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PROJECT NAME:

COMSTAFF PTY. LTD. 5/63

TITLE:

PIEMAN SOUTH

SUMMER FIELD SEASON 1973/1974

MICROFILMED

AREA NAME/S, STATE 1:250,000 SHEET NO/S & COORDINATES:

Pieman South - K55-3

COMMODITY/IES:

TEXT PAGES NO:

4

PLAN NOS:

TAS-2-693; 655; 653; 649; 652; 650; 651; 654.

TABLE NOS:

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APPENDICES:

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AUTHOR/S:

D. B. ORR

DATE:

June, 1974

AUSTRALIAN ANGLO AMERICAN LIMITED

Melbourne

Incorporated in the State of Victoria

AUSTRALIAN ANGLO AMERICAN LIMITEDCOMSTAFF PROPRIETARY LIMITEDPIEMAN SOUTHSUMMER FIELD SEASON 1973/741. INTRODUCTION

The Pieman South region covers an area of approximately 24 square kilometres. The Pieman River forms the southern and eastern boundaries of the area. The northern boundary is defined by the 859 150 yards N grid line and the eastern boundary by the 349 600 yards E grid line.

Regional reconnaissance during the 1971/72 season was inadequate due to poor drainage definition apart from the Huskisson and Pieman Rivers.

2. ACCESS AND TOPOGRAPHY

Dry weather access is provided by a bulldozed track from the Murchison Highway to the Huskisson River with an off-shoot to the Pieman River more or less down the centre of the area. Apart from the very steep banks of the Pieman River, the Pieman South area is gently undulating.

3. CLIMATE AND VEGETATION

Between 9 and 10 feet of rain can be expected each year and although there is a 'dry' season in January and February about 4 inches of rain may fall during each of these months. Due to the thick fluvioglacial cover most of the Pieman South area is covered by dense bauera and ti tree.

4. WORK DONE

A north south base line was cut and sampled over 4 200 m. East west lines were cut and sampled every 400 m apart from the south east corner where the marshy nature of the ground was considered unsuitable for soil sampling. Samples were sieved to -80 mesh (175 microns) and assayed for Cu, Pb, Zn, Ba, Ni, and Sn. Four short lines were sampled by augering to the 'C' zone.

5. GEOLOGY

Cambrian sediments and volcanics are overlain by Ordovician shale, sandstone, and dolomite. The Cambrian rocks have been tightly folded along north south axes, and intruded by serpentinitised pyroxenites with minor feldspar porphyries and quartz gabbros.

5.1. Sedimentary Rocks

The Cambrian rocks consist of brown and black shales with siltstones and greywackes. Crimson argillites and brown mudstones outcrop along the north base line together with quartz veined, limonitic dolomite.

The Ordovician is represented by gently dipping, finely laminated shales overlain by black, massive limestones and ferruginous fossiliferous quartz sandstones.

5.2. Igneous Rocks

Concordant and contemporaneous with the Cambrian sedimentary rocks are acid volcanics and basic lavas. The acid volcanics consist of chloritized and limonitic lavas, and chloritic kaolinized lithic and vitric tuffs. Together with the ubiquitous chloritic alteration, is late stage silicification. The basic volcanics are highly altered and generic interpretation is difficult.

Coincident with tectonic activity in the Cambrian was the intrusion of minor quartz gabbros, diorites, and orthoclase porphyries spacially and possibly time related to the emplacement of pyroxenites which have subsequently altered to magnetite-rich serpentinites. Intruded along a north south trend, the serpentinite has a strike length in excess of 4 000 m and a general width of 100 m.

5.3. Structural Geology

The Cambrian rocks at Pieman South are located in the core of the Huskisson synclinorium and are isoclinally folded, sheared and foliated along north south axes.

The Ordovician is unconformable with the Cambrian and is folded along the same trend but on a broader style.

5.4. Mineralization

Base metal mineralization is confined to the Cambrian rocks, particularly the dolomites, argillites and siltstones, although disseminated sulphides occur in the gabbroic and basic volcanic rocks.

Sulphide mineralization consists of pyrite in the dolomites and volcanics; chalcopyrite in quartz-limonite boxworks; and galena and possibly sphalerite in the gabbroic rocks.

No cassiterite was seen. Along the north south baseline metallic enrichment appears to be related to the serpentinite which either acted as a source for copper, or due to a high thermal gradient, mobilised Cu, Pb, and Zn in sediments causing concentration within suitable host rocks.

6. GEOCHEMISTRY

Due to the lack of good outcrop over the area, soil sampling was chosen as the method of exploration. The validity of this method must now be questioned in the light of the geological and geochemical environment of the area.

In situ soil is developed only on the central northern portion of the grid and the delineation of a Cu-Pb-Zn-Ni anomaly over this area reflects the absence of the masking effect of glacial and peri-glacial moraines and gravels.

At least two-thirds of the Pieman South area is covered by poorly drained, inverted profile (gravels underlain by peat) soils or till, which is reflected in the low, thick tree and bauera scrub. The marshy nature of the ground precludes the use of a bulldozer to scrape off the surface material thus a means of investigation other than superficial soil sampling must be used.

Plotting and interpretation of soil sample results revealed anomalous zones of high copper, lead, zinc, nickel and barium.

6.1. Copper

A copper content of 95 ppm in the soils is regarded as anomalous. High copper values occur over a variety of rock types from argillites and siltstones to gabbroic rocks (e.g. TC 516), and serpentinites. Copper in conjunction with high nickel may indicate the presence of Cu-Ni sulphides in the serpentinite (the north and south extension of B anomaly).

6.2. Lead

Lead values in the soils of 70 ppm are regarded as anomalous. It reflects similar lithologies to that of copper.

