

Q73N68  
1958

356001 73, 80, 86

LYELL E.Z. EXPLORATIONS

Queenstown

Report on

MICROFILMED

ANOMALIES A5/1, A6/1, A6/2

59-286

REPORT ON ANOMALIES  
A5/1, A6/1, A6/2  
LYELL EZ OPERATIONS

GEOPHYSICALS

Anomal A5/1, A6/1, A6/2

LEG

8/7/59.

Report No. G97

July '59

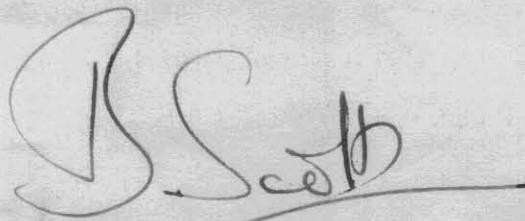
356

8th July, 9

To: Mr. G.F. Hudspeth

Airborne Geophysical Anomalies A5/1, A6/1 and A6/2Arthur Area

Attached are the results of the investigation of these three airborne geophysical anomalies in the Arthur area. A6/1 and A6/2 occur in sheared serpentinite and no further work is warranted in them. A5/1 occurs in a favourable geological environment and the ground e.m. survey, although promising, is incomplete. Consequently, further electromagnetic (R.E.M.) and gravimetric work will be required before this anomaly can be fully evaluated.

A handwritten signature in cursive script, appearing to read 'B. Scott', with a horizontal line extending to the right from the end of the signature.

Chief Geologist, L.E.E.

Airborne Geophysical Anomalies A5/1, A6/1 and A6/2Arthur Area1. Anomaly A5/1A. Position

The anomaly is located  $1\frac{1}{2}$  miles photo  $345\phi^0$  from photo-centre 7/935/86.

B. Access

A Land Rover track exists to the east side of Ragged Range, which is one mile from the anomaly location. A recently cut foot track continues from this spot to the grid.

C. Geology

The anomaly is placed on the lower western slopes of the Ragged Range. This slope, which is practically a dip slope of Owen Conglomerate, has effectively covered the anomaly location with scree and no rock exposures were found on or near the grid. However, its regional location is known with some accuracy.

The electromagnetic crossover established on the ground is several hundred feet to the west of a faulted contact between the Owen Conglomerate and Carbine Group (?). The Owen Conglomerate is well exposed in the Ragged Range and it is a typical siliceous pebble conglomerate, the particles being primarily chert and quartzite. Sediments belonging to the Carbine Group (?) are exposed in the Adam River some 3,000 feet north of the anomaly. These sediments consist of interbedded green, grey and red chert, brown and red mudstones and light green shales. The faulted contact is not apparent near the anomaly but the fault scarp can readily be seen where the Adam River breaks through the Ragged Range. Here the river falls some 150 to 200 feet over a vertical face of Owen Conglomerate, with Carbine Group in the narrow gorge below.

D. Geophysics(a) Airborne Response

The response occurs on two lines, 34 and 35. It is two unratioced E.M. anomalies of the order of 0.5 degree low frequency response which has a favourable appearance on chart. These anomalies occur on an increase in magnetic gradient from west to east, with the higher magnitude on the east.

(b) Ground Response

Unfortunately poor weather conditions allowed the running of only one traverse line with the reconnaissance electromagnetic unit. However, a good response was obtained at both frequencies with a clear crossover at 1W+50/4S.

2. Anomaly A6/1

A. Position

The anomaly is located 2 miles photo north of photo-centre 7/935/85.

B. Access

A Land Rover can be taken to the anomaly via a branch track from the Adamsfield road.

C. Geology

The geology is summarised in plan and section Q33/1. The anomaly occurs in sheared pale green serpentinite, which is typically unbanded. No one continuous shear was seen, rather the entire zone consists of a multitude of small, discontinuous faults. Trending on line 4S at the point of electromagnetic crossover disclosed similar ground.

D. Geophysics

(a) Airborne Response

The response occurs on two lines, 36 and 37.

A strong electromagnetic anomaly of maximum 2.2 degrees low frequency response and ratio 1.16 was recorded. The electromagnetic response is some 150 feet to the west of a magnetic high of maximum 6886 gammas with a background value of 5000 gammas.

(b) Ground Response

A feeble crossover was established on all three lines surveyed at about 4E, thus recovering the anomaly. The feeble response, and very low 1000 c.p.s. values would indicate material of poor conductivity.

Magnetically the grid is located on a flat area. Values do not increase until the ridge of banded ultrabasic is reached some hundreds of feet to the east of the ground electromagnetic anomaly, thus agreeing with the airborne responses. The banded ultrabasic contains visible chromite in sufficient quantities to cause the observed magnetic values.

3. Anomaly A6/2

A. Position

The anomaly is located  $2\frac{1}{2}$  miles photo-north of photo-centre 7/935/85.

B. Access

Access is readily available by foot from the Adamsfield track which is only a third of a mile south of the anomaly location.

C. Geology

The geological environment is identical to that of A6/1, sheared light green serpentinite.

D. Geophysics

(a) Airborne Response

The response occurs on one line, 39.

A strong electromagnetic anomaly of maximum 1.65 degrees low frequency response and ratio of 0.73 was recorded. The E.M. anomaly is 600 to 700 feet to the west of the same high magnetic ridge that occurs near A6/1. Here the values reach to 6477 gammas.

