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PROJECT NAME: COMSTAFF PROPRIETARY LIMITED

EAST CHESTER - EAB GRID

TITLE: EXPLORATION REPORT FOR 1980

EXPLORATION LICENCE 5/63, Section 4

80-1413

OPEN FILE

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

COMMODITY/IES: Cu, Pb, Zn

MICROFILMED

TEXT PAGES NO: 7

PLAN NOS: Listed on page 7

TABLE NOS:

APPENDICES: I

AUTHOR/S: D. B. Hall, G.F. Pigott

DATE: 4th February 1980

AUSTRALIAN ANGLO AMERICAN LIMITED

Incorporated in the State of Victoria

EAST CHESTER - EAB GRIDEXPLORATION PROPOSAL FOR 19801. INTRODUCTION

This brief report outlines the exploration completed to date, and proposed follow-up exploration, on Grid EAB.

The East Chester area is within EL 5/63, part 4, and details of the area are given in "Report on Exploration in EL 5/63, part 4, in Tasmania, Australia" by D.B. Hall, September 1978. ~ 10. DOC 9417

Since that report an IP survey has been done over selected lines on the EAB grid. The results of this work are commented on by D.B. Trussell, 10th August, 1979.

10. DOC 9798

2. GEOLOGY (Plan Nos. TAS/2/1565, 1698)

Much of the geology remains hypothetical and interpretive, due to the paucity of outcrop, and the extent of cover by glacial till. A set of geological cross sections have been prepared for each grid line, which indicate quite clearly the relationship between the andesites, and their derivatives, and the overlying volcano sedimentary sequence to the north-west. The eastern volcanic sequence is rather poorly exposed except in places on the East Chester Road but there is no evidence of interbedded sediments. This sequence in fact appears to be essentially a sub-aerial one, with ignimbrites, ash fall tuffs, rhyolites and rhyodacites. It has been interpreted as a steep east dipping sequence, overlying the andesites, which would then be the exposed core of an anticline. However, structural information is sparse, with internal contacts within the volcanics indicating both east and west dips. The thin shaly horizons within the andesites, on the eastern contact (exposed in costeans on the original East Chester Grid), shows steep westerly dips, but facing data is not available.

3. WORK COMPLETED3.1 Eastern Volcanic Sequence

The eastern volcanics, because of their sub-aerial nature, have been a low priority exploration target. The presence of extensive glacial cover has made the use of surface geochemistry of doubtful significance. Only one possibly anomalous zone is indicated, on 2340S, from 400E to 500E,

002

with Cu, Pb, Zn and Mn values being slightly above background. Since hand augering would not be able to penetrate the glacial till, consideration could be given to doing a percussion drilling programme, possibly with an Air Trac on similar rig, to try and penetrate the glacials. This would also give some geological information.

Ground magnetometer surveys on all the lines (TAS/2/1615) indicated three responsive zones east of the andesite contact. Zone "B" immediately east of the 00W baseline, on lines 1930S, 2130S and 2340S cannot be related to any specific feature. Zone "D" is within the acid volcanics, east of the baseline on lines 3550S and 3950S, in an area of complete glacial cover. Zone "E" on the eastern end of line 3550S, possibly extends weakly through to line 3150S and 2750S, and again is in an area of complete glacial cover. Other unrelated anomalous responses are also present. Interpretation of the magnetics is hampered by the lack of outcrop, and it may be that the responsive zones merely indicate particular units, or groups of units, within the sub-aerial acid volcanics indicative of primary magnetite.

Induced polarization surveys have failed to show any distinctly anomalous zones. On line 2750S, at 500E, a weak chargeability-resistivity anomaly is present, and Trussell recommends follow-up with a shorter dipole to adequately define the source of the response. There is partly a chargeability zone on line 2750S, east of the IP traverse about 300W, as there is an increase in chargeability on the last reading of the lines.

3.2 Central Andesites

The andesites have been a moderate priority target, due mainly to the significant geochemical responses obtained from soil sampling; particularly the Cu, Pb and Zn values (Plan No. TAS/2/1700, 1701, 1702). Costeans on lines 2750S, 2950S and 3350S, exposed the andesites, and the western contact in 2950S and 3350S (Hall 1978).

No obvious source of the anomalous geochemistry is visible in the costeans, and channel sampling of the costeans only confirmed the high geochemistry values. The elevated values were thought to be related purely to Mn/Fe alteration zones and subsequent power auger drilling of related sites seems to confirm this. However, there has to be a primary source for the non-ferrous elements, unless they represent an original high back-ground base-metal contact in the andesites.

Some IP survey traverses covered the andesites, namely 1930S, 2750S, 3350S. The only positive response was on line 3350S, west of 1140W where resistivity values decrease, and there is a very weak chargeability response at 1140W. There is some decrease of resistivity on line 2750S, west of 720W, but nothing finite.

The Self-Potential survey did not extend into the andesite, except for line 3350S (TAS/2/2011). This shows a weak response from 900W to 1080W, probably related to the underlying acid tuffs, visible on line 3550), and presumed to be plunging beneath line 3350).

A weak to moderate ground magnetic response occurs over the andesite, referred to as Zone "A" (TAS/2/1615). It is present from line 3550S, increasing in intensity northwards to line 2750S, after which it presumably cuts-out against the east-west fault (TAS/2/1698). There is no obvious source for this anomaly and it is inferred to be reflecting a possible magnetite bearing horizon within the andesites.

3.3 Western Volcanic-Sedimentary Sequence

The geology of this sequence has been well-documented in previous reports.

IP and SP surveys were instrumental in outlining the pyritic black shales close to the andesite contact. Surface geochemistry also gave positive responses over both shale units, except in areas of glacial cover.

Costeaming on lines 3350S and 2950S exposed the upper contact of the andesites with the overlying water lain tuffs and ferruginous bedded cherts. Costeams 2540S and 2340S gave good exposure of the sediments and volcanics, and the contact with the andesites. This contact appears to be very conformable.

IP work carried out in 1978 gave good chargeability and resistivity anomalies related to the pyritic black shales (see Memo from D.B.T. to D.B.O., 4th April 1978). The uppermost unit of shales and siltstones does not appear to respond to IP.

The SP survey gave good responses over the black shales on 2540S and 2340S. On line 2130S there is apparently no indication of the sediment, but on line 1930S there is a similar response to that on 2540S, indicating that the sedimentary unit is present here (1930S, 800-900W). A broad zone of SP response, essentially related to the acid volcanics and pyroclastics between the two sedimentary units occurs on line 2540S and 2340S.

The ground magnetic responses over the western part of the grid are very uniform, with no responsive zones present.

4. PROPOSED FOLLOW-UP WORK - 1980

The main objectives for further work at EAB are:

- (a) To prospect the andesites in more detail to attempt to prove if the source of the high background geochemistry is related to a finite base metal sulphide source.
- (b) To explore the western sedimentary - volcanic sequence for possible discrete base metal sulphide bodies related to sedimentary units.
- (c) To follow-up anomalous IP, magnetic and geochemical responses already found.

See Appendix I for a summary of proposed work.

4.1 Grid Cutting

The EAB grid should be extended northwards by three lines 1730S, 1530S and 1330S. Each line should extend westwards to the Main Chester Road (TAS/2/2024) and eastwards to the EAC base line extended. These lines will provide complete coverage across the andesites and the overlying acid volcanic-sedimentary sequences.

Grid lines 3750S, 3550S, 3350S and 3150S should be extended westwards to the Main Chester Road. This would allow coverage of the area of coincident IP and geochemical anomalies and would close the "gap" between the Pinnacles and East Chester grids.

Grid lines 2950S and 2540S should be extended eastwards to allow for follow up work to check the IP anomaly on line 2750S.

A total of 11,300 metres is required.

4.2 Ground Magnetism

The newly cut lines should be surveyed with the proton precession magnetometer to test for the strike extension of magnetic zone B and the weak responses on the eastern contact zone of the andesites (TAS/2/1615).

A total of 10,100 metres surveying is required.

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4.3 Geochemical Sampling

4.3.1 A⁰ Sampling

To provide continuity with previous geochemical surveys, the new grid lines should be sampled at the surface (A⁰ horizon). In view of the probable extensive glacial cover, the results will need careful interpretation. A total of 320 samples is estimated analysing for Cu, Pb, Zn and Ba.

4.3.2 Auger Sampling

A programme of hand auger sampling is recommended in areas of poor outcrop, aimed specifically at testing the sedimentary units west of the andesites. Hopefully the sampling should reach bedrock, and will also give some geological information. The costeaning on 2540S and 2340S showed there was only a thin veneer of overburden covering relatively fresh bedrock, invariably less than 1m.

A small section of line 3150S, from 500W to 800W, across magnetic zone "A" in the andesites is also recommended.

The details are in Appendix I, and Plan TAS/2/2024.

A total of 142 samples is estimated; analysing for Cu, Pb, Zn and Ba.

4.4 Self-Potential Surveys

In view of the fact that SP located the black shales above the andesite contact, it is worth doing SP over the three new lines to be gridded, and also lines 1930S, 2130S and 2340S, from 00W - 1000W. If the intercalated sediments in the andesites near the eastern contact are responsive, the SP should identify them in areas of no outcrop.

A total of 8 line km is estimated.

4.5 Induced Polarisation Surveys

Induced Polarisation surveys using an 80 metre dipole separation is recommended based on the present grid layout. Closer spaced traverses may be required subsequently to further define possible drilling targets.