6.3. Zinc

52 ppm zinc in soils is regarded as anomalous. High zinc closely correlates with high nickel values (anomalies B, C, and D).

6.4. Nickel

A nickel content in excess of 85 ppm delineates the north trending belt of serpentinite. The north and south extension of C anomaly may reflect underlying ultrabasic rocks (e.g. TC 505).

6.5. Barium

80 ppm barium in soils is taken to be anomalous. Scattered high values occur with high lead, copper and nickel values. (e.g. A anomaly).

6.6. Tin

The one above background tin value occurs on an outcrop of limonitic, quartz veined dolomite.

7. DISCUSSION

The major anomaly encountered in the soil sampling is located along the north south baseline. In this area a serpentinite either outcrops or is close to surface and does not have a thick fluvioglacial cover. Auger drilling to bedrock returned pieces of dolomite with visible chalcopyrite, sphalerite and galena.

Since bedrock is relatively close to surface in the vicinity of the baseline anomaly, it should be possible to examine the contact of the serpentinite with sediments by costeaning.

The major part of the area however presents many problems for prospecting. Geochemically there are three possible methods:

1. Airtrace.
2. Analysis using ultra low level detection limit for possible halo effects.
3. Percussion drilling to bedrock.

Although a series of percussion boreholes to bedrock should give a geochemical response, the swampy nature of most of the area precludes the construction of normal bulldozed access tracks. Any such programme must of necessity be hand operated. Should anomalies be encountered, follow up drilling would be difficult due to problems of access.

Geophysically, an airborne E.M. system may be satisfactory and magnetics should outline the basic and ultrabasic rocks.

8. RECOMMENDATIONS

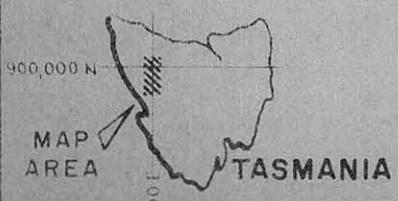
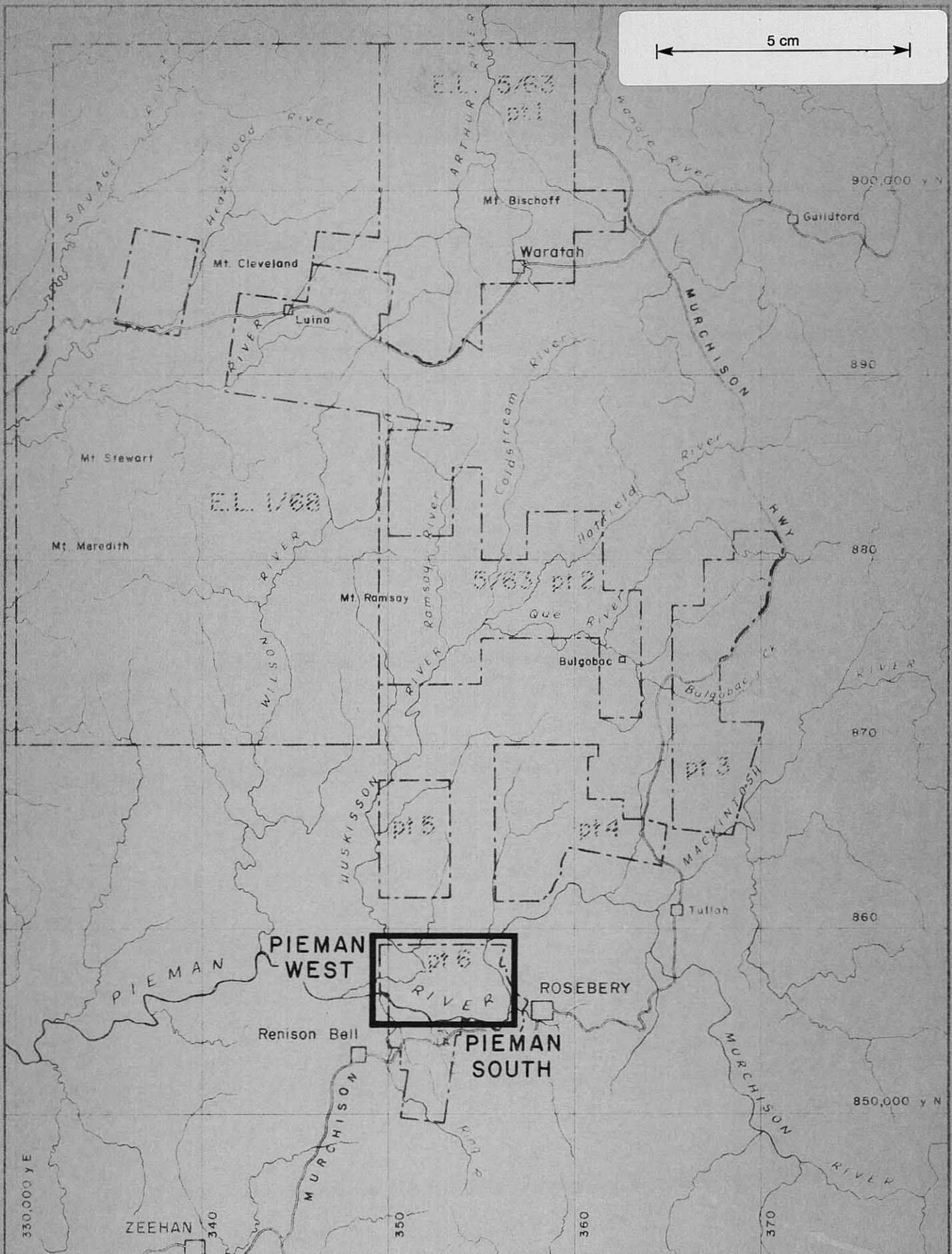
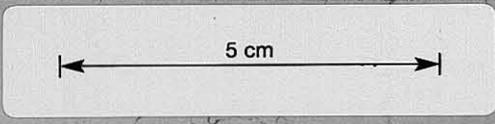
1. Costeaning of the baseline anomaly should be attempted.
2. An airborne E.M. and magnetometer survey should be tried.
3. Should Airtrace be available in Australia, the Pieman South area forms the most suitable area for an orientation survey since the topography is not too rugged.