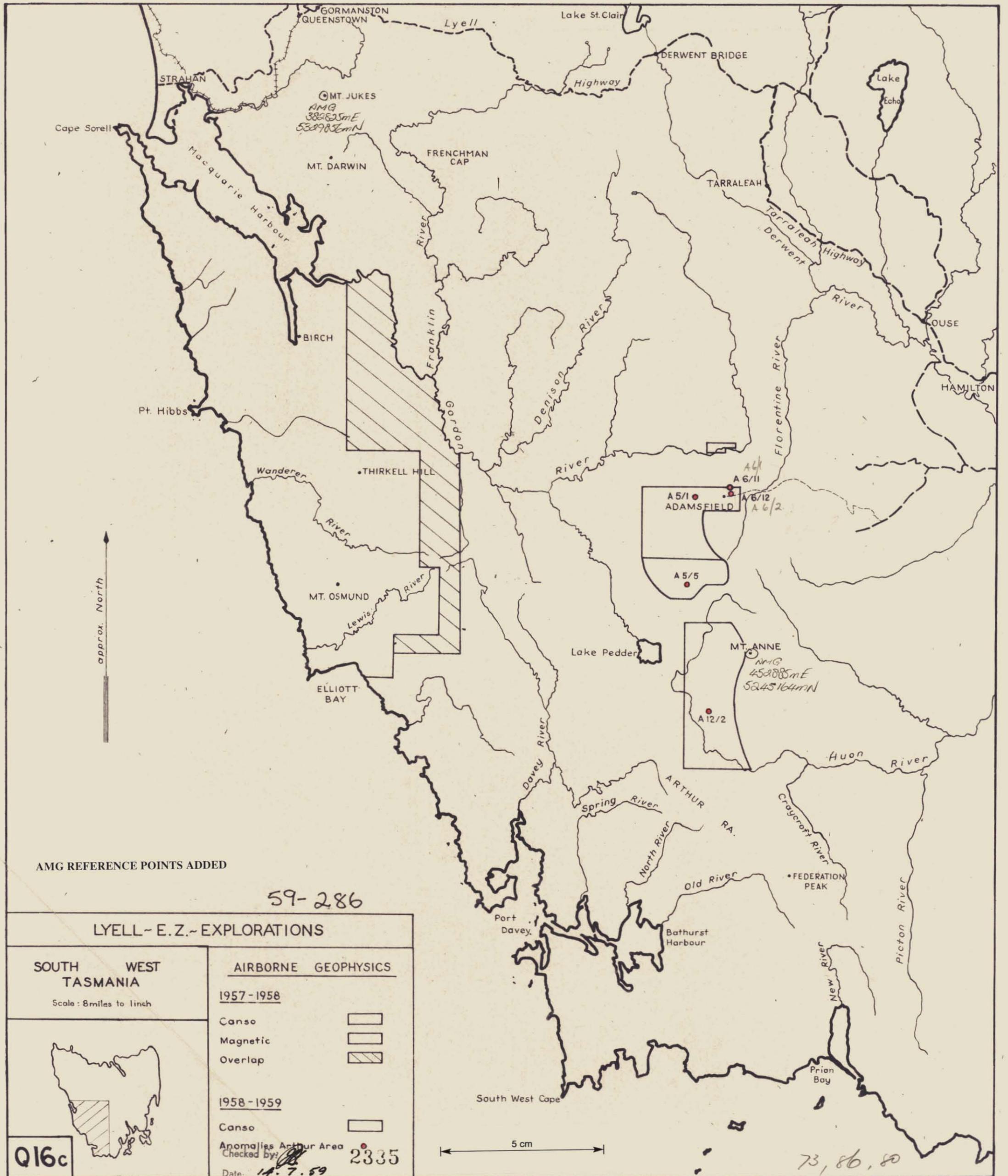
(b) Ground Response

The ground response was very low with the possibility of a crossover only on one line, 4N. The low response on 1000 c.p.s. and association of anti-crossovers would indicate that a series of poor conductors were being traversed.

The banded ultrabasic which occurs 400 feet to the east of the e.m. crossover on 4N shows a high magnetic response due to the presence of chromite.

4. General Conclusions

All three anomalies can be regarded as being recovered. However, the comparison of the airborne and ground responses demonstrates that no truly qualitative interpretation of the A.E.M. responses is possible. This can be seen in the ground response of A5/1 being clearer and larger than the ground responses of the impressive airborne indications of A6/1 and A6/2. This could be due to an integration of several poorly conducting horizons in the latter two anomalies as against the registration of a single moderately conducting horizon in A5/1.



Cape Sorell

STRAHAN

GORMANSTON  
QUEENSTOWN

MT. JUKES  
AMG  
382825mE  
5329856mN

MT. DARWIN

FRENCHMAN  
CAP

Lake St. Clair

DERWENT BRIDGE

Lake  
Echo

Macquarie Harbour

Franklin  
River

Highway

TARRALEAH

Tarraleah Highway  
Derwent  
River

BIRCH

Pt. Hibbs

Gordon  
River

Denison  
River

Florentine River

ROUSE

HAMILTON

Wanderer  
River

THIRKELL HILL

MT. OSMUND

Lewis  
River

A 5/1  
ADAMSFIELD

A 6/11

A 6/12

A 5/5

Lake Pedder

MT. ANNE

AMG  
458085mE  
5245164mN

A 12/2

ELLIOTT  
BAY

Huon River

AMG REFERENCE POINTS ADDED

59-286

LYELL - E.Z. - EXPLORATIONS

SOUTH WEST  
TASMANIA

Scale: 8 miles to inch

AIRBORNE GEOPHYSICS

1957-1958

Canso



Magnetic



Overlap



1958-1959

Canso



Anomalies Arthur Area  
Checked by: 

2335

Date: 14.7.59

5 cm

73, 86, 80

356006

WEST

EAST

SECTION LINE 4S

Ragged Range

2100 ft.

1900 ft.

1700 ft.