Lines 3750S, 3550S, 3750S and 3150S should be covered as shown on Plan TAS/2/2024. This would follow-up the anomalous responses noted from the previous survey and would give coverage over the andesitic sequence where anomalous and unexplained soil geochemistry values exist. Line 2950S would cover the andesite and the western and eastern sequences

including the southern extension of the Leo's Find zone, a weak segment of magnetic anomaly A and the strike extension of the IP anomaly on 2750S. Lines 2750S and 2540S should be surveyed to extend the coverage in this area. On line 2750S a 500m survey at 40m dipole spacing should be done from 200E to 700E and at 80m dipole spacing from 200E to 700W. The survey on line 2540S would cover the whole sequence and allow for examination of the strike extension of the IP response on line 2750S.

Line 2130S 600W to 1600W would cover the western part of the andesitic and western sequence. As this line is extensively covered by glacial material the IP should define the location of the sediments.

Line 1930S should be extended to the east and west to complete coverage over the zone.

Line 1730S should be covered to test the andesite and the contact zones with the acid volcanic-sedimentary sequences. It will cover the strike extension of magnetic zone B, the interbedded sedimentary units on the east side of the andesites and the sediments of the western sequence. This survey would follow-up the anomalous responses noted on line 1930S.

Provision should be made for extra traverses to be done in the case of any anomalies occurring on the above lines. Lines 1530S and 1330S will already be cut, but intermediate lines may be required.

for +
Approved
08/02/80
D.B. Hall

G.F. Pigott

1st February 1980

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5. LIST OF PLANS

TAS/2/1565	EAB - Detailed Geological Plan	1:5 000
TAS/2/1698	EAB - Geological Interpretation	1:5 000
TAS/2/1615	EAB - Stacked Ground Magnetic Profiles	1:5 000
TAS/2/2011	EAB - Stacked Self Potential Profiles	1:5 000
TAS/2/2023	EAB - Geophysical Summary Plan	1:5 000
TAS/2/2012	EAB - Line 1930S - Geology Cross Section	1:5 000
TAS/2/2013	EAB - Line 2130S - Geology Cross Section	1:5 000
TAS/2/2014	EAB - Line 2340S - Geology Cross Section	1:5 000
TAS/2/2015	EAB - Line 2540S - Geology Cross Section	1:5 000
TAS/2/2016	EAB - Line 2750S - Geology Cross Section	1:5 000
TAS/2/2017	EAB - Line 2950S - Geology Cross Section	1:5 000
TAS/2/2018	EAB - Line 3150S - Geology Cross Section	1:5 000
TAS/2/2019	EAB - Line 3350S - Geology Cross Section	1:5 000
TAS/2/2020	EAB - Line 3550S - Geology Cross Section	1:5 000
TAS/2/2021	EAB - Line 3750S - Geology Cross Section	1:5 000
TAS/2/2022	EAB - Line 3950S - Geology Cross Section	1:5 000
TAS/2/2024	EAB - Proposed Exploration 1980	1:5 000
TAS/2/1700	EAB - Cu Values and Contours	1:5 000
TAS/2/1701	EAB - Pb Values and Contours	1:5 000
TAS/2/1702	EAB - Zn Values and Contours	1:5 000
TAS/2/1703	EAB - Ba Values and Contours	1:5 000
TAS/2/1704	EAB - Mn Values and Contours	1:5 000

APPENDIX IEAB GRID - EAST CHESTERSUMMARY OF PROPOSED FOLLOW-UP WORK (Plan No. TAS/2/2024)

1.	<u>Grid Cutting</u>	Survey and flag	Metres
	Lines 3750S	at 320 ^o MN to the Chester road	900
	3550S	" " " " "	400
	3350S	" " " " "	500
	3150S	" " " " "	300
	2950S	at 140 ^o MN to the EAC base line	700
	2540S	" " " " " "	700
	1060E	extension of the EAC base line	600
	00W	extension of the EAB base line	600
	1730S	at 320 ^o MN	2300
	1530S	"	2200
	1330S	"	2100
			<u>11,300 metres</u>
2.	<u>Ground Magnetics</u>		
	All newly cut grid lines		10,100 metres
3.	<u>Geochemical Sampling</u>		
	A ^o sampling	all newly cut grid lines	520 samples
	Auger sampling	3150S 500W - 800W	16 samples
		3150S 1200W - 1600W	21
		2950S 1300W - 1600W	16
		2750S 1000W - 1500W	26
		2340S 1100W - 1500W	21
		2130S 800W - 1200W	21
		1930S 700W - 1100W	21
			142 samples
4.	<u>Self Potential Surveys</u>		
		2340S 00W - 1100W	
		2130S 00W - 1100W	
		1930S 00W - 1000W	
		1730S 00W - 1650W	
		1530S 00W - 1550W	
		1330S 00W - 1450W	
			7650 metres

5. Induced Polarisation Surveys (as shown on TAS/2/2024)

80m dipole spacing

Line 3750S	900m
3550S	1900m
3350S	900m
3150S	1450m
2950S	2600m
2750S	700m
2540S	2200m
2130S	1000m
1930S	1850m
1730S	1800m

40m dipole spacing

Line 2750S	500m
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15,800 metres

009

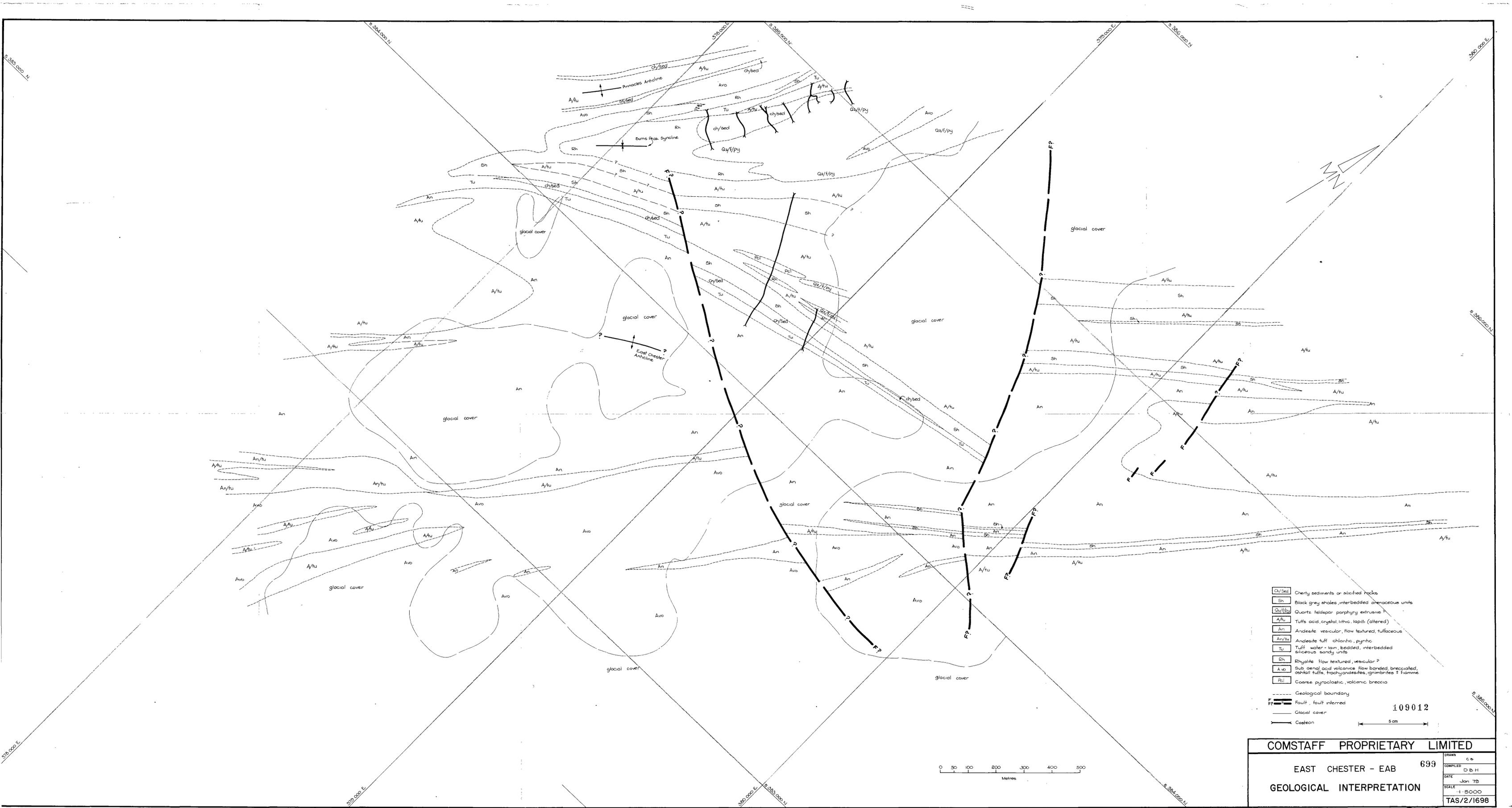


- LEGEND**
- △ Drainage & water race survey point
 - + Road survey point
 - ⊕ Costean sample point
 - Grid sample point

5 cm

COMSTAFF PROPRIETARY LIMITED		109011
EAST CHESTER - EAB		698
DETAILED GEOLOGICAL PLAN		GEODRAFT DRAWN BY DBH DATE JUNE 1978 SCALE 1 : 5000 TAS/2/1565

