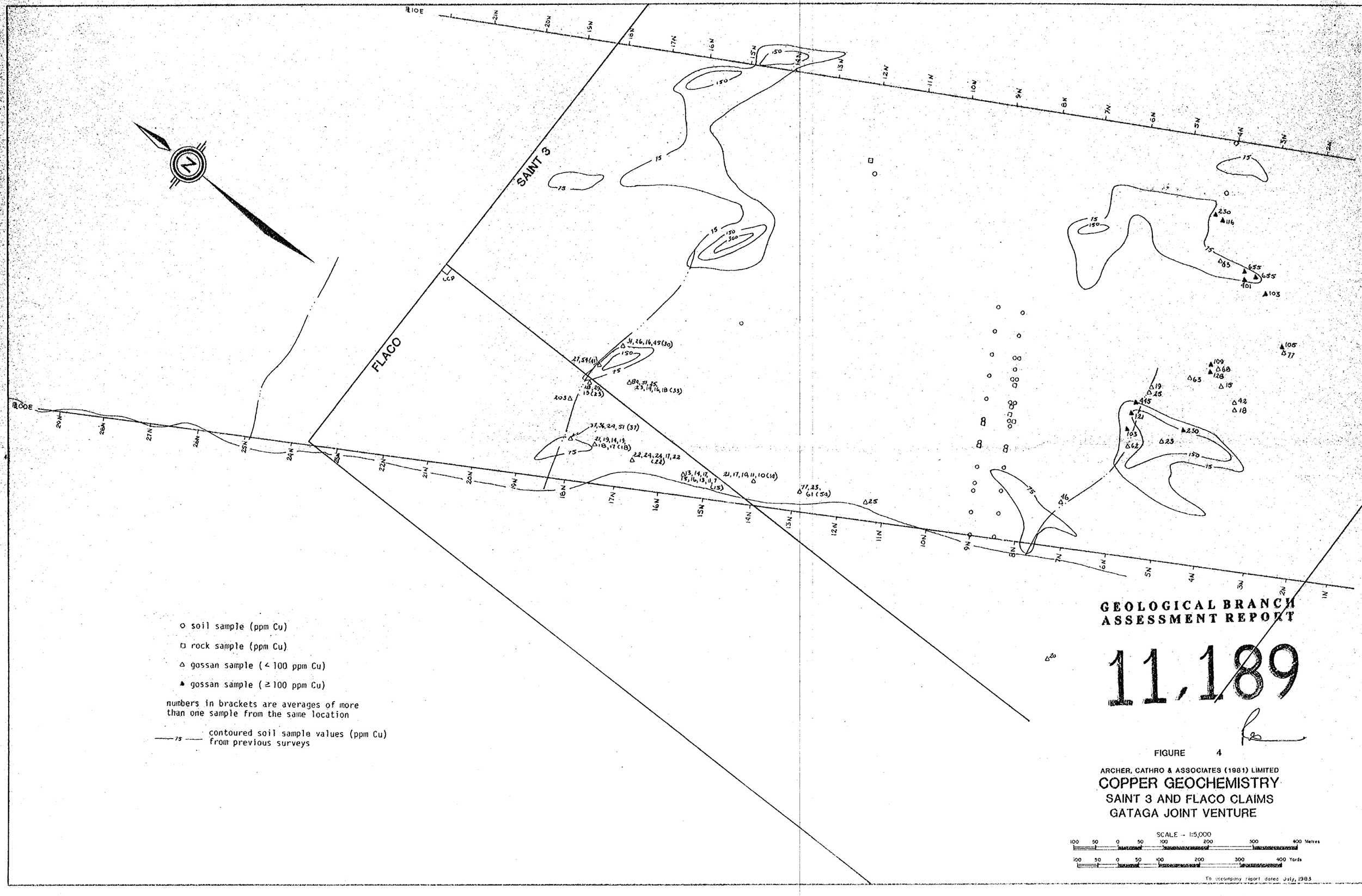
ZINC GEOCHEMISTRY
SAINT 3 AND FLACO CLAIMS
GATAGA JOINT VENTURE

SCALE 1:5000

100 50 0 50 100 400 Metres

100 50 0 50 100 400 Yards

Dated July, 1983



- o soil sample (ppm Cu)
- □ rock sample (ppm Cu)
- Δ gossan sample (< 100 ppm Cu)
- ▲ gossan sample (≥ 100 ppm Cu)