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 Author: D.B.Orr,
 Divisional Geologist,
 Tasmania.

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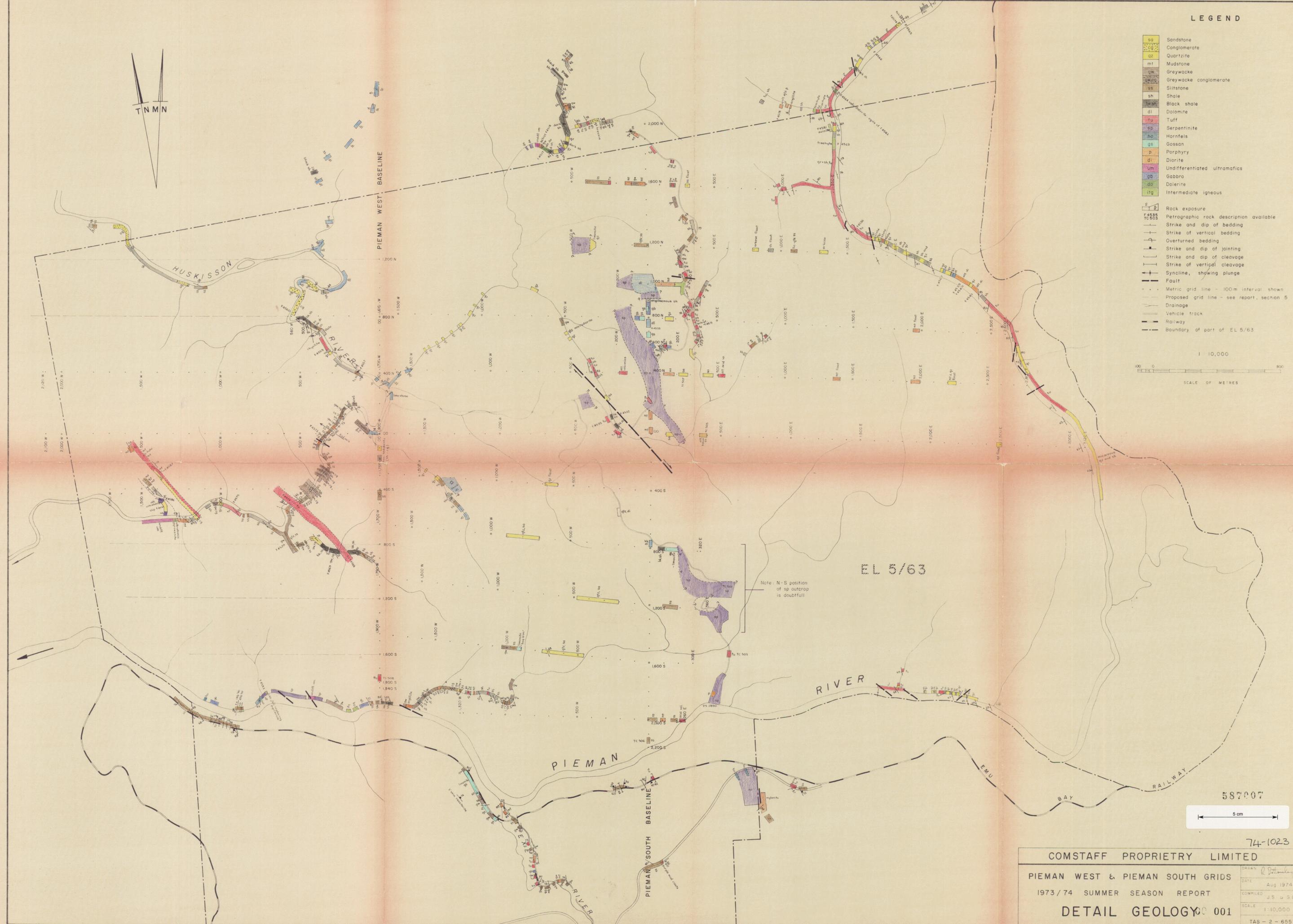
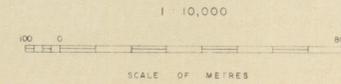
PIEMAN WEST AND SOUTH
1973/74 SUMMER SEASON REPORT

LOCATION MAP

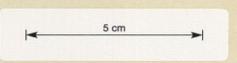
DRAWN MAY 73 *R. Bilton* COMPILED SCALE 1:250,000 DWG TAS-2-693

LEGEND

- sg Sandstone
 - cg Conglomerate
 - qz Quartzite
 - mf Mudstone
 - gw Greywacke
 - gc Greywacke conglomerate
 - ss Siltstone
 - sh Shale
 - bs Black shale
 - di Dolomite
 - tu Tuff
 - sp Serpentinite
 - ho Hornfels
 - gs Gossan
 - p Porphyry
 - d Diorite
 - um Undifferentiated ultramatics
 - gb Gabbro
 - do Dolerite
 - itg Intermediate igneous
-
- Rock exposure
 - Petrographic rock description available
 - Strike and dip of bedding
 - Strike of vertical bedding
 - Overturned bedding
 - Strike and dip of jointing
 - Strike and dip of cleavage
 - Strike of vertical cleavage
 - Syncline, showing plunge
 - Fault
 - Metric grid line - 100m interval shown
 - Proposed grid line - see report, section 5
 - Drainage
 - Vehicle track
 - Railway
 - Boundary of part of EL 5/63