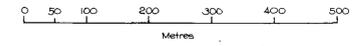
80-1413



- Ch/bed Cherty sediments or silicified rocks
- Sh Black grey shales, interbedded arenaceous units
- Quz/f/pj Quartz feldspar porphyry extrusive
- A/tu Tuffs acid, crystal, lithic, lapilli (altered)
- An Andesite vesicular, flow textured, tuffaceous
- An/tu Andesite tuff chthonic, pyritic
- Tu Tuff water-lain, bedded, interbedded siliceous sandy units
- Rh Rhysolite flow textured, vesicular P
- Avo Sub-aerial acid volcanics flow banded, brecciated, ashfall tuffs, trachyandesites, ignimbrites ? fiamme
- Pl Coarse pyroclastic, volcanic breccia

- Geological boundary
- F Fault, fault inferred
- FP Fault, fault inferred
- - - - - Glacial cover
- >—>—> Cosecan

109012



COMSTAFF PROPRIETARY LIMITED	
EAST CHESTER - EAB	699
GEOLOGICAL INTERPRETATION	
DRAWN c.b.	COMPLETED D.B.H.
DATE Jan 78	SCALE 1:5000
TAS/2/1698	



- LEGEND**
- △ Drainage & water race survey point
 - + Road survey point
 - ⊙ Costean sample point
 - Grid sample point



VERTICAL SCALE :- 1cm = 100 nT

COMSTAFF PROPRIETARY LIMITED	
700	109013
EAST CHESTER - EAB	
STACKED GROUND MAG PROFILES	
DRAFT	D.B.H.
7th JANUARY 1980	SCALE
1 : 5000	TAS/2/1615



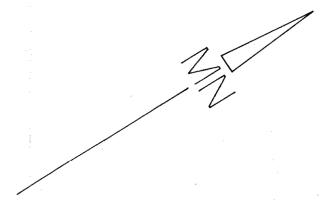
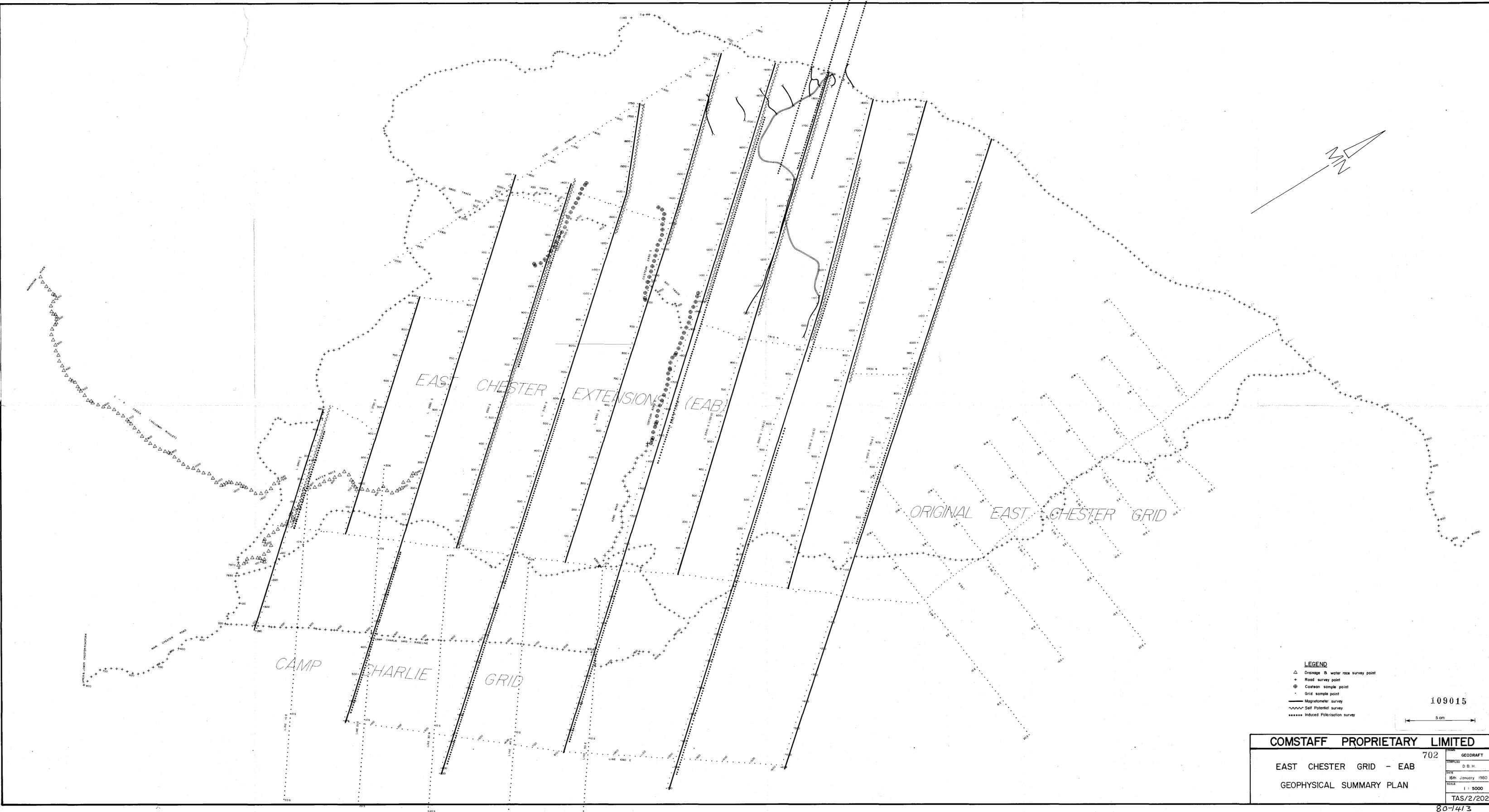
- LEGEND**
- △ Drainage & water race survey point
 - + Road survey point
 - ⊕ Costeon sample point
 - Grid sample point

5 cm

VERTICAL SCALE :- 1 cm = 20 m V

NOTE :- Individual line datums are 0mV

COMSTAFF PROPRIETARY LIMITED		109014
EAST CHESTER GRID - EAB	701	GEODRAFT
STACKED SELF POTENTIAL PROFILES	DATE	VARIOUS
	DATE	9th JANUARY 1990
	SCALE	1 : 5000
	TAS/2/2011	80-1413