numbers in brackets are averages of more than one sample from the same location

—75— contoured soil sample values (ppm Cu) from previous surveys

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FIGURE 4

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

COPPER GEOCHEMISTRY
SAINT 3 AND FLACO CLAIMS
GATAGA JOINT VENTURE

SCALE - 1:5,000

100 50 0 50 100 200 300 400 Metres

100 50 0 50 100 200 300 400 Yards

To accompany report dated July, 1983

SAINT 3

FLACO

- o soil sample (ppm Ag)
- □ rock sample (ppm Ag)
- △ gossan sample (all values ≤1.0 ppm Ag)
- —2.5— contoured soil sample values (ppm Ag) from previous surveys

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FIGURE 7

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

SILVER GEOCHEMISTRY

SAINT 3 AND FLACO CLAIMS

GATAGA JOINT VENTURE

SCALE – 1:5,000

100 50 0 50 100 200 300 400 Metres

100 50 0 50 100 200 300 400 Yards

To accompany report dated July, 1983

SAINT 3

FLACO

R10E

R9E

R8E

1N 2N 3N 4N 5N 6N 7N 8N 9N 10N 11N 12N 13N 14N 15N 16N 17N 18N 19N 20N 21N 22N 23N 24N 25N 26N 27N 28N 29N

△1210, 86, 81, 6830

△277, 120

211, 1820, 230 △

▲>10,000, 1810, 8460, 710,000, 7210, >10,000, >10,000

△590

6940, >10,000, 9200, 2080

▲>10,000, 2300, >10,000, ▲7740, 3360, 2660

3560 >10,000, 7980, ▲8110, 3150

▲7250, >10,000, >10,000, 9360, 10,000, 7980

▲810, 1320, >10,000, 9100, >10,000

▲3540, 8180 >10,000,

▲>10,000

▲5230

▲9270

△2280
△506

△180

△3640
△2090
△1860
△83

△744
△1790

△44
△103
△140
△1140
▲7190

△850
△174
△88
△1940
△630
▲6340
▲>10,000
▲7290

▲4010
▲2010

o soil sample (not analyzed for Mn)

□ rock sample (not analyzed for Mn)

△ gossan sample (< 5000 ppm Mn)

▲ gossan sample (≥ 5000 ppm Mn)