E.M. crossover

Owen Conglomerate

Carbine Group

N.B. Contact from photo interpretation

8W

4W

00

4E

8E

approx. True North

LYELL E2 EXPLORATIONS  
SUNBURY

**ANOMALY A5/1**

T.N.B. May '59

B.S. May '59

Hor.  
200 ft  
to  
1 inch  
Vert

**Q32** **1**

B.S. May '59

D.S. June '59

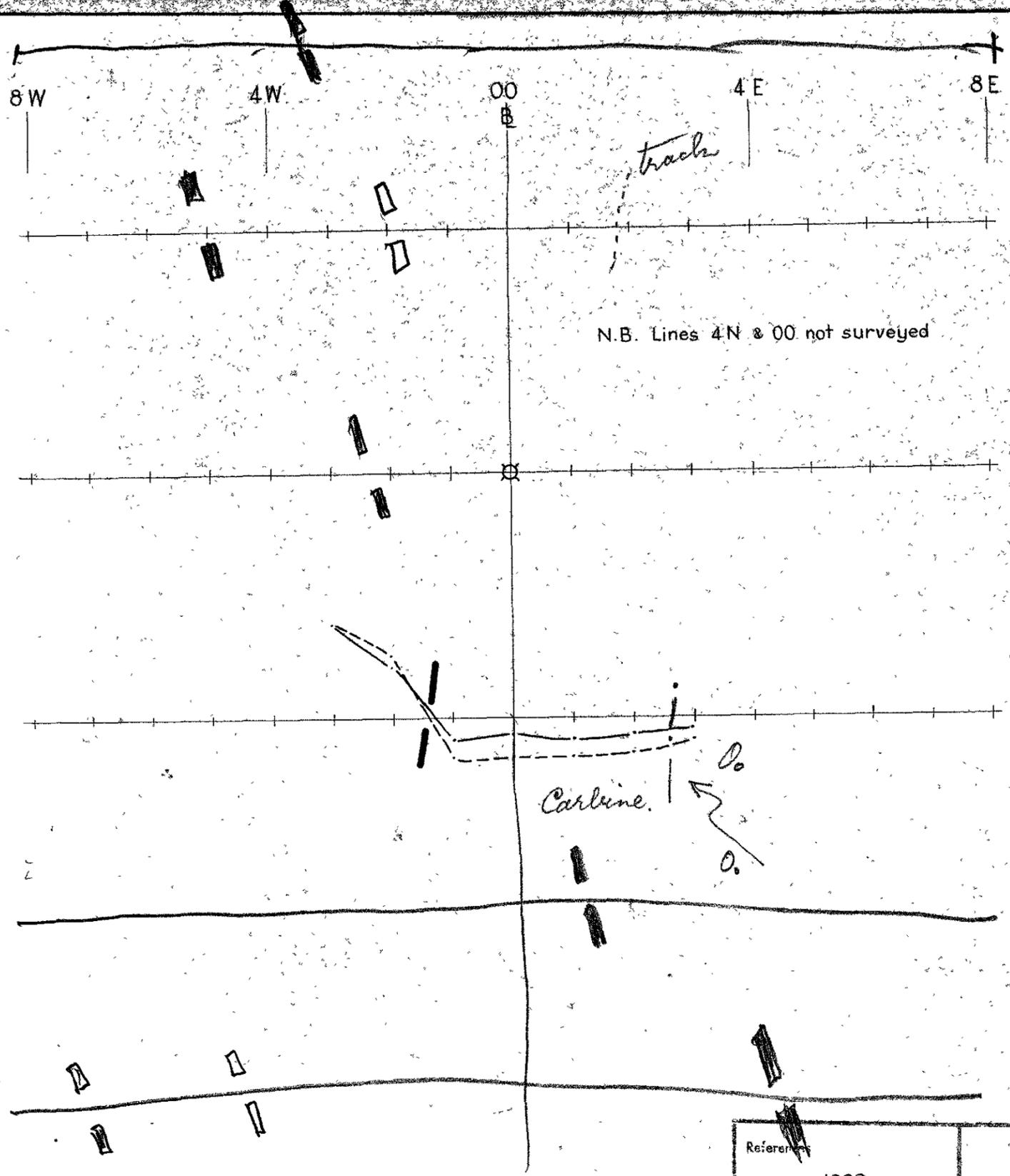
200ft.  
to  
1 inch

Barometric Levels (relative)