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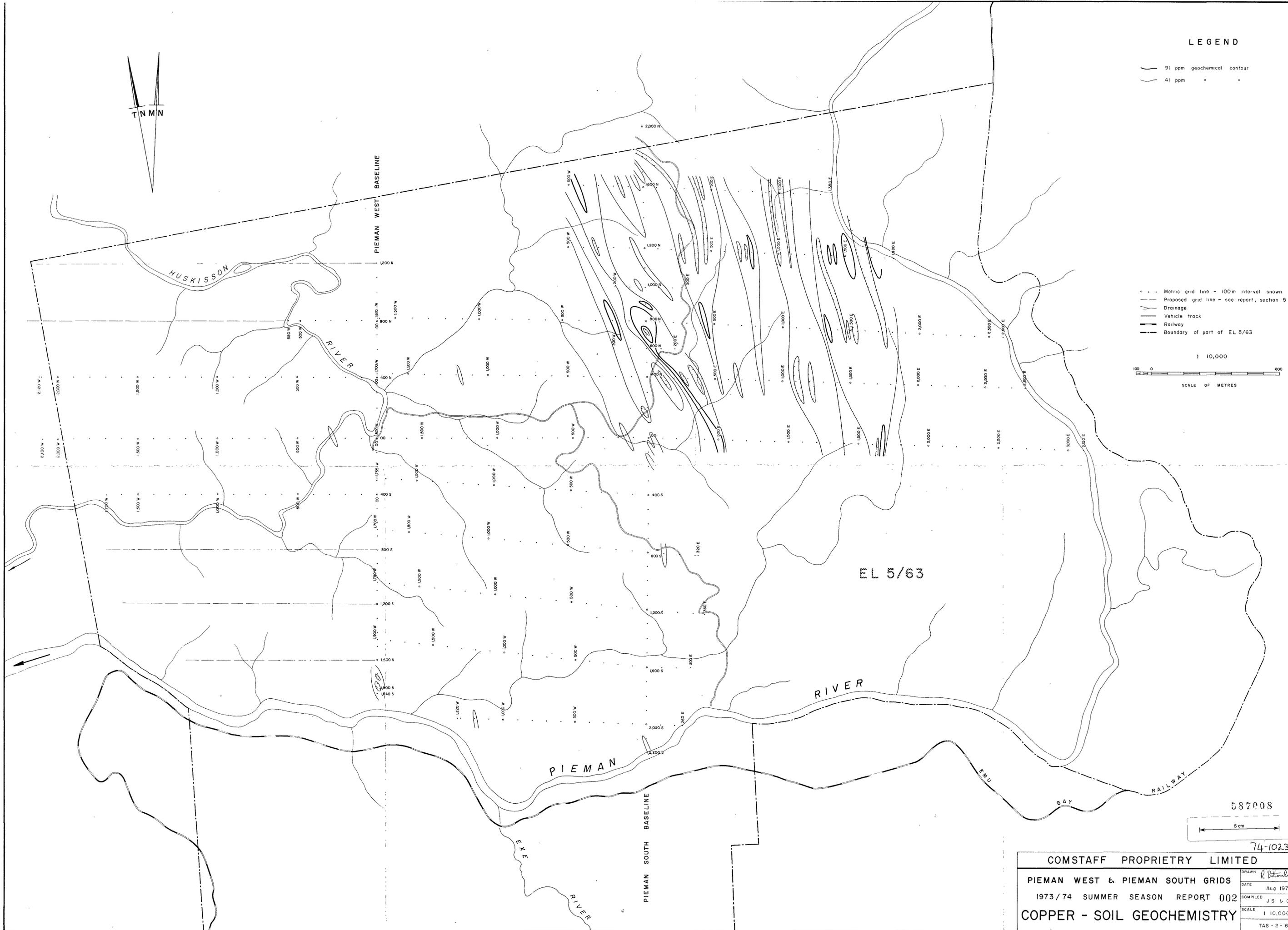
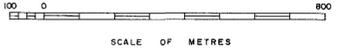
COMSTAFF PROPRIETRY LIMITED	
PIEMAN WEST & PIEMAN SOUTH GRIDS	
1973/74 SUMMER SEASON REPORT	
DETAIL GEOLOGY 001	
DRAWN	DATE
COMPILED	SCALE
TAS - 2 - 655	Aug 1974
J.S. & S.C.	1:10,000

LEGEND

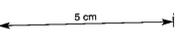
-  91 ppm geochemical contour
-  41 ppm " "

-  Metric grid line - 100m interval shown
-  Proposed grid line - see report, section 5
-  Drainage
-  Vehicle track
-  Railway
-  Boundary of part of EL 5/63