- LEGEND**
- △ Drainage & water race survey point
 - + Road survey point
 - ⊕ Costson sample point
 - Grid sample point
 - Magnetometer survey
 - ~~~~~ Self Potential survey
 - Induced Polarisation survey

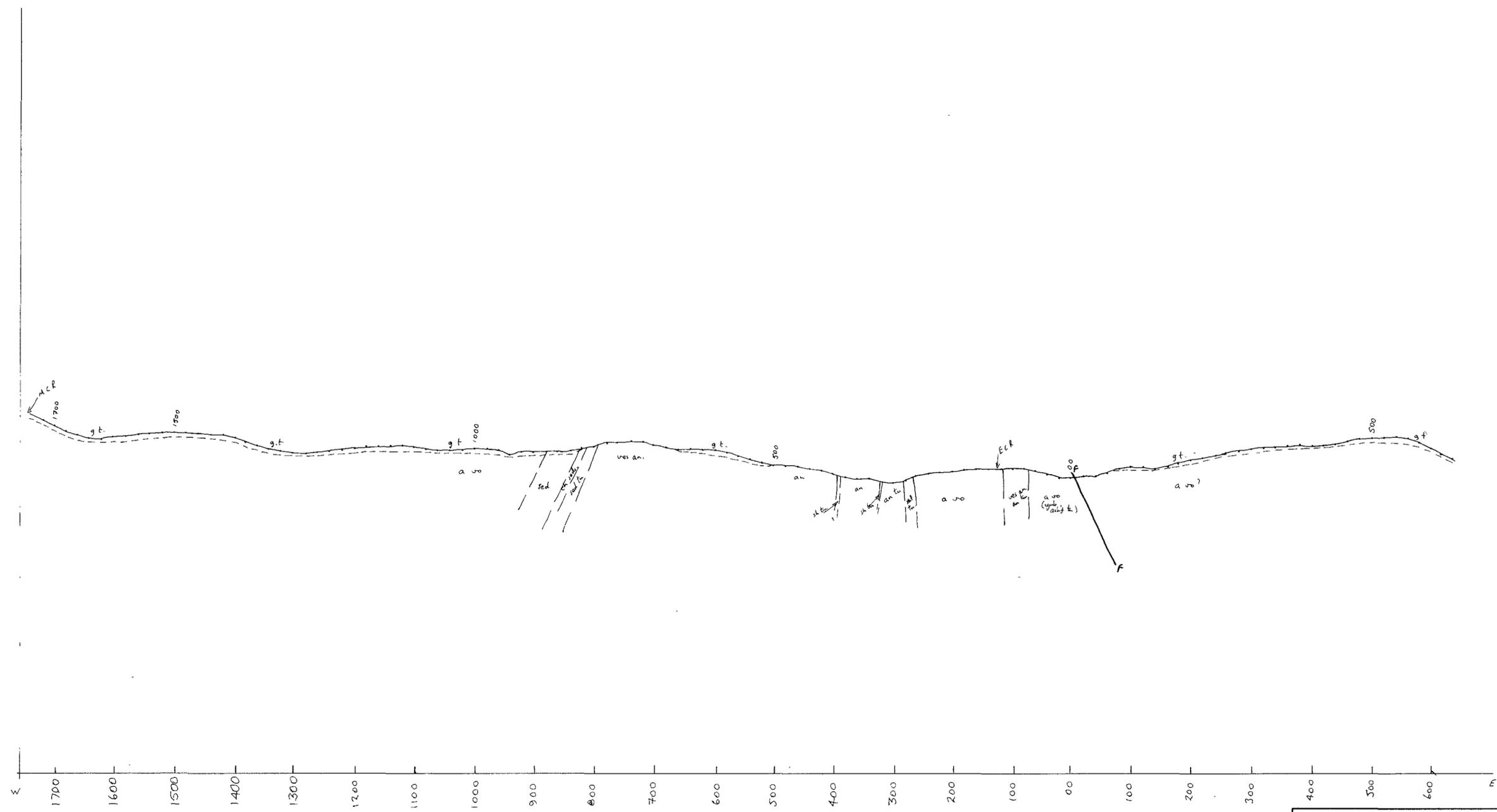
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COMSTAFF PROPRIETARY LIMITED

702
 EAST CHESTER GRID - EAB
 GEOPHYSICAL SUMMARY PLAN

PROJECT	GEODRAFT
COMPILED	D. B. H.
DATE	16th January 1980
SCALE	1 : 5000
TAS/2/2023	



COMSTAFF PROPRIETARY LIMITED

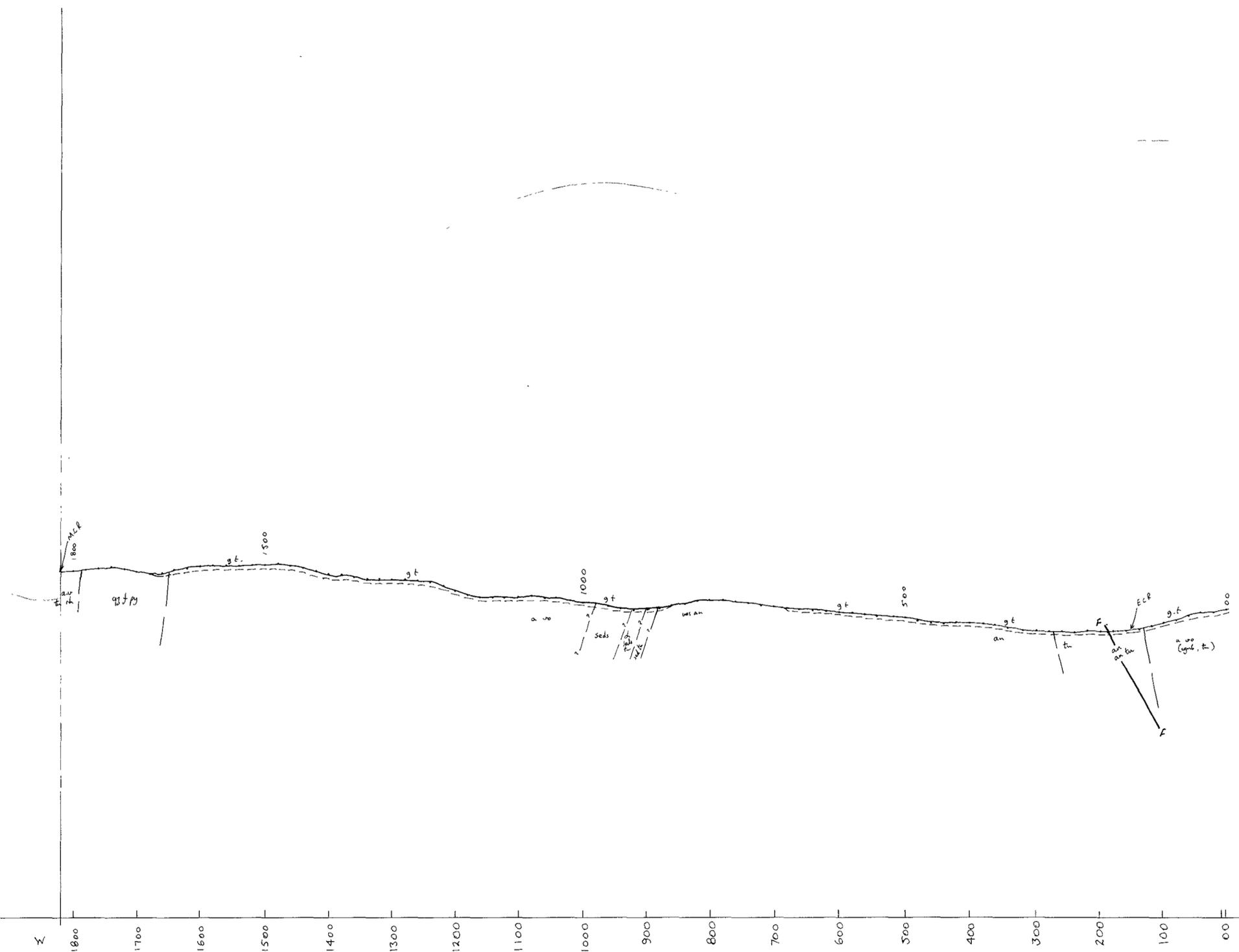
EAST CHESTER GRID - EAB
 L 1930 S 703
 GEOLOGICAL SECTION

109016

5 cm

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80-1413



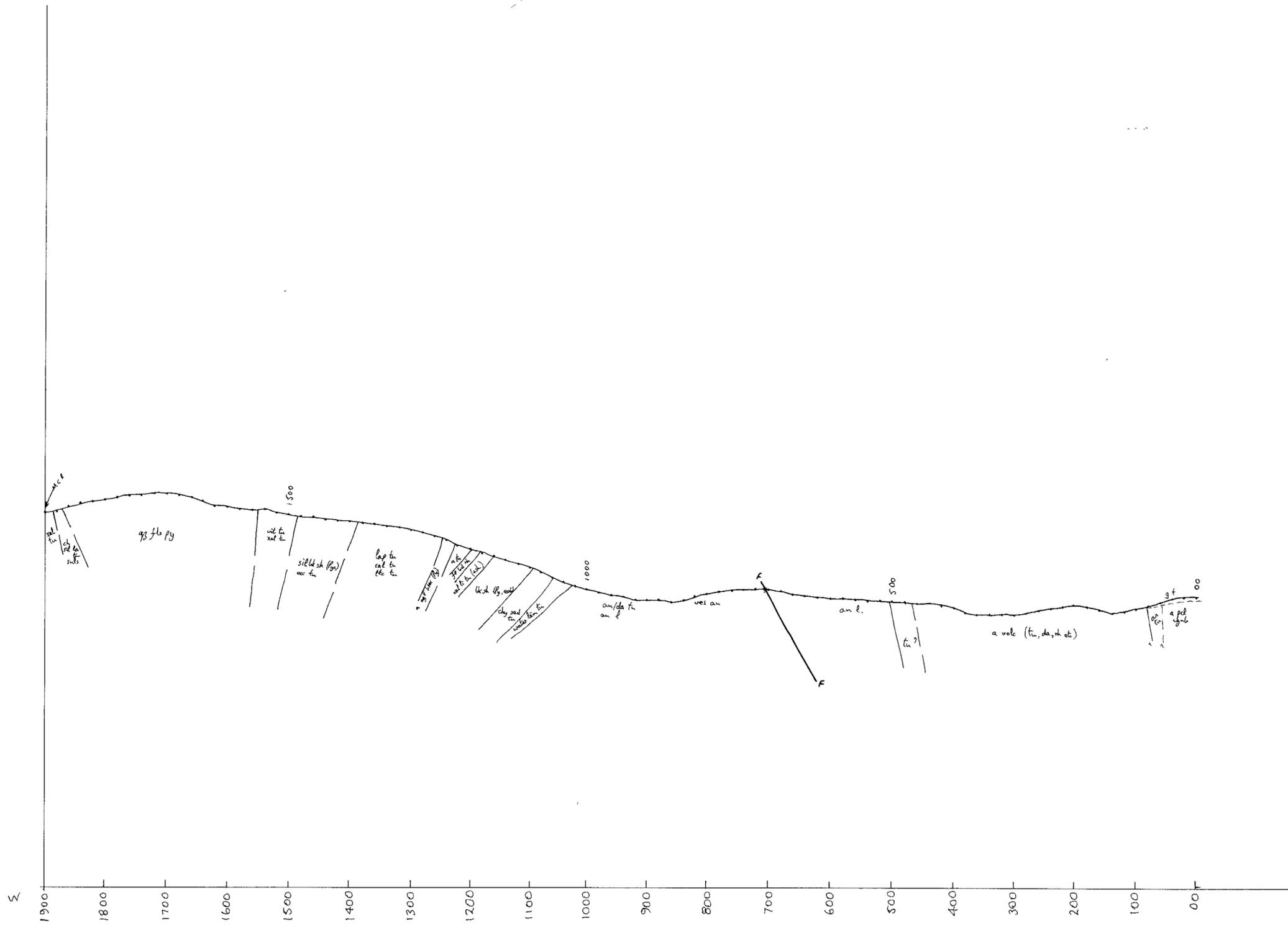
109017 80-1413

COMSTAFF PROPRIETARY LIMITED