GEOLOGY

5 cm

356007



N.B. Lines 4N & 00 not surveyed

8N

4N

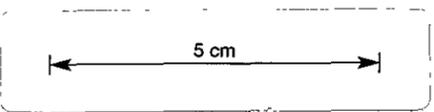
00

4S

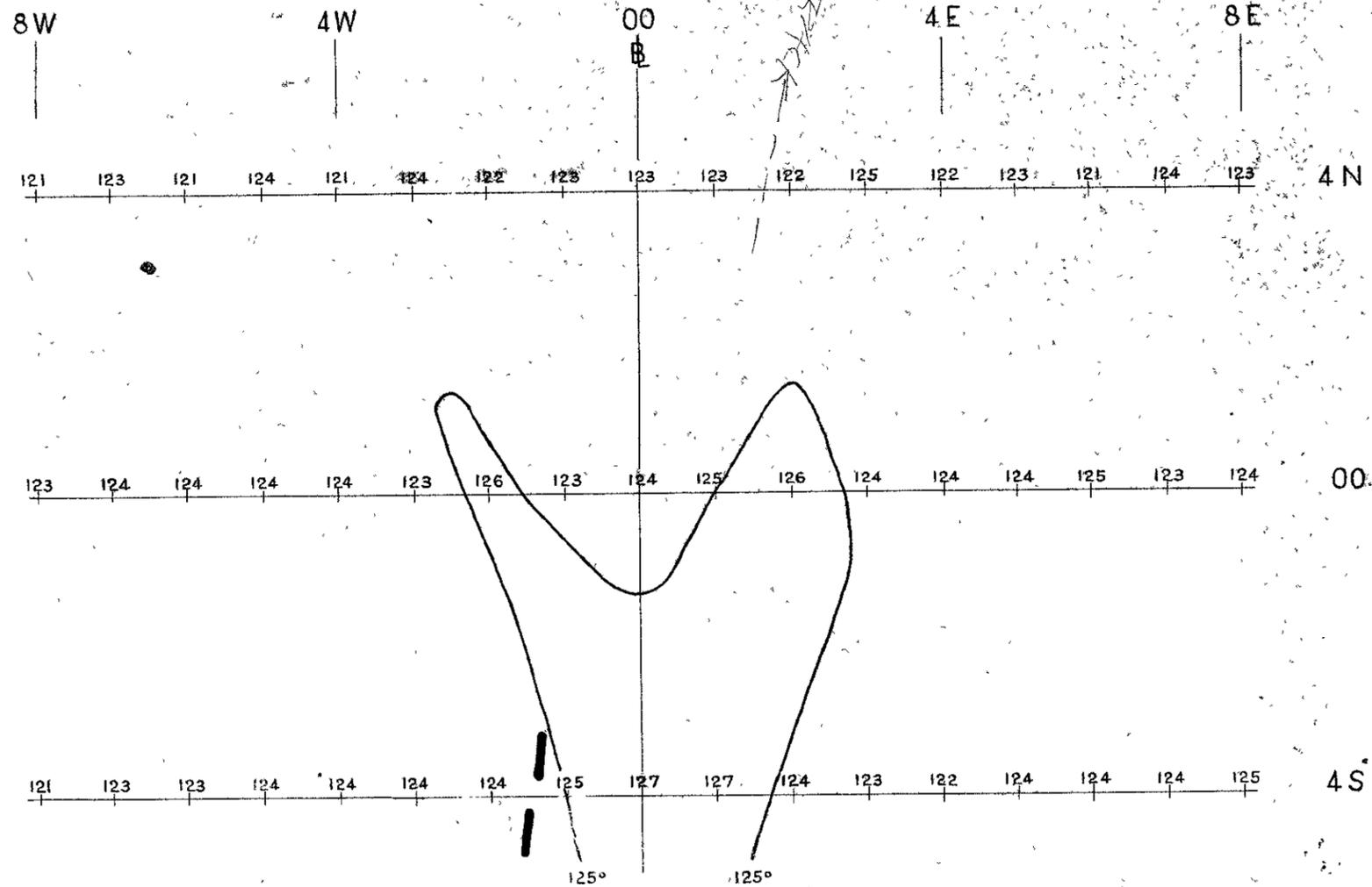
8S

12S

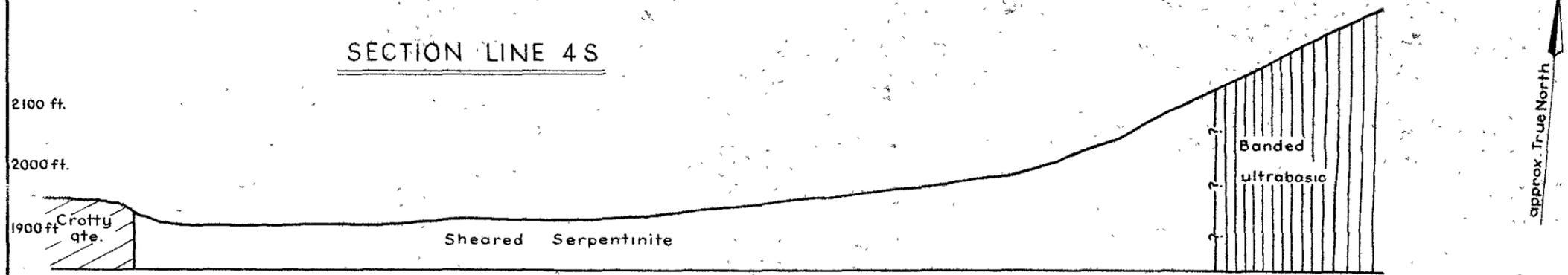
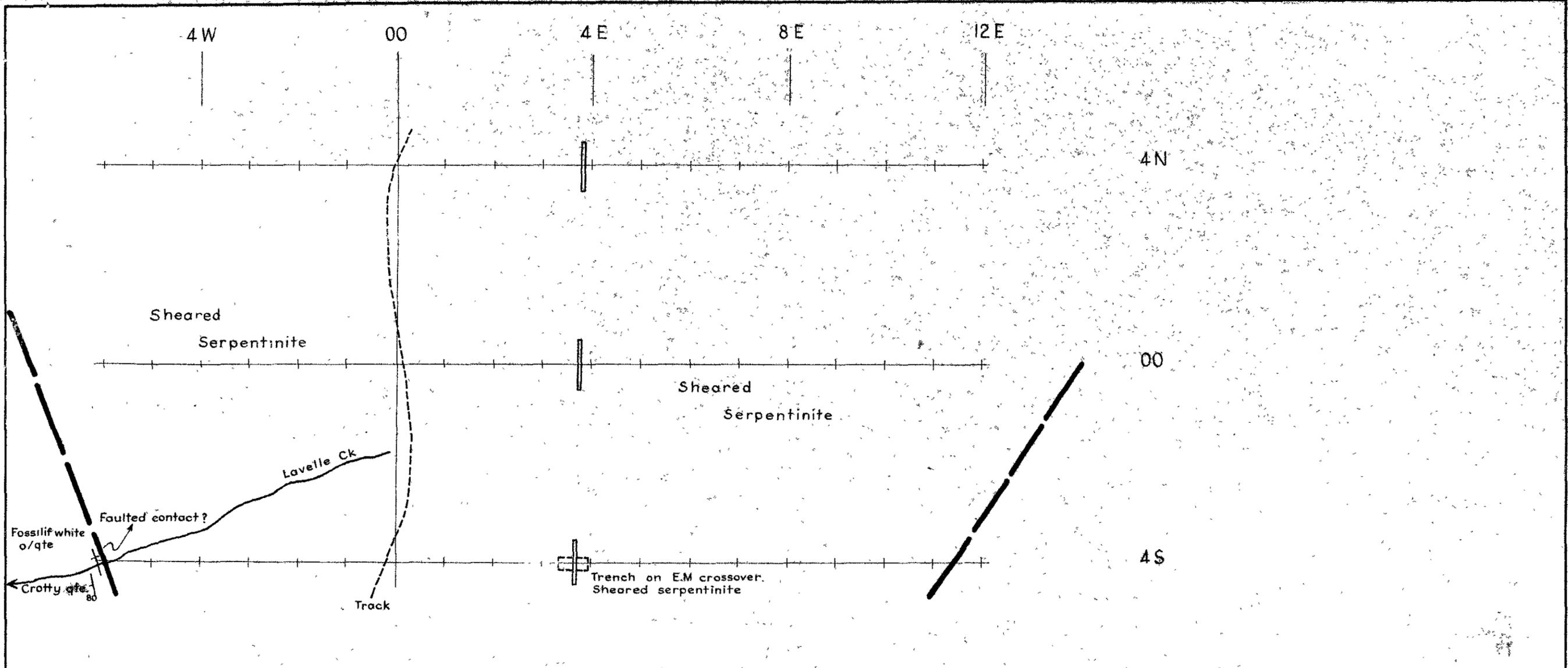
approx. True North