1 10,000



587008



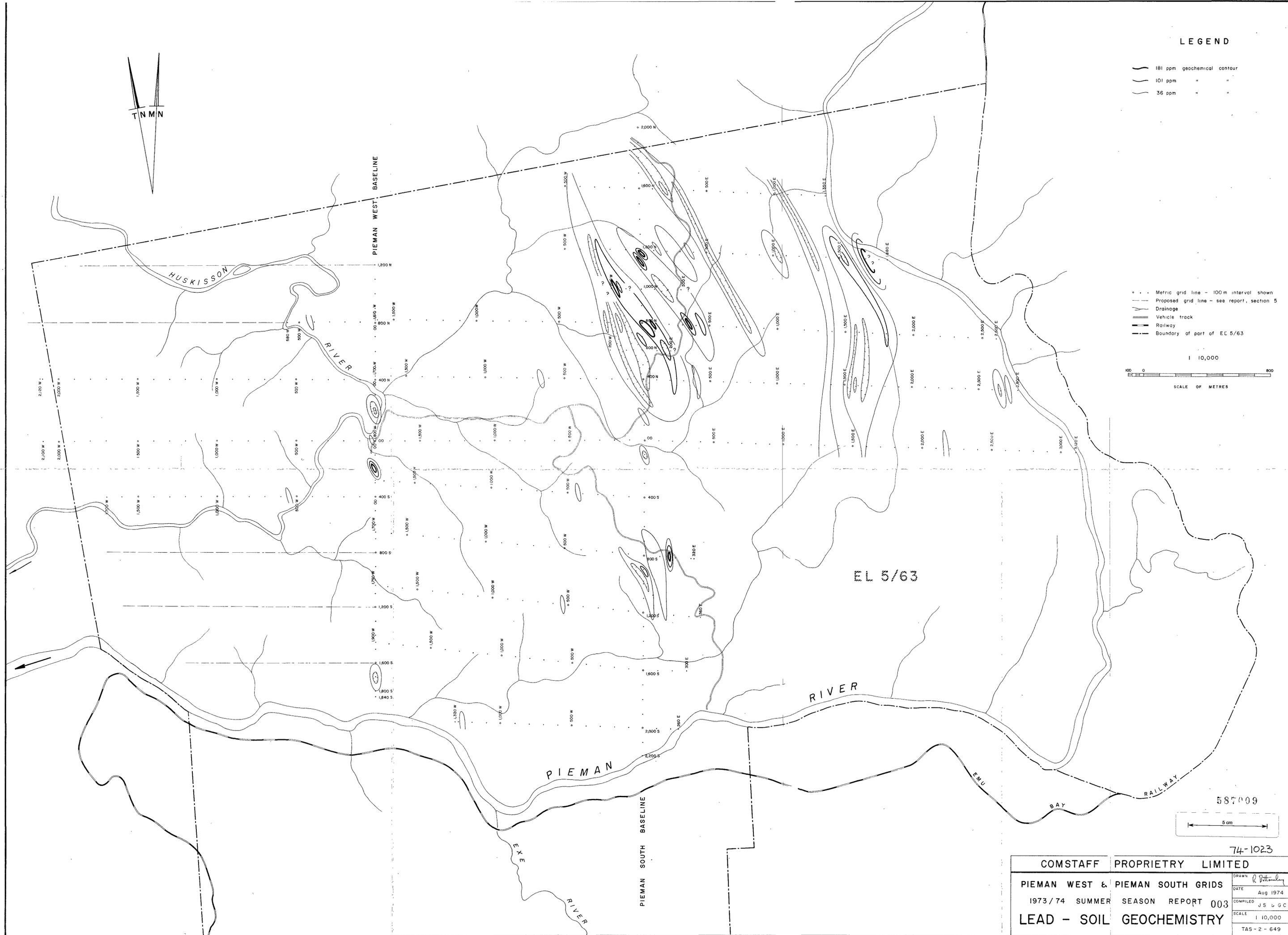
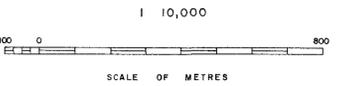
74-1023

COMSTAFF PROPRIETRY LIMITED	
PIEMAN WEST & PIEMAN SOUTH GRIDS	
1973/74 SUMMER SEASON REPORT 002	
COPPER - SOIL GEOCHEMISTRY	
DRAWN	<i>R. Butcher</i>
DATE	Aug 1974
COMPILED	JS & GC
SCALE	1 10,000
TAS - 2 - 653	

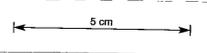
LEGEND

-  181 ppm geochemical contour
-  101 ppm " "
-  36 ppm " "

-  Metric grid line - 100m interval shown
-  Proposed grid line - see report, section 5
-  Drainage
-  Vehicle track
-  Railway
-  Boundary of part of EL 5/63