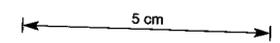
EAST CHESTER GRID - EAB
 L 2130 S C 704
 GEOLOGICAL SECTION

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5 cm



109019

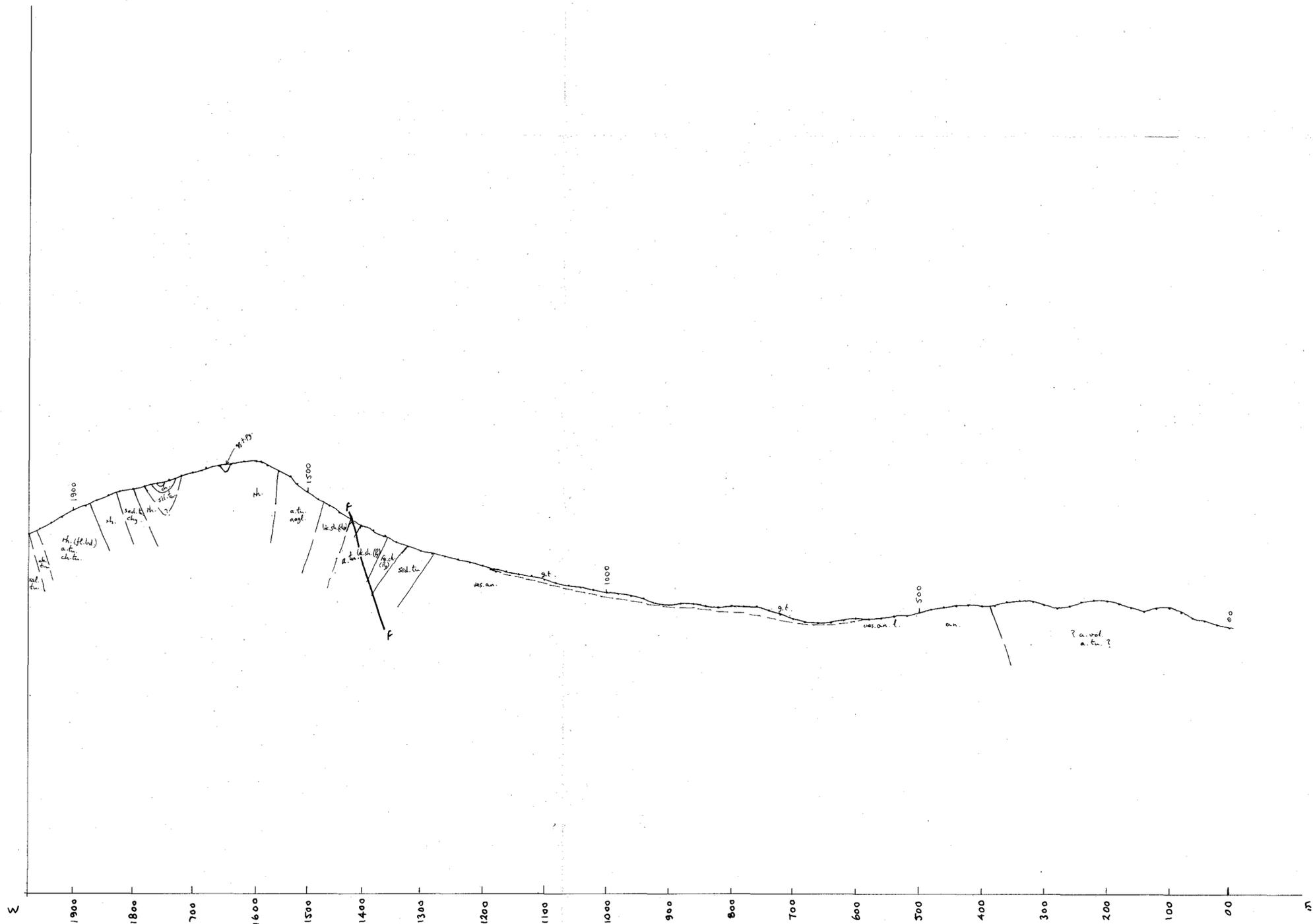


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COMSTAFF PROPRIETARY LIMITED

EAST CHESTER GRID - EAB
 L 2540 S 706
 GEOLOGICAL SECTION

DRAWN DBH 15/1/80	COMPILED DBH	SCALE 1:5000	TAS/2/2015
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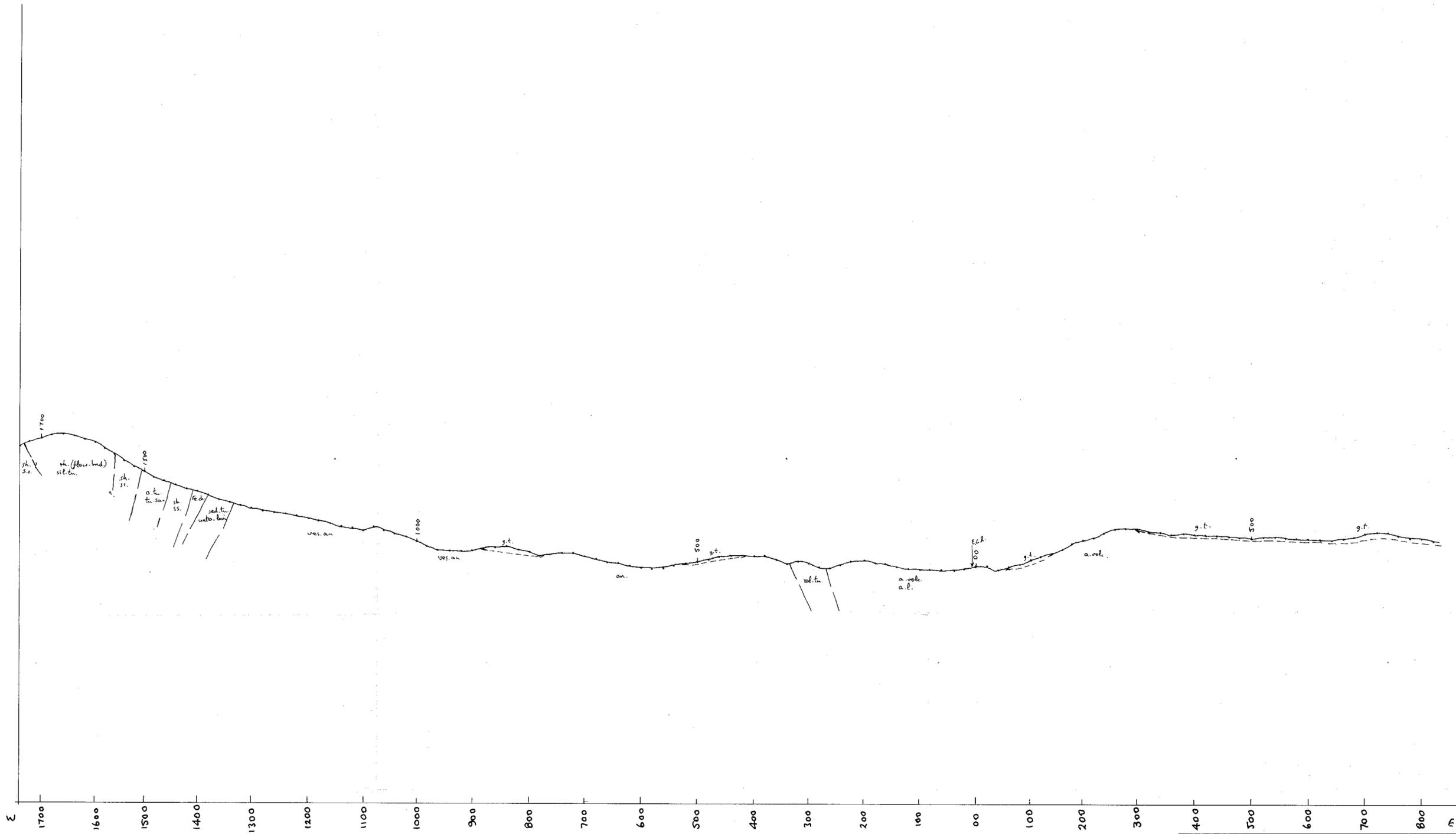
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80-1413

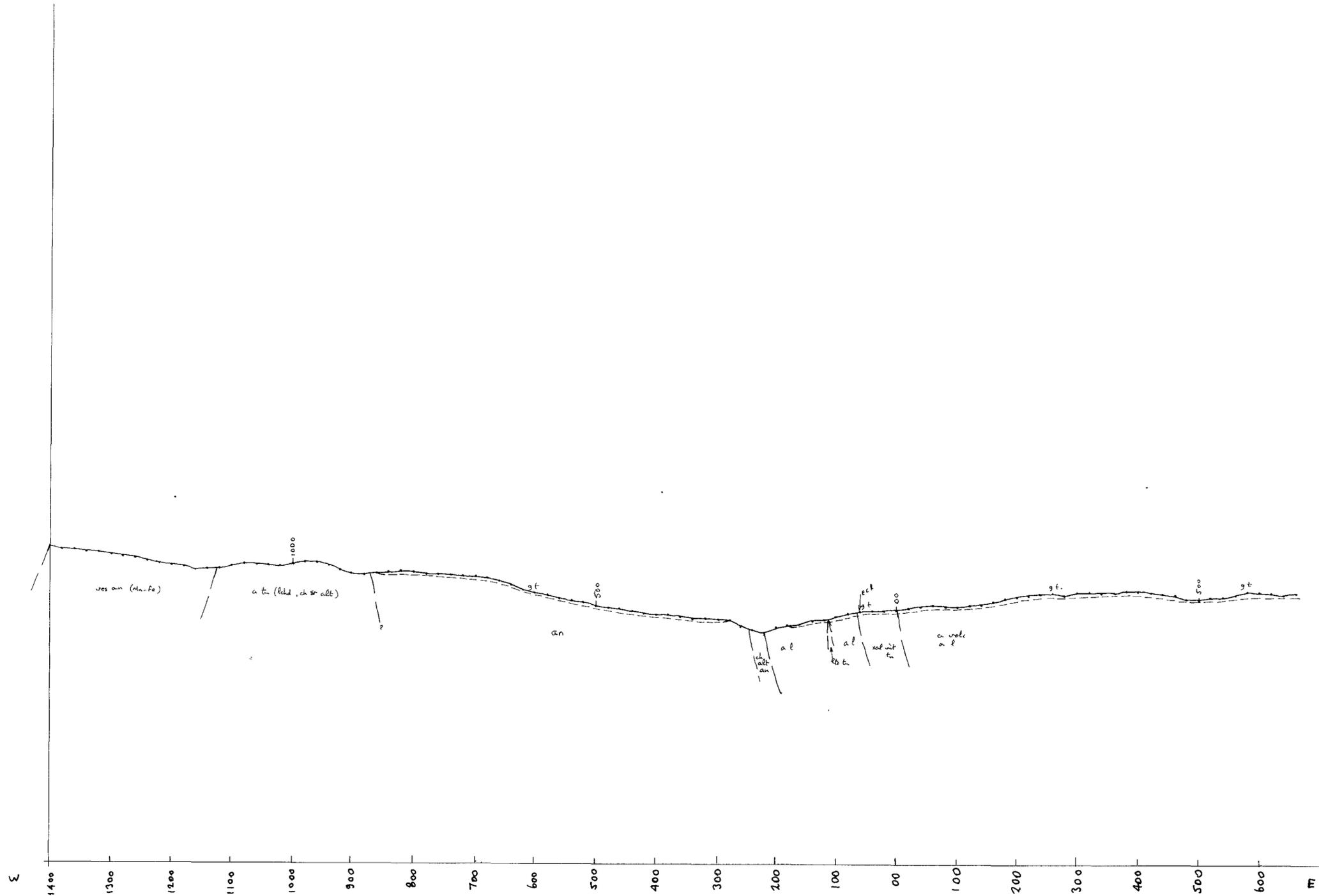
COMSTAFF PROPRIETARY LIMITED

EAST CHESTER GRID - EAB
 L 2950 S 708
 GEOLOGICAL SECTION

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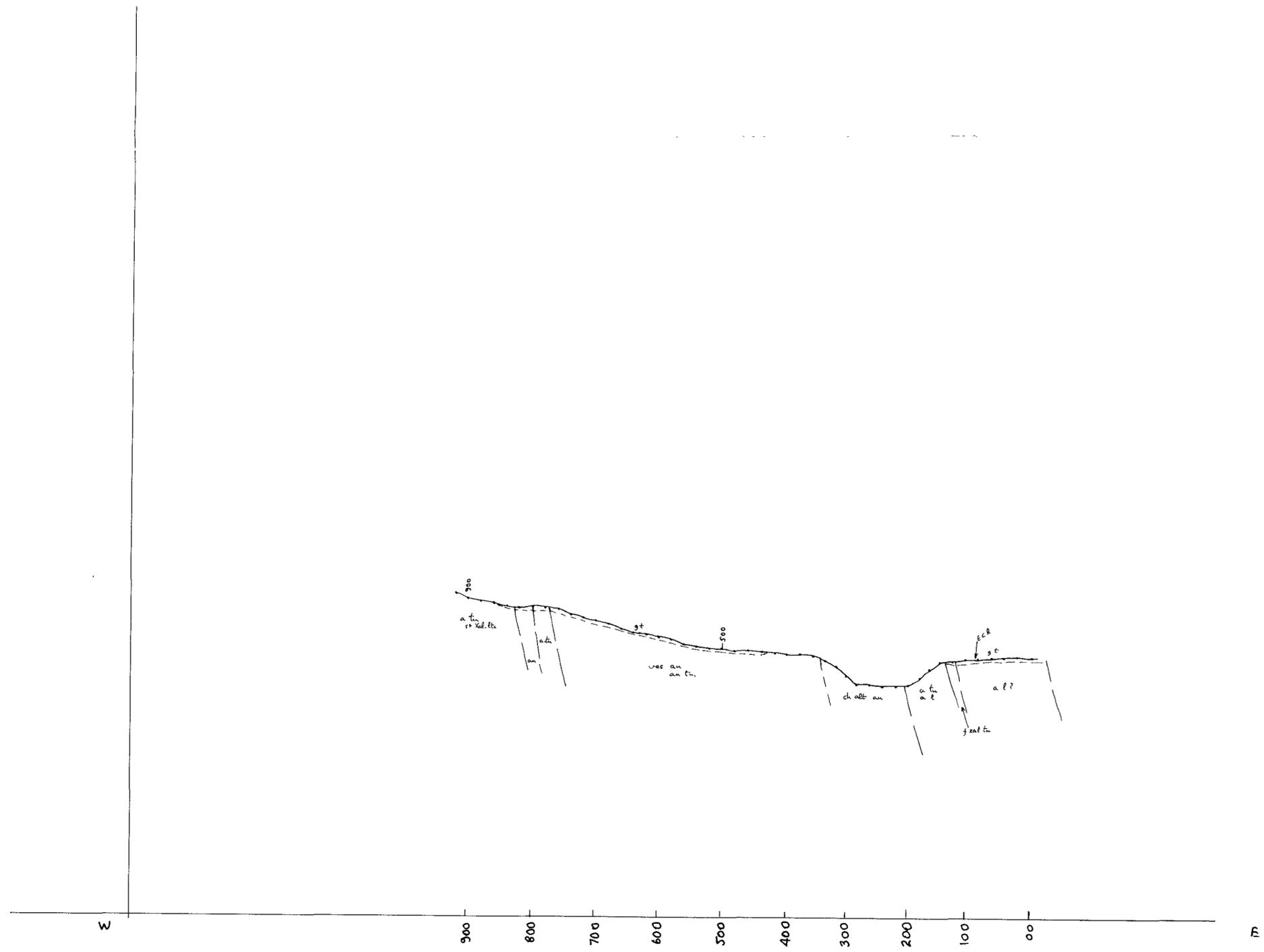