Reference		<p>1000 cps</p> <p>5000 cps</p>		<b>LYELL E.Z. EXPLORATIONS</b> QUEENSTOWN	
<h1>ANOMALY A5/1</h1>					
Survey				Hor. 200 ft. to 1 inch	Q32
Geology					
Geophysics	T.N.B.	May '59		Vert. 10° to 1 inch	II
Geochemistry					
D. Wm.	B.S.	May '59			
T. Fred	D.S.	June '59			
<b>R.E.M.</b>				356008	

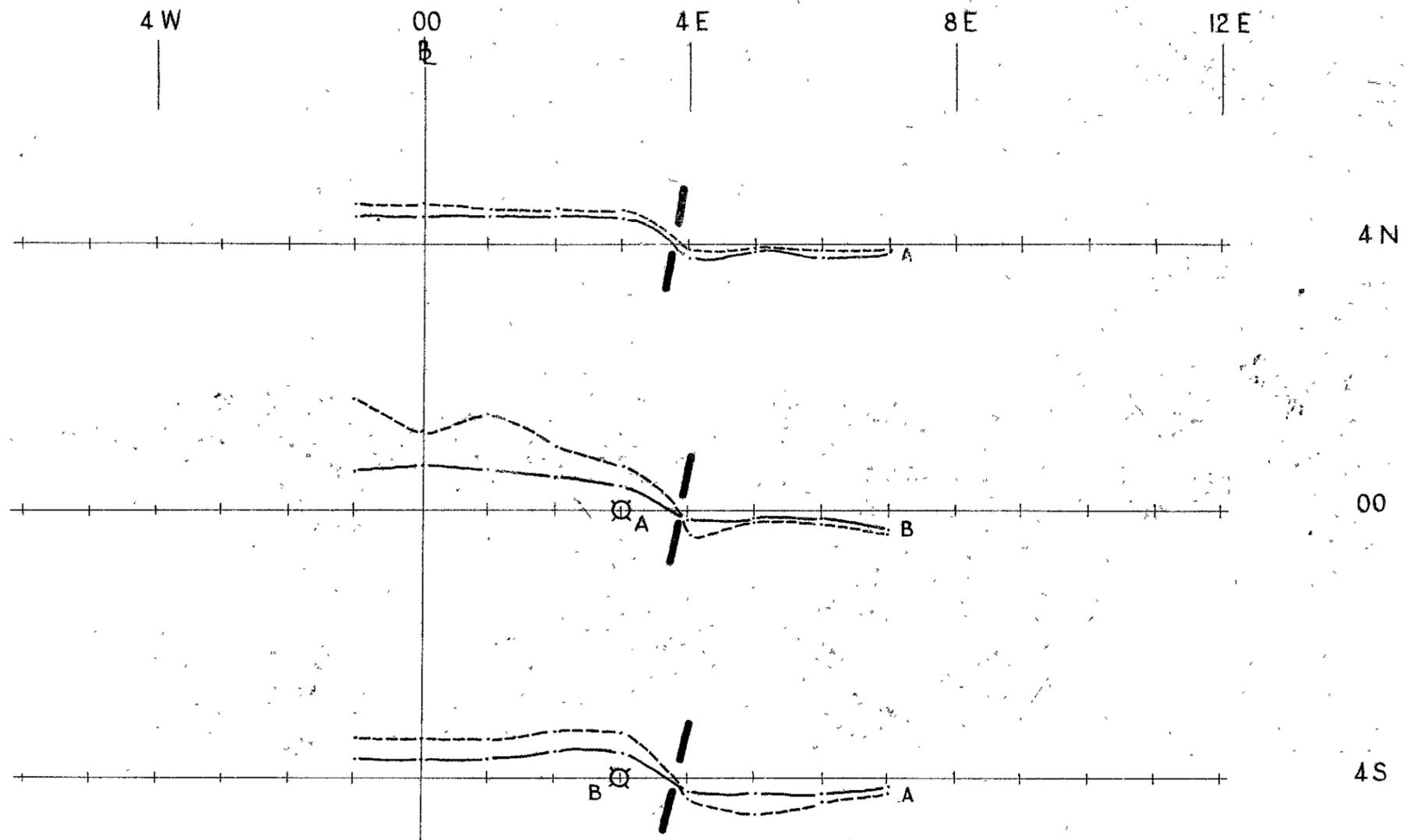


References		LYELL E.Z. EXPLORATIONS QUEENSTOWN		
C I. 10° of swing ≈ 46.6 γ		<b>ANOMALY A 5/1</b>		
Survey				
Geology				
Geophysics	T.N.B.	May '59	200 ft	<b>Q32 15</b>
Geodesy			to	
Drawn	B.S.	May '59	1 inch	
Checked	D.S.	June '59		
<b>DIP CIRCLE</b>		356009		



References		<b>LYELL E.Z. EXPLORATIONS</b>					
— E.M. axes		QUEENSTOWN					
— Fault		<b>ANOMALY A6/I</b>					
Barometric Levels (relative)		Survey		Scale			
<b>GEOLOGY</b>		Geology	B.S.	May '59	Hor. 200 ft. to 1 inch Vert.	<b>Q33</b>	Sheet No <b>I</b>
		Geophysics					
		Geochemistry					
		Drawn	B.S.	May '59	200 ft. to 1 inch	356010	
		Treed	D.S.	June '59			