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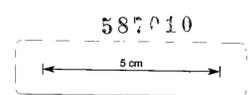
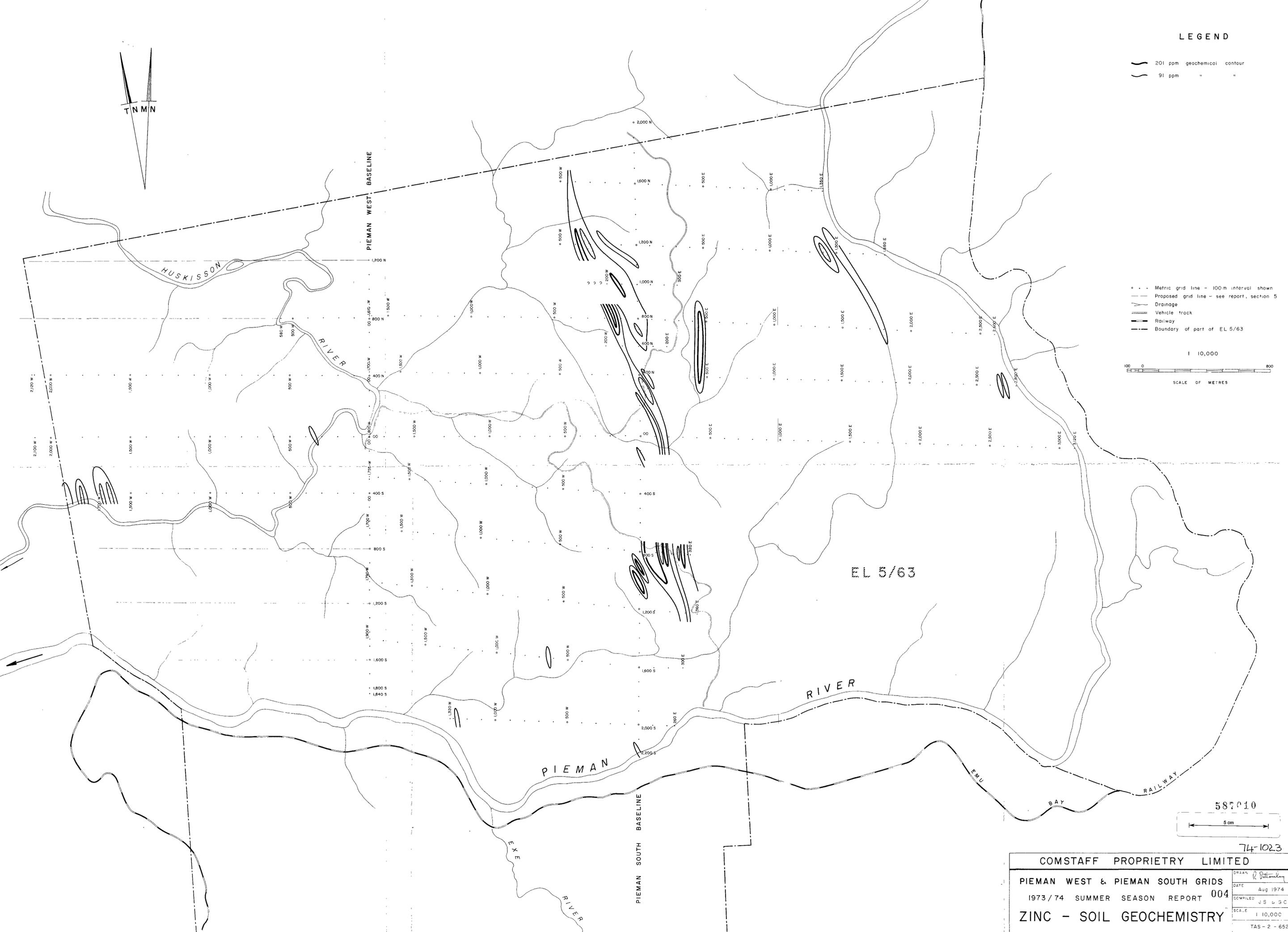
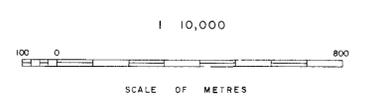
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COMSTAFF PROPRIETRY LIMITED	
PIEMAN WEST & PIEMAN SOUTH GRIDS	DRAWN <i>R. Pittman</i>
1973/74 SUMMER SEASON REPORT 003	DATE Aug 1974
LEAD - SOIL GEOCHEMISTRY	COMPILED JS & GC
	SCALE 1 10,000
	TAS - 2 - 649

LEGEND

— 201 ppm geochemical contour
 — 91 ppm " " "

••• Metric grid line - 100m interval shown
 - - - Proposed grid line - see report, section 5
 --- Drainage
 --- Vehicle track
 --- Railway
 --- Boundary of part of EL 5/63

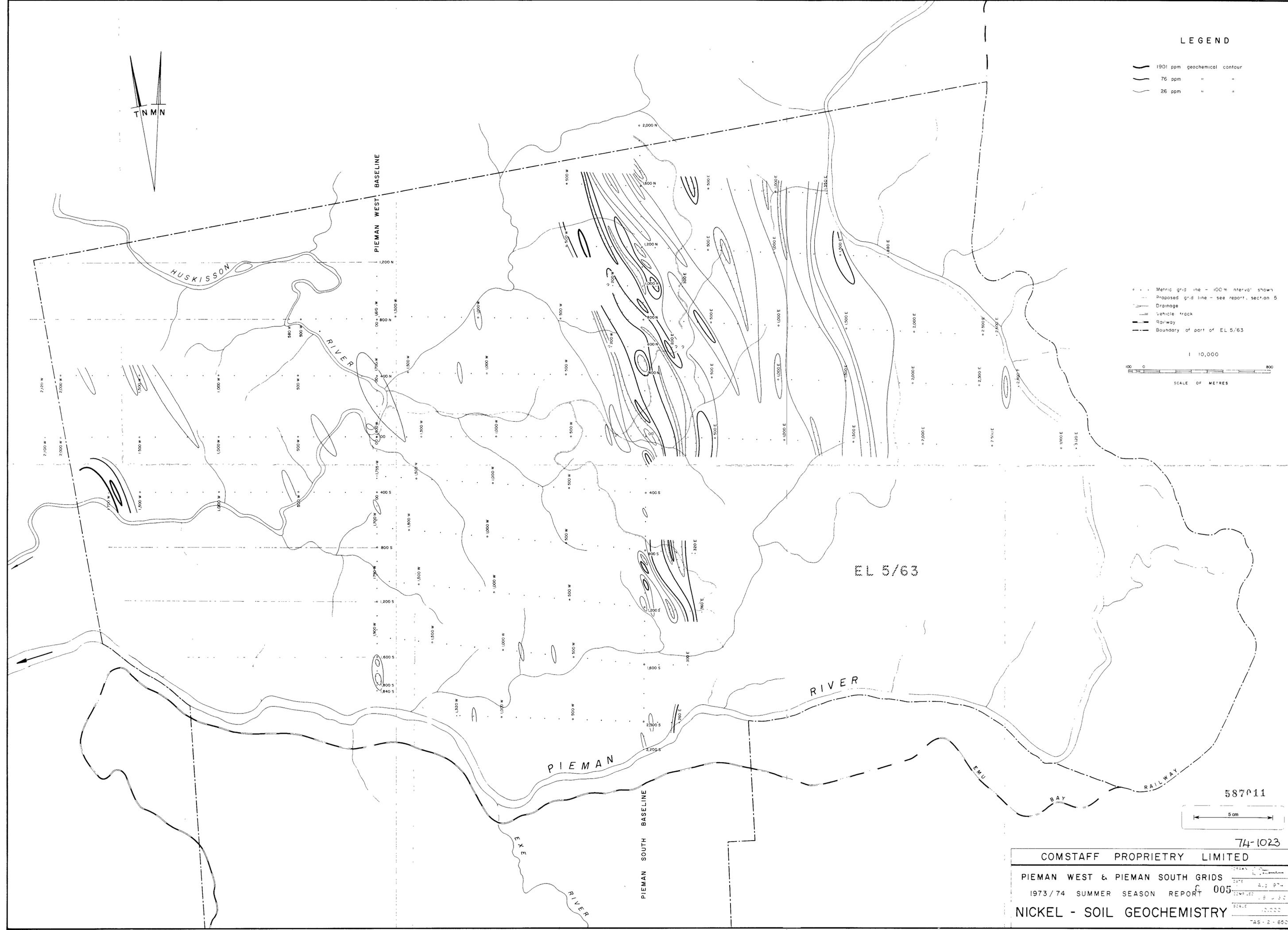
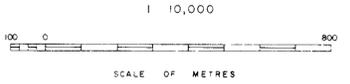