COMSTAFF PROPRIETARY LIMITED			
80-1413			
EAST CHESTER GRID - EAB			
L 3150 S			
GEOLOGICAL SECTION 709			
DRAWN D.B.H. 15/1/80	COMPILED D.B.H.	SCALE 1 : 5000	TAS/2/2018



109024

5 cm

COMSTAFF PROPRIETARY LIMITED			
80-1413			
EAST CHESTER GRID - EAB			
L 3550 S			
GEOLOGICAL SECTION 711			
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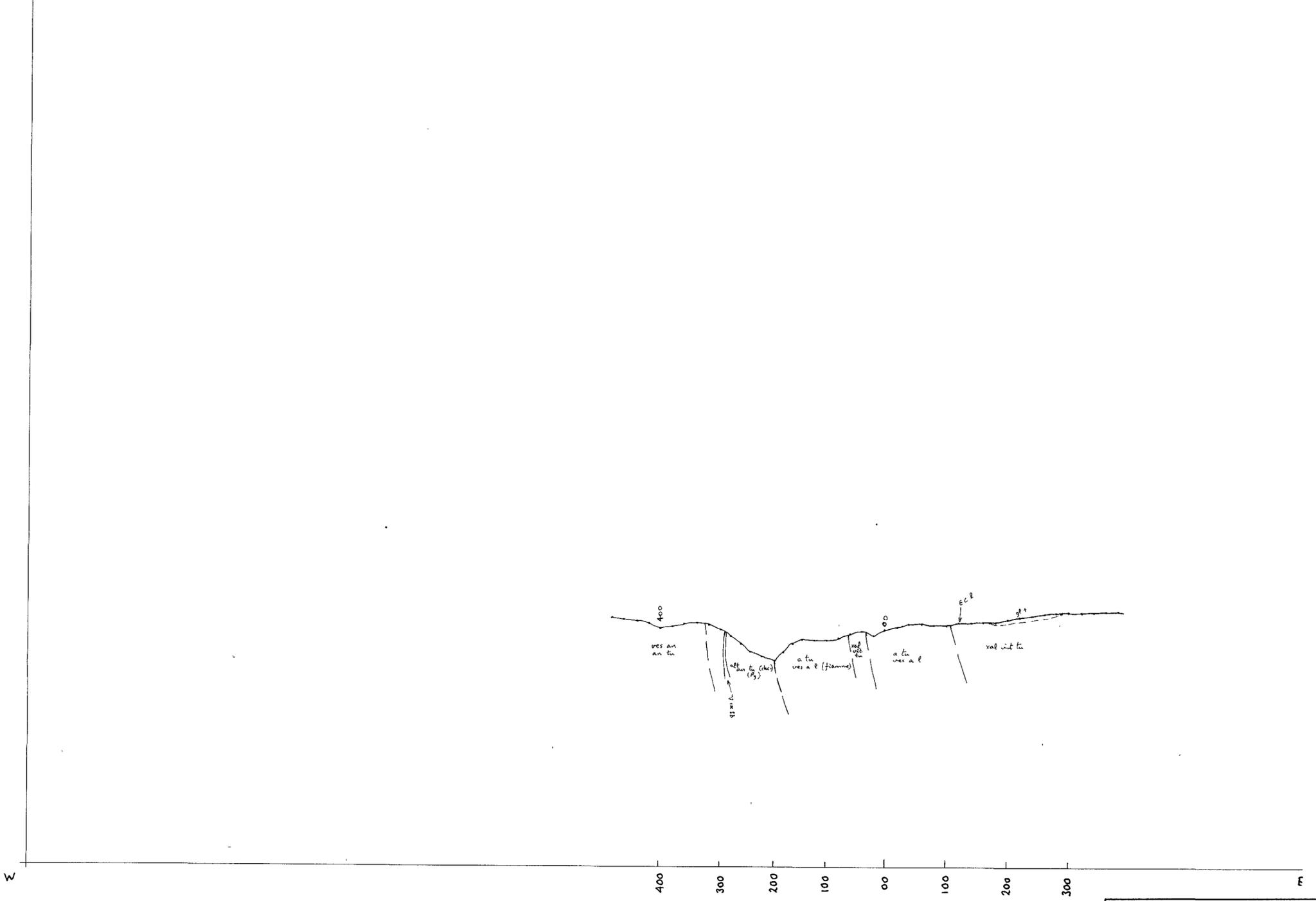


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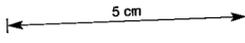
COMSTAFF PROPRIETARY LIMITED

EAST CHESTER GRID - EAB
L 3750 S
GEOLOGICAL SECTION 712

<small>DRAWN</small> DBH 15/1/80	<small>COMPILED</small> D.B.H	<small>SCALE</small> 5000	<small>TAS/2/2021</small>
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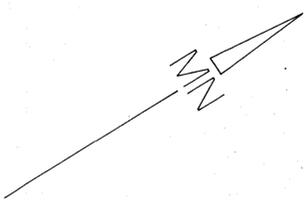