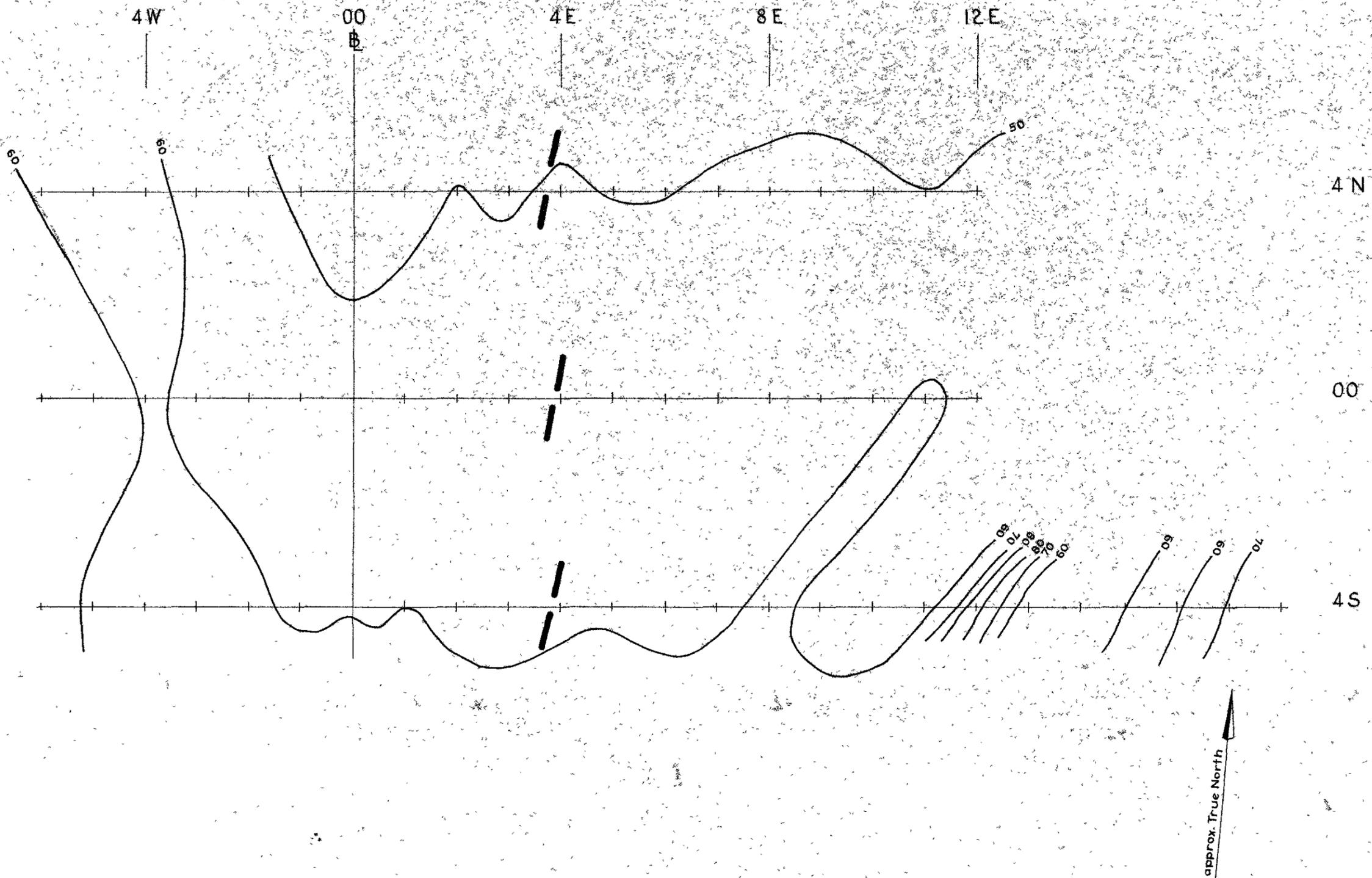
5 cm



approx True North

5 cm

References		<b>LYELL E.Z. EXPLORATIONS</b>			
— 1000 cps - - - 5000 cps		<b>QUEENSTOWN</b>			
<b>ANOMALY A6/I</b>					
Survey			Scale		
Geology			Hor. 200 ft. to 1 inch	<b>Q33</b>	Sheet
Geophysicist	T.N.B.	May '59			No.
Geophysicist			Vert. 10° to 1 inch	<b>356011</b>	
Drawn	B.S.	May '59			
Traced	D.S.	June '59			
<b>R.E.M.</b>					



References		LYELL E.Z. EXPLORATIONS		QUEENSTOWN	
C.I. 10° of swing ≈ 46.6 γ		<b>ANOMALY A6/1</b>			
Survey		Scale		200 ft to 1 inch	<b>Q33</b> Sheet No <b>15</b>
Geology					
Geophysics	T.N.B	May '59		356012	
Geochemistry					
Drawn	B.S.	May '59			
Traced	D.S.	June '59			