COMSTAFF PROPRIETRY LIMITED	
PIEMAN WEST & PIEMAN SOUTH GRIDS	
1973/74 SUMMER SEASON REPORT 004	
ZINC - SOIL GEOCHEMISTRY	
DRAWN	R. Bottwood
DATE	Aug 1974
COMPILED	J.S. & G.C.
SCALE	1:10,000
TAS-2-652	

LEGEND

-  1901 ppm geochemical contour
-  76 ppm " "
-  26 ppm " "

-  Metric grid line - 100m interval shown
-  Proposed grid line - see report, section 5
-  Drainage
-  Vehicle track
-  Railway
-  Boundary of part of EL 5/63



587011



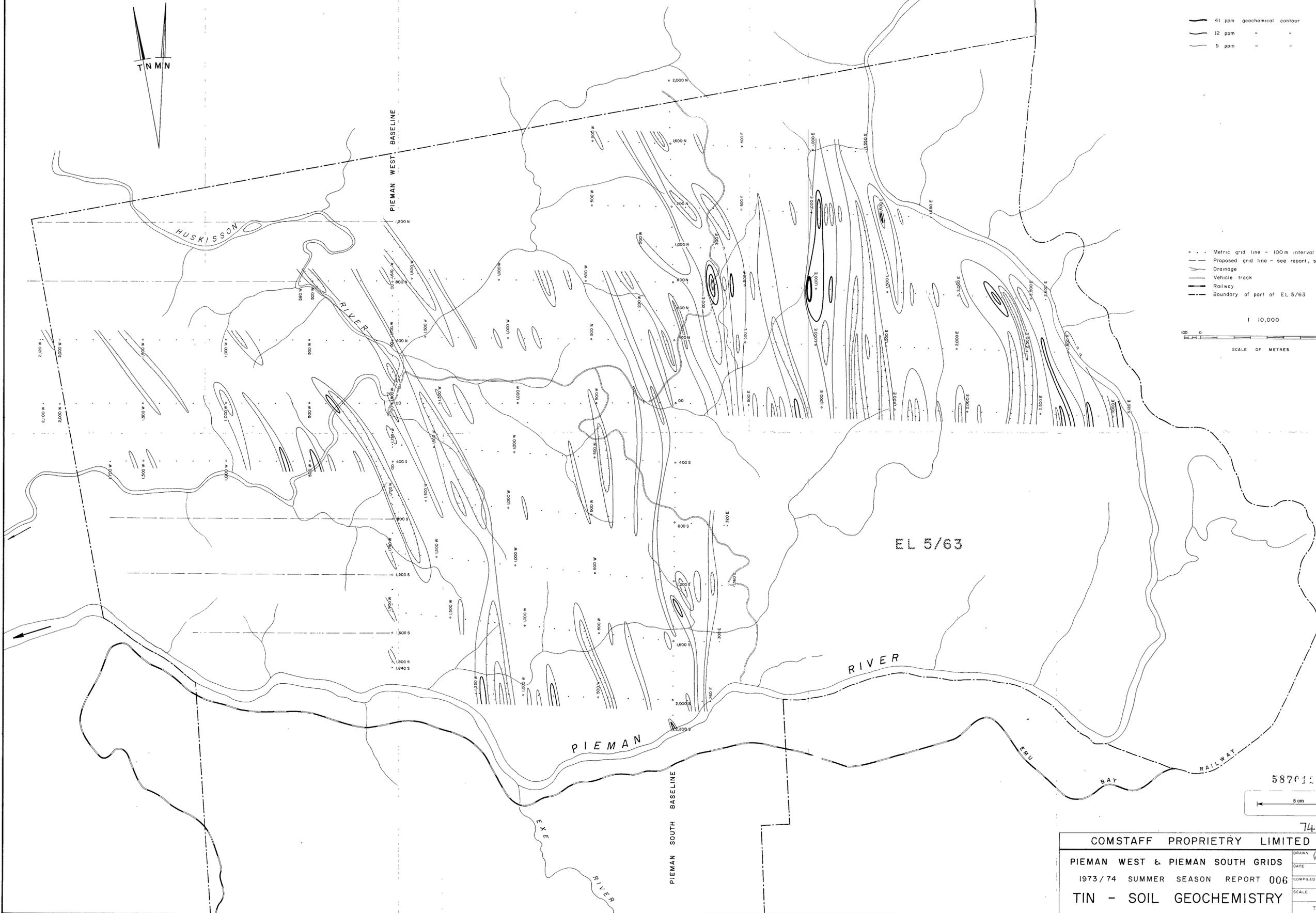
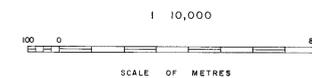
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COMSTAFF PROPRIETRY LIMITED	
PIEMAN WEST & PIEMAN SOUTH GRIDS	DATE: 4.3.74
1973/74 SUMMER SEASON REPORT 005	REVISED: 1.8.74
NICKEL - SOIL GEOCHEMISTRY	SCALE: 1:10,000
TAS - 2 - 650	