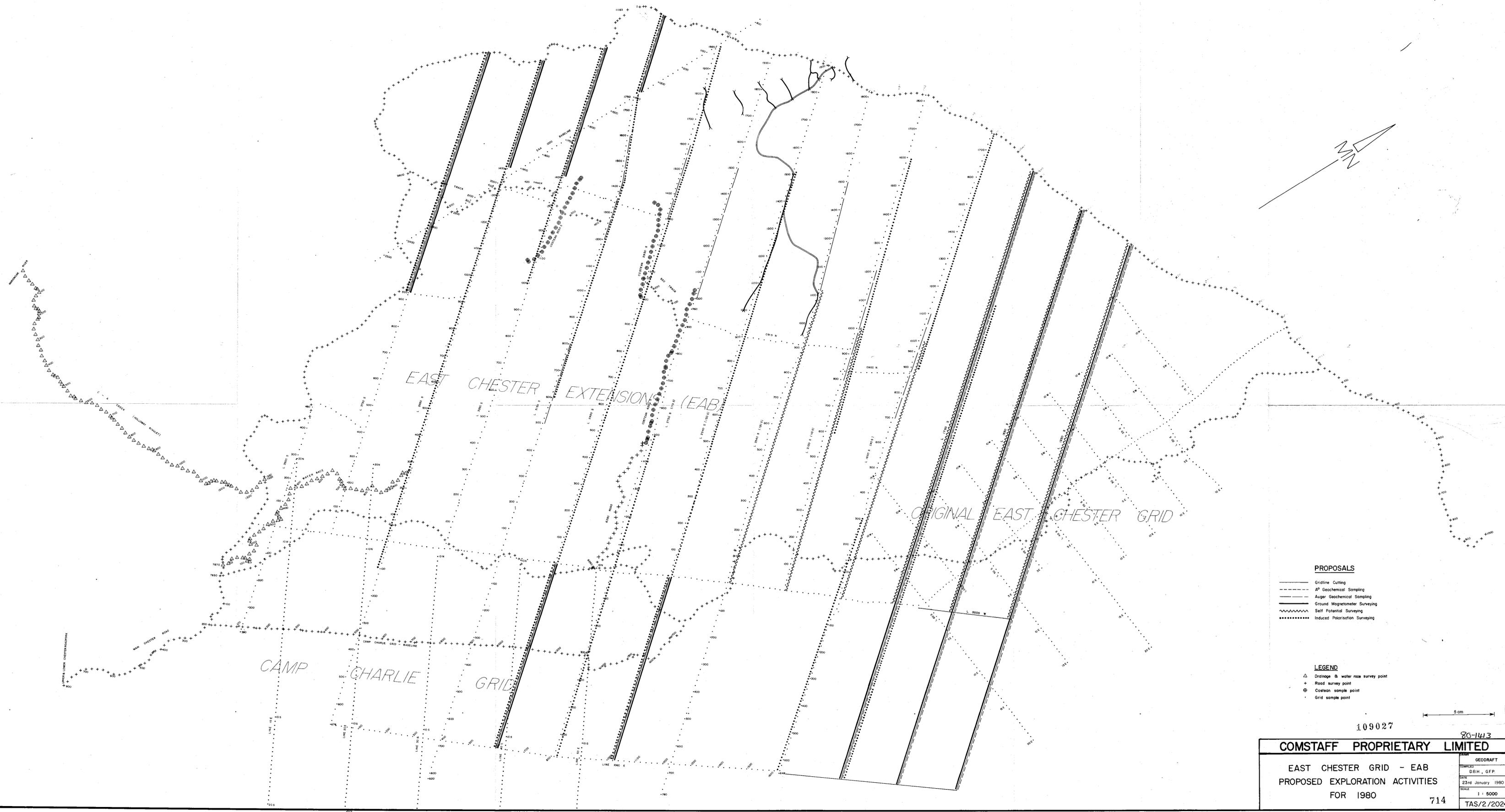


COMSTAFF PROPRIETARY LIMITED

EAST CHESTER GRID - EAB
 L 3950 S
 GEOLOGICAL SECTION 713

DRAWN DBH 15/1/80	COMPILED D.B.H.	SCALE 1 5000	TAS/2/2022
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80-1413



PROPOSALS

- Gridline Cutting
- - - A⁰ Geochemical Sampling
- - - Auger Geochemical Sampling
- Ground Magnetometer Surveying
- ~ Self Potential Surveying
- Induced Polarisation Surveying

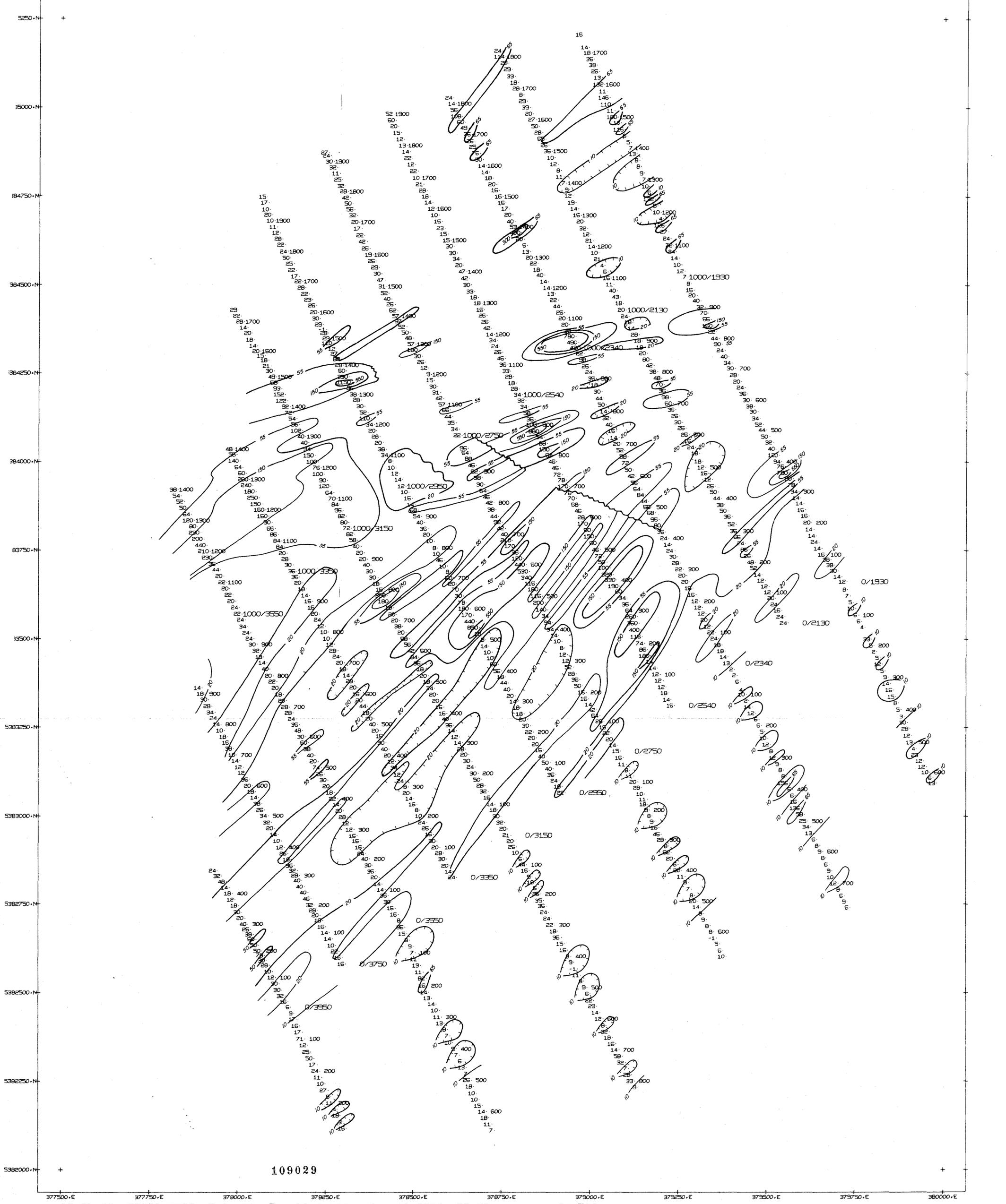
LEGEND

- △ Drainage & water race survey point
- + Road survey point
- ⊕ Costean sample point
- Grid sample point

5 cm

109027

COMSTAFF PROPRIETARY LIMITED	
EAST CHESTER GRID - EAB PROPOSED EXPLORATION ACTIVITIES FOR 1980	714
GEODRAFT COMPILED BY DBH, GFP DATE 23rd January 1980 SCALE 1 : 5000 TAS/2/2024	