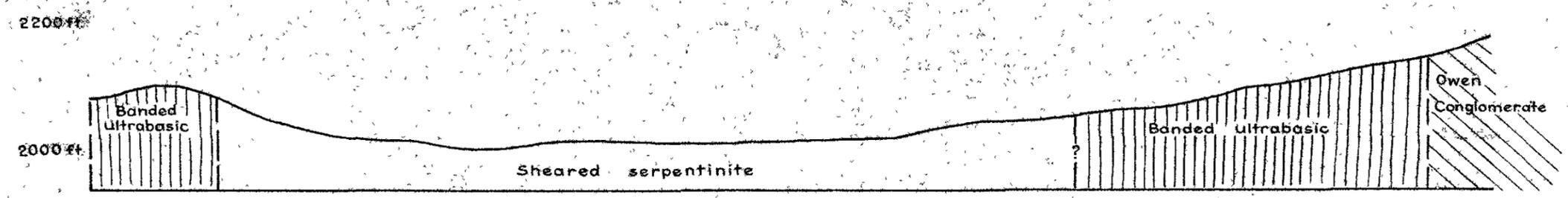
5 cm

DIP CIRCLE

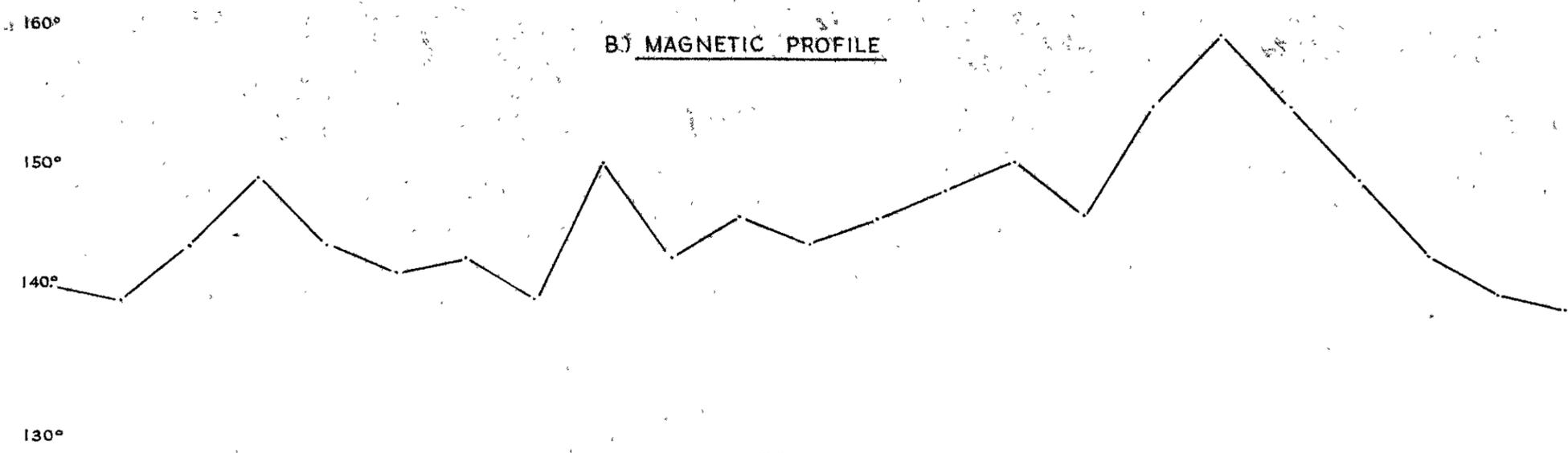
4 W      00      4 E      8 E      12 E      16 E      20 E