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FIGURE 8

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

MANGANESE GEOCHEMISTRY

SAINT 3 AND FLACO CLAIMS

GATAGA JOINT VENTURE

SCALE – 1:5,000

100 50 0 50 100 200 300 400 Metres

100 50 0 50 100 200 300 400 Yards

To accompany report dated July, 1983

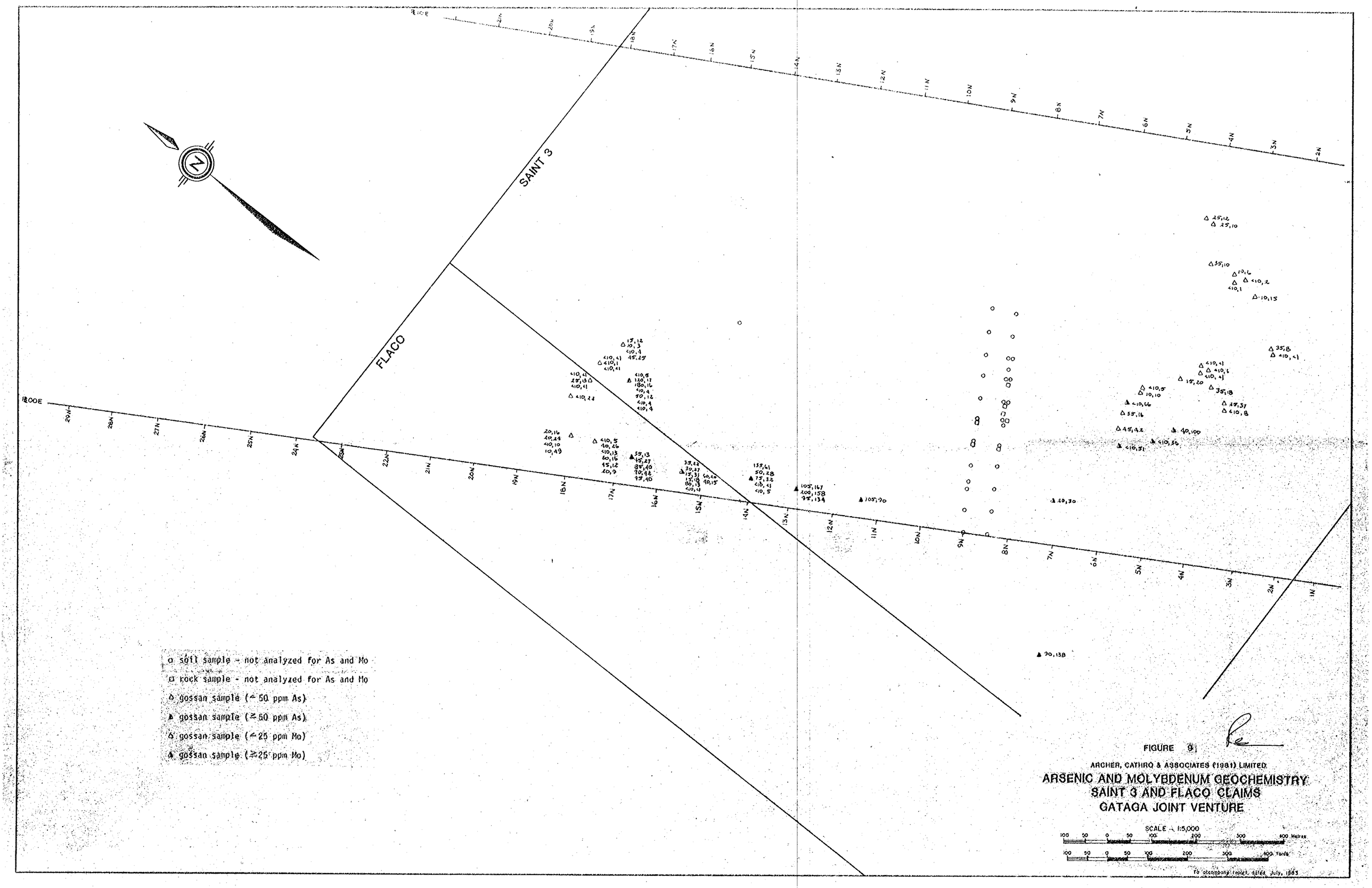

FIGURE 9

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

ARSENIC AND MOLYBDENUM GEOCHEMISTRY
SAINT 3 AND FLACO CLAIMS
GATAGA JOINT VENTURE

SCALE - 1:5,000

100 50 0 50 100 200 300 400 Metres

100 50 0 50 100 200 300 400 Yards

To accompany report dated July, 1983

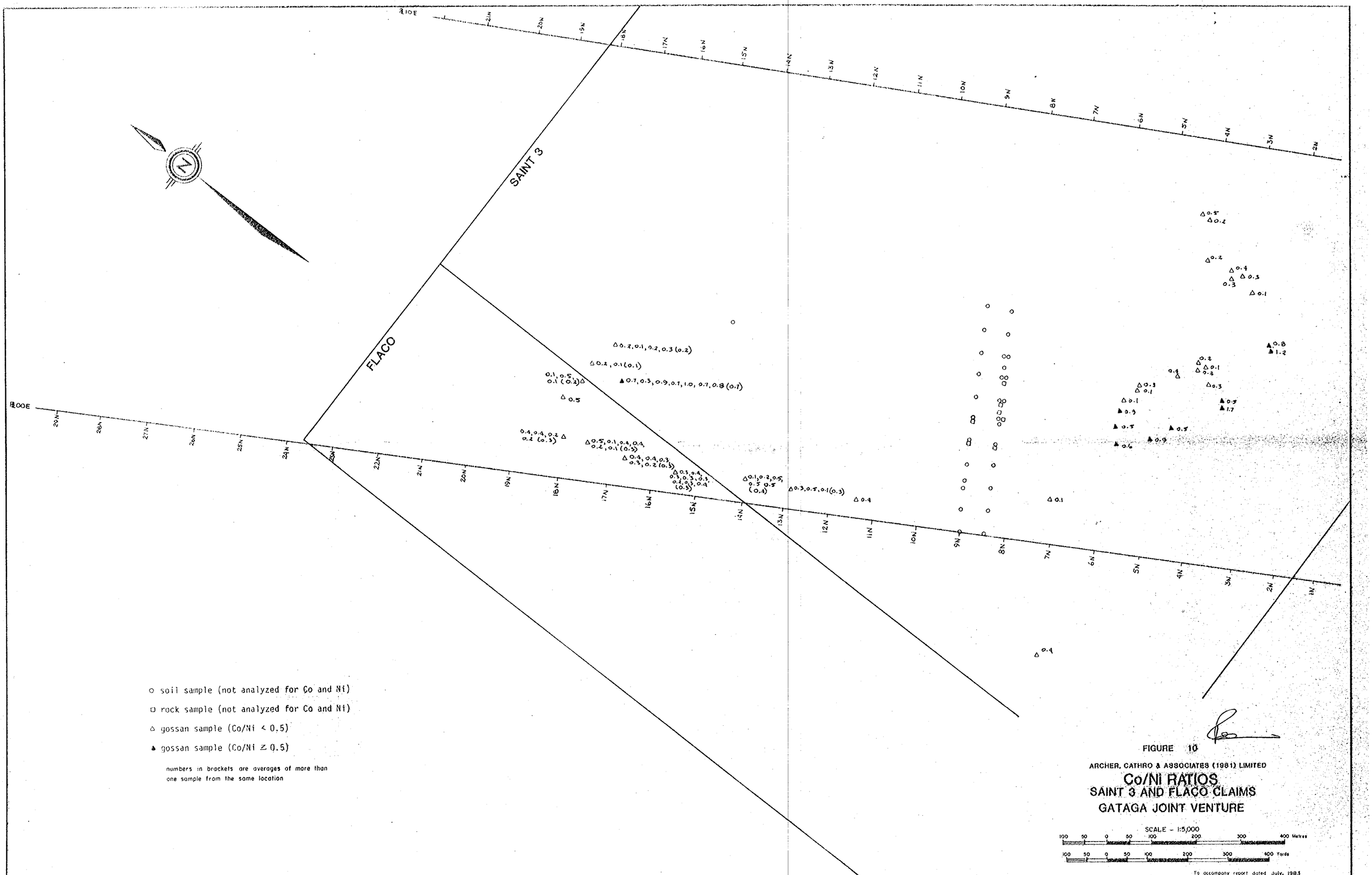

FIGURE 10

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

Co/Ni RATIOS
SAINT 3 AND FLACO CLAIMS
GATAGA JOINT VENTURE

SCALE - 1:5,000

100 50 0 50 100 200 300 400 Metres

100 50 0 50 100 200 300 400 Yards

To accompany report dated July, 1983

SAINT 3

FLACO

Earn Group shales
(middle Devonian and younger)

Road River Group shales
(lower Devonian and older)

soil sample (values not included in summary)

rock sample (values not included in summary)

gossan sample (no anomalous values of metals analyzed)

gossan sample (anomalous values of one or more metals as shown)

surface trace of baritic shale horizon

FIGURE 11

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

GEOCHEMICAL SUMMARY
SAINT 3 AND FLACO CLAIMS
GATAGA JOINT VENTURE

SCALE :- 1:5,000

100 50 0 50 100 200 300 400 Metres

100 50 0 50 100 200 300 400 Yards

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