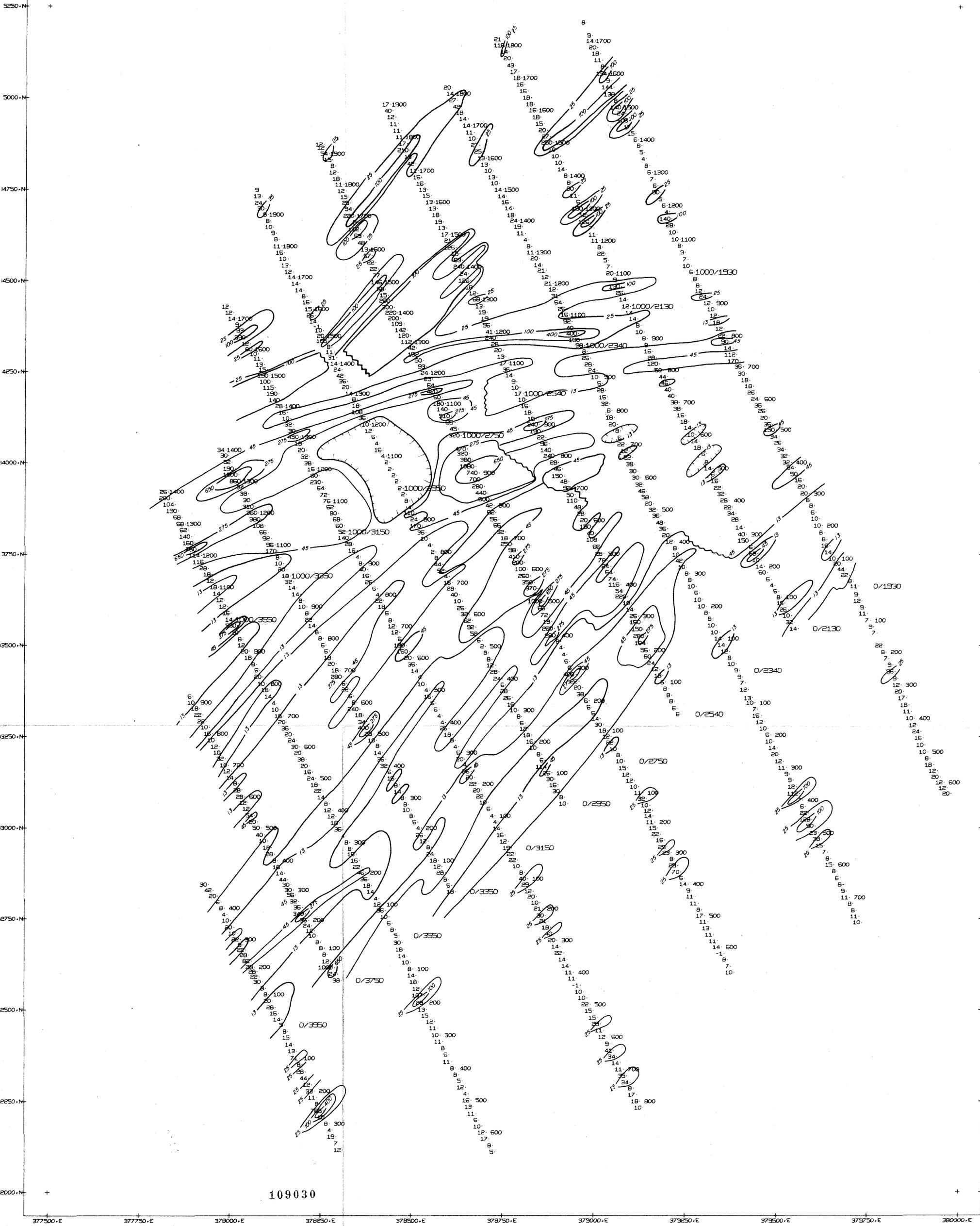
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COMSTAFF METRIC GRID (EAB) SCALE 1 TO 5,000 ADJ. CO-ORDS PB PPM. 11-JAN-80 TCS

TAS/2/1701 0. 716

5 cm

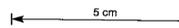
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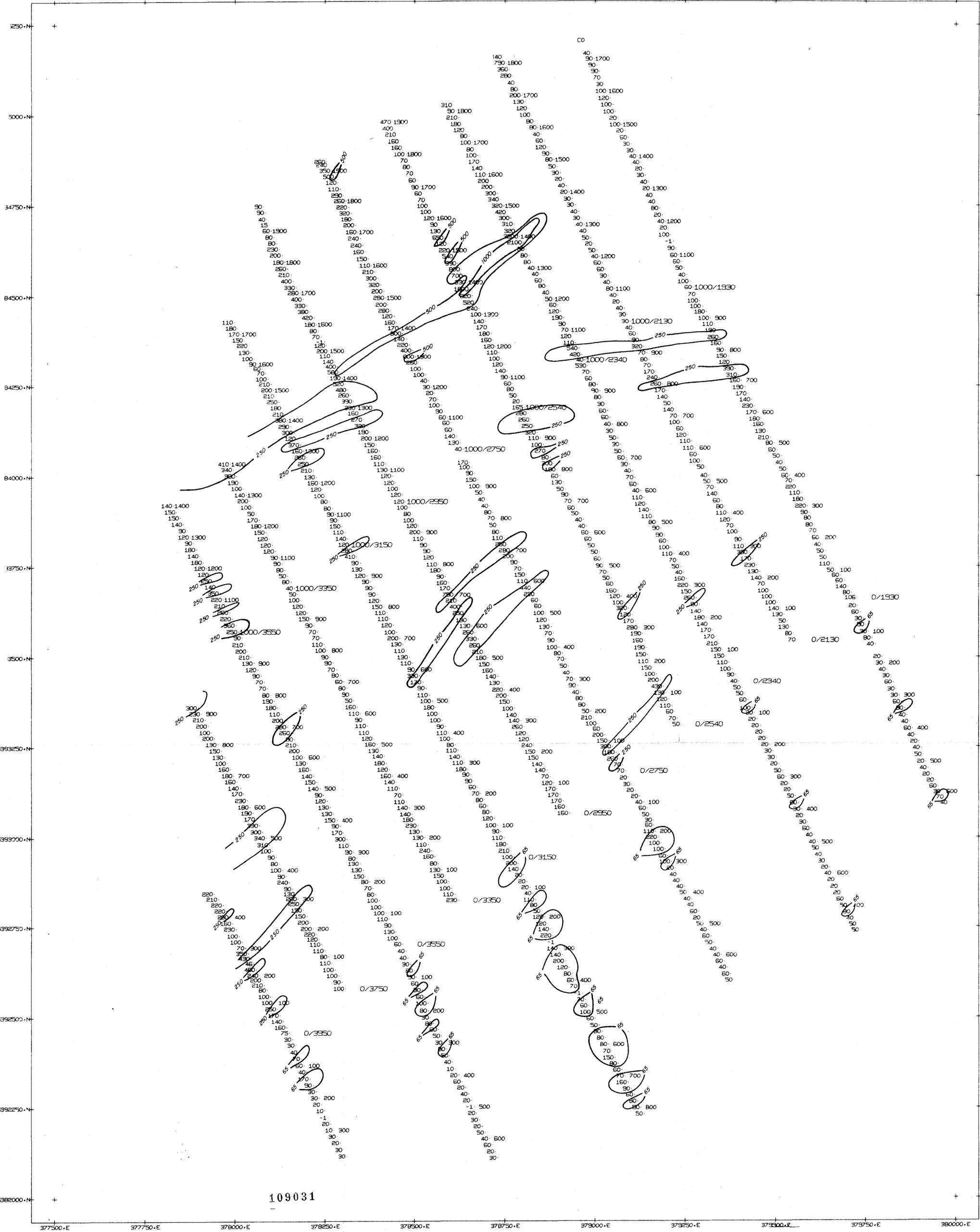
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COMSTAFF METRIC GRID (EAB) SCALE 1 TO 5,000 ADJ. CO-ORDS ZN PPM. 11-JAN-80 TCS

TAS/2/1702 717



20-1413

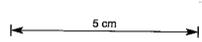


109031

377500.E 377750.E 378000.E 378250.E 378500.E 378750.E 379000.E 379250.E 379500.E 379750.E 380000.E

COMSTAFF METRIC GRID (EAB) SCALE 1 TO 5,000 ADJ. CO-ORDS BA PPM. 11-JAN-80 TCS

TAS/2/1703 718



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