LEGEND

-  41 ppm geochemical contour
-  12 ppm " "
-  5 ppm " "

-  Metric grid line - 100m interval shown
-  Proposed grid line - see report, section 5
-  Drainage
-  Vehicle track
-  Railway
-  Boundary of part of EL 5/63



587011
5 cm

74-1023

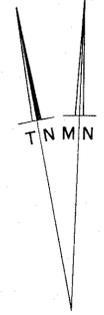
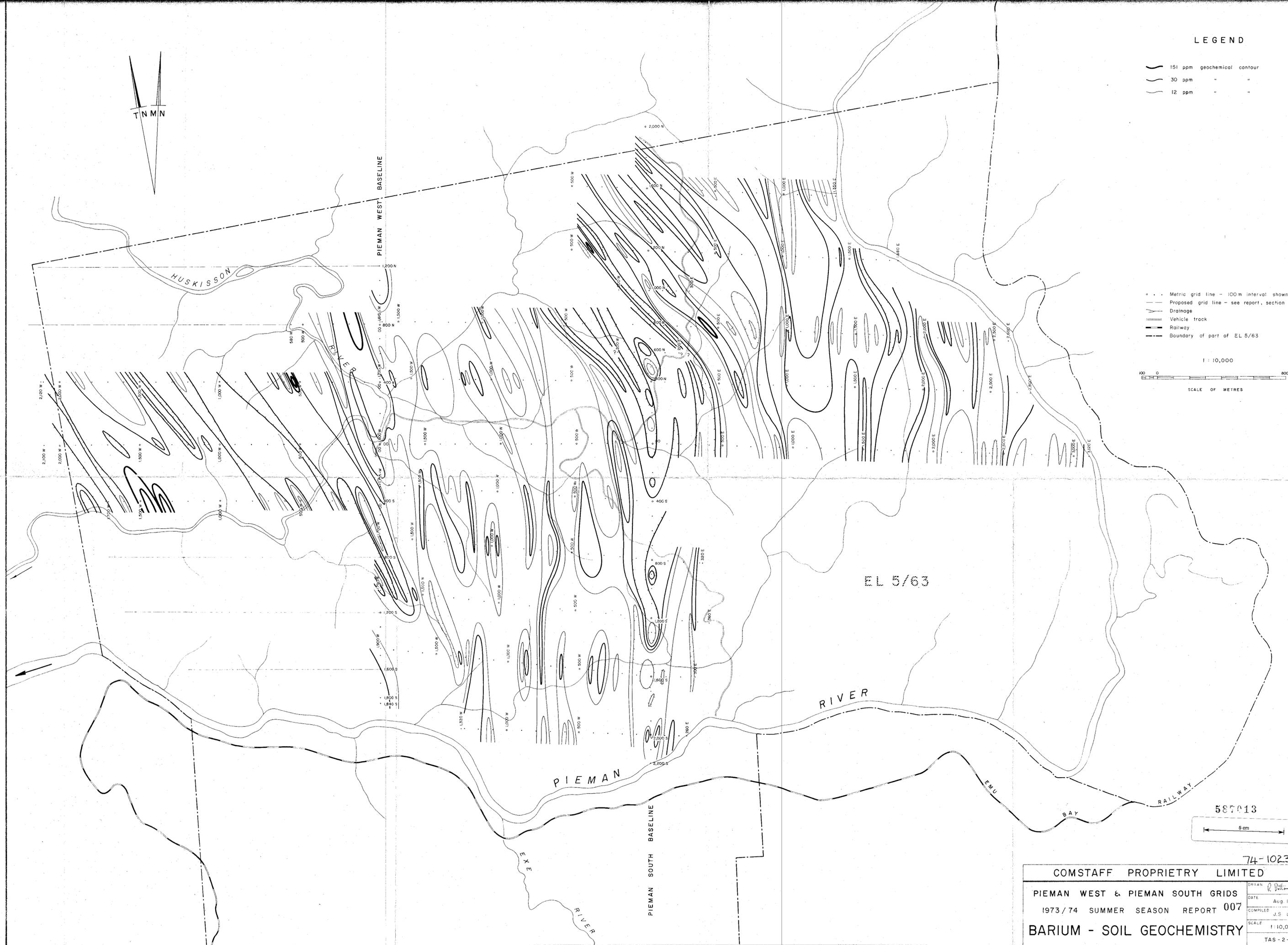
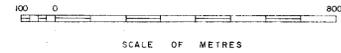
COMSTAFF PROPRIETRY LIMITED	
PIEMAN WEST & PIEMAN SOUTH GRIDS	
DATE	Aug 1974
COMPILED	J S & G C
SCALE	1 10,000
TIN - SOIL GEOCHEMISTRY	
TAS - 2 - 651	

LEGEND

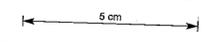
-  151 ppm geochemical contour
-  30 ppm " "
-  12 ppm " "

-  Metric grid line - 100m interval shown
-  Proposed grid line - see report, section 5
-  Drainage
-  Vehicle track
-  Railway
-  Boundary of part of EL 5/63

1 : 10,000



587013



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COMSTAFF PROPRIETRY LIMITED	
PIEMAN WEST & PIEMAN SOUTH GRIDS	
1973/74 SUMMER SEASON REPORT 007	
BARIUM - SOIL GEOCHEMISTRY	
DRAWN	R. B. [Signature]
DATE	Aug 1974
COMPILED	J.S. & G.C.
SCALE	1 : 10,000
TAS - 2 - 654	