SECTION LINE 4 N

A.) GEOLOGY

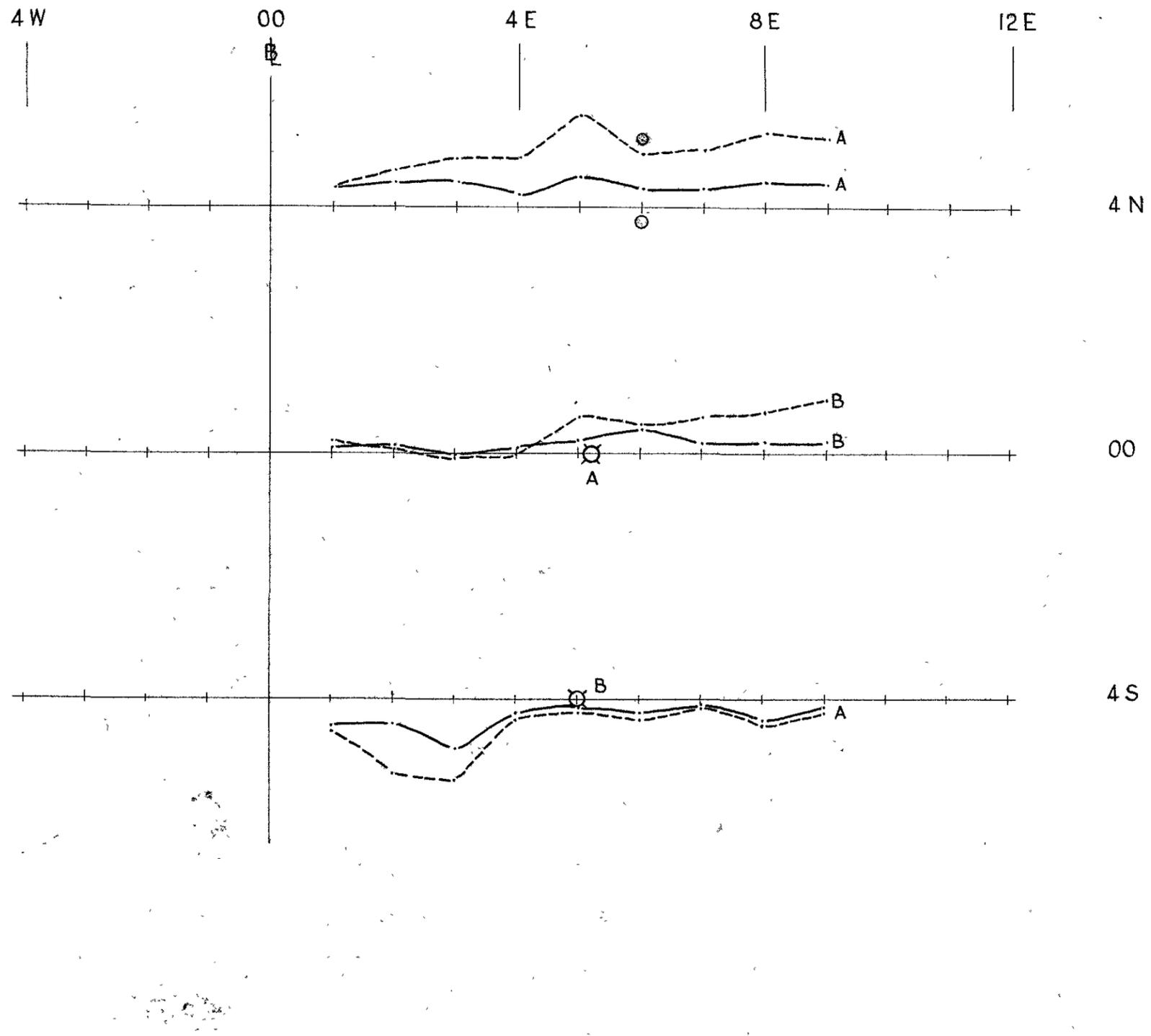


B.) MAGNETIC PROFILE



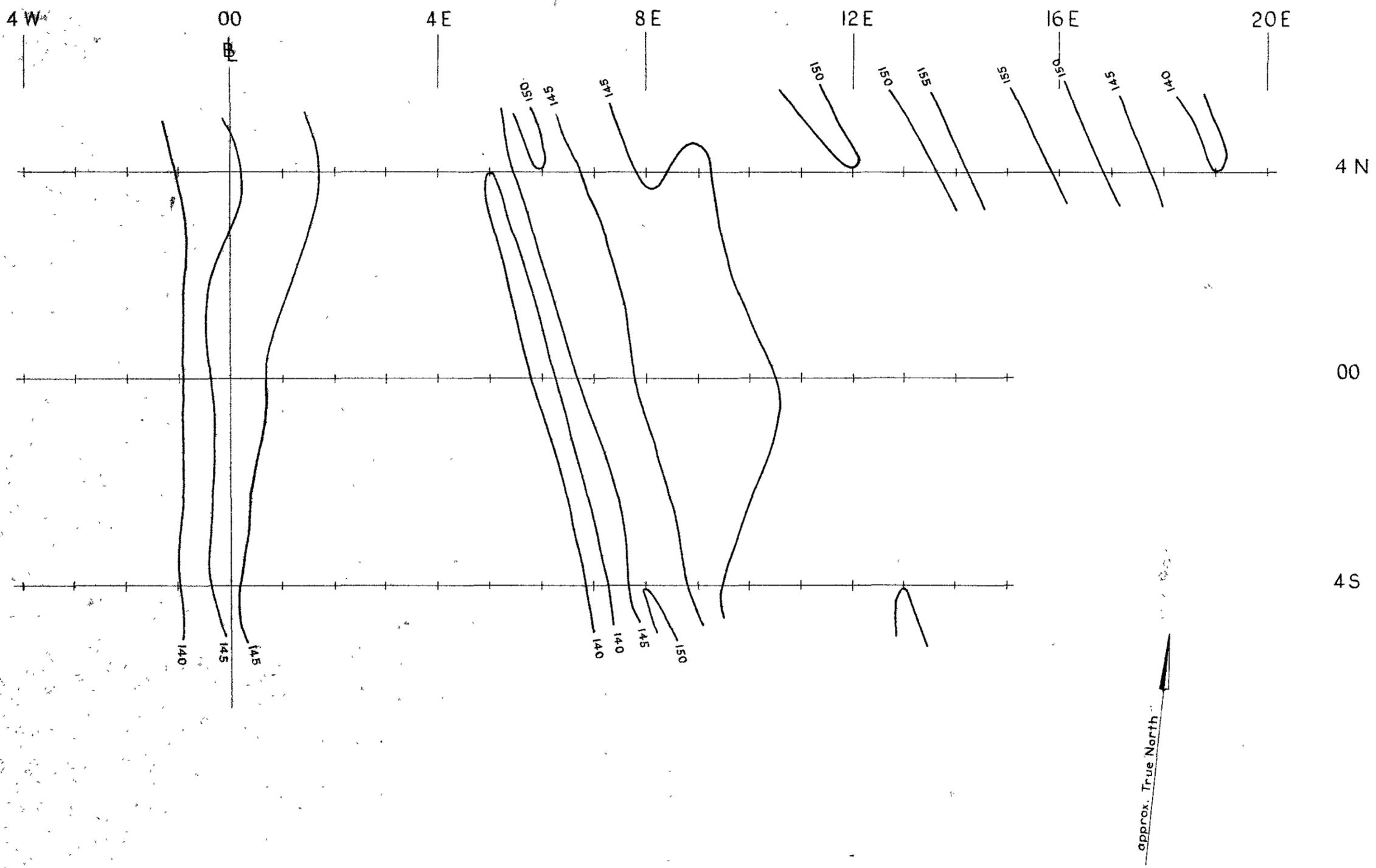
5 cm

References DIP CIRCLE Vert. 10° of swing to 1 inch Hor 200 ft to 1 inch	<b>LYELL E. Z. EXPLORATIONS</b> QUEENSTOWN			
	<b>ANOMALY A 6/2</b>			
Barometric Levels (relative)	Survey			Scale
	Geology	B.S.	May '59	Hor. 200 ft to 1 inch Vert. 200 ft. to 1 inch
Geophysics	B.S.	May '59		
GEOLOGY	Geochronology			Q 34
	Drawn	B.S.	May '59	
	Titled	D.S.	June '59	1
				356013



approx. True North

References:		<b>LYELL E.Z. EXPLORATIONS</b>				
		QUEENSTOWN				
		<b>ANOMALY A 6/2</b>				
—	1000 cps			Scale		
- - -	5000 cps			Hor. 200 ft to 1 inch		
				Vert. 10° to 1 inch		
R.E.M.		Survey		May '59	Q 34	Sheet No 11
		Geology				
		Geophysics	T.N.B.	May '59	356014	
		Geochemistry				
		Dawn	B.S.	May '59		
		Tweed	D.S.	June '59		



5 cm

References		<b>LYELL E.Z. EXPLORATIONS</b>			
C.I. 5° of swing ≈ 46.6 γ		QUEENSTOWN			
<b>ANOMALY A6/2</b>					
Survey		Size			
Geology		200 ft. to 1 inch	<b>Q 34</b>	Sheet	<b>15</b>
Geophysic	T.N.B.			May '59	
Geochemistry					
Drawn	B.S.		May '59		
Traced	D.S.	June '59			
<b>DIP CIRCLE</b>		<b>356015</b>			